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WP Nº 22-019

4th Quarter 2022

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Cultural diversity in new venture founding teams: does it matter for accelerators' selection decisions?

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Abstract

In recent years, accelerator programs experienced substantial growth. New ventures that want to participate in such programs must go through a multi-stage and highly competitive process, with only a few being successful. However, our knowledge about the factors that drive the decisions of accelerator programs is limited, and empirical research on this topic is scarce. We hypothesise that the national culture of the founding team can serve as a signal of the capability of the team, and we examine the association between cultural diversity and the likelihood to be admitted into an accelerator program. The results show that diversity is positively associated with the probability of being selected. This finding is robust across several specifications, and while accounting for the potential endogeneity of cultural diversity.

Keywords: Accelerators, National culture, New ventures, Founding team diversity, Signalling theory

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1. Introduction

In recent years, the media, market participants, and academics, have all emphasized the role of team diversity across various dimensions in new ventures, arguing that diversity is the key to startup success, that new ventures should focus on diversity from the very beginning, as well as that they should communicate externally that they care about diversity (Wang, 2018; Moghimi, 2019; Gompers and Kovvali, 2018). Morgan Stanley (2019) has also emphasized that diverse entrepreneurs appear to hold the key to a trillion-dollar opportunity market for venture capitalists (Morgan Stanley, 2019). Such market opportunities in connection with recent social calls, have led many investors that provide entrepreneurial finance and resources, like venture capitalists and business angels, to either commit to the strategic investment in diverse ventures or to acknowledge the importance of such a strategy.[1] Additionally, many accelerators - including Y Combinator, Techstars and others – promote diversity or have partners focused on increasing diversity. For example, in October 2019, Techstarts partnered with Harlem Capital to fast track success for diverse teams and entrepreneurs.[2] Similarly, financial giants like Morgan Stanley and Goldman Sachs have launched corporate accelerators that promote the diversity of the founding team for women and multicultural entrepreneurs and aim to increase access to capital and facilitate connections for women, Black, Latinx and other diverse entrepreneurs.[3]

In the present study we examine whether and how the cultural diversity of the founding team matters for the admission of startup ventures into impact-oriented acceleration programs. In more detail, drawing on the upper echelon theory and the signalling theory, we hypothesize that the composition of the founding team, and in particular its cultural diversity, might serve as a signal to decision makers in accelerators. Subsequently, this will have implications for the selection or rejection of the startups' applications. Thus, we build on past studies that: (i) relate to the upper echelon theory -put forward by Hambrick and Mason (1984)- as extended to the founding team and early management teams of new ventures (Ensley et al., 2002; Beckman et

[1] For example, Diversecity Ventures invests in startups that strive to promote cultural, geographic and cultural diversity. Example of other VCs and business angles that focus or promote diversity (gender, ethnic, etc.) are the Black Angel Tech Fund, Cross Culture Venture Capital, Harlem Capital Partners, Dreamit Ventures, Kapor Capital, 500 Startups, Pipeline Angels, etc.

[2] Through this partnership, Harlem Capital gained access to the Techstars D&I Affiliate Program where the organization can refer diverse founders to Techstars mentorship-driven accelerator programs, fast track their application process and increase deal flow between founders and Techstars' network. In turn, Techstars refers diverse-led, early-stage companies to Harlem Capital for the capital they need to scale and grow.

[3] Morgan Stanley launched the Multicultural Innovation Lab in 2017, and Goldman Sachs launched the Launch with GS in 2018.

al., 2007; Leung et al., 2013; Eesley et al., 2014; Balachandran et al., 2017; Reese et al., 2021),(ii) show that firms may add diversity in their board, in terms of nationality, gender, education, functional background and other aspects, in order to signal some information to stakeholders (Higgins and Gulati, 2006; Broome and Krawlec., 2008; Choi et al, 2007; Abad et al., 2017).[4]Within this context, we put forward the proposition that by forming founding teams with founders from countries with different national cultural characteristics, new ventures could send a signal of their ability and overcome informational asymmetries.

While there are many studies that associate the use of signals with new-venture financing decisions in the case of crowdfunding investors, angel investors, venture capital investors, and equity investors (Colombo, 2021), such research in the accelerators' literature is almost nonexistent. To the best of our knowledge, the admission decisions of accelerators have only recently gained limited attention, and only one of these studies explores the use of economic and social signals (Yang et al., 2020). In general, none of these studies touches upon the issue of cultural diversity within the founding team, and we aim to close this gap in the literature.

There are various reasons for which such a signal could be of use to accelerator decision makers. First, ventures that apply to accelerators are typically at a very early stage compared even to the ones applying to angel investors, not to mention venture capitalists and initial public offerings (IPOs). Thus, there exist substantial information asymmetry between the two parties. As a result, similarly to the case of angel investment (Colombo, 2021), signalling in the context of accelerators primarily rests on transmitting signals based on subjective and non-verifiable claims, with the characteristics of the founding team playing a central role in developing an appealing narrative to successfully transfer relevant information to prospective investors. Therefore, the cultural differences of the founders could be associated with a wide range of knowledge, perspectives, values, beliefs, and experiences resulting in differing points of view, the ability to consider a larger set of problems, come up with a wider set of alternative potential solutions, and hence be better in solving complex tasks and reaching innovative solutions. For example, Richard et al. (2004) mention that in terms of strategy formulation and implementation within management groups, this value-in-diversity perspective suggests that the attributes of heterogenous management group enhance the

[4] Balachandran et al. (2017) also focus on the national cultural diversity in new venture boards. However, using a sample of Swedish ventures, their study aims to explain the conditions under which new venture boards are less or more culturally diverse in terms of their directors' country of birth. Therefore, they do not relate this cultural diversity to the decisions of accelerators as we do in the present study.

development of strategic alternatives and promote creative and effective competitive strategies. This might be even more important in the case of new venture teams that have to direct the startups through the various stages of entrepreneurial process, there is great managerial discretion and latitude, and the teams conduct a wide range of activities when they start the organization, including creativity, problem solving and implementation tasks (Klotz et al., 2014; Ensley et al., 2002; Hambrick and Abrahamson, 1995; Hoogendoorn et al., 2017; Lazear, 2005).

Furthermore, our interest on the decisions of the accelerator programs lies on the fact that in recent years they witnessed substantial growth and attention, becoming an important fixture of the entrepreneurial ecosystems around the world (Roberts and Lall, 2019).[5] Whilst the median investment per venture is not very large, participation into an acceleration program has been associated with numerous benefits like networking, entrepreneurship education, venture performance differences, mentorship opportunities and shared office space (Cohen and Hochberg, 2014; Gonzalez-Uribe and Leatherbee, 2018; Chan et al., 2020).[6] Most importantly, accelerators play an important role in identifying and supporting the most promising ventures, and they aim to help startups hone their strategy, identify market opportunities, strengthen their management teams, and connect to potential investors (Kempner, 2019). Additionally, they help resolve uncertainties around company quality sooner, allowing founders to make funding and exit decisions (Yu, 2020). For example, Hallen et al. (2020) find that accelerators increase both the likelihood and the speed of reaching key outcomes for participating ventures. Along the same lines, Gonzalez-Uribe and Leatherbee (2018) conclude that entrepreneurship schooling bundled with the basic services leads to significant increases in venture fundraising and scale. Finally, Cohen et al. (2019) point out that a third of all startups securing venture capital in 2015 had been through an accelerator program. Therefore, admission into a program may have profound implications for new ventures. However, such an admission is very challenging, with the median acceptance rate being around 10% (Roberts and Lall, 2019). As discussed in Yu (2020), because of the large number of applicants, founders may not get

[5] The references to the number of active accelerators around the world varies substantially from 200 in Yu (2020) to 4,397 institutions self-identified as accelerators in Gonzalez - Uribe and Leatherbee (2018). However, even if one will consider the list of accelerators that is compiled by the Global Accelerator Learning Initiative (GALI) after verifying that the organizations meet certain criteria, there exist at least 675 accelerators with the following geographical distribution in early 2020: East Asia and Pacific (52), Europe and Central Asia (162), Latin America and Caribbean (95), Middle East and North Africa (42), United States and Canada (165), South Asia (89), Sub-Saharan Africa (70).

[6] Hochberg (2016) mentions that investments typically range from $0 to $150,000 with an average of $26,000. Similarly, the 2016 Global Accelerator Survey by GALI reports that the median investment per venture in 2016 was $28,393.

feedback on why their applications were rejected. Nonetheless, knowledge of the factors that drive the decisions of accelerators may be of interest to firm founders, policy makers and other stakeholders of the startup ecosystem.

The data employed in our study come from the Entrepreneurship Database Program (EDP) at Emory University, supported by the Global Accelerator Learning Initiative (GALI). In addition to information about the new venture, this dataset includes information about the nationality of the founders. Following recent studies examining the board characteristics of listed companies, we use the country of birth of the founders to attach certain country-level values to them -in our case, the values of the national culture dimensions put forward by Hofstede (1980). Subsequently, we construct a measure of diversity by calculating the average of cultural distances between founding members. We then examine whether and how this firm-specific diversity metric influences the probability of admission into an accelerator program. The results show that diversity is positively associated with the probability to be selected. This finding is robust across various specifications and robustness tests.

2. Background discussion

2.1. Accelerator programs and the selection process

2.1.1. Impact-oriented Accelerators

The history of accelerators goes back to 2005 with the launch of the Y Combinator, and the popularity of this organizational form was enhanced by well-known participants such as Dropbox, Reddit, and Airbnb (Yu, 2020). In general, one may distinguish between the following three different types of accelerators: (i) private seed accelerators, (ii) corporate accelerators, (iii) impact-oriented accelerators. Private seed accelerators aim to identify attractive investment opportunities, they prefer to work with mature ventures operating in sectors with relatively high expected profits, they focus on technology-sector startups, and they usually provide small amounts of seed capital in exchange for equity in the participating ventures. Corporate accelerators are programs sponsored or managed directly by one more or more established firms. Such examples include accelerators by SAP, Bayer, Orange, Microsoft, Nike, Barclays, etc. These accelerators aim to bridge the gap between corporations and startups

and it is a promising approach for established companies to explore new ideas for their corporate innovation efforts (Kohler, 2016).[7]

The last type of accelerators, the impact-oriented ones, that is the focus of the present study has received limited attention in the literature so far and we know too little about many aspects surrounding their operations, including who is selected to participate into these programs (Roberts and Lall, 2019; Yang et al., 2020). This is surprising, for at least the following two reasons outlined in Lall et al. (2020). First, it is widely believed that impact-oriented entrepreneurship is critical for widespread economic development. Second, accelerators view selection as a key component of their models.

One underlying difference is that these accelerators admit ventures that seek some combination of financial returns plus societal impact. However, this societal impact is broadly defined. For example, some of the impact objectives most frequently cited by ventures in the EDP database are employment generation, income or productivity growth, and community development. Others are typical entrepreneurs whose ventures' impacts are needed in marginalized regions and sectors. Also, the interest on social and environmental issues does not mean that ventures are nonprofit ones. As outlined in Roberts and Lall (2019), 79% of the ventures in the EDP database are for-profit companies, the remaining 21% being a mix of non-profit or hybrid ones. Additionally, social impact accelerators differ in terms of funding structures and sources, as they have greater reliance on philanthropic funders. Although they are less likely to provide direct funding when compared to impact-agnostic accelerators, still one out of two provide some kind of equity investment, grants, quasi-equity instruments or debt.

2.1.2. Selection criteria, selection process and its importance

Lall et al. (2020) discuss that accelerator program managers invest a considerable amount of time and effort in identifying and selecting the most promising ventures. This is because they see the allocation of resources to ventures with the best changes of delivering and scaling impacts as the best way to maximize the returns to their own human, social and financial investment (Roberts and Lall, 2019). Therefore, it is not unreasonable to argue that the sustainability of accelerators depends heavily on their ability to attract and choose the best

[7] Moschner et al. (2019) outline that there exist various engagement corporate accelerator models and programs, and they distinguish between in-house accelerators, independent accelerators that manage the program on behalf of a single corporate organization, hybrid accelerators, and consortium accelerators.

startups (Leatherbee and Gonzalez-Uribe, 2018). The ability to select high-potential startups also increases their chances of having high-profile alumni which provides legitimacy and helps in attracting additional high-potential applicants (Leatherbee and Gonzalez-Uribe, 2018).

In contrast to other investors in the startup ecosystem (e.g. angel investors, venture capitalists) that select firms on an ad-hoc and continuous basis, accelerators accept applicants in cohorts of companies typically once or twice per year (Yu, 2020). Usually, companies register and apply online through a software platform in response to an open call from the accelerator that is organized for a period of time. Then, accelerators follow a multi-stage selection process, which is rather demanding, given the low acceptance rates.

