Crowdfunding to overcome the liability of outsidership: Drivers of immigrant entrepreneurs' fundraising performance

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Abstract

This paper examines the drivers of immigrant entrepreneurs' performances in crowdfunding. Drawing on the immigrant entrepreneurs and crowdfunding literatures and using data from 2,231 Kickstarter campaigns, we explore the boundary conditions which allows some migrant entrepreneurs to perform better that their local-born peers. We suggest and found that crowdfunding by allowing immigrants entrepreneurs to develop their own digital network within the platform and to attaint their home-country network offers an attractive mechanism to finance their projects. Results also suggests that high-skilled migrants are better placed to tap into different networks and outperform their local-born peers. Finally, we show that also low-skilled migrants can outperform local born peers and achieve performances comparable with those of high skilled immigrant crowdfunders by developing a network within the platform.

1. Introduction

Foreign-born entrepreneurs are often viewed as playing an important role in the host-countries' economies. They are reported to contribute to the creation of new business in high-tech sectors (Brzozowski et al., 2015; Fairlie, 2012; Hart and Acs, 2011; Kerr and Kerr, 2018; Saxenian, 1999; Wadhwa et al., 2007b, 2007a), to increase employment rate, and to generate positive externalities in terms of knowledge diffusion (e.g. Hornung, 2014) and innovation (e.g. Hunt and Gauthier-Loiselle, 2010). However, compared to local-born entrepreneurs, they suffer greater difficulties in running new businesses, as they have very limited access to finance (Fairlie, 2012). This market imperfection has clear implications in terms of efficient allocation of financial capital among firms(Kerr and Nanda, 2009), and might prevent host-countries to fully experience the abovementioned benefits associated to migrant entrepreneurs. Nonetheless, because of limited data availability (Fairlie, 2012), there is shortage of research on how foreign-born entrepreneurs access the financial capital to support their entrepreneurial activities.

Only recently, to explain the difficulties faced by foreign-born entrepreneurs in accessing financial resources, scholars have advanced the concept of liabilities of outsidership, which suggests that foreign-born entrepreneurs are outsiders in the host country due to the limited number of local relationships (Johanson and Vahlne, 2009; Mata and Alves, 2018). As such, they cannot tap effectively into their network to access financial resources (Hsu, 2007; Uzzi, 1997, 1999). These studies contribute to the academic debate by pointing out the importance for foreign-born entrepreneurs of being embedded in a local network to access financial resources. However, their focus is predominantly on face-to-face relationships established in the host-country and on the financing provided by proximate investors. By comparison, these studies paid limited attention to novel forms of crowd-based online fundraising, which are based on digital networks (e.g. Mollick, 2014) and potentially allow to tap also into distant investors (Agrawal et al., 2015).

The purpose of this work is to contribute to fill this gap, by bringing crowdfunding to the fore of immigrant entrepreneurship research. We argue that there are reasons to expect that crowdfunding might provide a setting that reduces immigrant entrepreneurs' liability of

outsidership. First, in crowdfunding, transactions occur online; hence, many distance-sensitive costs, which hamper early stage investments, are diminished (Agrawal et al., 2015). As such, foreign-born entrepreneurs may have the opportunity to rely on their own networks outside the host-country to finance their projects. Second, crowdfunding is reported as an effective setting to favor social interaction and allows entrepreneurs to develop a digital network of ties with other individuals active on the same platform (Butticè et al., 2017). Hence, by relying on crowdfunding, foreign-born entrepreneurs can develop internal social capital within the crowdfunding platform (Colombo et al., 2015), which might compensate for their lack of local network. Third, in crowdfunding, backers are often driven by prosocial motivation (Allison et al., 2015), and they might be willing to support projects proposed by entrepreneurs who cannot access other financial channels (Walthoff-Borm et al., 2018). Accordingly, immigrant entrepreneurs could potentially tap into these backers to obtain financial resources.

Moving from these premises, based on the literature on crowdfunding and immigrant entrepreneurship, we develop a set of hypotheses explaining the drivers of immigrant entrepreneurs' performances in crowdfunding. In doing so, we consider that migrant entrepreneurs using crowdfunding are heterogeneous in their level of human capital, and we discuss how such heterogeneity affect our theory.

To test our hypotheses, we built a novel database of 2,231 campaigns launched on Kickstarter between 2016 and 2017 and located in the US. Since the information on entrepreneurs' ethnic background was not available, we develop an original methodology to identify immigrant entrepreneurs. We based this search on the textual analysis of the description of their campaigns, which is a common approach in the context of crowdfunding (Allison et al., 2013, 2015; Butticè et al., 2017; Calic and Mosakowski, 2016; Cumming et al., 2017, 2017; Siering et al., 2016; Xu et al., 2014). Through this methodology, we identified 309 immigrant crowdfunders and 1992 local peers who declared their nationality in the corpus of their campaigns and located their projects in the US. This suggests that about 13.8% of the crowdfunding campaigns in our final sample is launched by immigrant entrepreneurs. This estimate is in line with previous studies about immigrant entrepreneurship in knowledge related industries (Fairlie, 2008; Hart and Acs, 2011) and suggest that immigrant entrepreneurs in crowdfunding platforms is a relevant phenomenon, which deserves attention for scholar researchers.[1]

Our multivariate analyses show that, other factors remaining the same, immigrant entrepreneurs, on average attract a smaller crowd of backers located within US. However, they are also associated to a larger number of backers outside the US, that we show are mainly represented by immigrant entrepreneurs' home-country backers. This dynamic allows immigrant entrepreneurs achieving fundraising performances comparable to those of local-born entrepreneurs. When considering migrant crowdfunders' heterogeneity in terms of human capital, our models highlight that human capital positively moderates the attraction of backers inside and outside the US. All in all, this allows the campaigns launched by high-skilled migrants to achieve better fundraising performances compared both with low-skilled migrant crowdfunders and local-born ones. A similar dynamic is detected also when looking at the social capital developed within the crowdfunding platform. Immigrant crowdfunders who have developed a sufficiently large network of contacts within the platform attract comparatively

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[1] According with Fairlie (2008), immigrant entrepreneurs start 17 percent of all new businesses in the United States and represent 13 percent of all business owners. Saxenian (1999) found that 24 percent of Silicon Valey starts-ups between 1980 and 1998 had a CEO with Chinaise or Indian Surnames. At the national level, Wadhwa et al. (2007b) found that 25 percent of high-tech companies between 1995 and 2005 had a foreign-born CEO or Chief Technical officer (CTO). Twenty-five percent of engineering and technology companies started in the past decade were founded by immigrants (Wadwha, et al. 2007). Kerr and Kerr (2018) found that around 25 percent of US firms are founded by immigrants, who are particularly present in states like California or New York.

more backers inside and outside the US. Again, this allows the campaigns launched by these migrants to achieve better fundraising performances compared with both other migrant crowdfunders and local-born ones. Finally, our regression results suggest that low-skilled migrants which develop their network within the platform are able to perform as good as highly-skilled peers.

The outline of this paper is as follow. Section 2 reviews the relevant literature and develops a number of hypotheses to guide our empirical investigation. In particular, we discuss the importance of the immigrant's entrepreneurs in the US, the obstacles they are confronted and the mechanism crowdfunding offers to succeed (sections 2.1 and 2.2). Section 3 describes the context of the study (section 3.1), the methodology (section 3.2), and our sample (section 3.3). Section 4 reports the results of our empirical analysis (sections from 4.1 to 4.4) and the robustness checks (section 4.5). Finally, section 5 concludes this work.

2. Theory and hypothesis

2.1 Immigrants networks and crowdfunding performances

Foreign-born individuals, especially those in knowledge related and creative industries, represent a non-negligible part of US entrepreneurship (Brzozowski et al., 2015; Fairlie, 2012; Hart and Acs, 2011; Kerr and Kerr, 2018; Saxenian, 1999; Wadhwa et al., 2007b, 2007a). It has been argued that the "blending of cultures hold by immigrants" may help them to recognize distinct opportunities than their native-born counterparts (Hart and Acs, 2011). However, at the same time, they are confronted to important barriers created by unfamiliarity, relational hazards, and lack of legitimacy which impact their ability to exploit their business ideas and achieve their entrepreneurial projects in the foreign market (Zaheer, 1995). Many of these difficulties to do business aboard have been linked to the recent concept of « liability of outsidership », which suggests that foreign firms and entrepreneurs might be outsiders because they have few relations with potential collaborators in the host country (Brouthers et al., 2016; Johanson and Vahlne, 2009; Mata and Alves, 2018). Since the access to most critical resources, such as knowledge and financial capital, depend on the networks in which entrepreneurs are embedded (Chemmanur and Fulghieri, 2014; Hart and Acs, 2011), foreign-born entrepreneurs, face additional challenges to access such resources (e.g. Fairlie, 2012).

