Deal or No Deal: The Growth of International Venture Capital Investment[*]

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Abstract

A growing portion of foreign direct investment (FDI) flows takes the form of cross-border flows of venture capital (VC). VC investors supply financing and entrepreneurial expertise to new firms in exchange for equity. VC investors apply their business acumen to raise firms' value, and then sell their equity stake at a profit. Successful VC relies heavily on personal relationships, intensive monitoring, and implicit information about the local market. These facts make the emergence of cross-border venture flows puzzling: how can investors operating in foreign countries acquire the prerequisites to successful investments? We argue that cultural ties between countries, especially the rise of high-skilled migration facilitate an international market for venture capital. Migrants bridge information gaps across countries by supplying implicit information needed to select foreign deals, and by advising entrepreneurs on the optimal business strategy for the local market. We derive a model of cross-border venture flows and test it with novel data on cross-border venture transactions covering 160 countries over the period 1980-2009. We find that US VC firms invest more frequently in countries that have large populations of skilled migrants residing in the US. In stark contrast to existing FDI research, we find that recipient countries political institutions have limited influence over the volume of venture capital deals. This paper makes two significant contributions to the study of international economic integration. First, it introduces the international flow of entrepreneurship and innovation, a substantively important dimension of economic integration that political economy scholars have overlooked. Second, it highlights the diversity of FDI as a form of economic activity and the corresponding need for more nuanced political economy models to explain this diversity.

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1. Introduction

Venture capital (VC) finances startup companies, "young firms that may be little more than in the head of a talented scientist or engineer."[1] Venture investors finance startup's early operations in exchange for equity. Additionally, investors provide entrepreneurs with extensive guidance on and monitoring of all aspects of business strategy and operations. Put differently, venture capital is corporate finance bundled with specialized business services including product development management consulting, and marketing. The venture-fueled growth of Internet companies in the late 1990s is the canonical example of such investments.

Startups require this form of specialized financing because traditional financing sources are unwilling to countenance the many risks of startup companies. Venture investment is inherently speculative, requiring investors to make bets about the product to be developed, the skill of entrepreneurs developing the product, and the eventual profitability of the startup company. Further, startups lack collateral, are illiquid, and operate at loss for an extended period before becoming profitable. These characteristics make VC one of the riskiest asset classes in existence. Of the over 11,500 startups that received American venture investment in the 1990s approximately half failed, registering losses for investors.[2] Traditional financial intermediaries like banks and public financial markets lack the risk tolerance and patience to support these investments.

[1] Gompers 2007, 490.
[2] National Venture Capital Association 2011, 6. Of the remaining startups 14% had initial public offerings and 33% were acquired by other firms.

Since the mid-1990s there has been a marked increase in international venture investments, in which investor and entrepreneur are located in different countries. Figure 1 documents the internationalization of VC investment originating in the United States, the world's largest source. The top panel shows that the number of foreign VC deals has increased. Following a dramatic spike in 2000, the height of the Internet boom, foreign VC deals level off to just below the volume of mergers and acquisitions (M&As) deals. M&A as mode of investment is broadly representative of the range of motives for foreign direct investment (FDI) including market entry, production costs, and technology acquisition. The lower panel plots the number of countries that received American VC and M&A investments. Since the mid-1990s over fifty countries have received American venture investments, at least as many countries as received M&As. In both panels the comparison to M&As establishes that the volume of VC flows and its global distribution is similar to traditional production-oriented FDI by multinational corporations.[3] Figure 2 illustrates the global sources of the world's leading VC recipients. The largest VC recipients, the US and the UK, have received VC investments from over 30 countries. The trend persists among lower volume VC recipients that do not appear in this figure. For example, across Europe and Asia foreigners make over half of all venture investments.[4]

The rise of international VC is puzzling because the cross-border setting magnifies venture investment's inherent risks. Profitable venture investments rely heavily on information, tacit and explicit, and the trust forged through interpersonal relationships. At each stage of investment – deal selection, management, and exit – venture capitalists need

[3] We explain below why M&As are a good proxy for traditional FDI motives.
[4] Wright et al 2005.

to understand the markets in which their startups operate in order to select promising proposals, help the firm grow in value, and eventually, sell their equity stake at a profit. When VC investors operate across borders they are less likely to have the necessary relationships and information to make profitable investments.

In this paper we show that international VC investments occur between countries with links that generate the requisite information and relationships. VC is more likely to flow between countries in which shared implicit understandings and trust are most likely to emerge. Even still, the growing diversification of VC investments from the US into major emerging markets like China, India, and South Korea remains, at first glance, puzzling because of the apparent dissimilarity between the sending and receiving countries. We identify a novel catalyst for these investments: skilled migrants who facilitate investments from their current home country to their country of origin. These migrants are uniquely situated to solve VC's information problems inasmuch they possess the requisite entrepreneurial experience and substantive skill to be employed by venture firms, and the familiarity with foreign markets to identify new deals, successfully advise local entrepreneurs, and establish local networks needed for their startups' success. Migrants' personal connection to both of the countries facilitates investments that otherwise would be too costly.

Our first set of analyses demonstrates that the determinants of VC flows differ from those of standard FDI as proxied by M&As. VC is a form of FDI but appears to

follow a different logic than traditional production-oriented FDI.[5] We establish the distinctive determinants of international VC by deriving a model of international VC flows that identifies the characteristics of attractive destination countries for VC. Using a novel dataset of VC deals originating from the US, we measure the annual deals counts for investments from the US to 160 countries over the period 1980-2010. Seemingly unrelated negative binomial models permit us to directly compare the determinants of cross-border VC and M&A.

In this comparison one of our most notable finding is that coefficients for measures of domestic political institutions, the sine qua non of political economy models of FDI flows, do not have a statistically significant correlation with VC flows but have the standard positive and statistically significant correlation with counts of M&A deals. This finding highlights the qualitative differences between VC and other modes of FDI. VC investors do not introduce firm-specific assets like technology that can be readily expropriated.

In order to explore the internationalization of VC in greater depth we estimate a series of expanded negative binomial count models. Our findings confirm that US venture capital flows more frequently to countries with strong cultural and genetic links. Additionally, countries whose US migrants are, on average, more educated receive more

[5] The international statistical definition of FDI is simply foreign equity ownership in excess of ten percent. Venture investments typically meet this definition because of the degree of control that these investors demand. National balance of payments statistics, the primary source for cross-national FDI flow data, group together VC with other diverse forms of investment including private equity-funded expansions and buyouts that occur later in the life of private firms, and traditional production-oriented FDI by multinational corporations. We adhere to the American definition of venture capital as early stage investments in private firms. European usage of the term encompasses later stage investments that the American definition excludes.

American venture investment. These findings are robust to controls for recipient countries' level of stock market development and the supply of innovation, both standard correlates of venture investment. The findings are also robust to the full range of "gravity" variables that condition the general ease of economic exchange between two countries. Additionally, we estimate a series of hurdle models as supplemental checks for the effects of overdispersion; our findings are unchanged. Finally, we confirm that these findings hold in a larger cross-section sample of VC originating from OECD countries.

Our research makes two significant contributions to FDI research and scholarship on the political economy of international economic integration more broadly. First, we introduce international venture capital flows as a new dimension to the political economy of international economic integration. These flows represent the globalization of entrepreneurship and are an important catalyst for economic growth and development.[6] VC has disproportionally large economic spillovers because it directly facilitates the commercialization of innovation. Lerner and Gompers report that venture-backed companies bring products to market faster.[7] Kortum and Lerner find that, in the US, VC-funded research generates triple the number of patents that traditional corporate research and development does. They also find that venture-generated patents are both more

[6] See Gompers 2007 and Guler and Guillen 2010 for discussion of the general need for more research on the internationalization of venture capital. We have identified only four related studies: Aizenmann and Kendall 2008, Mahadvan and Iriyama 2009, Guler and Guillen 2010, and Vaaler 2011. We discuss them in detail below. Comparative political economy scholars of the varieties of capitalism examine VC as an element of the liberal market economy model.

[7] Gompers and Lerner 2001,165.

frequently cited in subsequent patent applications and litigated, both indicators of their high quality.[8]

In emerging economies, VC directly facilitates industrialization. Romer identifies "idea gaps," the absence of intangible ideas and skills, as the primary obstacle to economic development.[9] Amsden and Hikino emphasize that a substantial barrier to entrepreneurship in developing countries is the dearth of managerial skills like corporate project development and execution.[10] VC investors' guidance directly fills these gaps. In particular, startups that receive foreign VC are more likely to internationalize, acquiring foreign customers and suppliers, due to the VC's guidance in crafting global business strategies.[11] International VC is arguably more likely than traditional FDI to consistently foster innovation and economic growth in recipient countries.[12] It is not surprising that countries the world over try to replicate the famous venture-fueled growth of California's Silicon Valley.

Second, we highlight the diversity of economic activity within the category of FDI. Extant political economy analyses of FDI define, implicitly or explicitly, these investments as the establishment of foreign production and/or distribution facilities by multinational corporations (MNCs). International VC investment is a form of FDI but extant theories of political risk are ill suited to explain the distinctive risks of VC. VC's risks emerge from the profitability of new enterprises rather than concerns over

[8] Kortum and Lerner 2000.
[9] Romer 1993.
[10] Amsden and Hikino 1994.
[11] Mäkelä and Maula 2008.
[12] To the extent that our claim regarding immigrant-driven VC flows is correct, we also document a way in which economic integration compensates for brain drain. See Aggrawal et al 2008 for a model of optimal diaspora size to maximize gains to countries of origin.

expropriation. Mitigation of cross-border VC risks requires a deep familiarity with the local market rather than the constrained host government that in the MNCs' ideal scenario. Amid tremendous growth in international venture capital and later stage private equity investments we require more nuanced political economy theories that can accommodate diverse forms of FDI.

The paper is organized as follows: Section 2 describes the varied and extensive information demands of VC investment and how informational ties and scope for relationships between countries facilitate investment. Section 3 describes and tests a model of international VC flows and establishes the distinction between determinants of VC and M&As. Section 4 concludes by discussing the broader implications of these findings for the study of international economic integration.

2. Theoretical Framework

Venture Capital Investment: A Brief Introduction

The ultimate objective of venture capital investors is to generate returns on a financial investment. The motives of venture investors contrast with those of multinational corporations that establish overseas subsidiaries to produce goods at a lower cost or access new consumer markets. In the US, by far the world's largest source of VC, specialized venture capital firms make these investments.[13] A venture capital firm is typically a

[13] The American venture capital industry began in earnest after a 1978 change in federal pension rules that allowed pension funds to invest in riskier asset classes like venture funds (Gompers and Lerner 2000). Outside of the US there are more diverse sources of VC. Bank-run venture funds are the single largest source of venture financing but corporations and public sector are also common sources. These are known as captive funds because as subsets of larger organizations they receive allocations to invest rather than raising funds specifically for venture investments. Relative to their US counterparts, these investors are more risk averse. They tend to make smaller investments in more established firms. Non-US venture investments are usually of a longer duration because fund managers are not committed to delivering returns

limited partnership comprised of individuals with extensive business experience in specific sectors and/or commercially relevant scientific expertise. The managing partner(s) of venture capital firms raise venture capital funds. A VC fund is a pool of money comprised of investments from the corresponding firm's managing partners and from passive outside investors known as limited partners. In the US, pensions funds supply approximately half of all venture financing. Other common limited partners are the endowments of private foundations and universities, and private wealthy private individuals.[14]

VC firms invest these funds into startup companies. Startups are new companies that arise to commercialize an innovation. Venture capital flows primarily into human capital-intensive technology and service industries. Table 1 lists the top twenty VC recipient industries worldwide between 1953 and 2010. The computer software industry is the single largest recipient, receiving nearly double the amount of the next biggest recipient. Other top recipients are either advanced manufacturing industries like computer hardware and pharmaceutical drugs, or business services such as advertising and public relations. As a group, these industries generate value primarily through the input of specialized human capital. Startup founders often have specialized technical expertise and have themselves developed the innovation that is the basis for the proposed company. Generally these are also industries with few fixed costs to pose as entry barriers. Venture

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to limited partners on a pre-set timetable. See Megginson 2004 and Wright et al 2005 for cross-country comparisons of VC industries.

[14] We note, but do not address, the increasing internationalization of limited partners due to VC firms raising funds from outside of their home country. See Baygan and Freudenberg 2000 for an overview of these patterns among OECD countries.

investors generate returns for their investors by applying their business acumen to raise the market value of the startup companies in which they invest.

Investors select startup companies in which to invest based on the managing partners' assessment of companies' profit potential. The pool of potential investments is comprised of would-be entrepreneurs who approach venture firms and other venture investors who seek investment partners for a particular deal. Entrepreneurs are more likely to approach VC firms with a reputation for success with startups in their industry.

Once investors have identified a possible investment deal they undertake an extensive review of the startup's proposed business model and the entrepreneurs' capabilities. This process of due diligence involves contacting dozens of references who can attest to the quality of the business idea and the entrepreneur seeking to execute it. When approached by another venture investor with an opportunity, the investor also relies upon the other investors' reputation for success in assessing the prospects of the proposed deal.

