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RESEARCH ARTICLE

Paradoxes of accelerator programs and new venture performance: Do varieties of experiences make a difference?

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Abstract Incubators and accelerators have proliferated, but their impact on new ventures' performance remains unclear. This article explores whether all ventures benefit equally from participating in accelerator programs. We propose that the entrepreneurs' human capital resources influence the benefits extracted from accelerator program participation. Using application data from the accelerator programs across developed and developing countries, we find participation in accelerator programs positively impacts the ventures' innovation performance but has a mixed impact on social performance. Founders with high education benefit from participating in accelerator programs for innovation and social performance. However, entrepreneurial experience and vast industry experience do not significantly influence ventures' social and innovation-related performance from accelerator participation. The result is consistent for both solo and team founders.

Plain English Summary Entrepreneurs with high education and experience get more value-added benefits from accelerators. The accelerator programs can help create a 'community of organizations, institutions, and individuals that impact the enterprise and the enterprise's customers and suppliers; entrepreneurs' resources help create an environment that increases the potential of the new ventures. Additionally, a team of entrepreneurs with education, industry, and entrepreneurial experience can help with the venture's performance. Therefore, accelerator programs should focus on firms with highly educated entrepreneurs since entrepreneurs with high education and experience get more value-added benefits from accelerators. For the corporate managers engaged in corporate/intrapreneurship, employees with industry and entrepreneurial experience can be a great resource, and human resource managers can help with recruiting these individuals. Policymakers should pay close attention to younger firms since they are vulnerable. Further, policymakers should pay close attention to ventures with entrepreneurs with educational experience since entrepreneurs' industry and entrepreneurial experience can complement their lacking.

Keywords Accelerator · Innovation · New Ventures · Human Capital · Industry Experience · Entrepreneurial Experience

JEL Classification M13 · 05 · L2 · L25

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1 Introduction

Successful new ventures contribute to the local and national economies through innovative activity and job creation (Haltiwanger et al., 2012; Wennekers et al., 2005). In recent years, accelerators and incubators have gained attention from academics and policymakers since these programs help with generating entrepreneurial activity (Bergman and McMullen 2021; Cohen, 2013; Cohen et al., 2019a, 2019b; Hallen et al., 2020, 2023; Hayter et al., 2018; Hochberg, 2016; Kher et al., 2022; Peters et al., 2004; Cohen & Hochberg, 2014; Amezcua et al., 2013, 2020; Radojevich-Kelley & Hoffman, 2012; Venâncio & Jorge, 2022). While the existing research suggests that incubators and accelerators provide some similar services, others consider them as distinct types of organizations (Gliedt et al., 2018; Hausberg & Korreck, 2018; Cohen, 2013; Pauwels et al., 2016; Miller & Bound, 2011; Crisan et al. 2021), in this paper, we are using accelerator as an umbrella term.

An emerging body of literature examines the importance of accelerators in entrepreneurship (Sohail et al., 2023; Bergman and McMullen 2021; Cohen, 2013; Cohen et al., 2019a, 2019b; Hallen et al., 2020, 2023; Cohen & Hochberg, 2014; Gonzalez-Uribe & Leatherbee, 2018; Smith & Hannigan, 2015; Hallen et al., 2016; Yu, 2020) and their influence on firm performance and survival (Chan et al., 2020; Gonzalez-Uribe & Leatherbee, 2018; Lyons & Zhang, 2018; Yu, 2020). One consistent observation from these studies is that accelerator programs influence new venture performance and demonstrate the importance of determining what affects new ventures' performance (Crișan et al. 2020; Drori & Wright, 2018; Battistella et al., 2017; Cohen, 2013; Cohen & Hochberg, 2014) as suggested by Pauwels (2016, p. 23), "there is a need for studies that compare accelerated ventures to a control group of non-accelerated ventures to provide robust insights into the contribution of accelerators." However, a critical gap that remains in the literature is that despite participation in accelerator programs, new ventures' performance differs.

To address this gap in the literature, we address the following question: How do entrepreneurs'[1] resources influence new venture performance that participates in the accelerator programs? From an entrepreneur's perspective, the decision to participate in an accelerator program and the benefits accruing from the participation are unknown and are typically presented as a 'black box'; thus, our ability to truly understand how personal resources influence the relationship between performance and accelerator program participation is essential and constitutes a significant and novel contribution to the entrepreneurship literature. Additionally, our study sheds light on the 'contribution of accelerators" (Pauwels 2016, p. 23).

Accelerator programs are a great support system for entrepreneurs. They can be an essential means to access physical resources, office spaces, and networking services (Cohen, 2013; Cohen & Hochberg, 2014) and act as intermediaries by providing support services to new ventures. These organizations also link multiple parties for a specific objective/activity (Bergman and McMullen 2021; Cohen, 2013; Cohen et al., 2019a, b; Hallen et al., 2020, 2023; Mair et al., 2012; McDermott et al., 2009), thereby creating opportunities for new ventures by developing new markets (Dutt et al., 2016). Most of the programs included in this study have three to six months long programs, with smaller numbers having less than three months and more than six months long.

Determining new ventures' performance following the accelerator program participation is critical because new ventures' performances vary as many new ventures fail in the early years (Chan et al., 2020; Mas-Verdú et al., 2015; Schwartz, 2009). These differences in performance have been attributed to different abilities and characteristics of the CEO/founder(s) (Bosma et al., 2004; Colombo & Grilli, 2005, 2010) and access to and development of their resources and capabilities at the various life-cycle stages (Helfat, 1994). Therefore, there is a need to determine whether ventures can absorb the information disseminated during the accelerator program participation. If the new ventures cannot harness the benefit, then the accelerator program resources are

[1] In this paper we use entrepreneur and CEO/Founder interchangeably. We also use entrepreneur both in terms of solo founder and team founders.

wasted, and to reduce this waste, the program should select ventures with optimal resources.

This paper makes two primary contributions to entrepreneurship literature. First, entrepreneurship literature has focused on the importance of knowledge resources to run and build a successful business (Davidsson & Honig, 2003; Ucbasaran et al., 2008; Unger et al., 2011). Interestingly, the benefit extracted from participation in the accelerator programs depends on the type of human capital. The results of our study suggest that the benefit received from accelerator participation depends on the entrepreneur's ability to absorb knowledge from these programs. For instance, entrepreneurs with human capital resources gained through industry and entrepreneurial experience may not benefit from participating in the accelerator program since the knowledge offered through the accelerator programs does not match their specific needs. Second, entrepreneurship literature suggests that team entrepreneurs' resources influence firms' innovation performance (Colombo & Grilli, 2005; Colombo et al., 2004). Our study shows that ventures with more than one founder benefit less from participating in accelerator programs, suggesting that solo entrepreneurs may get more rewards. Accelerator programs can help create a supportive environment for entrepreneurs with less human capital by filling the resource void or constraints (Carroll & Delacroix, 1982; Freeman et al., 1983; Stinchcombe, 1965) that new ventures often face. Future research should engage in case studies to gain more in-depth information about how the structure, resource availability, and support provided by these programs can help explain the variances in new firm performance. Case analysis can also help identify the types of firms that are admitted to the program.

This study also offers important policy implications. Policymakers regularly search for ways to support firms through various funding programs and support organizations to sustain growth and entrepreneurial activities that will create jobs in the community (Wren & Storey, 2002). This article provides insights into support organizations that might help increase new firms' productivity.

The rest of the paper is organized as follows. The following section discusses the theoretical links between firm resources and performance. The third section presents the hypotheses tested; the fourth section describes the data and variables included in the study, followed by the empirical methods and results. The final section presents conclusions, discussions, limitations, and future research directions.

2 Knowledge resources and new venture performance

Resources are essential to a firm's performance (Barney, 1991). Knowledge-based view (KBV) (Grant, 1996), derived from the resource-based view, suggests that intangible resources such as the knowledge endowment of a firm are essential for new and established ventures' performance and to gain competitive advantage by "accessing and integrating the specialized knowledge of its members" (Grant, 1997, p. 452). Grant (1997, p. 452) views knowledge as a "… preeminent productive resource of strategic significance." Knowledge-based resources (i.e., knowledge stock) of an organization are mainly developed and accumulated over time (Dierickx & Cool, 1989), along with the culture of the flow of knowledge within an organization that allows firms to integrate knowledge (Grant, 1997). Therefore, an organization's knowledge resources, heterogeneous knowledge base, and capabilities can be critical strategic resources and can be the basis of its competitive advantage (Eisenhardt & Santos, 2002).

New ventures' post-entry performance significantly contributes to the economy (Audretsch, 1995), yet many of these firms fail in the early stages of their life. Those who survive face challenges as they transition through various life cycle stages. Prior work has identified various reasons, such as lack of management experience (Bloom & Van Reenen, 2010; Helfat & Lieberman, 2002; Kulchina, 2017) and resources (Chan et al., 2020; Helfat & Lieberman, 2002) for the heterogeneous performance of new ventures. Knowledge is associated with an individual and an organization (Eisenhardt & Santos, 2002). Entrepreneurs with high knowledge resources bring their knowledge when they start a venture. As ventures transition from one stage to the next, entrepreneurs also develop skills and capabilities, "the bundles of complementary resources …administrative skills, routines, and physical assets with the flexibility to generate adaptive and valuable inputs" (Miller, 2003 p. 964). The development of knowledge resources and organizational capability helps to develop the memory

system (Lewis & Herndon, 2011; Akgün et al., 2005, 2006; Ren & Argote, 2011) and helps with creating new knowledge within an organization by combining knowledge from different sources. An organization's well-developed memory systems help match the organization's goal to gain a competitive advantage (Zahra & Filatotchev, 2004). This knowledge that has been developed within the organization helps with the new venture performance through creativity (Gino et al., 2010), product development, and success (Akgün et al. 2006; Dayan & Basarir, 2010).

