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Expanding The Resource Stocks of Early-Stage Ventures

By

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Doctor of Philosophy

Management

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# Expanding The Resource Stocks of Early-Stage Ventures

by

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An abstract of
A dissertation submitted to the Faculty of the
James T. Laney School of Graduate Studies of Emory University
in partial fulfillment of the requirements for the degree of
Doctor of Philosophy
in Management
2017

Abstract

Expanding The Resource Stocks of Early-Stage Ventures
by Li-Wei Chen

Entrepreneur accelerators are emerging around the world to provide promising new ventures with critical training and mentorship, networking opportunities, and seed funding. However, we currently know little about how these accelerators influence the development of early-stage ventures. This dissertation explores the dynamic interplay between entrepreneur selection and development. The focus is on how the backgrounds of a founding team influence its probability of being selected into an accelerator program and the founding team's ability to benefit from the program regarding knowledge, network, and capital.

This dissertation argues that accelerators would favor teams with excellent backgrounds, but those credentialing factors are likely to lead to differential acceleration outcomes. I explore this issue using an expanding dataset from the Entrepreneurship Database Program at Emory University, which currently consists of 4,125 ventures that applied to more than 50 different accelerator programs between 2013 and 2015. The results indicate that accelerators favor teams with outstanding credentials. However, teams with outstanding credentials do not revise much their business ideas but attract the most of the financial capital after acceleration.

This dissertation further proposes a partial explanation for such difference from the entrepreneurs' perspective. Because of bounded rationality, entrepreneurs will prefer tangible resources than tacit ones. This tendency will be stronger when the founding team has a better background because of overconfidence. With analyses of the preference for the benefits provided at accelerator programs, this dissertation demonstrates that founding teams on average prefer capital the most and knowledge the least. Teams with better credentials are more likely to give this ranking that those from a modest background.

The findings of this study improve our understanding of business accelerators and the early-stage organizational development. It also provides practical insights for business accelerators, which are emerging to help entrepreneurs succeed.

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# 1

# Introduction

In the past decade, entrepreneurs have observed the rapid emergence of a new type of organizational form in the entrepreneurial ecosystem: the business accelerator. Different from existing entrepreneurial support institutions, such as incubators and angel investors, accelerators provide cohorts of entrepreneurs with mentorship, networking opportunities, and potential seed funding through an intensive program similar to a management boot camp. This model, started by Y Combinator in 2005, achieved impressive results and stimulated the accelerator hype in the following decade. Hochberg (2016) reports that the number of accelerators in the United States grows from one in 2005 to almost 180 in 2013, excluding those that do not meet the formal definition of accelerators developed by Cohen and Hochberg (2014).

The modern accelerator model is started by Y Combinator in the silicon valley in 2005. Since then, several world-class companies have graduated from Y Combinator, including Dropbox, Airbnb, Zenefits, and Reddit. These Y Combinator alumni raised more than $1.5 billion capital in 2014 alone, and the top 13 graduates have accrued over $50 billion in value (CBInsights.com, 2015). Young ventures rush into this new funding opportunity, expecting to be accelerated to the next development stage. Techstars, one of the top accelerators in the U.S., attracts thousands of applicants for a cohort of 20 ventures[*]. The fast growing population not only attracts the attention of entrepreneurs and investors but also stimulate the interests of almost all levels of the public sector. Start-Up Chile, one of the most famous government-backed accelerator program in Latin America, receives more than 1,000 applicants for its cohort and with has a portfolio valued in at least $1.35 billion in 2016[†].

Given thousands of entrepreneurs accelerators reach each year, the expanding geographic coverage, the value created by the participating ventures, and the amount of capital flowed into the population, the role of accelerators in the entrepreneurial ecosystem and the influence they exert on the development of nascent ventures are critical to practitioners and scholars in entrepreneurship. However, our understanding of accelerators does not keep pace with this fast growing population. The newness of this phenomenon and the lack of comparable data limit the scope of research in this domain. Little do we know yet, theoretically and empirically, about the many aspects and the effects of business accelerators. Scholars are not yet able to provide reliable empirical evidence to answer questions as fundamental as how accelerators evaluate applicants and how accelerators influence early-stage ventures.

[*] http://www.techstars.com/faq/
[†] http://www.startupchile.org

Several initiatives are therefore launched to study the accelerator phenomenon. In 2015, the US Small Business Administration announced a $4 million support for eighty accelerators in 39 states. Each program received $50,000 in cash in exchange for a commitment to track performance metrics such as jobs created and funds raised (Marich, 2015). In the same year, the Aspen Network of Development Entrepreneurs (ANDE) and Emory University launched a $2.3 million project, the Global Accelerator Learning Initiative (GALI), as a collaboration among members in the Global Entrepreneurship Research Network (GERN). Leveraging the data from the Entrepreneurship Database Program of GALI, this dissertation can systematically study a large group of accelerator programs. More specifically, this dissertation focuses on the role of the credentialing factors of the founding teams in 1) the acceptance into accelerators and in 2) the dynamic interplay between accepted entrepreneurs and accelerators.

### 1.0.1 Accelerator Selection

The business accelerator is a new resource provider for early-stage ventures in the entrepreneurial support ecosystem. The resources at accelerator programs are limited. For example, the availability of mentors, office space, and financial support are constrained by the design of the program. It is not possible for accelerators to admit all applicants into the program. Highly prestigious programs like Techstars could have an acceptance rate as low as five percent. However, facing a large pool of young ventures without trackable performance, how do accelerators evaluate the likelihood of success of the applicants?

Substantive empirical evidence suggests that resource providers, such as venture capitalists, favor startups established by founders with excellent credentials. Entrepreneurs

with prior successful founding experience, managerial expertise, high educational attainment are more likely to secure venture capital partnership (Beckman et al., 2007; Hsu, 2007), solicit confidence from investors (Hall and Hofer, 1993; Hsu, 2007; Shepherd, 1999), and mobilize resources (Becker Blease and Sohl, 2007; Brush et al., 2002; Fay and Williams, 1993; Langowitz and Minniti, 2007). If accelerators are like venture capitalists or angel investors that are interested in only the ultimate financial success of the invested ventures, they could adopt similar evaluation criteria when admitting entrepreneurs. However, the business accelerator claims that it is not merely investors but a partner that exists to help entrepreneurs beyond financial support.

On the one hand, accelerators live up to the idea that they support early-stage ventures beyond the financial capital. They help participants re-evaluate business opportunities, develop better business models, expand personal networks, and eventually attract more funding. Admitting only ventures at the top of the performance distribution may reduce the impact the accelerators attempt to achieve. On the other hand, accelerators have interests in cherry-picking promising "winners" to construct an attractive portfolio in front of investors and future applicants. In this sense, accelerators would serve as a pre-screening mechanism for investors by aggregating promising "winners" on the market in one place, reducing investors' search cost. Therefore, accelerators have incentives to admit ventures that are the most promising to investors rather than those that could benefit the most from the acceleration experience.

This paradox results from the unique position of accelerators in the entrepreneurial process, a mediator between entrepreneurs and investors. Because of the sparseness of comparable data, we do not know yet how accelerators react to this paradox. Hence, this dissertation is set to provide systematic insights on what factors accelerators select on,

team credentials in particular, and the subsequent organizational outcomes by utilizing a dataset that integrates applicant information from multiple accelerators.

### 1.0.2 Team Credentials and the Acceleration Outcomes

There are also concerns that excellent credentials may not benefit the most from the acceleration experience. First of all, if ventures established by prestigious founders will be of great quality, they are more likely to succeed in the market. However, at the same time, they need less help from the accelerators. Furthermore, excellent credentials could lead to cognitive rigidity in entrepreneurs (Hayward et al., 2006) and make them less cooperative with resource providers (Barney et al., 1996).

In this dissertation, I firstly look at whether credentials associate with differences in the extent of revising business ideas and network expansion. Then, I examine the association between founding team credentials and the financial outcomes after acceleration. My findings suggest that admitted teams with better credentials revise their business idea to a lesser extent than those with less "promising" credentials. I do not find this association in the expansion of the network. Eventually, teams with better credentials attract more financial capital.

I offer a potential mechanism, called selective attention, to explain the associations between credentials and acceleration outcomes. When offered a pool of resources, the entrepreneur does not know which resources are the most critical to the venture. The entrepreneurial process is full of uncertainty and makes it difficult to evaluate the value of various resources. Because the entrepreneur has the discretion in utilizing the obtained resources, the judgment may be subject to experiences and education, often the credentialing factors. The room for subjective judgment will be larger if the value of the resource

is more tacit, such as advice.

Hayward, Shepherd, and Griffin (Hayward et al., 2006) propose a theory of entrepreneurial hubris. They argue that when the complexity of an environment is high, an overconfident entrepreneur is likely to underestimate the initial resource endowments that the venture needs, overestimate his/her ability to acquire extra resources, and overcommit the resources to the original business ideas, thus increasing the likelihood of failure. Founding teams with excellent credentials may be more overconfident than those with good but not prestigious ones. Therefore, we should observe that credentials have a stronger effect in advice taking, which relates to tacit knowledge, than in expanding social network. I further verify this argument by examining the ranking of the expected benefits from the program to which entrepreneurs applied.

### 1.0.3 The Entrepreneurship Database Program

Although accelerators gain tremendous momentum in growth globally, research on accelerators is not able to keep path with the fast expansion. Largely due to data availability, research on the accelerator phenomenon is primarily conceptual or relies on case studies of a few selected accelerators, typically the most prominent programs such as Y Combinator and Techstars (Cohen and Hochberg, 2014; Kim and Wagman, 2014; Radojevich-Kelly and Hoffman, 2012). These early studies on accelerators focus on the impact on the main entrepreneurial outcomes, such as survival, the time to obtain VC funding, or time to IPO. Scholars attempt to overcome the data challenge by matching ventures that participate in accelerators with those that are similar in organizational characteristics but fail to take part in accelerator programs (Hallen et al., 2014; Smith and Hannigan, 2015). The lack of information on ventures that are rejected by accelerators still raises concern

on whether a matched sample constructed from the general population resolves the selection bias. Also, it makes difficult, if not impossible, to study how business accelerators construct cohorts without the information of both accepted and rejected ventures. More fundamentally, we are still not able to answer questions as basic as "how do accelerators select."

To overcome this data challenge, the *Entrepreneurship Database Program* at Social `Enterpreise@Goizueta` develops a longitudinal database that collects venture-level and founder-level information from early-stage ventures that apply to more than 50 business accelerator programs, including both accepted and rejected ventures, since 2013. This dataset allows me to examine two research questions about accelerators. First, how do accelerators select? More specifically, I focus on the credentialing factors of the founding team in the selection process. Namely, do accelerator programs select on team credentials? Second, if accelerators select on team credentials, do these credentialing factors cause different acceleration outcomes? Are selected entrepreneurs differentially able to revise business ideas and to expand networks as a function of team credentials?

### 1.0.4 Overview of Dissertation

This dissertation attempts to understand what factors accelerators select on, team credentials in particular. Then, I examine whether team credentials associates with a differential development of business ideas and social networks of participating ventures and the financial outcomes after acceleration. Finally, I develop and empirically test the selective acceptance thesis by examining the preference for resources from the accelerator programs at the time of application.

The dissertation is organized as follows. Chapter 2 introduces the business accelera-

tor, including its origin and the most current development. Chapter 2 also includes an overview of the literature on accelerators. I pay attention to the unique position of the business accelerator in the entrepreneurial process, highlighting the dilemma accelerators will face when offering their programs.

Chapter 3 offers the theoretical arguments for accelerator selection and acceleration outcomes. Because accelerators have an incentive to construct a portfolio favored by investors, they are likely to select founding teams with criteria similar to investors, such as founders' backgrounds. I also provide arguments that team credentials may be negatively associated with the extent of change in business ideas and networks among participating teams because of the potential ceiling effect or overconfidence. I call this differential in revising ideas or networks as "selective attention." I base my argument of selective attention on organization theories on founding conditions and the hubris theory of entrepreneurship (Hayward et al., 2006). I argue that entrepreneurs inevitably pay differential attentions to knowledge, network, and capital because of the ambiguity and uncertainty surround the new ventures. They will prefer resources with tangible benefits than tacit resources. The entrepreneurs' background will further strengthen this tendency because of overconfidence.

Chapter 4 introduces the Entrepreneurship Database Program at Emory University and the dataset of 4,125 early stage ventures that applied to accelerator programs between 2013 and 2015. This dataset allows me to construct a systematical observation on the selection criteria from multiple accelerator programs. Moreover, because this dataset includes both participants and those who applied but got rejected, I can compare the post acceleration behaviors in revising business ideas and expanding networks between participants and non-participants. The construction of data and variables and descriptive

statistics are also presented in this chapter.

Chapter 5 includes the two major studies. Study 1 analyzes the selection outcomes of accelerator programs with a particular focus on founding team credentials. I use the logistic regression model to construct the selection function. Study 2 examines the dynamic interplay between founding team credentials and acceleration outcomes. This section contains three sub-studies — knowledge, network, and capital. I use the negative binomial model to evaluate the extent of change in business ideas and networks and the linear model to evaluate the venture's performance in obtaining additional funding after acceleration.

Chapter 6 contains the third major study of this dissertation. Study 3 provides an empirical examination of the relationship between founding team credentials and their preference for resources. The ranked order model is employed to study whether founding team credentials are associated with the entrepreneurs' preference for various resources offered by the accelerator program.

Chapter 7 consolidates the findings and discuss the implications. A discussion of the contribution and limitations of this study is also included.

# 2

# Background

### 2.0.1 Introduction to Business Accelerators

In the past, early stage ventures seek resources from a range of entrepreneurial support institutions according to their developmental needs. Nascent ventures could be nurtured at business incubators, often operated by universities, nonprofit organizations, or governments. Young ventures could also approach to venture capitalists or private investors for significant growth capital. Besides these traditional resource providers, a new hybrid entrepreneurial support institution, the business accelerator, emerges in the early 2000s. It focuses on training and networking like business incubators while it offers funding opportunities like venture capitalists.

The modern model of business accelerators is established by Y Combinator, the first business accelerator in the United States. Paul Graham founded Y Combinator in Cambridge, Massachusetts in 2005 with Jessica Livingston, Trevor Blackwell, and Robert Tappan Morris (Graham, 2012). Paul started Y Combinator with the idea that investors should have made more smaller investments to support early stage ventures and young entrepreneurs. In the first few years, Y Combinator hosted two programs, one in Cambridge, Massachusetts, and one in Mountain View, California, providing early stage ventures with seed capital, mentorship, and connections to eminent entrepreneurs. The participating startups, called "alumni," exchange 7% of their equity for these services. One year after Y Combinator started, Techstars was founded in Boulder, Colorado by David Cohen, Brad Feld, David Brown, and Jared Polis. It offers programs with a similar structure as those from Y Combinator, except that Techstars asks for 6% of the equity rather than 7%.

A few characteristics distinguish this modern model from the current entrepreneurial supports. First, they focus on early stage ventures that exist on the market for one or two years. Most of these companies are beyond the idea generation stage but are not yet ready for pitching to venture capitalists, often called "pre-seed-stage" companies (Shane, 2015). Venture capitalists do not have the capacity to evaluate companies seriously. However, it is certainly possible that some future unicorn enterprises need help at this stage. The modern business accelerator model fills this gap in the entrepreneurial eco-system.

Second, the accelerators offer programs like boot camps of management with a length of two to three months on average. Ventures compete for limited spots in these programs through an application process similar to college applications. Once they are admitted into the program, accelerators offer them office space, mentorship, and networking op-

portunities. At the end of the program, there is a climax event called the "Demo Day." The participating entrepreneurs will pitch their businesses on stage to a group of investors and the public. This event creates the ultimate opportunity for them to obtain critical funding for the next development stage.

Finally, the program is typically structured as cohort-based. Ventures accepted into a program form a cohort, and the entrepreneurs go through the intensive training together. The cohort experience creates a strong bond among entrepreneurs. Besides, entrepreneurs are likely to benefit from the feedbacks of their peers. Eventually, the accelerator creates a network of entrepreneurs in the community.

Some of these features are not new in the entrepreneurship eco-system. Venture capitalists and angel investors have been the primary source for a variety of resources, primarily financial capital, for entrepreneurs. However, venture capitalists typically overlook ventures at this stage because the number of companies is enormous and the quality of these ventures is hard to assess.

On the contrary, business incubators work with entrepreneurs without even a valid business ideas yet. Business incubators offer nascent entrepreneurs office space, equipment, limited mentorship, and sometimes networking events. The incubators do not take part in the idea generation process with the entrepreneurs (Isabelle, 2013). The primary income stream of incubators is from renting the office space (Peters et al., 2004). Therefore, while nascent entrepreneurs enjoy some of the benefits similar to those in the accelerators, they do not get as much attention from the program and the peers.

In a nutshell, the business accelerators fill in the gap between business incubators and venture capitalists in the entrepreneurial ecosystem. As in the incubators, entrepreneurs participating in accelerator programs have the chance to improve their business ideas,

models, and skills with the help of senior investors and cohort members. They have opportunities to develop networks with investors and like-minded entrepreneurs. At the Demo Day, entrepreneurs present their businesses to a group of investors at one time. Entrepreneurs could improve their reputation and entrepreneurial network once they become alumni of a renowned program. Moreover, the programs are short, so the entrepreneurs are forced to move fast. Therefore, the startup process is "accelerated."

The modern accelerator model gains public attention because of several successful alumni from the early cohorts. By 2015, 13 startups graduated from Y Combinator achieved an accumulated market valuation up to nine hundred million US dollars, including AirBnB, Dropbox, Benefits, Reddit, and Weebly (CBInsights.com, 2015). Companies in the portfolio of Techstars have raised 2.75 billion US dollars by the end of 2016, including Sphero, Digital Ocean, and Uber[*]. Since Y Combinator started, the number of accelerators grows from 1 in 2005 to more than 180 around the world in 2016 in Seed-DB.com, a dedicated website that aggregates consistent information of seed accelerators.

In his article "Why the number of accelerators is accelerating," Scott Shane (2015) argues that the tremendous growth in the number of accelerators results from that the modern accelerator model resolves the long lasting problems faced by traditional angel investors and venture capitalists in financing very-early-stage ventures. Traditional investors are structured to invest a few million dollars on a single deal rather than to evaluate and finance hundreds of pre-seed-stage companies. The modern accelerator model is an innovation in the entrepreneurial financing market. However, while the initial success is promising, we do not know much about this innovation. Do the acceleration effect we have observed comes from accelerators?

[*] http://www.techstars.com/companies/

### 2.0.2 Existing Studies on Accelerators

Few studies exist to offer systematic exploration and theoretic explanation of accelerators. The existing studies are primarily conceptual or rely on case studies of a few selected accelerators, typically the most prominent programs such as Y Combinator and Techstars (Cohen and Hochberg, 2014; Kim and Wagman, 2014; Radojevich-Kelly and Hoffman, 2012), because of the novelty of this phenomenon and poor data availability. Cohen and Hochberg (2014) are the first to offer a formal definition of the business accelerator. They define it as a fixed-term cohort-based program that offers mentorship, networking opportunities, and optional seed fundings[†], concluding with a public investor-pitching event, often referred as a "Demo Day." In return, accelerators may take a stake of the equity of the participating ventures. Under this definition, the number of accelerators in the United States grows from less than ten in 2005 to more than 160 in 2013 (Hochberg, 2016).

Several studies are conducted to understand the accelerator model and to examine whether business accelerators have an impact on the participating ventures. Studying the top five business accelerators in the US, Radojevich-Kelly and Hoffman (2012) find that mentorship improves the rate of receiving subsequent funding of the graduates from the five business programs. Hallen, Bingham, and Cohen (2014) approach this question by matching accelerator participants with ventures that are similar in the major organizational characteristics but do not participate. They observe that only the alumni from the top two accelerators in their sample raise capital faster than the matched ventures. However, they suggest that accelerators do not simply pick the best ventures into their portfolio. They argue that accelerators still provide benefits different from that of founders' formal education and prior experience because they do not find a negative interaction be-

[†] Hochberg (2016) reports that the amount of seed funding is $26,000 on average.

tween founders' credentials and accelerator participation. Furthermore, Smith and Hannigan (2015) find that while accelerator alumni take less time to receive their first round investment from venture capitalists, they are also more likely to exit via acquisition and exit faster than angel-backed ventures.

The empirical studies of the accelerators do not suggest a consistent accelerator effect on the performance of participating ventures. The mixed findings may result from the unique position of the business accelerator in the entrepreneurial support ecosystem. Arguing that accelerators take the role of certifying the value of portfolio ventures to investors, Kim and Wagman's (2014) formal model sheds light on this issue. Their model shows that the accelerator has incentives to provide naive entrepreneurs with a value that is lower than what they expected to obtain and selectively reveal the quality of the ventures in its portfolio to the investors. Also, they suggest that accelerators may pursue some less promising ventures because they can exit their investment early. In other words, business accelerators, similar to the role of a broker, face the demands from both entrepreneurs and investors, thereby having some freedom to manipulate the expectation of both parties.

The value of accelerators roots at its unique position between entrepreneurs and investors. From the entrepreneurs' perspective, business accelerators help early-stage ventures overcome liabilities of newness (Stinchcombe, 1965) by providing them with a combination of precious resources that each was costly to obtain. From the investors' perspective, business accelerators serve as a deal sorter and aggregator (Hochberg, 2016).

The latter function is believed to be the way in which business accelerators "accelerate" the early stage ventures. With a competitive application process, business accelerators aggregate a handful of promising high-potential ventures into one place and prepare

them for the public pitching event, reducing investors' search cost and sorting cost. In other words, business accelerators create an extra layer between entrepreneurs and VC investors. They screen among applicants to identify promising ventures before they pitch to the investors individually. At the same time, they help the selected ventures refine their business models and expand their networks.

As business accelerators act as the intermediary between entrepreneurs and investors, this dual front-facing position could lead to a conflict in accelerator's selection process. On the one hand, if the primary focus of an accelerator is to improve the quality of selected ventures, the entrepreneurs' willingness to cooperate with the mentors at the programs should be one of the primary selection criteria. The participating ventures should be promising but need not be the most promising ones. On the other hand, if the focus is to serve as a pre-screening mechanism for VC investors, it does not matter much whether entrepreneurs cooperate with the accelerators but whether their business models are the most promising. This potential conflict motivates this study on what characteristics business accelerators select on and the consequence of such selection on the development of participating ventures.

However, the lack of systematically collected data of accelerators and early stage ventures prevents researchers from developing consistent empirical findings. Scholars attempt to overcome the data challenge by matching ventures that participate in accelerators with companies with similar organizational characteristics but not associated with accelerators (Hallen et al., 2014; Smith and Hannigan, 2015). The lack of information on ventures that are rejected by accelerators still raises concern on whether a matched sample constructed from the general population resolves the selection bias. Besides, it makes difficult, if not impossible, to study how business accelerators construct cohorts without

the information of both accepted and rejected ventures.

To overcome this data challenge, the *Entrepreneurship Database Program* at Emory University develops a longitudinal database that collects venture-level and founder-level information from early-stage ventures that apply to more than 50 business accelerator programs since 2013, including both accepted and rejected ventures. This dataset allows me to examine the research questions in this paper. First, do accelerator programs select on funding team backgrounds, which act as credentialing factors? Second, are selected entrepreneurs differentially able to revise business ideas as a function of team credentials? In the next chapter, I present my hypotheses on how funding team backgrounds associated with the selection and acceleration outcomes. Furthermore, I lay out my argument of selective attention to partially explain why we would observe the association between acceleration outcomes and funding team backgrounds.

# 3

# Selection, Acceleration, and Selective Attention

In this chapter, I will develop the theoretical arguments for the association between the selection and acceleration outcomes and founding team backgrounds. Since founding team background characteristics act like credentialing factors that grant new ventures the permission to participate in accelerator programs, this dissertation will refer them as founding team credentials.

Founding team credentials could inspire confidence in accelerators; therefore, teams with better credentials are likely to have a better chance to participate in the programs. However, founding team credentials may also lead to different acceleration outcomes in knowledge, network, and capital of the ventures. There could be several reasons that we would observe such differential acceleration outcomes along with team credentials. In

this dissertation, I propose a partial explanation, called as “selective attention.” I argue that teams with better credentials are likely to be more confident in their ability and resources on hands, such as knowledge and network. As a result, they tend to pay more attention to resources with more tangible benefits, such as network and capital, resulting in the differential acceleration outcomes. I will then present a series of hypotheses that explore the effect of credentialing factors on the selective attention, including educational attainment, prior job rank, prior entrepreneurial experience, and gender.

Finally, I will point out the conflicting role of founding team credentials in the selection process and acceleration outcomes. Accelerators favor teams with better credentials. Nevertheless, these teams may not benefit the most from the acceleration experience partly because of selective attention. Moreover, because investors are likely to base their evaluation on team credentials, these teams are likely to get the most of the external funding eventually. Therefore, the positive outcomes we have observed from the accelerators are likely due to selection, rather than from acceleration.

### 3.0.1 Do Accelerators Select on Team Credentials?

What characteristics of an applicant are weighted most in accelerator program admission? Spence (1973) argues in his seminal paper on job market signaling that a college degree serves as a signal of the underlying quality of a job applicant when the actual quality is hard to observe. Young ventures typically lack credible performance records. When entrepreneurs approach resource providers, such as angel investors or VCs, resource providers need to find information from limited observable characteristics to infer the underlying quality of the resource-seeking ventures. Research on resource mobilization of young ventures suggests that founding team credentials matter when resource providers

make the decision of resource allocation. Entrepreneurs with prior successful founding experience, managerial expertise, high educational attainment are more likely to secure venture capital partnership (Beckman et al., 2007; Hsu, 2007), solicit confidence from investors (Hall and Hofer, 1993; Hsu, 2007; Shepherd, 1999), and mobilize resources (Becker Blease and Sohl, 2007; Brush et al., 2002; Fay and Williams, 1993; Langowitz and Minniti, 2007).