Once venture investors invest in a startup they assume an active role in supervising the company's activities. Venture firm staff make frequent visits to the company's offices to consult with entrepreneurs and request information on performance. The investor advises the entrepreneur on all aspects of the business including strategy, operations, and human resources. Venture investors routinely join the startup's board of directors formalize their control over the company. Investors supply business advice that draws on their considerable experience in cultivating new companies. Investors disperse funds in tranches at intervals ranging from a few weeks to a year. This funding structure creates an

opportunity for investors to reassess their investment at regular intervals. At the end of each round investors decide whether to provide an additional round of funding or to liquidate their equity stake.[15] This high level of involvement also serves a monitoring function, allowing investors to watch for entrepreneur behavior that is consistent with profit maximization.[16]

Profitable VC investments end when investors sell their equity stake at a profit to another company, back to the entrepreneurs, or, when the investor guides the startup to an initial public offering of stock. Venture funds have a pre-set life, usually ten years, after which the fund is liquidated and investors receive their initial investment plus a proportional share of the profits generated by the VC firm's management of the fund. Limited partners pay the VC firm a management fee equal to a small percentage, 2-3 percent, of the fund's total value. Often the fund's rules allow the managing partner to earn "carried interest," a set share of the fund's profits contingent on achievement of preset performance targets. Carried interest is usually a larger source of profits to the managing partner than fees, on the order of 20-25% of the fund's value. These forms of compensation give venture professionals a clear vested interest in profit maximization.

Information, Communication, Relationships, and International Venture Capital

[15] Although see Guler (2007) on investor bias in assessing startups for additional funding rounds.
[16] Investors face a principal-agent problem in encouraging the start-up entrepreneurs to maximize profits. Entrepreneurs may invest resources in projects with high personal value to them, like a scientific breakthrough, that does not maximize the start-up's profits. Alternately, the entrepreneur may conceal negative profit potential from the investor in order to maintain venture funding beyond the point that the investor would normally liquidate the investment to minimize losses. See Gompers and Lerner 2000.

The process of venture capital investment relies heavily on non-routine tasks. Non-routine occupational tasks are processes that cannot be described ex ante or automated. Common non-routine tasks are the acquisition and synthesis of information in real time, application of analytical and communication skills, and creative problem solving.[17] Philippon and Reshef document the growing importance of non-routine cognitive and communication tasks in US finance sector occupations since 1980.[18] Using US Department of Labor classifications, they show financial sector occupations are more intensive in non-routine communication and analytical tasks like "Direction, Control, and Planning" and "Math Aptitude" than in routine tasks like "Finger Dexterity." Venture capital investment is arguably even more intensive in non-routine tasks than other areas of finance. The process of innovation is, by definition, non-routine.

There are three prerequisites to the successful execution of non-routine tasks in venture investment: tacit information about industries and markets, the ability to communicate with entrepreneurs, and a dense network of trusted relationships among other venture investors and within the industries in which they invest. These feature prominently in each of the three phases of a venture investment: deal selection, management, and exit. It is these prerequisites that pose the greatest barriers to cross-border VC because investors are less likely to possess the relevant information, skills, and relationships needed to invest in foreign countries. Any explanation for rising rates of international VC has to address how investors' overcome these barriers.

[17] Autor, Levy, Murane 2003.
[18] Philippon and Reshef 2011.

Venture investors require extensive information, particularly tacit information derived through experience in the industry and local market. Foreign VC firms are less likely to have relevant business experience in foreign countries. The organization of markets varies dramatically and venture investors must navigate unfamiliar patterns of industrial organization. For example, Bruton et al compare foreign VC investments in Asia and Latin America to find that, in countries with highly concentrated industrial ownership, venture investors have difficulty accessing innovative business ventures due to the dominance of large industrial conglomerates.[19] Local norms about business conduct including supplier agreements and HR practices can often only be learned through experience.[20] This information is necessary to identify possible venture investment and crucial to the management and oversight of startups.

Communications skills are critical to the venture process because it is investors' guidance to entrepreneurs that adds value to startup companies. This skill set includes the obvious, like language fluency but also a sophisticated grasp of culture-specific interpersonal skills so as to convey complex business guidance in an accessible manner. These skills are similar to those required of other providers of high-skill professional services like lawyers and accountants. Beaverstock documents the importance of such skills to the successful foreign expansion of law firms.[21]

Additionally, venture investors rely heavily on trusted relationships forged through regular interaction. At every stage of VC investment investors leverage their relationships

[19] Bruton et al 2005.
[20] VC firms do not rely on local business consultants for this type of information because of the agency problems that such relationships pose. VC firm employees' interests are aligned with the firms.
[21] Beaverstock 2004.

with third parties. In deal selection investors regularly form consortia with other venture investors for a specific deal in order to diversify risk. These relationships provide access to high quality deals and external validation of deal quality. Investors tap their relationships with industry professionals to perform due diligence. These relationships are one of the few reliable sources for subjective assessments of entrepreneurs' quality and skill. In managing VC investments investors capitalize on relationships with relevant third parties like potential employees, suppliers, and customers for the startup's benefit. At the time of exit, the valuation of the VC investor's equity stake is highly correlated with the investors' reputation and standing.[22] All else equal, investors are less likely to have the relationships and experience necessary for profitable venture deals. Foreign VCs face barriers to entry into new informal networks and their reputations only partially carry across borders.[23]

We argue that countries with close cultural ties are more likely to exchange venture investments. Yet we go beyond existing arguments arguing that that investment across country may be not driven just by information but rather by "cultural affinity" whereby individuals have more trust in individuals and institutions from countries that share common cultural characteristics Cultural similarity, from this perspective, constitutes a more direct measure of (the lack of) information costs and should be correlated with lower transactions costs and a greater ease of doing business across

[22] Black and Gilson 1998, 262.
[23] Hochberg et al 2010. Guler and Guillen (2010) show that VC reputations for quality transfer across borders but other network-based advantages, like brokerage of syndicated deals, do not occur when the VC operates outside of its home market.

border.[24] For example, these factors have been critical to the rise of Israel's venture industry, one of the world's largest. Fred Adler, a Jewish-American venture capitalist, co-founded the first Israeli venture fund in 1985 by raising funds from the American Jewish community (Dossani and Kenney 2002, 31).

For those countries that do not share a cultural heritage, migrants, particularly skilled migrants, facilitate venture investment from their country of residence to their country of origin. Migrants have implicit information about the local market. This includes basic information like how to assess the quality of educational credential and experience, information obvious to someone with an intimate familiarity with the market but difficult for those without that kind of experience.

Migrants are skilled at communicating foreign technical innovations and adapting them to the home environments, both central features of successful venture investments. Kerr (2008) finds evidence of international technology diffusion through in higher citation of co-ethnics' US patents. This finding suggests that migrants have more tacit information on the use of knowledge and its adaptation in their country of origin. Foley and Kerr (2011) show that US MNCs that employ skilled migrants in the US are more likely to invest in those migrants' country of origin. They find this correlation to be particularly strong for the establishment of foreign research and development facilities, the dimension of traditional FDI that most closely resembles VC investment.

Additionally, migrants are also more skilled at establishing networks in their home countries and leveraging network connections on behalf of portfolio firms than

[24] Guiso, Sapienza and Zingales, 2005; Siegel, Licht and Schwartz, 2008.

equivalently skilled expats who have no cultural ties to the country. Saxenian provides examples of US migrant entrepreneurs from China, India, and Taiwan tapping into home-country networks of family members, friends, and classmates to pursue local business opportunities.[25] Even when migrants cannot tap into an existing network in their country of origin they can more easily establish such networks. Nanda and Khanna (2010) find that diaspora networks substitute for local business networking and entrepreneurial networks available to firms in major Indian software industry hubs. Li and Saxenian describe a similar dynamic among Taiwanese migrants in the Silicon Valley.[26] It is through these relationships that venture investors overcome the additional challenges of international investment. Home country networks are conduits to high quality investment opportunities in the same manner as domestic networks generate deal flow. Trusted counterparts in the home country also monitor entrepreneurs on behalf of foreign VC investors. It is no coincidence that educated migrants are heavily represented among foreign VC professionals operating in a country. A cursory examination of the data—displayed in Figure 3—reveals an average positive correlation between the number of educated migrants in the United States and the number of VC deals flowing to the migrant's country of origin.[27]

There are a few specific mechanisms through which migrants facilitate VC. The most direct influence is through migrants who are themselves venture professionals. We test the plausibility of this claim by identifying the top ten US VC firms in terms of their

[25] Saxenian 2005.
[26] Li and Saxenian 2002.
[27] Wright et al (2002) report that over 90% of the foreign VCs operating in India are nonresident Indians nationals.

deals in India in 2000. For each firm, we locate the national origins of all managing partners and directors as defined by the country in which they received their undergraduate degrees. Nine out of the ten firms had a partner and/or director who was educated in India.[28] Additionally, some migrants return to their country of origin as entrepreneurs and draw on their industry relationships abroad to secure venture investments. Migrants can also serve as pure intermediaries by linking home country entrepreneurs with foreign VC investors. These channels are all manifestations of migrants' superior information and networks in their countries of origin. In their survey of VC in Asia, Kenney et al (2002) identify all three of these mechanisms in generating investment from Silicon Valley VC firms to ten East Asian and Southeast Asian countries.[29]

VC is more intensive in non-routine tasks than other modes of FDI. Consider a comparison between a VC firm and traditional multinational corporation (MNC). In both

[28] Data on 2000 venture professionals by firm are from the same database that supplied all of our VC data. Country of undergraduate education was obtained from VC firms' website or *Business Week*'s directory of corporate biographies.We note that our national orgin measure is conservative because it omits those who earliest teritary education was outside of their birth country. We were unable to find systematic data on birthplace, a possible alternate measure.

[29] Some may argue that migrants invest in their countries of origin not because they have more relevant information and relationships but, instead, as a form of remittance to support family and friends. Even in the absence of these specific motives they could make venture investments out of a general sense of altruism towards their homelands. Many migrants are sure to have these ties to their homelands. Indeed, there is some evidence that migrant "angel investors," wealthy individuals investing their own money, invest in their countries of origin with these motives (Dossani and Kenney 2002). If, however, these motives drove the internationalization of VC more broadly, we should see those firms that invest abroad underperform because they are not trying to maximize profits. In fact, international VC investors tend to be older, successful firms prior to their initial foreign investments. These firms accept the risks of foreign VC because they more skilled at solving agency problems and have a lower cost of capital because of their record of profitable investments (Sorenson and Stuart 2001). VC is a poor vehicle for remittance-type investments. Firms are accountable to their limited partners, typically large institutional investors, and face competition to retain them in the future. Venture investors that do not maximize returns would find it difficult to raise future funds. Additionally, individual venture professionals have a strong incentive to maximize returns because their compensation is directly link to fund performance. As we report in the next section our empirical findings are also robust to controls for remittance flows.

cases, there needs to be a balance between the interests of the investors, based outside of the country, and local interests. The personnel on the ground in the foreign market, expatriate managers of MNCs and foreign VC professionals, need to reconcile the goals of "headquarters" with the local conditions that they face.[30] The challenge in both cases is to find managers with both sufficient firm-specific and market-specific knowledge. VCs face greater challenges than traditional MNCs because VCs have more non-routine tasks than the average foreign affiliate of an MNC. Relative to MNCs, local VC professionals play a more important intermediary role because venture firms are less hierarchical and there is a greater need for two-way communication between those overseeing the investment and the firms' investment committee.[31] MNCs, by contrast, are hierarchical such that information typically flows in one direction, from headquarters to the affiliate. In sum, the information and relationship advantages of migrants should matter more for VC than other forms of FDI.

The dominance of non-routine tasks in VC relative to other forms of FDI also reduces the relative importance of host country political institutions to the volume of VC investment that countries receive. Existing research emphasizes how political institutions contribute to political risks like violations of property rights; riskier countries receive less FDI. VC investors, however, have a qualitatively different risk profile. Unlike multinational firms, VC investors do not introduce existing firm-specific assets that are vulnerable to expropriation. The knowledge assets that they do bring are difficult for governments to appropriate. Extrapolating from research on risk in joint ventures we also

[30] Doz and Prahalad 1986.
[31] Pruthi et al 2009.

expect that investors' alliance with local entrepreneurs afford additional protections from government predation.[32]

3. Empirical Analysis

Scholarly research on international VC flows is in its infancy. Few existing studies consider the political economy determinants of international VC or migrants' facilitating role. Guler and Gullien develop and test a model of US VC outflows that shares many of the covariates of the model that we present in this section but their focus is on identifying firm-level characteristics that correlate with foreign VC activity. They also omit consideration of migrants or other sources of shared implicit information.[33] Aizenman and Kendall estimate a cross-national gravity model of international VC and private equity flows that excludes possible political economy and migrant-related correlates of VC.[34] Two recent studies highlight the role of migrants in facilitating entrepreneurial activity in their countries of origin. Madhavan and Iriyama contend that skilled migrants produce transnational networks of technical professional that facilitate VC to their countries of origin.[35] Vaaler correlates the volume of migrant remittance with metrics of entrepreneurship including new firm creation and access to business financing.[36]

Our work advances research on the determinants of VC in a number of ways. First, while Madhavan and Iriyama develop a useful theoretical model they estimate an

[32] Bradley 1977, Henisz 2002.
[33] Guler and Gullien 2010.
[34] Aizenman and Kendall 2008.
[35] Madhavan and Iriyama 2009.
[36] Vaaler 2011.

empirical model that excludes not only all other correlates of VC flows but also many general gravity variables that condition the ease of economic activity. Vaaler's focus is the broader concept of migrant-supplied entrepreneurial support rather than VC precisely. His measure of VC is an index ranking of the overall supply of entrepreneurial financing in a country rather than foreign VC specifically. By contrast, we develop a theoretical model that incorporates established correlates of venture activity in addition to standard gravity measures, political-institutional factors, and our variables interest, sources of implicit information and trust. In this section we outline and test a model of cross-border VC flows.

