Immigrant Remittances and the Venture Investment Environment in Developing Countries

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Abstract

Despite the increasing importance of financial and social remittances to developing countries, their impact on venture investing in developing countries has largely been overlooked. We develop a framework grounded in social knowledge and transaction cost theories to investigate the relationship between immigrant remittances and home country: (1) capital availability; (2) new business creation; and (3) international trade openness. Studying 65 developing countries from 2001 to 2007, we find that immigrant remittances have positive effects on these entrepreneurial outcomes, suggesting the important role of immigrants in providing venture capital and ideas for developing country growth and integration into the world economy.

Key words: Entrepreneurship, immigrant remittances, developing countries, internationalization, venture capital

Introduction

In this paper, we develop and test a theoretical framework for understanding how developing country immigrants working abroad may significantly alter the availability of capital and ideas for starting new businesses back home. Entrepreneurship research to date has largely ignored this possibility even though data from the World Bank (WDI, 2008) indicate that developing country immigrants working abroad now number in the tens of millions and send home tens of billions of dollars annually.[1] It may be that entrepreneurship researchers assume these billions of dollars are merely for home-country subsistence needs such as food, shelter, education and healthcare for family members. If so, then this assumption runs counter to speculation among development economists (*e.g.*, Woodruff & Zenteno, 2007) and public policy scholars (*e.g.*, Haas, 2005) that immigrants abroad are increasingly important for supporting new businesses back home. Immigrant ideas and relationships developed abroad may also provide "social" remittances helping these funded ventures prosper and expand internationally. If true, then immigrants are vital players in developing country entrepreneurship and venture investing. Researchers in the field of international entrepreneurship can and should lead efforts to develop theoretical insights and empirical evidence related to immigrants and the important role their money and ideas may play in providing venture capital and in fostering venture investment back home.

This paper contributes to these efforts by developing and then testing predictions derived from a theoretical framework for immigrant remittance and venture investing grounded in a social knowledge perspective (Polanyi, 1966; Kogut & Zander, 2003) and in transaction cost economics (Coase, 1937; Williamson, 1985; Henisz, 2000). Developing country immigrants working abroad

[1] According to the World Bank, 2007 saw 150 million immigrants worldwide sending more than $300 billion dollars directly to more than 450 million households living in developing countries (World Bank, 2008).

may be willing to risk financial and social remittances for new ventures because of special relationships they have with home-country exchange partners. These transnational relationships matter. Potential investors in developing countries face substantial transaction costs when moving money and ideas across borders. Transaction cost scholars from Coase (1937) to Williamson (1985) and Henisz (2000) have pointed out that these costs relate to coordination, that is, the costs of negotiating, implementing, overseeing, and in the breach, coercing transfers through legal enforcement. In developing countries with less established formal institutions to coordinate these transfers, money and ideas flowing from foreign individuals, banks and venture funds might be trivial with no significant impact on the venture investment back home.

But, that might not be the case for immigrant remittances. We opine that informal relationships in developing countries pick up where more formal institutions leave off. Relationships between immigrants and those who they leave behind may resemble other family, clan and informal organizational relationships where common social knowledge and shared values decrease tendencies toward opportunistic behavior in international exchanges. As Kogut and Zander (2003) point out for transfers within multinational enterprises, easier communication and lower coordination costs can compensate for weaker financial and legal institutions. Social knowledge and shared values connecting immigrants to exchange partners back home can lead to remittances of money and ideas significantly altering the venture investing environment back home.

Our framework builds on this logic and suggests at least three predictions we then test for empirical support. First, we predict that developing country immigrant remittances increase the availability of venture capital in the home country. Second, we predict that developing country remittances increase new business creation in the home country. Third, we predict that developing

country remittances increase economic internationalization --trade openness-- in the home country.

All three predictions find substantial support in analyses of immigrant remittances to 65 developing countries from 2001 to 2007. Immigrant remittances are significantly associated with greater business access to capital and with greater venture capital availability back home. Count of new business start-ups and levels of economic openness back home are also positively related to immigrant remittances. We observe these associations in multivariate analyses also accounting for other factors typically affecting capital availability, new business creation rates, and economic openness. We observe these associations in bivariate non-parametric analyses as well. The associations we observe prove substantially robust to reasonable alternatives in sub-sampling, model specification and estimation approach. Together, these results document broad-based support for our framework and the general proposition that developing country immigrants constitute a significant source of entrepreneurial finance and ideas enhancing the venture investment environment back home.

Thus we promise both theoretical and empirical contributions to international entrepreneurship research. In terms of theoretical contribution, we are first to propose an organizing framework explaining why developing country immigrant remittances might go beyond basic subsistence support and significantly enhance the venture investment environment back home. Empirically, we are first to document in a broad sample, cross-country study the significant and positive impact of immigrant remittances on various indicators of the venture investment environment back home. Our framework and evidence raise several implications for current and future research, practice and public policy initiatives, which we discuss in the final section of this study.

Background and Relevant Literature

Immigrant financial remittances, that is, transfers of foreign monies by immigrants back to their home countries, are now the second largest type of foreign capital flow to developing countries after foreign direct investment (FDI). In some countries, remittances account for a substantial percentage of GDP. In Tajikistan, Moldova, and Tonga remittances amounted to more than 30% of GDP in 2007 (World Bank, 2008). Figure 1 illustrates another attribute of remittances in developing countries. Compared to FDI or portfolio flows, remittances are more stable and reliable capital flows. They go directly to individuals who need them, thus with greater potential for direct impact on capital availability in developing countries (Docquier & Rapoport, 2005).

Immigrant remittances are not limited to money. Social remittances[2] include new ideas and the learned behaviors and developed social relationships that underlie the ideas (Levitt,1998). Immigrants may be particularly adept at transferring such money and ideas. As nationals who "made it "abroad, they have greater legitimacy with peers back home. Their proposals are likely to be perceived as "new" and worthy of closer review (Williams, 2007). Thus, their money and ideas may play a role similar to domestic venture investors with some track record of success in funding and guiding new businesses.

[Place Figure 1 about here]

China is one example illustrating the importance of immigrants and their remittances for entrepreneurial activities in developing countries. According to an International Labor Office report (2004), since 1990, approximately 55 million Chinese immigrants have remitted close to $60 billion as business investment in Taiwan and Mainland China. Among those investments is

[2] Measuring the flow of social remittances to developing countries is difficult than measuring financial remittances, which organizations such as the World Bank have been measuring across countries since the late 1990s. For purposes of this study, we assume that social and financial remittances flow together. Thus, in measurement, we use financial remittances to proxy for social remittances as well. For the remainder of this study, we use the term *remittance* to refer to both financial and social components.

the Hinschu Science-Based Industrial Park in Taiwan where 40% of all businesses were funded by remittances from Chinese immigrants in Silicon Valley (Gosh, 2006). These long distance relationships also promoted international trade, particularly with US West Coast firms (Public Policy Institute of California, 1999).

India is another example. In 1990s, many successful Indian software producers left India to work in US. They used accumulated funds and technological know-how to start new businesses or to fund existing businesses in India, often with the aim of exporting their wares to the US. The entrepreneurial activities contributed to the growth and internationalization of Indian software industry, which grew 40 % in 1990s (Kuznetsov & Sabel, 2006).

These two examples and others (*e.g.*, Turkey, Disbudak, (2004)) suggest that immigrant remittances serve as more than simply payments to help less fortunate relatives at home with basic subsistence needs. Remittances apparently influence the home country venture environment with additional capital for businesses leading to new start-ups and or substantial expansion of existing businesses, and to their internationalization. Such case study examples are emblematic of current work on the possible role that developing country immigrants might play as venture capitalists back home. Woodruff and Zenteno (2007) moved beyond case study to more quantitative statistical research indicating remittances from Mexican immigrants in the US alleviated capital constraint and increased sales and profits for firms back home, especially for firms in capital-intensive sectors. But, we still lack broad sample cross-country evidence to compare with case studies and single country analyses. We also still lack any theoretical grounding to understand on a cross-country basis why developing country immigrants might play significant roles in the venture investing environment back home.