We argue that crowdfunding offers an avenue to overcome their outsider status as it provides foreign born entrepreneurs the opportunity to attain their home-country network and to develop social within the crowdfunding platform (Colombo et al., 2015). In addition, in crowdfunding, backers are often driven by prosocial motivation (Allison et al., 2015), and they might be willing to support projects proposed by entrepreneurs who cannot access other financial channels. Thus, in this paper, we focus on immigrant crowdfunders who we define as foreign-born entrepreneurs who turn to crowdfunding to finance their projects. To the best of our knowledge, the ethnic or origin background of crowdfunders has not been studied neither for crowdfunding scholars nor for entrepreneurial migration peers. The former is explained because crowdfunding platforms are a relatively recent phenomenon which do not register the ethnic background of their participants. However, as immigrants are an important part of the entrepreneurial activity (Kerr and Kerr, 2018) and specially in high-tech industries (Hart and Acs, 2011; Wadhwa et al., 2007b), it can be expected that an important part of foreign-born entrepreneurs turn to the crowd to expose and finance their entrepreneurial projects. We rely on migration and labor literature to explain why crowdfunding may offer foreign-born entrepreneurs in knowledge related and creative industries an attractive opportunity to develop their entrepreneurial projects: immigrants might be forced to entrepreneurship rather than regular employment because they are discriminated in employment access (Borjas, 1986) and promotion (Saxenian, 1999). If the former is the case, crowdfunding might offer an interesting

opportunity to access funding, feedbacks, and obtain visibility for their projects (Gerber et al., 2012). Migrant entrepreneurs may also have serious problems to exploit their entrepreneurial ideas as they are considered as outsiders in the host-country. Fairlie (2012) found that immigrants have lower rates of home ownership than the non-immigrant: home ownership being a determinant of financial capital because it can be used as collaterals to obtain business loans. Immigrant entrepreneur might be confronted to lending discrimination (Fairlie and Woodruff, 2010; Fairlie et al., 2010; Fairlie, 2012; Lofstrom and Wang, 2006). Again, crowdfunding appears as an attractive alternative source of funding reducing the cost of capital and the outsider status of immigrant entrepreneurs. However, like other foreign-born entrepreneurs, migrant crowdfunders as outsiders might be confronted to lack of local business networks that includes providers, finance, and customers. The former should be reflected in the composition of the crowd they attract during a crowdfunding campaign.

Crowdfunding drastically reduces the distance between immigrant entrepreneurs and their home-country network of family and friends (Agrawal et al., 2015). As such, the use of crowdfunding facilitates immigrant entrepreneurs to reach their outside-the-host-country networks in the early phase of the crowdfunding campaign, to successfully finance their projects. It is widely reported in the literature on crowdfunding that the early backers of a crowdfunding campaign play a crucial role in shaping the subsequent dynamics of funding. Colombo et al., (2015) found that the initial backers of a crowdfunding campaign attract late contributors through a self-reinforcing pattern. Vismara (2016), reports a similar dynamic in the context of equity crowdfunding. Scholars have identified word of mouth (Dellarocas, 2003) as a fundamental mechanism to shape such pattern. Early backers talk about the backed campaigns with their friends offline and on social media (Thies et al., 2016). Consequently, more early backers attracted means more potential backers informed about the crowdfunding campaign (Bi et al., 2017; Colombo et al., 2015; Stanko and Henard, 2017; Thies et al., 2016).

Prior literature has pointed out that early backers typically belong to the crowdfunders network and often are represented by their family and friends (Agrawal et al., 2015). We can expect this is particularly true for immigrant entrepreneurs, who are reported by the literature to rely comparatively more on personal and family savings to start-up and expansion financing (Fairlie, 2012). For these crowdfunders, it is likely that a relevant share of family and friends is still located in their country of origin. Because individual networks are shaped by geography (Ellison et al., 2007), when immigrant crowdfunders' early backers discuss off-line or on social media about the campaign they backed, they will more likely reach other country fellows rather than people in the host country (Onnela et al., 2011). In addition, it is likely that early backers of immigrant crowdfunders will discuss about the campaign in their local language, because their networks are composed by people who share the same language (e.g. Kabilan et al., 2010). In sum, the information about the backed campaign will be more likely accessible to immigrant crowdfunders' country fellows, while it will be hardly diffused to backers in the host country. Thus, in comparison with local born peers, immigrant crowdfunders have lower possibilities to engender word-of-mouth dynamics among local backers.

On the other hand, as discussed above, crowdfunding platforms appear, as an instrument to reach more easily the entrepreneur's own network and overcome the immigrant outsider status. Therefore, through crowdfunding, immigrant entrepreneurs appear as members of country-spanning social networks rather that 'atomistic individuals' in the host country (Hatton, 2014). The possibility to reach a larger pool of early backers located outside the host-country, will likely engender a stronger word-of-mouth dynamic among these backers. Accordingly, we can expect migrant crowdfunding receiving greater support from backers located outside the host country, compared with local born peers. This argument is coherent with the literature on immigrant entrepreneurs, which has reported that immigrant entrepreneurs, because of homophily (McPherson et al., 2001), are often supported by their home country linkages. For instance, Saxenian (1999) observed that immigrant communities, especially those from China

and India, were supported by a rich network of associations and cultivated linkages to their country of origin. Following this line of reasoning, we expect that:

> *H1: Immigrant crowdfunders status is negatively related to the number of local backers (H1a) while it is positively related to the number of foreign backers (H1b). The former effect is mediated by the number of backers located in immigrant crowdfunders' home-country (H1c).*

The composition of the crowd, highlighted above, makes it no immediate the anticipation on how immigrant crowdfunders are associated to fundraising performances, in comparison to local-born peers. On the one hand, immigrant crowdfunders will likely attract a smaller crowd of local backers. On the other hand, we expect they will tap into a larger number of foreign backers. However, there are theoretical reasons suggesting that immigrant crowdfunders outperform their local born peers.

The literature on crowdfunding has noted that backers participating in a campaign might be driven by prosocial motivation (Allison et al., 2015; Galak et al., 2011; Galuszka and Brzozowska, 2017; Gerber and Hui, 2013; Lin et al., 2014; Ordanini et al., 2011) or by the motivation of obtaining a reward (Colombo et al., 2015; Di Pietro et al., 2018; Gerber and Hui, 2013; Thürridl and Kamleitner, 2016). About the first, crowdfunding literature has shown that, rather than for the perks, these backers participate in a crowdfunding campaign to enjoy the gratification associated to the action of having helped the others (Gerber and Hui, 2013; Ordanini et al., 2011). To maximize this gratification, they decide to contribute to a campaign when they believe that the entrepreneur is particularly in help and when they believe that their support might significantly improve entrepreneur's condition (Kuppuswamy and Bayus, 2017). Since foreign-born entrepreneurs might be confronted to lending discrimination and struggling barriers to access financing (Fairlie, 2012), we can expect that backers driven by prosocial motivation may prefer helping them rather than other crowdfunders.

At the same time, also backers driven by the motivation of obtaining a reward prefer the campaigns launched by immigrant crowdfunders rather than the others. The literature on immigrant entrepreneurs has highlighted that, by being boundary spanners embedded in multiple countries social structures, immigrant entrepreneurs are well positioned to recognize market opportunities that natives with similar skills cannot perceive (Hart and Acs, 2011) and to understand the resources required and available to operate in the different markets (Sundararajan and Sundararajan, 2015). These dynamics may lead backers expect immigrant entrepreneurs to launch higher-quality projects compared with other crowdfunders.

Consequently, both backers driven by prosocial motivation and those driven by the willingness to obtain a reward might prefer financing immigrant entrepreneurs' campaigns. We may expect that these dynamics lead immigrant entrepreneurs to achieve better fundraising performances than their local-born peers. Hence:

> *H2: Immigrant crowdfunders achieve better fundraising performances than their local-born peers; They have a higher the likelihood of success of their crowdfunding campaigns*

2.2. Migrants' heterogeneity: How entrepreneurs' skills and internal social capital affect crowdfunding performances

Prior literature has pointed out that immigrant entrepreneurs are heterogeneous in their level of human capital. We argue that such heterogeneity is relevant in the context of crowdfunding, especially for those backers who are driven by the motivation of obtaining a reward. We move from the intuition that, as noted by the literature on human capital and opportunity recognition,

immigrant entrepreneurs with higher levels of experience and educational attainment acquired before immigrating or in the host country, are able to recognize better opportunities than others (Arenius and Clercq, 2005; Sundararajan and Sundararajan, 2015). Similarly, because of their higher skills (e.g. analytical capabilities and communications skills), immigrant entrepreneurs with higher levels of experience and educational attainment are associated with greater entrepreneurial success, (e.g. Lofstrom, 2014; Brown et al., 2018; Fairlie and Woodruff, 2010; Hatton, 2014; van der Sluis et al., 2003; Hatton, 2014; Hart and Acs, 2011). As such, education might be perceived by investors as a signal of higher future performance. This in turn might lead a larger number of backers driven by the motivation of obtaining a reward to finance the campaign launched by high-skilled migrant crowdfunders. By providing this information in the corpus of the campaign, the signal of quality associated to immigrant crowdfunders' education is available to both local and foreign backers. Thus, we can expect that high skill immigrant crowdfunders, compared with low skill ones, are able to attract a larger number of local and foreign backers, and ultimately they can achieve better fundraising performances. Hence

> H3: *Compared to low-skilled immigrant crowdfunders, high-skilled immigrant crowdfunders attract more local and foreign backers (H4a); they also achieve better fundraising performances (H3b).*

