

ENDING THE MENDING WALL: HERDING, MEDIA COVERAGE, AND COLOCATION IN IT ENTREPRENEURSHIP

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Appendix

Alternate Matching Strategies

One potential cause for concern, and an inherent weakness with the naïve matching methodology described in the paper, is that the method considers only the year, industry, and funding reception on the part of the entrepreneur. To the extent that structural components of the VC syndicate (i.e., size and relative reputation), or observable characteristics of the entrepreneur, may correlate with the willingness of the VC to back the new venture, this undermines both the quality of the match and the extent to which the matched sample is balanced across the covariates with the original set of realized ties. To remedy this potential concern, we execute two additional matching strategies. The first, propensity score matching (PSM), is a well-established method in both the economics (Caliendo and Kopeinig 2008; Dehejia and Wahba 2002) and information systems (Brynjolfsson et al. 2003; Smith and Telang 2009) literatures. The second, coarsened exact matching (CEM), offers a more nuanced matching method for contexts where matching based on categorical variables may not provide adequate balance (Blackwell et al. 2009; Iacus et al. 2012). Specifically, while traditional matching methods increase homogeneity between the treatment and control groups in the aggregate, CEM offers the benefit of balancing each individual variable as well as the aggregate to ensure that heterogeneity in changes in the matching variables are consistent across the both the treated and control groups, thereby ensuring both multivariate and univariate balance. Unsurprisingly, this methodology is becoming increasingly popular in the social sciences (Azoulay et al. 2013; Greenwood and Watal 2017).

To execute the PSM, the propensity score is calculated based on the predicted probability that the entrepreneur would have been funded by the focal VC. This was done by running a logit estimator on the full counterfactual set and then using the Stata `predict` command to determine \hat{y} . The largest \hat{y} for each realized tie was then selected to serve as the counterfactual. Duplicates were prohibited. Following Breslow and Day (1980) we enforce a 1:1 ratio of unrealized ties to realized ties. Econometrically, we replicate the effect from Equation 2 using both a conditional logit and a fixed effect LPM. Results are in Table A3.

To execute the CEM procedure (Blackwell et al. 2009, Iacus et al. 2012) between “treated” entrepreneurs (i.e., funded) and unfunded entrepreneurs by matching on the following entrepreneur and VC characteristics: year of funding, ISC2, evidence of funding by the focal VC to another entrepreneur in that year, size of the funding syndicate, and VC prestige as indicated through the VC reputation index (Lee et al. 2011). To the degree that the consideration of additional matching criteria will eliminate concerns of VC and VC syndicate heterogeneity, and the CEM balances both on the individual matching variables (note that year and technology sector must be exact matches) as well as the univariate imbalance between the two datasets, this should further eliminate unobserved heterogeneity from the dataset. Again, we maintain a 1:1 matching. Empirically, as with the PSM, we reestimate Equation 2, first using a conditional logit estimator and again using the LPM. Results are in Table A4.

Before we discuss the results of these estimations we inspect the matches manually. A comparison of the datasets created by the PSM and CEM are available in Tables A1 and A2, respectively. First, we note that the relative quality of the matching process increases dramatically as we move from the naïve match (shown in Table 2 of the main document), to the PSM, and then to the CEM. It should be noted that the treated set for the PSM and the naïve match are identical by construction (as a result of building the counterfactual set based on the predicted probability of funding). Second, we observe that the standard errors for the individual covariates within the treated and control groups are rather large, as is to be expected when using secondary data of this type. Moreover, it is not surprising that the standard errors for the treated and control groups are large since they are disregarding any time-based variation that exists in the source data (i.e., the method essentially cross-sectionalizes matches made over time). While it is possible to estimate differences of means t-tests between the treatment and control groups for each covariate, the large sample sizes and the presence of temporal variation, that is unaccounted for, make such tests somewhat impractical. Instead, a model-free comparison of the mean values on the covariates between the two groups suggests that the CEM leads to a more defensible matched sample than the PSM or naïve matching. Finally, we note that to the degree that heterogeneity does persist between the treatment and control groups (as we see even in the CEM matches), it underscores the importance of including the many controls and fixed effects (i.e., time, location, industry, and VC) that we use in the estimation reported in the paper, so as to account for remaining heterogeneity in the groups which might be correlated with our independent variables of interest. We now turn to the results pertaining to the effects of media and herding on colocation using these matched samples.