However, despite a great degree of similarity along many dimensions, there are also differences across accelerators, with some of them relating to the identification of potential program participants (Roberts and Lall, 2019). This includes different choices as for the screening criteria and the selection heuristics. For example, on top of the written applications mentioned above, accelerators use different combinations of interviews, group exercises, tests and pitches, and they rely on different teams of internal and external selectors (Roberts and Lall, 2019; Lall et al. 2020; Leatherbee and Gonzalez-Uribe, 2018).[8] Turning to the selection criteria, Roberts and Lall (2019) point out that conversations with accelerator program managers and publicly-espoused preferences reveal that accelerators consider a mix of both objective criteria (e.g. positive revenues, own intellectual property) and intangible factors (entrepreneurship passion, leadership, etc.). Lall et al. (2020) distinguish between generic observable criteria (such as those available in an application) and idiosyncratic selection practices. As they mention, the latter refers to the ability to find, recruit and work with entrepreneurs whose promise is overlooked. Leatherbee and Gonzalez-Uribe (2018) also discuss that for the process of identification and selection of future performance to be effective, it must somehow recognize the potential of entrepreneur to discover a high-potential opportunity.

Empirical research in the field is still limited, consisting of a handful number of recent studies. In more detail, Yang et al. (2020) show that: (i) social impact accelerators are more likely to accept startups that signal their economic and social credibility, as these are reflected in prior equity investment and prior philanthropic investment, respectively, and (ii) that the

[8] For example, Leatherbee and Gonzalez-Uribe (2018) discuss how different accelerators may employ various expert judges (entrepreneurs, investors, academics, and industry experts), their alumni and panel of internal evaluators as selectors. Fafchamps and Woodruff (2016) explore the effectiveness of expert panels versus surveys as a means to identify firms with rapid growth potential. Along the same lines, Roberts and Lall (2019) discuss that the size of the selection committee, their professional background, and diversity might matter.

impact of these signals differs by the lead founder's gender. The estimations in Lall et al. (2020) also reveal that the likelihood to participate in a program depends primarily on the business model, and having a social media page, debt sources, and founders with a graduate degree. Finally, Assenova (2021) finds that the applicant's probability of being selected decreased after institutional reforms.

Another aspect that appears to be particularly relevant in our context is that the venture team appears to be an important factor in the selection process. For example, Pauwels et al. (2016) mention that "*Remarkably, all accelerators in our sample claimed that teams are the main selection factor*" (p. 19). Along the same lines, Roberts and Lall (2019) point out that "*Many program managers will tell you that they prioritize the founding team and its accumulated experience*" (p. 113). They both provide examples illustrating that there is a preference for multi-founders' ventures, and that accelerators are trying to assess the personality, energy and passion of the entrepreneurs, along with the "culture fit" and the founding team cohesion.[9] The underlying reason is that the business idea can change entirely in the early years, and even an incredible idea is not going to succeed without the appropriate team (Roberts and Lall, 2019). Roberts and Lall (2019) also refer to the case of Village Capital that has partnered with a psychometric testing company to identify possible founding team characteristics that might be associated with future success. Along the same lines, Lall et al. (2020) highlight that the specifics that describe each accelerator's selection process may vary; however, most of them focus on characteristics of the venture and its founding team.

It should be noted here that despite the limited evidence in the case of accelerators, the importance of the founding team has been highlighted before in the literature of entrepreneurial financing decisions. For example, Sudek (2006) finds that the quality of the management team is among the top investment criteria for business angels. Along the same lines, Mason and Stark (2004) conclude that the capability of the management team is an important consideration for both business angels and venture capitalists. Muzyka et al. (1996) find that venture capitalists prefer to select an opportunity that offers a good management team and reasonable financial and product-market characteristics, even in cases where the opportunity does not meet the overall fund and deal requirements. The underlying idea is that a good management team can lift a mediocre product, but without the correct management team and a reasonable idea,

[9] The following are some representative quotes provided in Pauwels et al. (2016): (i) "We have a focus when we look at selection: team, team, team and opportunity" [TL, Jan2014], (ii) "We look at personal qualities (ambition, tenacity, frugality, openness, flexibility) and strong teams which interact well" [LA, Nov2013], (iii) "We do a final panel interview which we do in person rather than Skype, because we want to meet the team". TL, Jan 2014].

financial forecasts are generally meaningless because they will never be achieved. Similarly, MacMillan et al. (1985) reveal that close to one-half of venture capitalists in their sample would not even consider a venture that does not have a balanced team, leading to a rejection of the venture irrespective of how glamorous the industry was or how exciting the proposed product was. These selection criteria appear to reflect more general views in the literature. For example, Colombo and Grilli, (2005) argue that if the necessary competencies and resources are not available within the founding team, this may severely limit growth. Kristinsson et al. (2016) also discuss that the founding teams shape the initial strategies and structure of new ventures, and their characteristics determine the types of opportunities that are likely to be identified and define a venture's capability to mobilize resources, innovate, and generate revenues.

In a more general context, the above -mentioned studies seem to relate to the upper echelon theory which asserts that observable characteristics of the top managers (e.g. age, education, experience, socioeconomic roots), serve as proxies of their cognitions, values and perspectives, shaping the strategic decisions and performance of the firms. Hambrick and Mason (1984) outline that from the perspective of the upper echelon theory, it is essential to emphasize on observable background characteristics, rather than on psychological dimensions which are difficult to observe and measure. Within this context, we assume that national culture can also serve as a proxy - possibly a better one than other demographic characteristics (e.g. age, education) - for the values and the behaviour of the venture founders. In other words, whilst it is difficult to observe ex-post the behaviour of a given founder or team of founders, their cultural background might provide useful pieces of information. Being part of society, business managers and leaders share the same beliefs and values, and they also have to adhere to them. Therefore, it is not surprising that the literature suggests that differences in managerial and leadership beliefs, values, style and behaviour are a reflection of societal cultural differences (Shaw, 1990; House et al., 2004).

2.2. The signalling role of cultural diversity

Having established the importance of the founding team -not only for the new venture, but also for its potential selection in acceleration programs - in the discussion that follows, we refer to the role of diversity as a potential signal, and we develop our hypothesis. Figure 1 summarizes the conceptual framework of this discussion.

[Insert Figure 1 Around Here]

Drawing on the upper echelon theory and the signalling theory we hypothesize that the cultural diversity of the founders' team can serve as a signal of the ventures' potential, therefore providing the basis for a more informed decision by accelerators. In general, signalling theory is applicable in cases where one party (individual or corporation) may communicate information to another, through a signal, in order to reduce information asymmetry.[10] Therefore, it became very popular in the entrepreneurial financing literature, where information asymmetries constitute an important issue. In more detail, new ventures have limited or no track records of revenues and profits, they do not have well-established networks like public firms, they often possess assets that are knowledge-based and intangible, and thus, they face challenges to prove their legitimacy, managerial capacity, and prospects for the future (Audretsch et al., 2012; Plummer et al., 2015; Ko and McKelvie, 2018; Yang et al., 2020). For example, Lee and Huang (2018) emphasize the role of information that might be unrelated to the objective quality of a business, and the lack of "hard" information, mentioning that: "*Evaluations of early-stage ventures frequently lack objective, "hard" venture information; contexts such as business plan reviews, pitch competitions, and informal meetings provide limited evidence on financial performance or proven products (MacMillan et al. 1985). Evaluators consequently rely heavily on subjective interpersonal signals and cues and form narratives about how a founder might achieve success in the founder's venture (Martens et al. 2007). In such assessments, evaluations may be influenced by information unrelated to the objective quality of a business, including […] or observed characteristics of entrepreneurs, such as gender and attractiveness (Brooks et al. 2014)"* (p. 2). Thus, external stakeholders have an information disadvantage and the underlying idea is that new ventures can reduce uncertainty for investors and decision makers by signalling their potential value through

[10] In his seminal work Spence (1973) demonstrated how a job applicant can use education a signal that enhances the selection ability of the employer. However, he outlined that signalling could apply to other contexts like admissions procedures and loan and consumer credit, as well as that signalling power could extend to a host of other personal characteristics like job experience, race, and gender.

venture attributes (Audretsch et al., 2012; Plummer et al., 2015; Ko and McKelvie, 2018; Yang et al., 2020).

Earlier research on entrepreneurial financing decisions has mainly focused on business angels, venture capitalists and initial public offerings, and most recently crowdfunding, and has examined various potential signals, like the existence of patents (Audretsch et al., 2012), entrepreneurs' net worth (Prasad et al., 2000), government grants (Islam et al., 2018), affiliation with venture development organizations (Plummer et al., 2015) and prestigious universities (Colombo et al., 2019), the entrepreneur's efforts to approach an angel investor (Elitzur and Gavious, 2003), the characteristics and human capital of the founders or the management team of the new ventures (Beckman et al., 2007; Plummer et al., 2015; Higgins and Gulati, 2006; Ahlers et al., 2015).[11]

There are numerous reasons for which the cultural diversity of the founding team could serve as a signal of the team's potential. A large number of studies suggests that cultural diversity engenders information elaboration, offering a wide range of knowledge, perspectives and experiences with different institutional environments (Nederveen Pieterse et al., 2013; Nielsen and Nielsen, 2013; Frijins et al., 2016), and - as discussed in the literature - the presence of people with differing points of view ensures consideration of a larger set of problems and set of alternative potential solutions (Bantel and Jackson, 1989).[12] Therefore, nationally diverse teams might be better at solving complex tasks and arriving at more innovative solutions

[11] The list refers primarily to venture capitalists, IPOs and angel investors, and it does include all possible signals. For a more complete list, see the reviews of Colombo (2021) and Connelly et al. (2011).

[12] For example, the national cultural dimensions of Hofstede (e.g. uncertainty avoidance, individualism, masculinity, long-term orientation, etc.) have been associated with overconfidence (Chen et al., 2017), higher need for achievement (Kreiser et al., 2010), patience and persistence (Chang and Noorbakhsh, 2009), to name a few. The conceptual framework of Barron (2011) also suggests that these national cultural dimensions might influence various managerial preferences like attachment to rules and regulations, strategic planning preferences, negotiation preferences, decision making expectations, and attitudes towards financial inducements. Other studies document that national culture influences various behavioural aspects of entrepreneurs and firm founders, like risk taking and proactiveness (Kreiser et al., 2010), growth aspirations (Autio et al., 2013), overconfidence (Cieślik et al., 2018), entrepreneurs' opportunity exploitation decision (Liu et al., 2019), entrepreneurs' goals for value creation (Hechavarrıa et al., 2017), entrepreneurial intentions (Schlaegel et al., 2013). Along the same lines, in their review of the literature, Hayton et al. (2002) refer to differences in entrepreneurial cognitive scripts (Mitchell et al., 2000), motives (Scheinberg and MacMillan, 1988), and internal locus of control (Mueller and Thomas, 2000) across cultures. Others, highlight the conditional role of culture For example, Wennberg et al. (2013) conclude that the individual's self-efficacy and fear of failure on entrepreneurial entry are contingent on national cultural practices, while Bogatyreva et al. (2019) examine the role of national culture in the association between entrepreneurial intention and subsequent action. However, one aspect that has been overlooked, and is of particular importance in our context, is that most new ventures are founded and lead by teams rather than individuals, yet most of the above-mentioned studies focus at the individual rather than the team level. For example, Beckman (2006) reports that around 10% of the new ventures sampled in her research had a solo entrepreneur, the rest having at least two founders. Similarly, Roberts and Lall (2019) report that 76.8% of the ventures in the Entrepreneurship Database Program (EDP) have multiple founders on team.

(Umans, 2009; Nielsen and Nielsen, 2013 and references therein).Considering that, in the case of new ventures, many problems will be novel and they will require creative thinking, we would expect that a diverse team would serve as a positive signal. Additionally, impact-oriented entrepreneurs try not only to create high-quality jobs and reliable incomes, but also to develop innovative, market-based solutions to address major social challenges, like the lack of access to energy, education, or healthcare (Roberts and Lall, 2019). Within this context they must meet both financial and social or environmental targets, which imposes an additional difficulty as they must balance the values of various stakeholders. Duchek et al. (2020) highlight that diversity in the top management team allows for better environmental scanning and perception of complex environments. Hence, different views originating from different cultures within the founding team and superior ability to act in complex environments could be seen as an asset from the perspective of the accelerators' decision makers. Therefore, we formulate our first hypothesis as follows.