Theory Development and Hypotheses

In response, we first develop a framework for understanding the logic of developing country immigrant remittances as a significant source of money and ideas to fund, start and internationalize new businesses back home. Our framework is grounded in TCE and social knowledge theories, and rests on two assumptions. First and consistent with TCE theory (Coase, 1937; Williamson, 1985; Henisz, 2000), we assume that capital flows to developing countries from "standard" sources such as MNEs, venture funds and wealthy individuals are often stifled by communication and coordination costs associated with their transfer. The extent of such communication and coordination costs are tied to the less-established and fluid nature of legal, political and financial institutions in developing countries. Second and consistent with social knowledge theory (Polyani, 1966; Kogut & Zander, 1996, 2003), we assume that immigrants have access to informal relationships tied to family, clan and or other organizational memberships that compensate for institutional weakness and permit significant remittances to flow to new business start-ups, particularly if they reconnect the remitter to the home country through business internationalization. We elaborate below on the bases for these two assumptions, on the resulting framework for theorizing about immigrant remittances, and on three hypotheses derived from the framework for empirical investigation.

Venture Investing and Transaction Costs in Developing Countries

Entrepreneurial activities foster prosperity and growth in both developing and developed countries. As Shane and Venkataraman (2000) note, they introduce new products, production processes, open up new markets, and establish new supply of resources, and new ways of organizing. Developing countries garner a smaller share of these entrepreneurial activities for several reasons familiar to entrepreneurship scholars. Developing countries often lack skilled human capital to create and exploit new business opportunities. This follows in part from

immigration of better educated nationals to the developed world (Adams, 2003). Even when there are new business opportunities and qualified managers, venture capital to fund start-ups is scarce, credit markets are turbulent and borrowing is difficult (Paulson & Townsend, 2004). At a higher, institutional level, basic assumptions about the nature of contracts and their enforceability as well as business regulation and its stability are less established and more vulnerable to being overturned in developing countries (Hoskisson *et al.,*2000).

We think these and other detriments to the venture investing environment of developing countries are summarized well in TCE terms. Costs associated with internationally coordinating the transfer of venture funds and ideas to developing countries deter many foreign individuals and firms. In Coasean (1937) terms, the costs of negotiating, implementing, overseeing and in the breach coercing through legal enforcement are too high and stifle foreign venture investing. From Williamson's (1985) TCE perspective, the prospect of opportunistic breach by and costly re-negotiation with developing country entrepreneurs presents additional barriers to potential venture investors from abroad. Henisz (2000) adds to this TCE perspective with insight about the more volatile investment environment developing countries present. Developing countries with fewer policy-making "veto points" also see more frequent changes in public investment policies over time. Policy instability about the rules of the game for foreign investors creates more disincentives.

Immigrant Remittances and Social Knowledge in Developing Countries

In this context, it is fair to ask why immigrants and their remittances might behave differently from so many other foreign individuals and firms deterred from venture investing in developing countries. We have already noted case studies and single country surveys chronicling the quantity and quality of venture investing by immigrants from India (Kuznetsov & Sabel, 2006), China (Gosh, 2006), Mexico (Woodruff & Zenteno, 2007), and Turkey (Disbudak, 2004).

One common theme in these recent studies and surveys is immigrant interest in going abroad to accrue both capital *and new business ideas* (Docquier & Marfouk, 2004). For example, Dustmann and Kirkchamp (2002) reported that approximately half of all immigrants returning to Turkey from Germany in the 1990s started new businesses within four years of their return. Another common theme is immigrant education and skill advantages compared to fellow nationals they leave behind (Adams, 2003). Combined with experience and relationships typically developed abroad (Kilic *et al.,* 2007), immigrants may represent a special case of Kirzner's (1997) entrepreneur with better information and greater interpretive capability to see and exploit business opportunities. Immigrants have such advantages back in their home country compared to domestically-based nationals and foreign individuals and firms (Portes, 2002).

Extended families appear to be central in these immigrant relationships. Disbudak's case study (2004) highlighted the importance of close relatives for Turkish immigrants in Germany transferring new manufacturing technologies back home. In a broader sense, we might think of extended immigrant "clans" distinguished by norms of reciprocity, social solidarity, trust, mutual support, and loyalty (Portes, 2002). Clans become governance mechanisms where '*...common values and beliefs provide the harmony of interests that erase the possibility of opportunistic behavior...'* (Ouchi,1980: 138). Because transaction costs are brought about by opportunism, in this context, transaction costs arising from negotiating, or overseeing remittances decrease and the likelihood of transfer for purposes of funding and guiding new ventures back home increases.

The concept of international immigrant clans has a similar logic to Ahlstrom and Bruton's (2006) entrepreneurial networks in emerging market countries. In their logic, entrepreneurs operating in countries with less established formal institutions build personal networks with more trustworthy exchange partners. Our logic extends the reach of such relationships internationally

and notes that such relationships are often based on clan-like ties linked to specific families or broader ethnic or fraternal organizational ties.

Common understanding about how to communicate information about business opportunities and coordinate the transfer of funds and ideas would help immigrants even when their exchange partners are not given to opportunistic behavior as most TCE models assume. The advantage of shared understanding may be particularly important when international transfers involve complex, tacit knowledge such as managerial know-how (Kogut & Zander, 1996, 2003). Thus, ease of communication and coordination as well as lower levels of opportunism would make immigrants both adept at and motivated to transfer their remittances to developing countries for entrepreneurial activities.

Hypotheses for Testing

The logic of our framework implies several testable predictions about the attributes of developing country immigrants, their relationships in host and home countries, and their willingness to engage in venture investing back home notwithstanding the transaction barriers they face due to the less established nature of formal institutions back home. We leave many such hypotheses about how developing country immigrants engage in entrepreneurial activities back home to future studies. Here, we focus on hypotheses related to whether developing immigrants engage in such behavior at all, and if such behavior has a significant impact on the venture investing environment back home.

Consistent with our framework, we first predict that immigrant remittances matter for enhancing the venture funding environment back home. Thus:

Hypothesis 1: *There is a positive relationship between immigrant remittances and the capital available to entrepreneurs in developing countries.*

Our framework also suggests that remittances represent more than just money for entrepreneurial activities. Remittances also include new business ideas. Consistent with that notion, we next predict that immigrant remittances enhance venture start-up rates back home. Thus:

Hypothesis 2: *There is a positive relationship between immigrant remittances and new business creation in developing countries.*

Our framework also suggests that remittances do more than connect overseas immigrants to entrepreneurs back home. They connect countries to the broader world economy. For example, in his study of immigrant groups in United States, Gould (1994) showed that relationships based on common ethnicity and cultural heritage are also associated with increase in bilateral international trade between US and immigrants' home countries. At a micro level, our framework suggests a similar trend. Developing country immigrants who use informal relationships crossing national boundaries to transfer money and ideas are also more likely to promote the international growth of any new enterprises that may result. Thus:

Hypothesis 3: *There is a positive relationship between immigrant remittances and the level of internationalization in developing countries.*

We summarize these three predictions from our framework in Figure 2. Social knowledge-based relationships permit developing country immigrants to remit money and ideas enhancing the overall venture investing environment back home in terms of capital available to entrepreneurs, new start-ups and broader internationalization of the economy.

