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# Community and Capital in Entrepreneurship

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Abstract

The availability of financial capital is widely seen as critical for innovation and entrepreneurship to thrive in a region. Among others, Canada, Chile, Germany and Israel, have all at different times launched extensive public policy efforts to increase financial capital and through it, innovation and entrepreneurship. However, most of the public efforts have not succeed. Despite often considerable increases in the availability of financial capital, the resulting entrepreneurship and innovation have often been limited. While there have been problems in the design of these policy efforts, we explore here an alternative hypothesis: that the social characteristics of the region, its social capital, might have a strong influence on the effectiveness of financial capital.

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# Community and Capital in Entrepreneurship

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**Abstract:** The availability of financial capital is widely seen as critical for innovation and entrepreneurship to thrive in a region. Among others, Canada, Chile, Germany and Israel, have all at different times launched extensive public policy efforts to increase financial capital and through it, innovation and entrepreneurship. However, most of the public efforts have not succeed. Despite often considerable increases in the availability of financial capital, the resulting entrepreneurship and innovation have often been limited. While there have been problems in the design of these policy efforts, we explore here an alternative hypothesis: that the social characteristics of the region, its social capital, might have a strong influence on the effectiveness of financial capital.

# 1 Introduction

The availability of financial capital is widely seen as critical for innovation and entrepreneurship to thrive in a region. It is considered one of the key factors in the rise of Silicon Valley and its absence is a common explanation for why Europe lags the United States in the commercialization of new technologies (Bottazzi and Rin 2002). Indeed, considerable policy efforts have been expended in increasing the supply of financial capital. Among others, Canada, Chile, Germany and Israel, have all at different times launched extensive public policy efforts to increase financial capital and through it, innovation and entrepreneurship (Gilson 2003a; Cumming and MacIntosh 2007).

However, most of the public efforts have not succeed. Despite often considerable increases in the availability of financial capital, the resulting entrepreneurship and innovation have often been limited (Lerner 2009). Programs such as Australia's BITS, EU's European Investment Fund, Germany's Wagnisfinanzierungsgesellschaft, and Canada's Labor-Sponsored Investment Funds have little to show in terms of greater innovation and entrepreneurship. Even the generally successful SBIR program in the United States has had very different outcomes in different regions (Lerner 1999). While there have been problems in the design of these policy efforts, we explore here an alternative hypothesis: that the social characteristics of the region, its social capital, might have a strong influence on the effectiveness of financial capital.

From a micro standpoint, social connections can be an enabling factor in both of the primary difficulties facing nascent entrepreneurs: discovering an opportunity of sufficient value and mobilizing the human and financial resources needed to pursue that opportunity (Thornton 1999; Dahl and Sorenson 2007; Sorenson and Audia 2000). They can also contribute to post-launch success (Shane and Stuart 2002). Social connections can also help venture capitalists locate companies to invest in and reduce uncertainty in evaluating those companies (Sorenson and Stuart 2001a; Shane and Cable 2002). At a more macro level then, a connected social structure could foster a more efficient allocation of resources, promoting entrepreneurship and growth.

However, social structure that has an upside for certain individuals might have a downside for others - just consider "old boy" networks. Indeed, social networks can exclude as well as include and norms can create conformity, restricting initiative (Portes and Landolt 1996). Diversity and isolated civic organizations can actually reduce generalized trust within a society (Knack and Keefer 1997; Paxton 2007), possibly reducing investment and growth (Zak and Knack 2001). Thus while the structure of social connections within a region can potentially channel resources to productive uses, it can also channel them to the benefit of a small group and hence the structure of the social connections could be important in explaining regional success or decline (Safford 2008).

Using a panel dataset of metropolitan areas in the United States, we investigate how the presence of voluntary associations and the ethnic diversity and integration of a region interact with venture capital. The results suggest that social structure has strong interaction with venture capital, but not necessarily in ways suggested by others.

Association activity seems to matter considerably, but the positive effect is limited to only business and professional associations. Other association activity can even have a negative impact. This negative result is puzzling, but could be related to the argument of Barro and McCleary (2003) that active participation in voluntary organizations, religious organizations specifically in their case, diverts time and effort from more productive uses. On the other hand, the positive effect of business and professional organizations suggests that the networks of trust and information flow among business executives created by participating in these organizations are sufficiently important in allocating capital to yield a net benefit despite the time and effort invested in participation.

We find even stronger effects in terms of the ethnic composition of the community. While racial diversity has an impact, racial integration seems to matter considerably more. There are two possible mechanisms that could explain this result. First, racial integration would almost certainly improve information flow across diverse groups within the area. This information flow could be critical for realizing opportunities and finding partners and employees. Second, integration also suggests an openness to living in a diverse community and potentially also an openness to diverse

ideas in general. Thus it would not be necessarily the mere presence of diverse ideas, as a result of diversity, but the openness to them that would be important.