Another source of heterogeneity, which is specific to the context of crowdfunding, is related to the social capital immigrant crowdfunders have developed within the crowdfunding platform (Colombo et al., 2015; Butticè et al., 2017). A common way for entrepreneurs to develop this "internal social capital" is through interactions with other individuals active on the same platform (Colombo et al., 2015). Butticè et al. (2017) suggests that by commenting others' campaigns, entrepreneurs join a virtual community which pursue a common goal and whose members have frequent interactions. Accordingly, by commenting others' campaigns, immigrant crowdfunders may establish relationships with other members of the community, who backed the same campaigns. Likely, a share of this community is composed by backers located in US. Therefore, the decision of immigrant crowdfunders to finance others' campaigns will allow them to establish digital ties with local backers. An increased network of potential backers from US, who are timely aware of the new funding campaigns launched by the immigrant crowdfunders, will allow them to reduce their outsider status. Indeed, we can expect that some of these potential backers will actually support immigrant' entrepreneur's campaign in the early stage (Skirnevskiy et al., 2017). These early contributions will trigger word-of-mouth among their friends and friends of friends (Colombo et al., 2015), with a share of these who will actually support the crowdfunding campaign (Vismara, 2016). Because a share of the community accessed by immigrant crowdfunders by backing other campaigns will be represented by potential backers located outside US, a similar dynamic can be expected for these backers as well. Ultimately, an increased number of local as well as non-local backers will lead to better performances for the immigrant crowdfunders who had developed a sufficiently large social capital within the crowdfunding platform. Hence:

> H4: *Compared to other immigrant crowdfunders, immigrants crowdfunders who had developed "internal social capital" attract more local and foreign backers (H4a); they also achieve better fundraising performances (H4b).*

However, the literature on internal social capital suggest that potential backers driven by prosocial motivation are common in the network of contacts developed by the entrepreneur within the crowdfunding platform, because the repeated interaction within this network (Skirnevskiy et al., 2017) facilitate the rise of emotional connection among the network members (Butticè et al., 2017). Accordingly, the argument described above that potential bakers driven by prosocial motivations may prefer supporting campaigns which they perceive less likely to succeed should be applied also to the network of contacts developed by the entrepreneur within the crowdfunding platform. Following this line of reasoning, we can expect

that, within the network of contacts developed by the entrepreneur, potential backers driven by prosocial motivation, may restrain from financing the campaign if they perceive it less needy of help. This decision is crucial, as it nips in the bud the virtuous circle engender by the commitment of the early backers within the network of contacts developed by the entrepreneur (Colombo et al., 2015). As discussed above, compared with low skill entrepreneurs, the campaigns presented by high skilled ones are more likely to succeed (Ahlers et al., 2015; Piva and Rossi-Lamastra, 2018). Accordingly, we can expect that among the potential backers within the network of contacts developed by entrepreneur, those driven by prosocial motivation, may restrain from financing these campaigns. This dynamic makes it less effective the development of a network of contacts within the platform to overcome the liability of outsidership. Hence, we derive:

> *H5: The development of "internal social capital" to attract more backers and to achieve better performances is more effective for low-skill immigrant crowdfunders rather than high-skill ones*

3. Research design

3.1 Context of the study

For the purpose of this paper, we used information from the world largest reward-based crowdfunding platform: Kickstarter (Mollick, 2014). This platform alone, hosted more than 400,000 crowdfunding campaigns, since its birth, in April 2009 (Mollick, 2018). Of these campaigns, 147,827 reached their target capital, allowing entrepreneurs to collect 3.38 billion \$ from 14,995,262 backers around the world. Numerous crowdfunding campaigns presented on Kickstarter are relatively small, which is not surprising considering that Kickstarter is a generalist platform that allows entrepreneurs to launch campaigns related to product in different industries[2]. These include capital intensive initiatives, such as those in the high-tech industry (Carpenter and Petersen, 2002), together with cultural and creative projects, which typically have lower financial requirements (e.g. Peterson and Berger, 1975). As of this writing, about 55% of the campaigns allowed entrepreneurs to raise between 1,000\$ and 9,999\$. In addition, the platform has hosted about 26,000 (17.8%) successful campaigns which collected more than 20,000\$, of whom 4,936 campaigns collected between 100,000\$ and 999,999\$, while 310 campaigns collected more than 1,000,000\$[3].

Kickstarter is a reward-based crowdfunding platform, hence entrepreneurs who launch a campaign can reward backers' financial support with products, services or gadgets, but cannot offer any company shares or any other form of monetary remuneration. The platform employs an all-or-nothing business model. Accordingly, campaigns are considered successful and entrepreneurs are allowed to withdraw the capital pledged by backers only if, at the end of the crowdfunding campaign, the total contributions outreach a target capital, set ex ante by the entrepreneur. This feature of Kickstarter makes the use of data from this platform particularly appropriate for scientific purposes, as it allows to create a clear-cut measure of success of the crowdfunding campaign, i.e. whether the capital collected outreached the target. Another reason that justify the use of Kickstarter data is related to the availability of geographical information about backers of each crowdfunding campaign. Indeed, since 2016, Kickstarter publishes information about the top-10 countries from where backers financed the campaign, and the number of backers from each of these countries. This information is particularly relevant for the

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[2] On Kickstarter entrepreneurs can launch campaigns related to 15 industries: art, comics, crafts, dance, design, fashion, film, food, games, journalism, music, photography, publishing, technology, and theater.

[3] From Kickstarter statistics retrieved on August 16, 2018 from https://www.kickstarter/com/help/stats.

purposes of this work, as it allows creating a measure of the number of backers from United States attracted by each campaign[4]. For this reason, in this paper, we used information about the campaigns launched in Kickstarter between 2016 and 2017.

3.2 Variables

To test the hypotheses presented in this paper, we created a set of dependent variables to be used in our econometric models as proxies of the network tapped through crowdfunding campaign and the fundraising performances. First, we created two continuous variables to count the number of backers from United States (*ln_US_backers*) and outside (*ln_noUS_backers*). To this aim, we took advantage of the information disclosed on Kickstarter on the top-10 countries from where bakers financed the campaign and on the corresponding number of backers from these countries. Starting from this information, we counted the number of US backers, and by difference between the total number of backers and the number of US backers, we counted the number of backers outside US. One might argue that, since we only have information about the top-10 countries from where bakers financed the campaign, we might miss some information about US backers, if backers coming from this country are the eleventh largest group or more. However, this never happened. For all the campaigns which attracted at least one backer and received money from backers located in at least 10 countries, US was always included in the list of the top-10 country. In addition, we created a dummy variable (*success*), which equals 1 if the campaign outreached the target capital, thus if the entrepreneur was allowed to withdraw the capital pledged by backers. Second, we created a continuous variable, (*ln_overfunding*), which measure the capital raised during the campaign in excess of the target capital. The variable *ln_overfunding* ideally measures the amount of extra resources that entrepreneurs were able to collect and that can be used to further develop their entrepreneurial ventures (Colombo and Shafi, 2018). We used this dependent variable in one of our robustness check (see section 4.5) Due to high skewness, we used the logarithmic transformation of all continuous dependent variables.

Coming to the main independent variables, as noted by Fairlie (2012), data availability is among the most compelling barriers to conduct research on access to financial capital among immigrant entrepreneurs. Not surprisingly, conducting research on immigrant crowdfunders is no exception, as Kickstarter does not provide any information about entrepreneurs' country of origin. Consequently, we had to develop an ad-hoc strategy to identify immigrants in our sample. To this aim, we took advantage of the textual information contained in the crowdfunding campaigns and we used a content analysis algorithm to identify whether the entrepreneur's provenance was declared. All these instances had been shortlisted and then checked manually. When an entrepreneur declared to be an immigrant, we kept track of this information by mean of a dummy variable (*migrant_crowdfunder*). Further information about the sample construction strategy are reported in appendix A1. We also coded separately the two-digits ISO code of the country of origin of such entrepreneurs. We took advantage of the biographies posted on Kickstarter also to create a dummy variable (*d_education*), which keeps track of whether an entrepreneur had received any university education. Also in this case, we developed an ad hoc content analysis algorithm, based on a search for characterizing terms in the creator's biographies. In particular, we looked into the bio posted on Kickstarter to check whether the creator reported words related to higher education (e.g. bachelor, degree, etc.). Two research assistants assessed the reliability of this methodology on a sample of 2000 biographies manually checked (a similar methodology has been adopted by Butticè et al., 2018). We use this variable as a proxy of high-skills of the entrepreneurs. To create our measures of the social capital developed within the crowdfunding platform, we relied on prior literature (Butticè et al., 2017;

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[4] Please note that for all the campaigns which attracted at least a backer and received money from backers located in at least 10 countries, US was always listed among the top-10 country for number of contributors.

Colombo et al., 2015). Specifically, similar to Butticè and colleagues (2017), we created a variable indicating the social capital developed within the funding platform by keeping track of the number of comments that the creator had posted to others' campaigns as of the launch of his/her campaign (*int_social_capital_commments*). In addition, similarly to Colombo et al. (2015), we coded the number Kickstarter campaigns that the entrepreneur had financed as of the launch of the focal project (*experience_as_backer*). These variables represent the degree to which an entrepreneur had been active within the platform and is a proxy of the social connections with peers s/he had established in the crowdfunding platform.