Several host country characteristics influence countries' potential to attract US venture capital. Countries with more developed stock markets are more likely to have venture investments because the potential for initial public stock offerings (IPOs) aligns the investors' and entrepreneurs' incentives in the earliest stages of the venture. Jeng and Wells compare venture activity in a large sample of countries and find that countries with large stock markets have greater venture activity.[37] In the absence of sufficient international cross-national IPO data, we measure stock market development as the (log) total number shares traded in annually. These data are from the World Bank's World Development Indicators.[38]

Countries with more innovation are more likely to receive VC, all else equal. We measure the supply of innovation in potential recipient countries with two indicators also

[37] Jeng and Wells 2000. See also Black and Gilson 1998.
[38] In the US, for which we have reasonably complete IPO data, this variable and IPO counts have a correlation of .85.

taken from the World Bank's World Development Indicators.[39] The share of the over-25 population with tertiary education captures the amount of human capital available to generate and support innovation. The annual number of patents granted in a country measures the amount of intellectual property the country generates. This outcome reflects both the capacity for innovation and the full range of institutional factors that condition the commercialization of innovation through the grant of intellectual property rights. We anticipate that more innovative countries, as measured in these two ways, will receive more VC.

Venture investors, like multinational corporations, face political risks when making foreign venture investments. Most political economy models of FDI give pride of place to the importance of institutional or regulatory policies designed to tie the hands of policymakers and/or secure property rights. In the previous section we presented the claim that VC investors are relatively less sensitive to the political regime in a host country. We test this claim using the POLITY measure of democracy. VC investors are, however, vulnerable to ex post policy changes that could diminish the value of their investment. We also use a measure of political constraints developed by Henisz that captures the number of checks and balances within a country that conditions the likelihood of ex post policy changes.[40] We anticipate that VC investors are sensitive to ex post adverse policy change but less so than MNC investors. Here too, venture investors enjoy a greater modicum of political security by virtue of their partnership with local entrepreneurs.

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[39] http://data.worldbank.org/data-catalog/world-development-indicators

[40] Henisz 2000. http://www-management.wharton.upenn.edu/henisz/
This measure is conceptual distinct from standard measures of democracy—such as the POLITY measure—yet the two measures are highly correlated (.80).

Finally, we control for the openness of the recipient country's capital markets. Foreign equity ownership restrictions are, in practice, not a concern for VC for most of the period we exam. Pandya documents the precipitous decline of these restrictions by the 1990s.[41] VC investors ultimately plan to liquidate their investments so they could be sensitive to controls on capital outflows.[42] We use the Chinn and Ito measure of capital controls.[43] Based on descriptive accounts reported by the International Monetary Fund, the Chinn-Ito measure takes on higher values for countries with more open capital markets.

Standard gravity models of international transactions include a number of variables capturing characteristics of country pairs such as the (logged) distance between countries, whether they share a common official/legal language, have a common border and a common colonial history. We do likewise using the Distances database from CEPII.[44] The Distances database also contains data on whether the two countries share a common legal history and we employ that variable as well.[45] International investment is also influenced by the tax regime as investors may shy away from opportunities if they fear that profits will be taxed in both the recipient and their home country. We measure the absence of this constraint using a dummy variable coded one if the two countries have

[41] Pandya 2011.
[42] VC investors lack mechanisms like transfer pricing that MNCs use to circumvent such controls.
[43] http://web.pdx.edu/~ito/Chinn-Ito_website.htm
[44] http://www.cepii.fr/anglaisgraph/bdd/distances.htm
[45] As a robustness check we also substitute a dummy variable measuring whether the two countries both use British common law. Using this measure the results are consistent with those reported below. See Lerner and Schoer 2005 on the superior protections enjoyed by private equity investors in emerging markets with common law systems.

signed a dual taxation treaty.[46] To control for the economic size of recipient countries we include the log of real gross domestic product taken from the Penn World Tables, Mark 7.[47]

Our dependent variable is the number of venture capital investments that countries receive from the US within a given year. A US-originated VC sample is ideal for three main reasons. First, analyzing investment from a single host country allows us to hold constant a myriad of source country variables that influence VC outflows. The US is an obvious choice as it is the world's single largest source of VC by a substantial margin.[48] The conventional definition of VC in the US as early stage investments in young firms is most consistent with our theoretical argument. By contrast, the other counties in the world that originate venture capital employ a broader definition of VC that includes later stage investments in private companies, investments that lack the informational demands present in earlier stages. Finally, the US has the most comprehensive time series on migrants broken down by both education level and country of origin available. We do show comparable results for a cross-section of OECD countries that originate VC.

Reliable data on venture investments are difficult to come by. In most countries there are few regulations on venture capital of the sort that generate a paper trail. In the US, VC firms are independent entities, unconnected to any larger financial institution. As a consequence, there is no reporting requirement that yields consistent information on the value of venture investments. Official balance of payments statistics classify cross-border

[46] This variable was compiled using data from UNCTAD http://www.unctad.org/templates/Page.asp?intItemID=4505&lang=1.
[47] http://pwt.econ.upenn.edu/
[48] See Gompers 2007 for a historical account of the American VC industry that explains why the US has been the leader in this form of investment.

VC flows as FDI following the statistical definition of FDI as foreign equity ownership greater than ten percent.[49] There is no way, however, to disentangle from official estimates the proportion of flows that are VC. We utilize data from Thomson Financial's VentureXpert database, the most comprehensive source of worldwide venture transactions available. VentureXpert provides a variety of deal-level information on venture transactions compiled by Thomason Financial's staff from public statements, press reports, and interviews with venture firms. We extracted from the database the universe of VC deals for the period 1980-2009.

We measure dyadic VC flows as the number of unique deals from one country to another in a calendar year. Deal counts are a standard metric in empirical research on VC.[50] We distinguish venture investments from later stage private equity transactions using Thomson Financial's definitions of venture investment as "seed/startup," "early stage," and "expansion."[51] This definition of venture capital investment is conservative but appropriately so because in order to capture the high degree of risk that makes international VC investment costly. During the period under study American investors undertook 17,295 venture deals in 89 different countries.[52]

Deals are the most accurate and insightful unit in which to measure VC flows. Each deal represents a contractual relationship that requires a new process of due diligence and generates flows of entrepreneurial guidance into the country of the

[49] Venture investments are distinct from the initial raising of the fund that that venture capitalists use to invest. These funds may come from many countries but they are not classified as FDI.
[50] These studies include Guler and Guillen 2010, Aizenman and Kendall 2008, and Mahdavan and Iriyama 2009.
[51] We follow Aizmann and Kendall 2008 in this definition of VC.
[52] A list of countries along with the total number of deals from the US over the period 1980-2009 is contained in appendix A.

entrepreneur. Deal counts are the standard metric of VC flows in existing empirical research on venture capital. In principle the amount of capital invested would also be of interest. Unfortunately, data on the value of venture investment is unavailable for a large sample of countries and years and the data that do exist are highly inaccurate.[53]

In most venture investments investors provide funding in rounds, rather than as a single payment, as a disciplining and oversight device. VentureXpert provides information at the deal-tranche level such that a given VC firm-startup dyad may appear in the dataset multiple times in a single year. We count the dyad only once for each year. Additionally, there are instances of joint VC investments from investors located in multiple countries. In these cases, we count the deal multiple times, once in each of the dyads represented. Finally, we note that in the past five to ten years, larger venture capital firms have established foreign offices from which they manage deals locally. These investments are still "foreign" in many important respects but in our data they are classified as wholly domestic investments because these firms do not face the same information difficulties as a truly cross-border investment. We suspect, however, that the presence of migrants in the VC-originating country raises the likelihood that VC firms eventually create local branch offices.

Our featured covariate is the stock of US-resident migrants from potential VC destinations.[54] Unfortunately we are unable to utilize the entirety of this collect as we are constrained by the availability of comparable data on immigration. Time series data on

[53] Data on deal values are exceptionally problematic for studies of international VC because only total deal amounts are reported so the data cannot be accurately disaggregated when multiple countries' investors are parties to a deal.

[54] Bandelji 2002 uses an analogous measure to proxy for the role of cultural similarity in FDI flow patterns among post-communist countries.

migration broken down by level of education are not widely available. We are able generate a dataset using US decennial censuses as well as the American Community Survey.[55] This provides data on the population of migrants—defined as those individuals born outside of the United States—broken down both by country of origin and by education level for 1980, 1990, 2000, and 2003-2009[56]. Missing years were filled in using piecewise linear interpolation using supplementary data on the US population by age, gender and education cohort.[57] This provides a time-series of migrants from 210 countries residing in the US from 1980-2009. From these data we generate three measures of US stocks of migrants from a given country: the (log) number of migrants, the share of migrants with a college education, and the share of migrants with a post-graduate degree.[58]

Given that we only have data on the number deals each country receives annually if deals actually occurred, we have to make a decision about what constitutes a zero in our sample. One strategy would be to create a perfectly balanced dataset of all possible recipients for the period 1980-2009. We reject that strategy because it would result in very large dataset 97% of which would be zeros and, it would include less developed countries in which VC activity is highly improbable. Our preferred solution is to create a

[55] We extracted census and ACS data from the IPUMS-USA project. (http://usa.ipums.org/usa/)
[56] We use the US census definition of foreign born which does not distinguish between whether individuals have been naturalized or granted citizenship; rather it counts individuals living in the United States based on their country of birth.
[57] This is a standard approach to dealing with census data. See Booth (2006) for a review of alternatives. The correlation between the interpolated data and the data extracted from the Census and American Community Survey is .89 for the migrant population, .93 for the share with college education and .88 for the share with graduate education.
[58] The data do not indicate the country in which the migrant earned his or her degree but this is not material to our argument. Migrants perform the hypothesized functions independent of where they received their schooling.

dataset comprised of all countries that have ever received any US-originated VC or M&A deals during the period 1980-2009. This strategy eliminates the countries for which these types of investments are broadly unrealistic but preserves cross-national patterns of deal flows. Following this strategy 63% of country-year observations for VC deals are equal zero. As a robustness test, we re-estimate all models reported below with the full sample of countries, i.e. without dropping countries that received zero M&As and VC over the timeframe under study. This adds only 7-8 countries to the sample depending on the model specification. Adding these countries does not change our substantive or statistical results.

The large number of zero observations guides our choice to estimate a negative binomial model with robust standard errors. Our dependent variable is the number of VC deals that flow from the US to a given country in a particular year. Among count models a negative binomial model is better suited to our data than a Poisson model. The Poisson model assumes that the mean and the variance of counts distribution are equal. Due to the large number of zeros in our data we observe over-dispersion, the variance of the distribution of VC deals is greater than their respective mean values. We add year dummy variables to the models to account for unobserved time-varying characteristics of the

international system that may influence VC activity.[59] These controls also account for unobserved factors within the United States that influence VC outflows.[60]

As we noted in the introduction VC, is a form of FDI even though it bears little resemblance to the standard production-oriented FDI that multinational firms undertake. In order to establish the distinctions more precisely we estimate the same model for counts of annual bilateral VC investments and M&A investments. We can compare the relative importance of key covariates to explain the two forms of investment.

M&As are the ideal comparison group because FDI investors of all motives use it as a mode of investment. Multinational firms that wish to expand production into new markets engage in M&As to purchase local suppliers and distribution networks. M&As are also a common mode for private equity transactions and strategic acquisitions of technology. Although these basic motivations for M&A—the decision to produce goods and services—are quite different from those that govern VC investment, the investment process is similar. Most notable, relationships are critical to M&As as well. Robert Bruner, a leading scholar of M&As writes: "Quite simply, private knowledge of high return investment opportunities is the crucial ingredient for creating value through M&A."[61] If any form of FDI should show a correlation with migrants it should be M&As. For our purposes the central difference is that M&A investors have information on the

[59] We would like to include recipient country fixed effects as well as year fixed effects. Unfortunately the dimensionality of our data does not allow us to do so; the inclusion of recipient fixed effects renders the calculation of parameter estimates and associated standard errors difficult to estimate. Even alternating between a number of different algorithms we were unable to achieve convergence. This is largely due to the number of countries who receive a small number of VC deals—the fixed effects were significantly correlated with variables such as GDP, stock market development and human capital.

[60] In other results, not reported here, we drop the year fixed effects and include the log of US GDP and the log of stock market capitalization in the US to account for the supply of VC. Results from this specification are not different from those reported below.

[61] Bruner 2004, 186.

performance of the enterprise so there is greater certainty relative to VC. The experience and communication skills central to VC are also important to M&A but less so because the tasks associated with M&As are more routine.

We hypothesize that key variables—those measuring migrant networks, stock market development and domestic political institutions—will differ both in magnitude and in statistical significance as when entered into models of VC and M&A investment. Because of the information intensive nature of VC relative to M&A we expect our measures of migrant networks to matter more for the former than for the latter type of investment. We also expect stock market development to have a substantively larger impact on VC than for M&A because the expected profitability of venture investments is higher when there is the possibility of a public stock offering. The profitability of M&As has a weaker correlation to size of the local stock market. Finally, VC investment should be less sensitive domestic political institutions than M&As because political risk, especially the strength of property rights protections, have a smaller impact on venture investors expected income. The essence of M&As, by contrast, is the acquisition of firm-specific assets – the source of traditional FDI's vulnerability to political risk.

To test these hypotheses we need construct a measure of M&A behavior that is analogous to that of VC: the number of M&A deals originating from the US in a given country-year. Deal-level M&A deals data are taken from SDC Platinum, another Thompson Financial database. The database includes all acquisitions in which at least five percent of ownership was transferred from the target firm to the acquirer as well as all mergers of equals and other forms of corporate cross-ownership. The sample includes

both private and public companies so there is no systematic bias in the sample via correlation between public status of acquired firms and the covariates of the model.

