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This is the author's version of a work that was submitted/accepted for publication in the following source:

Zolin, Roxanne & Schollosser, Francine (2011) Human resource characteristics of international new ventures : the role of immigrant entrepreneurs. In *Babson College Entrepreneurial Research Conference*, 8 – 11 June 2011, Whitman School of Management, Syracuse, New York.

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HUMAN RESOURCE CHARACTERISTICS OF INTERNATIONAL NEW VENTURES: THE ROLE OF IMMIGRANT ENTREPRENEURS

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Abstract

Immigrant Entrepreneurs (IE) are often portrayed as pushed into self-employment due to employment barriers in their adopted countries. But IE have human resources, like international experience, which can help them form international new ventures (INV). We question the role of IE in INV. We use randomly selected data from 561 young firms from the Comprehensive Australian Study of Entrepreneurial Emergence (CAUSEE) project. We find that IE are over-represented in INV and have many characteristics known to facilitate INV success including more founders, university degree, international connections and technical capability. These findings are relevant to policy makers, and nascent IE.

INTRODUCTION

Immigrant entrepreneurship is proposed to create job opportunities for individuals who are overlooked by mainstream labor markets, decrease competition with native-born workers, develop entrepreneurial role models, and provide a way for immigrants to increase earnings (Zhou, 2004). Through this lens immigrant entrepreneurs (IE) are often characterized as experiencing barrier-based (push) self-employment (e.g., Zhou 2004). Barriers may be present in the destination (adopted) country's government policy (e.g., Tsui-Auch, 2005) and in the labor market, including discrimination (Mata & Pendakur, 1999; Mora & Davila, 2005) and the unemployment level of the native-born (van Tubergen, 2005), but a limited barrier-based perspective that profiles immigrant entrepreneurs as congregating in ethnic enclaves and primarily developing domestic new ventures (DNV) could reflect a myopic view from the perspective of the host nation, with little regard for immigrants' international human resources and potential. From an opportunity-based view immigrant entrepreneurs could have considerable human resources relevant to the development of international new ventures (INV), such as international knowledge, experiences, and contacts. INV are businesses that, from inception, derive significant competitive advantage from the use of resources and the sale of outputs in multiple countries (Oviatt and McDougall, 1994). As we seek to understand the nature of the global business economy with its diverse and mobile human capital, momentum is also growing to study how INV develop (e.g., Evangelista, 2005). McDougall, Oviatt and Shrader (2003) found that international experience was one of the entrepreneurial characteristics linked to international sales in INV. In this new perspective immigrant entrepreneurs operate on an international business playing field, employing their international human resources, such as education, connections and experience to identify and exploit new international business opportunities. There has been debate as to whether the changing economic role of immigrants is a new phenomenon or just newly discovered and whether the trend toward understanding transnationalism is a natural evolution away from society's pre-occupation with assimilation (Portes, Guarnizo and Haller 2002). For example, recently, Ivan Light (2010, p. ix) described the evolution from a stereotype of immigrant business owners as owners of "mom and pop stores" toward a better understanding of the economic importance of immigrant entrepreneurs, for example as key players in the development of large international high tech ventures in Silicon Valley (Saxenian, 2002).

We question the role of immigrant entrepreneurs in INV. We propose that compared to native entrepreneurs immigrant entrepreneurs are over-represented in INV. We also propose that immigrant entrepreneurs will be over-represented in the human resources characteristics of INV, such as such as

having more than one founder (i.e. a founding team), having a university degree, having international experience, having entrepreneurial experience, having industry experience, having international connections, and having technical capability. To investigate the role of immigrant entrepreneurs in INV, we use data from CAUSEE, a study of 1412 nascent, young and high profile firms in Australia, a country where 25% of its population are first generation immigrants.