H1a: The cultural diversity of the founding team can serve as a positive signal that will enhance the likelihood of admission into an acceleration program

However, some general patterns in the signalling literature imply that cultural diversity may not necessarily have a positive effect on the decision of accelerators, as hypothesized above. In more detail, while the literature refers in general to an intentional communication, parties may also send signals without being aware they are signalling (Spence, 1973, 2002; Connelly et al., 2011). Additionally, signals are not necessarily positive, but they can be negative as well (Fischer & Reuber, 2007; Jain et al., 2008). Therefore, as discussed in Connelly et al. (2011), some actions of insiders may communicate negative information about organizational attributes. As they explain, insiders generally do not send these negative signals to outsiders with a view toward reducing information asymmetry; however, this is often an unintended consequence of the insider's action. As an example, they refer to the issuance of new firm shares that can be interpreted negatively because executives may issue equity when they believe their company's stock price is overvalued (Myers and Majluf, 1984). Furthermore, Moedl (2019) finds that crowdfinancing serves as a negative signal for subsequent funding decisions of venture capitalists. In our context, the decision to add a founder with a different cultural background could eventually serve as an (unintentional) negative signal, if the accelerators were to hold the view that instead of having positive implications, the cultural diversity of the founding team could result in drawbacks. This could be the case because of

different norms, priorities, perceptions, assumptions about future events and beliefs, introducing barriers to communication and collaboration between the members of multicultural teams (Nederveen Pieterse et al., 2013; Jang, 2017), resulting in decreased communication, conflicts and inefficiencies in the decision-making process of the founding team (Bantel and Jackson, 1989; Giannetti and Zhao, 2019). This leads to the following hypothesis:

H1b: The cultural diversity of the founding team can serve as a negative signal that will decrease the likelihood of admission into an acceleration program.

Finally, as discussed in Conelly et al. (2011), the signalling process will not work if the receiver is not looking for the signal or does not know what to look for. Along the same lines, Yang et al. (2020) highlight that the signalling relies, in part, on the cognitive interpretations of the receiver, which in turn largely depends on his subjective mental model (Drover et al., 2018). This could also explain why there are differences in the interpretation of the same signal among different decision makers. For example, Conti et al. (2013) concludes that a signal associated with money from the funder, family and friends does not have a statistically significant impact on venture capital financing; however, it has a positive and statistically significant impact on the decisions of business angels. Should this be the case in our context, we would expect the cultural diversity to be irrelevant to the decision making of accelerators and hence have an insignificant influence on the admission likelihood. Therefore, given the ambiguity surrounding the role of cultural diversity as a signal, this remains an open question to be answered empirically in the next sections of our study.

3. Data, Variables and Methodology

3.1. Data

As mentioned earlier, the venture-level data were provided by the EDP at Emory University, which is part of the GALI. Since 2013, the EDP has been partnering with accelerators that operate in various countries around the world, and the data are based on a standard set of core questions that every participating accelerator program asks as part of its application processes. The dataset includes application data collected from accelerator programs that accepted applications in the 2013 – 2018 window. The initial dataset includes 14,313 ventures for which we have information on whether they have been selected in a program or not, and we narrow this down to 11,023 ventures for which we have data on the country of origin for all the founders. This information is necessary to calculate the diversity proxies of main interest to this study. As the proxies are not available for all countries, this narrows our sample down to 9,988 ventures for which we have available cultural data to proxy the information on our variable of interest. Following the addition of all the explanatory variables in the baseline model that we discuss in the following subsections, the data set is further narrowed down to 9,273 ventures, which operate in 106 countries and filled an application to any partner accelerator program during the period 2013-2018.

The data for the construction of the cultural diversity measure - that is the main variable of interest - stems from Hofstede Insights, whilst data for the country-level control variables are obtained from various databases. In particular, data on GDP growth rate (%) and inflation rate come from the World Development Indicators of the World Bank, whilst information on institutional development comes from the 'Worldwide Governance Indicators' project of the World Bank. The regional categorisation is based on information from the Global State of Democracy Indices Codebook (Tufis, 2018).

3.2. Variables

3.2.1. Dependent variable

The dependent variable ('Selected') is binary and takes the value of '1' if an enterprise has been successfully selected for an accelerator programme, and '0' otherwise.

3.2.2. Cultural Diversity

The main explanatory variable of interest is a proxy that measures diversity ('Diversity') in the cultural values of a venture's founders. There is no doubt that it is difficult to define culture, and possibly even more difficult to measure it. For example, Guiso et al. (2006) define culture as "*those customary beliefs and values that ethnic, religious, and social groups transmit fairly unchanged from generation to generation*" (p. 23). The Global Leadership and Organizational Behavioural Effectiveness (GLOBE) project defines culture as "*shared motives, values, beliefs, identifies, and interpretations or meanings of significant events that result from common experiences of members of collectives that are transmitted across generations*" (House et al., 2004, p. 15). Hofstede et al. (2010) provide a more general definition, mentioning that "*Culture consist of the unwritten rules of the social game. It is the collective programming of the mind that distinguishes the members of one group or category of people from others*" (p. 6). Turning to the empirical measurement of culture, the dimensions of Hofstede (1980) have become a popular proxy widely used in numerous studies across various disciplines.[13] Therefore, as in Frijns et al. (2016), we rely on the following four dimensions of culture identified by Hofstede: *power distance, uncertainty avoidance, individualism, masculinity*.[14,15]

Before discussing in more detailed the construction of our venture-level index of cultural diversity, we ought to emphasize that the cultural level indicators do not consider cultural differences between groups within nations (e.g. based on regions, social classes, etc.)

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[13] There are numerous studies that use the indicators of Hofstede (Taras et al., 2012) across a number of fields including cross-cultural management, international business, cross-cultural psychology, economics, and finance, to name a few. Hofstede has received nearly 180,000 citations (Google Scholar), and as mentioned in Beugelsdijk and Welzel (2018) he is one of the world's most frequently quoted social scientists.

[14] These four dimensions were originally developed in the 1970s by Hofstede (1980), whilst another two dimensions, namely long-term orientation and indulgence were added in subsequent work (Hofstede and Bond, 1988; Hofstede et al., 2010). As in Frijns et al. (2016) we focus on the four main indicators because they are the ones used in most studies (e.g. Kreiser et al., 2010; Zheng et al., 2012; El Ghoul and Zheng, 2016; Boubakri and Saffar, 2016; Nash and Patel, 2019), and also because the inclusion of the additional two indicators reduces substantially the number of ventures for which we have cultural information for all six indicators and for all the founders. Additionally, the fifth and sixth dimension were computed ex post based on different surveys and among a different set of participants, leading to potential inconsistencies (Zheng et al., 2012; Frijns et al., 2016). However, we perform two robustness tests. First, in further analysis presented in Section 4.2.2 we confirm the results while using all 6 dimensions of Hofstede. Second, as an alternative robustness test, we use the cultural indicators from the Global Leadership and Organizational Behaviour Effectiveness (GLOBE) project.

[15] Despite being developed in the 1970s the dimensions of Hofstede are still being used in several recent studies under the assumption that they are stable over time. This is because these values reflect differences between societies that are deeply rooted in history and drive socioeconomic developments (Beugelsdijk et al., 2015). In their study, Beugelsdijk et al. (2015) used data from the World Value Survey from two birth cohorts, to conclude that that the countries' scores of the Hofstede dimensions relative to the scores of other countries have not changed very much as well as that their use in international research is as relevant noa as it was when they were first published. Hofstede (2011) himself argues that (i) it will take 50 to 100 years or dramatic events to witness such cultural changes that will make the dimensions invalid, and (ii) many differences between national cultures at the end of the 20th century were already recognizable in the 1900, 1800, 1700 and possibly earlier.

and that assigning a label of national culture does not mean that every person within that society is mentally programmed in the same way (e.g. Kwok and Tadesse, 2006; Porcher 2019). Nonetheless, as discussed in Kwok and Tadesse (2006), the underlying idea in the literature is that national culture refers to the average pattern of beliefs and values of a person that differentiate it from individuals in other countries. Along these lines Porcher (2019), refers to cross-cultural psychologists, highlighting that the dimensions of national culture are identifiable because there are greater differences in individual responses between countries than within countries (Hofstede 1980; House et al. 2004). With this potential shortcoming in mind, that is nonetheless a commonly accepted assumption in all the empirical studies that relate national culture to the decisions of individual directors (Nguyen et al., 2018), boards of directors (Frijns et al., 2016) or firms (Lievenbrück and Schmid, 2014; El Ghoul and Zheng, 2016), we proceed to the discussion of the dimensions that we consider in our empirical work.

The cultural dimension of power distance refers to "*the extent to which the less powerful members of institutions and organizations within a country expect and accept that power is distributed unequally*" (Hofstede et al., 2010; p. 61). For the construction of the Power Distance Index, Hofstede relied on the answers to the following three survey questions: (i) Are employees afraid to express their disagreement with their managers? (ii) What are the subordinates' perception of their bosses' actual decision-making style? and (iii) What do subordinates prefer as their bosses' decision-making style. Newman and Nollen (1996) mention that power distance in organizations may have implications for the degree of centralization, formal hierarchy and the amount of participation in decision making in organizations. Furthermore, Kreiser et al. (2010) assert that managers in low power distance cultures will be more forward-looking when implementing corporate strategies, firms will attempt to distinguish themselves from one another aiming to improve their industry standing, and they will enact proactive strategies to exploit opportunities as a means of survival. Given the above, a culture of power distance may have implications not only for the strategic decision and the future performance of the venture, but also for the interpersonal relationships between the founders and their stand towards participative leadership.

The cultural dimension of uncertainty avoidance refers to "*the extent to which the members of a culture feel threatened by ambiguous or unknown situations*" (Hofstede et al., 2010; p. 191). For the estimation of the uncertainty avoidance index, Hofstede relied on answers to questions related to job stress, rule orientation, and intention for a long-term career with the same firm. A national culture of uncertainty avoidance has been negatively associated with both firm risk-taking (Kreiser et al., 2010; Li et al., 2013) and proactive firm behaviour

(Kreiser et al., 2010). However, as discussed in Hofstede et al. (2010), high uncertainty avoidance does not necessarily mean that people do not take risks. Rather, they accept familiar risks, the ultimate goal being the reduction of ambiguity and unfamiliar risks. Interestingly, Hofstede et al. (2010) also point out that people in uncertainty-avoiding cultures look for structure in their organizations, institutions, and relationships that makes events clearly interpretable and predictable. Along the same lines, Bogatyreva et al. (2019) mention that in societies characterized by strong uncertainty avoidance, the engagement into the entrepreneurial process is expected to induce emotions of action doubt. Therefore, a diversity in these preferences and expectations among the founding members, could have important implications for the venture and the signals that it sends.

The third dimension of natural culture, known as individualism (versus collectivism), can be defined as follows: "*Individualism pertains* to *societies in which the ties between individuals are loose: everyone is expected to look after him- or herself and his or her immediate family. Collectivism as its opposite pertains to societies in which people from birth onward are integrated into strong, cohesive in-groups, which throughout people's lifetime continue to protect them in exchange for unquestioning loyalty"* (Hofstede et al., 2010; p. 92). This dimension was constructed on the basis of answers to questions related to work goals like having personal time, the freedom to adopt own approach to the job, a challenging work to do, training opportunities, good physical working conditions, and use of skills and abilities on the job. Hofstede et al. (2010) point out various differences between individualistic and collectivistic societies, that could be of interest in our context. For example, persons from an individualistic culture would be expected to act according to their own interests, have individual ownership of resources, and a preference for low-context communication. Furthermore, in an individualist society, the task is supposed to prevail over any personal relationship, whereas the opposite holds in a collectivist society. On top of these differences, many scholars associate a culture of individualism with managerial overconfidence and attribution bias (Chui et al., 2010; Ferris et al., 2013; Blomkvist et al., 2018). In turn, this may have positive or negative implications, like research and development investments (Shao et al., 2013), patents generation (Chen et al., 2017), corporate investment distortions (Malmendier and Tate, 2005), and lower response to corrective feedback in improving management forecast accuracy (Chen et al., 2015). Therefore, it is natural to assume that having founders coming from an individualistic versus collectivistic society will have implications for the cohesion and efficient operation of the founding team.

The fourth dimension of masculinity versus femininity was formed based on the importance attached to eight work goal items (earnings, recognition, advancement, challenge, manager, cooperation, living area, employment security) in the original survey of Hofstede, with men and women employees scoring consistently differently (Hofstede et al., 2010). At the societal level, Hofstede et el al. (2010, p. 140) mention that "*A society is called masculine when emotional gender roles are clearly distinct: men are supposed to be assertive, tough, and focused on material success, whereas women are supposed to be more modest, tender, and concerned with the quality of life. A society is called feminine when emotional gender roles overlap: both men and women are supposed to be modest, tender, and concerned with the quality of life"*. Therefore, masculinity as a cultural characteristic describes societies that are aggressive, competitive, and more task and performance oriented, in contrast to feminine societies that are relationship oriented, and are based on trust, tolerance and societal interactions (Boubakri and Saffar, 2016). In the business context, managers in masculine societies are driven by performance, they tend to examine the facts individually, reach conclusions on their own, and make decisions based on their personal judgment (Chang and Noorbakhsh, 2009). Furthermore, driven by the high need for achievement, managers in masculine cultures are ambitious and more willing to engage in calculated, business-related risk-taking than other managers, whilst they also value decisive and immediate actions (Kreiser et al., 2010).