# 2 Empirical Setting

Our data comprise information from a variety of publicly available and proprietary sources. The data on regional economic activity and social capital came from the Office of Advocacy of the Small Business Administration (SBA) and County Business Patterns from the Census Bureau. Our information on venture capital has been derived from Thomson Reuters' VentureXpert database, and our measures of endowment returns came from *The Chronicle of Higher Education*.

We chose MSAs as our geographic unit of analysis because they offered the finest-grained regions that one might reasonably consider independent with respect to economic activity. The U.S. Office of Management and Budget (OMB) defines each MSA in terms of a core urban area, of at least 50,000 inhabitants. It also includes in each MSA any surrounding counties with a high degree of social and economic integration with the urban core.[1] In practice, the OMB assesses social and economic integration by observing commuting patterns. If more than 25% of a county's residents commute to the urban core for work, then the OMB includes the county in the MSA.

## 2.1 Variables

**Patents:** We use patents to assess innovation. Although we recognize that many kinds of innovation do not appear in patenting data, patents nevertheless offer one of the few means of measuring innovation across a broad spectrum of industries and over time. To create our measure, we assigned each patent to an MSA based on the inventor's address and to a year based on the date of application. If a patent had multiple inventors, we assumed that they all participated equally in the

[1] In contrast to the rest of the country, in New England, the Census Bureau uses townships, instead of counties, to determine the boundaries of MSAs.

invention and hence divided the patent equally across the inventors' addresses.[2] We counted the total number of patents in each MSA-year and transformed this count using the natural logarithm.

**Entrepreneurship:** As a measure of entrepreneurship, we count the number of new business establishments. The Census Bureau defines business establishments as single physical locations in which business occurs and for which employment records are maintained. It records an establishment birth when a location had no employees in the pay period covering March 12 in one year but has employees on that same date in the following year. A firm may have multiple establishments, but every firm has at least one.

One possible shortcoming of this measure is that it captures relocations and expansions in addition to the creation of new firms. To focus on entrepreneurship, we used information on the size of the firm creating the establishment. The Census Bureau reports establishment births by three categories of firm size: 0-19 employees, 20-499 employees, and over 500 employees. It allocates firms to these categories based on their sizes at the end of the year. Since few startups have more than 19 employees by the end of their first year, we focused on establishment births in the 0-19 employees category.[3] Our measure transforms, by the natural logarithm, the total number of establishments opened by firms with 0-19 employees at the beginning of the year.

**Regional Economy:** To assess changes in the overall regional economy, we used three variables: the total number of establishments, overall employment in the region, and aggregate income for the region. The Census Bureau defines a business establishment as a single physical location where business occurs and for which a firm maintains payroll and employment records. All firms have at least one establishment, but many have more than one. Our measure of employment includes both full-time employees and (the full-time equivalent of) part-time employees. Aggregate income – labelled "payroll" in the tables – includes all forms of compensation: wages, salary, bonuses and

[2]Assigning patents to regions using only the addresses of the first inventors produced equivalent results.

[3]This category will nonetheless include some relocations and expansions of very small businesses, adding measurement error to our variable.

benefits.

**VC Investment Count:** We measured venture capital activity by counting the number of new firms invested in by venture capital funds in an MSA in a year (plus one to avoid zeros in the logarithm). Because the VentureXpert database includes leveraged buyouts, public equity purchases, and fund-of-funds investments, we focused on venture capital activity by limiting the investments included to those for seed stage, early stage, later stage, expansion, or development, and to those from funds with limited partners.[4] We assigned each investment to an MSA based on the location of the investing venture capital fund, even if the target company resided in a different region.[5] Thus, if a venture capital firm based in New York City invests in a company in Boston, we would increment the count for New York City by one. For syndicated investments, we counted each investing firm as having made an investment.

**Ethnic Composition:** Five mutually exclusive and exhaustive categories were constructed: White, Black or African American, American Indian or Alaska Native, Asian, and Native Hawaiian or other Pacific Islander. The two measures we use are the diversity score, which measures how even the proportion of different ethnic groups is reaching is maximum when each group is equally represented, and the entropy index, which is the weighted average deviation of each units diversity score from the metropolitan-wide diversity score, expressed as a fraction of the metropolitan areas total diversity score. This measure is also insensitive to the relative sizes of the ethnic groups. It reaches minimum of 0 at maximum integration and maximum 1 at maximum segregation. For ease of interpretation, we replaced the entropy score with an integration score, defined as 1- entropy. Since these measures

[4]These criteria exclude LBO funds and funds-of-funds, as well as angel investors, corporate venture capital, and direct investments by university endowments. Though these investors probably also affect the regional economy, the logic of our instrumental variable constrains us to assessing the importance of entrepreneurial capital raised through limited partnerships.