DEVELOPING INTERNATIONAL NEW VENTURES

International entrepreneurship reflects activities that cross national borders to create future goods and services (Honig and Drori, 2010). Such organizations can become international at any stage in their life, for example they may be “Born Global” or begin domestically, and expand later to international markets. More specifically, International New Ventures (INV) are businesses that, from inception, target competitive advantage from the use of resources and the sale of outputs in multiple countries (Oviatt and McDougall, 1994). An American field study of 214 new ventures conducted by McDougall, Oviatt, and Shrader (2003) found that INV significantly differed on the basis of their entrepreneurial team experience, strategy, and industry structure. More specifically, McDougall et al. (2003) found that the founders of INV had high levels of international and industrial experience, their strategies had a high emphasis on innovation, differentiation, quality, and included more marketing and distribution channels than DNVs, and they operated in more globally integrated industries. Evangelista (2005) provided qualitative insights into the venture creation process highlighting differences in founders, environment, processes and the organization. Most notably, her interviews described characteristics of an INV founder including tendency toward working in teams, higher education, international experience, technical capabilities and previous industry and entrepreneurial experience. Her work provides a starting point for more generalizable quantitative study and the basis for our theoretical model (See Figure 1), which will be explained in the following literature review. Previous “Born Global” researchers have also identified factors that shape the development of INV (e.g., Knight and Cavusgil, 1996; Madsen and Servais, 1997; Oviatt and McDougall, 1994) but have focused upon basic entrepreneurial firm behaviors and the uncertain international business environment with little study of ethnicity and multiple affiliations (Honig and Drori, 2010, p. 201). In contrast, transnational entrepreneurship is a separate stream of international research, focusing on new ventures that stem from migration and globalization. Transnational entrepreneurs migrate from one country to another but maintain linkages with both original and adopted countries (Honig & Drori, 2010). Transnational entrepreneurs co-locate new business operations in both countries. These two research streams demonstrate the fragmentation in previous literature on international entrepreneurship; with the Transnational stream emphasizing ethnic and migration issues and the INV stream emphasizing non-ethnic competitive issues. Our study attempts to connect these streams, by examining the role of immigrant entrepreneurs in developing INV. In the following sections we identify the phenomenon of immigrant entrepreneur founders in INV and consider how their unique human capital is conducive to forming INV.

Insert Figure 1 about here

Immigrant Entrepreneur involvement in INV

Immigrants are nearly 30% more likely than natives in the United States to start a new business (Fairlie, 2008). A potential difference among immigrant entrepreneurs lies in the ability to span multiple networks. Lechner, Dowling and Welpé (2006) explained firm networks and development as a function of the relational mix rather than network size alone. Social networks are the largest network at the start of a firm’s existence, and are most likely critical at the pre-foundation stage, when entrepreneurs are assembling their resources (Lechner, Dowling, & Welpé, 2006). By utilizing relevant foreign experience to bridge networks in different countries, immigrant entrepreneurs can take advantage of the price and value differentials between the two networks. Hence some immigrants are more aware of international opportunities and better able to capitalize them through international activities. Access to such varied networks provides greater opportunity to find pertinent resources than access to one large network (Granovetter, 1985). This underlines a shift in thinking about immigrants and social capital. Instead of

focusing on the disadvantages of a smaller network in their adopted country relative to native-born entrepreneurs, immigrants can build stronger competitive advantage on international experience through access to networks in adopted and original countries. In this new perspective immigrant entrepreneurs operate on an international business playing field, employing their international human resources, such as education, connections and experience to identify and exploit new international business opportunities. We propose that because Immigrant entrepreneurs likely have the international knowledge, experiences, and contacts that are linked to the development of INV (McDougall, Oviatt and Shrader 2003) they will be over-represented in INV. Hence

H1: When compared to natives of the host country we expect that a disproportionately high number of INV are founded by immigrants,

Founder Characteristics of INV

Evangelista conducted a small in-depth interview study to understand what factors contributed to the emergence of INV. The data are based on in-depth interviews with the founders and focus on the major characters, events and context from the time the business idea was developed and through its evolution and entry into foreign markets (Evangelista, 2005). From this qualitative study Evangelista (2005) proposed that INV have more than one founder (i.e. a founding team), and the founder is more likely to have a university degree, international experience, entrepreneurial experience, industry experience, international connections, and technical capability. We suggest that in capitalizing these characteristics, immigrant entrepreneurs are positioned to be “pulled” into the creation of INV. In the next section we explore these propositions and develop hypotheses.