Finally, we controlled for several variables, which fall outside the purview of our theory, yet might have affected the success of a crowdfunding campaign. We collected additional information about the crowdfunding campaign and the entrepreneur who launched it. Specifically, we kept track of the campaign target capital (*ln_target*), the duration of the campaign (*duration*), and the total number of visuals (videos plus images) contained within the campaign description. Since the distribution of these variables was highly skewed, we used in the econometric models, their logarithmic transformation (*ln_visual*). Information about the number of visuals in a crowdfunding campaign has been proven to be relevant by prior literature (e.g. Colombo et al., 2015), as it proxies the stage of advancement of the project. The idea behind the use of this variable is that for projects at later stage, entrepreneurs are able to show more pictures and videos (Mollick, 2014). To control for the quality of the campaign, we also included a dummy variable *project_we_love*. This variable equals 1 if the campaign had been indicated by Kickstarter as a "project we love," which is, according to the platform blog, a campaign which excelled in its design by including all the information relevant for backers (Kickstarter, 2016).

In addition, we included dummy variables to take into account the campaign industry category according to the Kickstarter taxonomy (*category dummies*) and dummy variables to keep track of the year, the month, and the day of the week when the campaign had been presented (*time dummies*). We also coded by mean of a dummy variable (*high_income*) whether the entrepreneur came from a high-income country according with the World Bank's World Development Indicators database. Finally, we included a set of dummy variables, to keep track of entrepreneurs' country of origin (*nationality dummies*), and the US state where the entrepreneur located the entrepreneurial initiative (*state dummies*).

3.3 Data and sample

Our final sample, included 2,231 campaigns, of which 309 (13.8%) launched by immigrant crowdfunders, while the others by US born entrepreneurs. This value is coherent with the literature on immigrants, which has highlighted a share of immigrant entrepreneurs in US between 13% (Fairlie, 2008) and 25% (Wadhwa et al., 2007b).

Table 1 provides summary information on the top 15 states of location and nationalities of the immigrant entrepreneurs in our sample. As expected, immigrant crowdfunders are mainly located in the state of New York, California, and Florida, in line with the overall migration data from the U.S. Census Bureau's American Community Survey (2017). Such states concentrate 64% of the immigrants crowdfunders in our sample and account for around 25.3% and 22.4% of migrant entrepreneurs in technology and high-tech segments, respectively. Great Britain, Canada, Russia, Germany and Mexico are the top five immigrants' country of origin and account for around 28% of the immigrant crowdfunders.

Table 1. Top location and nationalities of immigrant crowdfunders

Location state All crowdfunders	Freq.	Percent	Location state of immigrants	Freq.	Percent	Nationality of immigrants	Freq.	Percent

NY	375	16.81	NY	104	33.66	GB	27	8.74
CA	341	15.28	CA	69	22.33	CA	26	8.41
FL	159	7.13	FL	25	8.09	RU	17	5.50
TX	137	6.14	GA	8	2.59	DE	16	5.18
CO	75	3.36	MA	8	2.59	MX	16	5.18
VA	69	3.09	NV	7	2.27	UA	15	4.85
GA	67	3.00	TN	7	2.27	IT	14	4.53
NC	57	2.55	TX	7	2.27	VE	13	4.21
AZ	49	2.20	IL	6	1.94	IN	12	3.88
TN	47	2.11	DC	5	1.62	BR	11	3.56
WA	47	2.11	NJ	5	1.62	CN	11	3.56
NJ	44	1.97	CO	4	1.29	KR	11	3.56
PA	43	1.93	NC	4	1.29	PH	11	3.56
MA	39	1.75	VT	4	1.29	CU	9	2.91
LA	35	1.57	AZ	3	0.97	CO	8	2.59

Table 2 shows the breakdown of immigrant crowdfunders' provenance by region. Overall, Europe is the main region of origin (32.5%), followed by Asia & Pacific (28.48%) and Latin America & Caribbean (27.5%). Very few immigrant crowdfunders come from Middle East & Africa (3.56%).

Table 2. **Immigrant crowdfunders distribution by region** of origin

Region	Freq.	Percent
Asia & Pacific	88	28,48%
Europe	99	32,04%
Latin America & Caribbean	85	27,51%
Middle East & Africa	11	3,56%
North America	26	8,41%
Total	309	100.00

Table 3 reports the correlation matrix. It should be pointed out that around one third of the campaigns reach their target capital which is in line with previous literature (e.g. Mollick, 2014). Successful campaigns attracted on average 159.44 backers while unsuccessful campaigns attracted on average 10.83 backers. As expected, successful campaigns were positively and statistically correlated with experience as backers, internal social capital and the quality of the projects. However, there is not a statistically significant relationship between the success rate and higher levels of education, the duration of the campaign or immigrant status of the entrepreneurs. Notice that there are not highly correlated variables that might indicate multicollinearity problems. With this in mind, we applied variance inflation factor tests to our regression and we found that the highest VIF was 3.48.

Table 3. **Correlation matrix of the main variables used in the regressions**

	Variables	Mean	1	2	3	4	5	6
1	migrant crowdfunder	.1385	1.0000					
2	ln_national	1.904	0.0833*	1.0000				
3	ln_backer_nl	1.469	0.1818*	0.6029*	1.0000			
4	ln_overfunding	2.145	0.0773	0.7887*	0.6068*	1.0000		

	Variable	Mean	1	2	3	4	5	6
5	success	.3384	0.0752	0.7650*	0.5070*	0.9428*	1.0000	
6	experience_as_backer	.6648	0.0404	0.5294*	0.4528*	0.4778*	0.4570*	1.0000
7	int_soc_capital_com	.4534	0.0372	0.4415*	0.5183*	0.4795*	0.3921*	0.5837*
8	d_education	.312	0.0405	0.0176	0.0270	-0.0090	-0.0284	0.0034
9	highincome	.9421	-0.6178*	-0.0145	-0.0513	-0.0217	-0.0379	-0.0002
10	ln_target	8.924	0.0567	0.0138	0.0675	-0.1587*	-0.2344*	-0.0883*
11	ln_visual	1.634	0.1595*	0.6507*	0.5427*	0.5688*	0.5426*	0.4619*
12	duration	95.95	-0.0056	0.0990*	0.0776	0.0533	0.0397	0.0960*
14	staff_pick1	.0793	0.0984*	0.4013*	0.3834*	0.3969*	0.3403*	0.2892*

	Variables	7	8	9	10	11	12	13
7	int_soc_capital_com	1.0000						
8	d_education	0.0042	1.0000					
9	highincome	0.0154	-0.0402	1.0000				
10	ln_target	-0.1092*	0.0739	0.0033	1.0000			
11	ln_visual	0.4229*	0.0572	-0.0584	0.0288	1.0000		
12	duration	0.0593	0.0017	-0.0087	0.0963*	0.1142*	1.0000	
14	staff_pick1	0.1971*	0.0132	-0.0481	0.0642	0.3233*	0.0453	1.0000

Migrant crowdfunders are different compared to US-born ones along several dimensions (Table 4). Compared to US born peers, immigrant crowdfunders have, on average, larger levels of education, experience as backers of other's campaigns and social capital internal to the platform by commenting other's campaigns, although these differences are only weakly significant (p-value<0.1). Several differences exist also about the design of the campaigns presented by immigrant crowdfunders and US-born peers, as well. Immigrant crowdfunders launch on average larger campaigns in terms of target capital (p-value<0.01) and provide a larger number of visuals in the description of the campaign (p-value<0.001). This choice appears coherent with the idea that, to overcome the information asymmetries due to their provenance, these entrepreneurs strategically provide more visual information in the description of their campaign. Campaigns launched by immigrant crowdfunders are also more likely selected as *"project we love"* by Kickstarter staff (p-value<0.001). On the contrary, no difference exists about the duration of the campaign. This is not surprisingly, given that Kickstarter suggest crowdfunders to present campaigns one-month long and it does not allow presenting campaigns shorter than 1 week or longer than 3 months. Finally, differences exist also in relation to the outcomes of the crowdfunding campaign. Campaigns launched by immigrant crowdfunders are on average more likely to succeed (42.7 %vs. 32.4 %, p-value<0.001), collected larger capital both in absolute terms (p-value<0.001) and in excess to the target capital (p-value<0.001). These crowdfunders also attract more backers from US (p-value<0.001) as well as from other countries (p-value<0.001).

Table 4. Descriptive statistics on migrant and local-born crowdfunders

	Total	Migrants	Locals	Two tail t-test
	Obs=2231	Obs=307	Obs=1924	Ha: diff != 0
Variable	Mean	Mean	Mean	
d_education	0.312416	0.3592233	0.3048907	0.0558

experience_as_backer	0.6648581	0.7661885	0.6485673	0.0566
int_social_capital_comments	0.4534129	0.5471406	0.4383443	0.0791
project_we_love	0.0793366	0.1456311	0.0686785	0.0000
ln_target	8.924602	9.157589	8.887144	0.0073
ln_visual	1.634164	1.998165	1.575643	0.0000
duration	95.95383	93.50162	96.34807	0.7930
ln_US_backers	1.904607	2.335994	1.835253	0.0001
ln_noUS_backers	1.469007	2.004179	1.382967	0.0000
ln_overfunding	2.145406	2.758936	2.046769	0.0003
success	0.3384133	0.4271845	0.3241415	0.0004

The important differences between immigrant crowdfunders and native-born ones may result because of the differences in their business activities, due to the specificities of their education, culture and background (Kushnirovich, 2015). Table 5 suggest that immigrant and native-born entrepreneurs in crowdfunding platforms are frequently engaged in film & video (18,1% versus 16.43%), music (17,48% versus 14.54%), publishing (11,33% versus 13.53%), design (9,06% versus 5.93%) and technology (8.74 versus 8.48%). All the differences between the share of campaigns launched by immigrant crowdfunders and native-born ones across business category are not statistically significant except for campaigns in the sectors dance, design and food. immigrant entrepreneurs are more likely to be engaged in dance and design while they are less frequently engaged in food activities in which the chances of business to succeed are lower (Butticè et al., 2017).