[5]Because venture capital firms generally invest locally (Sorenson and Stuart 2001b), this assumption has little bearing on our results. The alternative of allocating investments on the basis of the location of the target company would nevertheless conflict somewhat with the logic of our instrumental variable, which provides a valid prediction of the location of venture capital funds but not of where those funds invest.

are only calculated for each dicennial census, we used the values from the 1990 census throughout the analysis.

**Association Activity:** We used the counts of establishments belonging to voluntary associations as a measure of association activity. We divided the voluntary associations into three categories based on preliminary analysis: business and professional associations, labor associations, and other associations. To maintain comparability with the ethnic variables, we fixed the counts at 1990 level.

**Control Variables:** To make sure that our results on social capital are not driven by general civic-mindedness of the region, we used a control variable. *Pres Vote 88* is the share of the population in the MSA who voted in the 1988 presidential election. In the ethnic composition estimates, we also wanted to make sure that the results are not driven by immigration and hence we included the proportion of the population of the MSA who were foreign born. For the cross-sectional analyses, we added the standard control of the percentage of people who are college educated in the MSA.

**LP Returns:** We use the instrument proposed by Samila and Sorenson (2010). The basic idea is that institutional investors generally use a fixed asset allocation ratio to determine the distribution of their investments over asset classes—that is, they cut their investment pie in slices, such as half for equity, four-tenths for debt and one-tenth for alternative assets (i.e., private equity, hedge funds and venture capital). In principle then, if the total pie grows or shrinks as returns fluctuate from year to year, then the slice of the pie devoted to venture capital should also grow and shrink by a roughly equal proportion. Thus, limited partner (portfolio) returns should partially determine the supply of venture capital in a region.

We can readily justify this assumption by breaking it up into three steps:

1. LP returns are positively related to future investments in venture capital.

2. Institutional investors exhibit a "home bias" when investing in venture capital funds.

3. Venture capital funds exhibit a "home bias" when investing in target companies.

Beginning with the first step, most institutional investors diversify their investments using a (relatively) fixed proportional allocation across different asset classes – for example, 40% equities, 40% bonds, and 20% alternative assets – adjusting their investments towards this target allocation at regular intervals (Brown et al. 2007). Given the limited maturity of venture capital investments, rebalancing requires that an increase in returns to the total portfolio results in a greater flow of funds into venture capital.

When they invest these funds, institutional investors exhibit a "home bias"—that is, they tend to invest in funds headquartered close to them. This home bias probably stems from the constraints facing first-time funds. Because the partners starting these funds do not have proven track records, they find it very difficult to raise funds and generally only receive investments from those with whom they have prior business dealings or personal relationships. Even when raising second and subsequent funds, this local bias often persists because partnerships rarely move their headquarters. As a consequence, limited partners invest in funds in the same MSA at twice the rate at which they invest in funds in adjacent regions and at six times the rate of those further away (Samila and Sorenson 2010).

Finally, it has been well documented that venture capital funds have a strong tendency to invest locally (Sorenson and Stuart 2001b). Venture capitalists rely on local social networks to find investments and then must travel to their portfolio companies regularly to monitor and advise them; they therefore prefer to invest locally. Together, these facts imply that high returns among institutional investors' portfolios in one year lead to more venture capital investments in the next few years in the same regions and in neighboring regions to those institutional investors.

Following Samila and Sorenson (2010), we constructed our measure of LP Returns by multiplying the national average percentage returns to college and university endowments by the number of limited partners – not just colleges and universities but all institutional investors – in each region that had invested in any private equity fund at least ten years earlier (i.e. before our estimation

window). For MSA $i$ in year $t$:

$$LP\ Returns_{it} = \sum_{s=t-1}^{t-3} ER_s \ln(1 + LP_{is}), \tag{1}$$

where $ER_s$ denotes the returns to college endowments in year $s$ and $\ln(1 + LP_{is})$ represents the logged count of limited partners located in MSA $i$ who had invested in any private equity fund in the past ten years (plus 1 to avoid zeros). We summed three years of inflows to create our instrument because venture capital firms typically invest the funds that they raise over the first several years of the partnership. This product provides an estimate of the investment gains that institutional investors in the region experienced and hence of the amount of funds available for allocation to venture capital.