[Place Figure 2 about here]

Methodology

Empirical Equation Terms

To assess empirical support for these predictions we first define an equation to explain immigrant remittance impact on the home country venture investment environment:

$$Y_{ijt} = \alpha_i\, intercept + \beta_1\, remittances_{ijt} + \lambda \sum_{1}^{8} controls_{ijt} + \xi \sum_{1}^{6} year_t + \gamma \sum_{1}^{5} region_i + error_{ijt}$$

Details regarding each of the terms in our equation are provided in Table 1. The dependent variable, Y_{ijt}, is measured differently depending on which hypothesis we are testing, but subscripts for country *i* in geographic region *j* in year *t* remain the same.

Hypothesis 1 predicts a positive relationship between developing country immigrant remittances and capital available to entrepreneurs back home. We measure Y_{ijt} as capital availability in two ways. The first measure, *business access to capital*, is a 0-10 (0=weak 10=strong) composite integral index for country *i* in region *j* in year *t* based on assessment of evaluation of seven components described by Barth *et al.* (2008): macro-economic environment, institutional environment, financial and banking institutions, equity market development, bond market development, alternative sources of capital, and international funding. In our sample, business access to capital ranges from 2.09 (Haiti, 2007) to 7.22 (Malaysia, 2004). A second measure focuses specifically on *venture capital availability.* We again follow Barth and his colleagues (2008) who describe venture capital availability as a sub-component of "alternative source of capital" in their broader index of business access to capital. It is once more a 0-10 (0=weak 10=strong) integral index, this time based on evaluation of three factors: venture capital, private placements, and credit cards. It ranges from 0 (Mozambique, 2006) to 6.9 (Venezuela, 2002) in our sample. Thus, we have general capital access and specific venture capital availability measures of Y_{ijt} to evaluate Hypothesis 1.

To evaluate support for Hypothesis 2 we measure Y_{ijt} as *new business creation*, the annual country of newly-registered corporations for country *i* in region *j* in year *t*. This count measure includes businesses that are incorporated as a legal entity and registered in a public registry, but

does not include those that might have been created in the informal economy (Klapper, Amit, Guillen 2008). Annual new business counts range from 2 (Haiti, 2002) to 529,416 (Brazil, 2007) in our sample. To evaluate Hypothesis 3, we measure Y_{ijt} as *economic internationalization,* the sum of imports and exports divided by GDP for country *i* in region *j* in year *t.* This measure reflects the extent to which an economic activity within a country depends on international trade (Yanikkaya, 2003). In our sample, trade openness ranges from 0.22 (Argentina, 2001) to 2.14 (Malaysia, 2001).

Our key right-hand side term is *remittances* (β_1) measured as the sum in billions of US dollars transferred to country *i* in region *j* in year *t* from three sources: workers' remittances (*i.e.* current transfers made by immigrants who are employed and resident in another country), compensation of employees (*i.e.* wages, salaries, and other benefits earned by non-resident workers for work performed for residents of other countries), and migrant transfers (*i.e.* financial items that arise from the migration or change of residence of individuals from one country to another). It ranges from 0.001 (Malawi, 2001) to 27 (India, 2007) in our sample. Consistent with Hypotheses 1-3 we expect the coefficient on *remittances* (β_1) to be positive and significant.

To account for other factors explaining variation in our dependent variables, Y_{ijt}, we first include eight country controls ($\lambda_{1\text{-}8}$) used in recent management research (*e.g.*, Vaaler, 2008) and in related policy and economics research (*e.g.*, Henisz, 2000) to explain overall country attractiveness for lending, investment and new business project establishment: economic size, economic growth, income group, inflation, and common law, rule of law, political rights, and foreign direct investment inflow. Table 1 describes these controls, including their measurement, data sources and expected sign in estimations. To capture other unspecified effects, we include year (*year*) and geographic region (*region*) 0-1 dummies in full specifications. We omit the first year observed in our sample, 2001, and include six 0-1 year dummies for other years through 2007

the last year observed. We define a six region scheme (1 =East Asia & Pacific, 2= Europe & Central Asia, 3=Latin America & Caribbean, 4=Middle East & North Africa, 5=South Asia, 6=Sub-Saharan Africa), omit the final region, Sub-Saharan Africa, and include five 0-1 dummies for other regions where countries are sampled.

[Place Table 1 about here]

Estimation Strategy

We use Stata Version 10.0 (StataCorp, 2007) for all analyses in our study. We have unbalanced panel data with missing data for certain countries *i* (in regions *j*) and years *t*. For each dependent variable, Y_{ijt}, we start with estimation by ordinary least squares regression ("OLS" or "reg" command in Stata) with county controls only. This estimation provides an overall sense of equation explanation prior to estimation refinement and the addition of *remittances* and other equation terms. We then turn to alternative panel estimators. We implement several panel feasible generalized least squares estimations ("GLS" or "xtgls" command in Stata) when Y_{ijt} is *business access to capital*, *venture capital availability* and *economic internationalization*. This panel estimator permits the use of robust (to panel heteroskedasticity) standard errors and panel-specific first order autoregressive processes. When Y_{ijt} is *new business creation* we are using annual count measures, thus a panel count estimator is appropriate. Preliminary investigation of our sample suggests over-dispersion so we use panel negative binomial estimation ("panel NBR" or "xtnbreg" command in Stata). For each set of regressions, we begin with OLS and then shift to GLS or panel NBR estimations with *controls* alone, then with *remittances* added to the *controls*, and finally with *year* and *region* dummies added to *remittances* and the *controls* for robustness purposes.

In addition to these multivariate estimations, we also present results from two non-parametric locally-weighted scatter-plot smoother ("Lowess" or "lowess" command in Stata)

analyses when Y_{ijt} is *business access to capital*, *venture capital availability*. Lowess analyses compute linear regressions around each observation of $remittances_{ijt}$, with neighborhood observations chosen within some sampling bandwidth and weighted by a tri-cubic function. Based on the estimated regression parameters, Y_{ijt} values are computed. These $remittances_{ijt}$, Y_{ijt} combinations are then connected yielding a Lowess curve. A higher bandwidth results in a smoother Lowess curve. We use the default bandwidth sampling 40% of the observations to the left and right of each pair of $remittances_{ijt}$, Y_{ijt} values.

Sampling and Data Sources

We sample from 65 developing countries for which remittance data are consistently reported from 2001 to 2007. A list of the developing countries sampled and country-specific means for key variable terms are included as Appendix 1. We note that only 18 of these 65 countries have complete data for all dependent variables, Y_{ijt}, and all right-hand side terms of our equation. Thus, countries sampled and the number of country-year observations analyzed in multivariate and bivariate estimations varies. Country sampling narrows and overall N decreases Y_{ijt} is measured as *economic internationalization* (N = 242), *business access to capital* (N = 231) *venture capital availability* (N = 175) and new business creation (N = 165). That said, we know of no more comprehensive coverage across developing countries and years.

We collect these data from several sources. Annual data on *business access to capital*, and *venture capital availability* come from Milken Institute Capital Access Indices. These indices were measured on 0 to 7 point scales in 2001 and 2002, and then 0 to 10 point scales from 2003 to 2007. We re-scaled 2001 and 2002 measures to the 0 to 10 scale for consistency. We also collect annual data on *new business creation* from the World Bank Doing Business Database available as part of the World Bank's World Development Indicators ("WDI") (World Bank, 2008). Annual

data on *economic internationalization* also comes from the WDI. Annual data on *remittances* from the World Bank Development Prospects Database and the International Monetary Fund's *Balance of Payments Statistics Yearbook* available through the WDI.