In order to formally test the hypothesis that VC investment is more intensive than M&A activity, we estimate models for these two kinds of investment behavior using a seemingly unrelated negative binomial framework. The key idea behind this modeling strategy is it allows for a correlation between the errors of the two models. This, in turn, allows for the calculation of standard errors and associated confidence intervals that can be compared across the estimated models. Consequently we are able to test for the equality of coefficients across models with different dependent variables. When presenting these models we report 95% confidence intervals based on robust standard errors clustered by recipient country to account for the correlation in error terms among observations for a single country.

Table 2 provides estimates for these models. Columns 1 and 2 include the index of political constraints as the measure of domestic political institutions whereas columns 3 and 4 feature the polity measure. Odd numbered columns are models of VC counts, even numbered columns are models of M&A counts. (Skilled) migrant stock correlates with both more VC and M&A deals. In fact along most dimensions VC and M&A counts are quite similar. The two types of investment diverge, however, in the relative importance of host country political institutions. For both political measures the coefficient in the VC model is smaller than in the M&A model. There is an especially large disparity in the relative importance of democracy. We anticipated that VCs are sensitive to adverse policy changes post investment but less so than their MNC counterparts because VC's exposure

is arguably less due to their partnership with local entrepreneurs. We interpret this result as evidence that VCs are less concerned than multinational firms about violations of their property rights and therefore are not moved by democracy's more credible commitments to uphold these rights.[62] More than any other result we report, this finding demonstrates fundamentally different motives and substance of VC.[63] Our use of seemingly unrelated regressions alleviates concerns about multicollinearity between migrant stock and political institutions.[64] Were this to be biasing the coefficient on institutional variables downward we would observe the same in the M&A model. We, however, do not.

Our variables of interest, the stock of educated migrants from the recipient country residing in the United States and the share of those migrants with a college degree or a graduate degree—are both statistically significant and positive for the VC models regardless of specification. In the bottom panel of Figure 4 we plot the predicted number of VC deals for given values of the migrant population from country j residing in the United States, holding all other variables at their means. The number of VC deals is a positive and positively increasing function of the number of migrants from that country in the United States. This means that the effect of increasing the number of migrants from a country that already has a large migrant presence in the United States has a larger effect

[62] See Li and Resnick 2003 and Jensen 2003 for findings on multinational investments.
[63] It is plausible that democracy is not statistically significant because of democracies also tend to be richer, have more human capital, and greater protection of property rights (as measured by patents and stock market capitalization) as compared with autocracies. The high correlation between these variables may be what renders the estimated coefficient on democracy statistically insignificant. We grant that this may be an explanation for the finding but note that we do not obtain a similarly insignificant coefficient when in column two where the dependent variable is the number of M&A transactions.
[64] One could potentially object that the measure of migrant networks masks the effect of political institutions because, the arugment may go, labor migrants are more likely from countries that are democratic while refugees are more likely to emerge from autocracies. But empirical evidence does not suppor this conjecture. The bivariate correlation between the polity index and migrant populations in the US is less than .30.

than a similar increase from a country with a smaller migrant presence. Mexico, for example, gets on average 2.6 VC deals from the US. Increasing the number of migrants from Mexico by one percentage point increases the expected number of VC deals by .8, holding all other variables at their means. This estimate is similar for the UK, a country with migrant population that is similar in size to that of Mexico. Yet, as can be seen in the top panel of Figure 4, we would expect a larger number of VC deals going to the UK because the share of British migrants with college degrees is 28% as compared with Mexico where only 3% of that country's migrant population has college education.

We can engage in a similar exercise for M&A investments. Continuing on with the comparison between Mexico and the UK we predict that the US's neighbor to the south will receive an average of .65 M&A deals a year—holding all variables at their means—and increasing the number of migrants by one percentage point increases that number by .26. For the UK the baseline number of M&A deals is higher; on average they receive almost 2 M&A deals a year. Increasing the number of highly educated migrants by one percent raises the number of mergers and acquisitions by almost an additional deal per year (.85).

Table 3 explores this result in greater depth by including an expanded set of covariates including the presence of a bilateral investment treaty, preferential trade agreement, and time zone differences. Our core finding regarding migrants is unchanged. A comparison of columns 1 (VC counts) and 2 (M&A counts) reveals that investment treaties do not have a statistically significant correlation with either form of investment, a finding consistent with much of research on investment treaties. Preferential trade

agreements encourage VC deals but have no systematic bearing on the number of M&A deals. We suspect that this result is another manifestation of information's role. Finally, VC investments are not sensitive to time differences while M&A investments are. This difference highlights the relatively hierarchical form of information relevant for traditional production-oriented investment in which coordination among subsidiaries is crucial.

Table 4 contains our first set of results for the determinants of VC deals. Column 1 is a benchmark specification including those variables found in earlier studies of bilateral venture capital. Consistent with these studies we find that VC deals are an increasing function of the recipient's wealth—as measured by the log of real GDP—as well as its stock of human and physical capital, proxied by patents and stock market development respectively. A common legal language also facilitates cross-border investment as it decreases the transactions costs associated with writing and enforcing contracts. Column 1 also indicates that the US engages in fewer VC deals with countries that use the US dollar than use other currencies. And, unsurprisingly, the sharing a border with the US decreases VC investment. At first glance this may be suggestive that US investors seek opportunities to diversify away from the US but a deeper exploration (results not reported here) show that this result is driven by the fact that there are relatively few—a maximum of 12—venture deals between the US and Mexico.

In columns 2 through 10 of table 4 we add variables capturing the information and institutional environment in recipient countries. Columns 2-5 include the two measures of migrants both individually and jointly. We find, as expected, that unskilled migrants, all else equal, do not have a statistically significant impact on cross-border VC deals while

the share of migrants with graduate education positively and significantly increase the number of deals. This effect increases marginally when we include both variables together as we do in column 4. A different measure of informational similarity—genetic distance—is not statistically significant nor are variables designed to capture characteristics of the institutional environment in the recipient country—the index of political constraints and a measure of the recipient's level of democracy.[65]

As a further robustness check we estimate a hurdle model which is a model containing two components. Mullahy explains that "[t]he idea underlying the hurdle formulations is that a binomial probability model governs the binary outcome of whether a count variable has a zero or a positive realization. If the realization is positive, the 'hurdle' is crossed,' and the conditional distribution of the positives is governed by a truncated-at-zero count data model."[66] Hilbe show how hurdle models can be estimated by two separate models because the models do not maximize a joint likelihood. The first is a logit model where the dependent variable is coded as 1 if any event is realized and zero otherwise. The second model is a zero-truncated negative binomial model where the sample is constrained to include only those observations where counts are non-zero. Cameron and Trivdei provide details about how to calculate marginal effects and predicted counts from these models.

[65] We estimated negative binomal regressions including fixed effects for recipient countries. This specification attenuated the effect of educated migrants by half but a statistically significant correlation remains. We estimated negative binomal regressions including fixed effects for recipient countries. This specification attenuated the effect of educated migrants by half but a statistically significant correlation remains.

[66] Mullhay 1986, 341. The hurdle model is discussed in detail by Hilbe 2007 and Cameron and Trivdei 2005.

The results of our hurdle model are contained in Table 5. The first column of Table 3 is a standard logit model where the dependent variable is coded 1 if the recipient country received any VC during the year. As with the negative binomial model increasing the share of graduate school educated migrants from country j increases the probability that country receives a venture capital deal. In column 2 of the table is a truncated poisson model where the sample only includes those countries that have received any venture capital deals. Again, our variables of interest are statistically significant and correctly signed with graduate educated migrants significantly increasing the number of deals received.[67]

The hurdle model allows us to rule out an alternate explanation for our finding, that skilled migrants stimulate investment to their home countries because they signal the quality of human capital in their country of origin (Aggrawal et al 2008). If this were the mechanism by which migrants stimulate VC it should only influence whether there is any investment and not the number of deals. In terms of our model estimates there should positive coefficients for the migrant variables in the first stage but not in the second stage. In fact, we find that migration is correlated with both the initial presence of VC and the volume of VC that countries receive. This finding is consistent with the claim that skilled migrants help to identify and manage deals, thus influencing volume.

It is also interesting to point out that the hurdle model helps provide some texture to our earlier finding that institutional constraints do not play a role in VC deals. The stability of recipient's political environment does matter as US venture capital seeks out

[67] We shifted to a poisson model because we could not obtain convergence for the negative binomial model even after using a variety of different maximization algorithms.

destinations; the coefficient on the index of political constraints is positive and statistically significant in column 1. Once a recipient has been selected, however, political constraints no longer matter. We find the same result when we substitute the POLITY measure of democracy for the index of political constraints in columns 3 and 4 of Table 5. In column 3 of Table 5 democracy is positive and statistically significant. Venture capital investors heed regime type when they initially seek out investment but it has no bearing on the volume of investment. The negative coefficient on the democracy score in column 4 is surprising but further examination reveals that it is driven by the presence of China in our sample. When we drop this outlier—as we do in Table 6—the negative effect of democracy disappears.

In a further robustness check we estimate a similar set of models using a sample of deals from OECD sources. Migration data are a significant constraint to a broader sample of VC source countries but we confirm our findings with the available migration data for OECD countries. This sample is constrained to a cross-section for 2000 because of limitations associated with migration data[68] but it allow us to analyze deals originating in 28 different countries.[69] To deal with source country heterogeneity we include the log of GDP and the log of stock market capitalization for the countries of origin. We also

[68] We use data from OECD Database on Immigrants in OECD Countries (DIOC) which, in turn, is based on standardized data from national censuses.
http://www.oecd.org/document/27/0,3746,en_2649_37415_40110299_1_1_1_37415,00.html

[69] These source countries are: Austria, Australia, Belgium, Canada, Czech Republic, Denmark, Finland, France, Greece, Hungry, Ireland, Italy, Japan, Luxembourg, Mexico, the Netherlands, New Zealand, Poland, Portugal, South Africa, Slovenia, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States.

include an additional variable to capture cross-border information flows: the log of the number of telephone calls that took place between the dyad in 2000.[70]

Table 7 contains a set of results for OECD sources comparable to those obtained when the US is the sole source of VC. The findings support the importance of bilateral distance between source and recipient country and for the statistical and substantive significance of human and physical capital in the recipient country. We also find that migrant ties—both of unskilled and of highly educated migrants—increase VC deals between countries. Table 8 estimates a set of hurdle model for the set of OECD. As with the US sample we find that migrants increase both the likelihood and the number of venture capital deals between source and recipient countries. Surprisingly we find that the measure of political constraints is not statistically significant and that democracy has a negative effect on the number of deals. This latter result, however, disappears when we eliminate China from the set of recipient countries (results not reported here).

We perform several additional robustness checks that in the interest of brevity we describe them here and provide the full set of estimates in Appendix 3. As noted above we re-estimated all variables with the full sample of countries without regard for whether they received investment. This alternate sample generates almost identical findings. We also added additional controls to the models including a measure of recipient county corruption obtained from the International Country Risk Guide, a measure of cultural similarity defined as the difference in post materialist values as measured by the World Values Survey, rule of law as measured by the World Bank, and remittances measured as the log

[70] This variable was obtained from the firm Telegeography. We do not use this variable in the time-series sample because each year's worth of data cost $4000, making its inclusion prohibitively expensive.

of remittances as a share of per capita GDP in the recipient country, and a measure of bilateral flows of asylum seekers to the US that captures possible US migrant flows driven by poor quality political institutions in the origin country.[71] These additional covariates do nothing to alter the substantive and statistical results already reported. We do find that countries strong rule of law receive more VC investments. Finally, there is a possibility that correlation among gravity variables and between gravity variables and our variables of interest has distorted our findings. Accordingly, we estimate the baseline models without the standard gravity variables. The coefficients on our variables of interest are virtually identical to the baseline specification.

4. Conclusion

The growth of cross-border venture capital investment is puzzling in light of the inherent risks of VC and how those risks are amplified in an international setting. We identify an underappreciated catalyst for this growth: the presence of skilled immigrants who facilitate venture investments to their countries of origin. These migrants supply the implicit information and cultivate the relationships necessary for profitable venture investments. We test and validate this claim with time series bilateral data of US venture investments and migrant stocks in the US. Additionally, a series of seemingly unrelated regressions shows the standard elements of FDI flow models are of considerably less importance in explaining VC flows. Domestic institutional variables are, at best, half as important to VC as compared to M&As. These findings underscore the growing diversity

[71] We attempted to control for additional relevant variables including public R/D spending and barriers to the establishment of businesses but we were unable to find reasonably complete data for most years in our sample.

of motives for FDI and the substantive content of FDI flows. Political economy theories of FDI must evolve accordingly.

More broadly, this paper examines the international flow entrepreneurship and innovation. The continual process of innovation, what Joseph Schumpeter famously described as "creative destruction," has become increasingly global. In this regard, international VC is the flow of knowledge to cultivate and commercialize local technical capacity. VC augments technical skill with operational and innovation skill, a crucial link to economic growth and development. VC is also an artifact of the changing nature of production. Production is increasingly human capital intensive and contingent relationship-specific investments. Political economy scholars of economic integration have yet to identify how these fundamental changes factor into extant models.[72] As more value added in economic production comes from the non-routine and uncodifiable inputs to production, we require fresh approaches to identify the political economy implications of these changes. This paper provides such an approach.

[72] For example, IPE research focuses on the production of goods and services via arms-length trade and MNCs' investments, migrants who engage in production, or the movement of liquid capital flows.