Recall that the validity of the instrument also depends on a second assumption, that the path described – that is, an increase in the local supply of venture capital – forms the only connection between institutional investor returns and the economic health of the region. We made several choices in the construction of the instrument to ensure that this assumption holds. First, instead of using the actual returns of limited partners in a region, we used the national average returns for a year as a proxy for these returns. If we instead used the actual returns of each institutional investor, one might worry about reverse causality or mutual dependence on an unobserved factor—that the institutional investors in the region did well because of the strength of the local economy or that the better universities with more interesting inventions systematically invested in funds with higher returns. By using national average returns, we eliminate these potential threats to the validity of our instrument.

Second, instead of using a time-varying count of limited partners in the region, we fixed this count at the number that had invested in private equity prior to our observation window. If instead we had used a time-varying count of institutional investors, one might worry that institutional investors enter endogenously as a result of the strength of the local economy. But by using the

count from the beginning of our observation window, we remove this potential threat to the validity of our instrument. Moreover, because the models also include fixed effects for each region, any variation in the reasons why some regions have more or fewer active institutional investors at the beginning of the observation window should be absorbed in these fixed effects.

We believe that these precautions eliminate nearly all potential threats to the validity of our instrument. Note that, because of the region and year fixed effects, any threat would need to involve a within-region, region-specific, time-varying relationship between the returns of institutional investors and regional innovation or entrepreneurship.

## 2.2 Short-term Effect: Panel Estimates

Our panel estimates use specifications that included region fixed effects, to control for time-invariant characteristics of MSAs that might both attract venture capital and influence entrepreneurship and economic growth. Unfortunately, this excludes estimating the direct effects of our association activity and ethnic composition measures as they are fixed during our time period. The regressions also incorporate indicator variables for calendar years to control for macro-economic factors that might commonly influence the outcomes and venture capital.

Due to data availability, our panel estimates are limited to a ten-year window, from 1993 to 2002. Roughly three years after each decennial census, the OMB redefines the statistical areas for the next ten years on the basis of the decennial data. Developing consistent regions across these redefinitions would require a host of assumptions regarding the distribution of activity within each MSA. The 1993 redefinition governed the reporting of most government statistics from 1993 to 2002. Unfortunately, data reported before and after this period relies on MSA definitions that differ from those used here. Because a few regions only became classified as MSAs after 1993, our panel includes a total of 3,270 MSA-years.

Let us now turn to the results. Table 2 reports the results for looking at the impact of ethnic composition. Models 1 and 2 present the results for the main effect of venture capital, showing as

expected a relationship between VC and both innovation, in terms of patents, and entrepreneurship, in terms of establishment births. Models 3 and 4 then add interactions with diversity and integration. The former shows some positive effect, but the latter is very significant and highly positive.

Table 3 adds further robustness checks. In Models 1 and 2 we exclude three states with very active VC communities, namely California, Massachusetts, and Texas. While the coefficient magnitudes fall, their significance stays at the prior level, evincing that the results are robust and not driven by these three states. In Models 3 and 4 we allow each MSA to have a unique growth rate in addition to a fixed level. The main effect for patenting effectively goes to zero, but the interaction with integration stays large and significant. The entrepreneurship results are clearly robust to this as well. In Models 5 and 6, we use our *LP returns* instrument to control for potential endogeneity in the supply of venture capital. The results seem very robust. [6]

In Table 4 we turn then to look at how association activity affects the short-term impact of venture capital, using the same pattern as in Table 2. While adding the interactions seems to reduce the main effect, none of the interactions themselves appear significant.

All together, these results suggest that at least in the short-term, the impact of venture capital depends heavily on ethnic integration, but does not seem to depend on ethnic diversity or associational activity.

## 2.3 Long-term Effect: Cross-sectional Estimates

The panel estimates reflect the short-term changes in a region in response to changes in the provision of venture capital. However, the real question is about the long-term development as many of the

[6] To incorporate the interaction terms, we estimated the IV results in two stages. We first regressed venture capital activity on the instrument (*LP returns*), population, year and region fixed effects, exactly as in the first stage of a standard 2SLS estimation. We then predicted the value of the venture capital measure using the estimated coefficients and used that prediction and its interactions in the second-stage regressions. Because OLS does not properly estimate the standard errors of the coefficients for predicted values, we obtained the standard errors through bootstrapping the regression 5,000 times.

firms started and patents applied might fail to get traction, but on the other hand the successful firms and innovations might spawn new ones. To look at these longer-term effects, we turn to cross-section analyses. In particular, we examined the effects of venture capital on three different outcomes ten years in the future, from 1990 to 2000: the number of business establishments in the region, overall employment in the region, and aggregate income for the region. For these estimates, our measure of venture capital activity counted the number of investments made between 1980 and 1990 by VC firms located in a particular MSA. We included all target companies in this count regardless of whether those companies resided in the same MSA as the VC firm. Because some regions have no activity, we added one to this count before logging it.