Since the cohort size is limited, business accelerators need to devise effective selection criteria to identify "promising" ventures. Hence, the credentialing factors of the founding team, including prior job rank, educational attainment, prior founding experience, are likely to be critical in the selection process.

*Hypothesis 1: Founding teams with better credentials are more likely to be accepted into a business accelerator program.*

### 3.0.2 The Moderating Effect of Team Credentials on Acceleration

Business accelerators favor founding teams with outstanding credentials because it could be one of the signals of the underlying quality of the venture. However, I suggest that these star entrepreneurs may not be as cooperative with the programs as those with good but not so outstanding credentials, reducing the influence on the participating ventures that the accelerators would want to exert. First of all, if the signal is consistent with the unobserved true quality, ventures established by prestigious founders will be of great quality. They are more likely to succeed in the market; but, at the same time, they need less help from the accelerators, such as mentorship and networking. While accelerators emphasize the benefit and importance of mentorship and networking to the participating ventures, entrepreneurs with top credentials may not appreciate it as much as those

with less prominent credentials. As a result, these entrepreneurs may revise their business ideas to a lesser extent. They may also be less willing to spend time extending their network.

Furthermore, excellent credentials could lead to cognitive rigidity in entrepreneurs, making them less willing to take advice or over-confident in the readiness of original business ideas and network. Proposing a hubris theory of entrepreneurship, Hayward, Shepherd, and Griffin (2006) suggest that excellent credentials could induce overconfidence in the entrepreneurs. The overconfident entrepreneurs are more likely to overly commit to original business plans because they overestimate their abilities or underestimate the risk associated with their plans. For instance, Barney *et al.* (1996) observe that senior founding teams appreciate and follow less the advice from their venture capital partners. Examining the effect of overconfidence on learning, Dunlosky and Rawson (2012) find that college students who believed that they performed well in the prior test prepared less for the next test, resulting in underachievement. Surveying 2,000 Canadian pension plan members, Bhandari and Deaves (2006) find that more educated members held a stronger belief in the accuracy of their investment decision with their pension fund. Bhandari and Deaves suggest that "those with formal education do *not* know more about investments, but they think they do." Therefore, participating ventures with outstanding credentials are likely not to take advice from mentors at the accelerators, resulting in a lesser extent of change in their business plans or models. Similarly, they may extend their network less than those without excellent credentials.

These mechanisms lead to a potential unintended consequence. Ventures selected through a competitive application process by accelerators may be either too good to improve or overconfident in their existing resources, such as the feasibility of business ideas

and the social networks; therefore, they demonstrate less change in the business model and existing networks. In other words, the credentialing factors of founding teams that are appreciated in the selection process could negatively moderate the effect of participation in accelerator programs. Hence, I propose the following hypotheses:

*Hypothesis 2-1: Founding team credentials will negatively moderate the effect of acceleration experience on the extent of changes in business ideas.*

*Hypothesis 2-2: Founding team credentials will negatively moderate the effect of acceleration experience on the extent of changes in networks.*

### 3.0.3 Team Credentials and Selective Attention

I have argued that team credentials may negatively moderate the effect of acceleration experience on tacit resources like knowledge and network. I further argue that this negative association would not exist for financial capital. I call this differential effect as selective attention. In this section, I will provide a partial explanation based on overconfidence. I propose that founding teams with outstanding backgrounds, namely better credentials, are likely to subject to the influence of overconfidence; therefore, they will pay less attention to tacit resources such as advice and networking opportunities than financial capital.

My selective attention argument begins with that founders suffer from bounded rationality (Simon, 1945) so they are not able to pay equal attention to all resources they could obtain to help their young ventures. Founders bring knowledge (human capital), networks (social capital), and capital (financial capital) into new ventures. This initial endowment of young firms subsequently affects the survival chance of new ventures (Bruderl and Schussler, 1990; Shane and Stuart, 2002). The resource of knowledge includes

business ideas (Freeman, 1986; Shane, 2000), business acumen and skills (Bruderl et al., 1992; Chatterji, 2009; Phillips, 2002), and technological expertise and patents (Stuart et al., 1999; Teece, 1986). Networks refer to all the connections between the focal venture and other stakeholders, including individuals (Shane and Cable, 2002; Davidsson and Honig, 2003) and organizations (Roberts and Sterling, 2012; Stuart, 2000; Stuart and Sorenson, 2005). Capital is the start-up and growth financial capital (Cooper et al., 1994; Evans and Jovanovic, 1989) that an entrepreneur brings into the young venture from personal savings or close personal ties, like friends and family (Bruderl et al., 1992).

Notwithstanding the initial endowments, most young firms will experience resource gaps as they experiment and grow (Penrose, 1959). For instance, fledgling ventures often suffer from funding shortfalls to cover operations or growth (Fichman and Levinthal, 1991; Martens et al., 2007). The financial shortage is not the only resource gap the founder will encounter at the early stage of a venture. Gaps in knowledge, such as unclear business ideas, ill-designed business models, or lack of managerial skills, could hinder organizational growth and lead to failure. Young firms may also experience gaps in networks. For example, Stinchcombe (1965) argues that young firms suffer from liability of newness partly because they lack connections to critical external stakeholders, such as suppliers and customers. It is the founders' responsibility to close these resources gaps (Villanueva et al., 2012).

When entrepreneurs attempt to obtain additional resources, they may or may not know which resources to pursue. In an ideal world, the entrepreneurs know what resources to acquire. They would identify and pursue resource providers with the specific resources. One common example is that the founding team recognizes that their young venture is short of financial capital. The founders may simply go to a bank and ask for a loan. On

the contrary, it is also likely that the entrepreneurs do not have an idea about what resources to acquire for the ventures. Then, they may try to obtain as many resources they could as possible. For example, Feldman and March (1981) find that organizations not only gather more information than they use but also continue to collect more without acknowledging what information they are after. However, it is more likely that the entrepreneurs stuck at somewhere in between the two scenarios above. The entrepreneurs may not know which resources to acquire, but they may still have a preference according to their experience or knowledge.

Given the complexity of starting a new business, it is hard for entrepreneurs to identify what resources they need. For instance, a short of financial capital may result from a poor marketing strategy or from obtaining expensive raw materials from inappropriate suppliers. Getting a loan from a bank may ease the short-term liquidity constraint but does not help in the long term. As a result, when the entrepreneurs are granted a pool of resources, such as getting acceptance into an accelerator program, the value of each resource would not always be clear. For example, the value of financial capital is quantifiable and easily understood by everyone, but the value of a piece of advice or the value of a social tie cannot be measured in the same way as the financial capital. In other words, the value of a resource is determined by the entrepreneurs' subjective evaluation of how useful the resource is for the venture. If the entrepreneurs do not recognize the value of resources they receive, they are likely to pay more attention to the other resources with a higher perceived value. In other words, the entrepreneurs look for resources that they think they need.

The concept of perceived value of resource introduces a qualitative dimension into the evaluation of a resource. Even for a resource as quantifiable as money, Katila *et al.*

(2008) argue that money comes with a cost, such as losing controls of the venture. The perceived value of an extra funding may be lower than its numerical value, a value discount. For resources that are less tangible, such as a piece of advice and a networking opportunity, the room for subjective evaluation would be greater than money or physical assets. Therefore, I propose the following hypothesis.

*Hypothesis 3: The entrepreneur's attention/preference for a resource increases if the benefit of the resource is more tangible and quantifiable. Therefore, the entrepreneurs will prefer financial capital the most, following by network, and knowledge the least.*

The question is then whether this preference is universal or could vary along with some factors. If the preference order could change, what factors cause the entrepreneurs to perceive resources they have differently. In this dissertation, I argue that overconfidence could be one underlying factor that leads the entrepreneurs to discount the value of tacit resources more.

## Overconfidence and the selective attention

Overconfidence is a common psychological phenomenon. Plous wrote, "no problem in judgment and decision making is more prevalent and more potentially catastrophic than overconfidence. (Plous, 1993, p.217)" Because of the prevalence of overconfidence and the risky nature of business activities, overconfidence is heavily studied in areas such as entrepreneurial entry (Bernardo and Welch, 2001; Camerer and Lovallo, 1999; Cooper et al., 1988) and investment activities (Wang, 2001; Malmendier and Tate, 2005; Li and Tang, 2010). Moore and Healy (2008) reconcile the research in overconfidence and define overconfidence in three ways — overestimation, overprecision, and overplacement.

Overestimation is the most commonly adopted definition of overconfidence. It de-

fines overconfidence as the overestimation of one's ability than the reality, such as performance or chance of success (Cooper et al., 1988; Koellinger et al., 2007). The second way to define overconfidence is overprecision. It describes overconfidence as "the excessive certainty regarding the accuracy of one's belief. (Moore and Healy, 2008, p.502)" For example, Barney *et al.* (1996) find that founding teams with longer tenure or more industry experience tend to ignore advice from VCs because the new venture teams have a stronger belief in the accuracy of their business plan (Cable and Shane, 1997). The third way to define overconfidence is overplacement. It describes the phenomenon that people believe themselves to be better than the other, or at least better than the average. In Camerer and Lovallo's classic study of the role of overconfidence in the excess market entry, they find that experiment participants are more likely to enter a market when knowing that the chance of success depends partly on their skills, failing to take into account the relative skill levels of other participants. Camerer and Lovallo suggest that these participants underestimate the competition by holding a false belief that they can beat the market average returns with their skills. Cain, Moore, and Haran (2013) provide additional evidence from laboratory experiment and archival data that overplacement is the main driver for entrepreneurial entry. They find that people self-select into industries they perceived to be easy with the belief that they are better than the others, thus underestimating the competition.

Entrepreneurs are known to be more overconfident than normal people. Busenitz and Barney (1997) find that entrepreneurs express more overconfidence in the accuracy of their answers to difficult questions than ordinary managers. This finding is not surprising given the nature of entrepreneurship. Given a high failure rate of new ventures, only overconfident individuals are willing to start their businesses (Bernardo and Welch, 2001).

Conducting a systematic study on overconfidence with a sample of 2,994 entrepreneurs, Cooper, Woo, and Dunkelberg (1988) find that 81% of the entrepreneurs believed that their chance of success exceeds 70%. However, in reality, Shane (2008) shows that only about 50% of the new businesses launched in 1992 still survived at age five and 29% at age ten according to the US Bureau of the Census.

Hayward, Shepherd, and Griffin (2006) extend the influence of overconfidence in entrepreneurship beyond the moment of founding because overconfidence could affect the entrepreneur's judgment and decision making after the venture is founded. Their hubris theory of entrepreneurship argues that an overconfident entrepreneur is likely to underestimate the initial resource endowments that the venture needs, overestimate his/her ability to acquire extra resources, and overcommit the resources to the original business ideas, thus increasing the likelihood of failure. In other words, overconfidence could affect the entrepreneur's judgment about what resources to acquire and what resources to use.

The effect of overconfidence is strong when the complexity of the environment or the uncertainty surround a task is high (Lichtenstein and Fischhoff, 1977). When an entrepreneur successfully acquires a pool of resources from a resource provider, a rational entrepreneur is expected to utilize the resources according to their perceived value to the entrepreneur to augment the resource pool of the young venture (March, 1978). However, the value of different types of resources is not always quantifiable and comparable. It is difficult for the entrepreneurs to make decisions on the actual value of the received resources. Instead, the entrepreneurs are likely to act on their beliefs about what the venture needs and what they can do (Bandura and Locke, 2003). The perceived value of tacit resources, such as knowledge and networks, are therefore subject to the influence of overconfidence.

Hayward *et al.* (2006) argue that overconfident entrepreneurs tend to underestimate the resource requirements for running a successful business because they have a strong belief in their abilities and resource-mobilizing capability. For example, Suchman (1995) suggests that overconfident founders underestimate the necessary legitimacy for their venture in a given task environment, thus failing to commit enough resources to build up such legitimacy, such as insufficient investments in operational procedures conformed with industrial norms (Hannan and Freeman, 1984). Since the value of a new resource to the focal venture is partly determined by the perceived need for improvement (Greve, 1998), overconfident entrepreneurs are likely to underestimate the value of tacit resources, thus reducing the likelihood of paying attention to such resources.

Furthermore, overconfident entrepreneurs are likely to place a higher value on their skills and judgment than on those of others (Dawes and Mulford, 1996; Erev et al., 1994; Juslin et al., 1997; Klayman et al., 1999). This bias is also called egocentric bias (Krueger, 2003). The entrepreneurs often perceive the founded ventures as an extension of themselves or a realization of their knowledge and skills. Hence, the founders tend to become less open to suggestions from stakeholders, including managers, investors, and other who can diagnose for the ventures (Wasserman, 2003; Hayward et al., 2006). Also, Harvey and Fischer (1997) find that people tend to give more weight to their opinions than those of others, even when they have the same information and knowledge as the advisors. In other words, overconfident founders discount the value of advice, a tacit resource, thus making them pay less attention to it.

In sum, uncertainty and the perceived difficulty of a task are necessary conditions for overconfidence. When uncertainty surrounds a task, and the perceived difficulty is high, people are likely to be overconfident (Gino and Moore, 2007; Lichtenstein and Fischhoff,

1977) and, therefore, to discount the value of tacit resources or underestimate the resource needs. Subsequently, when the entrepreneurs have access to a pool of resources like knowledge, network, and capital, they would not pay an equal attention to all resources on hand. Because the value of advice and referrals are much more tacit than capital, overconfident entrepreneurs are therefore more likely to discount the value of the two tacit resources. On the other hand, because there is little uncertainty around the value of capital, the influence of overconfidence on the entrepreneur's attention is low.

Entrepreneurs backgrounds and overconfidence

Demographic traits and experience could affect the level of overconfidence (Hayward et al., 2010). Scholars find that women tend to be less confident than men in general (Bandura, 1992; Bandura et al., 2001; Chen et al., 1998). Several studies suggest that women are less overconfident (Bengtsson et al., 2005; Bhandari and Deaves, 2006), exhibit lower self-efficacy (Bandura, 1992; Bandura et al., 2001), and more risk averse (Hardies et al., 2013) than their male counterpart. Besides, women tend to be more cooperative than men (Croson and Gneezy, 2009; Kuhn and Villeval, 2011). In other words, female entrepreneurs are likely to pay attention to different resources more equally.

Higher educational attainment could be positively correlated with overconfidence, too. Education helps people cultivate knowledge and skills, and an individual's education level has long been recognized as a signal for one's ability (Spence, 1973; Cooper et al., 1994; Bruderl et al., 1992; Van Der Sluis et al., 2008). Hsu (Hsu, 2007) finds that founding teams with a doctoral degree holder are more likely to receive higher valuation and funding from VCs (Hall and Hofer, 1993; Shepherd, 1999).

Bhandari and Deaves (2006) find that education is consistently associated with higher

level of overconfidence. Surveying 2,000 Canadian pension plan members, they show that members with a better educational attainment held a stronger belief in the accuracy of their investment decision. Bhandari and Deaves suggest that "those with formal education do *not* know more about investments, but they think they do." Furthermore, the effect of education on overconfidence can be reflected on the strategy adopted by new ventures. Burton *et al.* (2002) find that founding teams with graduate degrees are more likely to pursue innovative strategies, which is usually considered riskier than an incremental strategy. Ding (2011) also show that young firms with more Ph.D. degree holders in the founding team are more likely to adopt an open-science technology strategy, which is more novel and unfamiliar to the industry.

Hayward *et al.* (2006) argue that educational attainment could induce overconfidence in two ways. Firstly, being familiar with a specific topic makes people overconfident. Entrepreneurs with substantive knowledge about the market or technology that they pursue may be overconfident and fail to appreciate the industry-specific profiles the young venture requires, including industrial norms and strategic actions. Second, pursuing an innovative strategy requires extensive planning. Hayward *et al.* argue that extensive planning may cause the entrepreneurs to be overconfident in their abilities to deal with contingencies (Buehler et al., 1994), thus underestimating the need for extra resources. In other words, while founders with better educational attainment may perform better because of their superior human capital, they are also more likely to be overconfident.

Similarly, positive prior performance outcomes enhance one's self-confidence (Griffin and Varey, 1996). Studies on confidence find that confidence grows with experience in the same task. Pincus (1991) shows that auditors grew confidence about their accuracy in audit judgment as they gained experience. Examining whether CEOs develop overconfi-

dence from self-attribution bias, Billet and Qian (2008) find that CEOs tend to attribute the success of their first acquisitions to their ability and therefore become overconfidence. Hilary and Menzly (2006) also find supporting evidence in the financial industry that analysts who had experienced a series of successful predictions became overconfident in their ability to forecast future earnings.

Hayward *et al.* (2006) argue that entrepreneurs' prior founding experience could cause them to become overconfident and fail to improve their skills to achieve better performance on the focal ventures. The detrimental effect of prior experience is tested in the literature of learning. Examining the effect of overconfidence on learning, Dunlosky and Rawson (2012) find that college students who believed that they performed well in the prior test prepared less for the next test, resulting in underachievement. Kelley and Lindsay (1993) showed that prior exposure to possible answers to exam questions, regardless of correctness, increased the lab participant's confidence in answering subsequent questions.

Prior job rank is likely to affect overconfidence, too. People occupying high positions in an organization often have more power and are conferred higher status. High-power individuals are often more optimistic, confident (Anderson and Galinsky, 2006; Bandura, 1977), and risk-taking (Maner et al., 2007) than lower-power individuals. Magee and Galinsky (2008) argue that power could have a curvilinear effect similar to that of assertiveness on leadership (Ames and Flynn, 2007). They suggest that while high-power individuals are more confident and more likely to achieve higher performance, such confidence could turn into overconfidence, thereby putting their organizations at risk. In sum, high-power individuals are likely to develop overconfidence.

By the same token, high status could lead to overconfidence. Work on relative depri-

vation and advantage contends that status induces complacency and therefore hurts performance (Walker and Smith, 2002; Burt, 2010). Examining the effect of performance ranking of PGA golfers and NASCAR drivers, Bothner, Kim, and Smith (2012) show that the athletes' performance declined after they achieved very high positions in the status order. They conclude that while status is, in general, an asset, high status could induce overconfidence, complacency, or laziness, thus reducing future performance.

To conclude, we should expect that demographical traits and past performance affect overconfidence. Entrepreneurs inevitably pay unequal attention to the resources they received. Demographical characteristics and experience will further moderate this tendency. Entrepreneurs from better backgrounds, such as higher educational attainment, higher prior job rank, more past founding experience, or even being male, are likely to be overconfident. Therefore, they tend to pay less attention to tacit resources such as advice and networking opportunities. Therefore, I have the following hypothesis.

*Hypothesis 4: Entrepreneurs with better backgrounds will have a stronger preference for financial capital rather than knowledge than those without prestigious backgrounds.*

In this dissertation, I will examine the effect of these credentialing factors on the founding team's preference for resources in accelerator programs.

### 3.0.4 Acceleration or Selection? The Internal Conflict of Accelerators

Accelerators typically claim that the acceleration experience improve the participating ventures beyond financial capital. For instance, on its "About Us" webpage, Y Combinator says, "the most important thing we do is work with startups on their ideas." However, accelerators are still likely to have interests to pick ventures based on observable traits,

such as founding team backgrounds. Founding teams' credentials inspire confidence in accelerators on whether they will succeed in the market. As a result, founding teams with good credentials are more likely to be selected to join accelerator programs. Furthermore, they are likely to secure more future funding because VCs and angel investors base their evaluations of new ventures on similar characteristics.

At the same time, there credentialing factors may cause overconfidence in the entrepreneurs. Entrepreneurs with extraordinary credentials are likely to be more ego-centric and over-confident in the readiness of their ideas and networks. Hence, they would benefit less from their acceleration experience than those without because they pay less attention to tacit resources such as mentorship and networking opportunities, which are key features of accelerator programs.

Such conflict could result in inefficient resource allocations because the additional resources flow into the ventures with outstanding credentials would produce less value than in those with promising business ideas but without excellent credentials. This coincides the phenomenon called the Matthew Effect (Merton, 1968), which describes that excessive acclaims and resources flow to established scholars rather than their less prestigious co-authors. Hence, it is important for organizational theorists and entrepreneurship scholars to understand better the accelerator innovation in the entrepreneurial ecosystem to help develop early-stage ventures.

# 4

# Context, Data, and Variables

### 4.0.1 The Entrepreneurship Database Program (EDP)

This dissertation is set to systematically understand how accelerators construct their cohorts and evaluate whether the factors that matter for selection affect the acceleration performance of the participants. The business accelerator is an innovation in the entrepreneurial eco-system in the last decade. Few datasets exist allowing researchers conduct comparative studies. However, accelerators have attracted considerable attention from not only the private sector but also governments from all different levels, ranging from local to central governments. Several initiatives are therefore launched to study the accelerator phenomenon.

In 2015, the Aspen Network of Development Entrepreneurs (ANDE) and Emory University launched a $2.3 million project, the Global Accelerator Learning Initiative (GALI), as a collaboration among members in the Global Entrepreneurship Research Network (GERN) (Barnes, 2015). The goal of this initiative is to explore and answer key questions about the effectiveness of accelerations on the performance of participating ventures, such as revenue growth and improvement in attracting investment. One key component of this initiative is the Entrepreneurship Database Program (EDP), based at Emory University. The program partners with accelerators around the globe directly and surveys the entrepreneurs who apply to these programs every six months, including those who are not accelerated. This longitudinal setup allows for a deep understanding of how accelerators affect the performance of early-stage ventures over time.

Leveraging the data from the Entrepreneurship Database Program of GALI, this dissertation systematically studies a large group of early-stage ventures from multiple accelerator programs. More specifically, this dissertation focuses on the role of the credentialing factors of the founding teams in 1) the acceptance into accelerators, in 2) the dynamic interplay between accepted entrepreneurs and accelerators, and in 3) the selective attention of entrepreneurs.

More specifically, the dissertation is organized into three major studies. In the first study, I examine which factors of early-stage ventures matter for getting accepted into accelerator programs. In the second study, I study whether admitted entrepreneurs are differentially able to revise their business models as a function of team credentials. In the third study, I examine the relationship between the team credentialing factors and their preference for different resources provided in the accelerator programs. I will explain the data collection process, variable construction, and the design of the three studies in

details in the following sections.

### 4.0.2 Data Collection

This dissertation uses the data collected by the *Entrepreneurship Database Program (EDP)* from sixty-five business accelerator programs between 2013 and 2015. The collected thirty-four programs have a total of 4,125 applicants around the world, excluding duplicate responses, surveys with too much missing information, and surveys from founders who decline to share information with the program.

The EDP collects a variety of information from applicant ventures, including firm-level characteristics, such as sector, age, social orientation, business model, and financing status upon application, and founder-level characteristics, such as founding team size, age, education level, and prior work experience of the top three founders. Besides, the application form asks the applicant to rank the benefits they are expected to receive from the program. The above information is collected from the partnering accelerator programs through the "intake" surveys. The partnering accelerator programs embed the EDP surveys into their application process to sure that applicants, not just the participants, fill out the surveys. The intake surveys establish the baseline observations of this study. By the end of 2015, the EDP have collected comparable and consistent information from 4,125 ventures.

The EDP then follows up with these applicants every six months to collect information such as the venture financial performance and business models. The idea is that each venture has two chances per year to fill out the EDP follow-up survey. If a venture participates in both follow-up surveys in a given year, only the latest information is retained for analysis. The overall follow-up response rate is 55.95%. The response rate is higher for

participants at 73.71%, and the rate for the rejected ventures is 50.63%. The intake survey and the follow-up survey are included in Appendix A.

In addition to the information from the database program, I supplement the data by following up the online self-presentation and social media activities of the applicant ventures. I periodically archive a specific set of company web pages of the applying ventures to capture changes to the ventures' self-description. The web pages of interest are the company homepage, "About us" page, and web pages that include the description of the venture's mission statement, value proposition, and points of difference.

Furthermore, I keep track of the Twitter pages of the applicant ventures if available. The Twitter pages I collect are the main Twitter page, "Follower" page, and "Following" pages. The Twitter main page shows the number of tweets, the number of followers, and the number of accounts the company follows. The "Follower" page includes a complete list of Twitter followers of the company, and the "Following" page includes a full list of the Twitter member that the company is following.

This archiving process begins right after the application process of an accelerator program ends. Therefore, I can preserve the above-mentioned online information before the ventures start their programs. The time when the application process ends can be denoted as $T_0$. Since then, I re-visit and archive again these web pages every other week. To test my hypotheses, I use the archived pages taken at least six months after $T_0$ because a typical accelerator program usually starts one or two months after the application process ends. Furthermore, the average length of an accelerator program is three months. Therefore, a six-month period should contain the participation of the ventures in an accelerator program. This time point is denoted as $T_1$. The archiving process does not stop at $T_1$. Hence, I can create a second observation point six months after $T_1$, which can be denoted

as $T_2$, and so on.

In sum, two sets of longitudinal data are collected. First, the follow-up surveys allow me to compare the financial performance and business models of applicants. Second, the supplement dataset from the company websites and social media allow me to evaluate the extent of changes in business ideas from a different angle. Tracking the evolution of the activities on Twitter provides a way to assess the effort the early stage ventures put in developing their information network.

### 4.0.3 Independent Variables - The Credentialing Factors of Founding Teams

The dissertation consists of three major studies. First, I examine the role of founding team background characteristics, namely founding team credentials, in the accelerator selection process. Second, I explore the association between founding team credentials and three acceleration outcomes — knowledge, network, and capital. Third, I examine whether founding team credentials affect the founding teams' preference for the resources and benefits from the accelerator programs. Therefore, the founding team credentials are the primary independent variables of this dissertation.

The credentialing factors focused in this study are prior job rank, prior founding experience, educational attainment, and team gender composition. The Entrepreneurship Database Program asks applicants to provide personal information of the top three founders[*], including gender, highest educational attainment, prior founding experiences, and the ranks of the latest two jobs prior founding the current venture. I create a composite index that consists of the four credentialing factors to represent the level of overall credentials of a founding team. The variables are constructed as follows.

[*] Beyond the top three founders, the EDP asks the applicant to provide the number of additional founders in the founding team. The mean founding team size is 2.42, and the median is 2.