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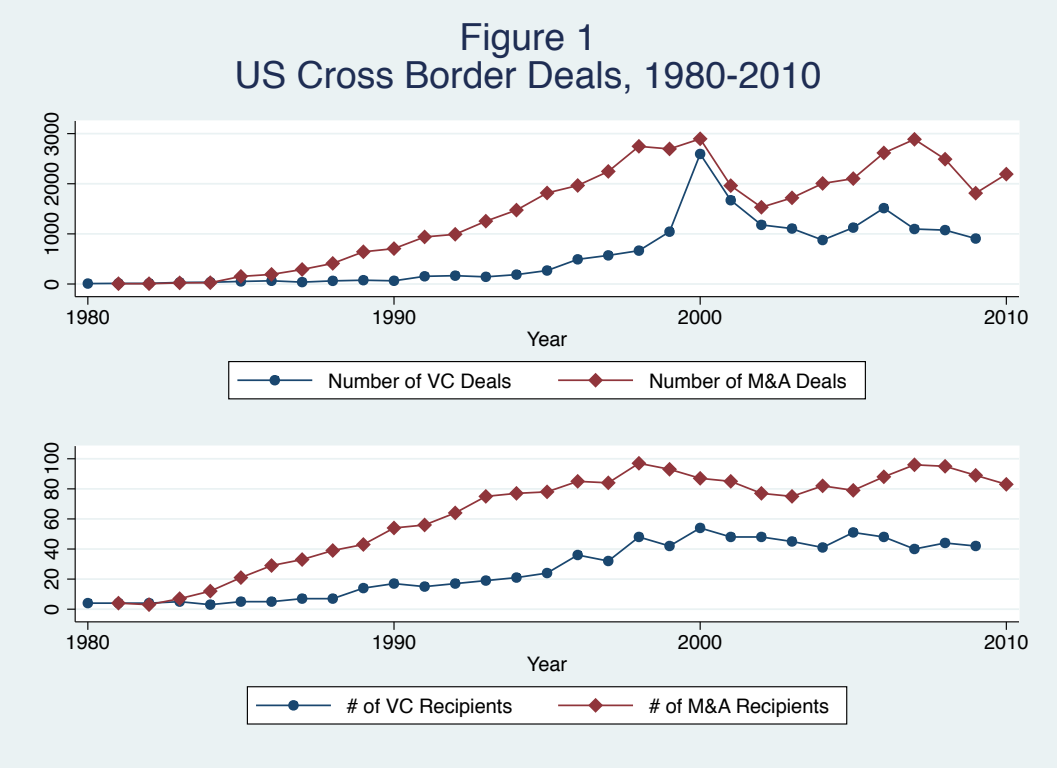
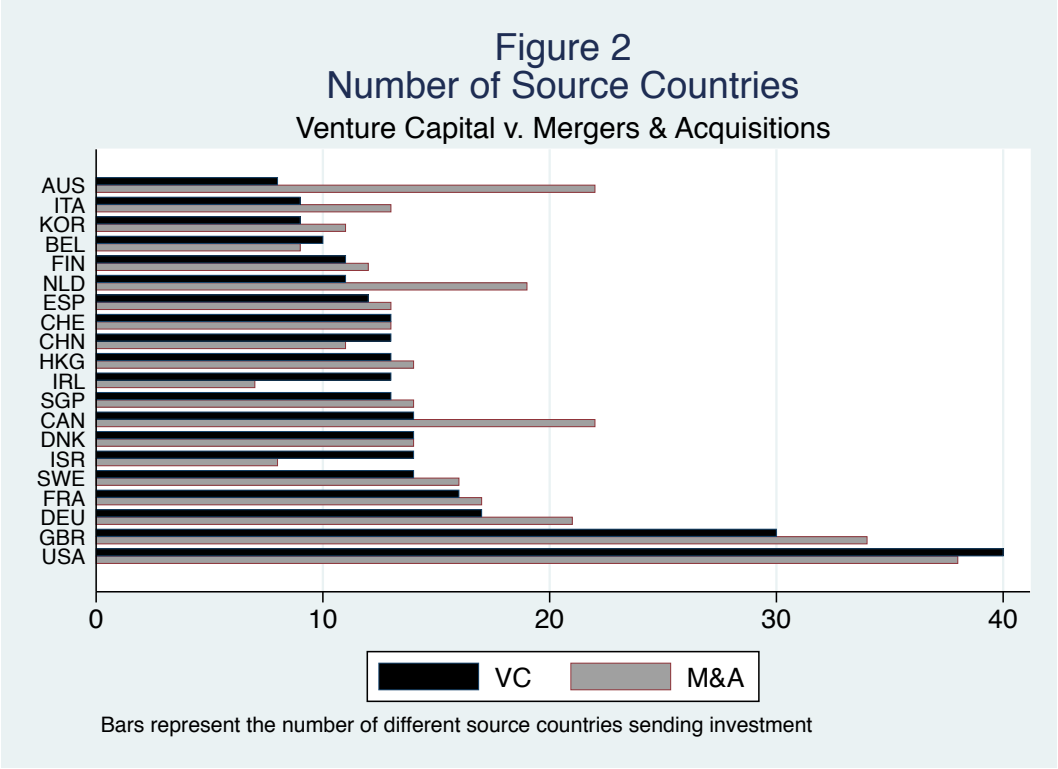


Data Sources: VentureXpert (VC) and SDC Platinum (M&A)



Data Sources: VentureXpert (VC) and SDC Platinum (M&A)

Figure 3: Top 20 Country Recipients of US Venture Capital, 1980-2010

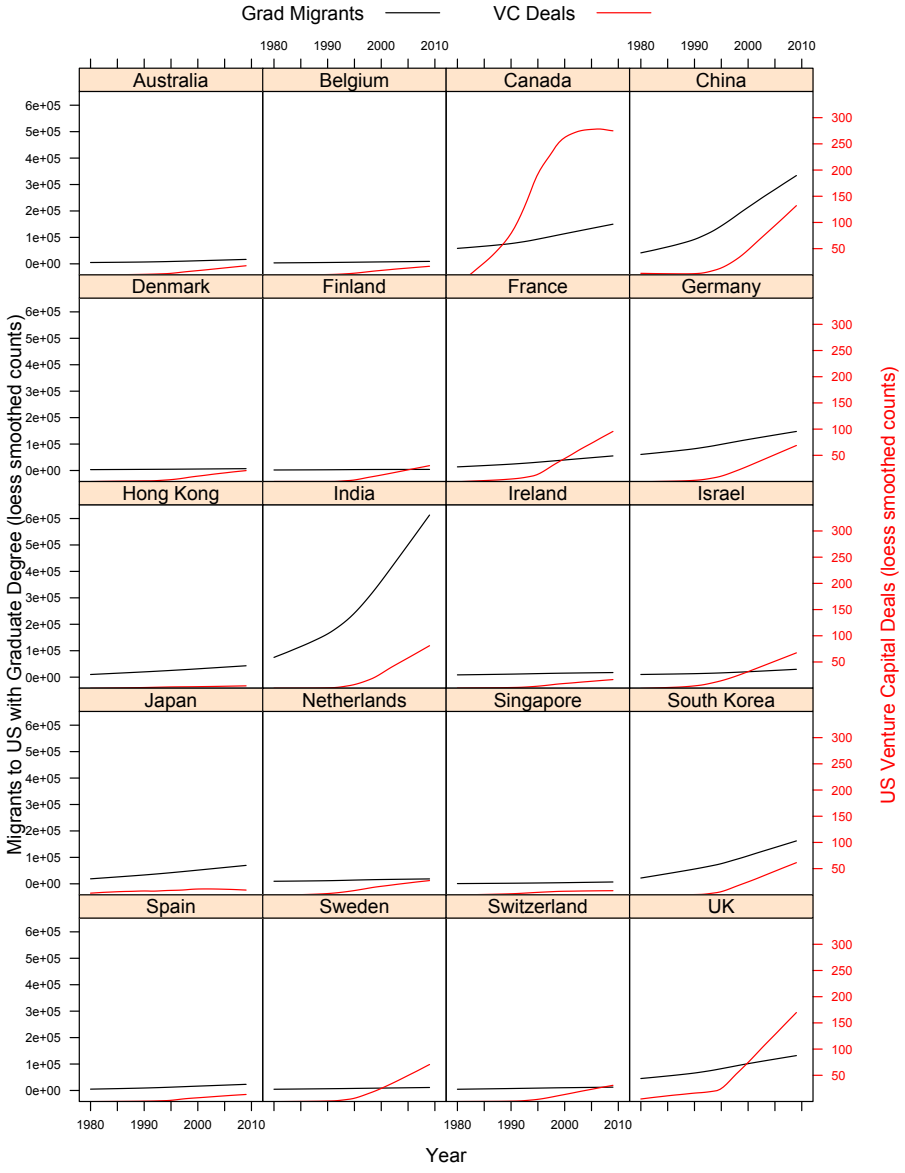


Figure 4
Effect of Migrants on US Cross Border Investments

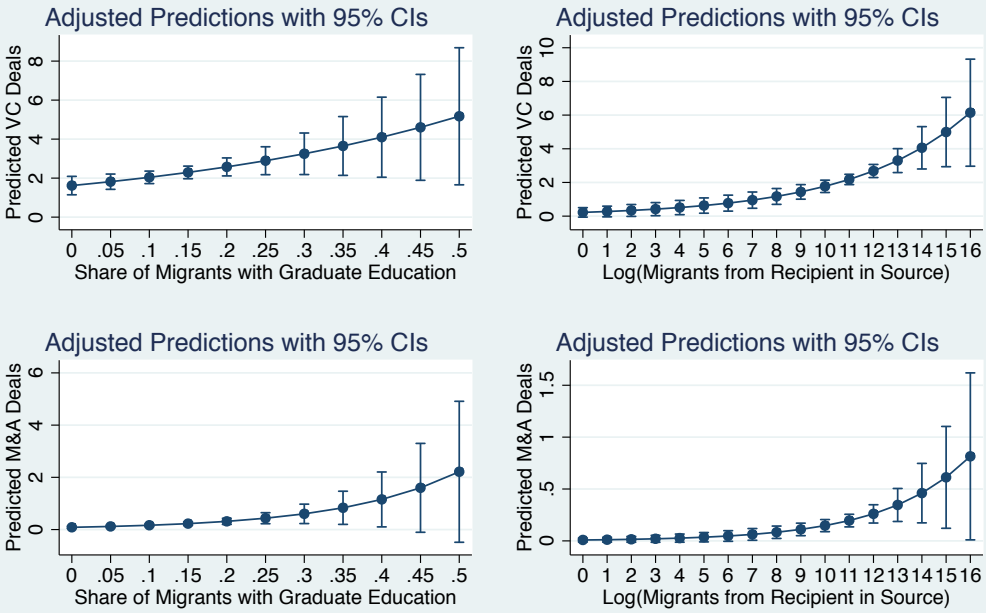


Table 1: Top 20 Industry Venture Capital Recipients, 1953-2010

Industry	*Deal Counts*
Information Retrieval Services	12539
Semiconductors and Related Devices	7449
Pharmaceutical Preparations	5413
Biological Products, Except Diagnostic Substances	4836
Computer Integrated Systems Design	4556
Surgical and Medical Instruments and Apparatus	4440
Commercial Physical and Biological Research	3208
Computer Programming Services	3078
Electromedical and Electrotherepeutic Apparatus	2587
Electronic Computers	2369
Telephone Communications, Except Radiotelephone	2327
Computer Peripheral Equipment, Not Elsewhere Classified	2315
Business Services, Not Elsewhere Classified	2297
Telephone and Telegraph Apparatus	2271
Computer Related Services, Not Elsewhere Classified	1892
Radio and Television Broadcasting and Communications Equipment	1798
Communications Services, Not Elsewhere Classified	1635
Radiotelephone Communications	1373
Electronic Components, Not Elsewhere Classified	1362

The table includes venture capital deals for all recorded source and recipient countries.
Industry designations are 1987 Standard Industrial Classification 4 digit categories.
Source: VentureXpert database

Table 2: Seemingly Unrelated Negative Binomial Models, US Deals

	(1)		(2)	
	VC	M&A	VC	M&A
Log(Real GDP) Recipient	0.515**	0.285**	0.585**	0.219**
	[0.135,0.894]	[0.0835,0.487]	[0.178,0.992]	[0.0216,0.417]
log(Bilateral Distance)	-0.628**	-0.198*	-0.717**	-0.164
	[-1.14,-0.112]	[-0.423,0.0276]	[-1.243,-0.191]	[-0.407,0.0790]
Common Official Language	0.816**	0.315	0.924**	0.283
	[0.226,1.406]	[-0.0738,0.703]	[0.286,1.563]	[-0.0928,0.659]
Shared Common Border	-0.212	0.268	-0.547	0.391
	[-1.474,1.049]	[-0.245,0.781]	[-1.767,0.673]	[-0.151,0.933]
Common Colonial History	0.0282	0.570**	-0.0804	0.488**
	[-0.489,0.545]	[0.221,0.918]	[-0.592,0.431]	[0.111,0.864]
Common Legal Origin	-0.204	-0.0792	-0.207	-0.148
	[-0.694,0.285]	[-0.469,0.311]	[-0.720,0.305]	[-0.524,0.228]
Common Currency	-1.690**	0.244	-1.441**	-0.239
	[-2.97,-0.406]	[-0.565,1.053]	[-2.152,-0.730]	[-0.612,0.135]
Log(Total Patents) Recipient	0.480**	0.486**	0.441**	0.476**
	[0.314,0.647]	[0.377,0.594]	[0.278,0.603]	[0.364,0.587]
Log(Stock Market Development)	0.471**	0.138**	0.507**	0.165**
Recipient	[0.283,0.660]	[0.0332,0.243]	[0.323,0.691]	[0.0597,0.270]
Capital Account Openness	0.0502	0.0907**	0.0275	0.0821*
	[-0.121,0.221]	[0.00599,0.175]	[-0.160,0.215]	[-0.0106,0.175]
Dual Taxation Treaty	0.247	0.524**	0.172	0.453**
	[-0.564,1.059]	[0.177,0.871]	[-0.651,0.994]	[0.120,0.786]
Log(Migrants from Recipient in Source)	0.285**	0.207**	0.316**	0.168**
	[0.0866,0.484]	[0.0974,0.317]	[0.0992,0.534]	[0.0615,0.275]
Share of Migrants with Graduate	6.511**	2.324**	6.738**	1.871**
Education	[3.282,9.740]	[0.482,4.167]	[3.481,9.996]	[0.0515,3.690]
Genetic Distance (x 1000)	-0.0172	-0.0100	-0.0205	-0.0174
	[-0.063,0.028]	[-0.0361,0.0160]	[-0.0685,0.0275]	[-0.0435,0.0086
Index of Political Constraints	0.969	1.074**		
	[-0.383,2.320]	[0.560,1.588]		
Democracy Score, Recipient			0.00483	0.0444**
			[-0.0522,0.0618]	[0.0229,0.0658]
Constant	-8.112**	-6.705**	-7.706**	-5.585**
	[-15.0,-1.202]	[-10.46,-2.954]	[-14.71,-0.704]	[-9.086,-2.084]
Observations	1979		2074	