Table 5 presents the results on the ethnic composition of the region.[7] Models 1-3 are the basic results, showing that venture capital has a strong main effect, but also a strong interaction with ethnic integration, especially in terms of employment and payroll. Ethnic integration also seems to have a strong main effect. Models 4-6 add our standard controls and find that the results on ethnic integration are very robust. The results on diversity turn significant, but that could be due to collinearity with immigration (Foreign Born). Table 6 add a robustness check. Models 1-3 exclude California, Massachusetts, and Texas and the results stay robust and actually some even increase.

Table 7 reports the results on the associational activity of the region. In contrast to the short-term estimates, these long-term estimates now have both main effects and interactions of the association activity measures significant (Models 1-3) and they remain so when we add controls (Models 4-6). We see that business and professional organizations have a very strong and positive effect, while labor organizations and other organizations seem to have a negative effect. Table 8 add a robustness checks Models 1-3 exclude California, Massachusetts, and Texas and the results stay robust and actually some even increase.

The results then appear to be robust. Two features of the results are most striking. First, association activity outside of labor unions and business organizations has actually a negative effect

[7]The $R^2$ values are very high for all models due to controlling for the prior values of the outcome variables.

on subsequent growth. Second, diversity has limited if any impact, but racial integration matters a lot, especially through interactions with capital. Though the long lags certainly suggest a causal relation, these cross-sectional estimates may nonetheless confound the effects of venture capital with a wide range of other factors that vary from one region to the next.

# 3 Discussion

In summary, these results suggest that venture capital is most effective in regions where business executives are well connected and where diverse ethnicities live together. Hence, the cultural and social aspects of the region are very important, lending support to the general hypothesis that social capital matters.

Yet much more work needs to be done to get a clearer picture. First, what differentiates business organizations from others? Is it the activities they engage or the people participating? Under what conditions would it be important to build broad-based social capital? Second, do the results on racial integration carry over to integration of diverse others more broadly speaking? Which of the three mechanisms is the most important, i.e., does integration signal information flow, openness to new ideas, or the presence of generalized trust? Third, what about the values and culture of the regions? Fourth, these results were obtained with data from the United States, but can they be replicated elsewhere?

There are also practical policy implications from this line of research. First, clearly the effectiveness of policies aimed at fostering an active venture capital community depend on regional characteristics seemingly far removed from the actual financial and legal aspects of investing in start-up companies. While it pays to get the financial and legal aspects right (Gilson 2003b), they are far from sufficient for creating a dynamic region. Second, promoting voluntary associations can have a positive impact, but if the goal is greater economic growth, it pays to be mindful of the kinds of organizations promoted. Third, regional and national policies regarding multiculturalism need

to be reconsidered. One extension of the racial integration results is that the "melting pot" model in the United States, that requires immigrants to integrate with the host society, might actually be better at fostering innovation and growth than the multicultural "salad bowl" approach common in Canada and Europe.

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Table 1: Summary Statistics

| Variable | Mean | Std. Dev. | N |
|---|---|---|---|
| Establishments 2000 (thousands) | 17.3 | 29.2 | 329 |
| Employment 2000 (thousands) | 292.1 | 508.7 | 329 |
| Payroll 2000 (millions) | 10416 | 21930.1 | 329 |
| Establishments 1990 (thousands) | 15.1 | 26.1 | 329 |
| Employment 1990 (thousands) | 240.2 | 444.3 | 329 |
| Payroll 1990 (millions) | 5608 | 11990.8 | 329 |
| Patents | 246.8 | 583 | 3270 |
| Establishment Births, 0-19 | 1413 | 2520.1 | 3280 |
| VC Investment Count | 4.2 | 27.4 | 3280 |
| VC Investment Count 1980-1990 | 20.6 | 123.7 | 329 |
| Business & Professional Organizations 1990 | 42.9 | 73.9 | 329 |
| Labor Organizations 1990 | 47.6 | 74.6 | 329 |
| Other Organizations 1990 | 388.8 | 510.5 | 329 |
| Ethnic Diversity Score 1990 | 0.6 | 0.3 | 323 |
| Ethnic Integration Score 1990 | 0.8 | 0.1 | 323 |
| Population (thousands) | 659.4 | 1104.9 | 3270 |
| College Educated (%) | 19.9 | 6.4 | 329 |
| Foreign Born (%) | 5.2 | 6 | 329 |
| Voting in Presidential Elections 1988 (%) | 49.8 | 7.9 | 327 |