**C-Level Executives.** This variable measures the percentage of former C-level executives in the founding team, ranging from zero to one. The mean of the overall sample is 0.32, indicating that one out of three founding team members is a former C-level executive.

**Educational Attainment.** This measures the percentage of founders with a graduate degree in a founding team, ranging from 0 to 1. I define a graduate degree as a master degree and above. The mean value of this variable is 0.32 from the overall sample, suggesting that one out of three founding team members has a graduate degree.

**Team Gender Composition.** This variable measures the percentage of male founders in a founding team, ranging from zero to one. Male entrepreneurs are more prevalent than female entrepreneurs in the sample. The median is 1, male-only teams, and the mean value is 0.67.

**Founding Experience.** This variable measures the number of companies or nonprofit organizations founded by the founding team members prior the focal venture. I normalize this variable to values between zero and one to construct the composite team credential variable.

**Team Credential.** This variable measures the level of credentials of a founding team by summing up the above four credentialing factors since they are all on the same scale, ranging from zero to one. This specification allows me to see the effect of the overall credential of a founding team before I break it down to investigate the effect of each credentialing factor.

In the three primary analyses of this dissertation, I use *Team Credential* first to examine the overall effect of the credentialing factors of a founding team. Then I break it down to individual components to explore which factor drives the overall effect.

### 4.0.4 Dependent Variables of The Three Major Studies

This section describes the construction of the dependent variables of the three major studies of this dissertation. The first study examines the selection decision of the accelerator programs. The second study consists of three topics — knowledge, network, and capital. Finally, the third study evaluates the founding teams' preference for the resources in the accelerator programs.

Study 1 - accelerator selection

In the first analysis, I explore which factors matter most in getting acceptance into accelerator programs. The EDP data provide the participation information from partnering programs. Among the 4,125 ventures in this study, 951 participated in an accelerator program. The average acceptance rate across all programs is 23%. The dependent variable *Participation* is defined as a binary variable indicating whether a venture $i$ participates in an accelerator program. Ventures that participate are coded as 1, and 0 otherwise.

Study 2-1: the extent of changes in business ideas

In the second primary study, I focus on the acceleration outcomes of three dimensions of early-stage ventures — knowledge, network, and capital. The knowledge dimension is designed to understand whether ventures revise their business ideas after participating in accelerator programs. If yes, to what extent do the ventures revise their business ideas?

**The extent of change in company description**

To measure the extent of change in revising business ideas, I construct this variable from two data sources. The first variable measures the extent of change in the online self-representation of the venture; i.e., company description on the venture's website. When

a company revises its business idea, strategy, or business model, some changes should incur in its self-representation to the public. For example, Netflix has a public online document named "Long-Term View" that describes how the company perceives the current state and the future of the industry and how it positions itself to head into the future. Zachary M. Seward, a writer at Quarts.com, found that Netflix revised this document in 2015. He publishes the "track-changed" version of the revised document to show how Netflix's view on the industry evolves since the first version of this document (Seward, 2014). Hence, it should not be surprising to see an early-stage venture revises its company description.

I construct this variable by following up the company web pages of the applicant ventures when they apply to a business program, denoted as $T_0$. Since then, I periodically visit these pages and preserve a local copy to capture potential changes. The company web pages of interest are the company homepage, "About us" page, and web pages that include a description of the venture's mission statement, value proposition, and points of difference. I use the archived pages taken at least six months after $T_0$, denoted as $T_1$, because a typical accelerator program starts one or two months after the application process ends and the average length of an accelerator program is three months. Therefore, a six-month window from the application day is sufficient for entrepreneurs to graduate from a program.

The extent of change in business ideas is measured as the cosine similarity score (Deerwester et al., 1990).[†] The cosine similarity score is a widely used method in information retrieval and machine learning to compare the similarity of two documents (Manning et al., 2008). It measures how similar two passages are regarding the composition of

[†] I use scikit-learn, a Python package developed for matching learning, to calculate the cosine similarity scores.

terms and the frequency of term usages. The more similar the two passages are, the larger the score. Hence, if the venture revises its business description, such change should be captured by the similarity score. Because I am interested in the extent of change rather than similarity, the dependent variable is constructed as one minus the similarity score.

I collect the company web pages from ventures applying to accelerator programs in 2014. Because not all companies have a website and not all companies survived when I collect the second snapshot. I end up having web page data for 519 observations out of 4,125 ventures.

**The extent of change in impact areas**

The second variable to evaluate the extent of change in business ideas is constructed from the EDP follow-up surveys. The Entrepreneurship Database Program follows up with applicants twice per year to obtain their updated information on performance and business models. In both the initial intake survey and the follow-up surveys, entrepreneurs are asked to select the areas their ventures seek to have an impact on (hereafter "impact areas"). There are 29 impact areas available for the entrepreneurs to choose, excluding "other," such as health improvement, sustainable energy, and community development[‡]. The impact areas selected by the entrepreneur are coded as 1, and 0 otherwise. As a result, the response in the initial survey and that in the follow-up survey is each a vector with 0's and 1's. Therefore, I calculate the number of areas changed by summing up the absolute difference of the two vectors. The *Extent of Change in Impact Areas* of venture $i$,

[‡]The impact areas include in the survey are access to clean water, access to education, access to energy, access to financial services, access to information, affordable housing, agriculture productivity, biodiversity conservation, capacity building, community development, conflict resolution, disease-specific prevention and mitigation, employment generation, energy and fuel efficiency, equality and empowerment, food security, generate funds for charitable giving, health improvement, human rights protection or expansion, income/productivity growth, natural resources conservation, natural resources/biodiversity, pollution prevention and waste management, sustainable energy/fuel efficiency, sustainable energy, sustainable land use, support for high-impact entrepreneurs, water resources management, and support for women and girls.

denoted as $\Delta_{Impact\ areas_i}$ is calculated as follows.

$$\Delta_{Impact\ areas_i} = \sum_{j=1}^{n} |(area_{(j,t_1)} - area_{(j,t_0)})|$$

This data is obtained through the follow-up surveys with the applicants in the initial intake surveys. All the applicants from 2013 to 2015 are followed up at least once. I obtain 2,308 observations for this variable initially.

Study 2-2: the extent of changes in the network

The extent of change in the network is defined as the degree of change to venture $i$'s network after participating in accelerator program $j$. I measure this change as the number of new Twitter ties formed by venture $i$ after accelerator participation. A Twitter tie is defined as a new Twitter "following" tie made by the venture's Twitter account. There are two types of tie formation on the Twitter — follower and following. From the venture's perspective, followers are people who follow the tweets of the focal venture. "Following" ties are Twitter members that the venture follows to get their latest updates.

In traditional network studies, a tie is not formed unless both parties involved agree to interact with each other. It causes an identification issue in not observing a tie formation. Not observing a tie between actor $A$ and $B$ could mean either that actor $A$ does not want to form a relationship with actor $B$ or that actor $A$ wants to form a relationship with $B$ but $B$ rejects. The nice feature of Twitter is that every member can follow other Twitter members without their permission most of the time, ruling out the latter scenario. Hence, whether venture $i$ actively expand its network could be observed through the new Twitter following ties that it initiates.

The dependent variable for the extent of changes in the network is therefore constructed

as the number of new Twitter following ties a focal venture makes. A "new" tie is defined as a Twitter following tie shows up in venture $i$'s network at $T_1$ but did not at $T_0$. I followed up with ventures that applied to accelerator programs between the second half of 2014 and the first half of 2015, resulting in 1,027 observations among the 4,125 ventures.

Study 2-3: the extent of changes in capital

One of the core inquiries in the studies of accelerator programs is to understand whether accelerator programs help participating ventures accrue new capital. The expansion of capital is measured in two ways. First, I pay attention to all new financial capital venture $i$ raised in the year of acceleration, including external equity, debt, and the charitable fund. Second, I focus on the external equity only and define it as the external equity financing received in the year of acceleration. The initial dataset includes 2,204 observations from the EDP follow-up surveys.

Study 3: The preference of the founding teams for acceleration benefits

Study 3 is designed to explore whether founding team credentials moderate the effect of selective attention on resources. The dependent variable is, therefore, a set of rank ordered questions from the EDP intake surveys.

In the intake surveys, respondents are asked to rank seven benefits they expect to receive from the accelerator programs. The seven benefits are *network development*, e.g. with potential partners and customers, *business skill development*, *mentorship from business experts*, *access and connections to potential investors/funders*, *securing direct venture funding*, *gaining access to a group of like-minded entrepreneurs*, and *awareness and credibility*. The respondents are asked to rank the seven benefits from 1 to 7 with one be-

ing the most important and seven being the least important.

The average ranks from the overall sample produce the following order. *Access and connections to potential investors/funders* is considered the most important benefit from the accelerator programs, with an average of 3.372. The second most important benefit is *network development*, with an average of 3.379. *Securing direct venture funding*, with an average of 3.479, is considered the third most important benefit. The remaining four items by the order are *mentorship from business experts* (3.504), *business skills development* (3.949), *gaining access to a group of like-minded entrepreneurs* (4.967), and *awareness and credibility* (4.984).

### 4.0.5 Control Variables

Several variables are included as control variables. *Firm Age* measures the age of the venture at the time of application. *Founding Team Size* measures the number of founders in the founding team. The application survey asks the respondent to name the founders up to the top three founders and ask for the number of the rest founding team members. Therefore, this variable is constructed as the number of named founders plus the number of the rest of founding team members. I control for founding team size for two reasons. First, a larger team usually suggests the more managerial capacity of a young firm. Therefore, team size is often associated with the confidence of a resource provider on the venture. Also, a larger team may have more diverse opinions on a topic, increasing the difficulty of initiating changes in the organization.

*Average Founding Team Age* measures the mean age of the named founders. The age of the top founder at the time of application is controlled. Age is not necessary a construct of a credential but is found to affect one's openness to experience (Jackson et al., 2012).

Three firm-level performance variables are controlled. *Total Full-time Employees* reports the number of full-time employees at the venture in the year prior the application. *Total Investment Since Founded* is included to control for the fund-raising ability of the venture. It includes the total amount of money raised from three different sources by the founding teams since the venture is founded — personal investment, external equity, and debt. *Total Revenue* measures the amount of revenue earned by the venture in the year prior the application. The unit for the financial variables is one million US dollars. In the study of Twitter following ties, the number of following ties at $T_0$ is controlled.

The complete list of variable definition is shown in Table 4.1.

**Table 4.1:** Variable Definitions

| | Variable | Definition | Sources |
|---|---|---|---|
| 1 | Participation | A binary variable indicates whether a venture participates in an accelerator program. A venture that participates in a program is coded as 1, and 0 otherwise. | Entrepreneurship Database Program at Emory University (EDP) |
| 2 | C-Level Executives | The percentage of prior C-level executives in the top 3 founding team members. | Entrepreneurship Database Program |
| 3 | Founding Experience | Standardized total number of prior founded organizations from the top 3 named founders. | EDP |
| 4 | Educational Attainment | The percentage of members with a graduate degree in the top 3 founding team members. | EDP |
| 5 | Team Gender Composition | The percentage of male founders in the top 3 founding team members. | EDP |
| 6 | Team Credential | The index of overall team credentials, defined as the sum of C-Level Executive, Founding Experience, Educational Attainment, and Team Gender Composition. | EDP |
| 7 | Firm Age | The age of a venture at the time of application. | EDP |
| 8 | Founding Team Size | The number of founding team members. If an applicant indicates that there are more founding team members than the 3 named founders, the number is included in the founding team size. | EDP |
| 9 | Average Founding Team Age | The average age of the top 3 named founders at the time of application. | EDP |
| 10 | Total Full-Time Employees | The number of full-time employees at the applying venture in the year prior to the application year. | EDP |
| 11 | Total Investment Since Founded (in million USD) | The aggregate amount of investment acquired by the applying venture, including personal investment, external equity, and debt, since the venture is founded. | EDP |
| 12 | Total Revenues (in million USD) | The amount of revenues earned by the applying venture in the year before the application year. | EDP |
| 13 | Extent of Change in Business Description | A variable ranges from 0 to 1, derived from 1 - the cosine similarity score of business descriptions at $T_0$ and $T_1$. | Company websites |
| 14 | Extent of Change in Impact Areas | The Euclidean distance between the vectors of impact areas at $T_0$ and $T_1$. | EDP |
| 15 | Total New Twitter Following | Number of Twitter following at $T_1$ that were not present at $T_0$ | Company Twitter Page |
| 16 | Initial Network Size | Number of Twitter following at $T_0$ | Company Twitter Page |
| 17 | Total New Investment (in million USD) | The amount of new external fund acquired by the focal venture in the year of acceleration, including external equity, philanthropic fund, and debt. | EDP |
| 18 | Total New External Equity (in million USD) | The amount of new external equity acquired by the focal venture in the year of acceleration | EDP |

### 4.0.6 Data Overview & Summary Statistics

I start with 4,125 ventures that apply to a business accelerator between 2013 and 2015. Among the 4,125 ventures, 951 participated in an accelerator program. I exclude sixteen programs that provide data on participant only or rejected ventures only, reducing the sample size to 3,529. Besides, I exclude ventures with missing values in the variables of interest in this dissertation and ventures reporting erroneous financial numbers, further reducing the sample size to 3,049. The 3,049 observations constitute the final overall sample for this dissertation. The sample size will vary in different analyses in the dissertation according to the data availability.

Table 4.2 shows the summary statistics of the variables from the final overall sample and Table 4.3 presents the correlation matrix. The number of observations available for each sample is included. The ranking variables are not included here but are presented in Chapter 6.

**Table 4.2:** Summary Statistics

| | N | Mean | SD | Median | Min. | Max. |
|---|---|---|---|---|---|---|
| Participation | 3049.00 | 0.22 | 0.42 | 0.00 | 0.00 | 1.00 |
| Team Credential | 3049.00 | 1.46 | 0.74 | 1.48 | 0.00 | 3.55 |
| C-Level Executives | 3049.00 | 0.31 | 0.38 | 0.00 | 0.00 | 1.00 |
| Founding Experience | 3049.00 | 0.09 | 0.13 | 0.05 | 0.00 | 1.00 |
| Educational Attainment | 3049.00 | 0.37 | 0.42 | 0.00 | 0.00 | 1.00 |
| Team Gender Composition | 3049.00 | 0.69 | 0.37 | 1.00 | 0.00 | 1.00 |
| Founding Team Size | 3049.00 | 2.47 | 1.15 | 2.00 | 0.00 | 6.00 |
| Average Founding Team Age | 3049.00 | 35.68 | 9.75 | 33.67 | 16.50 | 95.00 |
| Firm Age | 3049.00 | 2.59 | 4.16 | 1.00 | 0.00 | 68.00 |
| Total Investment Since Founded (in million USD) | 3049.00 | 0.09 | 0.80 | 0.00 | 0.00 | 40.00 |
| Total Revenue (in million USD) | 3049.00 | 0.03 | 0.10 | 0.00 | 0.00 | 1.10 |
| Total Full-time Employees | 3049.00 | 2.36 | 4.33 | 1.00 | 0.00 | 39.00 |
| Extent of Change in Company Description | 431.00 | 0.30 | 0.37 | 0.07 | 0.00 | 1.00 |
| Extent of Change in Impact Areas | 1712.00 | 3.02 | 2.54 | 2.00 | 0.00 | 20.00 |
| Initial Network Size | 880.00 | 474.42 | 746.47 | 172.50 | 1.00 | 10008.00 |
| Number of New Twitter Followings | 880.00 | 112.26 | 241.26 | 18.00 | 0.00 | 2176.00 |
| Total New Investment (in million USD) | 1634.00 | 0.03 | 0.06 | 0.00 | 0.00 | 0.60 |
| Total New External Equity (in million USD) | 1634.00 | 0.01 | 0.05 | 0.00 | 0.00 | 0.45 |

**Table 4.3:** Correlation Matrix

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Participation | 1.00 | | | | | | | | | | | | | | | | | |
| Team Credential | −0.01 | 1.00 | | | | | | | | | | | | | | | | |
| C-Level Executives | −0.01 | 0.60 | 1.00 | | | | | | | | | | | | | | | |
| Founding Experience | −0.00 | 0.35 | 0.24 | 1.00 | | | | | | | | | | | | | | |
| Educational Attainment | 0.02 | 0.58 | 0.00 | −0.02 | 1.00 | | | | | | | | | | | | | |
| Team Gender Composition | −0.03 | 0.59 | 0.08 | 0.13 | 0.03 | 1.00 | | | | | | | | | | | | |
| Founding Team Size | 0.02 | 0.08 | 0.01 | 0.27 | −0.02 | 0.09 | 1.00 | | | | | | | | | | | |
| Average Founding Team Age | −0.02 | 0.15 | 0.20 | 0.09 | 0.10 | −0.06 | −0.03 | 1.00 | | | | | | | | | | |
| Firm Age | 0.03 | −0.06 | 0.02 | −0.01 | −0.04 | −0.09 | −0.02 | 0.33 | 1.00 | | | | | | | | | |
| Total Investment Since Founded (in million USD) | 0.01 | 0.04 | 0.03 | 0.00 | 0.02 | 0.03 | 0.03 | 0.07 | 0.04 | 1.00 | | | | | | | | |
| Total Revenue (in million USD) | 0.05 | 0.01 | 0.01 | 0.01 | 0.02 | −0.03 | 0.01 | 0.12 | 0.21 | 0.18 | 1.00 | | | | | | | |
| Total Full-time Employees | 0.04 | 0.06 | 0.07 | 0.06 | −0.00 | 0.02 | 0.07 | 0.10 | 0.30 | 0.08 | 0.35 | 1.00 | | | | | | |
| Extent of Change in Company Description | −0.06 | −0.03 | −0.08 | −0.04 | −0.00 | 0.03 | 0.05 | −0.07 | −0.11 | 0.01 | −0.02 | −0.05 | 1.00 | | | | | |
| Extent of Change in Impact Areas | −0.05 | 0.02 | 0.05 | 0.09 | −0.05 | 0.01 | 0.05 | 0.08 | 0.08 | −0.02 | −0.04 | 0.01 | −0.03 | 1.00 | | | | |
| Initial Network Size | −0.01 | −0.02 | 0.07 | 0.02 | −0.00 | −0.10 | −0.04 | 0.10 | 0.07 | 0.13 | 0.07 | 0.05 | −0.06 | −0.05 | 1.00 | | | |
| Number of New Twitter Followings | 0.00 | 0.05 | 0.05 | 0.01 | 0.05 | −0.00 | 0.02 | 0.04 | −0.01 | 0.05 | −0.00 | 0.01 | 0.01 | −0.03 | 0.23 | 1.00 | | |
| Total New Investment (in million USD) | 0.09 | 0.12 | 0.02 | 0.01 | 0.13 | 0.06 | 0.01 | 0.04 | 0.01 | 0.21 | 0.17 | 0.12 | −0.02 | −0.05 | 0.12 | 0.00 | 1.00 | |
| Total New External Equity (in million USD) | 0.05 | 0.12 | 0.01 | 0.02 | 0.12 | 0.08 | 0.00 | 0.01 | −0.02 | 0.17 | 0.14 | 0.07 | 0.02 | −0.05 | 0.08 | −0.01 | 0.79 | 1.00 |

The acceptance rate into an accelerator program is 22% on average in the final sample. Applicant ventures are young, with the median age at 1 and the mean at 2.59, indicating that the accelerators in our sample focus on early-stage ventures. The company size is also small as indicated by the average number of full-time employees (mean = 2.36) and the mean founding team size (2.47). The financial variables, *Total Investment Since Founded* and *Total Revenue* show that the distribution of financial performance is very skewed. At least half of the ventures in the sample do not raise any money nor make any revenue in the year prior the application year. However, some ventures attract a significant amount of investment and earn great revenues.

Regarding the credentialing factors, the mean percentage of former C-level members in the team is 0.31, meaning that one out of three founding members is a former C-level executive on average. The ratio is similar to the percentage of founding team members with a graduate degree (mean = 0.37). On average, two-third of the founding team members are male (mean = 0.69). The normalized founding experience variable indicates that the distribution is skewed, too. A median at 0.05 indicates that most of the ventures do not have much prior founding experience. The composite team credential variable has the mean at 1.46 and the median at 1.48.

The sample for the study of change in company description has 431 observations. The mean extent of change in company descriptions is 0.30. This result provides some face validity of this variable as typically studies on advice taking find the mean adjustment of ones' opinion is 30% (Soll and Larrick, 2009). The sample for the study of change in impact areas contains 1,712 observations. The extent of change in impact areas is measured as the number of impact areas changed. Therefore, the median of 2 means that 50% of the ventures changed two impact areas from $T_0$ to $T_1$.

Because the sample size changes in the analyses of changes in business models or ideas, two unreported drop-case analyses are conducted to examine if there is any significant difference among samples. The results show that the sample for the analysis of changes in company descriptions have slightly fewer former C-level executives and fewer founders with a graduate degree in the team. The ventures are less-than-1-year younger and with fewer full-time employees. There is no difference in the percentage of participating firms in the sample. The sample for the analysis of the extent of change in impact areas also shows that the ventures available for analysis have slightly fewer former C-level executives in the team. I do not find a significant difference in the other variables.

I collect the Twitter information from 880 ventures. The number of initial Twitter following ties show a skewed distribution, too. The median of 172.5 indicates that 50% of the 880 ventures follow less than 200 Twitter members. However, some ventures are very aggressive in the online activities, so they have followed more than 1,000 Twitter members at the time of the application. 50% of the ventures initiate eighteen new Twitter following ties after six months, a 10% increase from the initial pool. The distribution is skewed again, indicating that some ventures aggressively increate their online reach through following more Twitter users (mean = 112.26).

The financial variables from the follow-up surveys include five variables — Total New Investment, Total New External Equity, Total New Philanthropic Fund, Total New Debt, Total Revenue at Year of Acceleration. The unit for all the five variables is million US dollars. The sample size is smaller than the sample for the analysis of change in impact areas. Because some respondents report financial numbers that make little sense for an early stage venture, such as a revenue of $999,999,999 a year. To remove these nonsense data, I create a threshold of 99 percentile for each of the five variables from the applicant data.

If an observation has a value exceeds the threshold, the observation will be dropped, resulting in a smaller sample. On average, the 1,634 ventures in the dataset report a total investment increase of $30,000 US dollars. The capital increase could be broken down roughly equally to the three types of capitals — external equity, philanthropic funds, and debt. These ventures report a revenue of $40,000 US dollars on average in the year of acceleration.

I also compute the correlation between each pair of variables by using the complete pairs of observations of those variables because the sample size varies among variables. I do not find a strong correlation between any pair of variables.

# 5

# Accelerator Selection and Acceleration Outcomes

### 5.0.1 Study 1: Accelerator Selection

In Study 1, I examine which factors matter in getting acceptance into accelerator programs. I am particularly interested in whether the credentialing factors of founding teams play a critical role in the selection process. I use fixed-effect logit models to analyze factors that affect the chance of participation in an accelerator program. The dependent variable *Participation* is a binary variable indicating whether a venture $i$ participates in an accelerator program. Ventures that participate are coded as 1, and 0 otherwise. I include the program fixed effects and the industry sector fixed effects in the models. The probabil-

ity of venture $i$ from sector $k$ participating in a program $j$ is specified as follows.

$$P_{Participation} = \alpha + \beta_{Credentials_i} Credentials_i + \beta_{Controls_i} Controls_i + \gamma_j Program_j + \gamma_k Sector_k$$

I generate three logistic regression models to analyze which factors accelerator programs select on. The result is presented in Table 5.1. Model 1 includes the *Team Credential* variable only. Model 2 includes the control variables only — *Founding Team Size*, *Average Founding Team Age*, *Firm Age*, *Total Full-time Employees*, *Total Investment Since Founded*, and *Total Revenue*. Model 3 includes all variables, and Model 4 breaks down the *Team Credential* variables into individual credentialing factors, along with the other variables. All models include program fixed effects and sector fixed effects.

**Table 5.1:** Logistic Regression Models of Accelerator Selection

| | Participation | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| Team Credential | .278*** | | .325*** | |
| | (.076) | | (.079) | |
| C-Level Executives | | | | .299* |
| | | | | (.151) |
| Founding Experience | | | | −.615 |
| | | | | (.530) |
| Educational Attainment | | | | .644*** |
| | | | | (.137) |
| Team Gender Composition | | | | .180 |
| | | | | (.158) |
| Total Investment Since Founded (in million USD) | | .024 | .022 | .020 |
| | | (.049) | (.049) | (.050) |
| Total Revenues (in million USD) | | 1.131* | 1.147* | 1.102* |
| | | (.524) | (.527) | (.531) |
| Total Full-Time Employees | | .015 | .013 | .014 |
| | | (.013) | (.013) | (.013) |
| Founding Team Size | | .083 | .072 | .093* |
| | | (.045) | (.046) | (.047) |
| Average Founding Team Age | | −.014* | −.019** | −.019** |
| | | (.006) | (.006) | (.006) |
| Firm Age | | .010 | .017 | .017 |
| | | (.013) | (.013) | (.013) |
| Constant | −.823* | −.230 | −.420 | −.426 |
| | (.325) | (.385) | (.390) | (.402) |
| Program Fixed effects? | Yes | Yes | Yes | Yes |
| Sector Fixed effects? | Yes | Yes | Yes | Yes |
| Observations | 3,049 | 3,049 | 3,049 | 3,049 |
| *Notes:* | | | | *P < .05 |
| | | | | **P < .01 |
| | | | | ***P < .001 |

The coefficients are stable across all four models. Model 1 shows that *Team Credential* increases the chance of participating in an accelerator program overall. Model 2 examines the effect of control variables only. The result indicates that accelerator programs favor teams with the ability to generate revenues. The amount of investment does not matter much for selection. Accelerators also favor larger founding teams. However, the negative coefficient of *Average Founding Team Age* indicates a preference for younger teams. *Firm Age* has a positive but statistically insignificant coefficient, likely resulting from the fact that most of the ventures in the group are young. In sum, Model 2 suggest that accelerators look for ventures that are established by teams with several young entrepreneurs. The ability to raise fund seems not critical at the stage, but the ability to generate revenues is an important criterion for accelerator selection.