Annual data for our eight controls come from the WDI (economic size, economic growth, inflation, income group, and FDI inflow), the CIA *World Factbook* (CIA, 2005) (common law legal system), Freedom House (2008) (political rights), and Kaufmann, Kraay & Mastruzzi (2008) (rule of law).

Appendix 1 reveals substantial variation in remittances across developing countries. Average remittance flows from 2001 to 2007 account for more than 10% of GDP for 12 of 65 countries sampled. For Haiti, Jordan, Lebanon, and Moldova remittances are more than 20% of GDP. "Classic" emerging-market countries like Brazil, China, India, Mexico, Russia, and Turkey, exhibit high absolute levels but more modest relative (to GDP levels), thus indicating the importance of controlling for developing country economic size in our multivariate analyses.

Results

Descriptive Statistics and Pairwise Correlations

Table 2 reports descriptive statistics and pair-wise correlations for all variables used in our analyses. We have already reported some sample minima and maxima indicating wide variance in measures across countries and years sampled. In addition to these data, Table 2 means and standard deviations indicate trends consistent with commonly-held assumptions about the venture investment environment of developing countries. For example, sample means for *business access to capital* and *venture capital availability* are 2.69 and 4.22 respectively. Low scores on the 0 to 10 scale are consistent with assumptions of relative capital scarcity in developing countries. Other mean values follow developing country assumptions of higher (than industrialized country) economic growth rates (5.20%) and inflation rates (8.07%) and lower income (1.97, indicating that

countries sampled are in low and middle income ranks) and rule of law (-0.40, indicating less than average respect for law, legal processes and legal officialdom).

Pair-wise correlations indicate that *remittances* are positively and significantly (as expected) related to dependent variables except for *economic internationalization* (trade openness), which exhibits a correlation of -0.15, significant at the 1% level. The negative correlation with *remittances* might indicate non-linear U-form relationships and or measurement issues. *Economic internationalization* is the sum of exports and imports divided by GDP. *Remittances* are also positively correlated with GDP. Thus, simple pair-wise correlations might be negative if economic internationalization decreases with increasing economic size as GDP, a result also indicated in Table 2 (where *economic size* and *economic internationalization* are negatively correlated at -0.27). In any case, these anomalies should be irrelevant in multivariate analyses where appropriate controls are included.

[Place Table 2 about here]

Regression Results

Results from multivariate analyses are presented in Table 3, 4, and 5 while non-parametric bivariate Lowess results are presented in Figures 3A and 3B. We begin by reporting results from multivariate analyses in Table 3 where the dependent variable is business access to capital access and venture capital availability. These results permit tests of Hypothesis 1 and the predicted positive relationship between developing country immigrant remittances and capital availability back home. OLS results in Column 1 largely follow expectations. In regressing *business access to capital* on eight country controls only, we find that seven exhibit the expected signs and three do so at commonly accepted levels of statistical significance: common law, rule of law and FDI. OLS estimation with eight controls only explains almost two thirds ($R^2 = 0.63$) of variation in this broad indicator of capital for venture investing in developing countries. Thus, we move to more

refined estimators and equation specifications with substantial assurance that we have a well-specified base equation. In Column 2, we re-estimate controls only but this time with panel GLS. With robust standard errors and panel-specific correction for first-order auto-correlation, six of eight controls show the expected sign with all six significant at commonly accepted levels.

Columns 3 and 4 of Table 2 report panel GLS results with the addition of *remittances*. In Column 3, *remittances* enters with a positive sign significant at the 1% level. *Remittances* is positive and significant at the 5% with the addition of year and region dummies in Column 4. Both results support Hypothesis 1. When we replace the more general measure of business access to capital to its venture capital availability sub-component, results again support Hypothesis 1. In Columns 5 and 6 remittances enters with a positive sign significant at the 1% level. Immigrant remittances significantly enhance access to venture funds broadly or narrowly defined.

[Place Table 3 about here]

Lowess analyses of these two dependent variables and *remittances* yield similarly supportive evidence illustrated in Figures 3A and 3B. Across the range of *remittance* values the slope of both business access to capital and venture capital availability is consistently positive.

[Place Figures 3A and 3B about here]

Table 4 indicates results for *new firm creation*. Column 1's OLS results again indicate a base equation with substantial explanation of dependent variable variation ($R^2 = 0.41$). Results in Column 2 follow from panel NBR estimation more appropriate for count data. Country controls are jointly significant in explaining new business creation (Wald $\chi^2 = 308.25$, $p < 0.01$). Seven of the eight controls exhibit the expected sign with six at commonly accepted levels of significance.

Columns 3 and 4 then add *remittances* to the base equation. In Column 3, *remittances* enters with the expected positive sign with significance at the 1% level. Developing country remittances are positively associated not only with enhanced funding for entrepreneurial activities

but also with actual new business foundings back home. This support for Hypothesis 2 falls in significance when we add six *year* and 5 *region* dummies in Column 4. The positive sign remains but statistical significance falls from 1% to 20%. Given the relatively small sample size (*N* = 165), it is likely that the fall in statistical significance is related to loss of power from adding 11 right-hand side terms. In any case, results in Column 4 suggest more caution in concluding strong support for Hypothesis 2.

[Place Table 4 about here]

Table 5 presents the results for economic internationalization. OLS results in Column 1 again indicate substantial explanation provided by the eight base controls (R^2 = 0.32) with six terms showing the expected sign –economic size is expected to be negative as larger countries have less need for trade openness-- and four terms with expected signs at commonly accepted levels of statistical significance. When we shift to panel GLS estimation in Column 2 there are again five of eight controls with the expected sign and significance. Columns 3 and 4 then add *remittances*, which enter in both columns with the expected positive sign at the 1% level consistent with Hypothesis 3. Remittances from developing country immigrants are linked not only to venture funding and founding, but to greater trade openness between developing countries and the rest of the world. This finding is consistent with our framework logic linking the international scope of developing country immigrant relationships to the internationalizing nature of the new businesses immigrants help fund and found.

[Place Table 5 about here]

Most important results reported in Tables 3-5 prove robust to reasonable changes in sampling, variable measurement and equation specification. For example, we continue to obtain positive and significant signs at commonly accepted levels panel GLS estimates of *remittances* when *business access to capital* and *venture capital* are dependent variables and: 1) the top 5%

and bottom 5% of observations are excluded from the sample based on the measure of *remittances*; or 2) the *venture capital access* measure from the Milken Institute is replaced by a venture capital availability measure published in the World Economic Forum's Global Competitive Index ("GCI") (World Economic Forum, 2008).[3]

We obtain positive and significant signs at commonly accepted levels on panel GLS estimates of *remittances* when *economic internationalization* is the dependent variable and: 1) the top 5% and bottom 5% of observations are excluded from the sample based on the measure of *remittances;* or 2) the *economic internationalization* measure where the sum of exports and imports is divided by GDP is replaced by the sum of exports and imports without division by GDP.

We obtain positive and signs and significance at commonly accepted levels on panel NBR estimates of remittances when new business creation is the dependent variable, year and region dummies are excluded and: 1) the top 5% and bottom 5% of observations are excluded from the sample based on the measure of *remittances*; or 2) controls related to strength of civil liberties, level of domestic financial market development, average level of education of population and dollar amount of foreign aid are added. On the other hand, addition of *year* and *region* dummies weakens significance levels given these changes, thus suggesting more caution in interpretation. Even so, these results suggest strong support for Hypotheses 1 and 3, some substantial support for Hypothesis 2, and overall evidentiary trends consistent with the broader theoretical framework from which all three predictions were derived.

[3] GCI venture capital availability is measured as a 7-point scale based on responses to the following statement posed to business executives in a country each year: " Entrepreneurs with innovative but risky projects can generally find venture capital in your country" (1=not true, 7= true). For more on the GCI measure, see http://www.weforum.org/en/initiatives/gcp/Global%20Competitiveness%20Report/index.htm.