Table 2: Effect of Ethnic Make-up on Patenting and Firm Births

| | (1) Patents | (2) Births | (3) Patents | (4) Births |
|---|---|---|---|---|
| Population (t-1) | 1.475*** | 0.804*** | 1.464*** | 0.792*** |
| | (4.82) | (9.33) | (4.67) | (9.10) |
| VC Cnt | 0.0285** | 0.0121*** | 0.0345** | 0.0143*** |
| | (2.15) | (2.92) | (2.38) | (2.76) |
| VC Cnt x Diversity | | | 0.0816* | 0.0134 |
| | | | (1.89) | (0.91) |
| VC Cnt x Integration | | | 0.346*** | 0.0684** |
| | | | (3.73) | (2.37) |
| Year Dummies | Yes | Yes | Yes | Yes |
| MSA Fixed Effects | Yes | Yes | Yes | Yes |
| $R^2$ | 0.15 | 0.20 | 0.16 | 0.21 |
| Clusters | 328 | 328 | 322 | 322 |
| Observations | 3270 | 3270 | 3213 | 3213 |

*Notes:* OLS regression results; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Robust $t$-statistics in parentheses; disturbances clustered by MSA. The unit of observation is the MSA-year and the data cover the 48 contiguous United States from 1993 to 2002.

Table 3: Effect of Ethnic Make-up on Patenting and Firm Births: Robustness Check

| | (1) Patents | (2) Births | (3) Patents | (4) Births | (5) Patents | (6) Births |
|---|---|---|---|---|---|---|
| | Excl. CA, MA, TX | Excl. CA, MA, TX | MSA Trend | MSA Trend | IV | IV |
| Population (t-1) | 1.607*** | 0.857*** | -0.686 | -0.186 | 1.221*** | 0.761*** |
| | (4.27) | (8.68) | (-1.01) | (-1.08) | (4.00) | (8.22) |
| VC Cnt | 0.0301* | 0.0177*** | 0.00471 | 0.0126** | 0.219*** | 0.0325* |
| | (1.84) | (3.36) | (0.40) | (2.49) | (4.31) | (1.79) |
| VC Cnt x Diversity | 0.0468 | 0.00988 | 0.0357 | -0.0101 | -0.00921 | 0.0649** |
| | (0.84) | (0.46) | (1.08) | (-0.56) | (-0.11) | (2.00) |
| VC Cnt x Integration | 0.291*** | 0.0562** | 0.114* | 0.0666** | 1.088*** | 0.149** |
| | (3.15) | (2.00) | (1.86) | (2.17) | (4.67) | (2.14) |
| Year Dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| MSA Fixed Effects | Yes | Yes | Yes | Yes | Yes | Yes |
| $R^2$ | 0.18 | 0.27 | 0.44 | 0.50 | 0.17 | 0.21 |
| Clusters | 236 | 236 | 322 | 322 | 322 | 322 |
| Observations | 2353 | 2353 | 3213 | 3213 | 3213 | 3213 |

*Notes:* OLS regression results; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Robust $t$-statistics in parentheses; disturbances clustered by MSA. The unit of observation is the MSA-year and the data cover the 48 contiguous United States from 1993 to 2002.

Table 4: Effect of Voluntary Organizations on Patenting and Firm Births

| | (1) Patents | (2) Births | (3) Patents | (4) Births |
|---|---|---|---|---|
| Population (t-1) | 1.475*** | 0.804*** | 1.447*** | 0.797*** |
| | (4.82) | (9.33) | (4.63) | (9.07) |
| VC Cnt | 0.0285** | 0.0121*** | 0.0231 | 0.0107* |
| | (2.15) | (2.92) | (1.45) | (1.83) |
| VC Cnt x Bus & Prof Orgs | | | 0.0207 | 0.00396 |
| | | | (0.73) | (0.58) |
| VC Cnt x Labor Orgs | | | -0.0235 | -0.00609 |
| | | | (-1.04) | (-0.92) |
| VC Cnt x Other Orgs | | | 0.00775 | 0.00347 |
| | | | (0.18) | (0.34) |
| Year Dummies | Yes | Yes | Yes | Yes |
| MSA Fixed Effects | Yes | Yes | Yes | Yes |
| $R^2$ | 0.15 | 0.20 | 0.15 | 0.20 |
| Clusters | 328 | 328 | 328 | 328 |
| Observations | 3270 | 3270 | 3270 | 3270 |

*Notes:* OLS regression results; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Robust $t$-statistics in parentheses; disturbances clustered by MSA. The unit of observation is the MSA-year and the data cover the 48 contiguous United States from 1993 to 2002.