3 Characteristics of accelerators and incubators

Accelerators and incubators share some common characteristics but they also have differences (Cohen, 2013; Dempwolf et al., 2014; Isabelle, 2013). These programs provide workspace, mentorship, and networking opportunities to the firms that participate in the programs. One of the significant differences between incubators and accelerators is the length of time services are provided through these programs. Accelerators typically offer services through a cohort-based program of limited duration (usually 3–12 months) (Cohen, 2013; Cohen & Hochberg, 2014) as defined by Cohen and Hochberg (2014, p. 4) "a fixed-term, cohort-based program, including mentorship and educational components, that culminates in a public pitch event or demo-day". Another difference is the legal status of these programs; while most accelerators are for-profit organizations, incubators often tend to be non-profits (Isabelle, 2013). Accelerator programs generally provide seed investment in exchange for equity (Miller & Bound, 2011). Additionally, these programs help new ventures access networks, mentorship, and education, and some programs offer new ventures cash and office space (Cohen, 2013; Cohen et al., 2019a, 2019b). Accelerator programs provide several support services to new ventures, such as networking opportunities, technical assistance, and business assistance (Isabelle, 2013) for subsequent growth (Hackett and Dilts, 2004). Wise and Valliere (2014, p. 9) suggested that "Three key elements underlie the value added by accelerators: mentorship and the ability to learn from others who are more experienced, connectivity to a powerful network that can be leveraged by the new firm, and brand enhancement and signaling of legitimacy.". Radojevich-Kelley and Hoffman (2012) analyzed multiple case studies and found that accelerator programs help connect new ventures with potential investors.

4 Accelerators' role in linking resources and influence on new ventures performance

Scholars have identified several factors that influence new venture performance, such as the initial founding condition (Bergman and McMullen 2021; Chan et al., 2020; Carrol and Hannan 1989; Stinchcombe, 1965), access to resources such as knowledge, established history (Villanueva et al., 2012; Zheng et al., 2010), but access to these resources varies (Chan et al., 2020). Studies have found that support organizations help to increase survival rates among new organizations (Bergman and McMullen 2021; Del Sarto et al., 2020; Baum et al., 2000). By helping to build resources and capabilities, these organizations minimize the negative influences accruing from resource scarcity (Stinchcombe, 1965) and help develop legitimacy by reducing liabilities of newness (Choi & Shepherd, 2005; Schwartz, 2009).

New ventures face many challenges and need assistance for subsequent growth (Hackett and Dilts, 2004). Accelerator programs can help new ventures with the development and utilization of existing resources by providing services in the areas of marketing, management, planning, industry contacts (Scillitoe & Chakrabarti, 2010), intellectual property protection (Hannon, 2005), etc. Existing literature suggests that accelerator programs positively influence new venture performance (Chan et al., 2020; Del Sarto et al., 2020; Pauwels et al., 2016; Hayter et al., 2018; Stayton and Mangematin 2018; Radojevich-Kelley & Hoffman, 2012; Wang et al., 2020, 2021). These programs help new ventures with networking through external and internal networks (Lyons, 2000). Helping to establish networks with external sources enhances new venture access to information. Lyons (2000) suggests that internal networks developed by the program participants are more important than external networks because program participants can pool their resources, learn from each other, or even establish relationships

that benefit both parties. Scillitoe and Chakrabarti (2010) show that the new technology-based firms benefit from the technical assistance and counseling services offered through these types of intermediate organizations.

5 Accelerators, knowledge endowment, and new venture performance

The existing literature suggests that the founder(s) knowledge resources is a significant determinant of the initial conditions of new ventures, such as startup size (Colombo et al., 2004), survival (Baptista et al., 2014), innovation (De Winne & Sels, 2010), and growth (Bosma et al., 2004; Colombo & Grilli, 2005). Individuals acquire their knowledge through formal education (Davidsson & Honig, 2003), industry experience (Cassar, 2014; Davidsson & Honig, 2003), and entrepreneurial experience (Cassar, 2014; Colombo & Grilli, 2005). These diverse sources of knowledge have been found to significantly influence new venture performance (Colombo & Grilli, 2005).

Formal education: Education is an essential tool that an entrepreneur possesses. It helps develop cognitive skills in entrepreneurs that help them adapt to the changing environment (Hatch & Dyer, 2004). Tang and Murphy (2012) found that entrepreneurs' knowledge is a significant determinant of innovation. In addition, entrepreneurs develop social networks during their time in educational institutions. They can use these networks to acquire resources to identify and exploit opportunities (Shane 20,003; Arenius and DeClercq 2005; Davidsson & Honig, 2003).

Industry experience: De Winne and Sels (2010) found that knowledge acquired through industry experience significantly contributes to a firm's innovative output. An entrepreneur needs to be a "Jack of all trades" as suggested by Lazear (2005), but the level of knowledge varies (West & Noel, 2009). Entrepreneurs may not possess all the knowledge and skills necessary for a successful venture. For instance, industry experiences may not always lead to expertise in finance or marketing or information about competitors (West & Noel, 2009). Knowledge endowment in a firm can be an essential strategic resource for a new venture (Grant, 1996). Ventures recruit new members to fill the knowledge gap with special knowledge (Astebro and Thompson 2011). Thus, accelerator programs can also help fill in the knowledge gap by providing guidance feedback (Eggers & Song, 2015) and technological know-how skills (Scillitoe & Chakrabarti, 2010).

Founders with high human capital, education, and industry experience, also tend to promote actions to accumulate knowledge and create an organizational climate that encourages sharing and transferring knowledge (Collins & Smith, 2006; Smith et al., 2005). Ventures with a team of entrepreneurs have shown to be critical for new ventures' performance (Barringer & Ireland, 2008; Ucbasaran et al., 2003) by pooling their resources. The social environment of an organization will encourage everyone to share their diverse knowledge and will help to increase the absorptive capacity of the new venture. This accumulation of knowledge within the organization helps increase the firm's sustainability and competitiveness which influences new venture performance (Sullivan & Marvel, 2011). Accelerator programs can help new ventures develop skills and capacities (Armanios et al., 2017). New ventures with a high level of knowledge will be better prepared to benefit from accelerators since they will have the resources to absorb the necessary and valuable information (Scillitoe & Chakrabarti, 2010). Based on this, we hypothesize that.

Hypothesis 1a. Founders with high education obtain greater benefits from accelerator programs that influence new venture performance than founders with low education.

Hypothesis 1b. Founders with more industry experience obtain greater benefits from accelerator programs that influence new venture performance than founders with less industry experience.

6 Accelerators, entrepreneurial experience, and new venture performance

The founder(s) entrepreneurial experience can be an important determinant of new venture performance (Hambrick, 2007; Ucbasaran et al., 2008). Entrepreneurial experience can be gained through working in a new/startup firm or the familiarity or knowledge of entrepreneurial activity through parents, relatives, or an individual's own experience of founding a business (Toft-Kehler et al., 2014). Regardless of the source of knowledge, entrepreneurial experience allows a founder to avoid pitfalls through sensemaking, defined by Cardon et al., (2011, p. 82) as "an interpretive process in which people assign meaning to ongoing occurrences" and attribution helps people explain the antecedent of an event either be it personal action or the events or actions of others. Due to prior experience, the CEO(s)/founder (s) can better scan for relevant information, process the information, filter out the most pertinent information for the current situation, and act based on the information.

Entrepreneurial experience does not necessarily have to be a successful experience. Failed entrepreneurial experience can also be a critical resource. A CEO(s)/founder (s) with failed entrepreneurial experience serves as a "stepping stone" not only to explore and exploit new opportunities (Gupta, 2005) but also to influence the performance of a new venture. The existing literature suggests that failure experience helps to increase the probability of success by applying the lessons learned from the previous experience (Shepherd, 2003), "what works and doesn't work" (Sarasvathy et al., 2013 p. 422). Scholars suggest that this failure experience creates 'generative' learning outcomes by applying lessons learned to a new business (Gibb, 1997). Cope (2005, p 387) argues that the failed experience makes a "cognitive early warning system" that allows a CEO/Founder to take corrective actions well in advance (Politis, 2008). Ellis et al., (2006, p. 670) suggest that failed experiences are the "fuel that intensifies cognitive processes".

Participation in an accelerator program can enhance both accessing information and filtering of information. Accelerator programs expose ventures to large amounts of information through interactions with mentors, potential suppliers, and customers. This intense and large amount of information can be challenging for a new venture to filter and absorb (Simon, 1973). Accelerator programs can help the CEO/Founders access and interpret and process external information (Cohen et al., 2019b). Therefore, both the accelerator program's assistance and the CEO/Founders' experience can help filter and obtain sufficient and valuable information to help with the venture's performance. Based on this, we hypothesize that.

> Hypothesis 2. Founders with prior entrepreneurial experience obtain greater benefits from accelerator programs that influence new venture performance than founders with no previous entrepreneurial experience.

7 Data and research methods

7.1 Data collection and sample

We collected our data from the Entrepreneurship Database Program (EDP) at Emory University, which the Global Accelerator Learning Initiative supports. The EDP works with accelerator programs to collect data and track ventures' progress over time. The program gathers information from entrepreneurs who apply to the accelerator programs, both successful and unsuccessful applicants, and then resurvey both applicants from the prior year. The survey was conducted in 2018 that included a follow-up survey. The majority of the accelerators in this dataset have programs that last from three to six months; a small number of the accelerators have programs that last less than three months or last more than six months. Additionally, the majority of the accelerators work with start-ups in the early-stage and growth-stage ventures, while a small portion works with idea-stage ventures. The follow-up survey conducts a survey of both successful applicants and unsuccessful applicants from the prior year. The dataset included application information in the variable named showed up in programs starting from 2016. These accelerator programs and ventures included in the accelerator programs are in both developed and emerging countries.