Discussion

Key Results and Implications

If the basic questions motivating this study are whether and in what ways remittances from developing country immigrants might alter the venture investment environment back home then the results above suggest some new, theoretically grounded and empirically supported answers. First, immigrants and their remittances matter positively and significantly for home country development of vital entrepreneurial building blocks. Their remittances are associated with enhanced availability of capital to invest in new businesses, number of new firms created, and broader economic internationalization. Far from serving merely as subsistence assistance to desperately poor, sick and or uneducated family and friends, we find evidence that remittances also serve as a critical source of money and ideas for developing country entrepreneurs. If true, then developing country immigrants also serve their home countries as venture investors, new firm founders, and or agents for business expansion abroad.

These core findings have important implications for management research on entrepreneurship in developing countries. For example, recent reviews of the entrepreneurship literature reminds us that constraints on both new venture financing and know-how undermine business development, economic growth and broader institutional modernization in developing countries (Ahlstrom & Bruton, 2006; Bruton, Ahlstrom & Obloj, 2008). Our theoretical framework and empirical results suggest an important international dynamic for overcoming such entrepreneurial constraints: immigrants working abroad but sending remittances back home for venture investing purposes with the help of exchange partners related by family, clan and other informal ties. Our study, therefore, not only identifies a new and important developing country investor group, but theorizes and empirically documents evidence that this group

materially alters the venture investing environment without the strong reliance on formal institutional safeguards commonly associated with investing in the industrialized world. Our social knowledge framework explains this dynamic in terms of clan-like relationships between immigrants and home-country exchange partners that can lower coordination costs and increase common understanding about how ventures can be effectively financed, founded and developed.

Empirical contributions from this study also relate to its scope. We examine support for our predictions across countries and time. Most previous studies of the link between immigrant remittances and entrepreneurial activities have focused on a single country or small group of studies and utilized case study or cross-sectional survey study methods. Our study uses panel data, thus permitting closer control of specific country and time (year) effects and more generalizable inferences from results.

Finally, our study contributes to management practice and public policy. Our findings have very practical implications for entrepreneurs in developing countries searching for appropriate partners to fund and grow new ventures, particularly if they have international growth goals. These entrepreneurs can look abroad for investors with the same passport and very likely similar ethnic and family background. They represent a growing source of "smart" money ready to flow back home with less concern about possible misuse. Developing country governments seeking to promote more entrepreneurial activities at home may benefit from paying closer attention to the activities of nationals abroad. Strategic investments in consular services to serve increasingly large, wealthy and investment-oriented nationals overseas may not only help them re-connect with their homelands culturally and politically but also financially and managerially.

Limitations and Future Research

Our study has strengths, but also limitations. Theoretically, our study provides substantial grounding in TCE and social knowledge perspectives, but this grounding could benefit from closer integration with existing theories of entrepreneurial finance and founding behavior more familiar to developed rather than developing country settings. Empirically, our study benefits from relatively broad scope of coverage. We analyze associations between immigrant remittances and different dimensions of the home country venture investment environment for 65 developing countries from 2001 to 2007. Yet, it is a single study awaiting confirmation or disconfirmation in later studies.

Later studies might also develop and test other aspects of our framework. Our study documented remittance trends consistent with attributes of developing country immigrants assumed but not yet documented in broad sample studies. Future research should directly analyze immigrant attitudes toward risk and investment back home as well as the nature of immigrant relationships with immediate and extended family members, their home communities and various fraternal organizations. Such future research will benefit from entrepreneurship scholars taking an organizational behavior perspective on individual immigrant attributes as well as from entrepreneurship scholars taking a larger organizational theory perspective on immigrant networks. We have also suggested future research for entrepreneurship scholars interested in public policy and the role of developing country governments interested in helping immigrants re-connect and re-invest back home. These and other avenues of future research should provide further insight on the growing role of developing country immigrants as a new class of venture investors.

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TABLE 1

Variable List

Variable Name	Variable description	Source	Expected sign
Business access to capital [a] (Y_{ijt})	0-10 integral measure of the breadth, depth and vitality of capital markets, and openness in providing access without discrimination to entrepreneurs for county *i* in region *j* in year *t*	Milken Institute Capital Access Index (http://www.milkeninstitute.org/publications/publications.taf) (Barth *et al*., 2008)	H1a: Dependent variable
Venture capital availability[b] (Y_{ijt})	0-10 integral measure of diverse financing sources such as venture capital, private placements, and credit cards for county *i* in region *j* in year *t*	Milken Institute Capital Access Index (http://www.milkeninstitute.org/publications/publications.taf) (Barth *et al*., 2008)	H1b: Dependent variable
New firm creation (Y_{ijt})	The number of newly registered corporations for county *i* in region *j* in year *t*	World Bank, Doing Business Database (WDI, 2008)	H2: Dependent Variable
Economic inter-nationalization (Y_{ijt})	Sum of exports and imports in US dollars for county *i* in region *j* in year *t*	World Bank, World Development Indicators (WDI, 2008)	H3: Dependent variable
Remittances (β_1)	Sum of workers' remittances, compensation of employees, and migrant transfers in US dollars into country *i* in region *j* in year *t*	World Bank, Development Prospects Database (WDI, 2008)	+
Economic size (λ_1)	Natural algorithm of GDP in US dollars for county *i* in region *j* in year *t*	World Bank, World Development Indicators (WDI, 2008)	H1a,b: + H2: + H3: -
Economic growth (λ_2)	Average real annual percentage growth in GDP for county *i* in region *j* in year *t*	World Bank, World Development Indicators (WDI, 2008)	+
Inflation (λ_3)	Average consumer price inflation percentage for county *i* in region *j* in year *t*	World Bank, World Development Indicators (WDI, 2008)	-
Income group (λ_4)	1-3 ordinal measure based on Gross National Income per capita where 1= low income, 2 = lower middle income, and 3 = upper middle income for county *i* in in region *j* year *t*	World Bank, World Development Indicators (WDI, 2008)	+
Common law (λ_5)	0-1 dummy where 1= Common law origin 0 = otherwise for county i in region j in year t	CIA World Fact Book (CIA, 2005)	+

Rule of law (λ_6)	-2.5 to 2.5 measure of the extent of quality of contract enforcement, property rights, the police, and the courts, crime and violence for county *i* in region *j* in year *t* where -2.5= weak rule of law, 2.5=strong rule of law	Kaufmann, Kraay, Mastruzzi (2008)	+
Political Rights (Lack of) (λ_7)	1–7 integral measure of the level of political rights (e.g. right of citizens to vote for national executive) for county *i* in region *j* in year *t* where 1= strong political rights, and 7 = weak political rights	Freedom House (2003)	-
FDI inflow (λ_8)	Foreign direct investment (i.e. foreign equity capital, foreign reinvested earnings, and foreign intra-company loans) into a country *i* in region *j* in year *t*.	World Bank, World Development Indicators (WDI, 2008)	+

[a] 0 = weak business access to capital; 10 = strong business access to capital
[b] 0 = weak venture capital availability; 10 = strong venture capital availability

TABLE 2
Descriptive Statistics and Pair-wise Correlations [4]