Table 5: Long-term Impact of Ethnic Composition

| | (1) Estblmnts | (2) Emplmnt | (3) Payroll | (4) Estblmnts | (5) Emplmnt | (6) Payroll |
|---|---|---|---|---|---|---|
| 1990 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 |
| Establishments | 0.993*** | 0.0396 | 0.0103 | 1.018*** | 0.0716 | 0.0357 |
| | (27.32) | (0.88) | (0.18) | (26.66) | (1.54) | (0.61) |
| Employment | 0.283*** | 1.386*** | 0.480*** | 0.213*** | 1.325*** | 0.406*** |
| | (4.28) | (17.05) | (4.72) | (2.75) | (14.12) | (3.42) |
| Payroll | -0.251*** | -0.403*** | 0.544*** | -0.203*** | -0.367*** | 0.598*** |
| | (-5.61) | (-7.32) | (7.88) | (-3.80) | (-5.66) | (7.28) |
| College Educated | 0.00444*** | 0.00434*** | 0.00895*** | 0.00478*** | 0.00448*** | 0.00935*** |
| | (4.80) | (3.81) | (6.28) | (5.02) | (3.88) | (6.39) |
| Diversity | -0.0115 | 0.0168 | 0.0359 | -0.0111 | 0.0420 | 0.0434 |
| | (-0.46) | (0.55) | (0.94) | (-0.36) | (1.13) | (0.92) |
| Integration | 0.188*** | 0.0875 | 0.149 | 0.225*** | 0.153** | 0.203** |
| | (3.06) | (1.16) | (1.57) | (3.53) | (1.97) | (2.07) |
| VC Cnt | 0.00811 | 0.00783 | 0.0306*** | 0.00735 | 0.00748 | 0.0288*** |
| | (1.54) | (1.21) | (3.78) | (1.40) | (1.17) | (3.56) |
| VC Cnt x Diversity | -0.0125 | -0.00199 | 0.0128 | -0.00669 | 0.00900 | 0.0179 |
| | (-1.03) | (-0.13) | (0.68) | (-0.54) | (0.60) | (0.94) |
| VC Cnt x Integration | 0.0322 | 0.0826** | 0.161*** | 0.0337 | 0.0866** | 0.161*** |
| | (1.08) | (2.25) | (3.51) | (1.14) | (2.41) | (3.54) |
| Foreign Born | | | | -0.00264** | -0.00454*** | -0.00298 |
| | | | | (-2.24) | (-3.18) | (-1.65) |
| Pres Vote 88 | | | | -0.00143 | -0.00101 | -0.00155 |
| | | | | (-1.54) | (-0.90) | (-1.09) |
| $R^2$ | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Observations | 323 | 323 | 323 | 321 | 321 | 321 |

$t$-statistics in parentheses, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 6: Long-term Impact of Ethnic Make-up: Robustness Check

| | (1) Estblmnts | (2) Emplmnt | (3) Payroll |
|---|---|---|---|
| | Excl. CA, MA, TX | Excl. CA, MA, TX | Excl. CA, MA, TX |
| Establishments | 1.071*** | 0.0995* | 0.0736 |
| | (23.44) | (1.77) | (1.07) |
| Employment | 0.101 | 1.235*** | 0.278* |
| | (1.05) | (10.51) | (1.94) |
| Payroll | -0.138** | -0.300*** | 0.695*** |
| | (-2.09) | (-3.71) | (7.04) |
| College Educated | 0.00354*** | 0.00381*** | 0.00784*** |
| | (3.19) | (2.80) | (4.71) |
| Diversity | 0.0628 | 0.0953* | 0.127** |
| | (1.57) | (1.94) | (2.12) |
| Integration | 0.325*** | 0.209** | 0.333*** |
| | (4.38) | (2.29) | (2.99) |
| Foreign Born | -0.00347** | -0.00600*** | -0.00379 |
| | (-2.13) | (-3.00) | (-1.55) |
| Pres Vote 88 | -0.000306 | 0.000300 | -0.000325 |
| | (-0.29) | (0.23) | (-0.21) |
| VC Cnt | 0.00237 | 0.00191 | 0.0185** |
| | (0.39) | (0.26) | (2.04) |
| VC Cnt x Diversity | -0.000375 | 0.0110 | 0.00569 |
| | (-0.02) | (0.45) | (0.19) |
| VC Cnt x Integration | 0.0451 | 0.0847* | 0.117** |
| | (1.20) | (1.84) | (2.07) |
| $R^2$ | 0.99 | 0.99 | 0.99 |
| Observations | 249 | 249 | 249 |