We collected country characteristics data from the OECD, IMF, UNCTAD, World Bank's World Development Indicator (WDI), World Governance Indicator (WGI), and Doing Business (DB) Database. To construct our sample, we matched the EDP data with the OECD, IMF, UNCTAD, WDI, WGI, and

Table 1 Definition of variables

	Variable (Abbreviation)	Definition	Source
Dependent Variable (DV)	Patent (P)	How many patents?	EDP
	Trademarks (T)	How many trademarks?	EDP
	Education Effect (E)	Venture seek to impact in education (1 = Yes 0 = No)	EDP
	Health Effect (H)	Venture seek to impact in health (1 = Yes 0 = No)	EDP
	Accelerator Program Effect (ACC)	Indicate ventures that showed up in programs (data available since 2016) (1 = Yes 0 = No)	EDP
Independent Variable (IV)	Firm Age (FA)	In what year was your venture founded? Calculations: Survey year—Year founded	EDP
	Firm Size (FS)	Number of employees	EDP
	Founder1 Age (Fn1Ag)	Please provide information about Founder's Age	EDP
	Founder2 Age (Fn2Ag)	Please provide information about Founder's Age	EDP
	Founder3 Age (Fn3Ag)	Please provide information about Founder's Age	EDP
	Founder1 Gender (Fn1G)	Please provide information about Founder's Gender: (Male = 1 Female = 0)	EDP
	Founder2 Gender (Fn2G)	Please provide information about Founder's Gender: (Male = 1 Female = 0)	EDP
	Founder3 Gender (Fn3G)	Please provide information about Founder's Gender: (Male = 1 Female = 0)	EDP
	Founder1 Education (Fn1E)	Please provide information about Founder 1 Highest Level of Education Completed (0 = None 1 = high school 2 = Technical/Vocational degree 3 = Bachelor's Degree Some graduate degree; Masters Ph.D.)	EDP
	Founder2 Education (Fn2E)	Please provide information about Founder 1 Highest Level of Education Completed (0 = None 1 = high school 2 = Technical/Vocational degree 3 = Bachelor's Degree Some graduate degree; Masters Ph.D.)	EDP
	Founder3Education (Fn3E)	Please provide information about Founder 1 Highest Level of Education Completed (0 = None 1 = high school 2 = Technical/Vocational degree 3 = Bachelor's Degree Some graduate degree; Masters Ph.D.)	EDP
	Founder1 Entrepreneurship experience (Fn1EE)	How many new organizations did founder start before launching this venture?	EDP
	Founder2 Entrepreneurship Experience (Fn2EE)	How many new organizations did founder start before launching this venture?	EDP
	Founder3 Entrepreneurship Experience (Fn3EE)	How many new organizations did founder start before launching this venture?	EDP

Table 1 (continued)

	Variable (Abbreviation)	Definition	Source
	Founder1 First Job Experience (Fn1FJE1)	Please provide information about the first paid full-time jobs held by the founder before launching this venture. Founder's role in Job-1 (CEO/Executive Director = 4; Senior Management = 3; Support Staff = 2; Other = 1)	EDP
	Founder2 First Job Experience (Fn2FJE1)	Please provide information about the most recent paid full-time jobs held by the founder before launching this venture. Founder's role in Job-1 (CEO/Executive Director = 4; Senior Management = 3; Support Staff = 2; Other = 1)	EDP
	Founder3 First Job Experience (Fn3FJE1)	Please provide information about the most recent paid full-time jobs held by the founder before launching this venture. Founder's role in Job-1 (CEO/Executive Director = 4; Senior Management = 3; Support Staff = 2; Other = 1)	EDP
	Founder1 Most Recent Job Experience (Fn1FJE2)	Please provide information about the first paid full-time jobs held by the founder before launching this venture. Founder's role in Job-2 (CEO/Executive Director = 4; Senior Management = 3; Support Staff = 2; Other = 1)	EDP
	Founder2 Most Recent Job Experience (Fn2FJE2)	Please provide information about the most recent paid full-time jobs held by the founder before launching this venture. Founder's role in Job-1 (CEO/Executive Director = 4; Senior Management = 3; Support Staff = 2; Other = 1)	EDP
	Founder3 Most Recent Job Experience (Fn3FJE2)	Please provide information about the most recent paid full-time jobs held by the founder before launching this venture. Founder's role in Job-1 (CEO/Executive Director = 4; Senior Management = 3; Support Staff = 2; Other = 1)	EDP
Controls	Industry (Ind)	What primary sector is being impacted by your venture's activities?	EDP
	Economic Development (ln) (ED)	GDP per capita is gross domestic product divided by midyear population. GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in constant local currency	WDI and OECD National Accounts data

Table 1 (continued)

	Variable (Abbreviation)	Definition	Source
	Business Environment (BE)	The cost to register a business is normalized by presenting it as a percentage of gross national income (GNI) per capita. (% of GNI per capita)	DB
	Economic Openness (EO)	Foreign direct investment inflow (% of GDP) Foreign direct investment refers to direct investment equity flows in an economy. It is the sum of equity capital reinvestment of earnings and other capital. Direct investment is a category of cross-border investment associated with a resident in one economy having control or a significant degree of influence on the management of an enterprise that is resident in another economy. Ownership of 10 percent or more of the ordinary shares of voting stock is the criterion for determining the existence of a direct investment relationship. This series shows net outflows of investment from the reporting economy to the rest of the world and is divided by GDP	IMF UNCTD
	Governance Quality (GQ)	Average of Voice and Accountability Political Stability Government Effectiveness Regulatory Quality Rule of Law and Control of Corruption	WGI

Source: Entrepreneurship Development Program (EDP) WDI = World Bank World Development Indicators DB = World Bank Doing Business Database; IMF = International Monetary Fund WGI = World Governance Indicator OECD—Organisation for Economic Co-operation and Development UNCTD = United Nations Conference on Trade and Development

DB databases. Table 1 provides a detailed description of all the variables included in this study. Our dataset includes seventeen developed and eighty-eight emerging countries. The countries included in our sample had classifications based on World Bank. World Bank classifies countries into different income groups according to the 2018 gross national income (GNI) per capita. The groups are low income $1025 or less; lower middle income $1026—3995; upper middle income $3996—12,375; and high income $12,376 or more.[2]Our sample included ventures with one key founder and two members of team-based startups.[3] Based on the existing literature, our sample included firms eight years of age and younger to test the hypotheses of this paper (McDougal & Robinson, 1990). Table A1 in the Appendix shows the following information –- country years and the number of applicants selected in a country.[4] We have a total of 102 countries in our sample, with 17 developed countries, with the rest of the countries being developing or emerging countries.

[2] https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups

[3] We included results for solo and two team members' ventures. Even though we ran our analysis using the three team members but did not include results due to concerns about the length of the paper. However, as a reviewer suggested, we have included the information about the 3rd founders in the descriptive statistics table.

[4] We don't have access to information about why the applicant was not selected.

8 Dependent variable

Our performance measures include four different measures –- social impact (impact on education and impact on health) and quasi-innovation (patents and trademarks). Many of the ventures in our sample have social motivation. Therefore, we have included two performance measures — impact on education and impact on health. To measure quasi-innovation, we included information about patents and trademarks. Access to health and education can have important implications for society as unequal access to these resources can have a negative spillover effect through intergenerational transmission (Mayer, 2000, 2001; Haveman and Smeeding 2006; Subramanian & Kawachi, 2004; Kondo et al., 2009). Respondents answered questions regarding 1) the number of patents and 2) the number of trademarks. Patenting and trademarks are essential for firms to protect their intellectual property and increase productivity (Artz et al., 2010; Ernst, 2001). Additionally, patents and trademarks allow firms to receive funding from external sources since pairing patents and trademarks doubles patent value (Thoma, 2020; Hsu & Ziedonis, 2013; Cockburn & McGarvie, 2007; Häussler et al. 2014). However, for certain industries and nascent ventures likelihood of having patents are low (Amara et al., 2008; Block et al., 2015; Flikkema et al., 2014; Thomä & Bizer, 2013), and trademarks are used to protect their investments. Therefore, trademarks are an appropriate measure of performance (De Vries et al., 2017; Kleinknecht, 2000).

9 Independent variables

9.1 We included the CEO/Founder's characteristics

CEO/Founder characteristics. The CEO(s)/Founders' knowledge resources were measured by the entrepreneurs' education, job experience, and entrepreneurial experience of Founder1, Founder2, and Founder3. We included several measures to account for the founders' human capital– the highest level of education, industry experience, and entrepreneurial experience. Formal and tacit knowledge significantly influences new venture performance (Cassar, 2014). Entrepreneurs' educational level was measured by responses to the following questions: 1) Please provide information about the Highest Level of Education Completed. Education is represented as a variable from 1 to 3 based on the following classification: 1) high school; 2) technical or vocational degree; 3) bachelor's degree and higher. The following questions measured entrepreneurs' job experiences: Please provide information about the two most recent paid full-time jobs held: Entrepreneurs' job experiences are measured by individuals' first and most recent job experience. Founders' first job experience (Founder1, Founder2, Founder3 First job experience) is represented based on the following classification: Experience is described as a variable from 1 to 4 based on the following classification: 1) Other; 2) support staff; 3) Senior Management and 4) CEO/Executive Director. Entrepreneurs' recent job experience (Founder1, Founder2, Founder3 most recent job experience) is represented based on the following classification: Experience is described as a variable from 1 to 4 based on the following classification: 1) Other; 2) support staff; 3) Senior Management and 4) CEO/Executive Director.