Model 3 integrates the *Team Credential* variable and the controls. The results are almost identical as those in the previous two models. *Team Credential* remains positive and statistically significant at the 1% significance level, indicating that accelerator programs pay close attention to founding team credentials. Therefore, *Hypothesis 1* is supported. Accelerator programs favor teams with greater credentials.

Model 4 decomposes the composite *Team Credential* variable into four credentialing factors. The result shows that the positive effect of *Team Credential* comes from *Educational Attainment* (0.644, p-value = 0.000) and *C-Level Executives* (0.299, p-value = 0.048). Having one founding team member with a graduate degree improves the odds of getting into an accelerator program by about 24%, comparing with teams without any member with a graduate degree. Having a former C-level executive increases the odds of getting acceptance into a business accelerator program by 10%. However, the effects could not be combined linearly, as shown in Model 1 and Model 3. The amount of prior

founding experience and gender composition do not have statistically significant effect in the selection process.

In sum, results from these models provide evidence that accelerator programs select on founding team backgrounds. The important background characteristics that serve as credentialing factors are the overall educational attainment and prior job rank of the founding teams. Teams with a higher percentage of founders with graduate degree and teams with more former C-level executives are more likely to get selected into accelerator programs.

### 5.0.2 Study 2: Founding Team Credentials and Acceleration Outcomes

Study 1 shows that accelerator programs select on team credentials. Study 2 is set to explore the effect of founder's credentials on three acceleration outcomes — knowledge, network, and capital. Study 2-1 examines the interaction effect between accelerator participation and founding team credentials on the extent of change in business ideas, operationalized as the extent of changes in business description and in areas where the ventures want to have an impact. Study 2-2 examines the effect on the expansion of Twitter following network. Finally, Study 2-3 examines the dynamic interplay between team credentials and acceleration participation in the acquisition of financial capital.

#### Study 2-1-1: the extent of changes in business ideas (company description)

Study 2-1 includes two sub-studies on the extent of change in business ideas. The first study, denoted as Study 2-1-1, uses the company descriptions extracted from the company web pages of 431 ventures that applied to an accelerator program in 2014. As discussed in the *Dependent Variable* section, I use the cosine similarity score between the company

description at $T_0$ and $T_1$ to construct the dependent variable of this study. The extent of changes in the company description of venture $i$ is denoted as $\Delta_{Description_i}$. I firstly specify the models in linear regression models to explore whether participating ventures exhibit a differential ability to revise their business descriptions as a function of team credentials. Then, I test the same model under Tobit specification as a robustness check because the dependent variable is censored. The program and sector fixed effect linear model for venture $i$ from sector $k$ in program $j$ is specified as follows. The four regression models are presented in Table 5.2.

$$\Delta_{Description_i} = \alpha + \beta_{Participation_i} Participation_i + \beta_{Credentials_i} Credentials_i +$$

$$\beta_{Participation_i \times Credentials_i} Participation_i \times Credentials_i + \gamma_j Program_j + \gamma_k Sector_k$$

**Table 5.2:** Liner Regression Models of Effects of Participation and Team Credentials on Changes in Company Description

| | Extent of Change in Company Description | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| Participation | −.086 | | −.149 | −.209 |
| | (.047) | | (.112) | (.132) |
| Team Credential | | −.014 | −.013 | |
| | | (.028) | (.031) | |
| C-Level Executives | | | | −.078 |
| | | | | (.065) |
| Founding Experience | | | | −.031 |
| | | | | (.217) |
| Educational Attainment | | | | −.044 |
| | | | | (.056) |
| Team Gender Composition | | | | .097 |
| | | | | (.065) |
| Total Investment Since Founded (in million USD) | .048 | .043 | .050 | .048 |
| | (.048) | (.048) | (.048) | (.048) |
| Total Revenues (in million USD) | .049 | .058 | .050 | .013 |
| | (.238) | (.239) | (.238) | (.239) |
| Total Full-Time Employees | 0.000 | .001 | 0.000 | .001 |
| | (.006) | (.006) | (.006) | (.006) |
| Founding Team Size | .025 | .023 | .026 | .026 |
| | (.016) | (.016) | (.016) | (.017) |
| Average Founding Team Age | −.003 | −.002 | −.003 | −.002 |
| | (.002) | (.002) | (.002) | (.002) |
| Firm Age | −.011 | −.012 | −.012 | −.011 |
| | (.008) | (.008) | (.008) | (.008) |
| Team Cred. x Parti. | | | .041 | |
| | | | (.064) | |
| C-level x Parti. | | | | −.036 |
| | | | | (.137) |
| Prior Found. x Parti. | | | | −.277 |
| | | | | (.362) |
| Edu. x Parti. | | | | .204 |
| | | | | (.109) |
| Gender x Parti. | | | | .108 |
| | | | | (.148) |
| Constant | .565*** | .525** | .575*** | .437* |
| | (.159) | (.159) | (.161) | (.169) |
| Program Fixed effects? | Yes | Yes | Yes | Yes |
| Sector Fixed effects? | Yes | Yes | Yes | Yes |
| Observations | 431 | 431 | 431 | 431 |
| Adjusted $R^2$ | .028 | .020 | .024 | .034 |
| F Statistic | 1.345 (df = 36; 394) | 1.247 (df = 36; 394) | 1.280 (df = 38; 392) | 1.349 (df = 44; 386) |

*Notes:*

*P < .05
**P < .01
***P < .001

**Table 5.3:** Tobit Models of Effects of Participation and Team Credentials on Changes in Company Description

| | Extent of Change in Company Description | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| Participation | −.087 | | −.199 | −.240 |
| | (.060) | | (.144) | (.167) |
| Team Credential | | −.031 | −.037 | |
| | | (.034) | (.038) | |
| C-Level Executives | | | | −.064 |
| | | | | (.084) |
| Founding Experience | | | | −.089 |
| | | | | (.269) |
| Educational Attainment | | | | −.091 |
| | | | | (.071) |
| Team Gender Composition | | | | .038 |
| | | | | (.072) |
| Total Investment Since Founded (in million USD) | .068 | .068 | .075 | .070 |
| | (.060) | (.061) | (.061) | (.060) |
| Total Revenues (in million USD) | .061 | .049 | .051 | .049 |
| | (.321) | (.322) | (.321) | (.318) |
| Total Full-Time Employees | −.007 | −.006 | −.006 | −.007 |
| | (.007) | (.007) | (.007) | (.007) |
| Founding Team Size | .025 | .025 | .029 | .028 |
| | (.020) | (.021) | (.021) | (.021) |
| Average Founding Team Age | −.003 | −.002 | −.003 | −.002 |
| | (.003) | (.003) | (.003) | (.003) |
| Firm Age | −.025* | −.028* | −.027* | −.027* |
| | (.012) | (.012) | (.012) | (.012) |
| Team Cred. x Parti. | | | .075 | |
| | | | (.082) | |
| C-level x Parti. | | | | −.126 |
| | | | | (.177) |
| Prior Found. x Parti. | | | | −.068 |
| | | | | (.444) |
| Edu. x Parti. | | | | .294* |
| | | | | (.139) |
| Gender x Parti. | | | | .115 |
| | | | | (.188) |
| logSigma | −.747*** | −.745*** | −.748*** | −.758*** |
| | (.043) | (.043) | (.043) | (.043) |
| Constant | .387*** | .380*** | .413*** | .354** |
| | (.110) | (.111) | (.112) | (.118) |
| Observations | 431 | 431 | 431 | 431 |
| Log Likelihood | −327.105 | −327.743 | −326.464 | −322.930 |
| Akaike Inf. Crit. | 672.210 | 673.486 | 674.928 | 679.859 |
| Bayesian Inf. Crit. | 708.805 | 710.081 | 719.655 | 748.983 |
| *Notes:* | | | | *P < .05 |
| | | | | **P < .01 |
| | | | | ***P < .001 |

Model 1 includes the participation variable along with controls, program fixed effects, and sector fixed effects. Model 2 uses the same specification as Model 1 but replaces *Participation* with the *Team Credential* variable. Model 3 includes both *Participation* and *Team Credential* along with their interaction term. Model 4 breaks down the *Team Credential* variable into four individual credentialing factors and their interaction terms with

*Participation*.

Model 1 shows that participation in an accelerator program reduces the extent of change in business descriptions. This result makes sense for the argument of venture quality. If accelerators can distinguish ventures of better quality from the other, the room for improvement should be less for participating ventures than for those rejected. While the coefficient remains negative, it is not statistically significant in the other three models. Besides, none of the control variables shows a statistically significant effect on the extent of changes in business descriptions.

The coefficients of *Team Credential* and the individual credentialing factors are negative in general but not statistically significant. The interaction terms between team credentials and participation are not statistically significant, either, except for the interaction term between *Educational Attainment* and *Participation*. Because the interaction terms are included, we have to interpret the effect as a whole. Although the coefficient of the interaction term is positive, the overall effect of educational attainment remains negative because of the negative effect of *Participation*.

In other words, founding teams with better educational attainment in general show changes in business descriptions to a lesser extent than those without. Moreover, the effect is stronger for the participating ventures. The results remain largely the same under Tobit specification as shown in Table 5.3.This finding provides a weak evidence for *Hypothesis 2-1* that team credentials moderates the effect of participation on the extent of changes in ideas, regarding the extent of changes in business description.

This finding could suggest that being selective does not matter for the influence of accelerators on the participating ventures because the interaction terms between team credentials and participation do not show statistically significant effect. However, it could

also mean that the dependent variable is noisy. The similarity score captures all possible changes, including both cosmetic improvement and true revision of business ideas. The result simply suggests that all ventures exhibit a similar extent of changes in business descriptions, regardless of team credentials and participation in accelerators. Therefore, in the next analysis, I use the areas where the ventures want to have an impact, the impact areas, to better examine the effect of team credentials on the revision of business ideas.

Study 2–1-2: the extent of changes in business ideas (impact areas)

To better evaluate the effect of participation on the changes in business ideas and the moderating effect of team credentials on the accelerator participation, I utilize the questions about the areas which the ventures want to have an impact on in the initial survey and follow-up surveys. The dependent variable is the count of the areas changed, so I use the negative binomial models to examine the data of 1,712 ventures.

I follow the same specifications as in Study 2-1-1. Model 1 includes the *Participation* variable with the controls. Model 2 replaces *Participation* with *Team Credential*. Model 3 includes the two variables and the interaction term. Model 4 examines the individual credentialing factors along with the interactions. All four models include the program and sector fixed effects. Table 5.4 presents the results from the four negative binomial regression models.

The coefficients are quite stable across models. *Total Revenues* has a strong negative effect on the number of impact areas changed at 1% significance level. This result makes sense in that companies capable of generating revenues are likely to have a clear market position already. Therefore, these companies are less likely to revise their business ideas or market positions. Both *Average Founding Team Age* and *Firm Age* have a statistically

significant positive effect, but the effect size is too minute to have a meaningful interpretation.

**Table 5.4:** Negative Binomial Models of Effects of Participation and Team Credentials on Changes in Impact Areas

| | Number of Impact Areas Changed | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| Participation | −.092* | | .090 | .056 |
| | (.047) | | (.094) | (.101) |
| Team Credential | | .017 | .056 | |
| | | (.027) | (.031) | |
| C-Level Executives | | | | .026 |
| | | | | (.060) |
| Founding Experience | | | | .715*** |
| | | | | (.182) |
| Educational Attainment | | | | .020 |
| | | | | (.055) |
| Team Gender Composition | | | | −.031 |
| | | | | (.061) |
| Total Investment Since Founded (in million USD) | −.034 | −.037 | −.038 | −.037 |
| | (.033) | (.034) | (.034) | (.034) |
| Total Revenues (in million USD) | −.620** | −.632** | −.613** | −.611** |
| | (.229) | (.229) | (.229) | (.230) |
| Total Full-Time Employees | −.004 | −.004 | −.004 | −.004 |
| | (.005) | (.005) | (.005) | (.005) |
| Founding Team Size | .025 | .023 | .026 | .015 |
| | (.016) | (.016) | (.016) | (.017) |
| Average Founding Team Age | .004 | .004 | .003 | .002 |
| | (.002) | (.002) | (.002) | (.002) |
| Firm Age | .007 | .007 | .007 | .007 |
| | (.004) | (.004) | (.004) | (.004) |
| Team Cred. x Parti. | | | −.126* | |
| | | | (.056) | |
| C-level x Parti. | | | | −.070 |
| | | | | (.112) |
| Prior Found. x Parti. | | | | −.597 |
| | | | | (.333) |
| Edu. x Parti. | | | | −.211* |
| | | | | (.098) |
| Gender x Parti. | | | | .012 |
| | | | | (.111) |
| Constant | 1.199*** | 1.146*** | 1.125*** | 1.190*** |
| | (.153) | (.152) | (.156) | (.158) |
| Controls | Yes | Yes | Yes | Yes |
| Program Fixed effects? | Yes | Yes | Yes | Yes |
| Sector Fixed effects? | Yes | Yes | Yes | Yes |
| Observations | 1,712 | 1,712 | 1,712 | 1,712 |
| $\theta$ | 5.337*** (.506) | 5.319*** (.503) | 5.379*** (.512) | 5.542*** (.537) |
| *Notes:* | | | | *P < .05 |
| | | | | **P < .01 |
| | | | | ***P < .001 |

Model 1 shows that *Participation* has a main negative effect on the number of impact areas changed. I do not find a statistically significant main effect for team credentials in Model 2. However, Model 3 shows a statistically significant negative coefficient of the interaction between *Participation* and *Team Credential*. The negative coefficient suggests that participating ventures with better team credentials change less in areas where they

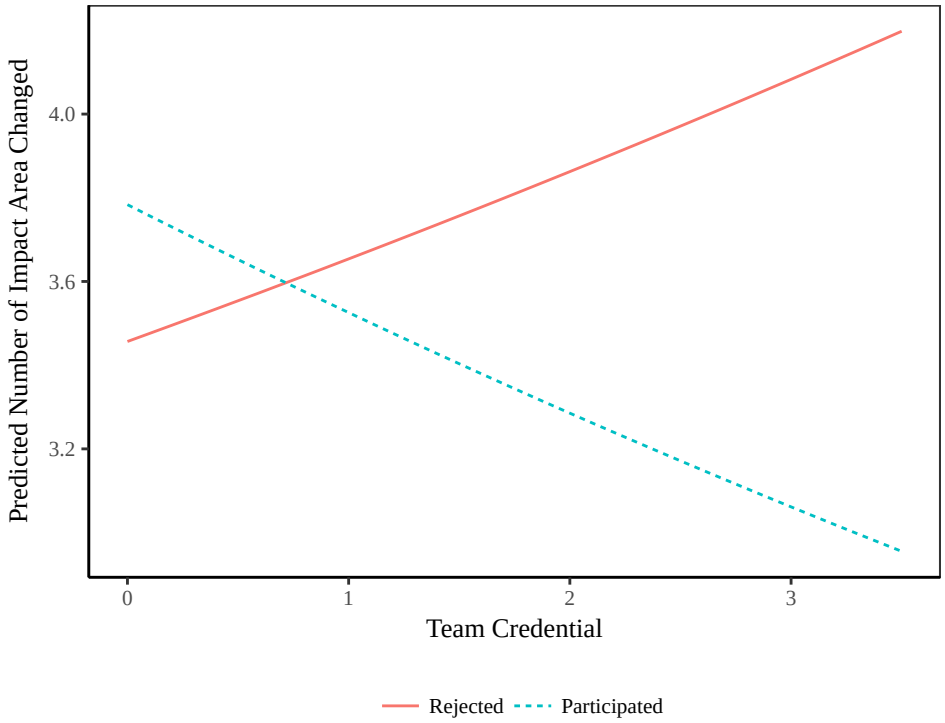


**Figure 5.1:** Predicted Number of Changed Impact Areas of Participants and Rejected Ventures

want to have an impact. Furthermore, Model 4 shows a finding that is consistent with the result in Study 2-1-1. *Educational Attainment* negatively moderates the effect of participation on the extent of change in impact areas. It is worthy to point out that educational attainment is also the main credentialing factor that increases a venture's chance of getting acceptance into an accelerator program.

*Founding Experience* negatively moderates the effect of acceleration as well. While the main effect of *Founding Experience* is positive, participants of accelerator programs demonstrate fewer changes in impact areas. Overall, the composite *Team Credential* variable and the interaction term show that accelerator program participants with better credentials revised their business ideas to a lesser extent than those with inferior team credentials. This finding provides support for *Hypothesis 2-1* that team credentials negatively moderate the effect of participation on the revision of business ideas, regarding the areas where the ventures want to have an impact.

This result also suggests a dynamic between participation and team credentials. I use the coefficients from Model 3 in Table 5.4 to produce a series of predicted number of impact areas changed along with team credentials. I produce a pseudo-dataset for the prediction by using the median values for variables other than *Participation* and *Team Credential*. Then, I generate a series of values of team credentials between the minimum (0) and the maximum (3.55) of the actual *Team Credential* variable. The predicted numbers of impact areas changed are presented in Figure 5.1.

As shown in Figure 5.1, participating and rejected ventures behave differently as the team credentials increase. Teams that participate in accelerator programs exhibit a tendency of decreasing the number of impact areas changed as team credentials increase. In other words, founding teams with better credentials change less once they participate in an accelerator program. However, founding teams with the same level of credentials will change more if they are rejected from an accelerator program. While the predicted values are not conclusive at this point, it may be a phenomenon worth further exploration.

Study 2-2: the extent of changes in the networks

Study 2-2 is set to examine the extent of changes in venture $i$'s social network. Leveraging the feature of Twitter that people can "follow" other Twitter freely, I use the new Twitter following ties the venture $i$ make after participating in program $j$ to evaluate whether accelerator programs have an impact on entrepreneurs' networking behavior. The final dataset for Study 2-2 contains 880 ventures that applied to an accelerator program in 2014 and 2015.

The dependent variable is the number of new Twitter following ties venture $i$ initiated six months after the application. As discussed in the *Dependent Variable* section, a "new"

Twitter following tie is defined as a Twitter following exists at $T_1$ but not at $T_0$. The extent of changes in the social network of venture $i$ is denoted as $\Delta_{Network_i}$. Because the distribution of new Twitter following ties has a few observations falling on the far right, I use the negative binomial model to account for over-dispersion. The program and sector fixed effects are included in all models. Besides, the initial network size, defined as the number of Twitter following ties at $T_0$, is included as a control. The model is specified as follows and the results from the four models are presented in Table 5.5.

$$\Delta_{Network_i} = \alpha + \beta_{Participation_i} Participation_i + \beta_{Credentials_i} Credentials_i +$$

$$\beta_{Participation_i \times Credentials_i} Participation_i \times Credentials_i + \gamma_j Program_j + \gamma_k Sector_k$$

**Table 5.5:** Negative Binomial Models of Effects of Participation and Team Credentials on Changes in Twitter Following Ties

| | Number of New Twitter Following Ties | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| Participation | .237 | | −.191 | −.277 |
| | (.173) | | (.389) | (.412) |
| Team Credential | | .043 | −.017 | |
| | | (.096) | (.105) | |
| C-Level Executives | | | | −.069 |
| | | | | (.212) |
| Founding Experience | | | | −.333 |
| | | | | (.632) |
| Educational Attainment | | | | .126 |
| | | | | (.186) |
| Team Gender Composition | | | | −.127 |
| | | | | (.210) |
| Total Investment Since Founded (in million USD) | .145 | .168 | .146 | .076 |
| | (.198) | (.198) | (.198) | (.198) |
| Total Revenues (in million USD) | −1.263 | −1.226 | −1.295 | −1.400 |
| | (.758) | (.761) | (.761) | (.762) |
| Total Full-Time Employees | .021 | .019 | .022 | .031 |
| | (.020) | (.020) | (.020) | (.020) |
| Founding Team Size | .120* | .129* | .113 | .106 |
| | (.058) | (.058) | (.058) | (.060) |
| Average Founding Team Age | .010 | .010 | .010 | .012 |
| | (.008) | (.008) | (.008) | (.008) |
| Firm Age | −.019 | −.015 | −.021 | −.020 |
| | (.022) | (.022) | (.022) | (.022) |
| Initial Network Size | .001*** | .001*** | .001*** | .001*** |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Team Cred. x Parti. | | | .264 | |
| | | | (.229) | |
| C-level x Parti. | | | | .185 |
| | | | | (.487) |
| Prior Found. x Parti. | | | | .827 |
| | | | | (1.331) |
| Edu. x Parti. | | | | .752 |
| | | | | (.421) |
| Gender x Parti. | | | | .009 |
| | | | | (.467) |
| Constant | 3.524*** | 3.549*** | 3.557*** | 3.743*** |
| | (.571) | (.574) | (.578) | (.612) |
| Program Fixed effects? | Yes | Yes | Yes | Yes |
| Sector Fixed effects? | Yes | Yes | Yes | Yes |
| Observations | 880 | 880 | 880 | 880 |
| Log Likelihood | −4,219.896 | −4,220.611 | −4,219.294 | −4,217.246 |
| $\theta$ | .287*** (.013) | .287*** (.013) | .288*** (.013) | .289*** (.013) |
| Akaike Inf. Crit. | 8,551.793 | 8,553.222 | 8,554.589 | 8,562.492 |

*Notes:*

*P < .05
**P < .01
***P < .001

I follow the same specification as in Study 2-1. Model 1 includes *Participation* along with the control variables and fixed effects. Model 2 replaces *Participation* with *Team Credential*. Model 3 includes both variables and their interaction term. Model 4 decomposes the *Team Credential* variable into four individual credentialing factors.

Again, the effect size and the signs of the coefficients for the controls are consistent across all four models. *Total Revenues* significantly reduces the incidence rate of adding new Twitter following ties to venture $i$'s existing network. *Initial Network Size* is positive and statistically significant. However, the small effect size suggests that it makes a difference only for ventures with a large initial network. *Founding Team Size* also has a positive and significant effect on the incidence rate of adding new Twitter following ties. This result is expected in that larger founding teams have more resources to manage their online social media.

I do not find a statistically significant effect either of accelerator participation or team credentials in the first two models. Furthermore, I do not find a statistically significant effect in the combined model (Model 3), either. Therefore, I do not find support for *Hypothesis 2-2*. Model 4 shows that the interaction between *Educational Attainment* and *Participation* increases the incidence rate of adding new Twitter following ties. This suggests that teams with more founders having a graduate degree are more likely to engage in reaching out to people on Twitter. Since the interaction term is included and significant, we have to evaluate the effect along with the main effects. In general, founding teams with better educational attainment add more Twitter following ties. However, the composite effect, again, suggests that ventures that participate in accelerator programs add fewer Twitter following ties to their existing network than those that got rejected.

This result could suggest that entrepreneurs, in general, recognize the value of expand-

ing social networks, regardless of their credentials. Every founding team would try to expand their social network as much as possible. Therefore, we do not observe statistically significant effect from the *Team Credential* variable. However, participating in an accelerator program does not make founding teams expand their network more actively. Moreover, participating in an accelerator program could lead the ventures to connect less than those failed to get selected.

Study 2-3: the extent of changes in capital

The final study in this section is to examine whether accelerator program participation has an impact on the financial prospect of the early-stage ventures. Moreover, does founding team credentials moderate this effect if any? I focus on two financial outcomes — total new investment and total external equity acquired in the year of acceleration. The final datasets include 1,634 observations after incomplete or erroneous data are removed.

I use linear regression models to test the data first. Then, since the new investment could not be negative, I use Tobit models to examine the effects as a robustness check. The model specification provided below is constructed in the same way as in the previous two.

$$\Delta_{Capital_i} = \alpha + \beta_{Participation_i} Participation_i + \beta_{Credentials_i} Credentials_i +$$

$$\beta_{Participation_i \times Credentials_i} Participation_i \times Credentials_i + \gamma_j Program_j + \gamma_k Sector_k$$

The results are presented in Table 5.6 and Table 5.7. Both tables consist of four models as in the previous two studies. Model 1 includes *Participation* along with the control variables and fixed effects. Model 2 replaces *Participation* with *Team Credential*. Model

3 includes both variables and their interaction term. Model 4 decomposes the *Team Credential* variable into four individual credentialing factors.