Capitalizing Teams

Immigrants may be disadvantaged by lack of access to human and financial capital, for example their credit history may not be easily accessible, making it difficult to apply for credit in their adopted country. They may not be aware of regulatory or cultural entrepreneurial norms in the adopted country. In some countries, new immigrants are subject to restrictions on enterprise ownership not experienced by native entrepreneurs. In order to expand their resources, they may seek out partners to develop their business ideas, and to complement their international expertise. The establishment of a founding team will smooth the development of their headquarters in the adoptive country. Chaganti, Watts, Chaganti, Zimmerman-Treichel (2008) concluded that new ventures with an ethnic-immigrant presence in the founding teams tended to pursue a more aggressive prospector strategy than those with non-ethnic-non-immigrant founding team members. However, the positive effects of ethnic-immigrant presence on founding teams depended on team size and average age of the founding team members. Additionally McDougall et al. (2003) concluded that founding teams with at least one member with international experience created more successful INV. Hence we propose that,

H2a: When compared to natives of the host country we expect that immigrant entrepreneurs will be more likely to start a firm with a founding team.

H2b: When compared to natives of the host country we expect that immigrant entrepreneurs will start a firm with a greater number of founders.

H2c: There is a positive relationship between number of founders and INV.

Capitalizing Education

Previous researchers have connected higher education of the firm founder with firm growth (Ostgaard & Birley, 1996). Immigrants are on average more highly educated than natives (Baker &

Benjamin, 1994) with more years of schooling (Ferrer & Riddell, 2008), probably due to the country's immigration selection criteria. American research has also concluded that immigrants and immigrant children are likely to have higher educational aspirations than natives (Vernez & Abrahamse, 1996). Students who pursue foreign studies may build upon their personal and social capital to become immigrant entrepreneurs (Schlosser and Kerr, 2010). Such an individual process of learning and adaptation also helps to develop the cultural capital (Luo 2001) needed to transcend national boundaries. The opportunity to learn about more than one culture creates a unique advantage for immigrants and international students and might stimulate the opportunities to develop ties needed to establish international ventures. Through their studies, international students have opportunities to meet other students, both international and from the host country. The exposure increases the size of the social networks and the likelihood that international students will be able to establish friendships. Previous research suggests that these friendships facilitate the formation of a management team, and they can support new venture performance (Francis & Sandberg, 2000). Of special interest, international students are often well positioned while studying to develop a network of friends who are also from their home country, creating the strong potential for transnational partnerships (Neri and Ville, 2008). Saxenian (2002) described the dominance of high-tech immigrant entrepreneurs in Silicon Valley, California. Wadwha et al. (2007) noted that 25 percent of engineering and technology companies started in the late '90s and early '00s were founded by immigrants. Accordingly, we hypothesize that

H3a Compared to native entrepreneurs immigrant entrepreneurs are more likely to have a university education.

H3b: There is a positive relationship between university education and INV.

H4a Compared to native entrepreneurs, immigrant entrepreneurs will have greater levels of technical capability than native entrepreneurs.

H4b: There is a positive relationship between technical capability and INV.

Capitalizing Experience

Immigrants arrive in their adopted countries with relatively high levels of international knowledge and experience. Previous research contrasting differences between international new ventures (INV) and domestic new ventures (DNVs) in a U.S. survey of 214 new ventures found the entrepreneurial team of INV exhibited higher levels of previous international experience (McDougall et al., 2003). A recent Canadian study indicated that immigrant work experience in their countries of origin is valued much less than the experience of comparable natives (Ferrer and Riddell, 2008). This lower return on educational investment in traditional employment might push immigrants to consider starting their own international venture. In this way they can better capitalize their foreign experience. Naturally we expect that immigrant entrepreneurs will have greater international experience than native entrepreneurs. We propose that even within the select group of those starting INV IE will have more international work experience than DE. Hence we propose:

H5a: Immigrant entrepreneurs engaged in INV will have higher levels of international work experience than native entrepreneurs engaged in INV.

H5b: There is a positive relationship between international work experience and INV.

Individuals who start successful new ventures are likely to have had exposure to the industry, potentially "learning the ropes" from mentors already owning a business (Georgellis, Sessions and Tsitsianis, 2005b). Evans and Leighton (1989), Taylor (2001) and Georgellis, Sessions and Tsitsianis (2005a) have all concluded that prior business ownership influences the decision to start a new venture. Researchers have found that successful entrepreneurs have a history of family business and utilize these family contacts in setting up their businesses (Greve & Salaff 2003), with their own business success correlated with prior work experience in a family business (Fairlie and Robb, 2007); notably immigrants

have developed these close family ties (Brenner & Toulouse 1990). Immigrants may find it easier to identify business opportunities in their adopted country that are associated with their prior industry and work experience accumulated in another country. Consequently we propose IE will have greater entrepreneurial and industry experience:

H6a Immigrant entrepreneurs will have higher levels of entrepreneurial experience than native entrepreneurs.