Entrepreneurial experience. Entrepreneurs were also asked if they had any previous venture experience –- how many new organizations did the founder start before launching this venture? (Cassar, 2014).

9.2 Control variables

Individual controls. We have included several control variables measures. The CEO/Founder's key characteristics were reflected by measuring age and gender. Research has shown that older entrepreneurs tend to outperform younger entrepreneurs (Arabsheibani et al., 2000; Cassar, 2014). In addition, existing research suggests that male-owned firms perform better than female-owned firms (Robb & Watson, 2012; Robson et al., 2012). Survey participants responded to the question regarding their age and gender. We included an indicator variable representing the gender of the founder (male = 1 female = 0).

Table 2 Descriptive Statistics of Variables

	Obs	Mean	Std. dev	Min	Max	VIF
1. E	1500	0.15	0.35	0	1	1.06
2. H	1500	0.16	0.36	0	1	1.04
3. P	1500	0.12	0.32	0	1	1.04
4. T	1500	0.35	0.48	0	1	1.09
5. FA	1500	4.92	1.33	3	8	1.18
6. FS	1500	0.03	0.05	0	0.6	1.18
7. Fn1Ag	1500	34.00	9.56	15	86	1.67
8. Fn2Ag	1500	34.66	10.39	18	84	1.63
9. Fn3Ag	1500	34.17	10.53	0	78	1.54
10. Fn1G	1500	0.75	0.43	0	1	1.13
11. Fn2G	1500	0.66	0.47	0	1	1.10
12. Fn3G	1500	0.70	0.46	0	1	1.08
13. Fn1E	1500	2.77	0.54	0	3	1.35
14. Fn2E	1500	2.73	0.58	0	3	1.44
15. Fn3E	1500	2.69	0.63	0	3	1.34
16. Fn1EE	1500	1.14	1.40	0	10	1.47
17. Fn2EE	1500	0.96	1.37	0	10	1.52
18. Fn3EE	1500	0.94	1.44	0	25	1.38
19. Fn1FJE1	1500	2.48	0.71	1	3	1.57
20. Fn1FJE2	1500	2.43	0.70	1	3	1.51
21. Fn2FJE1	1500	2.41	0.71	1	3	1.70
22. Fn2FJE2	1500	2.33	0.75	1	3	1.66
23. Fn3FJE1	1500	2.28	0.73	1	3	1.84
24. Fn3FJE2	1500	2.24	0.74	1	3	1.78
25. Ind	1500	6.76	4.08	1	16	1.06
26. ED (ln)	1500	12.22	2.07	5.7	17.44	1.06
27. BE	1500	3.46	28.28	0	556.6	1.05
28. EO	1500	2.70	2.61	-9	54.65	1.10
29. GQ	1500	-0.32	0.53	-2	1.782	1.15
30. ACC	1500	0.18	0.38	0	1	1.04

Abbreviations: Patent (P), Trademarks (T), Education Effect (E), Health Effect (H), Accelerator Program Effect (ACC), Firm Age (FA), Firm Size (FS), Founder1 Age (Fn1Ag), Founder2 Age (Fn2Ag), Founder3 Age (Fn3Ag), Founder1 Gender (Fn1G), Founder2 Gender (Fn2G), Founder3 Gender (Fn3G), Founder1 Education (Fn1E), Founder2 Education (Fn2E), Founder3Education (Fn3E), Founder1 Entrepreneurship experience (Fn1EE), Founder2 Entrepreneurship Experience (Fn2EE), Founder3 Entrepreneurship Experience (Fn3EE), Founder1 First Job Experience (Fn1FJE1), Founder2 First Job Experience (Fn2FJE1), Founder3 First Job Experience (Fn3FJE1), Founder1 Most Recent Job Experience (Fn1FJE2), Founder2 Most Recent Job Experience (Fn2FJE2), Founder3 Most Recent Job Experience (Fn3FJE2)

Controls: Industry, Economic Development (ln), Business Environment, Economic Openness, Governance Quality

Country controls. The economic development level of a country is measured by GDP per capita. The data are from the World Development Indicator (WDI) database. The business environment of a country is measured by the cost to register a business (% of GNI per capita). This data was gathered from the Doing Business database. A business-friendly environment is likely to promote entrepreneurial activity (Klapper et al., 2006). The participants in the survey identified the industry. Economic openness is measured by the foreign direct investment in the country as a percentage of the GDP. Governance quality data was taken from World Governance Indicator,

Table 3 Correlation matrix

Var	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1. E	1																							
2. H	-0.08*	1																						
3. P	-0.04	0.09*	1																					
4. T	-0.10*	0.05*	0.03	1																				
5. FA	0.06*	0.03	0.06*	0.06*	1																			
6. FS	0.05	0.01	0.03	0.12	0.28*	1																		
7. Fn1Ag	-0.05*	-0.003	0.08*	0.08*	0.18*	0.12*	1																	
8. Fn2Ag	-0.07*	0.04	0.04	0.05	0.13*	0.09*	0.51*	1																
9. Fn3Ag	-0.05	0.01	0.06*	0.07*	0.15*	0.08*	0.42*	0.40*	1															
10. Fn1G	0.002	-0.03	0.06*	0.09*	0.06*	0.10*	-0.001	-0.10*	-0.05*	1														
11. Fn2G	-0.02	-0.001	0.02	0.04	-0.02	0.04	-0.06*	0.01	-0.04	0.14*	1													
12. Fn3G	-0.05	0.001	-0.02	0.10*	-0.04	0.02	-0.04	-0.02	0.04	0.17*	0.10*	1												
13. Fn1E	-0.01	0.04	0.02	0.05*	-0.02	-0.004	-0.05	0.02	0.05*	0.01	0.06*	0.04	1											
14. Fn2E	-0.01	0.02	0.02	0.05	-0.03	0.02	-0.01	-0.003	0.07*	0.004	0.08*	0.05	0.45*	1										
15. Fn3E	-0.05	0.02	0.001	0.06*	-0.06*	-0.03	-0.02	0.03	0.05	0.001	0.08*	0.06*	0.37*	0.42*	1									
16. Fn1EE	-0.04	0.0004	0.04	0.14*	-0.04	0.05*	0.16*	0.03	0.07*	0.20*	0.03	0.07*	-0.01	0.07*	0.06*	1								
17. Fn2EE	-0.04	0.01	0.01	0.11*	-0.02	0.12*	0.06*	0.19*	0.07*	0.07*	0.20*	0.02	0.02	0.07*	0.06*	0.42*	1							
18. Fn3EE	-0.05	0.04	0.05	0.12*	0.01	0.06*	0.04	0.03	0.25*	0.05	0.06*	0.12*	0.02	0.08*	0.10*	0.33*	0.34*	1						
19. Fn1FJE1	-0.02	-0.05	-0.02	0.11*	0.04	0.12*	0.19*	0.11*	0.08*	0.11*	0.03	0.002	0.01	0.05	0.004	0.25*	0.16*	0.12*	1					
20. Fn2FJE1	-0.06*	0.01	0.003	0.12*	-0.04	0.07*	0.11	0.21*	0.10*	0.05	0.08*	0.004	0.04	0.15*	0.08*	0.17*	0.29*	0.16*	0.44*	1				
21. Fn3FJE1	-0.05*	-0.02	0.05	0.13*	-0.002	0.07*	0.14*	0.11*	0.30*	0.04	-0.02	0.06*	0.01	0.12*	0.17*	0.20*	0.18*	0.30*	0.41*	0.43*	1			
22. Fn1FJE2	-0.06*	-0.03	0.02	0.14*	-0.04	0.13*	0.21*	0.10*	0.11*	0.04	0.01	-0.07*	-0.003	0.05	-0.04	0.26*	0.20*	0.13*	0.44*	0.34*	0.31*	1		
23. Fn2FJE2	-0.05*	0.002	0.01	0.07*	0.02	0.08*	0.11*	0.21*	0.12*	0.01	0.09*	-0.05*	0.03	0.12*	0.10*	0.17*	0.31	0.18*	0.31*	0.50*	0.35*	0.40*	1	
24. Fn3FJE2	-0.05	'-0.02	0.05	0.08*	-0.01	0.09*	0.15*	0.13*	0.28*	0.03	0.01	0.04	-0.004	0.11*	0.14*	0.19*	0.19*	0.31*	0.30*	0.35*	0.56*	0.37*	0.45*	1

* p < .10 ** p < .05 *** p < .01

We have removed the control variables to fit the table better

Abbreviations: Patent (P), Trademarks (T), Education Effect (E), Health Effect (H), Accelerator Program Effect (ACC), Firm Age (FA), Firm Size (FS), Founder1 Age (Fn1Ag), Founder2 Age (Fn2Ag), Founder3 Age (Fn3Ag), Founder1 Gender (Fn1G), Founder2 Gender (Fn2G), Founder3 Gender (Fn3G), Founder1 Education (Fn1E), Founder2 Education (Fn2E), Founder3Education (Fn3E), Founder1 Entrepreneurship experience (Fn1EE), Founder2 Entrepreneurship Experience (Fn2EE), Founder3 Entrepreneurship Experience (Fn3EE), Founder1 First Job Experience (Fn1FJE1), Founder2 First Job Experience (Fn2FJE1), Founder3 First Job Experience (Fn3FJE1), Founder1 Most Recent Job Experience (Fn1FJE2), Founder2 Most Recent Job Experience (Fn2FJE2), Founder3 Most Recent Job Experience (Fn3FJE2)

Controls: Industry, Economic Development (ln), Business Environment, Economic Openness, Governance Quality

which includes six governance indicators (Kaufmann et al., 2010). The indicators are voice and accountability, political stability, government effectiveness, regulatory quality, the rule of law, and control of corruption. To calculate the governance quality of a country, we use the average of these six indicators. Research shows that betters governance is associated with productive activity (Klapper et al., 2011; Thai & Turkina, 2014).