When considering the effect from the PSM we see across both the conditional logit, as well as the fixed effect LPM, a strong and significant correlation between *Colocation*, *Media*, *Herding*, and *Funding* reception. This increases our overall confidence in the *a priori* assumptions of the model. Furthermore, when considering the hypothesized effects, we see a negative and significant correlation between the interaction of *Colocation* and *Media* with first round funding reception (Columns 2, 4, 6, and 8 of Table A1). This same relationship is observed for the interaction of *Herding* and *Colocation* (Columns 3, 4, 7, and 8 of Table A3). Taken in sum, these correlations provide additional support for our proposed hypotheses that media and herding will relax the colocation constraint, and that the effects will accumulate disproportionately to non-located entrepreneurs.

When considering our proposed hypotheses under the CEM sample, we see some discrepancies from the results discussed thus far (Table A4). Consistent with our prior estimations, there is a strong and significant positive relationship between colocation with the focal VC and first-round funding reception. Second, as indicated by the coefficient of the *Media* variable, there is a strong and significant correlation between increases in media coverage and first round funding, as well as a negative moderation of the colocation effect providing support for it. We note that even with a more balanced match, the results pertaining to the effect of media discourse on VC funding remains strongly influential. Third, and most strikingly, we see no evidence of the relationship between *Herding* and the likelihood of first-round funding, or an interaction between *Herding* and *Colocation*. This brings out a counter-intuitive result that we believe is worth exploring.

Why might the interaction of colocation and herding not appear when we use the CEM sample? One factor driving this result could be that in comparison to the naïve matching method and PSM, the CEM sample matches a given VC with a closer counterfactual VC. Since the naïve matching method, which is based on Sorenson and Stuart's (2001) methodology, randomly chooses from all the available counterfactual VCs, it is plausible that the counterfactual is not appropriate. The CEM avoids this contingency. Following this logic, this would suggest that the results from *herding's* interaction with colocation are overstated in the naïve matching sample and are therefore insignificant. In other words, the presence of considerable funding from peer VCs in the previous years does not provide a VC with the impetus to overcome the colocation constraint. Two significant factors may be at play here. First, while it is accepted that VCs do resort to herding (Khanna and Mathews 2011), this herding behavior may not extend to the point of funding *nonlocal* entrepreneurs because of the associated costs of *ex post* coordination and management (Gorman and Sahlman 1989). Second, the presence of herding could indicate to the focal VC that the appeal of investing in a specific IT subsector has reached a peak, thereby signaling possible market saturation. This contingency is explored further below. Recall that herding is, by definition, backward looking in that it builds on others' observed investments, which are likely made after in-depth analysis of technology trends, technological maturity, and entrepreneur valuation (Gompers and Lerner 1999). If saturation is inferred, it is less likely that the VC will be willing to undergo the costs of nonlocal investment, even with a local syndicate partner (Sorenson and Stuart 2001). Thus, even though the direct effect of herding is positive, it will not substitute significantly for colocation.¹

¹We are grateful to an anonymous reviewer for this point.

Table A1. Comparison of Treated and Control Groups (Propensity Score Match)

	Treated (Funded)		Control (Unfunded)	
	Mean	Std Dev	Mean	Std Dev
Funded	1	0	0	0
Colocation	0.374	0.484	0.234	0.423
Media	0.169	0.681	0.006	0.567
Herding	0.408	0.975	0.217	0.821
Patent Originality	0.070	0.259	0.063	0.241
ln(Entre Age)	0.990	0.844	0.996	0.821
Herfindahl	0.668	0.270	0.621	0.268
Entre Concentration	159.474	206.159	137.627	154.416
VC Concentration	69.082	75.249	71.704	71.091
Firm Age	12.261	14.030	14.462	14.304
Firm Size	1.847	4.719	2.296	4.577
PrevSpending	9.223	32.811	8.893	26.597
Syndicate Colocation	2.006	8.817	2.349	10.294

Table A2. Comparison of Treated and Control Groups (Coarsened Exact Match)

	Treated (Funded)		Control (Unfunded)	
	Mean	Std Dev	Mean	Std Dev
Funded	1	0	0	0
Colocation	0.44	0.496	0.194	0.395
Media	0.376	1.455	0.228	1.025
Herding	0.139	3.882	0.119	2.54
Patent Originality	0.066	0.25	0.059	0.234
ln(Entre Age)	0.994	0.839	0.959	0.781
Herfindahl	0.662	0.264	0.614	0.259
Entre Concentration	173.431	210.537	181.751	214.146
VC Concentration	86.394	77.876	78.194	77.576
Firm Age	12.995	14.755	15.467	18.133
Firm Size	1.934	5.016	2.952	6.38
PrevSpending	9.512	33.836	8.936	27.167
Syndicate Colocation	2.164	9.572	1.951	8.423