Table 5. Immigrant versus local-born crowdfunders across business segments

	Migrant		Local		Ha: diff != 0
					Two
category	Freq.	Percent	Freq.	Percent	tails t-test
art	20	6.47	142	7.39	0.5650
comics	7	2.27	62	3.23	0.3656
crafts	2	0.65	35	1.82	0.1338
dance	13	4.21	26	1.35	0.0004
design	28	9.06	114	5.93	0.0365
fashion	25	8.09	128	6.66	0.3559
film & video	56	18.12	314	16.34	0.4336
food	13	4.21	172	8.95	0.0050
games	11	3.56	87	4.53	0.4418
journalism	3	0.97	39	2.03	0.2041
music	54	17.48	280	14.57	0.1838
photography	10	3.24	51	2.65	0.5601
publishing	35	11.33	260	13.53	0.2894
technology	27	8.74	163	8.48	0.8806
theater	5	1.62	49	2.55	0.3230
Total	309	100.00	1922	100.00	

4. Results

4.1. Main model

Table 6, presents our econometric results. We used OLS estimators for continuous dependent variables (column 1-2) and Probit estimators when the probability of crowdfunding campaign success was the dependent variable (column 3). We estimated cluster-robust standard errors since errors were correlated within geographical clusters but uncorrelated across them (Cameron and Miller, 2015).

From model 1 and 2, we show that immigrants are associated to smaller crowds of US backers (Model 1), while they are associated with larger crowds of non-US backers (Model 2). This evidence provides support to our hypotheses *H1a*, which state that crowdfunding campaigns launched by immigrant crowdfunders attract less local backers while they attract more foreign backers[5]. In addition, we observe that no statistical difference exists between immigrant crowdfunders and local peers about the probability of success of their campaigns (Model 3). Thus we do not find support to our hypothesis *H2*. Yet, this result shows that crowdfunding campaigns launched by immigrant crowdfunders are at least as successful as those launched by local-born crowdfunders. All the signs of the coefficients of control variables are in line with prior literature (see e.g. Butticè et al., 2018b for a review)

Table 6. Immigrants crowdfunding networks and performances

VARIABLES	1 ln_US_backers	2 ln_noUS_backers	3 Success
migrant_crowdfunder	-0.179***	0.675***	0.0500
	(0.0354)	(0.0804)	(0.247)
experience_as_backer	0.404***	0.0831***	0.241***
	(0.0131)	(0.00279)	(0.00784)
int_social_capital_commments	0.298***	0.367***	0.325***
	(0.0210)	(0.0103)	(0.0400)
d_education	0.0270	-0.00316	-0.0698**
	(0.0222)	(0.00959)	(0.0330)
high_income	-0.0128	1.136***	-0.336*
	(0.0703)	(0.0492)	(0.174)
ln_target	0.0400**	0.0628***	-0.393***
	(0.0161)	(0.0123)	(0.0183)
ln_visual	1.117***	0.377***	1.212***
	(0.00804)	(0.00927)	(0.00766)
duration	2.92e-05	-1.19e-05	-0.00018***
	(2.49e-05)	(2.06e-05)	(3.92e-05)
project_we_love	1.020***	0.750***	0.888***
	(0.143)	(0.0614)	(0.202)
Constant	-1.444***	-1.448***	1.620***
	(0.109)	(0.113)	(0.163)

[5] Results from a Sobel-Goodman test (Sobel, 1982), show that 57.4% of the total effect of immigrant crowdfunders on the number of non-US backers attracted is mediated by the number of backers from the entrepreneur country of origin. Results holds both and on the total sample and on the restricted sample of immigrant crowdfunders only. This supports our hypothesis *h1c* that immigrant crowdfunders are able to mobilize home-country networks to fund their campaigns.

Time FE	YES	YES	YES
Business segment FE	YES	YES	YES
Nationality FE	YES	YES	YES
State FE	YES	YES	YES
Observations	2,231	2,231	2,231
R-squared	0.597	0.496	0.540
ll	-3,782	-2,770	-6,56.6
ll_0	-4,795	-3,535	-1,428

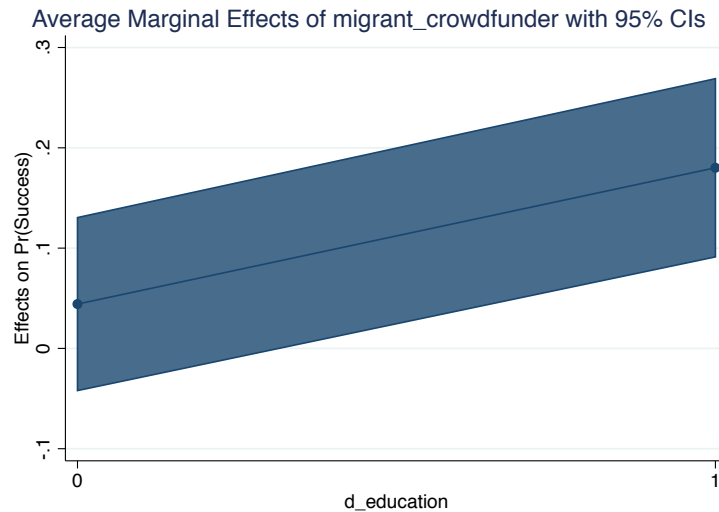## 4.2. The moderation effect of education

In table 7, we explore how heterogeneity across migrant entrepreneurs in their level of human capital affects our results. As we argued in our theoretical discussion, we show that education is key element for migrant entrepreneurs in crowdfunding. In all the models, the coefficient of the interaction term is positive and statistically significant at 1% level, suggesting a complementarity effect between being migrant entrepreneurs and education. In models 4 and 5, we observe that high-skilled migrants attract more local and foreign backers. Education makes stronger the positive association between migrants and larger crowds of non-host-country, while it weakens (so it makes it less negative) the relations between migrants and larger crowds of host-country backers. This might suggest a signaling effect of education which reduces information asymmetries and ceteris paribus increases the willingness to invest of the backers in these campaigns. In models 6, we observe that education have also an overall positive moderation on migrant crowdfunders fundraising performance. Regression results suggest that education increase migrant crowdfunders likelihood of success (Model 6). However, to interpret moderation effects in nonlinear models, looking only at the coefficient of the interaction term is not sufficient (Ai and Norton, 2003). Thus, we plot the relationship in Figure 1.

Table 9. Immigrant crowdfunders and human capital

	4	5	6
VARIABLES	ln_US_backers	ln_noUS_backers	success
migrant crowdfunder	-0.224***	0.656***	-0.156
	(0.0394)	(0.0791)	(0.313)
d_education	0.00274	-0.0136	-0.193***
	(0.0205)	(0.00775)	(0.0304)
migrant#d_education	0.183***	0.0784**	0.883***
	(0.0230)	(0.0227)	(0.0349)
Constant	1.132*	-0.760**	1.659***
	(0.541)	(0.306)	(0.185)
Controls as in Table 4	YES	YES	YES
Time FE	YES	YES	YES
Business segment FE	YES	YES	YES
Nationality FE	YES	YES	YES
State FE	YES	YES	YES
Observations	2,231	2,231	2,231
R-squared	0.597	0.496	0.544
ll_0	-4795	-3535	-1428

ll	-3782	-2770	-651.0

As it can be noted, the association between migrant crowdfunders and the probability of success of the crowdfunding campaign is not statistically significant when the variable education takes the value 0. However, it becomes positive and statistically significant when the variable takes value 1. This evidence is in line with our hypothesis h3.