Firm controls: Firms' age and size are used as controls. We calculated the firms' age by subtracting the year the venture was founded from the year the survey was conducted. Firm size was determined by the number of employees.

A detailed description of all the variables is included in Table 1. Tables 2 and 3 present the descriptive statistics and correlation coefficients, respectively, of all the variables included in this study. None of the variables of this study are highly correlated. The average age of the ventures included in the program was three, and the average age of solo founders was 34.

10 Empirical strategy

To identify the effect of accelerator programs on new venture performance, we frame the program's completion as a quasi-experiment. The variable 'Accelerator Program Effect' included two groups –- new ventures who were successful and unsuccessful applicants for the program and, a year later, both the applicants/ventures and unsuccessful applicants/ventures from the prior year. We employed the inverse-probability-weighted regression adjustment (IPWRA) method that uses probability weights for obtaining outcome-regression parameters (Azoulay et al., 2009; Rider & Negro, 2015; Wang et al., 2020; Wu, 2012). IPWRA estimators use one model to predict treatment status and another to predict outcomes. This method also allows accounting for the missing data and resembles the propensity-score matching approach. The inverse-probability-weight (IPW) uses the reciprocal (inverse) of the probability of being in the observed treatment group. These probabilities are obtained by fitting a model of treatment status on founders' characteristics, firms' characteristics, and country characteristics. We also used these characteristics for our regression adjustment (RA).

11 Robustness checks

We have performed several robustness checks; the probit regression estimation results, including interaction effects for the solo founders, are presented in Appendix. We also performed the IPWRA analysis using the regional classification of the World Bank for both solo and team founders. These results are consistent with our previous results and available upon request.

12 Results

Table 4 presents the results of our inverse-probability-weighted regression adjustment (IPWRA) estimation with the solo founder's education, industry experience, and entrepreneurial experience (Hypothesis 1a, 1b, and 2, respectively). The founder's education level is positive and significant for all the models (1 to 4) for social and innovation performance, which is consistent with the previous results (Unger et al., 2011), suggesting that entrepreneurs' education positively influences new venture performance. Additionally, in these models, the effect of the accelerator program remains positive and significant, suggesting that entrepreneurs with high education levels and accelerator program participation positively influence social performance associated with health and innovation-related performances but negatively for education; the negative relationship is significant. This negative result suggests that entrepreneurs' level of education is not important for education-oriented ventures. Models 5, 6, 7, and 8 are associated with entrepreneurs' industry experience. We find mixed results associated with entrepreneurs' industry experience and performances associated with social and innovation. While the accelerator program effect remains positive and significant for health and trademarks and positive for the patents, the relationship remains negative for education-related performance. We also find also the only positive and significant relationships with entrepreneurs'

Table 4 Solo Founder's Human Capital-Direct Effect

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Education Impact	Health Impact	Patent	Trademarks	Education Impact	Health Impact	Patent	Trademarks	Education Impact	Health Impact	Patent	Trademarks
	Education				Industry Experience				Entrepreneurial Experience			
ACC	-0.06***	0.04***	0.02	0.04**	-0.07***	0.04***	0.01	0.05**	-0.06***	0.04***	0.02	0.04**
	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.02)
Fn1E	0.10***	0.10***	0.10***	0.11***								
	(0.04)	(0.04)	(0.04)	(0.04)								
Fn1FJE1					0.15	-0.04	-0.05	0.09				
					(0.10)	(0.08)	(0.09)	(0.07)				
Fn1FJE1					-0.18**	0.004	0.13	0.13*				
					(0.09)	(0.08)	(0.09)	(0.07)				
Fn1EE									-0.01	0.02	0.05	0.10***
									(0.05)	(0.04)	(0.04)	(0.04)
Fn1Ag	-0.004	-0.004	-0.004	-0.004	-0.004	-0.004	-0.004	-0.01	-0.01	-0.01	-0.01	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Fn1Ag (sq)	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Fn1G	-0.14***	-0.14***	-0.14***	-0.14***	-0.11**	-0.11**	-0.11**	-0.14***	-0.15***	-0.15***	-0.15***	-0.15***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
ED (ln)	-0.04***	-0.04***	-0.04***	-0.04***	-0.03**	-0.03**	-0.03**	-0.04***	-0.04***	-0.04***	-0.04***	-0.04***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
BE	0.0003	0.0003	0.0003	0.0003	0.0004	0.0004	0.0004	0.0003	0.0003	0.0003	0.0003	0.0003
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
EO	0.002	0.002	0.002	0.001	0.012	0.012	0.012	0.001	0.002	0.002	0.002	0.002
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
GQ	0.14***	0.14***	0.14***	0.15***	0.23***	0.23***	0.23***	0.15***	0.15***	0.15***	0.15***	0.15***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Ind	0.01**	0.01**	0.01**	0.01**	0.02***	0.02***	0.02***	0.01**	0.01**	0.01**	0.01**	0.01**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
FA	-0.05	-0.05	-0.05	-0.05	0.09	0.09	0.09	0.09	-0.05	-0.05	-0.05	-0.05
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
FA (sq)	0.003	0.003	0.003	0.003	-0.011	-0.011	-0.011	-0.011	0.003	0.003	0.003	0.003
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
FS	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Constant	-0.54	-0.54	-0.54	-0.67**	-0.72*	-0.72*	-0.72*	-0.67**	-0.53	-0.53	-0.53	-0.53
	(0.38)	(0.38)	(0.38)	(0.28)	(0.41)	(0.41)	(0.41)	(0.28)	(0.38)	(0.38)	(0.38)	(0.38)
N	5404	5404	5404	5404	4439	4439	4439	4439	5800	5401	5800	5800

* p < .10 ** p < .05 *** p < .01

Abbreviations: Patent (P), Trademarks (T), Education Effect (E), Health Effect (H), Accelerator Program Effect (ACC), Firm Age (FA), Firm Size (FS), Founder1 Age (Fn1Ag), Founder2 Age (Fn2Ag), Founder3 Age (Fn3Ag), Founder1 Gender (Fn1G), Founder2 Gender (Fn2G), Founder3 Gender (Fn3G), Founder1 Education (Fn1E), Founder2 Education (Fn2E), Founder3Education (Fn3E), Founder1 Entrepreneurship experience (Fn1EE), Founder2 Entrepreneurship Experience (Fn2EE), Founder3 Entrepreneurship Experience (Fn3EE), Founder1 First Job Experience (Fn1FJE1), Founder2 First Job Experience (Fn2FJE1), Founder3 First Job Experience (Fn3FJE1), Founder1 Most Recent Job Experience (Fn1FJE2), Founder2 Most Recent Job Experience (Fn2FJE2), Founder3 Most Recent Job Experience (Fn3FJE2)

Controls: Industry, Economic Development (ln), Business Environment, Economic Openness, Governance Quality

recent industry experience and trademarks suggest that industry experience can equip entrepreneurs with positive task-related experience. With regards to the relationship between entrepreneurial experience and new venture performance, we find a positive and significant relationship with trademarks suggesting that entrepreneurial experience also equips entrepreneurs with task-related experience that is beneficial for new venture performance. Additionally, entrepreneurial experience is also positive for health-related social performance and patent-related innovation performance.

Table 5 presents results for firms with two entrepreneurs. In Models 1 to 4, we include both entrepreneurs' education levels and do not find any significant relationship, suggesting that entrepreneurs can complement each other's educational levels, thereby negating the positive influence of education venture performance from participating in accelerator programs. We also do not find any significant relationship between both entrepreneurs' industry experience, entrepreneurial experience, and new venture performance. Table 6 presents the full models. Models 1 to 4 present results for solo entrepreneurs, 5 to 8 present results for ventures with two entrepreneurs, and 9 to 12 present results for three entrepreneurs. While we do not find any significant relationship between entrepreneurs' human capital – education, industry experience, entrepreneurial experience, and new venture performances. Additionally, we also lose the significant relationship that we found in the earlier models related to accelerator program participation and new venture performance. The results suggest that the benefit received from participating in accelerator programs may diminish as the number of entrepreneurs involved in a venture increases.

13 Discussion and conclusion

Accelerator programs have become an important intermediary support organization for new ventures. In this paper, we explored the benefit of participation in the accelerator programs based on solo and team founders' human capital and their influence on ventures' performance. In our hypotheses 1a, 1b, and 2, we posited that entrepreneurs with higher education industry experience and entrepreneurial experience would experience more significant benefits from accelerator participation leading to higher new venture performance, respectively.

We found support for our hypothesis 1a, which indicates that founders with a high level of education will gain from accelerator participation and positively impact new venture performance (Davidsson and Honing 2003; Unger et al., 2011). Additionally, our study results suggest that although individuals have the formal knowledge acquired through education necessary to engage in entrepreneurship, they can use the additional support provided by the accelerator programs suggesting that entrepreneurs vary in their capacity for learning. Therefore, complementing the previous studies that suggested that individuals with higher education levels build successful businesses by suggesting that despite having higher education, entrepreneurs may experience business-related knowledge gaps that accelerator programs may help to fill.

In our hypotheses 1b and 2, we posited that industry and entrepreneurial experiences positively influence new venture performance by joining accelerator programs, respectively. However, we found that founders with industry and entrepreneurial experience do not gain any additional value from participation in an accelerator program, suggesting that industry experience and entrepreneurial experience are substitutes. Furthermore, the results of our study shed light on the importance of task-specific knowledge gained through entrepreneurial experience and suggest that the transferability of knowledge or skills influences new venture performance. Entrepreneurial experience gives individuals the opportunity to acquire skills such as decision-making, problem-solving, and other necessary skills for creating a successful venture, and these task-specific skills can be gained through industry experience therefore, individuals with industry experience or entrepreneurial experience or both tend to build successful ventures (Unger et al., 2011; Wise & Valliere, 2014).