Variables	Mean	Std.	1	2	3	4	5	6	7	8	9	10	11	12	13
1.Business access to capital	4.22	1.00													
2.Venture capital availability	2.69	1.59	.59**												
3.New business creation	36,920	96,976	.10	.10											
4.Economic Internationalization	0.80	0.36	.25**	.14*	-.26**										
5. Remittances	2.24	4.33	.22**	.23**	.14*	-.15**									
6. Economic size	24.043	1.66	.47**	.39**	.56 **	-.27**	.59**								
7. Economic growth	5.20	3.40	-.01	-.13*	-.00	.12**	.12*	.09							
8. Income group	1.97	0.77	.60**	.42**	.35**	.15 **	.01	.42**	-.06						
9. Inflation	8.07	7.97	-.24**	-.07	.13*	-.10*	-.11*	.035	-.0.17**	0.002					
10. Common law	0.28	0.45	.03	-.03	-.17	-.06	-.002	-.007	-.01	-.34**	0.08				
11. Rule of law	-0.40	0.56	.59**	.30**	-.10	.32**	-.01	.08	.10*	.46**	-.19**	.04			
12. Lack of political rights	3.52	1.75	-.25**	-.24**	-.07	-.02	.07	0.004	.04	-.32**	-.08	-.03	-.36**		
13. FDI inflow	20.19	0.03	.51**	.32**	.47**	-0.07	.50**	.84**	.18**	.48**	.00	-.07	.22**	-.10*	

[4] The number of observations in pairwise correlations varies from 411 to 255. It is 411, 396, 345, and 255 for business access to capital, trade openness, venture capital availability, and rate of new business creation respectively.
** $p < .01$
* $p < .05$ level.
† $p < .10$ level.

TABLE 3

Results from Regression Analyses of Immigrant Remittances and Business Access to Capital (Columns 1-4) and Venture Capital Availability (Columns 5-6), 2001-2007 [5]

Estimators→ / Variables ↓	Column 1: Controls Only OLS		Column 2: Controls Only Panel GLS		Column 3: Controls, Remittances Panel GLS		Column 4: Controls, Remittances Panel GLS		Column 5: Controls, Remittances Panel GLS		Column 6: Controls, Remittances Panel GLS	
Constant (α)	-0.23	(0.61)	-0.16	0.36	1.28*	(0.60)	0.52	(0.57)	0.91	(1.01)	2.16	(1.42)
ln (Economic size) (λ_1)	0.06	(0.05)	0.06**	(0.02)	-0.01	(0.03)	0.05†	(0.03)	0.01	(0.06)	-0.08	(0.08)
Economic growth (λ_2)	-0.02	(0.01)	-0.02	(0.005)	-0.02	(0.00)	-0.01	(0.00)	-0.01	(0.02)	-0.01	(0.02)
Income group (λ_3)	0.44**	(0.08)	0.47**	(0.04)	0.55**	(0.04)	0.38	(0.06)	0.79**	(0.16)	0.88**	(0.15)
Inflation (λ_4)	-0.21**	(0.01)	-0.02**	(0.00)	-0.01**	(0.00)	-0.01	(0.00)	0.01	(0.01)	0.01	(0.01)
Common law (λ_5)	0.47**	(0.10)	0.39**	(0.04)	0.39**	(0.04)	1.05**	(0.07)	0.39**	(0.12)	0.55**	(0.17)
Rule of law (λ_6)	0.57**	(0.08)	0.46**	(0.05)	0.42**	(0.05)	0.32**	(0.06)	0.71**	0.13	0.17	(0.14)
Lack of political rights (λ_7)	-0.00	(0.03)	0.01	(0.01)	0.03**	(0.01)	-0.02	(0.02)	-0.05	(0.05)	-0.22**	(0.05)
ln (FDI inflow) (λ_8)	0.12**	(0.04)	0.10**	(0.02)	0.11*	0.02	0.05	(0.02)	0.02	(0.04)	0.06	(0.06)
Remittances (β_1)					0.03**	(0.01)	0.02*	(0.01)	0.09**	(0.02)	0.09**	(0.02)
Year Dummies ($\xi_{1\text{-}6}$)	No		No		No		Yes		No		Yes	
Region Dummies ($\gamma_{1\text{-}4}$)	No		No		No		Yes		No		Yes	
N	231		230		230		230		175		175	
Wald χ^2 (R^2)	(0.63)		2,424****		5,093**		5,261**		672****		730****	

[5] Standard errors in parentheses. OLS refers to ordinary least squares estimation. Panel GLS refers to panel generalized least square estimation with robust Huber-White sandwich standard errors and panel (country) specific first order autoregressive process. Regression results for region and year dummies are available on request.

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

TABLE 4

Results from Regression Analyses of Immigrant Remittances and New Business Creation, 2001-2007 [6]

Estimators→ / Variables ↓	Column 1: Controls Only OLS		Column 2: Controls Only Panel NBR		Column 3: Controls, Remittances Panel NBR		Column 4: Controls, Remittances Panel NBR	
Constant (α)	-697,091.5**	(90390.1)	-8.24	(1.29)	-7.47**	(1.32)	-6.47**	(2.36)
ln (Economic size)(λ_1)	25,187.62**	(6,254.31)	0.29**	(0.05)	0.26**	(0.06)	0.26**	(0.10)
Economic growth (λ_2)	-96.71	(1,775.71)	0.02**	(0.01)	0.02**	(0.01)	0.02**	(0.01)
Income group (λ_3)	27,745.82*	(11,095.94)	1.26**	(0.18)	1.26**	(0.18)	1.26**	(0.22)
Inflation (λ_4)	1,392.22*	(696.78)	-0.00	(0.00)	-0.00	(0.00)	-0.00	(0.00)
Common law (λ_5)	-12,400.35	(13,245.33)	0.63**	(0.24)	0.56*	(0.24)	0.25	(0.34)
Rule of law (λ_6)	-33,668.27**	(12046.71)	0.31†	(0.16)	0.33*	(0.16)	0.10	(0.19)
Lack of political rights (λ_7)	427.77	(3629.62)	0.03	(0.03)	0.03	(0.03)	0.01	(0.04)
ln (FDI inflow) (λ_8)	2256.52	(5791.06)	0.08**	(0.02)	0.07**	(0.02)	0.05*	(0.02)
Remittances (β_1)					0.04**	(0.01)	0.02‡	(0.015)
Year Dummies (ξ_{1-6})	No		No		No		Yes	
Region Dummies (γ_{1-4})	No		No		No		Yes	
N	165		165		165		165	
Wald χ^2 (R^2)	(0.41)		308.25**		311.08**		363.14**	

[6] Columns 1-4 reports regression coefficients and robust standard errors (in parentheses). "NBR" refers to negative binomial with robust Huber-White sandwich standard errors and panel (country) specific first order autoregressive process. Regression results for region and year dummies are available on request.

** $p < .01$
* $p < .05$
† $p < .10$
‡ $p < .20$

TABLE 5

Results from Regression Analyses of Immigrant Remittances and Economic Internationalization, 2001-2007 [7]

Estimators→ / Variables ↓	Column 1: Controls Only OLS		Column 2: Controls Only Panel GLS		Column 3: Control, Remittances Panel GLS		Column 4: Controls, Remittances Panel GLS	
Constant (α)	2.77**	(0.29)	2.41**	(0.12)	3.40**	(0.17)	4.05**	(0.11)
ln (Economic size) (λ_1)	-0.15**	(0.02)	-0.11**	(0.01)	-0.15**	(0.01)	-0.17**	(0.01)
Economic growth (λ_2)	0.01	(0.01)	0.01**	(0.00)	0.01**	(0.001)	0.00*	(0.00)
Income group (λ_3)	0.11**	(0.04)	0.12**	(0.01)	0.17**	(0.02)	0.18**	(0.01)
Inflation (λ_4)	0.00	(0.00)	0.00	(0.00)	0.00**	(0.00)	0.00**	(0.00)
Common law (λ_5)	0.03	(0.05)	-0.04†	(0.02)	-0.01	(0.02)	0.17**	(0.02)
Rule of law (λ_6)	0.16**	(0.04)	0.14**	(0.02)	0.09**	(0.02)	0.05**	(0.01)
Lack of political rights (λ_7)	0.04**	(0.01)	0.03**	(0.01)	0.03**	(0.01)	-0.01	(0.00)
ln (FDI inflow) (λ_8)	0.07**	(0.02)	0.03**	(0.12)	0.02**	(0.00)	0.01**	(0.00)
Remittances (β_1)					0.02**	(0.00)	0.01**	(0.00)
Year Dummies (ξ_{1-6})	No		No		No		Yes	
Region Dummies (γ_{1-4})	No		No		No		Yes	
N	243		242		242		242	
Wald χ^2 (R^2)	(0.32)		418.54**		425.40**		18594.56**	

[7] Standard errors in parentheses. OLS refers to ordinary least squares estimation. Panel GLS refers to panel generalized least square estimation with robust Huber-White sandwich standard errors and panel (country) specific first order autoregressive process. Regression results for region and year dummies are available on request.