To construct the cultural diversity indicator in new venture founding members, we work as follows. First, we collect information from the EDP application survey which asks applicants to identify the top three members of their founding teams, and provide some basic information like their age, gender, country of birth, etc. We use the country of birth to assign the values of national culture to each one of the identified founders.[16] Therefore, our approach is similar to the one in Frijns et al. (2016) who use the nationality of the board of directors in the case of the UK listed firms and Nguyen et al. (2018) who consider the cultural values that prevail in

[16] As discussed in Frijns et al. (2016), an alternative would be to use the country of residence instead of the country of birth; however, as they point out, nationality (in our case country of birth) reflects a person's cultural values and norms more accurately than the country of residence. For example, when referring to the culture as a means of mental software, Hofstede et al. (2010) highlight that "*Every person carries within him-or herself patterns of thinking, feeling and potential acting that were learned throughout the person's lifetime. Much of it was acquired in early childhood, because at that time a person is more susceptible to learning and assimilating. As soon as certain patterns of thinking, feeling, and acting have established themselves within a person's mind, he or she must unlearn these patterns before being able to learn something different, and unlearning is more difficult than learning for the first time*" (p. 4-5). Shaw and Barrett – Power (1998) also mention that "*Nationality / ethnic origin is significantly related to cultural values and perspectives*" , and they further argue that "*…nationality/ethnic origin, age and gender will be strongly correlated with the underlying attributes of cultural values and perspectives, personal attitudes, values and beliefs, and styles of conflict resolution*" (p. 1312).

the country of the US CEO's ancestors. First, as in the study of Kogut and Singh (1988), for each venture f, the cultural distance (CD) between each two founders $(i, j), i, j \in N_f = \{1, \dots, m_f\}$ is measured as:

$$CD_{ij}^{f} = \sqrt{\sum_{c=1}^{k} \frac{(I_{ci}^{f} - I_{cj}^{f})^2}{V_c}}, \forall\, i \neq j \in N_f,$$

where N_f is the venture-specific set of the m_f founders of venture f, I_{ci}^{f} is the cultural value of director i in venture f according to the cultural dimension c and, similarly, I_{cj}^{f} regards director j. V_c is the in-sample variance of the cultural dimension c. Note that the latter is not venture-specific. Moreover, the variance is calculated according to the unique set of countries (i.e. each country appearing once). Understandably, as cultural distance is taking into account the Hofstede framework, the cultural dimensions included are those four defined in this section; hence, $k = 4$.

Then, following Frijns et al. (2016), we use the computed cultural distance scores (CD), to estimate the venture-level cultural diversity ('$Diversity_f$') of the founders as the average of cultural distances in all pairs of founding members, i.e.:

$$Diversity_f = \frac{\sum_{ij \in N_f} CD_{ij}^{f}}{m_f(m_f - 1)/2}.$$

3.2.3. Control Variables

To account for additional effects that might also impact the accelerators' selection decision we include control variables for: (i) venture attributes, (ii) founders' attributes, and (iii) characteristics of the country of operations. In particular, starting with the venture controls, we include the natural logarithm of the years for which the venture is active. As Goldenstein et al. (2019) mention, this is a frequently analysed topic in entrepreneurial research due to its intrinsic link to failure risk (see, among others, Wiklund et al., 2010; de Jong and Marsili, 2015). Additionally, as discussed in Roberts and Lall (2019), age gives a rough of idea of the venture's stage of development, and older ventures may have more time to establish the

observable characteristics that are attractive to investors. Furthermore, we include the natural logarithm of the venture's revenues in the previous year. This controls for the venture's commercial performance (Roberts and Lall, 2019) and demonstrates that the startup has a viable product offering (Assenova, 2021), hence enhancing the likelihood to be selected by accelerators (Lall et al., 2020).[17]

Following Yang et al. (2020) we include a dummy for the ventures that are non-for-profit to account for differences in structures, policies and strategies. Similarly, as in Yang et al (2020) and Lall et al. (2020) we control for the startups' social motives with a dummy variable that takes the value of '1' in cases where the applicant explicitly stated that the startup has social motives. Yang et al. (2020) mention that by making their social visions explicit, the ventures are more motivated to achieve them, which could make them more attractive to impact oriented accelerators. Moreover, we include a dummy denoting whether the venture's model is invention-based or not. This is based on the answer to the following question in the EDP database: "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?" As discussed earlier, applicants to impact-oriented accelerators try, among other things, to develop innovative, market-based solutions to address major social challenges. Hence, invention-based ventures could be more attractive to accelerators. Further to this, Roberts and Lall (2019) outline that many of the individuals and organizations that seek to identify and support scalable impact-oriented ventures believe that the most promising candidates develop and hold proprietary intellectual property that is protected by patents, copyrights, or trademarks. This appears to be in line with studies showing the significance of some types of patents in accessing debt financing (Fischer and Ringler, 2014), how intellectual property matters for startup internationalisation outcomes (Symeonidou et al., 2017), or the signalling mechanism and the general importance of trademarks in startup valuation (see e.g. Ramello and Silva, 2006; Block et al., 2014, 2015). Therefore, we include an 'intellectual property' dummy variable that takes the value of '1' when a venture has patents, copyrights, or trademarks, and the value of '0' otherwise. Finally, we include the logarithm of the equity investments received from outside sources since founding at the time of the application. Yang et al. (2020) discuss at least two reasons for which past equity investment could enhance the likelihood to be admitted into an

[17] Additionally, we include the natural logarithm of the venture's revenues divided by the number of employees, which is a common metric of firm performance in measuring how efficiently a particular venture utilizes its employees (Sharma, 2014; Hmieleski and Sheppard, 2019). However, due to the very high correlation (ρ=0.98), these are used interchangeably. We report results using only the former, though inclusion of the latter yields a qualitatively similar set of results.

accelerator program. First, having received equity investment communicates to accelerators that the venture has already passed a rigorous analysis validating the viability and sustainability of its business model. Second, an equity investment signals that the venture will have access to the equity investor's superior resources, capabilities, and networks, all of which should enhance its prospects for scale and survival.

Turning to the founders' attributes, we control for prior experience with accelerator programs, by considering the answer to the following question: "In 20XX, did anyone on your founding team participate in any of the following accelerator programs?" This reflects the ability to receive support from the ecosystem (Roberts and Lall, 2019) that could be well perceived by the admission decision-makers in the prospective accelerator program. Furthermore, we control for the percentage of female founders. Earlier research on venture capitalists shows that investments in women-led businesses is small (Green et al., 2001; Guzman and Kacperczyk, 2019) and that women start their firms with a smaller amount of startup capital than men (Verheul and Thurik, 2001); however, more recent research reveals that this is not necessarily the case when looking at the acceptance rates of accelerators (Yang et al., 2020) and financing from crowdfunding (Johnson et al., 2018). Additionally, research on more mature firms is mixed, showing that the inclusion of women directors in the board may lead to positive (Kang, 2010), negative (Reutzel and Belsito, 2015) or insignificant (Arora and Singh, 2020) responses from stock market investors. As in Lall et al. (2020), we also control for the average founding team age, which can be seen as a broad proxy for founders' experience (Ewens et al., 2018), skills and resources.[18] Azoulay et al. (2020) report that the mean age at founding for the 1-in-1,000 fastest growing new ventures in the US is 45.0. Roberts and Lall (2019) also report that the average age in the EDP database is 35 years, arguing that when it comes to impact-oriented ventures seeking acceleration, it is clearly not just a young person's game.[19] As discussed in Azoulay et al. (2020), older entrepreneurs might access

[18] In unreported regressions we also consider the years worked in the previous two full-time jobs and we take the average over the founders' team. Considering that the information in the EDP database is limited to the last two full-time jobs rather than the entire career history, we refrain from using this in the main results, and instead we use age as a broader indicator of experience. In any case, the average work experience enters the specifications with a statistically insignificant coefficient, and the main results do not change.

[19] In unreported regressions we also added the average age squared to capture non-linear effects. This term was insignificant and its inclusion in the model has not influenced the main results. Further, in an alternative specification, we replaced the average age of the founding team by age diversity. The rationale for the use of diversity is that directors of different ages have different approaches and views of the marketplace, and they may propose alternative responses to challenges with positive implications for the firm. On the other hand, age diversity may suffer from cognitive conflicts and lower group cohesion (Talavera et al., 2018). Therefore, age diversity may have positive or negative effects for the ventures. The obtained results show that age diversity is insignificant, and its inclusion as a control variable does not influence the main results.

greater human capital, social capital, or financial capital, and at the same time young people may not have sufficient scientific knowledge to produce or manage effective R&D. Therefore, teams with older founders might be more appealing to accelerators, enhancing the likelihood to be admitted. Nonetheless, there exists an alternative view that young people might be cognitively sharper, less distracted by family or other responsibilities, and more capable of transformative ideas, consequently leading to venture capital firms emphasizing youth as a key criteria for their investments (Azoulay et al., 2020). Finally, we control for past entrepreneurial experience and education, which appear to be among the most common human capital constructs explored in the entrepreneurship literature (Marvel et al., 2016). Past recent studies suggest that entrepreneurial experience influences the ability to obtain external equity (Zaleski, 2011; Zhang, 2011). However, evidence in the case of accelerators is limited. Roberts and Lall (2019) mention that around 59% of the ventures in the EDP sample have founding teams with some founding experience, while Yang et al. (2020) show that past entrepreneurial experience of the lead founder may not influence the likelihood to be admitted into social impact acceleration programs. We control for the experience in the founding team by taking the average of the number of new organizations that each founder started in the past.[20] Lall et al. (2020) find that having founders with a graduate degree increases the probability of participation in an accelerator program. Ratzinger et al. (2018) also document that the founding teams' higher education enhances the probability of securing equity investment and subsequent exit for investors in the case of digital startups. In our study, to capture the level of education across founders, we differentiate between undergraduate (Bachelor's degree), postgraduate (Master's/Graduate degree) and doctoral (PhD) studies, similarly to Herrmann and Datta (2005). As in Papadimitri et al. (2020) we assign points similar to increasing constants -in a cumulative manner- for each level of studies as follows: a founder is assigned 1 point if (s)he has an undergraduate degree, +2 points on top of that for a postgraduate, and +3 more points for a doctoral degree. The average of all founders' score is computed to serve as a proxy for education across all founding members.[21]

As it concerns the country-level controls, we include GDP growth rate to capture the demand-side of economic opportunities that encourage entrepreneurship (Thai and Turkina, 2014), and inflation to capture monetary instability in the country of operations. Finally, we

[20] The results do not change when we use the sum of the organizations instead of the average.

[21] Ideally, we would like to consider the specialization of the degree as in Ratzinger et al. (2018). However, this information is not available in the EDP database. Therefore, as in Lall et al. (2020), we consider only the level of the degree. However, in our case we construct a more informative index that assigns different value to MSc and PhD degrees.

also include an index of institutional development to capture heterogeneity across countries that stems from institutional quality. Following Fredström et al. (2021), we elaborate on the data from Worldwide Governance Indicators (Kaufmann et al., 2011), which we consolidate in a single index taking the non-weighted arithmetic mean as a common approach to composite indicators (Greco et al., 2019) that is also followed in prior literature (see e.g. Gaganis et al., 2019).[22]

Table 1 provides the descriptive statistics of the above variables and Table 2 shows the Pearson's correlation coefficients. For a description of variables, see Table A.1 in the appendix.

[INSERT TABLES 1 & 2 ABOUT HERE]

3.3. Methodology

Given the binary nature of the dependent variable, a logistic regression of the following form is fitted:

$$\begin{aligned}\Pr\big(Select_{fct} = 1 \,\big|\, Diversity_{ft}, \boldsymbol{Venture}_{ft}, \boldsymbol{Country}_{ct}, \boldsymbol{Year}_t, \boldsymbol{Sector}_f, \boldsymbol{Region}_c, \boldsymbol{Program}_f; \beta\big) \\ = F\big(\beta_0 + \beta_1 Diversity_{ft} + \boldsymbol{\beta}_2' \boldsymbol{Venture}_{ft} + \boldsymbol{\beta}_3' \boldsymbol{Country}_{ct} + \boldsymbol{\beta}_4' \boldsymbol{Year}_t \\ + \boldsymbol{\beta}_5' \boldsymbol{Sector}_f + \boldsymbol{\beta}_6' \boldsymbol{Region}_c + \boldsymbol{\beta}_7' \boldsymbol{Program}_f\big).\end{aligned} \tag{3.3.1}$$

Being a logistic regression, $F(\cdot)$ denotes the logistic cumulative distribution function which maps the linear predictor to the probability of being selected with *F(x)*=exp(x)/*{1+exp(x)}*. As our data structure is hierarchical in nature, with the ventures (level 1) nested in the accelerator programmes (level 2), following Yang et al. (2020), we adopt a multilevel model, one of its most important benefits to our sample structure being the usefulness of modelling intra-cluster

[22] The individual indicators are highly correlated, and hence it would not be possible to include them simultaneously in the regression on their own. For instance, the average pairwise correlation among the components in our sample is 0.9, with an interval range of [0.81-0.98]. Thus, we would need to include them one-by-one otherwise it would raise other concerns. Considering that our intention is simply to control for the overall formal institutional environment to avoid an omitted variable bias, we believe that our approach serves its purpose and does not create any problems. The use of an overall index is consistent with many other studies in the literature. As a robustness test, in unreported results we include the individual indices one by one in the specification presented in Column 4 of Table 3. The results do not change.

correlation. Hence, eq. (3.3.1) is estimated via means of a Generalised Linear Mixed Model (GLMM).