Table A3. Conditional Logit and LPM Estimates Using Propensity Score Match								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Estimator	Conditional Logit				Firm Fixed Effect LPM			
Dependent Variable	Funded	Funded	Funded	Funded	Funded	Funded	Funded	Funded
Colocation	1.046*** (0.0332)	1.059*** (0.0333)	1.116*** (0.0347)	1.116*** (0.0347)	0.207*** (0.00621)	0.210*** (0.00624)	0.219*** (0.00646)	0.219*** (0.00646)
Media	0.135*** (0.0249)	0.193*** (0.0290)	0.135*** (0.0249)	0.161*** (0.0294)	0.0286*** (0.00466)	0.0397*** (0.00545)	0.0288*** (0.00466)	0.0345*** (0.00553)
Herding	0.150*** (0.0173)	0.154*** (0.0173)	0.244*** (0.0219)	0.237*** (0.0222)	0.0249*** (0.00300)	0.0254*** (0.00301)	0.0400*** (0.00378)	0.0388*** (0.00383)
Media * Colocation		-0.172*** (0.0437)		-0.0788* (0.0464)		-0.0323*** (0.00828)		-0.0169* (0.00871)
Herding * Colocation			-0.219*** (0.0307)	-0.201*** (0.0326)			-0.0367*** (0.00557)	-0.0331*** (0.00586)
Patent Originality	0.0883* (0.0529)	0.0863 (0.0529)	0.0854 (0.0529)	0.0847 (0.0529)	0.0167* (0.00993)	0.0163 (0.00993)	0.0163 (0.00992)	0.0161 (0.00992)
In(Entre Age)	0.0179 (0.0163)	0.0172 (0.0163)	0.0152 (0.0163)	0.0151 (0.0163)	0.00393 (0.00306)	0.00382 (0.00306)	0.00348 (0.00306)	0.00346 (0.00306)
Entre Concentration	-0.000627*** (0.0000951)	-0.000618*** (0.0000951)	-0.000591*** (0.0000953)	-0.000590*** (0.0000953)	-0.000126*** (0.0000179)	-0.000125*** (0.0000179)	-0.000121*** (0.0000179)	-0.000121*** (0.0000179)
VC Concentration	0.000264 (0.000248)	0.000246 (0.000248)	0.000203 (0.000248)	0.000200 (0.000248)	0.0000451 (0.0000475)	0.000041 (0.0000475)	0.000034 (0.0000475)	0.0000329 (0.0000475)
Firm Age	0.0296*** (0.00610)	0.0295*** (0.00611)	0.0298*** (0.00611)	0.0297*** (0.00611)	0.00494*** (0.00109)	0.00491*** (0.00108)	0.00495*** (0.00108)	0.00493*** (0.00108)
PrevSpending	0.00131** (0.000523)	0.00134** (0.000524)	0.00136*** (0.000523)	0.00137*** (0.000523)	0.000263*** (0.0000941)	0.000265*** (0.000094)	0.000271*** (0.000094)	0.000271*** (0.000094)
Syndicate Colocation	0.00181 (0.00121)	0.00185 (0.00121)	0.00189 (0.00121)	0.00190 (0.00121)	0.000388 (0.000239)	0.000393 (0.000239)	0.000399* (0.000239)	0.000400* (0.000239)
Constant					0.148*** (0.0278)	0.148*** (0.0278)	0.145*** (0.0278)	0.145*** (0.0278)
VC Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Zone Fixed Effects	Perfectly Predicted by VC Fixed Effects							
Time Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²					0.272	0.272	0.273	0.273
χ^2	4149.86	4165.28	4199.56	4202.44				
Observations	36,004	36,004	36,004	36,004	36,004	36,004	36,004	36,004

Notes:

Robust standard errors in parentheses (Clustered on the VC for LPM Estimates)