The results of our study also shed insight into the role of human capital on ventures' performance in solo vs. teams. Existing literature suggests that ventures owned/operated by teams have better performance; our study results suggest that the team members can complement each other's resources making the value-added benefit of participating in an accelerator program void. We also discuss the practical and theoretical implications in the following sections.

Table 5 Two- Entrepreneurs Human Capital-Direct Effect

	Education Impact	Health Impact	Patent	Trademarks	Education Impact	Health Impact	Patent	Trademarks	Education Impact	Health Impact	Patent	Trademarks
	Education				Industry Experience				Entrepreneurial Experience			
ACC	-0.06***	0.03**	0.02	0.05**	-0.07***	0.03*	0.01	0.05**	-0.06***	0.04***	0.02	0.05***
	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.02)
Fn1E	-0.05	0.08	-0.13	0.20								
	(0.16)	(0.13)	(0.12)	(0.12)								
Fn2E	-0.01	0.07	0.11	-0.03								
	(0.12)	(0.10)	(0.10)	(0.10)								
Fn1FJE1					0.18*	-0.07	-0.07	0.02				
					(0.11)	(0.11)	(0.11)	(0.09)				
Fn1FJE2					-0.18*	-0.03	0.05	0.10				
					(0.10)	(0.10)	(0.10)	(0.09)				
Fn2FJE1					0.02	0.10	0.20	0.15				
					(0.12)	(0.12)	(0.12)	(0.10)				
Fn2FJE2					-0.03	0.02	-0.02	0.02				
					(0.12)	(0.11)	(0.12)	(0.09)				
Fn1EE									-0.01	-0.02	0.07	0.08*
									(0.07)	(0.05)	(0.05)	(0.04)
Fn2EE									0.01	0.004	-0.05	0.05
									(0.07)	(0.06)	(0.07)	(0.04)
Fn1Ag	0.06	0.01	0.02	0.07**	0.08	0.05	0.07	0.04	0.06	0.01	0.01	0.08**
	(0.06)	(0.04)	(0.04)	(0.03)	(0.07)	(0.05)	(0.05)	(0.04)	(0.06)	(0.04)	(0.04)	(0.03)
Fn1Ag (sq)	-0.001	-0.0003	-0.000003	-0.001	-0.001	-0.001	-0.001	-0.0004	-0.001	0.000	0.000	-0.001**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Fn2Ag	0.05	-0.07**	-0.01	-0.02	0.06	-0.06	-0.04	-0.01	0.05	-0.07*	-0.002	-0.01
	(0.05)	(0.04)	(0.04)	(0.03)	(0.06)	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)	(0.04)	(0.03)
Fn2Ag (sq)	-0.001	0.001**	0.0002	0.0002	-0.001	0.001*	0.001	0.00003	-0.001	0.001**	0.0001	0.0002
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Fn1G	0.14	-0.17	0.17	0.12	0.23	-0.18	0.13	-0.01	0.14	-0.10	0.13	0.08
	(0.16)	(0.13)	(0.15)	(0.11)	(0.18)	(0.14)	(0.17)	(0.13)	(0.16)	(0.13)	(0.15)	(0.11)
Fn2G	-0.01	-0.16	-0.06	0.03	0.06	-0.12	0.07	-0.09	0.00	-0.23*	-0.01	-0.01
	(0.15)	(0.12)	(0.14)	(0.11)	(0.18)	(0.14)	(0.16)	(0.12)	(0.15)	(0.12)	(0.14)	(0.11)
ED (ln)	-0.05	0.00	0.01	-0.01	-0.03	-0.01	-0.02	0.00	-0.05*	0.003	0.01	-0.02
	(0.03)	(0.03)	(0.03)	(0.02)	(0.04)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.02)
BE	0.001	-0.001	-0.01	-0.005	0.002	-0.001	-0.004	-0.005	0.001	-0.001	-0.01	-0.004
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)

Table 5 (continued)

	Education Impact	Health Impact	Patent	Trademarks	Education Impact	Health Impact	Patent	Trademarks	Education Impact	Health Impact	Patent	Trademarks
EO	-0.01	-0.02	-0.05	0.01	0.001	-0.01	-0.01	0.02	-0.02	-0.02	-0.04	-0.002
	(0.02)	(0.02)	(0.04)	(0.01)	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)	(0.02)	(0.04)	(0.01)
GQ	0.09	0.07	0.14	-0.02	0.18	0.11	0.10	0.00	0.13	0.05	0.11	-0.04
	(0.13)	(0.10)	(0.11)	(0.08)	(0.15)	(0.10)	(0.13)	(0.09)	(0.12)	(0.09)	(0.11)	(0.08)
Ind	-0.05***	0.03***	0.0005	0.02	-0.06***	0.03**	0.001	0.01	-0.05***	0.03**	0.004	0.02*
	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)
FA	0.37	-0.31	0.32	0.461*	0.06	-0.13	0.52	0.32	0.46	-0.33	0.22	0.50*
	(0.34)	(0.27)	(0.35)	(0.26)	(0.40)	(0.31)	(0.40)	(0.29)	(0.34)	(0.27)	(0.34)	(0.26)
FA (sq)	-0.03	0.03	-0.02	-0.04	-0.01	0.01	-0.04	-0.02	-0.04	0.03	-0.01	-0.04*
	(0.03)	(0.03)	(0.03)	(0.02)	(0.04)	(0.03)	(0.04)	(0.03)	(0.03)	(0.03)	(0.03)	(0.02)
FS	0.07	1.26	0.33	1.27	0.29	1.86*	0.45	0.90	0.14	1.36	0.41	1.40*
	(0.88)	(0.86)	(0.93)	(0.86)	(1.10)	(1.00)	(1.20)	(0.96)	(0.86)	(0.84)	(0.90)	(0.85)
Constant	-2.91**	0.72	-2.55**	-3.42***	-3.09*	-0.18	-3.81***	-2.82***	-3.11**	0.93	-2.61**	-3.27***
	(1.37)	(0.99)	(1.18)	(0.96)	(1.68)	(1.16)	(1.30)	(1.04)	(1.34)	(0.91)	(1.11)	(0.93)
N	4223	4223	4223	4223	3091	3091	3091	3091	4558	4558	4558	4558

* $p < .10$ ** $p < .05$ *** $p < .01$

Abbreviations: Patent (P), Trademarks (T), Education Effect (E), Health Effect (H), Accelerator Program Effect (ACC), Firm Age (FA), Firm Size (FS), Founder1 Age (Fn1Ag), Founder2 Age (Fn2Ag), Founder3 Age (Fn3Ag), Founder1 Gender (Fn1G), Founder2 Gender (Fn2G), Founder3 Gender (Fn3G), Founder1 Education (Fn1E), Founder2 Education (Fn2E), Founder3Education (Fn3E), Founder1 Entrepreneurship experience (Fn1EE), Founder2 Entrepreneurship Experience (Fn2EE), Founder3 Entrepreneurship Experience (Fn3EE), Founder1 First Job Experience (Fn1FJE1), Founder2 First Job Experience (Fn2FJE1), Founder3 First Job Experience (Fn3FJE1), Founder1 Most Recent Job Experience (Fn1FJE2), Founder2 Most Recent Job Experience (Fn2FJE2), Founder3 Most Recent Job Experience (Fn3FJE2)

Controls: Industry, Economic Development (ln), Business Environment, Economic Openness, Governance Quality