Index f denotes firms, c refers to countries, and t denotes the time dimension. '**Select**' is the dependent variable as described in Section 3.2. Turning to the explanatory variables, '**Diversity**' is the main variable of interest to this study (see Section 3.2 for a description); in saturating the model, '**Venture**' is a vector of co-variates that controls for firm-related attributes, and '**Country**' contains country-related attributes as detailed in the previous section. Additionally, all regressions include time ('**Year**') and industry ('**Sector**') dummies to capture the temporal (year of application) and sectoral heterogeneity (sector in which the venture operates), as well as program-specific ('**Program**') attributes that may have been important during each partner accelerator call. '**Region**' refers to a set of dummy variables that captures heterogeneity stemming from the wider geographical regions in which the ventures are based, distinguishing between Africa (omitted group dummy captured by the constant), Asia & the Pacific, Europe, Latin America & the Caribbean, Middle East & Iran, North America.[23]

Finally, to account for the variation in the number of founders, all the regressions also include dummy variables – a dummy taking the value of '1' if there are two founders in the venture, and another taking the value of '1' if there are three founders in the venture. Single-founder ventures (dummy of which is omitted) are captured by the constant. This setting captures variation that could explain information about the level of diversity, and in particular why it could be higher or lower than expected due intrinsic reasons attributed to the size of the venture founders. For instance, a zero diversity score in a single-founder venture shall be expected by nature as opposed to a venture of three founding members. In additional robustness analysis, we also condition our sample to multi-founder ventures only. However, we choose not to make this our baseline setting as we would wittingly create sample bias and reduce the poolability of our sample at the same time by focusing on results that apply to multi-founder settings only.

[23] The purpose of the regional dummies is to account for unobserved characteristics that are common within certain regions and have not been adequately captured by the control variables that we use. These could, for example, include some characteristics of the financial markets, institutions (formal or informal), and macroeconomic conditions that we fail to capture with the variables outlined in Table 1 (e.g. GDP growth rate, inflation, institutional development index). Given that these regional variables can also capture cultural and other informal institutions, their inclusion imposes a strong test for our main variable of interest, in examining whether venture-level diversity in terms of the founders' national culture plays a role in explaining the admission into accelerator programs.

4. Empirical Results

4.1. Baseline Results

Table 3 contains the results of the baseline model described in Section 3. Column 1 presents a specification that is univariate in nature, including only the cultural diversity measure. In Column 2, we add the characteristics of the venture. In Column 3, we extend the specification of Column 2 by adding the characteristics of the founders. Finally, in Column 4, we present the most comprehensive specification that includes all the previous variables and the country-level controls (macroeconomic and institutional development). Note that in order to facilitate the interpretation of log-odds coefficients accompanying logistic models by default, the coefficients are converted into odds ratios (i.e. e^{β}) and std. errors are accordingly reported using the delta method (i.e. e^{β} x std. error).

The results in Table 3 show that, controlling for a variety of venture and country-level attributes and other fixed effects (e.g. regional, industry, etc.), the cultural diversity amongst a venture's founders has a positive and statistically significant association with the probability of being selected into an accelerator program. In particular, taking into account the full baseline model (Column 4), for every single unit of increase in the diversity index, the odds of a venture being selected increase by 1.090, *ceteris paribus*. To put this into context, the cultural diversity index in our sample takes values between 0 and 5.49. Considering two ventures with these values, it means that, all else equal, the most culturally diverse venture in our sample is 5.98 ($= 1.090 \times 5.49$) times more likely to be selected compared to any other non-culturally diverse venture. Thus, our results support Hypothesis 1a, indicating that the cultural diversity of the founders may serve as a signal that communicates the potential of a diverse team across a range of capabilities, and in turn affects the decisions of accelerators.[24]

4.2. Robustness and Additional Analyses

This section is dedicated to confirming the robustness of the above-mentioned results, as well as to the provision of additional analyses beyond the baseline set discussed in Section 4.1. In Section 4.2.1 we discuss the use of alternative methodological approaches. In section 4.2.2, we test the robustness of the results whilst using alternative indices for cultural diversity. In section

[24] These capabilities include, among others, better environmental scanning and perception of complex environments, better perceptions of trends and risks, better recognition of special customer wishes and market developments, higher ability to prepare for unexpected events, consideration of a larger set of potential solutions, and the ability to arrive at more innovative solutions (Bantel and Jackson, 1989; Umans, 2009; Nielsen and Nielsen, 2013; Duchek et al., 2020).

4.2.3. we conduct further robustness tests. To conserve space, we do not report all these results in tables; however, they are all available from the authors upon request.

4.2.1. Alternative methodological approaches

First, in terms of the methodology, we also treat the model as having no hierarchy whatsoever, thus resorting to eq. (3.3.1) being estimated through a simple logistic regression. Additionally, we estimate it as a linear probability one making using of OLS, (but also as a fractional response model to further constrain it into the [0,1] space), in order to treat the fixed effects included in the specification in a linear fashion, eventually finding no difference in terms of results. Moreover, although error clustering is more of an art (being a design problem) rather than science -given the assumptions one should make on how and whether errors should be clustered (Abadie et al., 2017), by using clustered errors according to the accelerator program, application year or venture, we find no difference whatsoever.

Additionally, the baseline set of results relies on classic macro and institutional controls along with regional fixed effects to capture heterogeneity in patterns across countries. To lessen concerns about different time-constant attributes across countries potentially affecting the selection outcomes, we fit it again using country fixed effects.[25] Again, we find no difference in qualitative terms.

Whilst the use of country fixed effects may alleviate, up to some extent, concerns about potential endogeneity behind the cultural diversity variable and reasons related to potential variance across different countries; we further adopt a two-stage setting that is better fit to deal with issues of endogeneity. In particular, considering cultural diversity as the endogenous variable of interest, and given the binary nature of our dependent variable, we fit three -similar in principle, but different in their application- variations of two-stage models that we explain forthwith. All the two-stage variations of the models that we employ require the use of an instrument set that we discuss in more detail below.

Based on theory, past studies on culture, and data availability, we carefully select two instruments that are: (i) unlikely to have a direct influence on the selection decision of accelerator programs, therefore satisfying the exogeneity requirement of an instrument; (ii)

[25] As in the case of the regional dummies, the use of country fixed effects introduces another strong test as it captures time invariant characteristics like the country-level national culture which changes very little over time.

correlated with the cultural dimensions, therefore satisfying the relevance requirement of an instrument.

The first instrument that we use is agricultural potential. Food supply in general, and agriculture in particular, has been associated to culture in a number of occasions (e.g. Diamond, 1987; Hofstede et al., 2010; Yook, 2013; Hansen et al., 2015). In general, these studies discuss that agriculture brought up changes in the size, cooperation, and hierarchical organization of societies, which along with the emerge of possessions, resulted in societies characterised by with higher power distance, higher collectivism, higher uncertainty avoidance, and higher masculinity (Hofstede et al., 2008, 2010; Yook, 2013; Witzel, 2019).[26] Following Gaganis et al. (2020) we proxy for agricultural potential with the maximum potential caloric yield attainable given the set of crops that were suitable for cultivation in the pre-1500 period (Galor and Ozak, 2016).

The second instrument that we use is the migratory distance from East Africa. The underlying idea is that modern humans have descended from migrations out of Africa to various settlements across the globe, in a journey that started around seventy thousand years ago and intensified about forty thousand years ago (Hofstede et al., 2010), and as discussed by several scholars, migration has implications for culture (Romaniszyn, 2004; Esses, 2018). Furthermore, the migration from East Africa had implications for genetic diversity (Ashraf and Galor, 2013), that has been associated with cultural distances (Desmet et al., 2011).

Based on the above-mentioned instrument set, we first estimate eq. (3.3.1) via a Two-Stage Residual Inclusion model (2SRI) (Terza et al., 2008), where the endogenous variable in question (Diversity) is instrumented in a first stage setting using the two exogenous instruments and the rest of the exogenous variables from the baseline model. Then, the residuals obtained from that model simply enter the second stage as another control variable that saturates the logit model and lessens endogeneity concerns[27]. The second two-stage model variation employed in this study is called 'IVPROBIT', and essentially changes the function *F(x)* of the baseline model to that of a probit nature (instead of the logit one used in our baseline results). Contrary to the 2SRI setting, the IVPROBIT does not employ the residuals, but substitutes the endogenous variable with the estimated -now allegedly exogenous- values calculated in this

[26] A more detailed discussion of the motivation surrounding the selection of these particular instruments is available in the Appendix.

[27] Note that this is a variant of Davidson and MacKinnon's (1993) suggestion of an augmented regression test (often known as Durbin-Wu-Hausman test), according to which a statistically significant coefficient (hereby confirmed) for the residuals of the auxiliary regression included in the second stage means that the estimators of the variables of interest are not consistent on their own, thus suggesting endogeneity.

two-stage model through a maximum likelihood estimator. Diagnostics include a Wald test for exogeneity, rejection of which is indeed successful in our results, confirming what has been also found through the 2SRI model. That is, indeed, there's evidence of endogeneity in the variable of interest, which is mitigated through the employed model. The third variant is a simple 'Two-Stage Least Square' (2SLS) that treats the baseline model in a linear fashion -much like any standard endogeneity alleviation procedure for continuous variables-, yet is convenient in regard to reporting diagnostics for under, over and weak instrumentation, all of which -in our case- confirm the validity of the instrumentation in question. Overall, all three two-stage specifications confirm that the results remain qualitatively similar to the ones reported up to this point. To avoid cluttered tables with many different variants and columns, we only report the 2SRI results in Table 4 (column 1) as it is the most closely specified model to our baseline setting, and the only one out of the 3 variants described above that can still accommodate the multi-level modelling discussed in Section 3.3.

[INSERT TABLE 4 ABOUT HERE]

4.2.2. Altering the cultural diversity index

In this section, we discuss two more robustness tests. First, we consider the additional two indicators of Hofstede (i.e. 'long-term orientation', and 'indulgence') and estimate an "extended" cultural diversity index to the one presented up to this point. Due to missing observations for these two dimensions, this approach reduces our sample by approximately 25%. However, our main findings remain qualitatively similar – only the statistical significance drops to a 5% level (p=0.016).

Second, while being the most widely used indicators of national culture in research across various disciplines, the indicators of Hofstede are not without their criticisms. Therefore, as a robustness test, we use the cultural dimensions that were made available by a more recent and large-scale survey, known as the GLOBE project (House et., 2004).[28] This study proposed the following nine cultural dimensions: (i) uncertainty avoidance, (ii) power Distance, (iii) collectivism I - institutional collectivism, (iv) collectivism II - in-group collectivism, (v) gender

[28] The results of GLOBE are based on responses of about 17,000 managers from 951 organizations functioning in 62 societies throughout the world. The questionnaire reports of managers were complemented by interview findings, focus group discussions, and formal content analyses of printed media. The data collection efforts were finalized around August 1997. When aggregated to the culture level of analysis, responses to the questionnaire provide measurement of the practices and values relevant to the nine core cultural dimensions of GLOBE.

egalitarianism, (vi) assertiveness, (vii) future orientation, (viii) performance orientation, and (ix) humane orientation. As discussed in House et al. (2004), the first six culture dimensions have their origins in the dimensions of culture identified by Hofstede (1980), the other three having their origins on the work of Kluckhohn and Strodtbeck (1961), McClelland (1961, 1985), and Putnam (1993). As in the case of the Hofstede's dimensions, the GLOBE scores for different countries allow an analysis of the cultural differences that exist between these countries. Yet, despite similarities, there are also some differences between the two studies in the way the concept of national culture is represented (Venaik and Brewer, 2010). A welcoming aspect of the GLOBE study is that for each one of the nine dimensions it measures two distinct aspects of national culture, the first being cultural practices as they now exist (i.e. "as is"), and the second being cultural values defined as what societies desire in the future (i.e. "should be"). Replacing the Hofstede based founders' cultural diversity score by the one using the GLOBE data (either the cultural practices or the cultural values scores) does not alter the so far obtained results (the p-value equals 0.022 and 0.028, respectively).