***p < 0.01, **p < 0.05, *p < 0.1

Herfindahl and Firm Size dropped due to colinearity with firm fixed effect

Table A4. Conditional Logit and LPM Estimates Using Coarsened Exact Match								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Estimator	Conditional Logit				Firm Fixed Effect LPM			
Dependent Variable	Funded	Funded	Funded	Funded	Funded	Funded	Funded	Funded
Colocation	1.283***	1.296***	1.283***	1.296***	0.264***	0.268***	0.264***	0.268***
	(0.0367)	(0.0375)	(0.0367)	(0.0375)	(0.0153)	(0.0157)	(0.0153)	(0.0157)
Media	0.102***	0.114***	0.102***	0.114***	0.0169***	0.0228***	0.0169***	0.0228***
	(0.0135)	(0.0155)	(0.0135)	(0.0155)	(0.00278)	(0.00360)	(0.00278)	(0.00361)
Herding	0.00302	0.00302	0.00461	0.00451	0.000601	0.000590	0.00113	0.00108
	(0.00497)	(0.00498)	(0.00649)	(0.00649)	(0.000704)	(0.000705)	(0.00112)	(0.00112)
Media * Colocation		-0.0500*		-0.0498*		-0.0156***		-0.0156***
		(0.0285)		(0.0285)		(0.00537)		(0.00537)
Herding * Colocation			-0.00375	-0.00354			-0.000969	-0.000900
			(0.00979)	(0.00981)			(0.00148)	(0.00148)
Patent Originality	0.0144	0.0143	0.0144	0.0143	0.00350	0.00357	0.00350	0.00357
	(0.0586)	(0.0586)	(0.0586)	(0.0586)	(0.0131)	(0.0132)	(0.0131)	(0.0131)
ln(Entre Age)	0.0216	0.0214	0.0217	0.0214	0.00473	0.00464	0.00474	0.00464
	(0.0183)	(0.0183)	(0.0183)	(0.0183)	(0.00588)	(0.00588)	(0.00589)	(0.00588)
Entre Concentration	-0.00165***	-0.00165***	-0.00165***	-0.00165***	-0.000331***	-0.000331***	-0.000331***	-0.000331***
	(0.000101)	(0.000102)	(0.000101)	(0.000102)	(0.0000344)	(0.0000345)	(0.0000344)	(0.0000345)
VC Concentration	0.00468***	0.00468***	0.00468***	0.00468***	0.000929***	0.000929***	0.000929***	0.000929***
	(0.000238)	(0.000238)	(0.000238)	(0.000238)	(0.000183)	(0.000183)	(0.000183)	(0.000183)
Firm Age	0.0574***	0.0576***	0.0574***	0.0576***	0.0103***	0.0104***	0.0103***	0.0104***
	(0.00771)	(0.00771)	(0.00771)	(0.00771)	(0.00168)	(0.00167)	(0.00168)	(0.00167)
PrevSpending	0.00288***	0.00288***	0.00288***	0.00288***	0.000490***	0.000489***	0.000490***	0.000489***
	(0.000589)	(0.000589)	(0.000589)	(0.000589)	(0.000154)	(0.000154)	(0.000154)	(0.000154)
Syndicate Colocation	0.00228	0.00226	0.00229	0.00227	0.000547	0.000533	0.000549	0.000535
	(0.00149)	(0.00149)	(0.00149)	(0.00149)	(0.000754)	(0.000755)	(0.000753)	(0.000754)
Constant					0.229***	0.229***	0.222***	0.222***
					-0.0482	-0.0482	-0.0482	-0.0482
VC Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Zone Fixed Effects	Perfectly Predicted by VC Fixed Effects							
Time Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²					0.264	0.264	0.265	0.265
χ^2	4997.18	5000.06	4997.32	5000.19				
Observations	28,776	28,776	28,776	28,776	29,600	29,600	29,600	29,600

Notes:

Robust standard errors in parentheses (Clustered on the VC for LPM Estimates)

***p < 0.01, **p < 0.05, *p < 0.1

Herfindahl and Firm Size dropped due to colinearity with firm fixed effect

Correlation of Media

One potential issue that emerges with our measure of media is that we are sampling an individual newspaper as representative of the discourse within each given economic zone. This introduces the possibility of bias arising from the specific ideological or market-oriented attributes of the newspaper chosen, making the discourse in that newspaper nonrepresentative of media discourse in that region in general. To remedy this concern, and examine whether our results stand on changing the specific newspaper, we replicate our media collection efforts for seven of the nine local media outlets: *The Philadelphia Inquirer* for *The New York Times*, *The Plain Dealer* for *The Chicago Tribune*, *The Omaha World Herald* for *The Star Tribune*, *The News Observer* for *The Washington Post*, *The Dallas Morning News* for *The Austin-American Statesman*, *The Arizona Republic* for *The Denver Post*, and both *The San Diego Union Tribune* and *The Los Angeles Times* for *The San Jose Mercury News*. *The Atlanta-Journal Constitution* and *The Boston Herald* are omitted due to structural changes in the coding of the media vendor which did not allow our web scraper to function properly. We then compare the media counts across the used newspapers and the sister newspaper. Results can be found in Table A5. As can be seen from the result, significant correlation exists between each of the leveraged periodicals in the economic zone and the alternate major newspapers. Furthermore, as indicated in the note, all newspapers are significantly correlated ($p < 0.001$) with the sister newspaper when time and industry fixed effects are applied. From this, we conclude that the selection of periodical is not significantly biasing the results.