H6b: There is a positive relationship between entrepreneurial experience and INV.

H7a: Immigrant entrepreneurs will have higher levels of industry experience than native entrepreneurs.

H7b: There is a positive relationship between industry experience and INV.

Among major industries, the highest representation of immigrant-owned business starts is in the wholesale and retail trade which capitalizes their international connections (Fairlie 2008). While it is intuitive that IE will likely have more international connections than NE, IE may also value international connections more highly and seek to develop them. Hence we propose:

H8a: Immigrant entrepreneurs will develop more international connections than native entrepreneurs.

H8b: There is a positive relationship between international connections and INV.

METHOD

To investigate the role of immigrant entrepreneurs in INV and DNV, we conducted a study of young firms in Australia, a country where 25% of its population are first generation immigrants. We drew data on 561 young firms from the Comprehensive Australian Study of Entrepreneurial Emergence (CAUSEE) project database (Davidsson, Steffens, & Gordon, 2008), which provides a screened random sample of 1,186 Australian nascent and young business ventures. This data was collected during 2007/8 as part of a longitudinal panel study conducted over four years. Importantly for our study, this methodology allows for the random capture of active nascent and young ventures, thus gaining a more representative sample than most other survey methods. In the CAUSEE database young firms with immigrant founders represented 26% of the sample, closely reflecting the percentage of immigrant entrepreneurs in the population.

We created dichotomous variables to represent Immigrant entrepreneur, INV and most of the characteristics of INV. *Immigrant entrepreneur* is a dummy variable with 1 indicating the overseas born founder of the young firm, and 0 indicating a native born founder. *International New Venture (INV)* is coded with 1 indicating a new firm with international sales, while a 0 is a new domestic firm with no international sales.

More than one founder (*Team*) was coded 1 if the founder answered the question “Will the new business be owned only by yourself, only by yourself and your spouse/defacto, or by yourself and some other people or businesses?” with “Self and spouse/defacto only” or “Self and others”. Number of owners (*Bus. Owners*) was determined from the question: “How many owners in total does the business have?”

University education was coded 1 if respondents reported a Bachelors or Higher University degree e.g. Masters, Doctorate, as their highest level of education

Depth of International experience (Intl Exp) was measured by years in other countries.

Breadth of international experience was measured by the number of countries worked in. International Depth was coded from the question: “After the age of 18 but before starting this firm, how many years, if any, have you spend in countries other than Australia?” Breadth of International Experience was coded in answer to the question: “After the age of 18 but before starting this firm, in how many countries outside Australia have you worked or studied for a period of three months or more?”

Entrepreneurial experience was measured by the number of businesses currently owned.

Industry experience was measured by the answer to the question: "Prior to starting this business, how many years of work experience, if any, did you have in the industry where this new business will compete?"

International Connections Face to Face (Intl ConF2F) was coded 1 when asked indicate which of the international activities their business is involved in the respondent selected "Exchange if ideas or information with individual colleagues abroad who you meet in person, for example at trade fairs?"

International Connections Mediated by Technology (Intl Con Tech) was coded 1 when asked indicate which of the international activities their business is involved in the respondent selected "Exchange of ideas or information with individual colleagues abroad via phone, email or internet?"

Technical capability was assessed by R&D, High-tech, and Proprietary technology (Prop tech). R&D was coded 1 if respondents answer "Yes" to the question: Is spending on research and development be a major priority for this business? High technology was coded 1 if the respondents said they consider the business to be hi-tech. Proprietary technology was coded 1 if the respondent answer "Yes" to the question "Has this business developed any proprietary technology, processes or procedures that no other company can use, will it in the future, or is this not relevant to the new business?"