Figure 1

Average Marginal Effects of migrant_crowdfunder with 95% CIs

4.3. The moderation effect of internal social capital

In this section, we explore the moderating effect of the internal social capital on the association between immigrant crowdfunders and crowdfunding performances. In table 8, we investigate the interaction between immigrant crowdfunders and the internal social capital developed within the crowdfunding platform by commenting on others' campaigns (Butticè et al., 2017). From models 7 and model 8, we observe that immigrant crowdfunders with higher levels of internal social capital attract larger crowd of backers located within (model 7) and outside US (model 8). This result suggests that when the immigrant crowdfunders had developed a sufficiently large social capital internal within the platform, they reduce their outsider status by attracting a larger number of local backers. The positive moderation of internal social capital is confirmed when looking at the probability of success of the crowdfunding campaign (Model 9). Again, we plot the relationship for the sake of clarity.
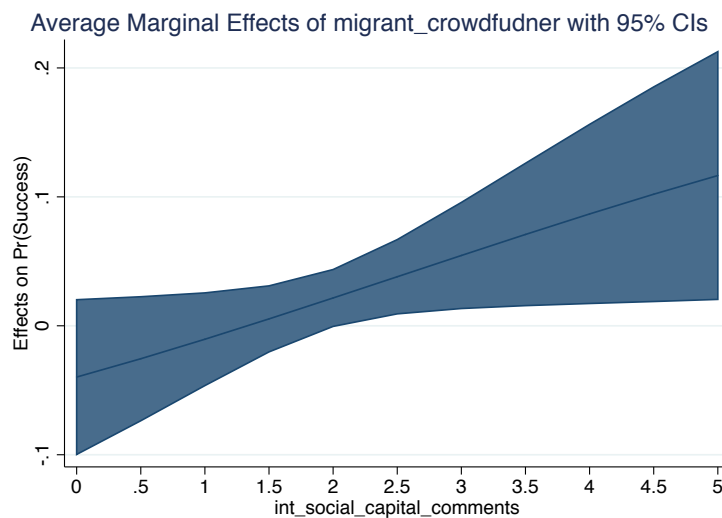
Table 8. Immigrant crowdfunders and internal social capital

VARIABLES	7 ln_US_backers	8 ln_noUS_backers	9 Success
migrant_crowdfunder	-0.194***	0.663***	-0.000879
	(0.0368)	(0.0760)	(0.277)
int_social_capital_commments	0.283***	0.352***	0.292***
	(0.0175)	(0.0105)	(0.0347)
migrant#int_social_capital_comments	0.0821***	0.0856**	0.265**
	(0.0199)	(0.0268)	(0.113)
Constant	1.095*	-0.793**	1.513***

	(0.545)	(0.313)	(0.220)
Controls as in Table 4	YES	YES	YES
Year FE	YES	YES	YES
Business segment FE	YES	YES	YES
Nationality FE	YES	YES	YES
State FE	YES	YES	YES
Observations	2,231	2,231	2,231
R-squared	0.597	0.497	0.541
ll	-3,782	-2,769	-655.1
ll_0	-4,795	-3,535	-1,428

The graph shows that for lower values of the variable *int_social_capital_comments* the association between the probability of success of the crowdfunding campaign and the variable immigrant_*crowdfunder* is not significant, while for higher values (*int_social_capital_comments* > 2), the association becomes positive and statistically significant.

Figure 2

Average Marginal Effects of migrant_crowdfudner with 95% CIs

All in all, the results of these models provide support to our hypothesis *H4* that having developed a sufficiently large social capital internal to the platform positively moderate the association between immigrant crowdfunders and crowdfunding performances.

Finally, in table 9, we show the results of the 3-way interaction to assess whether the strength of association just detect between internal social capital and fundraising performances varies depending on human capital heterogeneity. The coefficient of 3-way interaction term is always negative. Yet it is statistically significant only for model 10 and 12. We will focus our discussion on these two models.

Table 9. 3-way interaction: Immigrant crowdfunders, internal social capital, education

VARIABLES	10 ln_US_backers	11 ln_noUS_backers	12 Success

migrant	-0.0848	0.685***	0.188
	(0.0443)	(0.0392)	(0.286)
int_social_capital_comments	0.263***	0.321***	0.229***
	(0.0143)	(0.0113)	(0.0395)
migrant#int_social_capital_comments	0.182**	0.158**	0.327**
	(0.0547)	(0.0596)	(0.153)
d_education	-0.0353	0.0159	-0.302***
	(0.0212)	(0.0186)	(0.0218)
d_education#migrant	0.308***	0.0895	0.994***
	(0.0596)	(0.0734)	(0.0329)
d_education#int_social_capital_comments	0.0928***	-0.0274	0.225***
	(0.0239)	(0.0284)	(0.0394)
d_education#migrant#int_social_capital_comments	-0.292**	-0.181	-0.287***
	(0.111)	(0.0972)	(0.0737)
Constant	0.934	-1.302***	1.195***
	(0.578)	(0.228)	(0.298)
Controls as in Table 4	YES	YES	YES
Time FE	YES	YES	YES
Business segment FE	YES	YES	YES
Nationality FE	YES	YES	YES
State FE	YES	YES	YES
Observations	2,231	2,231	2,231
R-squared	0.597	0.528	0.547
ll	-3780	-2698	-647.5
ll_0	-4795	-3535	-1428

We are aware that, in a 3-way interaction, the interpretation of coefficient in table might be not immediate; hence, we invite the reader to focus on the graphs. As can be seen from figure 3 (dependent variable: *ln_US_backers*) and figure 4 (dependent variable: *success*), a consistent trend is that the positive moderation of the internal social capital on the association between migrant crowdfunders and crowdfunding performance is detected only for low skill migrants only (*d_education*=0). By contrast, when the variable *d_education* takes the value 1, the positive moderation of internal social capital disappears. This evidence provide support that moderation of the social capital developed within the platform on the association between immigrants crowdfunders and crowdfunding performances.
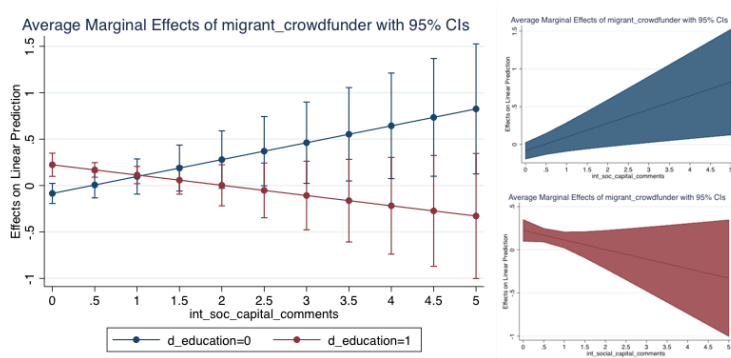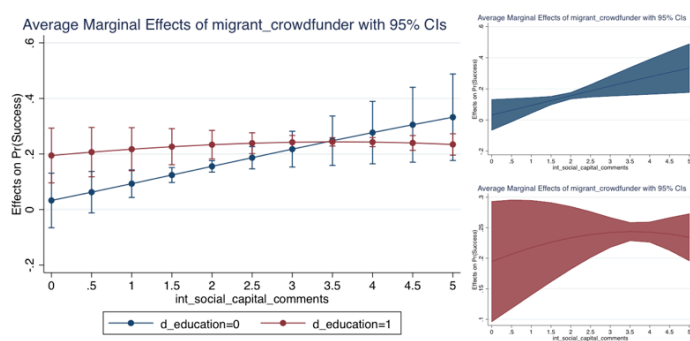
Figure 3

Figure 4

4.5. Robustness checks

As a first robustness check, we changed the operationalization of some of the variables included in our models. First, we replace the dummy dependent variable success with a continuous variable (ln_overfunding), which measure the amount of extra resources collected during the crowdfunding campaign and with a continuous variable ln_pledge, which measure the capital collected during the campaign. The results are shown in Table A1. All the results are in line with the main model with the only exception that the 3-way interaction is only weakly significant. Second, we replaced our measure of internal social capital, with another measure used by prior studies. In particular, we used the variable *experience as backer* as a measure of internal social capital (Colombo et al., 2015). Results, shown in table A2, are comparable with those shown in Table 8, with the exception that no moderation is detected when the dependent variable is *ln_US_backers.* Third, we changed our definition of high-skills migrants. Instead of focusing on education, we interacted the migrant crowdfunder with a dummy variable, which assumes value 1, if the entrepreneur operates in high-tech sectors. Regression results support our main results (table A.3). The positive moderation is confirmed for the models including as dependent variable the number of US backers (Model 1), the capital collected (Model 3) and the likelihood of success (Model 5). In contrast, the moderation is not confirmed for foreign backers (Model 2) and do not collect a significant larger amount of cash than expected (Model 4). The results of the 3-way interaction are consistent with those shown in the main model (available upon request to the corresponding author).

In addition, we acknowledge that our results may be affected by estimation bias due to self-selection and omitted variables, which deserve discussion. A first potential source of bias results if entrepreneurs declaring their nationality are not randomly selected. Self-selection occurs

when benefit from declaring their nationality (such a larger amount of cash collected at the end of crowdfunding campaign) outweigh the cost of declare the entrepreneur's nationality (which is almost zero). This might be the case for low quality projects from both native-born and foreign-born entrepreneurs. However, we may expect a higher prevalence of low quality projects from native-born entrepreneurs and from entrepreneurs from countries with larger records of migration. To partially solve this problem, we introduced a Sartori estimator (Sartori, 2003), since the same variables influence both non-random selection (disclosure of information about the provenance) and outcome of interest (crowdfunding performance). Sartori estimators can be applied only when the outcome of interest is dichotomous, hence we focused our attentions to the models with the probability of success as dependent variable only. In table A1 in appendix, we report the results of the new estimates. The first step of the models shows that the variable immigrant_*crowdfunder* is not correlated with the probability of disclosing the information about the country of origin, thus reducing concerns about a possible self-selection bias. The results of the second step of the model confirm all previous results.