Robust standard errors clustered by recipient country in parentheses; all models include a set of year dummy variables

* $p < 0.10$, ** $p < 0.05$

Table 3: VC vs. M&A: Seemingly Unrelated Negative Binomial Models of US Deals

	VC	M&A
Log(Real GDP) Recipient	0.444**	0.316**
	[0.102,0.786]	[0.115,0.517]
log(Bilateral Distance)	-0.668**	-0.0518
	[-1.208,-0.127]	[-0.294,0.190]
Common Official Language	0.537*	0.270
	[-0.0547,1.128]	[-0.116,0.655]
Shared Common Border	-0.812	0.227
	[-2.162,0.538]	[-0.298,0.752]
Common Colonial History	0.166	0.614**
	[-0.349,0.681]	[0.288,0.940]
Common Legal Origin	-0.144	-0.0426
	[-0.654,0.365]	[-0.432,0.347]
Common Currency	**-1.647****	**0.0466**
	[-3.019,-0.274]	**[-0.925,1.018]**
Log(Total Patents) Recipient	0.464**	0.476**
	[0.307,0.620]	[0.372,0.580]
Log(Stock Market Development) Recipient	**0.430****	**0.153****
	[0.222,0.637]	**[0.0521,0.254]**
Capital Account Openness	0.0811	0.0823**
	[-0.0690,0.231]	[0.0000661,0.165]
Dual Taxation Treaty	0.382	0.424**
	[-0.453,1.217]	[0.0856,0.763]
BIT Signed	-0.440	-0.166
	[-1.153,0.273]	[-0.457,0.124]
Regional Trade Agreement	0.783*	-0.142
	[-0.0518,1.617]	[-0.356,0.0720]
Time Difference	-0.00486	-0.0835**
	[-0.114,0.105]	[-0.135,-0.0320]
Log(Migrants from Recipient in Source)	0.270**	0.210**
	[0.0869,0.454]	[0.0990,0.321]
Share of Migrants with Graduate Education	**6.635****	**3.740****
	[3.248,10.02]	**[1.785,5.695]**
Genetic Distance	-0.000159	-0.000166
	[-0.000573,0.000256]	[-0.000404,0.0000715]
Index of Political Constraints	0.773	0.927**
	[-0.529,2.076]	[0.446,1.408]
Constant	-6.653**	-7.632**
	[-13.27,-0.0310]	[-11.44,-3.825]
Observations	1870	

Robust standard errors clustered by recipient country in parentheses; all models include a set of year dummy variables

* $p < 0.10$, ** $p < 0.05$

Table 4: Determinants of US VC

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Log(Real GDP) Recipient	0.331*	0.408**	0.375**	0.614**	0.214	0.521**	0.298*	0.515**	0.380**	0.585
	(0.184)	(0.198)	(0.172)	(0.189)	(0.176)	(0.196)	(0.157)	(0.194)	(0.179)	(0.208
log(Bilateral Distance)	-0.969**	-0.903**	-1.016**	-0.859**	-0.747**	-0.735**	-0.827**	-0.628**	-0.934**	-0.717
	(0.235)	(0.243)	(0.220)	(0.213)	(0.278)	(0.240)	(0.247)	(0.263)	(0.263)	(0.268
Common Official Language	0.905**	0.862**	0.917**	0.766**	0.880**	0.758**	0.985**	0.816**	1.148**	0.924
	(0.358)	(0.356)	(0.339)	(0.318)	(0.335)	(0.317)	(0.313)	(0.301)	(0.347)	(0.326
Shared Common Border	-0.839*	-0.931	-0.539	-0.796	-0.320	-0.515	-0.465	-0.212	-0.729	-0.54
	(0.457)	(0.575)	(0.423)	(0.501)	(0.544)	(0.555)	(0.500)	(0.644)	(0.498)	(0.62
Common Colonial History	0.168	0.113	0.193	0.0204	0.101	-0.0285	0.170	0.0282	0.130	-0.080
	(0.312)	(0.340)	(0.229)	(0.244)	(0.303)	(0.250)	(0.314)	(0.264)	(0.332)	(0.26
Common Legal Origin	-0.114	-0.100	-0.202	-0.134	-0.114	-0.123	-0.243	-0.204	-0.278	-0.20
	(0.310)	(0.311)	(0.283)	(0.265)	(0.288)	(0.266)	(0.264)	(0.250)	(0.285)	(0.26
Common Currency	-2.436**	-2.437**	-2.245**	-2.233**	-2.044**	-2.020**	-1.969**	-1.690**	-1.434**	-1.441
	(0.967)	(0.949)	(0.899)	(0.833)	(0.623)	(0.622)	(0.889)	(0.655)	(0.412)	(0.36
Log(Total Patents) Recipient	0.622**	0.583**	0.606**	0.473**	0.606**	0.467**	0.641**	0.480**	0.591**	0.441
	(0.0838)	(0.0891)	(0.0748)	(0.0830)	(0.0828)	(0.0781)	(0.0884)	(0.0850)	(0.0861)	(0.083
Log(Stock Market Development) Recipient	0.530**	0.528**	0.465**	0.440**	0.562**	0.471**	0.528**	0.471**	0.573**	0.507
	(0.1000)	(0.1000)	(0.0966)	(0.0943)	(0.0968)	(0.0945)	(0.0973)	(0.0962)	(0.0988)	(0.094
Capital Account Openness	0.0318	0.0313	0.0643	0.0615	0.0369	0.0646	0.0259	0.0502	-0.0316	0.027
	(0.0857)	(0.0875)	(0.0815)	(0.0845)	(0.0813)	(0.0812)	(0.0909)	(0.0874)	(0.0932)	(0.095
Dual Taxation Treaty	0.502	0.363	0.355	0.218	0.515	0.267	0.468	0.247	0.460	0.17
	(0.396)	(0.407)	(0.376)	(0.377)	(0.415)	(0.397)	(0.396)	(0.414)	(0.423)	(0.42
Log(Migrants from Recipient in Source)		0.0963		0.301**		0.292**		0.285**		0.316
		(0.0902)		(0.0959)		(0.0983)		(0.101)		(0.11
Share of Migrants with Graduate Education			5.029**	7.183**		6.829**		6.511**		6.738
			(1.448)	(1.466)		(1.612)		(1.647)		(1.662
Genetic Distance					-0.00049**	-0.000295		-0.000172		-0.0002
					(0.00022)	(0.000217)		(0.000235)		(0.0002
Index of Political Constraints							0.952	0.969		
							(0.693)	(0.689)		
Democracy Score, Recipient									0.00949	0.004
									(0.0304)	(0.029
Constant	-0.149	-2.141	-0.541	-6.816*	-0.783	-6.860**	-1.548	-8.112**	-0.743	-7.706
	(3.261)	(3.679)	(3.044)	(3.488)	(3.283)	(3.361)	(3.261)	(3.525)	(3.398)	(3.57

Ln(Overdispersion parameter)	0.388**	0.386**	0.291*	0.247*	0.341**	0.229	0.353**	0.212	0.310**	0.16
	(0.146)	(0.145)	(0.152)	(0.148)	(0.145)	(0.146)	(0.162)	(0.160)	(0.152)	(0.15
Observations	2333	2265	2247	2247	2294	2211	2083	1979	2185	207

Negative Binomal Estimates. Robust standard errors clustered by recipient country in parentheses; all models include a set of year dummy variables
* $p < 0.10$, ** $p < 0.05$

Table 5: Hurdle Models for US VC

	(1) Probit	(2) Neg Binom	(3) Probit	(4) Neg Binom
Log(Real GDP) Recipient	0.378**	0.406**	0.335**	0.543**
	(0.129)	(0.185)	(0.132)	(0.190)
log(Bilateral Distance)	0.00272	-1.219**	-0.111	-1.226**
	(0.192)	(0.201)	(0.196)	(0.183)
Common Official Language	0.123	1.184**	0.192	1.176**
	(0.251)	(0.251)	(0.260)	(0.313)
Shared Common Border	0.203	-1.407**	-0.0377	-1.643**
	(0.358)	(0.493)	(0.344)	(0.461)
Common Colonial History	0.848**	-0.204	0.648**	-0.260
	(0.301)	(0.277)	(0.323)	(0.257)
Common Legal Origin	0.277	-0.538**	0.195	-0.398*
	(0.242)	(0.139)	(0.219)	(0.221)
Common Currency	-0.337		-0.326	
	(0.277)		(0.209)	
Log(Total Patents) Recipient	0.281**	0.363**	0.284**	0.299**
	(0.0643)	(0.0634)	(0.0592)	(0.0544)
Log(Stock Market Development) Recipient	0.229**	0.371**	0.291**	0.372**
	(0.0675)	(0.0902)	(0.0658)	(0.0901)
Capital Account Openness	0.0575	-0.0183	0.0262	0.0222
	(0.0579)	(0.0850)	(0.0642)	(0.0762)
Dual Taxation Treaty	0.0157	0.330	-0.140	0.383
	(0.237)	(0.450)	(0.221)	(0.389)
Log(Migrants from Recipient in Source)	0.172**	0.253**	0.132*	0.340**
	(0.0716)	(0.101)	(0.0728)	(0.101)
Share of Migrants with Graduate Education	2.902**	6.380**	2.628**	6.738**
	(1.096)	(1.733)	(1.068)	(1.414)
Genetic Distance	-0.0000157	-0.0000474	-0.0000376	-0.000194
	(0.000145)	(0.000246)	(0.000147)	(0.000203)
Index of Political Constraints	0.904*	0.226		
	(0.468)	(0.694)		
Democracy Score, Recipient			0.0361*	-0.0568**
			(0.0198)	(0.0250)
Constant	-8.752**	0.396	-6.654**	-0.979
	(2.656)	(2.881)	(2.598)	(2.916)
Overdispersion Parameter		-0.300*		-0.351*
		(0.182)		(0.180)
Observations	1979	583	2074	644

Robust standard errors clustered by recipient country in parentheses; all models include a set of year dummy va
* $p < 0.10$, ** $p < 0.05$

Table 6: Hurdle Models--w/o China

	(1) Probit	(2) Poisson	(3) Probit	(4) Poisson
Log(Real GDP) Recipient	0.407**	0.696**	0.350**	0.666**
	(0.133)	(0.207)	(0.134)	(0.232)
log(Bilateral Distance)	0.0369	-0.935**	-0.0880	-0.888**
	(0.196)	(0.193)	(0.205)	(0.230)
Common Official Language	0.160	0.937**	0.205	0.866**
	(0.253)	(0.228)	(0.263)	(0.199)
Shared Common Border	0.361	-1.220**	0.152	-1.157*
	(0.339)	(0.522)	(0.323)	(0.593)
Common Colonial History	0.925**	0.208	0.721**	0.0650
	(0.296)	(0.202)	(0.316)	(0.233)
Common Legal Origin	0.324	-0.100	0.249	-0.0647
	(0.248)	(0.209)	(0.223)	(0.162)
Common Currency	-0.342		-0.351*	
	(0.284)		(0.202)	
Log(Total Patents) Recipient	0.267**	0.202**	0.271**	0.188**
	(0.0646)	(0.0585)	(0.0583)	(0.0696)
Log(Stock Market Development) Recipient	0.221**	0.272**	0.296**	0.275**
	(0.0682)	(0.116)	(0.0660)	(0.121)
Capital Account Openness	0.0628	-0.0459	0.0217	-0.00250
	(0.0582)	(0.0842)	(0.0651)	(0.0880)
Dual Taxation Treaty	-0.0107	0.222	-0.176	0.288
	(0.245)	(0.374)	(0.223)	(0.408)
Log(Migrants from Recipient in Source)	0.159**	0.356**	0.101	0.350**
	(0.0735)	(0.0951)	(0.0737)	(0.105)
Share of Migrants with Graduate Education	2.616**	6.567**	2.095**	7.051**
	(1.097)	(1.720)	(1.018)	(2.004)
Genetic Distance	-0.0000491	-0.0000224	-0.0000791	-0.0000541
	(0.000139)	(0.000181)	(0.000142)	(0.000202)
Index of Political Constraints	1.160**	1.555**		
	(0.475)	(0.682)		
Democracy Score, Recipient			0.0479**	0.0395
			(0.0202)	(0.0319)
Constant	-9.118**	-5.220	-6.518**	-4.974
	(2.714)	(3.641)	(2.683)	(4.260)
Observations	1959	567	2052	626