**Table 5.6:** Linear Models of Effects of Participation and Team Credentials on Financial Capital (Total New Investment)

| | Total New Investment | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| Participation | .019*** | | −0.000 | −.003 |
| | (.004) | | (.008) | (.008) |
| Team Credential | | .007*** | .003 | |
| | | (.002) | (.003) | |
| C-Level Executives | | | | .001 |
| | | | | (.005) |
| Founding Experience | | | | −.021 |
| | | | | (.016) |
| Educational Attainment | | | | .011* |
| | | | | (.005) |
| Team Gender Composition | | | | .002 |
| | | | | (.005) |
| Total Investment Since Founded (in million USD) | .036*** | .038*** | .036*** | .036*** |
| | (.005) | (.005) | (.005) | (.005) |
| Total Revenues (in million USD) | .090*** | .095*** | .090*** | .086*** |
| | (.018) | (.018) | (.018) | (.018) |
| Total Full-Time Employees | .001** | .001** | .001* | .001* |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Founding Team Size | −.001 | −.001 | −.001 | −.001 |
| | (.001) | (.001) | (.001) | (.001) |
| Average Founding Team Age | 0.000 | −0.000 | 0.000 | 0.000 |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Firm Age | −.001* | −.001 | −.001 | −.001 |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Team Cred. x Parti. | | | .013** | |
| | | | (.004) | |
| C-level x Parti. | | | | .003 |
| | | | | (.009) |
| Prior Found. x Parti. | | | | .041 |
| | | | | (.027) |
| Edu. x Parti. | | | | .012 |
| | | | | (.008) |
| Gender x Parti. | | | | .017 |
| | | | | (.009) |
| Constant | .002 | .007 | .005 | .003 |
| | (.013) | (.013) | (.013) | (.013) |
| Program Fixed effects? | Yes | Yes | Yes | Yes |
| Sector Fixed effects? | Yes | Yes | Yes | Yes |
| Observations | 1,634 | 1,634 | 1,634 | 1,634 |
| Adjusted $R^2$ | .117 | .109 | .126 | .128 |
| F Statistic | 4.056*** (df = 71; 1562) | 3.816*** (df = 71; 1562) | 4.219*** (df = 73; 1560) | 4.025*** (df = 79; 1554) |

*Notes:*

*P < .05
**P < .01
***P < .001

**Table 5.7:** Linear Models of Effects of Participation and Team Credentials on Financial Capital (New External Equity)

| | New External Equity | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| Participation | .009** | | −.003 | −.005 |
| | (.003) | | (.006) | (.006) |
| Team Credential | | .006*** | .003 | |
| | | (.002) | (.002) | |
| C-Level Executives | | | | .002 |
| | | | | (.004) |
| Founding Experience | | | | .002 |
| | | | | (.012) |
| Educational Attainment | | | | .005 |
| | | | | (.003) |
| Team Gender Composition | | | | .003 |
| | | | | (.004) |
| Total Investment Since Founded (in million USD) | .025*** | .026*** | .025*** | .025*** |
| | (.004) | (.004) | (.004) | (.004) |
| Total Revenues (in million USD) | .067*** | .070*** | .067*** | .064*** |
| | (.014) | (.014) | (.014) | (.014) |
| Total Full-Time Employees | 0.000 | 0.000 | 0.000 | 0.000 |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Founding Team Size | −.001 | −.001 | −.001 | −.001 |
| | (.001) | (.001) | (.001) | (.001) |
| Average Founding Team Age | −0.000 | −0.000 | −0.000 | −0.000 |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Firm Age | −.001 | −0.000 | −0.000 | −0.000 |
| | (0.000) | (0.000) | (0.000) | (0.000) |
| Team Cred. x Parti. | | | .008* | |
| | | | (.003) | |
| C-level x Parti. | | | | −.006 |
| | | | | (.007) |
| Prior Found. x Parti. | | | | .020 |
| | | | | (.020) |
| Edu. x Parti. | | | | .016** |
| | | | | (.006) |
| Gender x Parti. | | | | .010 |
| | | | | (.007) |
| Constant | −.001 | −0.000 | −0.000 | −.001 |
| | (.009) | (.009) | (.010) | (.010) |
| Program Fixed effects? | Yes | Yes | Yes | Yes |
| Sector Fixed effects? | Yes | Yes | Yes | Yes |
| Observations | 1,634 | 1,634 | 1,634 | 1,634 |
| Adjusted $R^2$ | .096 | .098 | .105 | .107 |
| F Statistic | 3.453*** (df = 71; 1562) | 3.486*** (df = 71; 1562) | 3.611*** (df = 73; 1560) | 3.486*** (df = 79; 1554) |

*Notes:*

*P < .05
**P < .01
***P < .001

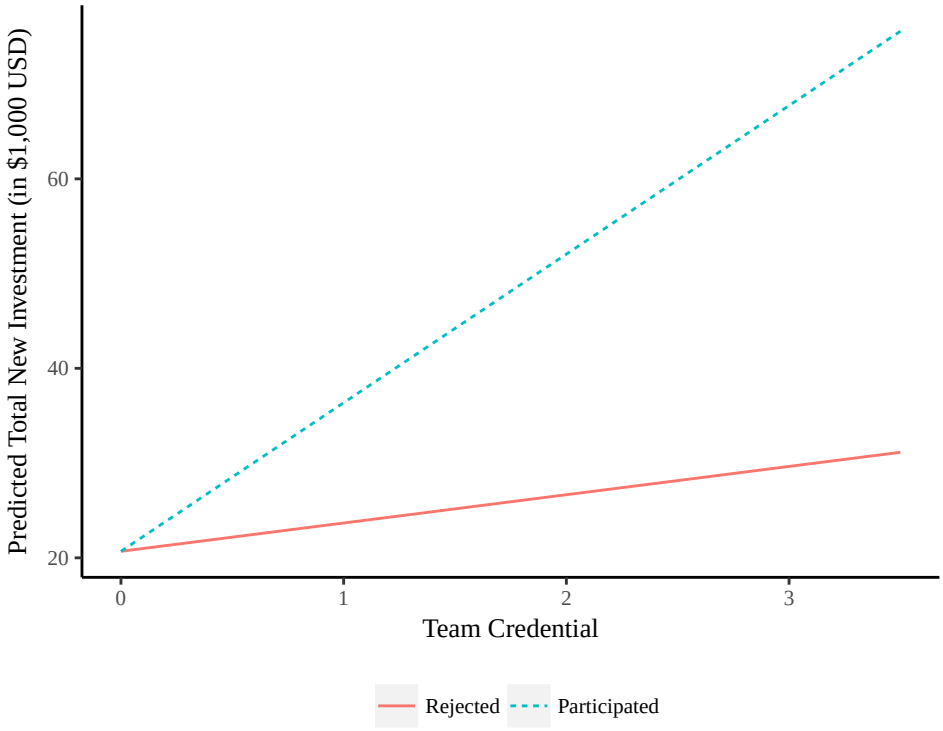


**Figure 5.2:** Predicted Total New Investment

Table 5.6 shows the results from the four linear models examining the effect of participation and team credentials on the increase of total new investment. Once again, the signs and the effect sizes of the control variables are consistent across all four models. Unlike in the previous studies, prior financial performance matters more in obtaining new capital. Both *Total Investment Since Founded* and *Total Revenues* show positive and statistically significant coefficients, suggesting that ventures that show the profitability and their fundraising capability are more able to attract additional capital. Ventures can attract additional funding by demonstrating that they can hire more full-time employees. I do not find effects for *Founding Team Size* and *Average Founding Team Age*. However, younger firms seem more successful in obtaining new capital as shown by the negative coefficient of *Firm Age*.

From Model 1 and Model 2, we can see that *Participation* and *Team Credential* both

have positive and statistically significant main effects. In other words, if people examine accelerator participation alone, it is evidently that accelerator programs do help participating ventures acquire more financial capital. Similarly, founding teams with better credentials also receive more capital, which provides additional evidence to the literature on founding team backgrounds.

However, Model 3 shows that the effect of *Participation* disappears when the interaction term is included. The sign of *Participation* becomes negative as shown in the previous studies. Moreover, the effect size of *Participation* becomes trivial. However, the positive and statistically significant coefficient of the interaction term suggests that teams with better credentials will benefit more from participating in accelerator programs regarding raising financial capital.

Model 4 shows that *Educational Attainment* is once again an important driver for the positive effect of team credentials. The interaction between *Educational Attainment* and *Participation* suggest that the effect of the educational attainment is universal for all ventures in this sample. As long as a founding team has more founders with a graduate degree, the team will attract more funding. The model also shows that teams with more male founders attract more capital, and the effect is greater for participants than for the rejected. In general, founding team credentials matter in attracting new capital, and the effect is much larger if the team participates in an accelerator program. The results hold in the Tobit models.

I then turn my attention to the effects on the increase of external equity in Table 5.7. The pattern is largely identical to that from the models of total new investment. *Participation* and *Team Credential* demonstrate a positive and statistically significant effect on gaining new external equity. In addition, Model 3 suggests that founding teams with bet-

ter credentials are those benefit the most from participating in accelerator programs. The results do not change in the corresponding Tobit models.

To illustrate the effect, I use the coefficients from Model 3 in Table 5.6 to produce a series of predicted amount of new investment along with team credentials. The values of team credentials range from 0 to 3.5. I use the same pseudo-dataset in Study 2-1-2 for the prediction by using the median values for variables other than *Participation* and *Team Credential*. The effect of team credentials and accelerator program participation on the obtainment of new investment is presented in Figure 5.2.

As shown in Figure 5.2, ventures without good team credentials perform similarly in obtaining new investment. However, as team credentials improve, the gap between participants and nonparticipants become wider and wider. In other words, founding teams with better credentials will be able to attract more funding if they participate in accelerator programs. It further suggests that teams without good credentials will not benefit much from their acceleration experience financially.

### 5.0.3 Synopsis

This chapter provides systematic empirical evidence for two research questions: 1) what factors accelerator programs focus on in the highly competitive selection process, and 2) whether such selection has any subsequent effect on the participants. More specifically, Study 1 focuses on the role of founding team credentials in the selection process. The three sub-studies in Study 2 explore the dynamic interplay between accelerator program participation and founding team credentials on three resources of early-stage ventures — knowledge, network, and capital. To sum up the findings from Study 2, I organize the results of the effect of team credentials into Table 5.8.

**Table 5.8:** Models of the Effect of Team Credentials and Accelerator Participation on Knowledge, Network, and Capital

| | Number of Impact Areas Changed | New Twitter Following Ties | Total New Investment |
|---|---|---|---|
| | *negative binomial* | *negative binomial* | *OLS* |
| | 1 | 2 | 3 |
| Participation | .090 | −.191 | −0.000 |
| | (.094) | (.389) | (.008) |
| Team Credential | .056 | −.017 | .003 |
| | (.031) | (.105) | (.003) |
| Team Cred. x Parti. | −.126* | .264 | .013** |
| | (.056) | (.229) | (.004) |
| Constant | 1.125*** | 3.557*** | .005 |
| | (.156) | (.578) | (.013) |
| Controls | Yes | Yes | Yes |
| Program Fixed effects? | Yes | Yes | Yes |
| Sector Fixed effects? | Yes | Yes | Yes |
| Observations | 1,712 | 880 | 1,634 |
| Adjusted $R^2$ | | | .126 |
| $\theta$ | 5.379*** (.512) | .288*** (.013) | |
| F Statistic | | | 4.219*** (df = 73; 1560) |
| *Notes:* | | | *P < .05 |
| | | | **P < .01 |
| | | | ***P < .001 |

Study 1 shows that the overall founding team credential is a critical consideration in the selection process. While accelerator programs appreciate the ability to generate revenues at the early stage, accelerators base their evaluation on team credentials, educational attainment and prior job rank in particular. Founding teams with more founders with graduate degrees or more former C-level executives have a higher chance to get admitted into an accelerator program. This result is consistent with findings from studies on venture capitalists. Resource providers, such as investors and accelerators, look for credible traits of the founding teams that serve as a signal of the ability of the founding teams to move their ventures forward. Since the pool of applicants that accelerators select on consists of early-stage ventures without established financial performance, founding team credentials are therefore important criteria for selection.

I then turn my attention to the effect of team credentials on the acceleration outcomes. In other words, Study 2 is set to explore whether founding team credentials lead to differential outcomes in knowledge, network, and capital after the venture participate in an

accelerator program. Study 1 examines the effect on the extent of changes in the business idea. The results suggest that while accelerators favor ventures with excellent credentials, such selection has an unintended consequence on the development of ideas in the programs. Although accelerators claim that one of the primary benefits of being in the accelerators is to help early-stage ventures better develop their business ideas, the results from Study 2-1 suggests that the better the team credentials of a participating venture, the lower extent it revises its business model. Although changes do not always lead to improvement, no improvement could be made without any change.

People may argue that teams with better credentials may start up their ventures with better quality than the others initially. Therefore, there is little room for them to improve. However, the negative interaction between accelerator participation and founding team credentials from the result of Study 2-1 implies that the quality of a venture needs not correlate with founding team credentials. Figure 5.1 shows that the pattern of revising business models is different between accelerator participants and those rejected from accelerators. Ventures that are rejected from accelerators revise business models more as team credentials increase. In other words, teams with exceptional credentials revise their business ideas more actively if they get rejected. If teams with the same credentials produce ventures with similar quality, we should not observe this opposite pattern.

It could be that rejection is a strong negative signal. Hence, even entrepreneurs with excellent credentials could not be confident in their original ideas. Moreover, founders with better credentials may even have higher aspiration level. When these entrepreneurs receive a negative signal on their business, they may work harder and revise more. Although this pattern is not yet conclusive at this point, it is a pattern worth a careful examination.

Study 2-2, which examines the acceleration effect on the social network, does not show a moderation effect of founding team credentials as in Study 2-1. However, I do not find the effect of acceleration, either. The results may indicate that founding teams are all aware of the importance of expanding their social network, regardless of the level of team credentials. Therefore, I do not find the moderating effect of team credentials.

Finally, Study 2-3 examines the financial outcomes after acceleration. My results show that the financial benefit of accelerator programs, such as attracting new funding, largely flows to founding teams with better credentials overall. Without an attractive team portfolio, a founding team still has difficulty in obtaining new capital even when participating in an accelerator program.

The integrated result indicates that teams with great credentials have a higher chance to participate in accelerator programs. However, in the accelerator programs, founding teams with exceptional credentials do not revise their business ideas much, do not expand their social network more actively, but obtain more financial capital than those without. In other words, the positive acceleration outcomes we have observed so far may largely result from selection rather than acceleration. Accelerators select into their programs funding teams with profiles that are favorable to the investors. Then, these teams do not benefit much from the acceleration experience regarding knowledge and network, as claimed by accelerators, but still, enjoy the benefit of acquiring more financial capital. However, teams that cooperate and revise their ideas in the programs are not able to transform those changes or improvements into financial benefits.

# 6

# The Selective Attention to Acceleration Benefits

### 6.0.1 Overview of the Desired Benefits in the EDP Data

In the previous section, I have shown that the acceleration outcomes correlate differently with the credentials of the founding teams. Founding teams with greater credentials revise their business models to a lesser extent but receive more financial capital than their cohort members after acceleration.

This section attempts to provide a partial explanation for this observed difference in acceleration outcomes. My selective attention argument proposes that founding team credentials moderate the preferences for resources. Teams with better credentials will

prefer tangible resources, such as financial capital, than tacit resources like mentorship and network because of overconfidence. This section empirically tests this proposition by examining the relationship between founding team credentials and the stated preferences for acceleration benefits.

The data for the preferences for acceleration benefits are collected by the *Entrepreneurship Database Program* from applicants applying to the partnering accelerator programs between 2013 and 2015. In the application survey, applying entrepreneurs are asked to rank seven acceleration benefits according to the importance to them. The seven benefits are *network development (Network)*, e.g. with potential partners and customers, *business skill Development (Business Skills)*, *mentorship from business experts (Mentorship)*, *access and connections to potential investors/funders (Access to Investors)*, *securing direct venture funding (Direct Funding)*, *gaining access to a group of like-minded entrepreneurs (Access to Like-minded Entrepreneurs)*, and *awareness and credibility (Awareness and Credibility)*. The respondents rank the seven benefits from 1 to 7 with one being the most important and seven being the least important. For simplicity, I exclude observations that lack a complete ranking of the seven items and those with ties in the ranking, reducing the sample size from 3,049 to 2,860.

**Table 6.1:** Summary Statistics of Expected Acceleration Benefits

| | N | Mean | SD | Median | Min. | Max. | % of being the 1st Choice |
|---|---|---|---|---|---|---|---|
| Network Development | 2860.00 | 3.42 | 1.89 | 3.00 | 1.00 | 7.00 | 0.22 |
| Business Skills | 2860.00 | 4.10 | 2.00 | 4.00 | 1.00 | 7.00 | 0.13 |
| Mentorship | 2860.00 | 3.47 | 1.76 | 3.00 | 1.00 | 7.00 | 0.17 |
| Access to Investors | 2860.00 | 3.37 | 1.77 | 3.00 | 1.00 | 7.00 | 0.14 |
| Direct Funding | 2860.00 | 3.54 | 2.06 | 3.00 | 1.00 | 7.00 | 0.23 |
| Access to Like-minded Entrepreneurs | 2860.00 | 5.03 | 1.74 | 5.00 | 1.00 | 7.00 | 0.04 |
| Awareness and Credibility | 2860.00 | 5.05 | 1.88 | 6.00 | 1.00 | 7.00 | 0.06 |

Table 6.1 shows the summary statistics of the seven benefits. The last column *% of being the 1st Choice* indicates the percentage of the corresponding benefit ranked as the most important benefit by the respondents. I use the mean of the ranking and the per-

centage of being the first choice to get the preference order in the overall sample. The result is presented in Table 6.2.

Table 6.2 shows that the order of ranking is quite consistent between the mean and the percentage of being the first choice. *Access to Investors* is the most desired benefit according to the mean ranking, and *Direct Funding* ranks the first according to the percentage. While the two benefits switch in ranking in the two ordering, both of them are related to financial capital. *Network Development* is ranked second, following by *Mentorship* in both rankings. *Business Skills*, *Access to Like-minded Entrepreneurs*, and *Awareness and Credibility* are the last three in both rankings. In other words, the applicants consider financial capital the most important resources, following by network, and knowledge the least. This finding provides some initial support to my argument. Then, I use one type of the discrete choice models, the rank-ordered choice model to analyze the preference ranking together with the team credential variables.

**Table 6.2:** Ranks of Expected Acceleration Benefits

| Benefit | Mean | % of being the 1st choice |
|---|---|---|
| Access to Investors | 1 | 4 |
| Network Development | 2 | 2 |
| Mentorship | 3 | 3 |
| Direct Funding | 4 | 1 |
| Business Skills | 5 | 5 |
| Access to Like-minded Entrepreneurs | 6 | 7 |
| Awareness and Credibility | 7 | 6 |

### 6.0.2 The Rank-Ordered Choice Model

A rank-ordered choice model is a generalized form of the conditional logit model (McFadden, 1974). Beggs, Cardell, and Hausman (1981) introduce this generalized model to analyze survey questions that consist of rankings over a set of alternatives. The respondents are asked to rank the set of choices altogether according to their preference.

It is different from the other two choice models, the ordered logit model (McCullagh,

1980) and the multinomial logit model, in several ways. The ordered logit model is suitable for situations when the dependent variable of interest is an ordinal response. For instance, a survey question may ask respondents to rate how likely they would buy a new game console from least likely to most likely. In contrast, the multinomial logit model is designed to analyze only the respondent's preferred choice over a set of alternatives.

The rank-ordered choice model integrates the features of the two models and analyzes the underlying preference of the respondents with more information collected from the survey. Because the respondent reveals more information about the preference order through ranking a complete or partial set of attributes or alternatives, the rank-ordered logit is a more cost-effective way in market research. It becomes popular in many research areas, such as economics, marketing, and sociology (Allison and Christakis, 1994; Beggs et al., 1981; Chapman and Staelin, 1982; Fok et al., 2012; Hausman and Ruud, 1987).

The rank-ordered logit model is also called as the *exploded logit model*, which was independently developed in the field of marketing research (Punj and Staelin, 1978; Chapman and Staelin, 1982). This name captures better the formulation of the model than the *rank-ordered logit model*. The formulation begins with the random utility model. Respondent $i$ is asked to give a rank to $J$ items. Assuming that there are no ties, $Y_{ij}$ denotes the rank assigned by the respondent $i$ to item $j$. Respondent $i$ has an unobserved utility $U_{ij}$ for each item $j$ from item 1 to item $J$. The respondent is supposed to give item $j$ a better rank than item $k$ if $U_{ij} > U_{ik}$. $U_{ij}$ could be decomposed into a systematic component $\mu_{ij}$ and a random error term $\epsilon_{ij}$ as follows.

$$U_{ij} = \mu_{ij} + \epsilon_{ij}$$

$\epsilon_{ij}$'s are assumed to be independent and identically distributed as a Gumbel distribu-

tion. With these assumptions, the probability of choosing item $j$ out of the $J$ items can be written as the usual logit form:

$$P_j = \frac{e^{\mu_j}}{\sum_{k=1}^{J} e^{\mu_k}}$$

The rank-ordered logit model extends this basic formulation by utilizing the well-known *independence from irrelevant alternatives* (IIA) assumption. The IIA assumption assumes that the respondent's utility function is determined only by the characteristics of the two alternatives under evaluation and not by those of other alternatives. In other words, the stage of ranking or the sequence of ranking does not matter for the outcome. With the IIA assumption, the ranking of all alternatives can be decomposed into a series of traditional multinomial models, i.e., choices of the best alternatives. The size of the available alternative sets is decreasing after a choice is made. The probability of the full ranking will be the product of the probabilities from all models.

Following Croissant's (2012) example, if there are four available alternatives and the ranking made by the respondent $i$ is 2-4-1-3, the probability of this ranking can be written as the follows.

1. Alternative 3 is the best choice out of the four available, the probability is:

$$P_3 = \frac{e^{\mu_3}}{e^{\mu_1} + e^{\mu_2} + e^{\mu_3} + e^{\mu_4}}$$

2. Alternative 3 is removed from the set of available alternatives. The probability that alternative 1 is the best choice is:

$$P_1 = \frac{e^{\mu_1}}{e^{\mu_1} + e^{\mu_2} + e^{\mu_4}}$$

3. Alternative 1 is removed from the alternative set. The probability that alternative 4 is the best choice is:

$$P_4 = \frac{e^{\mu_4}}{e^{\mu_2} + e^{\mu_4}}$$

4. The final probability will then be $P_3 \times P_1 \times P_4$.

The systematic component $\mu_{ij}$ can be further decomposed into the following form.

$$\mu_{ij} = \alpha_j + \beta x_j + \gamma_j z_i + \delta w_{ij}$$

The $x_j$ vector describes the alternative specific variables. These variables vary over alternatives but remain the same for all respondents. The $z_i$ vector represents the individual specific variables, which vary over respondents but do not change for all alternatives. The $w_{ij}$ vectors contain variables describing a connection between respondent $i$ and alternative $j$. For example, it denotes whether a respondent owns a particular game console in Fok, Paap, and van Dijk's (2012) study on the game platform.

In this study, I am interested in only the individual specific characteristics. Namely, I am interested in how the founding team's credential affects the ranking of the seven desired benefits from the accelerator programs. Therefore, my model is specified as follows.

$$\mu_{ij} = \alpha_j + \beta_j Credential_i + \gamma_j Controls_i$$

I start with the 2,860 observations from the EDP dataset. Since there are seven alternatives, a respondent will have to conduct six evaluations to produce the full ranks. Therefore, I end up with 17,160 observations. In addition, I use *Awareness and Credibility* as the baseline alternative in this study.

**Table 6.3:** Ranked-Order Logit Models of Founding Team Preferences for Acceleration Benefits - Fixed Effect

| | 1 | 2 | 3 |
|---|---|---|---|
| Access to Entrepreneurs(intercept) | −.193 | −.305 | −.345 |
| | (.233) | (.241) | (.243) |
| Access to Investors(intercept) | 1.060*** | .929*** | .950*** |
| | (.235) | (.242) | (.244) |
| Business Skills(intercept) | .816*** | .987*** | .998*** |
| | (.236) | (.243) | (.246) |
| Direct Funding(intercept) | 1.006*** | .917*** | .926*** |
| | (.241) | (.248) | (.250) |
| Mentorship(intercept) | .879*** | 1.002*** | .992*** |
| | (.232) | (.241) | (.243) |
| Network(intercept) | .915*** | .793*** | .760** |
| | (.229) | (.236) | (.239) |
| Access to Entrepreneurs(C-level) | | .086 | |
| | | (.048) | |
| Access to Investors(C-level) | | .113* | |
| | | (.049) | |
| Business Skills(C-level) | | −.134** | |
| | | (.049) | |
| Direct Funding(C-level) | | .080 | |
| | | (.049) | |
| Mentorship(C-level) | | −.087 | |
| | | (.049) | |
| Network(C-level) | | .113* | |
| | | (.049) | |
| Access to Entrepreneurs(Prior Found.) | | | .071 |
| | | | (.092) |
| Access to Investors(Prior Found.) | | | .201* |
| | | | (.095) |
| Business Skills(Prior Found.) | | | −.076 |

Continued on next page

Table 6.3 – continued from previous page

| | 1 | 2 | 3 |
|---|---|---|---|
| | | | (.095) |
| Direct Funding(Prior Found.) | | | .117 |
| | | | (.096) |
| Mentorship(Prior Found.) | | | −.122 |
| | | | (.094) |
| Network(Prior Found.) | | | .132 |
| | | | (.095) |
| Access to Entrepreneurs(Edu.) | | | .096 |
| | | | (.307) |
| Access to Investors(Edu.) | | | .006 |
| | | | (.310) |
| Business Skills(Edu.) | | | −.303 |
| | | | (.318) |
| Direct Funding(Edu.) | | | −.273 |
| | | | (.311) |
| Mentorship(Edu.) | | | −.116 |
| | | | (.308) |
| Network(Edu.) | | | .199 |
| | | | (.309) |
| Access to Entrepreneurs(Gender) | | | .001 |
| | | | (.086) |
| Access to Investors(Gender) | | | .063 |
| | | | (.088) |
| Business Skills(Gender) | | | −.165 |
| | | | (.088) |
| Direct Funding(Gender) | | | .145 |
| | | | (.088) |
| Mentorship(Gender) | | | −.063 |

Continued on next page

Table 6.3 – continued from previous page

| | 1 | 2 | 3 |
|---|---|---|---|
| | | | (.087) |
| Network(Gender) | | | −.018 |
| | | | (.087) |
| Access to Entrepreneurs(Total Inv.) | | | .201* |
| | | | (.098) |
| Access to Investors(Total Inv.) | | | .085 |
| | | | (.099) |
| Business Skills(Total Inv.) | | | −.132 |
| | | | (.098) |
| Direct Funding(Total Inv.) | | | .048 |
| | | | (.100) |
| Mentorship(Total Inv.) | | | −.062 |
| | | | (.098) |
| Network(Total Inv.) | | | .221* |
| | | | (.098) |
| Program Fixed effects? | Yes | Yes | Yes |
| Sector Fixed effects? | Yes | Yes | Yes |
| Observations | 17,160 | 17,160 | 17,160 |
| LR Test | 21,040.750*** | 21,094.990*** | 21,112.890*** |
| | (df = 408) | (df = 414) | (df = 432) |