Analysis

We used Logistic regression analysis to test the hypotheses with a dichotomous dependent variables, such as INV. Logistic regression is a form of regression analysis that allows for a dichotomous dependent variable (Hamilton, 1998). The overall chi-square test to evaluates the null hypotheses that all coefficients in the model, except the constant, are zero, i.e. for the dependent variable there is no difference between IE and not IE. If chi-square is significant the probability of a greater chi-square with one degree of freedom (the difference in complexity between initial and final models), is low enough to reject the null hypotheses. When the dependent variable was categorical we used Analysis of Variance (ANOVA) to test differences in means and Bartlett's test for equal variances.

RESULTS

Table 1 shows the descriptive statistics for YF, Table 2 shows the correlations between all variables with significant relationships indicated. Table 3 shows the results of the Logistic regression models with each dependent variable regressed on IE. Table 4 shows the results of the ANOVA for the categorical variables with the means of IE compared to NE. Table 5 shows the logistic regressions on INV in young firms.

Insert Tables 1, 2, 3, 4 and 5 about here

We expected that a disproportionately high number of international new ventures are founded by immigrants when compared to natives of the host country. Hypothesis 1 was supported in YF since IE were more likely to have an INV than DE (OR = 2.1, $P > \text{Chi}^2 = .001$).

When compared to natives of the host country Hypothesis 2a proposed that immigrant entrepreneurs will be more likely to start ventures with a founding team. This found only partial support in YF (OR=.69, $P > \text{chi}^2 = .058$). Hypothesis 2b proposed that when compared to natives of the host country we expect that immigrant entrepreneurs will start ventures with a greater number of founders. This was barely significant in YF ($F=2.72$, $P > F=.09$).

Compared to native entrepreneurs, Hypothesis 3 proposed that immigrant entrepreneurs are more likely to have a university education. This was supported in YF (OR=1.71, $\text{Prob} > z=.006$).

We proposed in Hypothesis 4 that compared to native entrepreneurs, immigrant entrepreneurs will have greater levels of Technical capability than native entrepreneurs. In YF this was supported for R&D

(OR =1.61, $P > z = .025$), and High Technology (OR =,1.63 $P > z = .02$) and development of proprietary technology (OR =2.49, $P > z = .002$).

When starting INV we propose Immigrant entrepreneurs will have higher levels of international experience than native entrepreneurs. Hypothesis 5 was supported in YF for Depth of International Experience ($F=29.41$, $P > F=.000$) but not for Breadth of International Experience in YF ($F=.19$, $P > F=.427$).

In Hypothesis 6 we proposed that compared to native entrepreneurs, immigrant entrepreneurs will have higher levels of Entrepreneurial experience than native entrepreneurs. The difference in the average number of businesses currently owned was barely significant in YF ($F=2.74$, $P > F=.0982$).

Compared to native entrepreneurs, immigrant entrepreneurs will have higher levels of Industry experience than native entrepreneurs. Hypothesis 7 found only marginal support in YF ($F=3.68$, $P > F=.055$).

Hypothesis 8 proposed that compared to native entrepreneurs, immigrant entrepreneurs will develop more International connections than native entrepreneurs. We found a significant difference in the means of IE compared to NE for International Connections Face to Face in YF (OR=1.68, $P > z=.015$). We did not find a significant difference in International Connections Mediated by Technology for YF (OR=1.18, $Prob > z=.570$).

A number of hypotheses proposed positive relationships between the human resources characteristics and the starting of INV. We the following relationships with INV are reported in Table 5: H2c: number of owners (Odds ratio = 0.98, n.s.), H3b: university education (Odds ratio =1.21, n.s.), H4b: technical capability (R&D: Odds ratio = 1.25, n.s.; Hi tech: Odds ratio = 1.83, $P > z= 0.02$; Proprietary technology: Odds ratio = 1.63, n.s.), H5b: international work experience (Depth: Odds ratio = 1.01, n.s.; Breadth: Odds ratio = 1.15, $P > z= 0.04$) H6b: entrepreneurial experience (Number of businesses owned: Odds ratio = 1.14, n.s.) H7b: industry experience (Odds ratio =0.99, n.s.)H8b: international connections (F2F: Odds ratio =1.40, n.s.; Through technology: Odds ratio =3.51, $P > z= 0.00$).

A summary of our findings are shown in Figure 2.