Robust standard errors clustered by recipient country in parentheses; all models include a set of year dummy variables
* $p < 0.10$, ** $p < 0.05$

Table 7: Determinants of OECD VC

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Log(Real GDP) Source	0.979**	0.794**	1.135**	0.725**	0.896**	0.636**	0.986**	0.647**	0.973**	0.683**
	(0.142)	(0.321)	(0.353)	(0.351)	(0.131)	(0.312)	(0.146)	(0.299)	(0.142)	(0.279)
Log(Real GDP) Recipient	-0.0754	0.192	-0.128	0.161	-0.263	-0.0685	-0.0775	-0.100	-0.0900	-0.110
	(0.226)	(0.241)	(0.226)	(0.297)	(0.204)	(0.296)	(0.246)	(0.306)	(0.274)	(0.319)
log(Bilateral Distance)	-0.734**	-0.567**	-0.689**	-0.643**	-0.448**	-0.537**	-0.728**	-0.532**	-0.706**	-0.524**
	(0.0971)	(0.110)	(0.122)	(0.108)	(0.105)	(0.115)	(0.0997)	(0.115)	(0.0953)	(0.115)
Common Official Language	1.650**	0.869	1.639**	0.768	1.421**	0.725	1.666**	0.756	1.739**	0.817
	(0.548)	(0.676)	(0.781)	(0.900)	(0.408)	(0.661)	(0.572)	(0.664)	(0.558)	(0.643)
Shared Common Border	1.212**	0.132	1.502**	0.0596	1.262**	0.166	1.205**	0.191	1.202**	0.163
	(0.538)	(0.556)	(0.734)	(0.542)	(0.488)	(0.530)	(0.560)	(0.525)	(0.556)	(0.519)
Common Colonial History	0.688*	-0.263	0.555	-0.287	0.475	-0.342	0.671*	-0.364	0.503	-0.354
	(0.373)	(0.346)	(0.468)	(0.374)	(0.344)	(0.331)	(0.379)	(0.331)	(0.363)	(0.334)
Common Legal Origin	0.108	0.118	0.224	0.170	0.323	0.382	0.115	0.400	0.146	0.413
	(0.386)	(0.502)	(0.526)	(0.627)	(0.283)	(0.425)	(0.391)	(0.417)	(0.365)	(0.393)
Common Currency	-0.102	-0.677*	-0.329	-0.517	-0.101	-0.419	-0.118	-0.449	-0.135	-0.460
	(0.381)	(0.398)	(0.437)	(0.386)	(0.376)	(0.411)	(0.376)	(0.402)	(0.373)	(0.390)
Log(Total Patents) Recipient	0.512**	0.182**	0.450**	0.132**	0.505**	0.164**	0.508**	0.170**	0.491**	0.149**
	(0.0596)	(0.0645)	(0.0724)	(0.0583)	(0.0531)	(0.0541)	(0.0574)	(0.0525)	(0.0596)	(0.0541)
Log(Stock Market Development) Source	1.061**	0.459**	1.052**	0.395**	1.061**	0.491**	1.053**	0.491**	1.065**	0.500**
	(0.0910)	(0.102)	(0.0869)	(0.103)	(0.0782)	(0.0841)	(0.0877)	(0.0832)	(0.0830)	(0.0826)
Log(Stock Market Development) Recipient	0.389**	0.417**	0.469**	0.405**	0.479**	0.470**	0.401**	0.474**	0.411**	0.468**
	(0.118)	(0.144)	(0.145)	(0.185)	(0.101)	(0.158)	(0.117)	(0.155)	(0.118)	(0.150)
Capital Account Openness Recipient	0.160*	0.174	0.118	0.101	0.184**	0.119	0.163*	0.128	0.131	0.0941
	(0.0878)	(0.106)	(0.107)	(0.1000)	(0.0823)	(0.0901)	(0.0843)	(0.0890)	(0.0891)	(0.0929)
Dual Taxation Treaty	1.080**	0.600**	0.810**	0.643**	0.928**	0.616**	1.054**	0.593**	1.048**	0.587**
	(0.250)	(0.274)	(0.268)	(0.295)	(0.193)	(0.264)	(0.238)	(0.265)	(0.227)	(0.262)
Log(Migrants from Recipient in Source)		0.634**		0.698**		0.629**		0.626**		0.621**
		(0.0555)		(0.0511)		(0.0538)		(0.0541)		(0.0549)
Share of Migrants with Tertiary Education			0.2580**	2.235**		2.503**		2.527**		2.578**
			(0.0916)	(1.044)		(0.782)		(0.767)		(0.721)
Genetic Distance					-0.00114**	-0.000835**		-0.000820**		-0.000767**
					(0.000232)	(0.000320)		(0.000316)		(0.000289)
Index of Political Constraints							-0.00795	0.442		
							(0.626)	(0.551)		
Democracy Score, Recipient									0.0326	0.0435
									(0.0336)	(0.0307)

Ln(overdispersion parameter)	1.989**	1.636**	2.109**	1.543**	1.860**	1.514**	2.026**	1.516**	2.008**	1.515**
	(0.150)	(0.219)	(0.204)	(0.328)	(0.116)	(0.245)	(0.149)	(0.242)	(0.140)	(0.228)
Observations	16562	3781	3612	3612	15389	3577	16380	3551	15470	3428

Negative Binomal Estimates. Robust standard errors clustered by recipient country in parentheses; all models include a set of year dummy variables
* $p < 0.10$, ** $p < 0.05$

Table 8: OECD Hurdle Models

	(1) Probit	(2) Neg Binomial	(3) Probit	(4) Neg Binomia
Log(Real GDP) Source	0.587**	0.765	0.593**	0.688
	(0.146)	(1.586)	(0.147)	(1.507)
Log(Real GDP) Recipient	0.0732	0.947**	0.0645	1.029**
	(0.0946)	(0.264)	(0.110)	(0.257)
log(Bilateral Distance)	-0.276**	-0.314**	-0.273**	-0.312**
	(0.0581)	(0.152)	(0.0579)	(0.151)
Common Official Language	0.0534	-0.308	0.0819	-0.262
	(0.164)	(0.328)	(0.166)	(0.314)
Shared Common Border	0.774**	-0.377	0.770**	-0.382
	(0.222)	(0.422)	(0.221)	(0.416)
Common Colonial History	-0.0787	0.119	-0.0510	0.0572
	(0.170)	(0.323)	(0.171)	(0.310)
Common Legal Origin	0.294**	0.631**	0.283**	0.583**
	(0.134)	(0.249)	(0.137)	(0.244)
Common Currency	-0.109	-0.539	-0.106	-0.527
	(0.190)	(0.420)	(0.190)	(0.430)
Log(Total Patents) Recipient	0.0319	0.0899	0.0293	0.0720
	(0.0279)	(0.0861)	(0.0286)	(0.0790)
Log(Stock Market Development) Source	0.257**	0.876**	0.257**	0.888**
	(0.0485)	(0.248)	(0.0486)	(0.245)
Log(Stock Market Development) Recipient	0.210**	0.230*	0.197**	0.247**
	(0.0439)	(0.123)	(0.0449)	(0.123)
Capital Account Openness Recipient	0.134**	-0.136	0.126**	-0.127
	(0.0420)	(0.140)	(0.0438)	(0.146)
Dual Taxation Treaty	0.168	-0.139	0.172	-0.125
	(0.122)	(0.352)	(0.123)	(0.358)
Log(Migrants from Recipient in Source)	0.243**	0.804**	0.240**	0.814**
	(0.0266)	(0.111)	(0.0266)	(0.114)
Share of Migrants with Tertiary Education	1.435**	4.570**	1.453**	4.571**
	(0.293)	(0.740)	(0.292)	(0.745)
Genetic Distance	-	-0.000430*	-	-0.000505
	0.0000788	(0.000258)	0.0000817	(0.000243
	(0.000105)		(0.000105)	
Index of Political Constraints	-0.215	0.524		
	(0.292)	(0.917)		
Democracy Score, Recipient			0.00543	-0.0402**
			(0.0138)	(0.0166)
Constant	-10.23**	-28.69*	-10.27**	-28.22*
	(1.853)	(15.29)	(1.892)	(14.60)
Observations	3551	241	3428	239
Adjusted R^2				

Robust standard errors clustered by recipient country in parentheses; all models include a set of year dummy variables

* $p < 0.10$, ** $p < 0.05$

Appendix 1: Summary Statistics

Table A1.1: US Sample

	Mean	SD	Min	Max
VC Deals	3.577249	23.2385	0	518
M&A Deals	8.701505	34.71263	0	552
Log(Real GDP) Recipient	8.547638	1.386103	.288865	11.97961
log(Bilateral Distance)	8.920009	.5458834	6.306995	9.691551
Common Official Language	.3057325	.4607659	0	1
Shared Common Border	.0127389	.1121572	0	1
Common Colonial History	.0382166	.191739	0	1
Common Legal Origin	.3248408	.468365	0	1
Common Currency	.0278132	.1644547	0	1
Log(Total Patents) Recipient	6.164436	2.409925	.6931472	12.99509
Log(Stock Market Development) Recipient	1.077443	1.534096	0	6.629132
Capital Account Openness	.1567503	1.559059	-1.843764	2.477618
Dual Taxation Treaty	.4194416	.4935187	0	1
Log(Migrants from Recipient in Source)	10.02271	2.355556	.6931472	16.29169
Share of Migrants with Graduate Education	.1308124	.1133915	.0001199	1
Genetic Distance	830.7248	747.7322	0	2288
Index of Political Constraints	.2507434	.2225097	0	.7255996
Inglehart Distance	2.191131	.7939867	.5700877	3.609557
Control of Corruption in Recipient	3.122362	1.378989	0	6.166667
Rule of Law in Recipient	.0350353	.9992144	-2.295802	1.964045
BIT Signed (all 1s after signed)	.1300931	.3364406	0	1
Regional Trade Agreement	.0169851	.1292307	0	1
Time Difference from US (NY)	7.621709	2.911545	.5	12

Table A1.2: OECD Sample

	Mean	SD	Min	Max
VC Deals	.3181039	9.256458	0	869
M&A Deals	.1354736	2.27404	0	179
Log(Real GDP) Source	8.469801	1.446434	.5483055	11.21465
Log(Real GDP) Recipient	8.891089	1.216341	5.912063	11.04512
log(Bilateral Distance)	8.76857	.7734458	4.107106	9.892497
Common Official Language	.1467894	.3539035	0	1
Shared Common Border	.0163339	.126759	0	1
Common Colonial History	.0143462	.118916	0	1
Common Legal Origin	.2923835	.4548674	0	1
Common Currency	.0127042	.111997	0	1
Log(Total Patents) Recipient	6.922828	2.324767	1.609438	12.94692
Log(Stock Market Development) Source	1.000828	1.575158	0	5.777288
Log(Stock Market Development) Recipient	1.736557	1.803406	0	5.777288
Capital Account Openness Recipient	.6067517	1.534798	-1.843764	2.477618
Dual Taxation Treaty	.0876642	.2828117	0	1
Log(Migrants from Recipient in Source)	5.157465	2.871262	.6931472	15.31726
Share of Migrants with Tertiary Education	.4906926	.2450802	.0003012	1
Genetic Distance	1137.297	801.6998	0	3375
Index of Political Constraints	.3608531	.199222	0	.719195
Democracy Score, Recipient	5.315444	5.655046	-10	10

Appendix 2:
Cumulative Number of Deals 1980-2009
US-Originated Investment

Country	*VC Deals*	*M&A Deals*
Afghanistan	0	1
Algeria	1	4
Angola	1	7
Argentina	98	631
Armenia	0	5
Aruba	0	11
Australia	296	2008
Austria	84	186
Azerbaijan	0	14
Bahamas, The	0	36
Bahrain	0	6
Bangladesh	1	6
Barbados	0	10
Belarus	0	6
Belgium	193	433
Belize	0	9
Benin	0	1
Bermuda	53	121
Bhutan	0	1
Bolivia	0	45
Bosnia and Herzegovina	2	4
Botswana	0	2
Brazil	151	1002
Brunei Darussalam	0	1
Bulgaria	13	84
Burkina Faso	0	3
Cambodia	0	3
Cameroon	3	6
Canada	5222	6161
Cayman Islands	19	42
Chad	0	3
Chile	27	298
China	1275	1285
Colombia	10	164
Congo, Rep.	0	6
Costa Rica	2	55
Cote d'Ivoire	0	6
Croatia	13	25
Cyprus	8	19
Czech Republic	33	225
Denmark	212	338

Country	*VC Deals*	*M&A Deals*
Dominica	1	1
Dominican Republic	0	28
Ecuador	1	39
Egypt, Arab Rep.	0	51
El Salvador	1	24
Estonia	4	38
Ethiopia	0	1
Fiji	0	1
Finland	202	307
France	1118	2147
Gabon	0	7
Georgia	0	14
Germany	765	3299
Ghana	0	20
Gibraltar	0	5
Greece	3	79
Guam	0	4
Guatemala	1	17
Guinea	0	6
Guyana	0	7
Haiti	0	3
Honduras	1	9
Hong Kong SAR, China	160	648
Hungary	55	238
Iceland	17	15
India	550	1358
Indonesia	15	154
Iraq	0	1
Ireland	295	397
Israel	851	541
Italy	104	1108
Jamaica	1	27
Japan	390	1199
Jordan	2	10
Kazakhstan	2	36
Kenya	3	6
Korea, Rep.	581	490
Kuwait	0	6
Kyrgyz Republic	0	2
Lao PDR	0	1
Latvia	4	21