A second potential source of endogeneity results from omitted variables correlated with our immigrants' status and their probability of success. As often happens in studies on migrations (Bhattacharya and Groznik, 2008; Foley and Kerr, 2013), dealing with instruments proves a nearly impossible task, as it is very difficult to find any useful variable that would be correlated with our immigrant status variable, but not with his/her success probability. In line with prior literature, we limit our effort to modify the sample scheme and discuss how likely is that we have a potential bias. In table A.5 and A.6 in appendix, we test whether our results are driven by immigrant crowdfunders from some specific nationalities. In table A.5 we exclude immigrant entrepreneurs from countries with larger records of migration (GB, CA, DE, RU, MX). The main regressions result remains solid and statistically significant with some small changes. Immigrant crowdfunders continue to be associated to smaller crowds of host-country backers and with larger crowds of non-host-country backers, although this latter result is now only statically significant at 10% level. As in the previous estimation, immigrant crowdfunders with higher levels of experience as backer attract comparatively larger numbers of outside of the country located backers while moderation disappear when the dependent variable is the number of local backers. All the other moderation of experience as backer are confirmed. In contrast, the moderation of *int_social_capital_comment* on the association between immigrant crowdfunders and performances is confirmed only for the capital and the amount of extra resources collected. In addition, in table A.6 we exclude immigrant entrepreneurs from China and India, our results are in line with those of the main model.

6. Discussion and Conclusion

Crowdfunding has become a widespread and effective alternative for raising capital to support new business ideas and ventures (Giudici et al., 2018). In this paper, we investigate whether foreign-born entrepreneurs, defined in this work as immigrant crowdfunders, turn to crowdfunding to finance their projects and which are the performances of their crowdfunding campaigns. To this aim, we used data from Kickstarter, the largest worldwide reward-based crowdfunding platform, and we identified the entrepreneur country of origin through data mining and text analysis of the information provided on the crowdfunding campaign page. We found that about 13.8% of the crowdfunders campaigns had been launched by immigrant crowdfunders suggesting that this is a relevant phenomenon on the crowdfunding platform.

We found that immigrant crowdfunders are as successful as local-born peers, despite the mechanisms, which favor immigrant crowdfunders' success, are to some extent different from those of traditional immigrant entrepreneurs as well as from those of other, local-born, crowdfunders. Specifically, we show that crowdfunding offers immigrant entrepreneurs an effective setting to overcome their liability of outsidership. Indeed, rather than being 'atomistic individuals' in the host country (Hatton, 2014), through crowdfunding platforms, immigrants entrepreneurs can rely on external networks, and in particular on their home-country networks,

to collect financial resources. We also show that high-skilled migrants achieve better fundraising performances compared both with low-skilled migrant crowdfunders and local-born ones. In addition, we noted that crowdfunding provides also another mechanism to overcome the liability of outsidership, as it offers the possibility to develop a network of contacts within the crowdfunding platform. This network, referred by the literature as *internal social capital* (Colombo et al., 2015; Butticè et al., 2017), helps immigrant crowdfunders to achieve better crowdfunding performances and, if sufficiently large, makes their campaigns even more successful than those presented by local peers. However, we show that this mechanism only works for low skills migrant crowdfunders.

We contribute to extant literature in several respects. First, we add to the literature on immigrant entrepreneurs by discussing a novel funding method that can be used by these individuals to finance their entrepreneurial initiatives. To the best of our knowledge this is the first paper to focus on the topic. In so doing we show that crowdfunding offers an interesting alternative source of financing for immigrant entrepreneurs which allows to tap their network of relationships in their home country and to develop a network of contacts within the crowdfunding platform to reduce their liability of outsidership. Within this debate we also highlight that the high skilled immigrants crowdfunders, being able to signal the quality of their project and relying on backer's prosocial motivation, suffer of limited liability of outsidership. Second, we contribute to the literature on crowdfunding by highlighting that the origin of the entrepreneur who launch the campaign affect the geographical distribution of the backers. We show that immigrant crowdfunders attract a comparatively larger number of backers outside the host-country. This result is novel in comparison to prior literature, which has reported that, also in the context of crowdfunding, transactions are more likely to occur between parties in the same geographical area (Lin and Viswanathan, 2016; Mendes-Da-Silva et al., 2018). Finally, we contribute to the literature on the role of internal social capital in crowdfunding (e.g. Colombo et al., 2015). We show that having developed a sufficiently large network of relationships within the platform reduces the liability of outsidership and works as positive moderator of the association between immigrant crowdfunders and the performances of their campaigns. In addition, we highlight a boundary condition, i.e. crowdfunders' human capital, which weakens the previous association. To the best of our knowledge this is the first work which shows that apart from a direct effect on the probability of success of a crowdfunding campaign, the internal social capital developed within the crowdfunding platform might moderate the relationship between the success of a campaigns and other variables and that show under which condition this occurs. In so doing, the paper is the first showing that the positive effect of having large network of relationships within the platform may fade when the crowdfunders heterogeneity is taken into account.

This paper has some limitations that pave the way to further research. First, we focus on crowdfunders who declared their country of origin in the textual information disclosed on the crowdfunding platform. However, entrepreneurs' decision of providing information about the country of origin might be theoretically not random, hence introducing a selection bias in our estimates. Despite our effort and the many robustness check performed, we cannot totally rule out such a bias especially for models with continuous dependent variables. However, we believe a comment is on point, here. Selection bias is more compelling when there is a concern about unobservable variables, i.e. when the researcher does not have as much data as the potential backers engaged in decision making. In our study, campaigns are backed through small contributions from a crowd of backers who are unlikely to possess private information about the entrepreneur or the campaign. Since we have access to all the information provided on the platform, we likely possess the complete information about a specific campaign available to backers. Accordingly, concern of selection bias should be reduced. A similar argument has been discussed by some previous studies both about networks (e.g. Jackson, 2008), and crowdfunding (Colombo et al., 2015; Lin et al., 2013). However, we deem for future studies that, by using different methodologies to identify migrant crowdfunders, can further validate our results.

Second, in this paper we focus on human capital as a source of heterogeneity among immigrant entrepreneurs using crowdfunding. Our choice is driven by an extensive literature in both immigrant entrepreneurship (e.g. Fairlie and Woodruff, 2010) and in crowdfunding (Ahlers et al., 2015), highlighting that high-skill migrant crowdfunders should suffer from comparatively less frictions to access financing. However, we acknowledge that others sources of heterogeneity (e.g. gender, age, etc,) might be considered. We invite future studies to replicate our work focusing on different sources of heterogeneity. Finally, this paper uses data from one, yet the bigger, crowdfunding platform. Similarly, it focuses on immigrant crowdfunders in US. These choices might raise concern about the generalizability of the results. Additional research is needed to verify whether our results hold when conducting analysis including data from multiple platforms, and of immigrants located in other countries.

Despite these limitations, the paper has clear practical implications. Our work shows that crowdfunding helps breaking the "walls" that hamper cross-border early stage investment (e.g. Alhorr et al., 2008; Makela and Maula, 2006), as immigrant crowdfunders likely rely on their home country network to fund their crowdfunding campaigns. As such, crowdfunding campaigns by immigrant crowdfunders represent a way to channel financial resource to the host country economy. Policymakers interested in favoring entrepreneurial activities in their countries, might be aware of this result and consider the possibility to favor the diffusion of campaigns by immigrant crowdfunders to attract financial resources from other countries. Similarly, crowdfunding platform should consider this result, to achieve a wider geographical coverage: campaigns by immigrant crowdfunders attract comparatively more backers from outside US. Moreover, on average, these campaigns attract 50 backers at their first backing activity in the platform. Thus hosting campaigns by immigrant crowdfunders might be an easy strategy by platforms to enlarge the potential backer base. Finally, the paper provides clear guidance to immigrant entrepreneurs interested in crowdfunding their initiatives. Their campaigns are on average as successful as those by local-born peers, and even more successful when they had developed a sufficiently large social capital internal to the crowdfunding platform by backing or commenting on others' campaigns. Thus, our recommendation for immigrant entrepreneurs, is to consider crowdfunding as a viable funding mean to finance their initiatives, especially if they have any certification of advanced education.

Overall, our paper has provided insights into an important emerging phenomenon, i.e. the use of crowdfunding by immigrant entrepreneurs to finance their entrepreneurial initiatives. Since the number of immigrant entrepreneurs is reported between 13% and 25 %, immigrant crowdfunding will likely become an important trend in the upcoming future.

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Appendix

A1. Sample construction strategy

Kickstarter does not provide any information on whether an entrepreneur who presented a crowdfunding campaign is an immigrant or not. Consequently, we had to

develop an ad-hoc strategy to detect immigrant crowdfunders. To this aim, we followed a multi-step strategy based on the unstructured information provided in the biography posted on Kickstarter by each entrepreneur. Thus, after having filtered-off, from the initial population of 75,838 campaigns presented between 2016 and 2017 on Kickstarter, those located outside US, we downloaded the biographies posted by entrepreneurs in each of these crowdfunding campaign. Overall, we downloaded the biographies for 48,735 campaigns, which met these criteria.