Insert Figure 2 about here

DISCUSSION

Immigrant entrepreneurs are often portrayed as being pushed into necessity-based entrepreneurship due to limited employment prospects. We questioned whether immigrant entrepreneurs may in fact use their international human capital to exploit international opportunities and develop INV. Our results indicate that a significantly higher percentage of immigrant entrepreneurs start INV than would be expected by their numbers in the population. IE are also over-represented in possession of some of the characteristics associated with INV, including having a university education, depth of international experience, developing face-to-face international connections and greater technical capability. Other INV characteristics that were marginally significant include starting with a greater number of founders, entrepreneurial experience, and industry experience. INV characteristics that were not significant were developing technology mediated international connections, and number of businesses currently owned, which reflects entrepreneurial experience. From these results we see a clear pattern supporting the role of IE in INV. A significant percentage of IE leverage their international human resources to develop INV. On average the IE are more likely to have the human resources needed to start INV than the native entrepreneurs. We were surprised that IE were not significantly more likely to start with an entrepreneurial team compared to NE or to have a greater number of founders. It may be that other issues are confounding this result. More research is needed on this. It is expected, although not always remembered, that IE are more likely to have a university education than NE. These findings make sense in light of immigration policies in countries like Australia, the United States and Canada, where skills and education are required for the many categories of immigration visas. It seems unnecessary to test whether IE would have more international connections than NE, but we wondered if IE in INV would have more international connections than NE involved in INV. It is not surprising to find that IE operating INV have greater depth of international experience than NE operating INV, although on average IE had greater breadth of

International experience compared to NE, the difference was only barely significant. This could be due to the great interest Australians young and old take in visiting overseas countries. Policy makers should keep in mind the potential future benefit to the economy of having a well-travelled population. We expected to find that IE would also have greater entrepreneurial and industry experience. Although immigration policies favour immigrants with these skills, the bias towards higher skills in these areas may not be as great as for education. More research could determine the reason for no significant difference in this area. Like international experience, it is obvious that IE will have more international connections than NE. But it is interesting that IE are also more likely to attend Trade fairs and other face to face forms to develop international connections. Possibly being more familiar with the international business scene, they are even more aware of the need for such connections. Alternatively IE may know of international events from prior international experience.

This research makes a contribution to the theory of immigrant entrepreneurship by identifying the significant role of immigrant entrepreneurs in INV and the suitability of the immigrant entrepreneurs for the development INV. We combine the literature and streams of research in transnational and immigrant entrepreneurship with that of the broader strategic work on the creation of INV. Our study has large implications for immigration policy and economic policy and the efficient use of a nation's human capital. A common issue is the underutilization of immigrants, who immigrate only to find that their skills and experience may not be transferable to the domestic market of their adopted country. This research challenges a necessity-based stereotype of immigrant entrepreneurs by identifying areas in which immigrant entrepreneurs have natural competitive advantages over native entrepreneurs. We examine how countries might optimally use their immigrant human capital. This study is limited by only being conducted in one country, Australia. Further research is needed to replicate this study in other countries and over time. Although comprehensive, the survey is single source administered at one point in time, and this may lead to some bias.

CONCLUSION

Immigrant entrepreneurs are often portrayed as being pushed into necessity-based entrepreneurship due to limited employment prospects. We questioned whether immigrant entrepreneurs may in fact use their international human capital to exploit international opportunities and develop INV. Our results indicate that a significantly higher percentage of immigrant entrepreneurs start INVs than would be expected by their numbers in the population. IE are also over-represented in possession of some of the characteristics associated with INV, including having a university education, depth of international experience, face-to-face international connections and greater technical capability. More research is needed to replicate this study in other high immigration countries, such as the USA and Canada.

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Table 1 Descriptive variables Young firms (N=561)

Variable	Obs	Mean	Std. Dev.	Min	Max
IE	561	.2566845	.4371936	0	1
INV	561	.2067736	.4053532	0	1
Team	561	.4634581	.4991079	0	1
Owners	561	.4527629	1.104373	0	6
Uni Ed	561	.3761141	.4848415	0	1
Depth intl exp	561	4.454545	9.75129	0	51
Breadth int exp	561	1.074866	3.993042	0	50
Bus.owned	561	.3832442	.9825282	0	12
Ind. Exp.	561	13.32799	15.28536	0	98
Intl Con F2F	561	.2442068	.4299993	0	1
Intl Con Tech	561	.3672014	.4824723	0	1
R&D	561	.2495544	.4331413	0	1
Hi tech	561	.2655971	.4420448	0	1
Prop. Tech.	561	.0980392	.2976331	0	1