4.2.3. Other robustness tests

In our baseline specification, there exist about a quarter (~24%) of ventures having a single founder. This would by definition render the diversity index equal to 0 and positively skew the distribution of the variable in question. So far, we accounted for this with the use of dummy variables for the number of founders as explained in Section 3.3. As a further test we drop from the analysis all the ventures that have a single founder. We present the estimations in column 2 of Table 4. Our main findings hold.

As mentioned earlier, the EDP application survey asks applicants to identify the top three members of their founding teams and provide their demographic information. However, a follow up question by the EDP asks if there are additional founders, and some applicants respond positively to this question. Given the lack of information for the additional founders, in the analysis presented so far, we focused on the cultural diversity of the top three founders ignoring the additional team members. To address potential concerns, to the extent that it is possible, we re-estimated all the specifications presented in Table 3, whilst dropping from the analysis those ventures reporting that they had at least one more founder (i.e. 4 and above). Using this reduced sample of 6,418 observations, does not alter our main findings. We continue

to find that cultural diversity has a positive and statistically significant association with the likelihood to be selected.

Our sample consists of ventures operating in 106 countries around the globe. About 76% of those ventures operate in developing countries, whilst the remaining quarter operate in developed ones. Conditioning the sample to ventures operating in developed or developing countries only yields a similar set of results, reported in Columns 3 and 4 of Table 4. Interestingly, the odds ratio of the diversity index of ventures in developing countries is slightly higher compared to that in developed countries (1.123 vs 1.119 respectively). Roberts and Lall (2019) point out that the shortcomings of the local ecosystems are amplified in the emerging markets. This means that there would be a higher need for culturally diverse teams that will successfully respond to the challenges, explaining the slightly higher odds ratio. Additionally, Roberts and Lall (2019) highlight that the blueprints used to design the programs in emerging countries often adopt elements from the more-famous programs in the United States and Europe. Therefore, it is possible that accelerators that support ventures from developing countries prefer teams with a founder from the U.S, Europe and other Western countries. This is because entrepreneurs from such developed countries are more likely to be familiar with cultural norms and unspoken rules (Lall et al., 2019), that would help in achieving better fit with these Western-like programs. Earlier evidence also points towards this direction. Using data from nascent ventures from 92 developing countries, Lall et al. (2019) show that ventures with a founder born in a developed country are more likely to obtain external grant financing. If this is the case, then our results could be driven by the accelerators' preference for western founders, rather than diverse teams. To control for this, we re-estimate the specification that is restricted to the developing countries with the addition of a dummy variable that indicates if there is a founder born in a Western country.[29] This variable enters the regression with a positive and statistically significant coefficient (Column 5 of Table 4), providing further support to Lall et al. (2019). However, its inclusion in the regression does not influence our main results. Additionally, in unreported regressions, we examine whether the inclusion of a Western founder could play a moderating role in the relationship between cultural diversity and the admission likelihood. However, the moderation term of cultural diversity with the western founder dummy turns out to be insignificant.

[29] For the list of Western countries, we consult the World Atlas. The results do not change when we replace the dummy variable of having at least one Western founder by the percentage of Western founders.

In the estimations presented so far, we assumed that the founders carry with them the culture of the country of birth. However, one could argue that some founders living abroad immigrated when they were very young and hence, they are characterized by the culture of the host country. Alternatively, one may argue that a founder that has worked abroad for a long time period (e.g. 10 years) has a different cultural perspective than someone who has only lived and worked in the same country.

Nonetheless, it should be noted here that recent evidence by Nguyen et al. (2018) shows that the cultural preferences and beliefs of US-born CEOs who are second- or third-generation immigrants, bear the cultural mark of the countries from which their parents or grandparents have emigrated, affecting their decision making and the firm policies. These findings are in line with international research that suggests that first (Ward, 2007) and possibly second (Giavazzi et al., 2019) generation migrants have a strong orientation towards the culture and attitudes in the country of origin. Additionally, as discussed earlier, Hofstede et al. (2010) also argue that much of the cultural mental programming was acquired in early childhood, a view that appears to be shared by others. For example, Williams (2011) also argues that: "*In essence, we are by nature the sum of childhood experiences which invariably are linked to the values and traditions of our families*" (p. 451). Consequently, as discussed in Frijns et al., (2016), when a person relocates to another country, this person does not immediately adopt the cultural values of the new country of residence, with acculturation being a gradual, complex, and lengthy process.

Based on the above discussion, as it concerns the first argument, we believe that in our context where the can be only cases of founders that are first-generation immigrants (i.e. born in one country and immigrated to another, even at a young age) the expected changes in culture would be minimal (if any). As it concerns the second argument about the accumulation of work experience abroad, with the average founding team age for the entire EDP sample being roughly 35 years (Roberts and Lall, 2019), we believe that it is possibly even more unlikely.

However, to lessen concerns, to the extent that it is possible with the data in hand, we conduct two tests.[30] First, we exclude from the regressions ventures that have one or more

[30] Alternatively, one could construct a more general index that would incorporate information about the time spent in the country of birth, the current country of residence (if different), and the countries of prior work experience abroad (if different). Unfortunately, the time of immigration (for founders residing in a country different than the one of birth) or the total time spent working abroad is not available in the dataset. While information about the time period of the last two jobs abroad is available, the lack of information about other periods of residence abroad along with the arguments about the stickiness of culture that were discussed in the text, make us believe that the construction of such an index could be problematic in our case. First, we would have to make assumptions as for the years that we have no information. Then, we would have to make assumptions as for whether we should consider or simply ignore very short time periods abroad (e.g. 4-5 years), as the literature suggests that such short-

founders that reside in a country different than the one of birth. Second, we restrict the sample to ventures whose founders - at the time of the application - reside in the country of birth and at the same they have not worked abroad in their last two jobs. In both cases, our main results hold.

5. Implications of the study

Our work contributes to several bodies of research and has implications for new ventures seeking admission into accelerator programs. First, we extend the growing literature on accelerators that has so far focused primarily on other issues, like the design and role of accelerators (Cohen et al., 2019; Kohler, 2016; Moschner et al., 2019; Pauwels et al., 2016), the potential effects of accelerators on new venture outcomes (Gonzalez-Uribe and Leatherbee, 2018; Del Sarto et al., 2020; Yu, 2020), and the potential effects of accelerators on the regional entrepreneurial ecosystem (Fehder and Hochberg, 2019; Bone et al., 2019). Additionally, most of the studies focus on corporate accelerators (e.g. Kohler, 2016; Moschner et al., 2019; Shankar and Shepherd, 2019), and only a few of them investigate impact-oriented accelerators as we do (Lall et al., 2020; Yang et al., 2020). Yang et al. (2020) point out that the legitimacy assigned to new ventures receiving accelerator support, together with the importance of selection decisions on the efficacy of the acceleration process, has already resulted in a call for research on the decision processes of the accelerators' cohort selection (Drover et al., 2017); however our knowledge around this issue remains limited (Yang et al., 2020). Our study extends this strand of the literature and sheds more light on the factors that influence the admission decisions of impact-oriented accelerators.

Second, we extend earlier work on signalling theory in entrepreneurial financing decision making, by proposing that the cultural diversity of the founding team may serve as a signal to accelerator decision makers. Theory suggests that a venture's action may result in a positive signal or a negative signal or a signal that will be irrelevant and not attract the attention of the receiver that will take the decision (i.e. accelerator). Our empirical results show that there exists a positive and statistically significant association between cultural diversity and the likelihood to be admitted into an impact-oriented accelerator program.

The above results have also practical implications for new venture founders, because they confirm that cultural diversity can indeed serve as signal to enhance the admission

time periods would have no impact on deep rooted cultural values and beliefs. Therefore, we have not pursued this issue further and we offer the two alternative tests discussed in the main text. We hope that future research will be able to address this issue.

likelihood. With admission rates being at around 10%, and limited feedback provided by accelerators, such knowledge could help the founders to establish an appropriate team and enhance their chances of submitting a successful application. Of course, acceptance into an accelerator program is not the primary aim of the founders when forming a new venture, and as such they should consider potential costs associated with the cultural diversity of their team. For example, being selected in an accelerator is neither enough nor necessary condition for being successful in the future, as many successful ventures never went to accelerators. At the same time, as we discuss in more detail in the next section, it is possible that other types of accelerators or other types of resource providers (venture capitalists, business angles) do not value cultural diversity as much as impact-driven accelerators, and this remains an open question to be addressed in future research.

At the same time our results do not imply that other criteria do not matter or that entrepreneurs should add founding members who were born in different countries, rather than those who are experienced, educated, and competent. Our results simply show that, holding other things constant, the cultural diversity of the founding team matters. In other words, controlling for team-specific (e.g. education) and venture-specific (e.g. past revenues) attributes we continue to find that cultural diversity is positively associated with the admission into acceleration programs.

Our work also relates to the entrepreneurial finance literature that investigates the decision making of a variety of market actors (accelerators, business angels, venture capitalists, IPOs). Within this context, we find that the revenues in the year prior to the application and the equity investments from outside sources since the establishment of the venture are positively associated with the likelihood to be admitted into the acceleration program. As it concerns the characteristics of the founding team, we find that its average age is negatively associated with the decision to be admitted into a program, while prior acceleration experience, education level and the percentage of female founders enter the regressions with a positive and statistically significant coefficient. The latter finding is particularly interesting. While this contradicts evidence that the proportion of venture capital investments in women-led businesses is extremely small (Green et al., 2001; Guzman and Kacperczyk, 2019), it appears to be in line

with facts about female admissions into social impact accelerators.[31,32] For example, while Yang et al. (2020) find a gender bias in the creditability assigned to social and economic signals that originate from the lead founder, they also mention that the social impact accelerators in their sample accept female-led startups at a substantially higher rate than male-led ones (19% vs. 14%, respectively). This finding is also consistent with recent research on crowdfunding, concluding that female entrepreneurs are more likely to be funded than men (Johnson et al., 2018).[33]

Finally, our research contributes to a recent strand of the literature on the diversity of the top management team, that goes beyond the use of a simple ratio of foreign directors, and looks at specific aspects of the country of origin, like genetic diversity (Delis et al., 2017), and cultural diversity (Frijns et al., 2016). However, these studies focus on the board of directors of large publicly listed corporations rather than the founding team of new ventures. Additionally, they focus on firm performance rather than the role of cultural diversity as a signal that appears to be associated with the admission decision into an accelerator program.

6. Limitations and directions for future research

As most empirical studies, our work is not without limitations. First, the EDP survey asks the respondents to identify up to three top founders of the startup. However, it also asks if there are additional founders, for which no information is provided. To tackle this shortcoming, to extent that is possible, we followed two approaches. First, we retained all the firms in our sample, under the assumption that only the top three founders matter. Second, we excluded from the analysis firms that had more than three founders. The similarity in the obtained results, provides some re-assurance, that our findings our robust. However, we hope that this issue will

[31] Green et al. (2001) mention that one potential reason is that the the predominant industry choices of female entrepreneurs appear to be mismatched with the industry preferences of venture capitalists. The results of Guzman and Kacperczyk (2019) partially support the existence of a mismatch. Their estimations reveal that female-led ventures are 63 percentage points less likely than male-led ventures to obtain external funding (i.e., venture capital). However, while about one third of this gap likely reflect investors' gendered preferences, the remaining two thirds are due to gender differences in initial startup orientation, with women being less likely to find ventures that signal growth potential to external investors.

[32] It should be noted that in the wake of the murder of George Floyd and nationwide anti-racism protests in the U.S. in 2020, venture capital firms are making newfound commitments to invest in, or at least evaluate, potential investments that are led by diverse founders. In general, there have been calls for institutional investors and others to request changes from VCs so that high-potential women and multicultural founders will become the norm rather than the exception (Hang and Van Lee, 2020; Grant, 2020).

[33] As it concerns other sources of entrepreneurial finance, Becker-Blease and Sohl (2007) find that while women seek angel financing at rates substantially lower than that of men, they have an equal probability of receiving investment. Similarly, Guzman and Kacperczyk (2019) find that conditional on the reception of external funds (i.e., venture capital), women and men are equally likely to achieve exit outcomes, through IPOs or acquisitions.

be addressed in a more formal way in future research, should the EDP dataset start including information for all the founders.