Table A5. Correlation between Leveraged Local Newspapers and Other Major Newspapers in the Economic Zone Y-Axis: Used Newspapers / X-Axis: Alternate Major Newspaper of the Economic Zone Atlanta Journal Constitution and Boston Herald Omitted

	<i>Philadelphia Inquirer</i>	<i>The Plain Dealer</i>	<i>Omaha World-Herald</i>	<i>The News Observer</i>	<i>The Dallas Morning News</i>	<i>The Arizona Republic</i>	<i>The San Diego Union-Tribune</i>	<i>Los Angeles Times</i>
<i>New York Times</i>	0.5121							
<i>Chicago Tribune</i>		0.5725						
<i>The Star Tribune</i>			0.408					
<i>Washington Post</i>				0.7881				
<i>Austin American Statesman</i>					0.7415			
<i>The Denver Post</i>						0.4088		
<i>San Jose Mercury News</i>							0.7407	0.4085

All correlations are significant. All regressions of the utilized newspaper on the alternate newspaper are significant at ($p < 0.001$) in the presence and absence of time and industry fixed effects. *The Atlanta Journal Constitution* and *The Boston Herald* are omitted due to lack of data for another major collocated newspaper.

Firm Specific Media Coverage

While our theorizing regarding media, as well as our subsequent empirical investigation, has focused on the technological sector (i.e., the ISC3), it is also plausible that the majority of discourse is actually firm-specific. As a result, the theoretical linkages between any media coverage and the decision to invest in a collocated versus remotely located firm would be undermined and the empirical correlation would likely be spurious or driven by the firm-specific media. To examine if this is potentially true, we randomly sample 100 firms from our sample and investigate the media coverage which these nascent ventures have received prior to their first-stage funding.

Three observations are gleaned from this investigation. First, only 22% of entrepreneurs have received any media coverage prior to first round funding, suggesting that media coverage before capital acquisition is rare. Recall that other investigations, such as Pollock et al. (2008), occur at the time of IPO (creating a significant selection bias in terms of longevity and quality over the marginal entrepreneur). Second, the maximum amount of media coverage received by a single entrepreneur is two articles in the sample (observed on 3% of the sample). Once again, this is not surprising. For example, Aggarwal and Singh (2013) find that the mean blog coverage of a single venture (arguably a much less stringent measure of coverage as blogs are not physically constrained by column inches and are not subject to editorial controls) after the first round of funding is 18 articles per round across the entire blogosphere (and only 6 articles in popular blogs (Aggarwal and Singh 2013)). Once again we note that this is conditional upon multiple rounds of funding. Third, only a single article was from one of the vendors chosen from our

sample (*The New York Times*). Instead, most coverage came in the form of press releases or other self-promotion materials well after the venture had received funding. Given these observations, as well as the fact that our measure of media change is scaled to the thousands to increase interpretability, we believe that firm specific media coverage is not biasing the results of our investigation.

Variation in Effects Across Time

Our next potential confound is the possibility that these effects are varying over time. Inasmuch as the speed and capabilities of varying ICTs has increased exponentially since the advent of the dotcom boom, it is plausible that the importance of colocation is dwindling over time. While this possibility does not invalidate our theory, because a mitigation of the marginal willingness to extend beyond geographic boundaries is observed, it does sharply impact the implications of our research for the flat earth hypothesis (Friedman 2006; Gefen and Carmel 2008; Mithas and Whitaker 2007). To examine these potentially changing dynamics we take two approaches. In the first, we split our sample before and after 1995 (i.e., the Netscape IPO which is often heralded as the beginning of the dotcom boom; Goldfarb et al. 2007), and replicate equation 1. This strategy allows us to observe if the marginal effect in the hypothesized moderations is changing over time. Results are in Tables A6 and A7. Second, we interact our indicator of colocation with the time fixed effects and then replicate the estimations from equation 1. This strategy allows us to observe if the marginal importance of *colocation* is changing over time. Results are in Table A8.

Findings in Tables A6 and A7 provide several cogent insights into the changing dynamics of the effect of media and herding across time. First, we see that the relative number of VC dyads is heavily weighted toward the dotcom boom side of the sample (i.e., private equity investment exploded after the Netscape IPO, which is consistent with conventional knowledge on VC capital disbursements; Gompers 1994). This is further observed in the number of observable counterfactuals for the 1:5 match observed in Table A4. Second, we see across both samples a consistent correlation between *Colocation* and *Herding* with first round funding reception. Further, the effect of *Media*, both pre-boom consistent appears in the fully specified models and universally manifests in the post-boom models. Finally, we observe consistent negative and significant interactions between our hypothesized variables and colocation (with the exception of *Herding* in Columns 3 and 4 of Table A6). All else equal, this suggests that the effect of our moderating variables on the colocation constraint is likely increasing over time. Turning to Table A8, interesting findings emerge as well. In both models we see no consistent evidence of moderation of the colocation constraint in funding IT entrepreneurs over time. As a result, we conclude that time dynamics are not playing a significant role.