Table 2 Correlations Young Firms (N = 561)

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1. IE													
2. INV	.14***												
3. Team	-.08+	.03											
4. Owners	.07	.10*	.44***										
5. Uni Ed	.12**	.15***	.05	.17***									
6. Depth intl	.42***	.21***	.15***	.36***	.25***								
7. Breadth intl	.13***	.23***	.03	.17***	.19***	.43***							
8. Bus.owned	.07	.12***	.23***	.42***	.02	.22***	.21***						
9. Ind. Exp.	.08+	.02	.24***	.34***	.14***	.24***	.06	.18***					
10. Intl Con F2F	.10**	.25***	-.02	.08+	.15***	.12**	.14***	.09*	.02				
11. Intl Con Tech	.17***	.35***	-.03	.10*	.17***	.25***	.18***	.08+	.01	.56***			
12. R&D	.09*	.16***	.06	.00	.06	.07	.12**	.04	-.01	.13***	.21***		
13. Hi tech	.10*	.17***	.03	.10*	.17***	.07	.02	.01	.07+	-.10*	.16***	.24***	
14. Prop. Tech.	.14***	.16***	.05	.15***	.09*	.16***	.12**	.13***	.10*	-.11**	.12***	.21***	.20***

Table 3 Logistic regressions of IE on dependent variables in Young Firms (N=516)

Dependent variable	Odds Ratio	Std. Err	z	P>z	Prob>chi2
INV	2.10	.46	3.35	0.001	.001
Team	.69	.13	-1.88	0.060	.058
Uni Ed	1.71	.33	2.75	0.006	.006
Intl Con F2F	1.68	.36	2.42	0.015	.017
Intl Con Tech	1.18	.35	0.57	0.570	.570
R&D	1.61	.34	2.24	0.025	.027
Hi tech	1.63	.34	2.34	0.019	.020
Prop. Tech.	2.49	.72	3.13	0.002	.002

*** p<.001, ** p<.01, * p<.05, + p<.10

Table 4 ANOVA tests for differences between IE and NE in YF (N=561)

Dependent variable	IE Mean	NE Mean	F	Prob>F	Bartlett's
Owners	.58	.41	2.72	.0999	.001
Depth Intl	16.64	3.61	29.41	.000	.000
Breadth Intl	3.27	2.58	.19	.662	.427
Bus. Owned	.50	.34	2.74	.0982	.467
Ind Exp	15.43	12.60	3.68	.055	.000

Table 5 Logistic regressions on INV in Young Firms (N=516)

Independent variable	Odds Ratio	Std. Err	z	P>z
Team	1.00	0.27	0.01	1.00
Num owners	0.98	0.13	-0.19	0.85
Uni ed	1.21	0.30	0.77	0.44
Depth intl exp	1.01	0.01	0.72	0.47
Breadth intl exp	1.15	0.08	2.03	0.04
Num bus own	1.14	0.14	1.08	0.28
Industry exp	0.99	0.01	-1.00	0.32
Intl Con F2F	1.40	0.39	1.21	0.23
Intl Con Tech	3.51	0.99	4.45	0.00
R & D	1.25	0.34	0.83	0.41
Hi tech	1.83	0.47	2.33	0.02
Prop. tech	1.62	0.58	1.34	0.18
Prob > chi2	0.00			
Pseudo R2	0.19			
LR chi2(13)	106.03			