Second, we believe that using a cross-country dataset provides an opportunity to put together a large sample and examine what happens across the globe. However, as discussed in Yang et al. (2020) who use the same approach, it can also introduce some drawbacks because of idiosyncratic differences in the characteristics of the decision makers of the accelerator programs and their countries. This could include for example different target outcomes, the use of expert panels versus alumni or other experts as electors, and other differences in the selection practices. Unfortunately, the dataset does not provide any information on the decision-makers, the accelerators, and the countries where they are located. Hence, we attempted to control for this with the use of fixed effects for the accelerator programs, the use of a multi-level structure that allows for intra-cluster correlation at the two levels that were set (i.e. ventures nested in accelerator programmes), and the instrumental variable approaches.

Third, the above-mentioned lack of information about the accelerators, does not allow us to explore a potential cultural fit between the accelerator and the startup venture. Existing studies discuss that fit and similarity bias plays a role in the decisions of other investors in the entrepreneurial ecosystem, like business angels (Mason and Stark, 2004) and venture capitalists (Franke et al., 2006). Research on venture capitalists shows that this extends to ethnic homophily with a shared ethnicity between the founder and the venture capitalist increasing the probability of an investment match (Bengtsson and Hsu, 2015). Roberts and Lall (2019) point out that while almost all the high-income country ventures in the EDP sample apply to accelerators in their home countries, roughly 43% of the emerging-market ventures are attracted to accelerators from other countries. Therefore, should the necessary data become available in the future, this would be another interesting question to be explored in the case of accelerators' decision making.

Fourth, the accelerators that are included in the database and subsequently in our sample are impact-oriented accelerators. However, signals can be interpreted differently by receivers in terms of strength and meaning (Eddleston et al., 2016). Therefore, we do not know if the findings could be generalized to other types of accelerators like private seed accelerators or corporate accelerators. At the same time, we do not know if the cultural diversity of the founders could serve as a useful signal in the future life of a venture. Ko and McKelvie (2018) show that different venture characteristics play critical signalling roles at different stages of venture's resource acquisition. They find that founders' founding experience and education have the greatest effects for acquiring first-round financing from venture capitalists and angel

investors; however, in later stages, only the signalling effect from education remains. Similarly, Hoenen et al. (2014) find that patent applications and granted patents increased the level of funding during the first round of venture capital financing but have no effect on the second round. As more information about the venture becomes available the information gap between entrepreneurs and prospective investors is assumed to narrow over time (Hoenen, 2014; Colombo, 2021). Unfortunately, the anonymity of the new ventures in the dataset that we use does not allow us to complement it with external information as for whether or not they were successful in securing additional funding in the future. Future research, using other datasets, could possibly explore if cultural diversity retains its significance, by considering its role while seeking resources from different market actors like accelerators, business angels, venture capitalists, and the public (i.e. IPOs).

Finally, as explained earlier, we had to work under an assumption that is common on the literature that associates natural culture with firm-level decisions. That is national culture refers to the collective programming of the mind that distinguishes individuals of one country from individuals of another society. However, this does not mean that all individuals- including entrepreneurs- from a given country are necessarily characterised wholly or partly by the main attributes of the country's national culture. Future, research could possibly rely on interviews with founders of both ventures and accelerators as for their cultural values and beliefs, and therefore shed additional light on the selection decision.

While these and other future research directions would be interesting, the present study aids recent efforts to better understand the driving factors in the admission decisions of accelerator programs and contributes to this literature by being the first study that investigates empirically the cultural diversity of the founding team. Yet, we advise readers to interpret our findings with the above-mentioned limitations in mind.

7. Conclusions

The importance of having a diverse founding team has been emphasized in several occasions in recent years, with the underlying idea being that ventures led by diverse teams leverage a range of perspectives that enable them to achieve their targets in the demanding environment of a globalized economy.

In the present study, we use a cross-country sample of more than 9,000 startup ventures from over 100 countries, to examine the association between the cultural diversity in the

founding team and the likelihood of the admission of startup ventures into impact-oriented acceleration programs during the period 2013-2018. There are several reasons for which we focus on this type of accelerators. First, the ventures that apply to these programs usually aim to balance often conflicting targets like financial, social and environmental ones. This enhances substantially the challenges for the founding team, resulting in an interesting setting for testing our hypothesis. Second, social impact accelerators have been growing at a rapid pace in recent years, and they can become critical components of underdeveloped ecosystems. This is because they support promising, but often marginalized, entrepreneurs who tackle social and environmental challenges, like generating employment, improving incomes for people that currently live in poverty, and producing innovative business models that give underserved people access to essential products and services (Roberts and Lall, 2019). Hence, knowledge of the driving factors that drive their decisions is important. Nonetheless, research on social impact accelerators remains scarce, especial when it comes to their decision process.

Building on the upper echelon theory and signalling theory we hypothesize that the formation of multi-cultural founding teams could serve as a signal from applicants to social impact accelerators, to communicate the potential of higher capacity of the venture founding team at solving complex tasks and coming up with innovative solutions, an ability that is associated with culturally driven differences in experiences, perceptions, values, and assumptions about future events, ultimately leading to a greater pool of ideas.

The results confirm this hypothesis, showing that cultural diversity has a positively and statistically significant association with the likelihood to be admitted. These results hold while controlling for various other characteristics of the founding team, the venture, the country of operations, and other fixed effects for the acceleration program. Additionally, we show that they hold when addressing potential endogeneity concerns.

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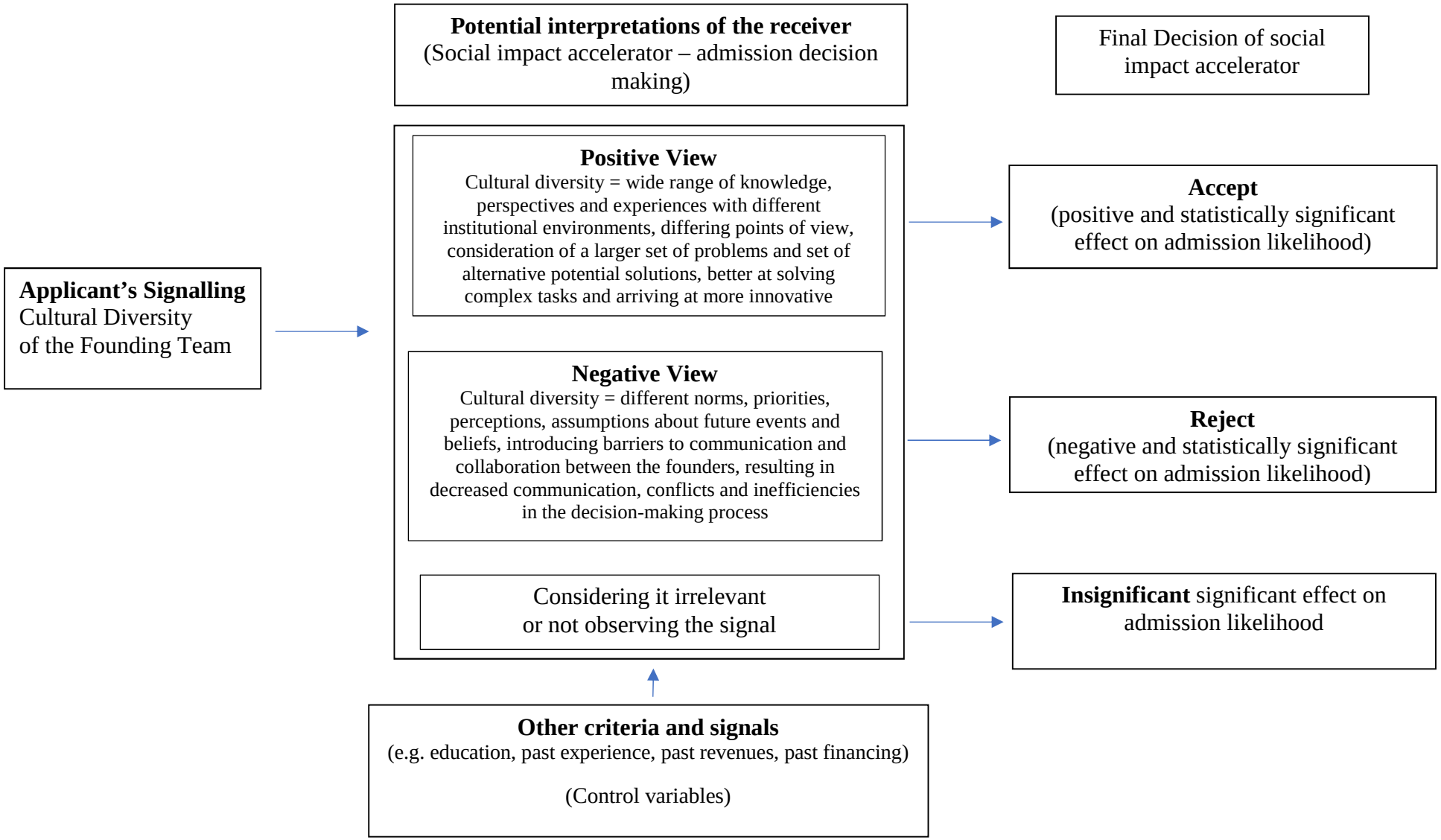
Figure 1 – Conceptual Framework



TABLES

Table 1: Summary statistics

Variable	Obs.	Min	25th	Mean	Median	75th	Max	Std. Dev.
Dependent variable								
Selected	9,273	0	0	0.19	0	0	1	0.39
Main explanatory variable								
Cultural Diversity	9,273	0	0	0.29	0	0	5.49	0.85
Venture-level control variables								
Years Active	9,273	0	1	2.16	1	3	18	2.66
Revenues in t-1 (in USD)	9,273	0	0	41,170.29	0	13,000.00	1,614,000.00	140,149.30
Non-for-Profit type	9,273	0	0	0.09	0	0	1	0.29
Venture has social motives	9,273	0	1	0.9	1	1	1	0.3
Intellectual Property	9,273	0	0	0.55	1	1	1	0.49
Model invention-based	9,273	0	0	0.5486	1	1	1	0.49
Equity since founded (in USD)	9,273	0	0	34,323	0	0	1,085,000	148,715
Founder-level control variables								
% of Females	8,369	0		0.32			1	0.37
Average age among founders	8,369	21	28.5	35.38	33.5	40.67	62	9.38
Prior ventures founded (Average)	8,369	0	0	0.8	0.5	1	10	1.09
Education	8,369	0	0.33	1.11	1	1.66	5	0.94
Report prior accelerator	8,369	0	0	0.33	0	1	1	0.471
Macro-level controls								
Institutional Index	576	-1.57	-0.54	0.14	-0.14	0.85	1.86	0.83
GDP Growth (%)	576	-3.31	1.93	3.36	3.31	5.01	8.17	2.61
Inflation rate (%)	576	-0.52	1.02	4.07	2.82	5.74	17.15	4.25

Note: All variables' statistics are reported in the conditional sample of the baseline model, i.e. either Column 3 or 4 of Table 3. The only exception is in the macro-level controls, which are obtained using a panel of only country-level data to avoid over-weighting them according to the distribution of countries in those samples. Variables are described in Table A.1.

Table 2: Correlation Matrix (cont'd)

#	**Variable / #**	1	2	3	4	5	6	7	8
1	Cultural Diversity	1							
2	Log (Years firm is active)	-0.0209**	1						
3	Log (Revenues in t-1)	-0.0164**	0.5438***	1					
4	Non-for-profit type	-0.0133**	0.1571***	0.0593***	1				
5	Social Motives	-0.0026	0.0627***	0.0518***	0.0738***	1			
6	Model invention-based	0.0421***	0.0047	-0.0273***	-0.1201***	0.0345***	1		
7	Intellectual Property	0.0247***	0.1720***	0.1693***	-0.0665***	0.0598***	0.1973***	1	
8	Log (Equity since founded)	0.0891***	0.0845***	0.1479***	-0.1089***	0.004	0.1247***	0.1868***	1
9	% of Females	-0.0354***	0.1023***	0.0735***	0.1308***	0.0824***	-0.1140***	-0.0498***	-0.1350***
10	Average age among founders	0.0162**	0.3630***	0.1873***	0.0541***	0.0308***	0.0177	0.1350***	0.0477***
11	Log (Prior ventures founded [Average])	0.0418***	0.0299***	0.0658***	-0.0837***	0.0358***	0.0728***	0.123***	0.1047***
12	Education	0.1514***	0.0534***	0.0719***	0.0316***	0.0908***	0.0844***	0.1116***	0.1498***
13	Reported prior accelerator	0.0569***	0.0745***	0.1006***	-0.0072	0.0367***	0.1073***	0.1325***	0.1490***
14	GDP Growth	-0.0548***	0.0467***	0.0618***	0.0215***	0.0379***	0.0215***	-0.0011	-0.0173
15	Inflation	-0.1095***	0.0339***	0.0481***	-0.0135**	0.0457***	-0.0128**	-0.0169**	-0.0775***
16	Institutional Index (WGI)	0.1575***	-0.0730***	-0.1092***	0.0245***	-0.0639***	0.0159**	-0.0161**	0.1138***

NB: All variables' pairwise correlations are calculated and reported in the conditional sample of the baseline model, i.e. either Column 3 or 4 of Table 3.