To this initial sample, we applied a filter to remove the campaigns presented by established companies. We identified such campaigns by looking at campaign proponent's names reported in the header of the biography. Particularly, we sought for business names (e.g. LLC, LTD, etc.) and we flagged the associated campaigns as presented by companies. These observations have been checked manually by one of the author. Through this filter, we removed from the sample 438 campaigns launched by established companies which likely used crowdfunding for reasons different from fundraising. Third, we used a content analysis algorithm to flag the bios where the entrepreneur's provenance was explicitly declared. The algorithm was based on the queries of the following sentences: "I am from [country name]", "I am from [city name]", "I was born in [country name]", "I was born in [city name]", "I am [nationality]". City names, country names and nationality have been downloaded from World Cities Database, which includes data of over 3.9 million unique cities and towns from every country in the world. The database reports the city name in English as well as in the national language (e.g. Rome and Roma). We used both in our queries. In addition, we executed the same queries without any reference to countries, cities or nationalities (e.g. "I am from") to add the campaigns which fall outside our previous criteria. The goal of this phase was to reduce the risk to exclude false negative instances, from the final sample, although it introduces false positive observations which required additional manual screening. Finally, we run the same queries on the description of the campaign rather than the entrepreneur's bio. The algorithm resulted in 5,349 campaigns, which have been manually checked by two research assistant supervised by the authors. During this phase, biographies have been read one by one. If the biography reported a provenance outside US, the information had been registered in a dummy variable immigrant_*crowdfunder*. Similarly, if it was reported in the biography that the entrepreneur was born in US, this information was registered in a dummy variable *US_born.* All in all, this manual checking resulted in 309 campaigns presented by immigrants

A2. Robustness checks models
Table A1. Dependent variable: ln_overfunding

	1	2	3	4
VARIABLES	ln_overfunding	ln_overfunding	ln_overfunding	ln_overfunding
migrant	0.238	0.107	0.213	0.561*
	(0.319)	(0.335)	(0.307)	(0.268)
int_social_capital_comments	0.323***	-0.136***	0.747***	0.650***
	(0.0154)	(0.0278)	(0.0514)	(0.0465)
migrant#int_social_capital_comments			0.227***	0.259
			(0.0584)	(0.156)

d_education	-0.0637*	2.284*	2.189	-0.302***
	(0.0325)	-1.163	-1.170	(0.0227)
d_education#migrant		0.543***		0.596***
		(0.0511)		(0.135)
d_education#int_social_capital_comments				0.405***
				(0.0147)
d_education#migrant#int_social_capital_comments				-0.287
				(0.232)
constant	1.986***	2.284*	2.189	1.739
	(0.491)	(1.163)	(1.170)	(1.1796)
Controls as in Table 4	YES	YES	YES	YES
Time FE	YES	YES	YES	YES
Business segment FE	YES	YES	YES	YES
Nationality FE	YES	YES	YES	YES
State FE	YES	YES	YES	YES
Observations	2,231	2,231	2,231	2,231
R-squared	0.542	0.543	0.543	0.546
ll	-4,876	-5748	-4,875	-4867
ll_0	-5,748	-4874	-5,748	-5748

Table A2. Internal social capital: Experience as backers

	9	10	11	12
VARIABLES	ln_US_backers	ln_noUS_backers	ln_overfunding	Success
migrant_crowdfunder	-0.200***	0.600***	0.130	-0.102
	(0.0341)	(0.0761)	(0.286)	(0.230)
experience_as_backer	0.400***	0.0659***	0.297***	0.212***
	(0.00910)	(0.00294)	(0.0166)	(0.00866)
migrant#experience_as_backer	0.0358	0.154***	0.234***	0.246***
	(0.0448)	(0.0375)	(0.0325)	(0.0278)
Constant	1.116*	-0.796*	2.218	1.622***
	(0.551)	(0.333)	(1.171)	(0.181)
Controls as in Table 4	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Business segment FE	YES	YES	YES	YES
Nationality FE	YES	YES	YES	YES
State FE	YES	YES	YES	YES
Observations	2,231	2,231	2,231	2,231
R-squared	0.597	0.498	0.543	0.541
ll	-3,782	-2,766	-4,875	-655.0
ll_0	-4,795	-3,535	-5,748	-1,428

Table A.3. Human capital: Projects in high-tech sectors

	11	12	13	14	15
	ln_US_backers	ln_noUS_backers	ln_pledged	ln_overfunding	Success

	(1)	(2)	(3)	(4)	(5)
migrant	-0.285***	0.685***	1.159***	0.222	-0.306
	(0.0434)	(0.0922)	(0.0295)	(0.327)	(0.615)
high_tech	0.0108	-0.0325*	-0.430***	0.285***	0.164***
	(0.0363)	(0.0134)	(0.0510)	(0.0583)	(0.0578)
Migrant#high_tech	0.498**	-0.0375	0.454*	0.0426	0.697**
	(0.190)	(0.0648)	(0.227)	(0.0669)	(0.346)
Constant	1.226*	-0.771**	2.880***	2.281*	1.825***
	(0.553)	(0.293)	(0.491)	(1.145)	(0.287)
Controls as in Table 4	YES	YES	YES	YES	YES
Time FE	YES	YES	YES	YES	YES
Business segment FE	YES	YES	YES	YES	YES
Nationality FE	YES	YES	YES	YES	YES
State FE	YES	YES	YES	YES	YES
Observations	2,231	2,231	2,231	2,231	2,169
R-squared	0.597	0.496	0.518	0.542	0.538

Table A4. Sartori estimates[6]

VARIABLES	success	success	success
Selection	1	2	3
migrant	7.653	7.551	7.514
	(137.61)	(153.94)	(115.26)
experience_as_backer	0.040***	0.063***	0.036***
	(0.0108)	(0.0088)	(0.0110)
int_soc_capital_comments	-0.147***	-0.154***	-0.0152***
	(0.0112)	(0.0109)	(0.1094)
migrant#experience_as_backer		0.111	
		(116.405)	
migrant# int_soc_capital_comments			0.458
			(872.28)
Outcome			
migrant	2.205***	1.873***	1.945***
	(0.075)	(0.1022)	(0.0874)
experience_as_backer	0.016***	0.164***	0.191***
	(0.0119)	(0.0126)	(0.0129)
int_soc_capital_comments	-0.004	0.043***	-0.002
	(0.0129)	(0.0161)	(0.0138)
migrant#experience_as_backer		0.407***	
		(0.0850)	
migrant# int_soc_capital_comments			0.522***
			(0.1014)

[6] Please note that for computational reasons we were unable to run the sartori model to test the moderation of education

All models have controls as in table 4 except for nationality dummies and 48,735 observations

Table A5. Regressions without the top 5 countries immigrant crowdfunders

VARIABLES	ln_US_backers	ln_noUS_backers	ln_pledged	ln_overfunding	success
	1	2	3	4	5
migrant	-0.733**	0.432*	1.034**	-1.219	-0.440
	(0.208)	(0.220)	(0.305)	(1.166)	(0.702)
R-squared	0.592	0.487	0.523	0.538	0.535
	6	7	8	9	10
migrant	-0.741**	0.386	0.923***	-1.307	-0.594
	(0.223)	(0.200)	(0.240)	(1.100)	(0.688)
experience_as_backer	0.402***	0.0687***	0.532***	0.280***	0.208***
	(0.00300)	(0.00551)	(0.0148)	(0.0144)	(0.00796)
migrant#experience_as_backer	0.0186	0.124***	0.215***	0.258***	0.230***
	(0.0564)	(0.0293)	(0.0287)	(0.0303)	(0.0373)
R-squared	0.592	0.488	0.521	0.538	0.536
	11	12	13	14	15
migrant	-0.737**	0.424	0.971**	-1.258	-0.502
	(0.217)	(0.231)	(0.298)	(1.200)	(0.785)
int_soc_capital_comments	0.271***	0.353***	0.193***	0.744***	0.297***
	(0.0140)	(0.0144)	(0.0199)	(0.0612)	(0.0390)
migrant#int_soc_capital_comments	0.0214	0.0688	0.261***	0.385**	0.331
	(0.0814)	(0.0679)	(0.0204)	(0.150)	(0.272)
R-squared	0.592	0.488	0.522	0.539	0.536

Table A6. Regressions without Indian and Chinese immigrant crowdfunders

VARIABLES	ln_US_backers	ln_noUS_backers	ln_pledged	ln_overfunding	success
	1	2	3	4	5
migrant	-0.191***	0.681***	1.380***	0.194	0.0328
	(0.0362)	(0.0789)	(0.0837)	(0.307)	(0.235)
R-squared	0.599	0.497	0.523	0.543	0.541
	6	7	8	9	10
migrant	-0.226***	0.598***	1.279***	0.0651	-0.133
	(0.0323)	(0.0749)	(0.0706)	(0.269)	(0.217)
experience_as_backer	0.398***	0.0670***	0.537***	0.301***	0.216***
	(0.00881)	(0.00300)	(0.0222)	(0.0160)	(0.00823)
migrant#experience_as_backer	0.0647	0.167***	0.132***	0.274***	0.268***
	(0.0530)	(0.0421)	(0.0217)	(0.0364)	(0.0318)
R-squared	0.599	0.499	0.522	0.544	0.542
	11	12	13	14	15
migrant	-0.204***	0.670***	1.323***	0.170	-0.0142
	(0.0386)	(0.0738)	(0.0651)	(0.295)	(0.266)
int_soc_capital_comments	0.280***	0.349***	0.207***	0.747***	0.288***

	(0.0185)	(0.0104)	(0.0214)	(0.0496)	(0.0344)
migrant#int_soc_capital_comments	0.0773**	0.0781**	0.158**	0.228**	0.245**
	(0.0226)	(0.0305)	(0.0603)	(0.0628)	(0.119)
R-squared	0.599	0.497	0.522	0.544	0.542

All models have controls as in table
4 and 2,208 observations