*Notes:* *P < .05

**P < .01

***P < .001

**Table 6.4:** Ranked-Order Logit Models of Founding Team Preferences for Acceleration Benefits

| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| Access to Entrepreneurs(intercept) | .377** | .017 | .311* | .314* |
| | (.145) | (.071) | (.149) | (.157) |
| Access to Investors(intercept) | .608*** | .751*** | .461** | .462** |
| | (.146) | (.072) | (.150) | (.159) |
| Business Skills(intercept) | .902*** | .845*** | 1.060*** | 1.122*** |
| | (.147) | (.072) | (.152) | (.160) |
| Direct Funding(intercept) | .614*** | .684*** | .529*** | .510** |
| | (.145) | (.072) | (.150) | (.158) |
| Mentorship(intercept) | 1.513*** | 1.096*** | 1.558*** | 1.622*** |
| | (.144) | (.072) | (.149) | (.158) |
| Network(intercept) | 1.206*** | .783*** | 1.093*** | 1.068*** |
| | (.147) | (.072) | (.152) | (.159) |
| Access to Entrepreneurs(C-level) | | | | .132 |
| | | | | (.089) |
| Access to Investors(C-level) | | | | .198* |
| | | | | (.092) |
| Business Skills(C-level) | | | | .001 |
| | | | | (.092) |
| Direct Funding(C-level) | | | | .128 |
| | | | | (.092) |
| Mentorship(C-level) | | | | −.010 |
| | | | | (.091) |
| Network(C-level) | | | | .155 |
| | | | | (.091) |
| Access to Entrepreneurs(Prior Found.) | | | | .411 |
| | | | | (.284) |
| Access to Investors(Prior Found.) | | | | .604* |
| | | | | (.287) |
| Business Skills(Prior Found.) | | | | −.143 |

Continued on next page

Table 6.4 – continued from previous page

| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| | | | | (.295) |
| Direct Funding(Prior Found.) | | | | .138 |
| | | | | (.290) |
| Mentorship(Prior Found.) | | | | .245 |
| | | | | (.287) |
| Network(Prior Found.) | | | | .527 |
| | | | | (.286) |
| Access to Entrepreneurs(Edu.) | | | | −.060 |
| | | | | (.078) |
| Access to Investors(Edu.) | | | | .054 |
| | | | | (.080) |
| Business Skills(Edu.) | | | | −.293*** |
| | | | | (.080) |
| Direct Funding(Edu.) | | | | .055 |
| | | | | (.080) |
| Mentorship(Edu.) | | | | −.055 |
| | | | | (.079) |
| Network(Edu.) | | | | −.047 |
| | | | | (.079) |
| Access to Entrepreneurs(Gender) | | | | .141 |
| | | | | (.088) |
| Access to Investors(Gender) | | | | .245** |
| | | | | (.089) |
| Business Skills(Gender) | | | | −.221* |
| | | | | (.089) |
| Direct Funding(Gender) | | | | .150 |
| | | | | (.090) |
| Mentorship(Gender) | | | | −.117 |

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Table 6.4 – continued from previous page

| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| | | | | (.089) |
| Network(Gender) | | | | .250** |
| | | | | (.089) |
| Access to Entrepreneurs(Total Inv.) | .017 | | .015 | .016 |
| | (.037) | | (.037) | (.037) |
| Access to Investors(Total Inv.) | .030 | | .025 | .027 |
| | (.041) | | (.041) | (.041) |
| Business Skills(Total Inv.) | −.026 | | −.008 | −.004 |
| | (.065) | | (.058) | (.057) |
| Direct Funding(Total Inv.) | .010 | | .006 | .006 |
| | (.041) | | (.041) | (.041) |
| Mentorship(Total Inv.) | −.047 | | −.038 | −.035 |
| | (.067) | | (.065) | (.065) |
| Network(Total Inv.) | .085 | | .082 | .084 |
| | (.056) | | (.056) | (.056) |
| Access to Entrepreneurs(Total Rev.) | .282 | | .322 | .346 |
| | (.368) | | (.368) | (.368) |
| Access to Investors(Total Rev.) | .574 | | .617 | .629 |
| | (.390) | | (.390) | (.390) |
| Business Skills(Total Rev.) | .857* | | .779* | .781* |
| | (.389) | | (.390) | (.390) |
| Direct Funding(Total Rev.) | .266 | | .304 | .305 |
| | (.388) | | (.389) | (.388) |
| Mentorship(Total Rev.) | .931* | | .940* | .922* |
| | (.385) | | (.386) | (.386) |
| Network(Total Rev.) | .355 | | .365 | .394 |
| | (.384) | | (.385) | (.385) |
| Access to Entrepreneurs(Full-Time Emp.) | .007 | | .006 | .005 |

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Table 6.4 – continued from previous page

| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| | (.009) | | (.009) | (.009) |
| Access to Investors(Full-Time Emp.) | .002 | | −.001 | −.002 |
| | (.009) | | (.009) | (.009) |
| Business Skills(Full-Time Emp.) | .023** | | .025** | .024** |
| | (.009) | | (.009) | (.009) |
| Direct Funding(Full-Time Emp.) | .007 | | .005 | .004 |
| | (.009) | | (.009) | (.009) |
| Mentorship(Full-Time Emp.) | −.012 | | −.012 | −.012 |
| | (.009) | | (.009) | (.009) |
| Network(Full-Time Emp.) | .007 | | .005 | .003 |
| | (.009) | | (.009) | (.009) |
| Access to Entrepreneurs(Team Size) | .008 | | .003 | −.008 |
| | (.028) | | (.028) | (.029) |
| Access to Investors(Team Size) | .085** | | .075** | .061* |
| | (.028) | | (.029) | (.030) |
| Business Skills(Team Size) | .032 | | .040 | .040 |
| | (.029) | | (.029) | (.030) |
| Direct Funding(Team Size) | .055 | | .047 | .046 |
| | (.028) | | (.029) | (.030) |
| Mentorship(Team Size) | .036 | | .037 | .030 |
| | (.028) | | (.028) | (.029) |
| Network(Team Size) | .046 | | .037 | .022 |
| | (.028) | | (.029) | (.030) |
| Access to Entrepreneurs(Team Age) | −.009* | | −.010** | −.010** |
| | (.004) | | (.004) | (.004) |
| Access to Investors(Team Age) | .006 | | .004 | .004 |
| | (.004) | | (.004) | (.004) |
| Business Skills(Team Age) | −.015*** | | −.012*** | −.013*** |

Continued on next page

Table 6.4 – continued from previous page

| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| | (.004) | | (.004) | (.004) |
| Direct Funding(Team Age) | .003 | | .001 | .001 |
| | (.004) | | (.004) | (.004) |
| Mentorship(Team Age) | −.017*** | | −.017*** | −.017*** |
| | (.004) | | (.004) | (.004) |
| Network(Team Age) | −.010** | | −.012*** | −.012** |
| | (.004) | | (.004) | (.004) |
| Access to Entrepreneurs(Firm Age) | .002 | | .005 | .005 |
| | (.009) | | (.010) | (.010) |
| Access to Investors(Firm Age) | −.007 | | −.002 | −.003 |
| | (.009) | | (.010) | (.010) |
| Business Skills(Firm Age) | .014 | | .009 | .008 |
| | (.010) | | (.010) | (.010) |
| Direct Funding(Firm Age) | −.003 | | −0.000 | −0.000 |
| | (.010) | | (.010) | (.010) |
| Mentorship(Firm Age) | 0.000 | | −.001 | −.002 |
| | (.010) | | (.010) | (.010) |
| Network(Firm Age) | −.006 | | −.002 | −.002 |
| | (.010) | | (.010) | (.010) |
| Access to Entrepreneurs(Team Cred.) | | .067 | .085 | |
| | | (.043) | (.045) | |
| Access to Investors(Team Cred.) | | .204*** | .187*** | |
| | | (.044) | (.045) | |
| Business Skills(Team Cred.) | | −.189*** | −.174*** | |
| | | (.045) | (.046) | |
| Direct Funding(Team Cred.) | | .119** | .109* | |
| | | (.045) | (.046) | |
| Mentorship(Team Cred.) | | −.079 | −.045 | |

Continued on next page

Table 6.4 – continued from previous page

| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| | | (.044) | (.045) | |
| Network(Team Cred.) | | .125** | .138** | |
| | | (.044) | (.045) | |
| Observations | 17,160 | 17,160 | 17,160 | 17,160 |
| LR Test | 20,095.390*** | 20,068.150*** | 20,187.880*** | 20,216.330*** |
| | (df = 42) | (df = 12) | (df = 48) | (df = 66) |

*Notes:*

*P < .05

**P < .01

***P < .001

### 6.0.3 Model Results

I estimated two sets of models by using the `mlogit` package in R. The first set of models include the team credential variables along with the program and sector fixed effects. The second sets of models include the team credential variables along with the control variables in the previous studies. The results from the first sets of models are presented in Table 6.4. The first model in Table 6.4 includes only the alternative specific intercepts and the fixed effects. Model 2 includes the *Team Credential*. Model 3 decomposes the *Team Credential* variable into four individual credentialing factors.

The intercepts indicate the baseline preference for the alternatives. Since the fixed effects are not associated with the characteristics of the respondents, the intercepts from Model 1 represent the average preference order from all respondents. The intercepts are all statistically significant except for *Access to Like-minded Entrepreneurs*. The preference order is *Access to Investors* (1.060), *Direct Funding* (1.006), *Network* (0.915), *Mentorship* (0.879), *Business Skills* (0.816), *Awareness and Credibility* (0), and *Access to Like-minded Entrepreneurs* (-0.193). This result provides initial support for Hypothesis 3 that entrepreneurs pay less attention to tacit resources. The first two desired benefits are related to financial capital, following by network and then by knowledge.

The interpretation of the coefficients changes after *Team Credential* is included in Model 2. The baseline intercepts become the preference of teams whose composite team credential score is zero. In other words, the intercepts in Model 2 represent the preference order of founding teams with the lowest credential score. The new rank order is *Mentorship* (1.002), *Business Skills* (0.987), *Access to Investors* (0.929), *Direct Funding* (0.917), *Network* (0.793), *Awareness and Credibility* (0), and *Access to Like-minded*

*Entrepreneurs* (-0.305). Clearly, for founding teams with the lowest credential score, improving knowledge is the top priority.

Moreover, Model 2 shows how the preference changes along with *Team Credential*. The estimates of the $\beta_j$ coefficients can be interpreted as the differences in log odds. For example, the coefficient of *Team Credential* with *Mentorship* is -0.087. We can interpret it as the odds of preferring *Mentorship* are 0.92 ($e^{-0.087} = 0.92$) times the odds of preferring *Awareness and Credibility* if the *Team Credential* variable increases by one. For simplicity, I will interpret the estimates by using the "absolute" term rather than relational although the preference for a particular benefit always results from the comparison with *Awareness and Credibility*.

The estimates for the effect of *Team Credential* on the alternatives are all statistically significant, except for *Direct Funding*. Both *Business Skills* and *Mentorship* have negative coefficients, indicating that the odds of preferring these two resources drop when the founding teams have better credentials. In contrast, the positive coefficients of *Access to Investors*, *Direct Funding*, and *Network* suggest that the founding team's preference for financial capital and network increase when the team has better credentials. However, to see the effect on the preference ranking, the coefficients need to be integrated with the intercepts. Therefore, I recover the preference ranking at different levels of team credentials by using these estimates and plot them in Figure 6.1.

Figure 6.1 shows that the ranking becomes stable early in the scale of *Team Credential* (median = 1.43). After then, the ranking is always with *Access to Investors* on the top, following by *Direct Funding* and then by *Network*. *Mentorship* and *Business Skills* have rank four and five respectively. The least preferred benefits are *Awareness and Credibility* and *Access to Like-minded Entrepreneurs*. This result supports Hypothesis 3 that the

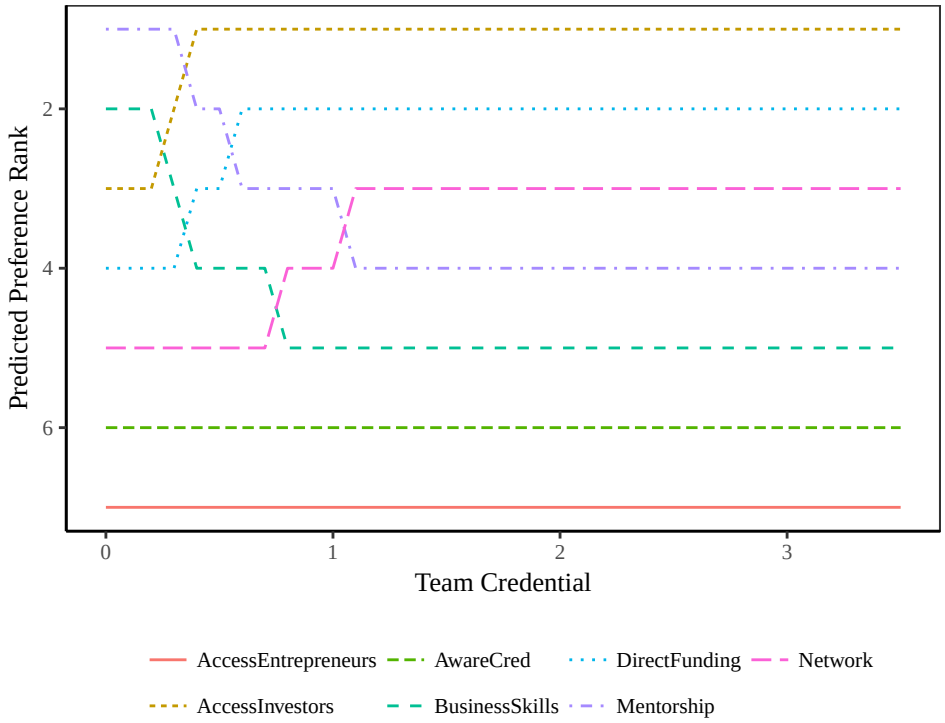


**Figure 6.1:** Predicted Preference Rank

preference order is capital, network, and knowledge because people pay less attention to tacit resources.

Furthermore, the hypothesized relationship between *Team Credential* and preference ranking is observed when teams with a lower *Team Credential* score. Teams with a low *Team Credential* score appreciates the development of knowledge the most. The preference order of these founding teams could be summarized as knowledge, capital, and network. However, this preference order changes when teams have better credentials. The preference shifts from knowledge to capital and network. Therefore, Hypothesis 4 is supported.

Model 3 breaks down the *Team Credential* variable into four individual credentialing factors along with the fixed effects. The baseline preference order is roughly the same as that in Model 2, except for that some items alter the order with the adjacent benefit. The effects are not always statistically significant under this configuration. For instance, none

of the *Prior Founding* coefficients is significant. However, the coefficients from *C-Level Executives* and *Educational Attainment* share a similar pattern with that observed in Model 2 that the founding teams give a higher rank to capital and network and a lower rank to knowledge as the level of the two credentialing factors increases.

I produce a second set of the models to test if the findings hold with performance-related control variables. The results are presented in Table 6.4. Model 1 in Table 6.4 includes the control variables only, and Model 2 includes the *Team Credential* variable only. Model 3 integrates the two and Model 4 breaks down the *Team Credential* variable into individual credentialing factors.

From these results, we can observe a consistent pattern as the pattern identified in Model 2 of Table 6.4. As long as the variables in the model are associated with performance, the baseline preference order will be knowledge, capital, and network. Then, the ranking order changes as the level of credentials or credentialing factors increase. The coefficients of *Team Credential* with *Mentorship* and *Business Skills* are negative and statistically significant in Model 2 and 3. On the contrary, the coefficients of *Team Credential* are positive and statistically significant for *Access to Investors*, *Direct Funding*, and *Network*. Therefore, the findings provide support for my argument that founding team credentials moderate the founding teams' attention to resources.

# 7

# Conclusion

### 7.0.1 Summary

This dissertation provides a holistic examination of business accelerators with a particular focus on the backgrounds of founding teams. Business accelerators have become an important resource provider in the entrepreneurship ecosystem. Nevertheless, data availability and the novelty of this phenomenon prevent researchers and practitioners from understanding business accelerators in a comparative and systematic fashion. The Entrepreneurship Database Program at Emory University, launched in 2013, is set up to address this issue by collecting comparable applicant data from multiple accelerator programs in the world.

The EDP dataset of 4,125 early-stage ventures by the end of 2015 allows this dissertation to explore how accelerators construct their cohorts and the final acceleration outcomes. The results of Study 1 show that teams with better credentials, such as having more founders with a graduate degree or as former C-level executives, have a higher chance to be selected by the accelerator programs. This result is consistent with the evidence in the management literature that founding team backgrounds matter when the resource providers evaluate the viability of the ventures. Business accelerators have the incentive to construct portfolios that are favorable by potential investors (Kim and Wagman, 2014). In addition, business accelerators are under the pressure of having star startups on their list of alumni, especially for new accelerator programs. Therefore, it is not surprising to observe that accelerators base their selection criterion on founding team backgrounds.

Study 2 examines how founding team credentials affect the acceleration outcomes in knowledge, network, and capital. The results suggest that founding teams with better credentials revise their business idea to a lesser extent, do not connect more, but acquire more financial capital than their cohort peers with less attractive backgrounds. While the design of this study is not for identifying the causal effect of acceleration, this finding suggests that the observed positive acceleration effect on financial performance is primarily driven by selection. The accelerators act as a broker between venture capitalists and entrepreneurs. They select the ones that will be favored by the investors. Therefore, founding teams with the best credentials enjoy the benefits from the accelerators because they can access to investors more easily. However, if the founding teams do not have an attractive profile, they do not benefit much from the acceleration experience financially even though they work with the mentors revising their business skills and ideas.

Business accelerators may or may not behave in this way on purpose. Because the ac-

celeration outcomes are determined by the accelerators, the participating entrepreneurs, and the investors. Accelerator programs provide the resources for entrepreneurs. Entrepreneurs decide the extent to which they want to utilize it. The investors produce the final financial outcomes. Study 3 attempts to provide a partial explanation for the observed differential acceleration outcomes in Study 2. I argue that entrepreneurs tend to pay more attention to resources with tangible benefits. The founding team backgrounds will enhance this tendency because of overconfidence. The results from Study 3 suggest that founding teams pay more attention to financial capital than the network, and knowledge the least in general.

Figure 6.1 further shows that this preference order changes along with the founding team backgrounds. Founding teams with the least attractive human capital appreciate the value of knowledge more than financial capital. However, this preference is soon surpassed by the preference for network and capital when the team accumulates more human capital. The early convergence of the preference order could mean that entrepreneurs are overconfident overall. Therefore, they believe in the correctness and readiness of their original ideas with some support from their education and experience. It could also be that the observed pattern is driven by under confidence rather than by overconfidence, which requires further exploration.

In sum, the observed differential acceleration outcomes in knowledge, network, and capital could partly be due to the entrepreneurs' selective attention on resources. If the participating entrepreneurs do not recognize the need for knowledge from the beginning, they will not revise their business ideas even when they have access to mentors in the program. Also, it is valid to argue that ventures started up by founders with better backgrounds have less room to improve. However, Study 2 shows that rejected found-

ing teams with the same level of team credentials as those who participated in a program revise their ideas more. If the quality of the ventures is a function of the founding team background, we should not observe this reversed relationship. Therefore, it is more likely that the differential acceleration outcomes are driven, at least partly, by the entrepreneurs' subjective evaluation of resource needs.

### 7.0.2 Contribution

This dissertation contributes to our systematic understanding of the business accelerators. We now know better the effect of the brokerage position of business accelerators in the entrepreneurship ecosystem on their selection process. This finding provides insight for practitioners and governors who are interested in accelerator programs. If the goal of the programs is to foster entrepreneurship through training and mentorship, the programs need to be free from the pressure or temptation to choose the star teams only. Teams with excellent backgrounds are attractive, but they do not need or want mentorship and skill training provided at the accelerator programs. These resources might produce greater values if given to entrepreneurs in need.

This study also contributes to the literature of founders' backgrounds. Organization scholars have accumulated substantive evidence that the characteristics of founding teams affect the chance of survival, resource mobilization, and performance. The results from this study further show that it is the characteristics of the founding team matter, not the improvement, for obtaining funding from investors. It is clear that neither investors nor the entrepreneurs could evaluate the chance of success of a startup by the business ideas only. It is still the observable traits, such as the composition of the founding teams, influence the final funding decision. This implication also calls into question that the relation-

ship between founding team characteristics and the survival chance of young ventures. Ventures started by founders with a prestigious background may not necessarily have a better quality than the other to survive longer. The higher survival chance of these ventures is probably because founders with a prestigious background are more likely to secure financial capital to support their ventures.

Finally, the study contributes to the literature of resource mobilization in entrepreneurship. This study suggests that entrepreneurs may be overconfident in the readiness of their business models or ideas. They believe that the most valuable resource for their ventures is capital. This belief may lead to a biased pursuit of resources when there is a real need to polish the business model. This result provides an implication for accelerator programs as well. If program managers are aware of this tendency, they may reduce this biased conception by matching the entrepreneurs with credible mentors.

### 7.0.3 Limitations

This study has several limitations. While the dataset collected by the Entrepreneurship Database Program at Emory includes applicants from multiple accelerator programs, it may still not be representative of the population of early stage ventures that are in need. For instance, the database program has not yet partnered with prominent accelerators such as Y Combinator or Techstars, which attract thousands of applicants for each cohort. However, the dataset still provides a good sample with a substantive amount of applicants providing comparable measurements for conducting systematic research.

Furthermore, the primary source of this study is through surveys. All the information, including financial figures and business models, is self-reported by respondents. The data could be noisy, and the number may be unreliable. However, since the data collection is

embedded in the application process of the partnering programs, the incentive to provide false information should be minimized if the applicant is serious about getting accepted into a program. The results from this study also indicate that the noise of the data is not strong enough to prevent researchers from identifying consistent patterns.

Also, this study is not designed to identify the causal effect of acceleration on various organizational outcomes. Instead, this dissertation confirms the role of founding team credentials in the selection and acceleration process. If researchers attempt to find the causal effect of accelerators on the improvement of knowledge, network, and capital, they will have to control for founding team credentials.

Finally, this study does not have much program level information. The acceleration outcomes may be affected by how the accelerator programs are structured. For example, the size of the program, the format of training, and the profiles of mentors could have an impact on the dynamics of the participants, leading to different acceleration outcomes. However, the current EDP dataset does not allow such exploration.

### 7.0.4 Future Research

Several topics are worth further exploration from this study. First of all, the underlying mechanism for the selective attention of resources observed in this study may deserve further investigation. While I argue that overconfidence could be the underlying mechanism, I do not have a direct test of the effect of overconfidence. We may learn more about the nature of early-stage ventures from combining the entrepreneurs' mental mechanism with the activities in resource mobilization.

Furthermore, as suggested in the previous section, the configurations of accelerator programs may have an impact on the acceleration outcomes beyond financial capital.

For example, one accelerator program participant told me at the night of the Demo Day that he did not realize that he had so much to learn when he applied to the program. It suggests that the entrepreneurs' perception of resource needs could be altered in the programs. Then, what kind of program structures or configurations could have an impact on the participants would be an important question for researchers and practitioners interested in accelerator programs.

Finally, accelerator programs may have a broader impact on the entrepreneurial ecosystem than on participants only (Hochberg, 2016). Each accelerator programs produce at least one cohort of entrepreneurs each year. This structure eventually leads to an alumni network similar to those of universities and colleges, and accelerators become a hub for entrepreneurship in the local community. What kind of accelerator models is more effectively in shaping this local network is yet to be explored. However, it is undoubted that business accelerators will still play a major role in the entrepreneurship ecosystem.

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# A

# EDP Survey Templates

The survey templates used by the Entrepreneurship Database Program in 2015 are included here. The survey templates are revised every year. This appendix includes the templates used in 2015 only.

Entrepreneur Survey 2015 - TEMPLATE

QID78 Welcome to the application survey for the 2015 PROGRAM NAME. You will see that we are looking for specific information about your venture and your founding team. All of the information that we are requesting is extremely important as we prepare the program and make decisions about which entrepreneurs are best suited to participate. We therefore ask that you respond carefully to each question so that we can make decisions based on the most accurate information. Experience suggests that it should take roughly 30-45 minutes to gather and report the information requested in this application. When your application is complete, all information will be transferred to our selection department and you will become an official candidate to participate in the 2015 PROGRAM NAME. Let's begin.

QID28 Contact & Venture Information:

QID79 What is your first name?

QID255 What is your last name?

QID80 What is your phone number?

QID81 What is your email address?

QID256 What is your Skype username?

QID2 What is the name of your venture?

QID124 Currently, in which country are your venture's main operations?