Table 6 Three-Team Founder's Human Capital-Full Model

	Education Impact	Health Impact	Patent	Trademarks	Education Impact	Health Impact	Patent	Trademarks	Education Impact	Health Impact	Patent	Trademarks
	Solo Entrepreneur				Two-Entrepreneurs				Three Entrepreneurs			
	Full Model				Full Model				Full Model			
ACC	-0.07***	0.09	0.03*	0.03	-0.07	0.02	0.01	0.05*	-0.05**	0.01	0.01	0.05
	(0.01)	(0.09)	(0.02)	(0.03)	(0.09)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)
Fn1E	0.05	0.06	-0.04	0.16	-0.09	0.19	-0.10	0.15	-0.49*	0.26	-0.28	0.07
	(0.16)	(0.12)	(0.13)	(0.11)	(0.21)	(0.16)	(0.15)	(0.15)	(0.27)	(0.26)	(0.24)	(0.22)
Fn2E					-0.03	0.01	0.03	0.05	0.52	-0.05	0.41*	0.005
					(0.17)	(0.13)	(0.13)	(0.13)	(0.33)	(0.21)	(0.21)	(0.21)
Fn3E									-0.43*	-0.04	-0.11	-0.13
									(0.25)	(0.17)	(0.21)	(0.19)
Fn1FJE1	0.15	-0.03	-0.06	0.08	0.18	-0.06	-0.07	0.01	0.36*	-0.23	-0.22	0.01
	(0.10)	(0.08)	(0.09)	(0.08)	(0.11)	(0.11)	(0.11)	(0.10)	(0.19)	(0.17)	(0.15)	(0.14)
Fn1FJE2	-0.18**	0.01	0.12	0.09	-0.20**	-0.03	0.05	0.08	-0.12	-0.12	-0.08	0.09
	(0.09)	(0.08)	(0.09)	(0.08)	(0.10)	(0.10)	(0.11)	(0.09)	(0.17)	(0.16)	(0.14)	(0.13)
Fn2FJE1					0.01	0.12	0.20	0.13	-0.23	0.36*	0.21	-0.02
					(0.13)	(0.13)	(0.13)	(0.11)	(0.22)	(0.21)	(0.20)	(0.17)
Fn2FJE2					-0.03	0.02	-0.03	0.03	-0.23	-0.05	0.02	-0.01
					(0.12)	(0.11)	(0.12)	(0.09)	(0.21)	(0.18)	(0.18)	(0.15)
Fn3FJE1									-0.06	-0.20	0.10	0.20
									(0.23)	(0.20)	(0.21)	(0.17)
Fn3FJE2									-0.11	0.02	-0.01	0.07
									(0.24)	(0.20)	(0.15)	(0.15)
Fn1EE	-0.02	-0.02	0.04	0.09**	0.003	-0.03	0.03	0.06	0.02	0.05	0.08	0.07
	(0.07)	(0.05)	(0.05)	(0.04)	(0.08)	(0.06)	(0.06)	(0.05)	(0.09)	(0.08)	(0.08)	(0.06)
Fn2EE					0.05	0.02	-0.03	0.01	0.32**	-0.02	-0.13	-0.09
					(0.08)	(0.06)	(0.07)	(0.05)	(0.14)	(0.12)	(0.10)	(0.09)
Fn3EE									-0.10	-0.03	-0.07	0.01
									(0.12)	(0.08)	(0.08)	(0.07)
Fn1Ag	0.02	-0.03	0.01	0.02	0.09	0.03	0.07	0.03	0.44**	0.16	0.22***	-0.01
	(0.05)	(0.03)	(0.03)	(0.03)	(0.08)	(0.06)	(0.05)	(0.04)	(0.20)	(0.13)	(0.08)	(0.06)
Fn1Ag (sq)	-0.0004	0.0002	0.00002	-0.0002	-0.001	-0.001	-0.001	-0.0003	-0.01**	-0.003	-0.002**	0.0002
	0.00	0.00	0.00	0.00	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Fn2Ag					0.07	-0.07	-0.05	0.002	0.58***	-0.11	-0.06	0.00
					(0.06)	(0.05)	(0.05)	(0.04)	(0.20)	(0.07)	(0.07)	(0.05)
Fn2Ag (sq)					-0.001	0.001*	0.001	0.000	-0.01***	0.002**	0.001	0.000
					(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Fn3Ag									-0.11	-0.06	0.04	0.09*
									(0.09)	(0.06)	(0.06)	(0.05)
Fn3Ag (sq)									0.001	0.001	-0.0004	-0.001*
									(0.00)	(0.00)	(0.00)	(0.00)

Table 6 (continued)

	Education Impact	Health Impact	Patent	Trademarks	Education Impact	Health Impact	Patent	Trademarks	Education Impact	Health Impact	Patent	Trademarks
Fn1G	0.14	-0.19	0.19	0.01	0.26	-0.22	0.13	-0.10	0.54	-0.34	0.36	-0.003
	(0.15)	(0.12)	(0.14)	(0.11)	(0.20)	(0.15)	(0.18)	(0.14)	(0.42)	(0.28)	(0.31)	(0.22)
Fn2G					0.06	-0.06	0.10	-0.04	-0.14	0.11	0.40	0.18
					(0.18)	(0.14)	(0.16)	(0.13)	(0.28)	(0.22)	(0.25)	(0.19)
Fn3G									0.46	0.55**	-0.17	0.33*
									(0.33)	(0.23)	(0.24)	(0.20)
ED (ln)	-0.01	0.01	-0.01	-0.001	-0.04	-0.01	-0.02	0.00	-0.10**	-0.06	-0.14***	-0.02
	(0.03)	(0.03)	(0.03)	(0.02)	(0.04)	(0.03)	(0.03)	(0.03)	(0.05)	(0.05)	(0.04)	(0.04)
BE	0.002	-0.002	-0.004	-0.003	0.002	-0.001	-0.003	-0.01	-0.002	-0.04**	-0.01	-0.02*
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(0.01)	(0.00)	(0.02)	(0.01)	(0.01)
EO	-0.01	-0.02	-0.02	0.02	0.01	-0.01	-0.01	0.03	0.01	-0.03	0.01	0.04
	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)	(0.03)	(0.03)	(0.02)	(0.02)	(0.05)	(0.02)	(0.03)
GQ	0.22	0.03	0.13	0.09	0.14	0.14	0.12	0.10	-0.09	0.11	0.03	0.25
	(0.13)	(0.09)	(0.11)	(0.08)	(0.17)	(0.11)	(0.14)	(0.10)	(0.26)	(0.18)	(0.21)	(0.16)
Ind	-0.05***	0.05***	0.01	0.02	-0.05***	0.03**	-0.001	0.02	-0.08***	0.08***	-0.01	0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)	-0.01	(0.03)	(0.02)	(0.03)	(0.02)
FA	-0.31	-0.38	0.21	0.44*	0.01	-0.13	0.63	0.32	0.53	-0.76	0.56	0.20
	(0.32)	(0.27)	(0.34)	(0.25)	(0.41)	(0.32)	(0.41)	(0.30)	(0.62)	(0.49)	(0.60)	(0.45)
FA (sq)	0.03	0.04	-0.01	-0.03	-0.01	0.02	-0.05	-0.02	-0.06	0.07	-0.05	-0.01
	(0.03)	(0.03)	(0.03)	(0.02)	(0.04)	(0.03)	(0.04)	(0.03)	(0.06)	(0.05)	(0.05)	(0.04)
FS	0.72	1.53*	0.58	1.44	0.00	1.59	0.42	0.74	0.75	5.01*	2.14	3.01
	(0.95)	(0.91)	(1.04)	(0.90)	(1.10)	(0.98)	(1.24)	(0.98)	(3.12)	(2.68)	(3.51)	(2.07)
Constant	-0.57	0.36	-2.52**	-3.25***	-3.16*	-0.44	-3.59**	-3.20***	-15.22***	1.62	-5.66***	-3.32*
	(1.29)	(1.01)	(1.14)	(0.93)	(1.81)	(1.33)	(1.43)	(1.14)	(3.50)	(2.40)	(2.07)	(1.71)
N	4133	4133	4133	4133	2846	2846	2846	2846	1500	1500	1500	1500

* p < .10 ** p < .05 *** p < .01

Abbreviations: Patent (P), Trademarks (T), Education Effect (E), Health Effect (H), Accelerator Program Effect (ACC), Firm Age (FA), Firm Size (FS), Founder1 Age (Fn1Ag), Founder2 Age (Fn2Ag), Founder3 Age (Fn3Ag), Founder1 Gender (Fn1G), Founder2 Gender (Fn2G), Founder3 Gender (Fn3G), Founder1 Education (Fn1E), Founder2 Education (Fn2E), Founder3Education (Fn3E), Founder1 Entrepreneurship experience (Fn1EE), Founder2 Entrepreneurship Experience (Fn2EE), Founder3 Entrepreneurship Experience (Fn3EE), Founder1 First Job Experience (Fn1FJE1), Founder2 First Job Experience (Fn2FJE1), Founder3 First Job Experience (Fn3FJE1), Founder1 Most Recent Job Experience (Fn1FJE2), Founder2 Most Recent Job Experience (Fn2FJE2), Founder3 Most Recent Job Experience (Fn3FJE2)

Controls: Industry, Economic Development (ln), Business Environment, Economic Openness, Governance Quality

14 Practical implications

The results of our study have implications for managers involved in corporate entrepreneurship. All organizations are interested in generating entrepreneurial activity within the organization, and managers at all levels of human resources, senior and middle, are engaged in searching for and gathering resources that matches an organization's innovation-related activity objectives (Kuratko & Audretsch, 2013; Kuratko et al., 2005). Therefore, employees with industry and entrepreneurial experience can be excellent resources for an entrepreneurial organization. In addition, human resource managers can help with recruiting individuals who have been involved in entrepreneurial activity and are interested in reentering the labor market. Middle and senior managers can utilize these individuals in achieving organizations' innovation-related activity.

The results of our study have implications for equifinality or organizational configuration that influences organizational performance (Fiss, 2011; Payne, 2006). New ventures face many challenges from the internal and external environment. The performance of new ventures is influenced by the resources of the organization. The results of our study suggest that entrepreneurs with high education can explore and exploit opportunities and contribute to the venture's performance. Additionally, they can enhance the performance of the venture by helping to structure a flat organization.

Entrepreneurs face challenges in both developed and emerging markets. How to build a supportive environment for entrepreneurs to thrive is a critical question for policymakers, investors, and stakeholders. Our findings suggest that policymakers should pay close attention to firms that individuals with higher education than individuals with industry and entrepreneurial experience.

15 Theoretical implications

Entrepreneurship literature has long demonstrated the importance of knowledge resources on the performance of new ventures (Marvel et al., 2016; Unger et al., 2011). Entrepreneurs play an important role in developing and emerging economies, but these countries have resource constraints that translate to constraints for the ventures. Therefore, it's important to create an ecosystem for ventures that are not led by individuals with industry or entrepreneurial experience. Firms with a CEO/founder(s) without industry and entrepreneurial experience have access to fewer resources. Therefore, both policymakers and accelerator programs should focus more attention on them.

Firms in emerging markets often compete with firms in the informal sector for access to resources. While the competition can be a challenge for the existing firms' individuals gain experience by being involved in these informal firms. Therefore, policymakers in emerging markets should pay close attention to individuals operating in the informal sector and facilitate their subsequent reentry into the formal labor market, as they can be an important asset for existing firms.

16 Limitations and future research direction

This study has several limitations. First, the accelerator programs included in this study are located in developed and developing countries. While we controlled for the development level of a nation, we were not able to capture the local context. Future studies should consider local area characteristics since access to resources varies based on location.