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

FIGURE 1

Immigrant Remittances and Other Capital Flows to Developing Countries

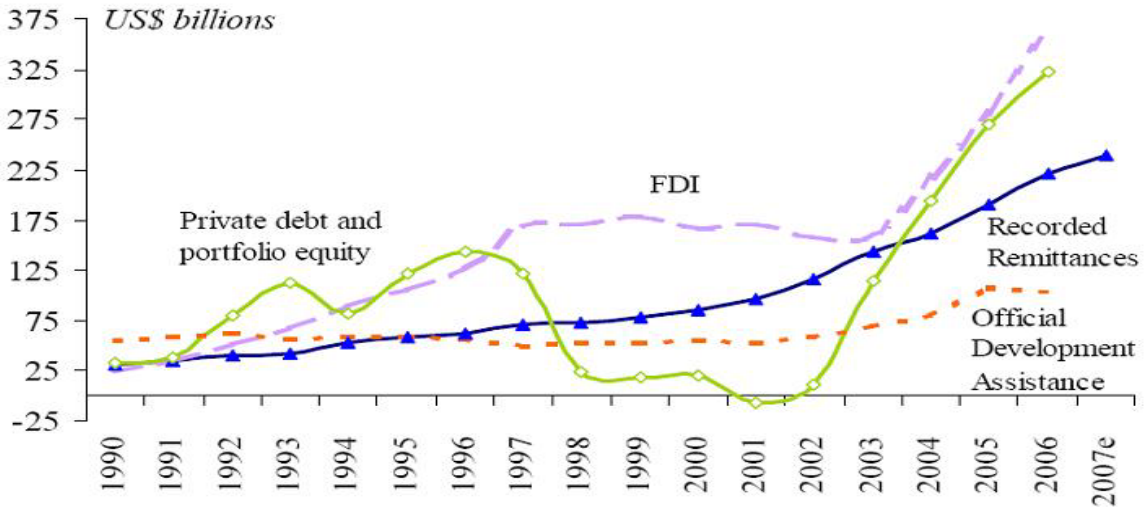


FIGURE 2

Theoretical Framework and Related Hypotheses

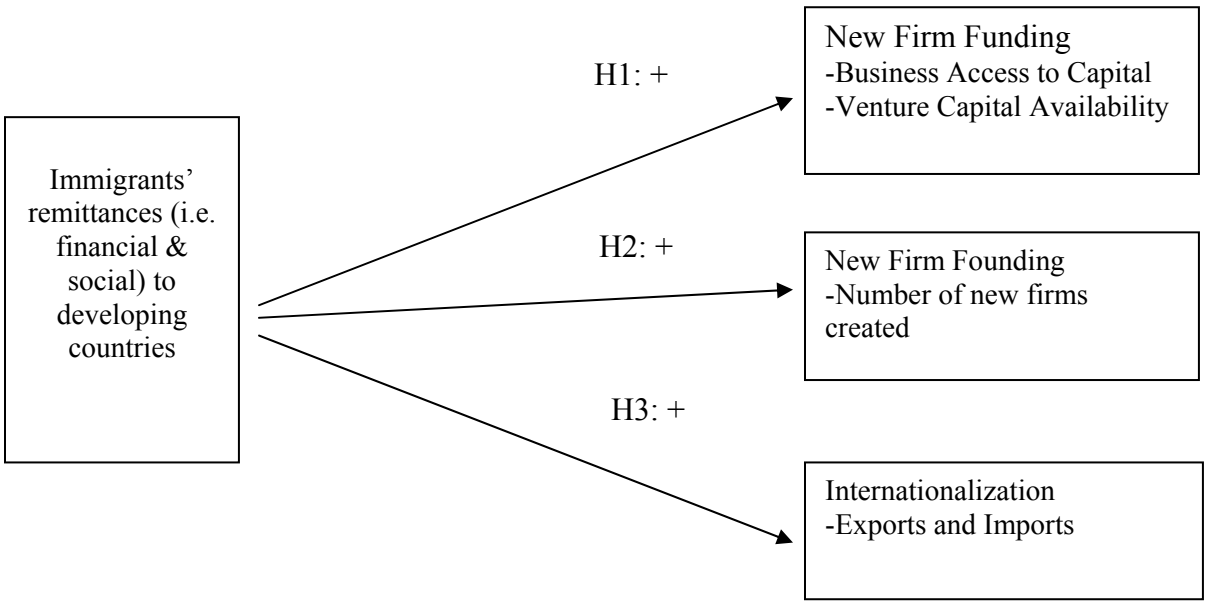


FIGURE 3

Locally Weighted Scatter Plot Smoothed (LOWESS) Results Immigrant Remittances and Capital for Businesses, 2001-2007

FIGURE 3A

Business Access to Capital

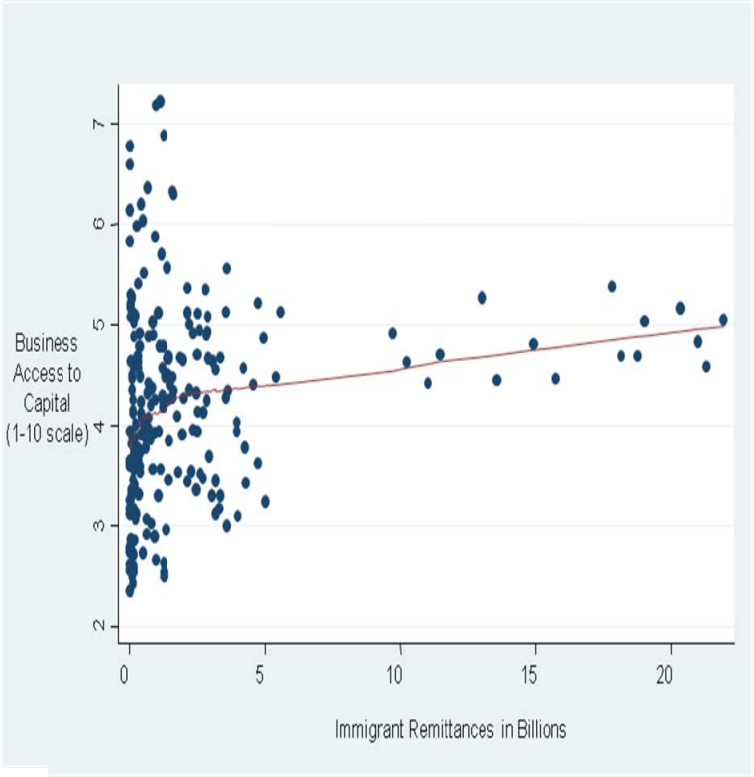
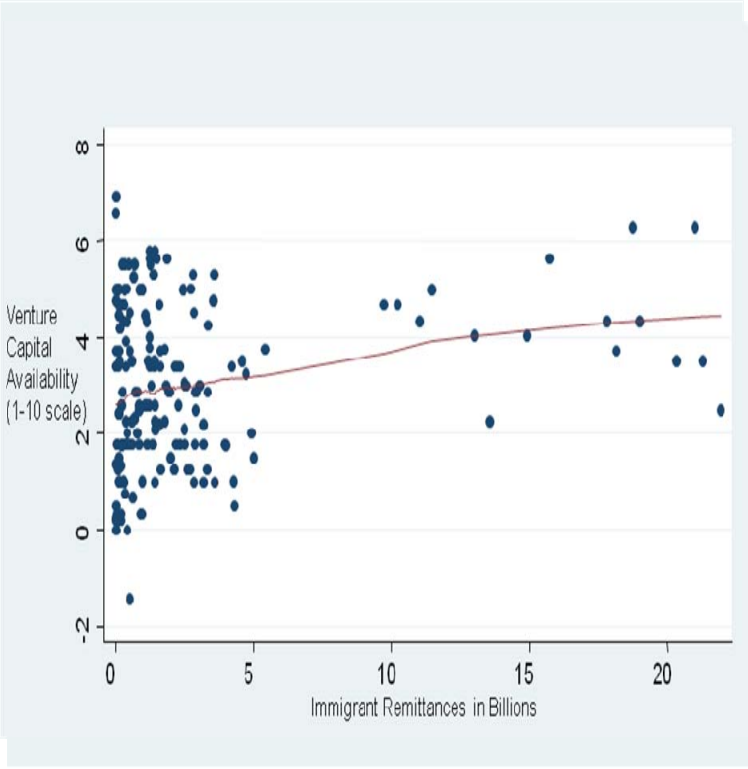