- ❍ Afghanistan (1)
- ❍ Albania (2)
- ❍ Algeria (3)
- ❍ Andorra (4)
- ❍ Angola (5)
- ❍ Antigua and Barbuda (6)
- ❍ Argentina (7)
- ❍ Armenia (8)
- ❍ Australia (9)
- ❍ Austria (10)
- ❍ Azerbaijan (11)
- ❍ Bahamas (12)
- ❍ Bahrain (13)
- ❍ Bangladesh (14)
- ❍ Barbados (15)
- ❍ Belarus (16)
- ❍ Belgium (17)
- ❍ Belize (18)
- ❍ Benin (19)
- ❍ Bhutan (20)
- ❍ Bolivia (21)
- ❍ Bosnia and Herzegovina (22)
- ❍ Botswana (23)
- ❍ Brazil (24)
- ❍ Brunei Darussalam (25)
- ❍ Bulgaria (26)
- ❍ Burkina Faso (27)
- ❍ Burundi (28)
- ❍ Cambodia (29)
- ❍ Cameroon (30)
- ❍ Canada (31)
- ❍ Cape Verde (32)
- ❍ Central African Republic (33)
- ❍ Chad (34)
- ❍ Chile (35)
- ❍ China (36)
- ❍ Colombia (37)
- ❍ Comoros (38)
- ❍ Congo, Republic of the... (39)
- ❍ Costa Rica (40)
- ❍ Côte d'Ivoire (41)
- ❍ Croatia (42)
- ❍ Cuba (43)

- Cyprus (44)
- Czech Republic (45)
- Democratic People's Republic of Korea (46)
- Democratic Republic of the Congo (47)
- Denmark (48)
- Djibouti (49)
- Dominica (50)
- Dominican Republic (51)
- Ecuador (52)
- Egypt (53)
- El Salvador (54)
- Equatorial Guinea (55)
- Eritrea (56)
- Estonia (57)
- Ethiopia (58)
- Fiji (59)
- Finland (60)
- France (61)
- Gabon (62)
- Gambia (63)
- Georgia (64)
- Germany (65)
- Ghana (66)
- Greece (67)
- Grenada (68)
- Guatemala (69)
- Guinea (70)
- Guinea-Bissau (71)
- Guyana (72)
- Haiti (73)
- Honduras (74)
- Hong Kong (S.A.R.) (75)
- Hungary (76)
- Iceland (77)
- India (78)
- Indonesia (79)
- Iran, Islamic Republic of... (80)
- Iraq (81)
- Ireland (82)
- Israel (83)
- Italy (84)
- Jamaica (85)
- Japan (86)
- Jordan (87)

- Kazakhstan (88)
- Kenya (89)
- Kiribati (90)
- Kuwait (91)
- Kyrgyzstan (92)
- Lao People's Democratic Republic (93)
- Latvia (94)
- Lebanon (95)
- Lesotho (96)
- Liberia (97)
- Libyan Arab Jamahiriya (98)
- Liechtenstein (99)
- Lithuania (100)
- Luxembourg (101)
- Madagascar (102)
- Malawi (103)
- Malaysia (104)
- Maldives (105)
- Mali (106)
- Malta (107)
- Marshall Islands (108)
- Mauritania (109)
- Mauritius (110)
- Mexico (111)
- Micronesia, Federated States of... (112)
- Monaco (113)
- Mongolia (114)
- Montenegro (115)
- Morocco (116)
- Mozambique (117)
- Myanmar (118)
- Namibia (119)
- Nauru (120)
- Nepal (121)
- Netherlands (122)
- New Zealand (123)
- Nicaragua (124)
- Niger (125)
- Nigeria (126)
- North Korea (127)
- Norway (128)
- Oman (129)
- Pakistan (130)
- Palau (131)

- Panama (132)
- Papua New Guinea (133)
- Paraguay (134)
- Peru (135)
- Philippines (136)
- Poland (137)
- Portugal (138)
- Qatar (139)
- Republic of Korea (140)
- Republic of Moldova (141)
- Romania (142)
- Russian Federation (143)
- Rwanda (144)
- Saint Kitts and Nevis (145)
- Saint Lucia (146)
- Saint Vincent and the Grenadines (147)
- Samoa (148)
- San Marino (149)
- Sao Tome and Principe (150)
- Saudi Arabia (151)
- Senegal (152)
- Serbia (153)
- Seychelles (154)
- Sierra Leone (155)
- Singapore (156)
- Slovakia (157)
- Slovenia (158)
- Solomon Islands (159)
- Somalia (160)
- South Africa (161)
- South Korea (162)
- Spain (163)
- Sri Lanka (164)
- Sudan (165)
- Suriname (166)
- Swaziland (167)
- Sweden (168)
- Switzerland (169)
- Syrian Arab Republic (170)
- Tajikistan (171)
- Thailand (172)
- The former Yugoslav Republic of Macedonia (173)
- Timor-Leste (174)
- Togo (175)

- Tonga (176)
- Trinidad and Tobago (177)
- Tunisia (178)
- Turkey (179)
- Turkmenistan (180)
- Tuvalu (181)
- Uganda (182)
- Ukraine (183)
- United Arab Emirates (184)
- United Kingdom of Great Britain and Northern Ireland (185)
- United Republic of Tanzania (186)
- United States of America (187)
- Uruguay (188)
- Uzbekistan (189)
- Vanuatu (190)
- Venezuela, Bolivarian Republic of... (191)
- Viet Nam (192)
- Yemen (193)
- Zambia (580)
- Zimbabwe (1357)

QID123 In what country is your venture headquartered?

- ❍ Afghanistan (1)
- ❍ Albania (2)
- ❍ Algeria (3)
- ❍ Andorra (4)
- ❍ Angola (5)
- ❍ Antigua and Barbuda (6)
- ❍ Argentina (7)
- ❍ Armenia (8)
- ❍ Australia (9)
- ❍ Austria (10)
- ❍ Azerbaijan (11)
- ❍ Bahamas (12)
- ❍ Bahrain (13)
- ❍ Bangladesh (14)
- ❍ Barbados (15)
- ❍ Belarus (16)
- ❍ Belgium (17)
- ❍ Belize (18)
- ❍ Benin (19)
- ❍ Bhutan (20)
- ❍ Bolivia (21)
- ❍ Bosnia and Herzegovina (22)
- ❍ Botswana (23)
- ❍ Brazil (24)
- ❍ Brunei Darussalam (25)
- ❍ Bulgaria (26)
- ❍ Burkina Faso (27)
- ❍ Burundi (28)
- ❍ Cambodia (29)
- ❍ Cameroon (30)
- ❍ Canada (31)
- ❍ Cape Verde (32)
- ❍ Central African Republic (33)
- ❍ Chad (34)
- ❍ Chile (35)
- ❍ China (36)
- ❍ Colombia (37)
- ❍ Comoros (38)
- ❍ Congo, Republic of the... (39)
- ❍ Costa Rica (40)
- ❍ Côte d'Ivoire (41)
- ❍ Croatia (42)
- ❍ Cuba (43)

- Cyprus (44)
- Czech Republic (45)
- Democratic People's Republic of Korea (46)
- Democratic Republic of the Congo (47)
- Denmark (48)
- Djibouti (49)
- Dominica (50)
- Dominican Republic (51)
- Ecuador (52)
- Egypt (53)
- El Salvador (54)
- Equatorial Guinea (55)
- Eritrea (56)
- Estonia (57)
- Ethiopia (58)
- Fiji (59)
- Finland (60)
- France (61)
- Gabon (62)
- Gambia (63)
- Georgia (64)
- Germany (65)
- Ghana (66)
- Greece (67)
- Grenada (68)
- Guatemala (69)
- Guinea (70)
- Guinea-Bissau (71)
- Guyana (72)
- Haiti (73)
- Honduras (74)
- Hong Kong (S.A.R.) (75)
- Hungary (76)
- Iceland (77)
- India (78)
- Indonesia (79)
- Iran, Islamic Republic of... (80)
- Iraq (81)
- Ireland (82)
- Israel (83)
- Italy (84)
- Jamaica (85)
- Japan (86)
- Jordan (87)

- Kazakhstan (88)
- Kenya (89)
- Kiribati (90)
- Kuwait (91)
- Kyrgyzstan (92)
- Lao People's Democratic Republic (93)
- Latvia (94)
- Lebanon (95)
- Lesotho (96)
- Liberia (97)
- Libyan Arab Jamahiriya (98)
- Liechtenstein (99)
- Lithuania (100)
- Luxembourg (101)
- Madagascar (102)
- Malawi (103)
- Malaysia (104)
- Maldives (105)
- Mali (106)
- Malta (107)
- Marshall Islands (108)
- Mauritania (109)
- Mauritius (110)
- Mexico (111)
- Micronesia, Federated States of... (112)
- Monaco (113)
- Mongolia (114)
- Montenegro (115)
- Morocco (116)
- Mozambique (117)
- Myanmar (118)
- Namibia (119)
- Nauru (120)
- Nepal (121)
- Netherlands (122)
- New Zealand (123)
- Nicaragua (124)
- Niger (125)
- Nigeria (126)
- North Korea (127)
- Norway (128)
- Oman (129)
- Pakistan (130)
- Palau (131)

- Panama (132)
- Papua New Guinea (133)
- Paraguay (134)
- Peru (135)
- Philippines (136)
- Poland (137)
- Portugal (138)
- Qatar (139)
- Republic of Korea (140)
- Republic of Moldova (141)
- Romania (142)
- Russian Federation (143)
- Rwanda (144)
- Saint Kitts and Nevis (145)
- Saint Lucia (146)
- Saint Vincent and the Grenadines (147)
- Samoa (148)
- San Marino (149)
- Sao Tome and Principe (150)
- Saudi Arabia (151)
- Senegal (152)
- Serbia (153)
- Seychelles (154)
- Sierra Leone (155)
- Singapore (156)
- Slovakia (157)
- Slovenia (158)
- Solomon Islands (159)
- Somalia (160)
- South Africa (161)
- South Korea (162)
- Spain (163)
- Sri Lanka (164)
- Sudan (165)
- Suriname (166)
- Swaziland (167)
- Sweden (168)
- Switzerland (169)
- Syrian Arab Republic (170)
- Tajikistan (171)
- Thailand (172)
- The former Yugoslav Republic of Macedonia (173)
- Timor-Leste (174)
- Togo (175)

- ❍ Tonga (176)
- ❍ Trinidad and Tobago (177)
- ❍ Tunisia (178)
- ❍ Turkey (179)
- ❍ Turkmenistan (180)
- ❍ Tuvalu (181)
- ❍ Uganda (182)
- ❍ Ukraine (183)
- ❍ United Arab Emirates (184)
- ❍ United Kingdom of Great Britain and Northern Ireland (185)
- ❍ United Republic of Tanzania (186)
- ❍ United States of America (187)
- ❍ Uruguay (188)
- ❍ Uzbekistan (189)
- ❍ Vanuatu (190)
- ❍ Venezuela, Bolivarian Republic of... (191)
- ❍ Viet Nam (192)
- ❍ Yemen (193)
- ❍ Zambia (580)
- ❍ Zimbabwe (1357)

QID3 We are interested in the web presence of your venture. Does your venture currently have any of the following? (click all that apply)

- ❑ An active website? (1)
- ❑ A Facebook page? (2)
- ❑ A Twitter account? (3)
- ❑ A LinkedIn group or page? (4)

Answer If We are interested in the web presence of your venture. Does your venture currently have any of the following? (Click all that apply  An active website? Is Selected

QID93 What is your web address?

Answer If We are interested in the web presence of your venture. Does your venture currently have any of the following? (Click all that apply  A Facebook page? Is Selected

QID126 What is the web address of your Facebook page?

Answer If We are interested in the web presence of your venture. Does your venture currently have any of the following? (Click all that apply  A Twitter account? Is Selected

QID127 What is your Twitter account name? ("@ _____")

Answer If We are interested in the web presence of your venture. Does your venture currently have any of the following? (Click all that apply  A LinkedIn group or page? Is Selected

QID128 What is the web address of your Linkedin group or page?

QID10 In what year was your venture founded?

QID11 Is your venture a:
- ❍ Nonprofit (1)
- ❍ For-profit company (2)
- ❍ Undecided (3)
- ❍ Other (4) _____

QID23 What primary sector is being impacted by your venture's activities? (select one)
- ❍ Agriculture (1)
- ❍ Artisanal (2)
- ❍ Infrastructure/facilities development (3)
- ❍ Education (4)
- ❍ Energy (5)
- ❍ Environment (6)
- ❍ Financial services (7)
- ❍ Health (8)
- ❍ Housing development (9)
- ❍ Information and communication technologies (10)
- ❍ Tourism (11)
- ❍ Culture (12)
- ❍ Supply chain services (13)
- ❍ Technical assistance services (14)
- ❍ Water (15)
- ❍ Other (16) _____

QID17 What are the financial goals for your venture? (check one)
- ❍ Cover costs (1)
- ❍ Cover costs and earn some profit (2)

Answer If What are the financial goals for your venture? (check one) Cover costs and earn some profit Is Selected

QID97 Do you have some specific profit margin in mind?
- ❍ Yes (1)
- ❍ No (2)

Answer If Do you have some specific profit margin in mind? Yes Is Selected

QID20 What annual profit margins would you be happy achieving on average?
- ❍ 0% - 5% (1)
- ❍ 6% - 10% (2)
- ❍ 11% - 15% (3)
- ❍ 16% - 20% (4)
- ❍ More than 20% (5)

QID21 Individuals can also have non-financial motives for launching new ventures. Does your venture have the explicit intent of creating social or environmental impacts?

- ❍ Yes (1)
- ❍ No (2)

QID129 A mission statement is a concise message that expresses how your venture generates financial, social, and/or environmental value through its activities. Please write your current mission statement in the space below. If you do not currently have a mission statement, explain in 100 words or less how your enterprise generates financial, social, and/or environmental value.

Answer If Individuals can also have non-financial motives for launching new ventures. Does your venture have the explicit intent of creating social or environmental impacts? Yes Is Selected

QID29 Impacts & Metrics:

Answer If Individuals can also have non-financial motives for launc... Yes Is Selected

QID98 Which of the following impact objectives does your venture currently seek to address? (check up to three)

- ❑ Access to clean water (1)
- ❑ Access to education (2)
- ❑ Access to energy (3)
- ❑ Access to financial services (4)
- ❑ Access to information (32)
- ❑ Affordable housing (5)
- ❑ Agricultural productivity (6)
- ❑ Biodiversity conservation (33)
- ❑ Capacity-building (7)
- ❑ Community development (8)
- ❑ Conflict Resolution (31)
- ❑ Disease-specific prevention and mitigation (34)
- ❑ Employment generation (9)
- ❑ Energy and fuel efficiency (35)
- ❑ Equality and empowerment (10)
- ❑ Food security (11)
- ❑ Generate funds for charitable giving (36)
- ❑ Health improvement (13)
- ❑ Human rights protection or expansion (37)
- ❑ Income/productivity growth (14)
- ❑ Natural resources conservation (15)
- ❑ Pollution prevention and waste management (16)
- ❑ Support for women and girls (38)
- ❑ Sustainable energy (17)
- ❑ Sustainable land use (18)
- ❑ Water resources management (19)
- ❑ Other (20) _____

Answer If Individuals can also have non-financial motives for launc... Yes Is Selected

QID24 What is the demographic group of the primary beneficiaries targeted by your venture's activities? (select one)

- ❍ Children and adolescents (1)
- ❍ Disabled (2)
- ❍ Minorities or previously-excluded (3)
- ❍ Women (4)
- ❍ Other (5) _____
- ❍ None of the above (6)

Answer If Individuals can also have non-financial motives for launching new ventures. Does your venture have t... Yes Is Selected

QID62 Does your venture regularly track itself against any of the Impact Reporting Investment Standards (IRIS) impact measures?

- ❍ Yes (1)
- ❍ No (2)

Answer If Does your venture regularly track itself against any of t... No Is Selected

QID63 Please indicate why not:

- ❍ We have never heard of IRIS (1)
- ❍ We are not interested in measuring our impacts (2)
- ❍ We have no time to measure our impacts (3)
- ❍ We are not fond of this measurement approach (4)
- ❍ Other (5) _____

Answer If Individuals can also have non-financial motives for launching new ventures. Does your venture have the explicit intent of creating social or environmental impacts? Yes Is Selected

QID64 Has your venture ever taken a B Impact Assessment or Global Impact Investing Ratings System (GIIRS) Survey?

- ❍ Yes (1)
- ❍ No (2)

Answer If Has your venture ever taken a B Impact Assessment or Glob... No Is Selected

QID65 Please indicate why not:

- ❍ We have never heard of B Lab/GIIRS (1)
- ❍ We are not interested in measuring our impacts (2)
- ❍ We have no time to measure our impacts (3)
- ❍ We are not fond of this measurement approach (4)
- ❍ Other (5) _____

Answer If Individuals can also have non-financial motives for launching new ventures. Does your venture have the explicit intent of creating social or environmental impacts? Yes Is Selected

QID66 Does your venture regularly track its impacts using any other established measurement approaches?

- ❍ Yes (1)
- ❍ No (2)

Answer If Does your venture regularly track its impacts using any o... Yes Is Selected

QID67 What impact measurement approaches do you follow?

QID132 Business Model:

QID13 What is the current operational model of your venture? (check all that apply)
- ❑ Production / Manufacturing (1)
- ❑ Processing / Packaging (2)
- ❑ Distribution (3)
- ❑ Wholesale / Retail (4)
- ❑ Services (5)
- ❑ Financial Services (6)
- ❑ Unsure (7)

QID92 Would you say that your venture is invention-based (i.e., a company that builds upon newly-created technology owned by the venture and/or its founders)?
- ❍ Yes (1)
- ❍ No (2)

QID16 Whether assigned by an owner or obtained in some other way, does your venture have any of the following? (check all that apply)
- ❑ Patents (1)
- ❑ Copyrights (2)
- ❑ Trademarks (3)

Answer If Whether assigned by an owner or obtained in some other wa... Patents Is Selected
QID94 How many patents?

Answer If Whether assigned by an owner or obtained in some other wa... Copyrights Is Selected
QID95 How many copyrights?

Answer If Whether assigned by an owner or obtained in some other wa... Trademarks Is Selected
QID96 How many trademarks?

QID31 Venture Financing:

QID133 The following questions will help us understand where your venture is at right now. In cases where we are looking for specific number values (e.g., total revenues or number of employees), the application survey will assume a default value of zero unless you report otherwise. Therefore, it is very important to consider each question carefully and report the appropriate value for each question.

QID32 What was your venture's total earned revenue:(please do not include any philanthropic investments or donations in this amount)

in calendar year 2014? ($US) (1)

since founding? ($US) (2)

QID33 Profit is the business' income after all expenses and taxes have been deducted. Roughly speaking, what was your venture's profit margin (as a percentage of total investment) for calendar year 2014?

- ❍ Negative ROI (venture lost money in 2014) (1)
- ❍ 0% - 5% (2)
- ❍ 6% - 10% (3)
- ❍ 11% - 15% (4)
- ❍ 16% - 20% (5)
- ❍ More than 20% (6)
- ❍ Unsure (7)
- ❍ Not applicable (we are a nonprofit) (8)

QID35 Not counting founders, on December 31, 2014, how many people worked for your venture? (please exclude contract workers who are not on the business' official payroll)

Full-time employees (1)

Part-time employees (2)

QID37 How much, if any, did your venture pay in wages, salaries, and benefits to full- and part-time employees in calendar year 2014? (please do not include wages, salaries, and benefits to contract workers who are not on the business' official payroll)

($US) (1)

QID258 In addition to these full-time and part-time employees, how many seasonal workers and volunteers did you employ during 2014?

Seasonal employees (1)

Volunteers (2)

QID257 How much of their own money did all of the founders put into the business?(please do not include any money borrowed from others or credit cards)

In calendar year 2014? (1)

Since founding? (2)

QID51 Please indicate whether your venture has received any of the following investments from outside sources since founding:

- ❑ Equity (equity investment is money received in return for some portion of ownership) (1)
- ❑ Debt (not including any personal debt obtained on behalf of the business) (2)
- ❑ Philanthropy (e.g., seed grants, awards, or donations) (3)

Answer If Please indicate whether your venture has received any of the following investments from outside s... Equity (equity investment is money received in return for some portion of ownership) Is Selected

QID259 From which sources has your venture received this outside equity?

- ❑ From banks (1)
- ❑ From non-bank financial institutions (2)
- ❑ From venture capitalists (3)
- ❑ From angel investors (4)
- ❑ From other companies (5)
- ❑ From government agencies (6)
- ❑ From foundations or other nonprofits (7)
- ❑ From accelerators or fellowship programs (8)
- ❑ From friends or family members (9)
- ❑ From business plan competitions (10)
- ❑ From crowd-fund campaigns (11)
- ❑ From employees that are not owners (12)
- ❑ From other individuals (13)
- ❑ From another source (14) _____

Answer If Please indicate whether your venture has received any of the following investments from outside s... Equity (equity investment is money received in return for some portion of ownership) Is Selected

QID52 How much equity financing did your venture obtain from all outside sources: ($US)

in calendar year 2014? ($US) (1)

since founding? ($US) (3)

Answer If Please indicate whether your venture has received any of the following investments from outside s... Debt (not including any personal debt obtained on behalf of the business) Is Selected

QID261 From which sources has your venture obtained borrowed funds?

- ❑ From banks (1)
- ❑ From non-bank financial institutions (2)
- ❑ From venture capitalists (3)
- ❑ From angel investors (4)
- ❑ From other companies (5)
- ❑ From government agencies (6)
- ❑ From foundations or other nonprofits (7)
- ❑ From accelerators or fellowship programs (8)
- ❑ From friends or family members (9)
- ❑ From business plan competitions (10)
- ❑ From crowd-fund campaigns (11)
- ❑ From employees that are not owners (12)
- ❑ From other individuals (13)
- ❑ From another source (14) _____

Answer If Please indicate whether your venture has received any of the following investments from outside s... Debt (not including any personal debt obtained on behalf of the business) Is Selected

QID56 How much did your venture borrow from all of these sources:($US)

in calendar year 2014? ($US) (2)

since founding? ($US) (4)

Answer If Please indicate whether your venture has received any of the following investments from outside s... Debt (not including any personal debt obtained on behalf of the business) Is Selected

QID264 Was any portion of this debt "convertible debt"?

- ❍ Yes (1)
- ❍ No (2)
- ❍ Unsure (3)

Answer If Was any portion of this debt "convertible debt"?  Yes Is Selected

QID262 What percentage of this debt is convertible (into equity or cash)?

In calendar year 2014? (%) (1)

Since founding? (%) (2)

Answer If Please indicate whether your venture has received any of the following investments from outside s... Philanthropy (e.g., seed grants, awards, or donations) Is Selected

QID55 From which sources has your venture received these donations?

- ❑ From other companies (4)
- ❑ From government agencies (3)
- ❑ From foundations or other nonprofits (9)
- ❑ From accelerators or fellowship programs (10)
- ❑ From friends or family members (5)
- ❑ From business plan competitions (11)
- ❑ From crowd-fund campaigns (1)
- ❑ From employees that are not owners (2)
- ❑ From other individuals (7)
- ❑ From another source (8) _____

Answer If Please indicate whether your venture has received any of the following investments from outside s... Philanthropy (e.g., seed grants, awards, or donations) Is Selected

QID103 How much philanthropic support (e.g., seed grants, awards, or donations) did your venture receive from all outside sources:($US)

in calendar year 2014? ($US) (1)

since founding? ($US) (4)

QID59 How much additional investment are you planning to secure for your venture:

| | in the next 12 months | over the next 3 years |
|---|---|---|
| | ($US) (1) | ($US) (1) |
| Equity financing (4) | | |
| Debt financing (5) | | |
| Philanthropic support (6) | | |

QID40 Founders:  In this section, we want to learn more about the people on your venture's founding team.

QID41 Please name up to three individuals who are the primary members of your venture's founding team. A founder is a person who is actively involved in the start of the venture and/or has had a financial stake in the venture from the start/early days of the venture.

- Founder 1 (1)
- Founder 2 (2)
- Founder 3 (3)

QID263 How many additional people (not listed above) are also on the founding team?

QID42 Now, please provide the following information about each of the three founders listed above:

| | Age | Gender | |
|---|---|---|---|
| | (in years) (1) | Male (1) | Female (2) |
| ${q://QID41/ChoiceTextEntryValue/1} (1) | | ❍ | ❍ |
| ${q://QID41/ChoiceTextEntryValue/2} (2) | | ❍ | ❍ |
| ${q://QID41/ChoiceTextEntryValue/3} (3) | | ❍ | ❍ |

QID265

| | Country of Birth | Country of Current Residence | Highest Level of Education Completed | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | (country name) (1) | (country name) (1) | Primary school (1) | Middle school (2) | High school (3) | Technical/ Vocational degree (4) | Bachelors degree (5) | Honours Degree (6) | Masters Degree (7) | PhD (8) | None (9) |
| ${q://QID41/ChoiceTextEntryValue/1} (1) | | | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| ${q://QID41/ChoiceTextEntryValue/2} (2) | | | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |
| ${q://QID41/ChoiceTextEntryValue/3} (3) | | | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ |

QID138 How many new organizations did each founder start before launching this venture?

| | For-Profits | Other Entities | Nonprofits |
|---|---|---|---|
| | (# Ventures) (1) | (# Ventures) (1) | (# Ventures) (1) |
| ${q://QID41/ChoiceTextEntryValue/1} (1) | | | |
| ${q://QID41/ChoiceTextEntryValue/2} (2) | | | |
| ${q://QID41/ChoiceTextEntryValue/3} (3) | | | |

QID45 We are interested in the career backgrounds of these founders. Please provide the following information about the two more recent paid full-time jobs held by each of the above founders before launching this venture.

| | Organization Type? | | | | What Role? | | | | How Long? | Country |
|---|---|---|---|---|---|---|---|---|---|---|
| | For-profit (1) | Non profit (2) | Government (3) | Other (4) | CEO/Executive Director (1) | Senior Management (e.g.,COO, CFO, VP) (2) | Support Staff (3) | Other (4) | (years) (1) | (country name) (1) |
| ${q://QID41/ChoiceTextEntryValue/1} Job 1 (1) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | | |
| ${q://QID41/ChoiceTextEntryValue/1} Job 2 (2) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | | |
| ${q://QID41/ChoiceTextEntryValue/2} Job 1 (3) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | | |
| ${q://QID41/ChoiceTextEntryValue/2} Job 2 (4) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | | |
| ${q://QID41/ChoiceTextEntryValue/3} Job 1 (5) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | | |
| ${q://QID41/ChoiceTextEntryValue/3} Job 2 (6) | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | ❍ | | |

QID68 Entrepreneurial Accelerators  Finally, we would like to learn a little bit more about your expectations and experiences with entrepreneurial accelerators.

QID70 The following are some of the potential benefits that are typically associated with entrepreneurial accelerators. Please rank these benefits in terms of how important they are to your venture's development and success. (1 being the most important and 7 being the least important)

_____ Network development (e.g., with potential partners and customers) (1)
_____ Business skills development (e.g., finance and marketing skills) (2)
_____ Mentorship from business experts (3)
_____ Access and connections to potential investors/funders (4)
_____ Securing direct venture funding (e.g., grants or investments) (5)
_____ Gaining access to a group of like-minded entrepreneurs (6)
_____ Awareness and credibility (e.g., association with a recognized program, press/media exposure) (7)

QID71 What other potential benefits would you look for from accelerator programs that are not included in the above list?