Table A6. Replication of Base Results Before the Dot Com Boom (1995)								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Estimator	Logit				Rare Events Logit			
Dependent Variable	Funded	Funded	Funded	Funded	Funded	Funded	Funded	Funded
Colocation	0.507*** (0.124)	0.619*** (0.133)	0.603*** (0.141)	0.656*** (0.144)	0.653*** (0.0743)	0.750*** (0.0799)	0.852*** (0.0835)	0.889*** (0.0862)
Media	0.0554 (0.0703)	0.169** (0.0861)	0.0537 (0.0702)	0.158* (0.0874)	0.0545 (0.0409)	0.138*** (0.0480)	0.0469 (0.0405)	0.0990** (0.0487)
Herding	0.220*** (0.0729)	0.216*** (0.0731)	0.285*** (0.0868)	0.247*** (0.0874)	0.223*** (0.0416)	0.222*** (0.0418)	0.359*** (0.0502)	0.338*** (0.0511)
Media * Colocation		-0.332** (0.130)		-0.301** (0.138)		-0.260*** (0.0760)		-0.155* (0.0793)
Herding * Colocation			-0.202 (0.135)	-0.0986 (0.147)			-0.363*** (0.0669)	-0.324*** (0.0721)
Patent Originality	0.238 (0.251)	0.228 (0.251)	0.229 (0.252)	0.224 (0.251)	0.275** (0.136)	0.270** (0.136)	0.260* (0.136)	0.259* (0.136)
ln(Entre Age)	0.121** (0.0611)	0.112* (0.0613)	0.120* (0.0612)	0.112* (0.0613)	0.145*** (0.0365)	0.140*** (0.0366)	0.144*** (0.0366)	0.141*** (0.0367)
Herfindahl	1.435*** (0.231)	1.428*** (0.230)	1.444*** (0.231)	1.433*** (0.231)	1.038*** (0.130)	1.036*** (0.130)	1.042*** (0.130)	1.041*** (0.130)
Entre Concentration	-0.00900*** (0.00145)	-0.00919*** (0.00145)	-0.00900*** (0.00145)	-0.00918*** (0.00146)	-0.0119*** (0.000919)	-0.0121*** (0.000923)	-0.0119*** (0.000922)	-0.0120*** (0.000926)
VC Concentration	0.0204*** (0.00281)	0.0205*** (0.00281)	0.0206*** (0.00282)	0.0206*** (0.00282)	0.0173*** (0.00156)	0.0172*** (0.00156)	0.0175*** (0.00156)	0.0174*** (0.00156)
Firm Age	-0.0163*** (0.00341)	-0.0162*** (0.00341)	-0.0163*** (0.00342)	-0.0162*** (0.00341)	-0.0149*** (0.00250)	-0.0147*** (0.00250)	-0.0148*** (0.00251)	-0.0147*** (0.00250)
Firm Size	-0.0707*** (0.0101)	-0.0710*** (0.0101)	-0.0711*** (0.0101)	-0.0711*** (0.0101)	-0.0472*** (0.00628)	-0.0471*** (0.00629)	-0.0476*** (0.00631)	-0.0475*** (0.00632)
PrevSpending	0.0365*** (0.00862)	0.0367*** (0.00867)	0.0363*** (0.00863)	0.0366*** (0.00868)	0.0191*** (0.00321)	0.0190*** (0.00320)	0.0188*** (0.00320)	0.0187*** (0.00320)
Syndicate Colocation	-0.00718* (0.00410)	-0.00697* (0.00412)	-0.00700* (0.00409)	-0.00691* (0.00411)	-0.00713** (0.00296)	-0.00699** (0.00296)	-0.00684** (0.00296)	-0.00678** (0.00297)
Constant	14.39 (622.7)	13.91 (483.6)	13.60 (426.3)	14.77 (758.0)	-0.389 (0.404)	-0.378 (0.404)	-0.417 (0.405)	-0.407 (0.405)
Zone Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,125	4,125	4,125	4,125	6,615	6,615	6,615	6,615

Robust standard errors in parentheses (Clustered on the VC)