$t$-statistics in parentheses, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 7: Long-term Impact of Voluntary Organizations

| | (1) Estblmnts | (2) Emplmnt | (3) Payroll | (4) Estblmnts | (5) Emplmnt | (6) Payroll |
|---|---|---|---|---|---|---|
| Establishments | 0.952*** | -0.0161 | -0.0263 | 0.950*** | -0.0218 | -0.0288 |
| | (27.96) | (-0.39) | (-0.52) | (27.98) | (-0.53) | (-0.57) |
| Employment | 0.364*** | 1.447*** | 0.588*** | 0.415*** | 1.492*** | 0.626*** |
| | (5.20) | (17.06) | (5.62) | (5.61) | (16.70) | (5.68) |
| Payroll | -0.253*** | -0.384*** | 0.562*** | -0.290*** | -0.415*** | 0.536*** |
| | (-5.25) | (-6.58) | (7.82) | (-5.63) | (-6.70) | (7.01) |
| College Educated | 0.00322*** | 0.00219* | 0.00651*** | 0.00291*** | 0.00216* | 0.00650*** |
| | (3.34) | (1.87) | (4.52) | (2.96) | (1.82) | (4.43) |
| Bus & Prof Orgs | 0.0296** | 0.0469*** | 0.0353* | 0.0260** | 0.0442*** | 0.0326* |
| | (2.35) | (3.07) | (1.88) | (2.06) | (2.90) | (1.74) |
| Labor Orgs | -0.0246*** | -0.0211* | -0.0414*** | -0.0303*** | -0.0227* | -0.0437*** |
| | (-2.63) | (-1.86) | (-2.95) | (-3.04) | (-1.89) | (-2.95) |
| Other Orgs | -0.0747*** | -0.0711** | -0.116*** | -0.0750*** | -0.0721** | -0.117*** |
| | (-3.19) | (-2.51) | (-3.32) | (-3.23) | (-2.57) | (-3.40) |
| VC Cnt | 0.00301 | 0.00106 | 0.0213*** | 0.00268 | 0.000956 | 0.0202*** |
| | (0.58) | (0.17) | (2.74) | (0.51) | (0.15) | (2.61) |
| VC Cnt x Bus & Prof Orgs | 0.0119 | 0.0254** | 0.0497*** | 0.0133 | 0.0263*** | 0.0505*** |
| | (1.43) | (2.51) | (3.99) | (1.60) | (2.63) | (4.09) |
| VC Cnt x Labor Orgs | -0.0214*** | -0.0259*** | -0.0278*** | -0.0211*** | -0.0254*** | -0.0274*** |
| | (-3.21) | (-3.21) | (-2.79) | (-3.19) | (-3.18) | (-2.78) |
| VC Cnt x Other Orgs | 0.00728 | -0.00240 | -0.0302* | 0.00586 | -0.00429 | -0.0317* |
| | (0.65) | (-0.18) | (-1.82) | (0.53) | (-0.32) | (-1.93) |
| Pres Vote 88 | | | | 0.00125 | 0.000372 | 0.000526 |
| | | | | (1.63) | (0.40) | (0.46) |
| $R^2$ | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Observations | 329 | 329 | 329 | 327 | 327 | 327 |

$t$-statistics in parentheses, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 8: Long-term Impact of Voluntary Organizations: Robustness Check

| | (1) Estblmnts | (2) Emplmnt | (3) Payroll |
|---|---|---|---|
| | Excl. CA, MA, TX | Excl. CA, MA, TX | Excl. CA, MA, TX |
| Establishments | 1.028*** | 0.0219 | 0.0401 |
| | (25.18) | (0.44) | (0.68) |
| Employment | 0.331*** | 1.464*** | 0.536*** |
| | (3.64) | (13.12) | (4.06) |
| Payroll | -0.265*** | -0.413*** | 0.574*** |
| | (-4.26) | (-5.41) | (6.35) |
| College Educated | 0.00178 | 0.00133 | 0.00499*** |
| | (1.53) | (0.93) | (2.94) |
| Pres Vote 88 | 0.00114 | 0.000685 | 0.000634 |
| | (1.26) | (0.62) | (0.48) |
| Bus & Prof Orgs | 0.0321** | 0.0476*** | 0.0425** |
| | (2.20) | (2.65) | (2.00) |
| Labor Orgs | -0.0325*** | -0.0208 | -0.0452** |
| | (-2.71) | (-1.41) | (-2.59) |
| Other Orgs | -0.0965*** | -0.0936*** | -0.144*** |
| | (-3.48) | (-2.75) | (-3.56) |
| VC Cnt | 0.00154 | -0.00167 | 0.0131 |
| | (0.26) | (-0.23) | (1.53) |
| VC Cnt x Bus & Prof Orgs | 0.0123 | 0.0201* | 0.0335** |
| | (1.25) | (1.67) | (2.36) |
| VC Cnt x Labor Orgs | -0.0186** | -0.0214** | -0.0266** |
| | (-2.29) | (-2.14) | (-2.25) |
| VC Cnt x Other Orgs | 0.00594 | -0.000393 | -0.00937 |
| | (0.44) | (-0.02) | (-0.48) |
| $R^2$ | 0.99 | 0.99 | 0.99 |
| Observations | 255 | 255 | 255 |

$t$-statistics in parentheses, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$