In this study, we cannot take into account the structure and programs detail of the accelerator programs. Accelerator programs provide different services, and the design of the program varies considerably, such as the level and amount of training for founders, consultation hours, and peer networking opportunities (Cohen et al., 2019a, 2019b; Drori & Wright, 2018). The programs themselves vary in terms of their strategic mission. In comparison, some accelerator programs assist firms in the very early stages of the ventures, others in the later stages. Some accelerator programs focus on a specific sector (i.e., technology life cycle), while others focus on geography or the stage of team development. Additionally, while the majority of the accelerator programs in this study work with startups in the early-stage and growth-stage ventures, and a small portion work with idea-stage ventures, the strategic scope of the accelerator programs is not known. Future research should examine programs in finer detail to gain additional insights into the nuances involved in how accelerators examine the impact on entrepreneurial firms and accelerators' strategic motivation.

Appendix 1

Table 7 List of countries and number of accepted applications

Country	2016	2017	Total	Country	2016	2017	Total
Albania	1	0	1	Ireland	0	3	3
Angola	0	1	1	Israel	0	4	4
Argentina	9	32	41	Italy	0	2	2
Armenia	0	5	5	Kenya	181	141	322
Australia	15	12	27	Kiribati	0	1	1
Bangladesh	0	1	1	Latvia	1	0	1
Belgium	1	0	1	Lebanon	0	2	2
Benin	3	2	5	Liberia	6	5	11
Bolivia	2	1	3	Madagascar	2	1	3
Botswana	4	4	8	Malawi	3	3	6
Brazil	9	29	38	Malaysia	1	7	8
Bulgaria	2	0	2	Mali	1	4	5
Burkina Faso	2	2	4	Mauritania	1	1	2
Burundi	4	1	5	Mauritius	1	1	2
Cambodia	1	5	6	Mexico	257	401	658
Cameroon	7	6	13	Mongolia	0	2	2
Canada	3	23	26	Mozambique	4	2	6
Cape Verde	1	0	1	Myanmar	0	4	4
Central African Republic	3	0	3	Namibia	1	1	2
Chad	3	1	4	Netherlands	0	2	2
Chile	30	53	83	Nicaragua	1	14	15
China	0	1	1	Niger	0	1	1
Colombia	68	71	139	Nigeria	66	50	116
Congo	3	0	3	Pakistan	9	16	25
Costa Rica	1	14	15	Panama	1	0	1
Côte d'Ivoire	4	2	6	Paraguay	1	2	3
Democratic Republic of Congo	7	4	11	Peru	9	3	12
Denmark	0	1	1	Philippines	0	5	5
Djibouti	2	0	2	Russian Federation	1	0	1
Dominican Republic	1	1	2	Rwanda	14	6	20
Ecuador	35	60	95	Sao Tome and Principe	0	1	1
Egypt	0	1	1	Senegal	5	4	9
El Salvador	2	7	9	South Africa	6	36	42
Equatorial Guinea	4	0	4	South Korea	1	0	1
Eritrea	0	1	1	Spain	3	3	6
Ethiopia	29	5	34	Sudan	6	2	8

Table 7 (continued)

Country	2016	2017	Total	Country	2016	2017	Total
France	0	1	1	Sweden	0	3	3
Gabon	3	0	3	Switzerland	1	0	1
Gambia	3	0	3	Togo	1	1	2
Germany	1	9	10	Turkey	0	7	7
Ghana	6	16	22	Uganda	160	201	361
Greece	1	8	9	Ukraine	1	5	6
Guatemala	4	19	23	United Arab Emirates	1	2	3
Guinea	2	0	2	United Kingdom	2	7	9
Guinea-Bissau	1	0	1	United Republic of Tanzania	21	16	37
Haiti	1	2	3	United States of America	1	9	10
Honduras	2	16	18	Uruguay	2	4	6
Hungary	1	2	3	Venezuela	1	2	3
India	107	210	317	Viet Nam	2	1	3
Indonesia	10	7	17	Zambia	20	4	24
Iran	1	0	1	Zimbabwe	9	12	21
				Total	1203	1640	2843

Appendix 2

Table 8 Team Founder's Human Capital

	(1)	(2)	(3)	(4)
	Education Impact	Health Impact	Patent	Trademarks
Fn1Ag	0.02	(0.01)	-0.04**	0.01
	(0.03)	(0.02)	(0.02)	(0.02)
Fn1Ag (sq)	-0.0002	0.0001	0.001***	-0.0001
	0.00	0.00	0.00	0.00
Fn2Ag	0.02	0.01	0.01	-0.01
	(0.02)	(0.02)	(0.02)	(0.02)
Fn2Ag (sq)	-0.0003	0.00001	0.00003	0.0001
	0.00	0.00	0.00	0.00
Fn1G	-0.06	-0.14***	0.19***	0.12**
	(0.08)	(0.05)	(0.07)	(0.06)
Fn2G	-0.04	-0.05	0.04	-0.001
	(0.06)	(0.06)	(0.04)	(0.05)
ED (ln)	-0.01	-0.02	-0.03	-0.01
	(0.02)	(0.02)	(0.02)	(0.02)
BE	0.002***	-0.002	0.002*	-0.004**
	0.00	0.00	0.00	0.00
EO	-0.05	0.01	-0.01	0.02*
	(0.03)	(0.01)	(0.02)	(0.01)
GQ	0.27**	0.08	0.21***	0.10
	(0.11)	(0.09)	(0.08)	(0.07)
Ind	-0.07***	0.04***	0.01**	0.01*
	(0.02)	(0.01)	(0.01)	(0.01)
FS	-0.003***	-0.004**	-0.004***	-0.004***
	0.000	0.000	0.000	0.000
FA	0.33**	0.04	0.60***	0.50***
	(0.15)	(0.16)	(0.17)	(0.10)
FA (sq)	-0.03*	-0.001	-0.05***	-0.04***
	(0.01)	(0.01)	(0.02)	(0.01)
ACC	(0.57)	0.01	0.53	0.13
	(0.55)	(0.56)	(0.78)	(0.43)
Fn1E	0.01	0.12	0.05	0.11*
	(0.06)	(0.08)	(0.06)	(0.07)
ACC * Fn1E	0.04	0.10	(0.10)	0.02
	(0.17)	(0.18)	(0.17)	(0.14)
Fn1FJE1	-0.04	0.05	0.03	0.01
	(0.05)	(0.06)	(0.05)	(0.05)
ACC * Fn1FJE1	0.26**	-0.23**	-0.14	0.01
	(0.11)	(0.09)	(0.12)	(0.11)
Fn1FJE2	-0.05	-0.05	0.08**	0.11***
	(0.04)	(0.04)	(0.04)	(0.04)
ACC * Fn1FJE2	-0.13	0.00	-0.04	-0.07
	(0.09)	(0.07)	(0.11)	(0.08)
Fn1EE	-0.05	0.01	0.01	0.06*
	(0.03)	(0.05)	(0.03)	(0.04)

Table 8 (continued)

	(1)	(2)	(3)	(4)
ACC * Fn1EE	0.07	-0.02	0.07	-0.01
	(0.07)	(0.05)	(0.04)	(0.05)
Fn2E	0.05	-0.003	0.08*	0.06
	(0.07)	(0.06)	(0.05)	(0.08)
ACC * Fn2E	-0.16	0.03	-0.05	0.03
	(0.15)	(0.13)	(0.20)	(0.12)
Fn2FJE1	-0.13***	0.05	-0.07	0.14***
	(0.05)	(0.06)	(0.07)	(0.04)
ACC * Fn2FJE1	0.17	0.06	0.21	-0.04
	(0.11)	(0.09)	(0.13)	(0.09)
Fn2FJE2	0.06	-0.06	0.05	-0.02
	(0.07)	(0.04)	(0.05)	(0.05)
ACC * Fn2FJE2	-0.14	0.07	-0.10	0.05
	(0.14)	(0.06)	(0.12)	(0.10)
Fn2EE	0.01	0.01	0.00	0.06***
	(0.02)	(0.02)	(0.03)	(0.02)
ACC * Fn2EE	0.03	0.01	(0.02)	(0.03)
	(0.08)	(0.06)	(0.06)	(0.04)
Constant	-1.36**	-1.50**	-2.90***	-3.08***
	(0.65)	(0.61)	(0.59)	(0.50)
N	2853	2853	2853	2853
N_clust	100	100	100	100
chi-squared	1119.13	687.01	672.15	1139.47
loglikelihood	-1115.61	-1147.08	-987.26	-1761.17
chi2type	Wald	Wald	Wald	Wald

* $p < .10$, ** $p < .05$, *** $p < .01$

Abbreviations: Patent (P), Trademarks (T), Education Effect (E), Health Effect (H), Accelerator Program Effect (ACC), Firm Age (FA), Firm Size (FS), Founder1 Age (Fn1Ag), Founder2 Age (Fn2Ag), Founder3 Age (Fn3Ag), Founder1 Gender (Fn1G), Founder2 Gender (Fn2G), Founder3 Gender (Fn3G), Founder1 Education (Fn1E), Founder2 Education (Fn2E), Founder3Education (Fn3E), Founder1 Entrepreneurship experience (Fn1EE), Founder2 Entrepreneurship Experience (Fn2EE), Founder3 Entrepreneurship Experience (Fn3EE), Founder1 First Job Experience (Fn1FJE1), Founder2 First Job Experience (Fn2FJE1), Founder3 First Job Experience (Fn3FJE1), Founder1 Most Recent Job Experience (Fn1FJE2), Founder2 Most Recent Job Experience (Fn2FJE2), Founder3 Most Recent Job Experience (Fn3FJE2)

Controls: Industry, Economic Development (ln), Business Environment, Economic Openness, Governance Quality

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