***p < 0.01, **p < 0.05, *p < 0.1

Table A7. Replication of Base Results After the Dot Com Boom Starts (Post 1995)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Estimator	Logit				Rare Events Logit			
Dependent Variable	Funded	Funded	Funded	Funded	Funded	Funded	Funded	Funded
Colocation	1.388*** (0.0353)	1.403*** (0.0358)	1.417*** (0.0369)	1.421*** (0.0370)	1.424*** (0.0270)	1.438*** (0.0272)	1.450*** (0.0280)	1.453*** (0.0280)
Media	0.223*** (0.0325)	0.272*** (0.0378)	0.225*** (0.0325)	0.260*** (0.0382)	0.170*** (0.0234)	0.227*** (0.0275)	0.173*** (0.0234)	0.217*** (0.0279)
Herding	0.121*** (0.0184)	0.122*** (0.0184)	0.152*** (0.0215)	0.145*** (0.0219)	0.118*** (0.0131)	0.121*** (0.0131)	0.151*** (0.0160)	0.144*** (0.0162)
Media * Colocation		-0.147** (0.0574)		-0.105* (0.0614)		-0.155*** (0.0405)		-0.122*** (0.0430)
Herding * Colocation			-0.0936*** (0.0345)	-0.0714* (0.0370)			-0.0837*** (0.0241)	-0.0590** (0.0256)
Patent Originality	0.0545 (0.0641)	0.0547 (0.0641)	0.0558 (0.0641)	0.0557 (0.0641)	0.0288 (0.0476)	0.0287 (0.0477)	0.0296 (0.0476)	0.0292 (0.0477)
ln(Entre Age)	0.0835*** (0.0186)	0.0834*** (0.0186)	0.0829*** (0.0186)	0.0829*** (0.0186)	0.0778*** (0.0143)	0.0779*** (0.0143)	0.0767*** (0.0143)	0.0771*** (0.0143)
Herfindahl	0.839*** (0.0590)	0.839*** (0.0590)	0.839*** (0.0590)	0.840*** (0.0590)	0.865*** (0.0463)	0.864*** (0.0463)	0.866*** (0.0463)	0.865*** (0.0463)
Entre Concentration	-0.00161*** (0.0000748)	-0.00160*** (0.0000749)	-0.00161*** (0.0000748)	-0.00160*** (0.0000749)	-0.00188*** (0.0000643)	-0.00186*** (0.0000644)	-0.00187*** (0.0000642)	-0.00186*** (0.0000644)
VC Concentration	0.00401*** (0.000185)	0.00400*** (0.000185)	0.00401*** (0.000185)	0.00400*** (0.000185)	0.00344*** (0.000146)	0.00343*** (0.000146)	0.00343*** (0.000146)	0.00342*** (0.000146)
Firm Age	-0.0104*** (0.00100)	-0.0104*** (0.00101)	-0.0104*** (0.00101)	-0.0104*** (0.00101)	-0.0101*** (0.000853)	-0.0102*** (0.000853)	-0.0102*** (0.000853)	-0.0102*** (0.000853)
Firm Size	-0.0378*** (0.00289)	-0.0378*** (0.00289)	-0.0379*** (0.00290)	-0.0379*** (0.00290)	-0.0411*** (0.00249)	-0.0412*** (0.00249)	-0.0412*** (0.00249)	-0.0412*** (0.00249)
PrevSpending	0.00560*** (0.000562)	0.00560*** (0.000561)	0.00561*** (0.000561)	0.00561*** (0.000561)	0.00501*** (0.000401)	0.00502*** (0.000401)	0.00502*** (0.000401)	0.00503*** (0.000401)
Syndicate Colocation	0.00474*** (0.00175)	0.00477*** (0.00175)	0.00482*** (0.00175)	0.00483*** (0.00175)	0.00458*** (0.00122)	0.00460*** (0.00122)	0.00460*** (0.00122)	0.00461*** (0.00122)
Constant	0.426*** (0.126)	0.419*** (0.126)	0.418*** (0.126)	0.415*** (0.126)	-0.981*** (0.0938)	-0.990*** (0.0939)	-0.991*** (0.0939)	-0.995*** (0.0939)
Zone Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	31,100	31,100	31,100	31,100	105,271	105,271	105,271	105,271

Robust standard errors in parentheses (Clustered on the VC)