Country	*VC Deals*	*M&A Deals*
Lebanon	1	9
Liberia	0	3
Lithuania	7	29
Luxembourg	23	71
Macao SAR, China	0	2
Macedonia, FYR	2	1
Madagascar	0	5
Malawi	0	1
Malaysia	39	196
Mali	0	8
Malta	0	7
Marshall Islands	0	1
Mauritania	0	1
Mauritius	1	9
Mexico	52	848
Micronesia, Fed. Sts.	0	2
Moldova	0	6
Mongolia	0	6
Morocco	2	16
Namibia	0	3
Nepal	0	1
Netherlands	362	974
Netherlands Antilles	1	0
New Zealand	35	379
Nicaragua	1	17
Niger	1	1
Nigeria	7	10
Norway	119	375
Oman	0	5
Pakistan	6	37
Panama	1	45
Paraguay	0	8
Peru	1	154
Philippines	21	202
Poland	48	319
Portugal	37	110
Qatar	0	6
Russian Federation	48	391
Rwanda	0	1

Country	*VC Deals*	*M&A Deals*
Saudi Arabia	2	21
Serbia	1	11
Sierra Leone	0	6
Singapore	181	348
Slovak Republic	6	35
Slovenia	1	14
Solomon Islands	0	1
South Africa	30	279
Spain	152	785
Sri Lanka	0	13
St. Kitts and Nevis	0	1
St. Lucia	0	3
Suriname	0	4
Swaziland	1	1
Sweden	481	658
Switzerland	261	571
Tajikistan	0	3
Tanzania	0	9
Thailand	29	229
Togo	1	0
Tonga	0	1
Tunisia	1	19
Turkey	8	133
Turkmenistan	0	1
Uganda	0	5
Ukraine	6	89
United Arab Emirates	12	43
United Kingdom	2281	6768
Uruguay	0	31
Uzbekistan	0	6
Vanuatu	0	3
Venezuela, RB	3	143
Vietnam	8	52
Yemen, Rep.	0	6
Zambia	0	3
Zimbabwe	0	8

Appendix 3: Additional Robustness Tests

Table A3.1: Baseline Models With Full Country Sample

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Log(Real GDP)	0.325*	0.380*	0.367**	0.567**	0.194	0.456**	0.291*	0.452**	0.359**	0.495**
Recipient	(0.185)	(0.196)	(0.173)	(0.189)	(0.176)	(0.194)	(0.158)	(0.191)	(0.178)	(0.202)
log(Bilateral	-0.930**	-0.881**	-0.984**	-0.848**	-0.700**	-0.705**	-0.782**	-0.591**	-0.877**	-0.673**
Distance)	(0.241)	(0.246)	(0.223)	(0.216)	(0.283)	(0.246)	(0.256)	(0.269)	(0.273)	(0.275)
Common	0.875**	0.844**	0.890**	0.751**	0.854**	0.746**	0.962**	0.809**	1.095**	0.898**
Official	(0.362)	(0.362)	(0.343)	(0.324)	(0.335)	(0.321)	(0.315)	(0.306)	(0.350)	(0.326)
Language										
Shared Common	-0.739	-0.802	-0.466	-0.684	-0.205	-0.364	-0.354	-0.0540	-0.593	-0.350
Border	(0.487)	(0.583)	(0.424)	(0.501)	(0.555)	(0.555)	(0.542)	(0.649)	(0.541)	(0.626)
Common	0.174	0.133	0.200	0.0525	0.0963	-0.00845	0.176	0.0447	0.128	-0.0635
Colonial History	(0.310)	(0.333)	(0.230)	(0.244)	(0.302)	(0.251)	(0.314)	(0.267)	(0.332)	(0.265)
Common Legal	-0.139	-0.132	-0.215	-0.152	-0.127	-0.134	-0.272	-0.226	-0.299	-0.221
Origin	(0.313)	(0.314)	(0.284)	(0.268)	(0.286)	(0.266)	(0.265)	(0.250)	(0.286)	(0.254)
Common	-2.308**	-2.306**	-2.144**	-2.129**	-1.946**	-1.917**	-1.825**	-1.563**	-1.343**	-1.393**
Currency	(0.935)	(0.918)	(0.870)	(0.806)	(0.574)	(0.568)	(0.860)	(0.603)	(0.418)	(0.367)
Log(Total	0.623**	0.594**	0.605**	0.489**	0.604**	0.483**	0.645**	0.498**	0.596**	0.462**
Patents)	(0.0836)	(0.0886)	(0.0746)	(0.0835)	(0.0823)	(0.0778)	(0.0890)	(0.0854)	(0.0873)	(0.0829)
Recipient										
Log(Stock	0.548**	0.547**	0.483**	0.463**	0.579**	0.497**	0.543**	0.497**	0.595**	0.538**
Market	(0.101)	(0.101)	(0.0972)	(0.0953)	(0.0967)	(0.0950)	(0.0979)	(0.0968)	(0.0995)	(0.0943)
Development)										
Recipient										
Capital Account	0.0315	0.0324	0.0656	0.0659	0.0404	0.0707	0.0246	0.0542	-0.0305	0.0343
Openness	(0.0851)	(0.0864)	(0.0812)	(0.0833)	(0.0806)	(0.0797)	(0.0908)	(0.0862)	(0.0938)	(0.0941)
Dual Taxation	0.563	0.450	0.454	0.362	0.608	0.432	0.507	0.383	0.501	0.319

Log(Migrants from Recipient in Source)		0.0705 (0.0897)		0.260** (0.0962)		0.250** (0.0982)		0.245** (0.101)		0.268** (0.111)
Share of Migrants with Graduate Education			4.967** (1.424)	6.827** (1.485)		6.371** (1.633)		6.069** (1.661)		6.276** (1.696)
Genetic Distance					-0.000540** (0.000224)	-0.000356 (0.000218)		-0.000235 (0.000236)		-0.000274 (0.000244)
Index of Political Constraints							1.034 (0.693)	1.004 (0.692)		
Democracy Score, Recipient									0.0151 (0.0301)	0.00991 (0.0292)
Constant	-3.089 (3.367)	-4.504 (3.729)	-3.095 (3.122)	-8.282** (3.509)	-3.556 (3.358)	-8.228** (3.374)	-4.627 (3.379)	-9.684** (3.557)	-3.746 (3.518)	-8.967** (3.578)
lnalpha										
Constant	0.412** (0.147)	0.411** (0.147)	0.315** (0.153)	0.281* (0.151)	0.353** (0.146)	0.253* (0.148)	0.374** (0.162)	0.237 (0.161)	0.339** (0.153)	0.197 (0.153)
Observations	2509	2435	2399	2399	2470	2363	2240	2118	2361	2226

Robust standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$

Table A3.2: Expanded Baseline Models

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Log(Real GDP)	0.512**	0.718**	0.549**	0.933**	0.290*	0.738**	0.425**	0.718**	0.372**	0.785**
Recipient	(0.164)	(0.178)	(0.165)	(0.174)	(0.175)	(0.201)	(0.147)	(0.200)	(0.180)	(0.220)
Common Legal	0.750**	0.596*	0.706**	0.459	0.713**	0.495*	0.715**	0.497*		
Origin	(0.310)	(0.307)	(0.308)	(0.279)	(0.295)	(0.276)	(0.309)	(0.276)		
Common	-1.581**	-1.820**	-1.437**	-1.672**	-1.527**	-1.622**	-1.198**	-1.346**	-1.031**	-1.325**
Currency	(0.638)	(0.649)	(0.581)	(0.562)	(0.390)	(0.381)	(0.565)	(0.418)	(0.331)	(0.322)
Log(Total	0.682**	0.517**	0.688**	0.407**	0.669**	0.417**	0.725**	0.438**	0.701**	0.381**
Patents)	(0.0894)	(0.101)	(0.0896)	(0.0994)	(0.0886)	(0.0924)	(0.0955)	(0.100)	(0.112)	(0.100)
Recipient										
Log(Stock	0.390**	0.422**	0.333**	0.331**	0.453**	0.390**	0.383**	0.382**	0.534**	0.475**
Market	(0.0959)	(0.0963)	(0.0983)	(0.0942)	(0.0928)	(0.0966)	(0.0900)	(0.0957)	(0.0903)	(0.0906)
Development)										
Recipient										
Capital Account	0.133	0.0839	0.172*	0.110	0.135	0.113	0.138	0.111	0.102	0.0970
Openness	(0.0937)	(0.0914)	(0.0943)	(0.0921)	(0.0904)	(0.0887)	(0.0959)	(0.0930)	(0.118)	(0.107)
Dual Taxation	0.694	0.468	0.540	0.303	0.672	0.351	0.634	0.311	0.371	0.0441
Treaty	(0.429)	(0.435)	(0.427)	(0.419)	(0.458)	(0.442)	(0.410)	(0.429)	(0.411)	(0.424)
Log(Migrants		0.310**		0.521**		0.477**		0.485**		0.563**
from Recipient		(0.119)		(0.116)		(0.112)		(0.114)		(0.123)
in Source)										
Share of			3.191**	7.545**		6.924**		6.852**		7.896**
Migrants with			(1.480)	(1.521)		(1.612)		(1.769)		(1.560)
Graduate										
Education										
Genetic					-	-		-0.000287		-0.000278
Distance					0.000702**	0.000447**		(0.000223)		(0.000226)
					(0.000216)	(0.000214)				
Index of							1.291**	1.132*		

Political Constraints							(0.658)	(0.669)		
Democracy Score, Recipient									0.0553*	0.0239
									(0.0297)	(0.0281)
Constant	-10.77**	-14.89**	-11.41**	-19.37**	-8.444**	-17.02**	-10.69**	-17.53**	-9.851**	-18.40**
	(1.488)	(2.193)	(1.567)	(2.229)	(1.655)	(2.538)	(1.346)	(2.574)	(1.573)	(2.841)
lnalpha										
Constant	0.616**	0.552**	0.581**	0.419**	0.518**	0.372**	0.577**	0.359**	0.644**	0.390**
	(0.121)	(0.121)	(0.126)	(0.123)	(0.129)	(0.123)	(0.141)	(0.137)	(0.131)	(0.128)
Observations	2333	2265	2247	2247	2294	2211	2083	1979	2185	2074

Robust standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$

Table A3.3: Baseline Models Without Gravity Variables

	(1)	(2)	(3)	(4)	(5)
Log(Real GDP) Recipient	0.659**	0.612**	0.522**	0.269	0.710**
	(0.260)	(0.212)	(0.211)	(0.253)	(0.197)
log(Bilateral Distance)	-0.268	-0.747**	-0.633**	-0.600**	-0.548**
	(0.412)	(0.309)	(0.285)	(0.275)	(0.249)
Common Official Language	0.590*	0.817**	0.786**	0.458	1.127**
	(0.320)	(0.339)	(0.334)	(0.324)	(0.265)
Shared Common Border	-0.594	-0.620	-0.314	-1.339*	-0.846
	(0.587)	(0.744)	(0.670)	(0.691)	(0.582)
Common Colonial History	0.198	-0.0627	0.0331	-0.476	-0.286
	(0.318)	(0.251)	(0.266)	(0.305)	(0.324)
Common Legal Origin	-0.155	-0.297	-0.158	-0.113	-0.705**
	(0.248)	(0.315)	(0.273)	(0.258)	(0.271)
Common Currency	-1.006**		-1.781**	-1.123	-0.864
	(0.420)		(0.764)	(0.701)	(0.616)
Log(Total Patents) Recipient	0.419**	0.425**	0.463**	0.563**	0.533**
	(0.113)	(0.0830)	(0.0859)	(0.116)	(0.116)
Log(Stock Market Development) Recipient	0.449**	0.459**	0.449**	0.297**	0.460**
	(0.0978)	(0.0984)	(0.104)	(0.108)	(0.106)
Capital Account Openness	-0.00190	0.0195	0.0274	0.0649	0.0635
	(0.0969)	(0.0947)	(0.0918)	(0.107)	(0.105)
Dual Taxation Treaty	-0.0268	0.0755	0.272	-0.226	-0.0185
	(0.381)	(0.434)	(0.409)	(0.402)	(0.453)
Log(Migrants from Recipient in Source)	0.387**	0.316**	0.319**	0.461**	0.323**
	(0.139)	(0.105)	(0.108)	(0.125)	(0.135)
Share of Migrants with Graduate Education	6.497**	8.025**	6.688**	7.471**	6.040**
	(1.562)	(1.891)	(1.717)	(1.843)	(1.460)
Genetic Distance	-0.000220	0.0000268	-0.000144	-0.000167	-0.000156

	(0.000243)	(0.000298)	(0.000246)	(0.000240)	(0.000267)
Index of Political Constraints	1.014	0.454	0.808	1.157	1.390**
	(0.817)	(0.752)	(0.711)	(0.721)	(0.641)
Log(Remittances per capita)	0.0307				
	(0.0935)				
Cultural Distance		-0.199			
		(0.166)			
Control of Corruption in Recipient			0.0690		
			(0.0992)		
Rule of Law: WB				0.734**	
				(0.305)	
Log(Asylum Applications)					0.0316
					(0.101)
Constant	-13.10**	-7.322*	-8.525**	-8.398**	-11.54**
	(5.821)	(3.984)	(3.593)	(3.751)	(3.368)
lnalpha					
Constant	0.265	0.154	0.206	0.0186	0.0861
	(0.169)	(0.165)	(0.164)	(0.164)	(0.193)
Observations	1666	1392	1805	966	1123

Robust standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$