FIGURE 3B

Venture Capital Availability



APPENDIX 1

Countries Sampled and Country-Specific Means for Key Variables, 2001-2007

Key variables→ Countries ↓	Remittances in US Dollars	Remittances Divided by GDP	Business Access to Capital (0-10)	Venture Capital Availability (0-10)	New Business Creation (count)	Trade Openness (Imports + Exports) Divided by GDP
1.Argentina	340,714,286	0.002	3.82	3.72	15917	0.41
2.Armenia	730,279,249	0.163	3.63	0.36	2883	0.71
3.Bangladesh	3,982,971,429	0.071	3.39	0.82	4066	0.39
4.Bolivia	333,350,437	0.035	3.85	0.39	1637	0.54
5.Botswana	78,000,000	0.009	4.59	1.58	7549	0.81
6.Brazil	3,273,571,429	0.004	4.96	4.43	479466	0.26
7.Cambodia	201,232,699	0.035	3.10	0.86	N/A*	1.30
8.Cameroon	72,857,143	0.005	2.63	1.25	N/A	0.52
9.Chile	9,571,429	0.000	6.32	3.53	24239	0.71
10.China	18,226,383,731	0.009	5.22	3.69	N/A	0.59
11.Colombia	3,239,571,429	0.029	4.54	2.90	27084	0.40
12.Costa Rica	373,142,857	0.019	4.32	2.93	7250	0.97
13.Croatia	1,168,747,675	0.034	4.53	3.71	7552	1.05
14.Dominican Republic	2,566,714,286	0.102	3.98	2.45	N/A	0.87
15.Ecuador	2,127,332,983	0.065	3.53	1.61	N/A	0.59
16.Egypt	4,045,406,107	0.042	4.11	2.23	9595	0.56
17.El Salvador	2,619,571,429	0.160	4.94	2.97	1769	0.71
18.Ethiopia	107,071,429	0.009	2.72	0.25	N/A	0.47
19.Ghana	78,000,000	0.008	3.62	1.47	5883	1.01
20.Guatemala	2,533,142,857	0.101	3.72	2.20	3924	0.57
21.Haiti	897,357,965	0.214	2.65	0.81	6	0.54
22.Honduras	1,434,142,857	0.154	3.80	2.73	N/A	0.83
23.India	20,496,714,286	0.028	4.86	5.11	27901	0.35
24.Indonesia	3,257,328,571	0.012	4.44	4.56	10992	0.61
25.Jamaica	1,584,395,424	0.172	4.37	3.07	2612	0.96
26.Jordan	2,427,853,833	0.205	5.07	2.79	1224	1.28
27.Kenya	767,714,286	0.042	3.85	1.79	5830	0.58
28.Latvia	288,142,857	0.019	5.06	3.77	8025	1.01

* N/A: Data is not available

29.Lebanon	4,399,000,000	0.212	5.22	2.75	2543	1.30
30.Lithuania	347,714,286	0.015	5.26	4.50	4309	1.15
31.Macedonia, FYR	189,428,571	0.036	3.92	2.42	N/A	1.00
32.Madagascar	12,571,429	0.002	2.52	0.83	1044	0.66
33.Malawi	1,000,000	0.000	2.69	1.50	326	0.56
34.Malaysia	1,197,428,571	0.009	6.77	4.84	37207	2.10
35.Mali	154,216,792	0.032	2.67	0.33	N/A	0.65
36.Mexico	17,982,571,429	0.025	4.94	3.66	306400	0.60
37.Moldova	723,000,000	0.273	4.00	3.11	4949	1.34
38.Mongolia	138,367,568	0.064	3.45	1.19	N/A	1.31
39.Morocco	4,245,114,286	0.078	4.53	2.69	13623	0.66
40.Mozambique	62,857,143	0.011	2.65	0.19	N/A	0.76
41.Namibia	13,857,143	0.003	4.40	1.66	N/A	0.89
42.Nicaragua	520,285,714	0.112	4.16	2.20	1672	0.97
43.Nigeria	2,242,571,429	0.023	3.79	2.04	N/A	0.68
44.Oman	39,557,143	0.002	5.34	0.80	2919	0.97
45.Pakistan	4,060,714,286	0.040	4.12	1.63	3059	0.39
46.Panama	130,285,714	0.009	5.32	4.59	N/A	1.33
47.Paraguay	296,857,143	0.040	3.27	1.70	N/A	1.03
48.Peru	1,245,428,571	0.017	4.96	2.43	27243	0.39
49.Philippines	11,918,428,571	0.124	4.70	4.01	13763	1.04
50.Romania	2,679,285,714	0.031	4.02	3.01	78127	0.76
51.Russian Federation	2,388,428,571	0.004	4.16	2.29	349015	0.57
52.Senegal	561,925,166	0.073	3.05	1.00	39	0.67
53.South Africa	524,428,571	0.003	6.03	4.21	33484	0.59
54.Sri Lanka	1,794,514,286	0.080	4.30	2.12	3995	0.77
55.Syrian Arab Republic	641,558,638	0.024	N/A	N/A	192	N/A
56.Tanzania	13,300,000	0.001	N/A	N/A	3368	0.49
57.Thailand	1,441,099,291	0.009	6.11	4.59	26764	1.35
58.Togo	153,714,286	0.080	2.49	3.91	N/A	0.91
59.Tunisia	1,321,776,092	0.049	4.77	2.92	5635	0.98
60.Turkey	1,345,285,714	0.003	4.33	1.28	78737	0.48
61.Uganda	504,763,904	0.065	3.60	1.92	6523	0.46
62.Ukraine	494,212,144	0.007	3.61	2.75	30533	1.06
63.Venezuela, RB	79,571,429	0.001	3.49	2.46	N/A	0.52
64.Vietnam	3,487,714,286	0.072	3.65	N/A	N/A	1.37
65.Yemen, Rep.	1,284,428,571	0.088	2.58	N/A	40	0.77