Table 2: Correlation Matrix (cont'd)

#	**Variable / #**	9	10	11	12	13	14	15
9	% of Females	1						
10	Average age among founders	0.0472***	1					
11	Log (Prior ventures founded [Average])	-0.1435***	0.1814***	1				
12	Education	-0.0651***	0.1780***	-0.0083	1			
13	Reported prior accelerator	-0.0105	-0.0214***	0.0223***	0.0911***	1		
14	GDP Growth	0.0526***	0.0057	0.0015	0.1127***	-0.0069	1	
15	Inflation	0.0013**	-0.0897***	0.007**	-0.0401***	0.0313***	0.0734***	1
16	Institutional Index (WGI)	-0.0941***	0.0817***	-0.0146**	0.0203**	-0.0017	-0.3364***	-0.5987***

NB: All variables' pairwise correlations are calculated and reported in the conditional sample of the baseline model, i.e. either Column 3 or 4 of Table 3.

Table 3. Baseline results

VARIABLES	(1) Bivariate	(2) + Venture controls	(3) + Founder controls	(4) + Country controls
Cultural Diversity	1.098***	1.106***	1.088**	1.090**
	(0.0365)	(0.0382)	(0.0380)	(0.0384)
Log (Years firm is active)		1.003	1.047	1.049
		(0.0538)	(0.0595)	(0.0601)
Log (Revenues in t-1)		1.066***	1.064***	1.065***
		(0.00796)	(0.00802)	(0.00812)
Non-for-profit type		0.888	0.882	0.871
		(0.107)	(0.108)	(0.107)
Social Motives		0.949	0.927	0.908
		(0.0982)	(0.0965)	(0.0960)
Model invention-based		1.113*	1.097	1.116*
		(0.0725)	(0.0722)	(0.0745)
Intellectual Property		1.019	1.018	1.009
		(0.0654)	(0.0662)	(0.0665)
Log (Equity since founded)		1.066***	1.065***	1.064***
		(0.00777)	(0.00789)	(0.00798)
Reported prior accelerator			1.261***	1.260***
			(0.0841)	(0.0850)
% of Females			1.283***	1.278***
			(0.114)	(0.114)
Average age among founders			0.990***	0.989***
			(0.00368)	(0.00370)
Log (Prior ventures founded [Average])			0.943	0.944
			(0.0641)	(0.0648)
Education			1.179***	1.173***
			(0.0481)	(0.0483)
GDP Growth				1.012
				(0.0323)
Inflation				0.957**
				(0.0205)
Institutional Index (WGI)				0.908
				(0.0980)
Constant	0.209***	0.143***	0.147***	0.204***
	(0.0513)	(0.0426)	(0.0477)	(0.0837)
Observations	9,988	9,273	8,369	8,369
# of Founders Dummies	YES	YES	YES	YES
Program Dummies	YES	YES	YES	YES
Sector Dummies	YES	YES	YES	YES
Year Dummies	YES	YES	YES	YES
Regional Dummies	YES	YES	YES	YES

Notes: Standard errors in parentheses. Multi-level logit model estimated via generalised linear mixed-effects model (GLMM), where ventures (level 1) are nested within accelerator programs (level 2). Coefficients are reported as odds ratios (e^{β}) and std errors are reported using the delta method (e^{β} x std. errors). Variables defined in Table A.1. *** p<0.01, ** p<0.05, * p<0.1

Table 4. Robustness and additional analyses

	(1)	(2)	(3)	(4)	(5)
VARIABLES	2SRI	Excl. Single Founders	Developed	Developing	Developing & Western founder in the team
Cultural Diversity	1.094**	1.105***	1.119***	1.123**	1.117***
	(0.0394)	(0.0396)	(0.0407)	(0.0534)	(0.0486)
$\varepsilon_{\text{cultural diversity}}$	0.711**				
	(0.102)				
Western founder among team					3.046***
					(0.537)
Log (Years firm is active)	1.050	1.091	1.150	1.048	1.042
	(0.0603)	(0.0726)	(0.136)	(0.0705)	(0.0700)
Log (Revenues in t-1)	1.065***	1.069***	1.075***	1.058***	1.058***
	(0.00814)	(0.00918)	(0.0152)	(0.00980)	(0.00982)
Non-for-profit type	0.862	0.775*	1.480**	0.557***	0.554***
	(0.106)	(0.111)	(0.295)	(0.0951)	(0.0945)
Social Motives	0.906	0.943	0.939	0.902	0.908
	(0.0957)	(0.114)	(0.203)	(0.111)	(0.112)
Model invention-based	1.121*	1.085	1.329**	1.075	1.083
	(0.0751)	(0.0821)	(0.189)	(0.0827)	(0.0836)
Intellectual Property	1.010	0.987	0.940	1.022	1.027
	(0.0666)	(0.0738)	(0.124)	(0.0789)	(0.0794)
Reported prior accelerator	1.267***	1.238***	1.267*	1.253***	1.259***
	(0.0873)	(0.0938)	(0.163)	(0.101)	(0.102)
Log (Equity since founded)	1.064***	1.059***	1.052***	1.069***	1.068***
	(0.00816)	(0.00868)	(0.0138)	(0.00997)	(0.00997)
% of Females	1.267***	1.052	1.239	1.301**	1.300**
	(0.114)	(0.123)	(0.202)	(0.142)	(0.140)
Average age among founders	0.989***	0.989**	0.998	0.985***	0.986***
	(0.00371)	(0.00436)	(0.00653)	(0.00460)	(0.00455)
Log (Prior ventures founded [Average])	0.947	0.941	0.800	0.986	1.000
	(0.0656)	(0.0764)	(0.109)	(0.0800)	(0.000690)
Education	1.180***	1.164***	1.094	1.187***	1.166***
	(0.0542)	(0.0512)	(0.0841)	(0.0595)	(0.0589)
GDP Growth	1.013	1.017	0.819	1.048	1.058
	(0.0324)	(0.0357)	(0.174)	(0.0376)	(0.0370)
Inflation	0.956**	0.966	0.945***	0.968	0.975
	(0.0207)	(0.0232)	(0.0193)	(0.0217)	(0.0220)
Institutional Index (WGI)	0.912	0.949	1.133	0.783	0.787*
	(0.101)	(0.112)	(0.552)	(0.123)	(0.104)
Constant	0.207***	0.201***	0.0279***	0.136***	0.122***
	(0.0856)	(0.0900)	(0.0349)	(0.0618)	(0.0557)
Observations	8,369	6,532	2,014	6,355	6,355
# of Founders Dummies	YES	YES	YES	YES	YES
Program Dummies	YES	YES	YES	YES	YES
Sector Dummies	YES	YES	YES	YES	YES
Year Dummies	YES	YES	YES	YES	YES
Regional Dummies	YES	YES	YES	YES	YES
1st stage: F-statistic	40.67				
1st stage: Instruments					
Pre 1500 Max Calories Max	1.000***				
	(3.42e-05)				
Migratory Distance from East Africa	0.994**				
	(0.00361)				

Notes: Standard errors in parentheses. Multi-level logit model estimated via generalised linear mixed-effects model (GLMM), where ventures (level 1) are nested within accelerator programs (level 2). Coefficients are reported as odds ratios (e^{β}) and std errors are reported using the delta method (e^{β} x std. errors). Variables defined in Table A.1. *** p<0.01, ** p<0.05, * p<0.1

Table A.1. Variable description

Variable	Description	Source
Selected	Dummy variable, takes '1' if a venture was selected for the accelerator program, and '0' otherwise.	EDP
Cultural Diversity	Cultural diversity index computed as in Frijns et al. (2016). See Section 3.2.2 for more details. This takes into account the four cultural dimensions of the Hofstede framework, i.e. uncertainty avoidance, power distance index, individualism and masculinity.	Authors' elaboration on EDP data in conjuction with Hofstede Insights / GLOBE
% of Females	The percentage of females amongst a venture' founders.	Authors' elaboration on EDP data
Average age among founders	The average age across a venture's founders.	Authors' elaboration on EDP data
Prior ventures founded	The average number of ventures each venture's founders founded prior to this venture.	Authors' elaboration on EDP data
Education	The average of venture founders' educational score, which is comprised of an aggregation of points, 1 for an Undergraduate, 2 for a Postgraduate and 3 for a Doctoral degree. See Papadimitri et al. (2020) for more information.	Authors' elaboration on EDP data
Years firm is active	Number of years since the venture was founded.	Authors' elaboration on EDP data
Revenues	Venture's revenues in the last fiscal year prior to its application. Figures in USD.	EDP
Equity since founded	The amount of equity financing a venture obtained from all potential sources since founded.	
Non-for-Profit type	Dummy variable, takes '1' if a venture is of non-for-profit type, and '0' otherwise.	EDP
Social Motives	Dummy variable, takes '1' if a venture has social motives, and '0' otherwise.	EDP
Invention-based	Dummy variable, takes '1' if a venture's model is invention-based, and '0' otherwise. This is based on the answer to the question "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?).	EDP
Intellectual Property	Dummy variable, takes '1' if a venture has any of the following: patents, trademarks or copyrights.	Authors' elaboration on EDP
Reported prior accelerator	Dummy variable, takes '1' whether founders participated in any prior accelerator programs.	
Institutional Index	Non-weighted average of institutional quality indicators from the 'Worldwide Governance Indicators' database (Kaufmann et al., 2011).	Authors' elaboration on World Bank data
GDP Growth rate (%)	GDP growth rate (in %), referring to the country in which the venture operates.	IMF
Inflation rate (%)	Inflation rate (in %), referring to the country in which the venture operates.	IMF

Appendix - *Agriculture and national culture*

Hofstede et al. (2008) argue that societies with an old tradition of agriculture are, in general, uncertainty avoiding whereas those that concentrate on fishing or trading are uncertainty tolerant. Further to this, Meggers (1954) discusses that in places that are unsuitable for agriculture, populations will turn to subsistence derived from hunting, fishing and gathering that normally supports only small groups that must be constantly on the move. This results in a social organization that is formed around kinship lines, with the social unit being a single family, or at best an extended family or lineage. Therefore, one would expect that in places that are unsuitable for agriculture, a culture of individualism would prevail. On the other hand, as discussed in Hofstede et al. (2010), farmers had to collaborate in monotonous, season-bound work, and they lived in much greater numbers than hunter-gatherers or herders. Hence, as they mention, this way of life requires a certain meekness that could be related to higher collectivism. Along the same lines, Yook (2013) highlights that "*To take an example of cultural programming, we look at agricultural societies' collective patterns. Agrarian societies tend to be collective in nature. Irrigation as a necessity in agricultural settings has led to the need to work collectively for farmers to survive and to fulfil human goals. In urban areas, that collective action needed to irritate agricultural terrain is not as valued*." (p. 43). Indeed, Ang (2019) documents empirically that agricultural legacies have structured the individualist traits among individuals, pre-industrial ethnic groups, and countries.

Turning to power distance, Hofstede et al. (2010) provide at least two reasons for which it could be related to agricultural, with societies with a long-standing agricultural tradition being more hierarchical. First, possessions introduced an inherited hierarchy in agricultural society. Second, large power distance is one of the adaptations to life in a large, anonymous society that was made possible by agriculture.[34] Diamond (1987) also argues that the emerge of agriculture was associated by social inequality. As discussed further in Witzel (2019), this happened because those who produced the food lost power to those who lived off the surpluses generated by agricultural labourers, with these societies becoming hierarchical with a high degree of power distance.

The way in which a country deals with gender roles, has also been associated to agriculture (Diamond, 1987; Hansen et al., 2015). For example, Hansen et al. (2015) show that

[34]For example, Morgan (1877) point out that dense populations in limited areas became possible with agriculture, arguing that "*Prior to field agriculture it is not probable that half a million people were developed and held together under one government in any part of the earth*" (p. 27).

in societies with long histories of agriculture, there is higher gender inequality, possibly because of more patriarchal values and beliefs regarding the role of women in society. Additionally, Hansen et al. (2015) refer to studies which assert that agriculture enhanced gender inequality (Diamond, 1987) as well as that women were more independent in hunter-gatherer than in agricultural societies (Iversen and Rosenbluth, 2010). Finally, they refer to studies that associate the value attributed to women with the degree to which a society relies on hunting and gathering for the accumulation of the daily calorie intake. Based on this, Gaganis et al. (2020) suggest that as the societies moved to agriculture, the maximum potential caloric yield attainable became an important factor, in shaping beliefs about the two genders, subsequently influencing the masculinity versus femininity cultural dimension of a society.

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