*** p<.001, ** p<.01, * p<.05, + p<.10

Figure 1 Theoretical model of the role of IE in INV

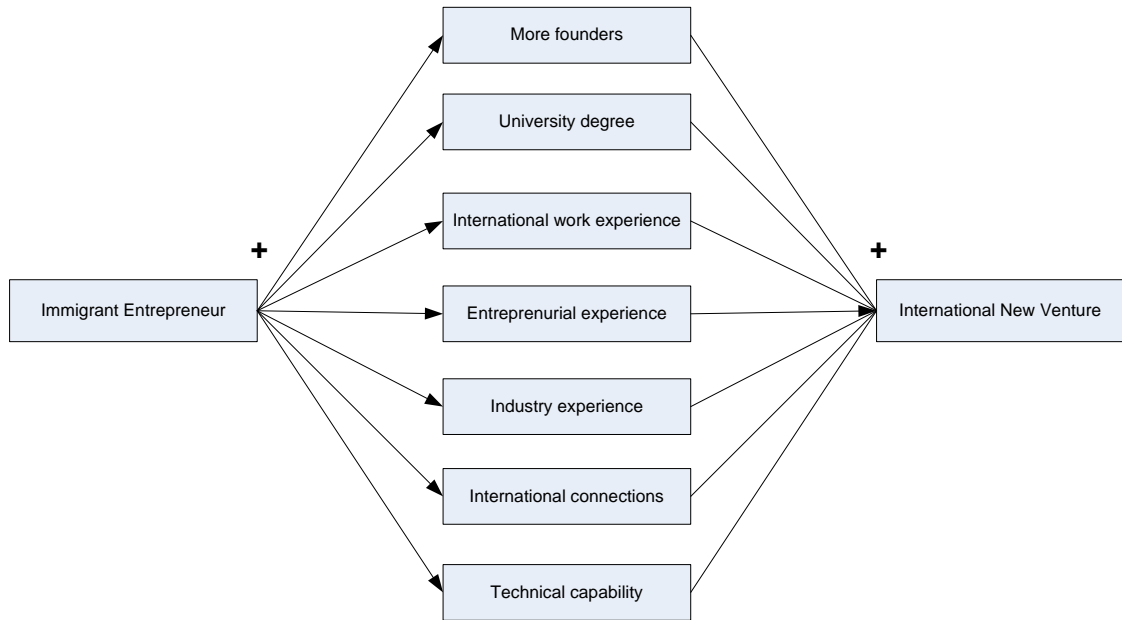
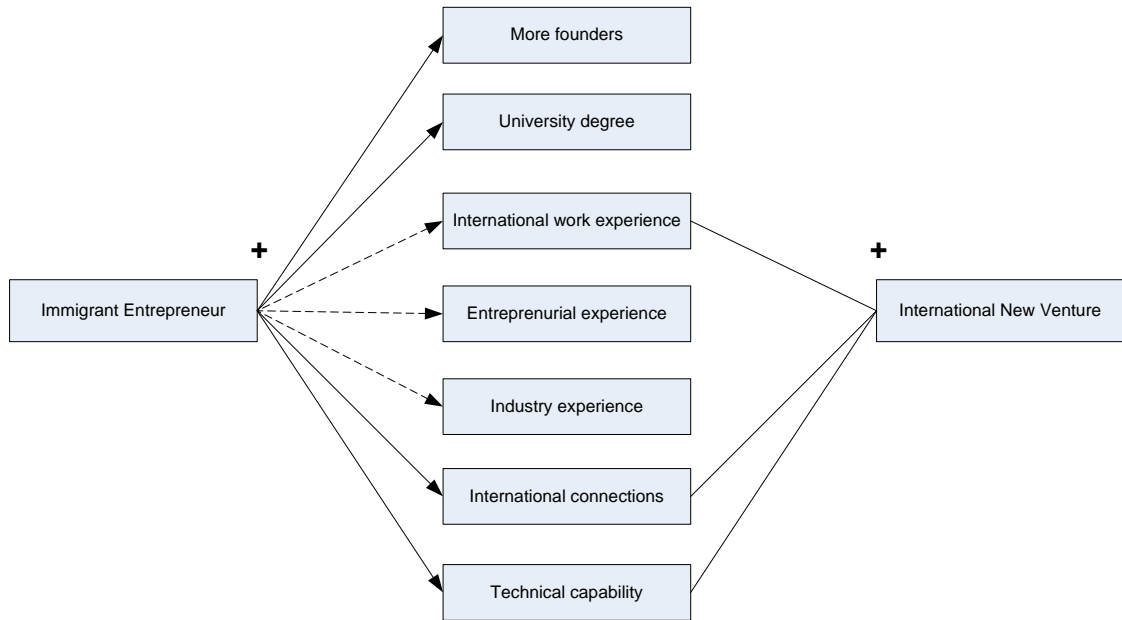


Figure 2 Findings



-- p < .09, ___ p < .05