QID72 Has anyone on your founding team participated in any of the following accelerator programs? (check all that apply)

- ❑ Action For India (24)
- ❑ Agora Partnerships (1)
- ❑ Apps 4 Africa (25)
- ❑ Bid Network (26)
- ❑ Endeavour (27)
- ❑ Fledge (28)
- ❑ Good Company Ventures (2)
- ❑ GreenStart Labs (13)
- ❑ Hub Ventures (3)
- ❑ iAccelerator (29)
- ❑ The Impact Engine (4)
- ❑ Impact 8 (57)
- ❑ Mass Challenge (30)
- ❑ Mountain Biz Works (31)
- ❑ NCIIA (14)
- ❑ NESST (15)
- ❑ New Ventures Mexico (42)
- ❑ Pipa (32)
- ❑ Points of Light Civic Accelerator (33)
- ❑ Praxis (5)
- ❑ Rock Health (6)
- ❑ Sinapis (34)
- ❑ Starting Bloc (7)
- ❑ Startup Chile (35)
- ❑ Techstars (36)
- ❑ UnLtd (37)
- ❑ The Unreasonable Institute (8)
- ❑ Village Capital (9)
- ❑ Villgro (10)
- ❑ Y Combinator (11)
- ❑ Other (12) _____

Answer If Has anyone on your founding team participated in any of the following accelerator programs? (check a... Action For India Is Selected

QID105 Which year did you attend Action for India?

Answer If Has anyone on your founding team participated in any of t... Agora Partnerships Is Selected

QID140 Which year did you attend Agora Partnerships?

Answer If Has anyone on your founding team participated in any of the following accelerator programs? (check a... Apps 4 Africa Is Selected
QID141 Which year did you attend Apps 4 Africa?

Answer If Has anyone on your founding team participated in any of the following accelerator programs? (check a... Bid Network Is Selected
QID142 Which year did you attend Bid Network?

Answer If Has anyone on your founding team participated in any of the following accelerator programs? (check a... Endeavour Is Selected
QID143 Which year did you attend Endeavour?

Answer If Has anyone on your founding team participated in any of the following accelerator programs? (check a... Fledge Is Selected
QID144 Which year did you attend Fledge?

Answer If Has anyone on your founding team participated in any of t... Good Company Ventures Is Selected
QID106 Which year did you attend Good Company Ventures?

Answer If Has anyone on your founding team participated in any of t... GreenStart Labs Is Selected
QID107 Which year did you attend GreenStart Labs?

Answer If Has anyone on your founding team participated in any of t... Hub Ventures Is Selected
QID108 Which year did you attend Hub Ventures?

Answer If Has anyone on your founding team participated in any of the following accelerator programs? (check a... iAccelerator Is Selected
QID145 Which year did you attend iAccelerator?

Answer If Has anyone on your founding team participated in any of t... The Impact Engine Is Selected
QID109 Which year did you attend Impact Engine?

Answer If Has anyone on your founding team participated in any of the following accelerator programs? (chec... Impact 8 Is Selected
QID266 Which year did you attend Impact 8?

Answer If Has anyone on your founding team participated in any of the following accelerator programs? (check a... Mass Challenge Is Selected
QID146 Which year did you attend Mass Challenge?

Answer If Has anyone on your founding team participated in any of the following accelerator programs? (check a... Mountain Biz Works Is Selected
QID147 Which year did you attend Mountain Biz Works?

Answer If Has anyone on your founding team participated in any of t... NCIIA Is Selected
QID110 Which year did you attend NCIIA?

Answer If Has anyone on your founding team participated in any of t... NESST Is Selected
QID111 Which year did you attend NESST?

Answer If Has anyone on your founding team participated in any of the following accelerator programs? (check all that apply) New Ventures Mexico Is Selected
QID157 Which year did you attend New Ventures Mexico?

Answer If Has anyone on your founding team participated in any of the following accelerator programs? (check a... Pipa Is Selected
QID148 Which year did you attend Pipa?

Answer If Has anyone on your founding team participated in any of the following accelerator programs? (check a... Points of Light Civic Accelerator Is Selected
QID149 Which year did you attend Points of LIght Civic Accelerator?

Answer If Has anyone on your founding team participated in any of t... Praxis Is Selected
QID112 Which year did you attend Praxis?

Answer If Has anyone on your founding team participated in any of t... Rock Health Is Selected
QID113 Which year did you attend Rock Health?

Answer If Has anyone on your founding team participated in any of the following accelerator programs? (check a... Sinapis Is Selected
QID150 Which year did you attend Sinapis?

Answer If Has anyone on your founding team participated in any of t... Starting Bloc Is Selected
QID114 Which year did you attend Starting Bloc?

Answer If Has anyone on your founding team participated in any of the following accelerator programs? (check a... Startup Chile Is Selected
QID151 Which year did you attend Startup Chile?

Answer If Has anyone on your founding team participated in any of the following accelerator programs? (check a... Techstars Is Selected
QID152 Which year did you attend Techstars?

Answer If Has anyone on your founding team participated in any of t... The Unreasonable Institute Is Selected

QID115 Which year did you attend Unreasonable Institute?

Answer If Has anyone on your founding team participated in any of the following accelerator programs? (check a... UnLtd Is Selected

QID153 Which year did you attend UnLtd?

Answer If Has anyone on your founding team participated in any of t... Village Capital Is Selected

QID116 Which year did you attend Village Capital?

Answer If Has anyone on your founding team participated in any of t... Villgro Is Selected

QID117 Which year did you attend Villgro?

Answer If Has anyone on your founding team participated in any of t... Y Combinator Is Selected

QID118 Which year did you attend Y Combinator?

Answer If Has anyone on your founding team participated in any of t... Other Is Selected

QID119 Which year did you attend that accelerator program?

QID73 Database Consent & Contact for Follow-up

QID89 Congratulations for making it to the end of our application survey. We look forward to reviewing your information as we work to build the cohort for our upcoming program. In the meantime, we are asking you to consider participating in a broader Impact of Entrepreneurship Database program that is being coordinated by our partner, the Social Enterprise @ Goizueta program at Emory University with support from the ANDE Network, Argidius Foundation and Kauffman Foundation. The goal of this project is to establish a comprehensive database for much-needed study of the issues and challenges faced by entrepreneurs around the world. By analyzing the data that are captured by programs like ours, we will be in a much better position to support our entrepreneurs in the years ahead. To participate in this program is check the box below, which gives us permission to include your information in this growing database. Know that all of your application information will be kept completely confidential. The studies and reports that are made public as part of the database program will never divulge any information that will make it possible to identify you or your venture. Moreover, all of the data will be kept in a secure location; and only affiliated researchers will have access to them. Although we are strong and committed supporters of this important database program, taking part is completely voluntary and will not affect your current or future relationship with PROGRAM NAME. If you agree to submit your application data to our database program partners, your name will automatically be entered to win one of four (4) unrestricted $5,000 grants for your new venture. The next draw will be held in January, 2016.

QID90 I have read the above program description and consent to my information being submitted to the database program that is being coordinated by the Social Enterprise @ Goizueta program at Emory University.

- ❑ Yes (1)
- ❑ No (2)

Answer If I have read the above program description and consent to ... Yes Is Selected

QID91 In roughly six months, our database partners plan to reach out to you again to ask for some brief follow-up information on your venture's performance and impacts. Please confirm the name and email address for the individual on your team who is best able to answer questions about your venture's performance and impacts.

Name (1)

Email Address (2)

Follow-up Entrepreneur Survey AUGUST 2015 - TEMPLATE

Welcome back! Thank you for working with us by allowing us to gather additional information about your venture's experiences and operations in 2014. This follow-up survey is much shorter than the one you completed previously, and should only take roughly 5-10 minutes. When you reach the end and indicate your consent to share your information with the Impact of Entrepreneurship Database program, your name will automatically be entered into our next draw to win one of four (4) unrestricted $5,000 grants for your venture. This next draw will be held in January 2016. Let's get started.

Venture Information:

What is your:
First name? (1)
Last name? (2)

What is your email address?

What is the current name of your venture?

Has your venture changed its name in the past year?
- ❍ Yes (1)
- ❍ No change (2)

Display This Question:
If Has your venture changed its name in the past year? Yes Is Selected

What was the previous name of your venture?

Currently, in which country are your venture's main operations?

- ❍ Afghanistan (1)
- ❍ Albania (2)
- ❍ Algeria (3)
- ❍ Andorra (4)
- ❍ Angola (5)
- ❍ Antigua and Barbuda (6)
- ❍ Argentina (7)
- ❍ Armenia (8)
- ❍ Australia (9)
- ❍ Austria (10)
- ❍ Azerbaijan (11)
- ❍ Bahamas (12)
- ❍ Bahrain (13)
- ❍ Bangladesh (14)
- ❍ Barbados (15)
- ❍ Belarus (16)
- ❍ Belgium (17)
- ❍ Belize (18)
- ❍ Benin (19)
- ❍ Bhutan (20)
- ❍ Bolivia (21)
- ❍ Bosnia and Herzegovina (22)
- ❍ Botswana (23)
- ❍ Brazil (24)
- ❍ Brunei Darussalam (25)
- ❍ Bulgaria (26)
- ❍ Burkina Faso (27)
- ❍ Burundi (28)
- ❍ Cambodia (29)
- ❍ Cameroon (30)
- ❍ Canada (31)
- ❍ Cape Verde (32)
- ❍ Central African Republic (33)
- ❍ Chad (34)
- ❍ Chile (35)
- ❍ China (36)
- ❍ Colombia (37)
- ❍ Comoros (38)
- ❍ Congo, Republic of the... (39)
- ❍ Costa Rica (40)
- ❍ Côte d'Ivoire (41)
- ❍ Croatia (42)
- ❍ Cuba (43)

- Cyprus (44)
- Czech Republic (45)
- Democratic People's Republic of Korea (46)
- Democratic Republic of the Congo (47)
- Denmark (48)
- Djibouti (49)
- Dominica (50)
- Dominican Republic (51)
- Ecuador (52)
- Egypt (53)
- El Salvador (54)
- Equatorial Guinea (55)
- Eritrea (56)
- Estonia (57)
- Ethiopia (58)
- Fiji (59)
- Finland (60)
- France (61)
- Gabon (62)
- Gambia (63)
- Georgia (64)
- Germany (65)
- Ghana (66)
- Greece (67)
- Grenada (68)
- Guatemala (69)
- Guinea (70)
- Guinea-Bissau (71)
- Guyana (72)
- Haiti (73)
- Honduras (74)
- Hong Kong (S.A.R.) (75)
- Hungary (76)
- Iceland (77)
- India (78)
- Indonesia (79)
- Iran, Islamic Republic of... (80)
- Iraq (81)
- Ireland (82)
- Israel (83)
- Italy (84)
- Jamaica (85)
- Japan (86)
- Jordan (87)

- Kazakhstan (88)
- Kenya (89)
- Kiribati (90)
- Kuwait (91)
- Kyrgyzstan (92)
- Lao People's Democratic Republic (93)
- Latvia (94)
- Lebanon (95)
- Lesotho (96)
- Liberia (97)
- Libyan Arab Jamahiriya (98)
- Liechtenstein (99)
- Lithuania (100)
- Luxembourg (101)
- Madagascar (102)
- Malawi (103)
- Malaysia (104)
- Maldives (105)
- Mali (106)
- Malta (107)
- Marshall Islands (108)
- Mauritania (109)
- Mauritius (110)
- Mexico (111)
- Micronesia, Federated States of... (112)
- Monaco (113)
- Mongolia (114)
- Montenegro (115)
- Morocco (116)
- Mozambique (117)
- Myanmar (118)
- Namibia (119)
- Nauru (120)
- Nepal (121)
- Netherlands (122)
- New Zealand (123)
- Nicaragua (124)
- Niger (125)
- Nigeria (126)
- North Korea (127)
- Norway (128)
- Oman (129)
- Pakistan (130)
- Palau (131)

- Panama (132)
- Papua New Guinea (133)
- Paraguay (134)
- Peru (135)
- Philippines (136)
- Poland (137)
- Portugal (138)
- Qatar (139)
- Republic of Korea (140)
- Republic of Moldova (141)
- Romania (142)
- Russian Federation (143)
- Rwanda (144)
- Saint Kitts and Nevis (145)
- Saint Lucia (146)
- Saint Vincent and the Grenadines (147)
- Samoa (148)
- San Marino (149)
- Sao Tome and Principe (150)
- Saudi Arabia (151)
- Senegal (152)
- Serbia (153)
- Seychelles (154)
- Sierra Leone (155)
- Singapore (156)
- Slovakia (157)
- Slovenia (158)
- Solomon Islands (159)
- Somalia (160)
- South Africa (161)
- South Korea (162)
- Spain (163)
- Sri Lanka (164)
- Sudan (165)
- Suriname (166)
- Swaziland (167)
- Sweden (168)
- Switzerland (169)
- Syrian Arab Republic (170)
- Tajikistan (171)
- Thailand (172)
- The former Yugoslav Republic of Macedonia (173)
- Timor-Leste (174)
- Togo (175)

- ❍ Tonga (176)
- ❍ Trinidad and Tobago (177)
- ❍ Tunisia (178)
- ❍ Turkey (179)
- ❍ Turkmenistan (180)
- ❍ Tuvalu (181)
- ❍ Uganda (182)
- ❍ Ukraine (183)
- ❍ United Arab Emirates (184)
- ❍ United Kingdom of Great Britain and Northern Ireland (185)
- ❍ United Republic of Tanzania (186)
- ❍ United States of America (187)
- ❍ Uruguay (188)
- ❍ Uzbekistan (189)
- ❍ Vanuatu (190)
- ❍ Venezuela, Bolivarian Republic of... (191)
- ❍ Viet Nam (192)
- ❍ Yemen (193)
- ❍ Zambia (580)
- ❍ Zimbabwe (1357)

Is your venture a:
- ❍ Nonprofit (1)
- ❍ For-profit company (2)
- ❍ Undecided (3)
- ❍ Other (4) _____

Whether assigned by an owner or obtained in some other way, did your venture receive any of the following during calendar year 2014? (check all that apply)
- ❑ Patents (1)
- ❑ Copyrights (2)
- ❑ Trademarks (3)

Display This Question:
If Whether assigned by an owner or obtained in some other wa... Patents Is Selected

| | in calendar year 2014? (1) | since January 1st, 2015? (2) |
|---|---|---|
| How many new patents? (2) | | |

Display This Question:
If Whether assigned by an owner or obtained in some other wa... Copyrights Is Selected

| | in calendar year 2014? (1) | since January 1st, 2015? (2) |
|---|---|---|
| How many new copyrights? (1) | | |

Display This Question:
If Whether assigned by an owner or obtained in some other wa... Trademarks Is Selected

| | in calendar year 2014? (1) | since January 1st, 2015? (2) |
|---|---|---|
| How many new trademarks? (1) | | |

Venture Goals & Impacts:

What are the financial goals for your venture? (check one)
- ❍ Cover costs (1)
- ❍ Cover costs and earn some profit (2)

Display This Question:
If What are the financial goals for your venture? (check one) Cover costs and earn some profit Is Selected

Do you have some specific profit margin in mind?
- ❍ Yes (1)
- ❍ No (2)

Display This Question:
If Do you have some specific profit margin in mind? Yes Is Selected

What annual profit margins would you be happy achieving on average?
- ❍ 0% - 5% (1)
- ❍ 6% - 10% (2)
- ❍ 11% - 15% (3)
- ❍ 16% - 20% (4)
- ❍ More than 20% (5)

Individuals can also have non-financial motives for launching new ventures. Does your venture currently have the explicit intent of creating social or environmental impacts?
- ❍ Yes (1)
- ❍ No (2)

Display This Question:
If Individuals can also have non-financial motives for launc... Yes Is Selected

Which of the following impact objectives does your venture currently seek to address? (check up to three)

- ❑ Access to clean water (1)
- ❑ Access to education (2)
- ❑ Access to energy (3)
- ❑ Access to financial services (4)
- ❑ Access to information (31)
- ❑ Affordable housing (5)
- ❑ Agricultural productivity (6)
- ❑ Biodiversity conservation (32)
- ❑ Capacity-building (7)
- ❑ Community development (8)
- ❑ Conflict resolution (33)
- ❑ Disease-specific prevention and mitigation (34)
- ❑ Employment generation (9)
- ❑ Energy and fuel efficiency (35)
- ❑ Equality and empowerment (10)
- ❑ Food security (11)
- ❑ Generating funds for charitable giving (12)
- ❑ Health improvement (13)
- ❑ Human rights protection or expansion (36)
- ❑ Income/productivity growth (14)
- ❑ Natural resources conservation (15)
- ❑ Pollution prevention & waste management (16)
- ❑ Support for women and girls (37)
- ❑ Sustainable energy (17)
- ❑ Sustainable land use (18)
- ❑ Water resources management (19)
- ❑ Other (20) _____

Display This Question:
If Individuals can also have non-financial motives for launching new ventures. Does your venture currently have the explicit intent of creating social or environmental impacts? Yes Is Selected

Did your venture track itself against any of the Impact Reporting Investment Standards (IRIS) impact measures in 2014?

- ❍ Yes (1)
- ❍ No (2)

Display This Question:
If Individuals can also have non-financial motives for launching new ventures. Does your venture currently have the explicit intent of creating social or environmental impacts? Yes Is Selected

Did your venture take a B Corporation Impact Assessment or Global Impact Investing Ratings System (GIIRS) survey in 2014?

- ❍ Yes (1)
- ❍ No (2)

Display This Question:
If Individuals can also have non-financial motives for launching new ventures. Does your venture currently have the explicit intent of creating social or environmental impacts? Yes Is Selected

Did your venture track its impacts using any other established measurement approaches in 2014?

- ❍ Yes (1)
- ❍ No (2)

Display This Question:
If Did your venture track its impacts using any other established measurement approaches in 2013? Yes Is Selected

What impact measurement approaches did you follow?

Financials & Operations: As you respond to the questions in this section, please remember that all of your individual information will be kept fully confidential at all times. In cases where we are looking for specific number values (e.g., total revenues or number of employees), the application survey will assume a default value of zero unless you report otherwise. Therefore, it is very important to consider each question carefully and report the appropriate value for each question.

What was your venture's total earned revenue: (please do not include any philanthropic investments or donations in this amount.)

In calendar year 2014? ($US) (2)

Since January 1st, 2015? ($US) (4)

Since founding? ($US) (5)

Profit is the business' income after all expenses and taxes have been deducted. Roughly speaking, what was your venture's profit margin (as a percentage of total investment) for calendar year 2014?

- ❍ Negative ROI (venture lost money in 2013) (1)
- ❍ 0% - 5% (2)
- ❍ 6% - 10% (3)
- ❍ 11% - 15% (4)
- ❍ 16% - 20% (5)
- ❍ More than 20% (6)
- ❍ Unsure (7)
- ❍ Not applicable (we are a nonprofit) (8)

Not counting founders, on December 31, 2014, how many people worked for your venture? (Please exclude contract workers who are not on the business' official payroll.)

Full-time employees (1)

Part-time employees (2)

Not counting founders, how many people worked for your venture today? (Please exclude contract workers who are not on the business' official payroll.)

Full-time employees (1)

Part-time employees (2)

How much, if any, did your venture pay in wages, salaries, and benefits to all full-time and part-time employees in calendar year 2014 (in $US)? (Please do not include wages, salaries and benefits to contract workers who are not on the business' official payroll.)

($US) (1)

Venture Financing: As you respond to the questions in this section, please remember that all of your individual information will be kept fully confidential at all times.

During calendar year 2014 OR 2015, did your venture's founders put any of their own money into your venture? (Please do not include any money borrowed from others or from credit cards.)

- ❍ Yes (1)
- ❍ No (2)

Display This Question:

If During calendar year 2013, did your venture's founders put any of their own money into your venture? (Please do not include any money borrowed from others or from credit cards.) Yes Is Selected

How much of their own money did all of the founders put into the business:

In calendar year 2014? ($US) (4)

Since January 1st, 2015? ($US) (6)

Since founding? ($US) (7)

Please indicate whether your venture received any of the following investments from outside sources in 2014 or 2015:

- ❑ Equity (equity investment is money received in return for some portion of ownership) (1)
- ❑ Debt (not including any personal debt obtained on behalf of the business) (2)
- ❑ Philanthropy (e.g., seed grants, awards, or donations) (3)

Display This Question:

If Please indicate whether your venture received any of the following investments from outside sources in 2014: Equity (equity investment is money received in return for some portion of ownership) Is Selected

During calendar year 2014 or 2015, from which sources did your venture receive this outside equity? (check all that apply)

- ❑ From banks (1)
- ❑ From non-bank financial institutions (9)
- ❑ From venture capitalists (10)
- ❑ From angel investors (11)
- ❑ From other companies (12)
- ❑ From government agencies (13)
- ❑ From foundations or other nonprofits (14)
- ❑ From accelerators or fellowship programs (15)
- ❑ From friends or family members (16)
- ❑ From business plan competitions (17)
- ❑ From crowd-fund campaigns (18)
- ❑ From employees that are not owners (19)
- ❑ From other individuals (20)
- ❑ From another source: (8) _____

Display This Question:

If Please indicate whether your venture received any of the following investments from outside sources in 2014: Equity (equity investment is money received in return for some portion of ownership) Is Selected

How much new equity financing did your venture obtain from all of these outside sources:

In calendar year 2014? ($US) (1)

Since January 1st, 2015? ($US) (3)

Since founding? ($US) (4)

Display This Question:

If Please indicate whether your venture received any of the following investments from outside sources in 2014: Debt (not including any personal debt obtained on behalf of the business) Is Selected

During calendar year 2014 or 2015, from which sources did your venture obtain borrowed funds? (check all that apply)

- ❑ From banks (1)
- ❑ From non-bank financial institutions (2)
- ❑ From venture capitalists (3)
- ❑ From angel investors (9)
- ❑ From other companies (10)
- ❑ From government agencies (11)
- ❑ From foundations or other nonprofits (12)
- ❑ From accelerators or fellowship programs (13)
- ❑ From friends or family members (14)
- ❑ From business plan competitions (15)
- ❑ From crowd-fund campaigns (16)
- ❑ From employees that are not owners (17)
- ❑ From other individuals (18)
- ❑ From other sources: (8) _____

Display This Question:

If Please indicate whether your venture received any of the following investments from outside sources in 2014: Debt (not including any personal debt obtained on behalf of the business) Is Selected

How much did your venture borrow from all of these sources:

In calendar year 2014? ($US) (2)

Since January 1st, 2015?($US) (4)

Since founding? ($US) (5)

Display This Question:
If Please indicate whether your venture received any of the following investments from outside sources in 2014: Philanthropy (e.g., seed grants, awards, or donations) Is Selected

During calendar year 2014 or 2015, from which sources has your venture received these donations?

- ❑ From other companies (1)
- ❑ From government agencies (2)
- ❑ From foundations or other nonprofits (3)
- ❑ From accelerators or fellowship programs (4)
- ❑ From friends or family members (5)
- ❑ From business plan competitions (6)
- ❑ From crowd-fund campaigns (7)
- ❑ From employees that are not owners (8)
- ❑ From other individuals (9)
- ❑ From another source (10) _____

Display This Question:
If Please indicate whether your venture received any of the following investments from outside sources in 2014: Philanthropy (e.g., seed grants, awards, or donations) Is Selected

How much philanthropic support did your venture receive from all outside sources:

In calendar year 2014? ($US) (1)
Since January 1st, 2015? ($US) (3)
Since founding? ($US) (4)

How much additional investment are you planning to secure for your venture:

| | in the next 12 months | over the next 3 years |
|---|---|---|
| | ($US) (1) | ($US) (1) |
| Equity financing (4) | | |
| Debt financing (5) | | |
| Philanthropic support (6) | | |

Entrepreneurial Accelerators

In 2014 or 2015, did anyone on your founding team participate in any of the following accelerator programs? (check all that apply)

- ❑ Accelerating Appalachia (42)
- ❑ Action For India (24)
- ❑ Agora Partnerships (1)
- ❑ Apps 4 Africa (25)
- ❑ Bid Network (26)
- ❑ Endeavour (27)
- ❑ Fledge (28)
- ❑ Good Company Ventures (2)
- ❑ GreenStart Labs (13)
- ❑ Hub Ventures (3)
- ❑ iAccelerator (29)
- ❑ The Impact Engine (4)
- ❑ Mass Challenge (30)
- ❑ Mountain Biz Works (31)
- ❑ NCIIA (14)
- ❑ NESST (15)
- ❑ Pipa (32)
- ❑ Points of Light Civic Accelerator (33)
- ❑ Praxis (5)
- ❑ Rock Health (6)
- ❑ Sinapis (34)
- ❑ Starting Bloc (7)
- ❑ Startup Chile (35)
- ❑ Techstars (36)
- ❑ The Unreasonable Institute (8)
- ❑ UnLtd (37)
- ❑ Village Capital (9)
- ❑ Villgro (10)
- ❑ Y Combinator (11)
- ❑ Other (12) _____

Database Consent

Congratulations for making it to the end of our follow-up survey. As you know, the Impact of Entrepreneurship Database program is being coordinated by the Social Enterprise @ Goizueta program at Emory University. The goal of this project is to establish a comprehensive database for the much-needed study of the issues and challenges faced by entrepreneurs around the world. By checking the box below, you will give us permission to include your information in this growing database. When doing so, know that all of your information will be kept completely confidential. The studies and reports that are made public as part of the program will never divulge any information that will make it possible to identify you or your venture. Moreover, all of the data will be kept in a secure location; and only affiliated researchers will have access to them. When you agree to submit your data to our program, your name will again be entered to win one of four (4) unrestricted $5,000 grants for your venture. This next draw will be held in January 2016.

I have read the above program description and consent to my information being submitted to the database program that is being coordinated by the Social Enterprise @ Goizueta program at Emory University.

- ❍ Yes (1)
- ❍ No (2)

Finally, we are always looking for new ideas to support entrepreneurs. Are there additional ways that a database program like ours might provide value to an entrepreneur like you?