***p < 0.01, **p < 0.05, *p < 0.1

Table A8. Interaction of Colocation with Time		
	(1)	(2)
Estimator	Logit	Rare Events Logit
Dependent Variable	Funded	Funded
Colocation	0.849** (0.378)	1.156*** (0.213)
Colocation * 1986	0.0456 (0.469)	-0.456* (0.267)
Colocation * 1987	-0.145 (0.533)	-0.325 (0.310)
Colocation * 1988	-0.366 (0.461)	-0.392 (0.268)
Colocation * 1989	-0.356 (0.513)	-0.640** (0.290)
Colocation * 1990	-0.592 (0.548)	-0.587* (0.325)
Colocation * 1991	0.313 (0.723)	0.376 (0.425)
Colocation * 1992	-0.476 (0.597)	-0.855*** (0.301)
Colocation * 1993	-0.620 (0.565)	-0.355 (0.371)
Colocation * 1994	0.203 (0.539)	-0.258 (0.291)
Colocation * 1995	-0.0223 (0.436)	-0.228 (0.251)
Colocation * 1996	0.218 (0.402)	-0.100 (0.231)
Colocation * 1997	0.584 (0.407)	0.185 (0.232)
Colocation * 1998	0.598 (0.400)	0.219 (0.228)
Colocation * 1999	0.598 (0.383)	0.378* (0.218)
Colocation * 2000	0.545 (0.381)	0.299 (0.216)
Colocation * 2001	0.599 (0.407)	0.397* (0.233)
Colocation * 2002	0.274 (0.431)	-0.0512 (0.248)
Colocation * 2003	0.179 (0.423)	-0.132 (0.243)
Colocation * 2004	0.660 (0.431)	0.217 (0.246)
Colocation * 2005	0.0231 (0.405)	-0.247 (0.236)
Colocation * 2006	0.550 (0.413)	0.0705 (0.239)
Media	0.224*** (0.0297)	0.163*** (0.0202)
Constant	0.0718 (0.133)	-1.288*** (0.0998)
Controls	Included	Included
Zone Fixed Effects	Yes	Yes
Time Fixed Effects	Yes	Yes
Industry Fixed Effects	Yes	Yes
Observations	35,315	111,906

Alternate Mechanisms and Controls

Our final set of robustness checks relate to other possible mechanisms by which the colocation constraint is mitigated. The first possibility is that syndicate size dominates syndicate colocation as the effective means by which information is channeled to the VC. Although Sorenson and Stuart (2001) original conceptualization implicated colocation by the syndicate as the primary method by which the focal VC would extract information about the entrepreneur from their social network, it is plausible that digital markets function in a strikingly different fashion. To the extent that the increased digitization of the firm and the entrepreneur might allow an IT entrepreneur, as compared with an entrepreneur in pharma or biotech, to increasingly digitize otherwise explicit pieces of information, it is plausible that the number of opportunities to overlap social networks dominates the number of colocated social network connections.² If this were the case, then the effective proxy for the ability of the syndicate to collect information about the entrepreneur would be the size of the syndicate, as opposed to the syndicate colocation measure currently used. We therefore replicate our current analysis using the size of the syndicate. Results are in Table A9 and remain consistent.

The second possibility is that the local market is being sufficiently saturated by the direct effect of media and herding increases that the VC is forced to look elsewhere in order to fund an entrepreneur in the focal technology market. As certain technologies come into salience, and are seen as more legitimate to the VCs, local demand to fund such ventures will rise. If local markets for such investments are saturated, VCs who perceive value in these technology spaces may look elsewhere. Since the odds of non-colocated funding ties are small to begin with, for the reasons discussed above, the marginal effect of media discourse and the resulting demand for non-colocated ties will be larger. It is well-accepted that VCs operate in socialized settings where they face pressure from their investors and peer VCs to invest in specific industries that are experiencing a time-dependent boom (Lerner 2002). If this is the case, then the influence of these stakeholders will nudge the VC toward funding a non-colocated entrepreneur in a technology sector experiencing positive media discourse, on the margin (Sunstein 2002). While yielding the same effect as our arguments, the net effect is by a singularly different mechanism (i.e., local market saturation as opposed to a conscious or unconscious uncoupling of the constraint).

With this in mind, measuring degree of local saturation is inherently difficult. To the degree that VentureXpert does not contain information on unfunded entrepreneurs, capturing precisely the extent of the unfunded market is impossible. To remedy this concern, we proxy the size of the local market (i.e., the number of local entrepreneurs) with the number of funded local entrepreneurs within the focal entrepreneur's ISC2 that period. Inasmuch as the location fixed effects should account for the local propensity for entrepreneurs of a certain ilk to found the firm in the local area, this proxy should serve as a reasonable control. We then replicate our analysis from equation 1. Results are in Table A10 and remain consistent.

²We thank the anonymous reviewer for raising this point.

Table A9. Replication of Base Results Substituting Syndicate Size for Syndicate Colocation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Estimator	Logit				Rare Events Logit			
Dependent Variable	Funded	Funded	Funded	Funded	Funded	Funded	Funded	Funded
Colocation	1.312*** (0.0336)	1.336*** (0.0342)	1.344*** (0.0353)	1.352*** (0.0354)	1.306*** (0.0249)	1.330*** (0.0253)	1.344*** (0.0261)	1.352*** (0.0261)
Media	0.225*** (0.0296)	0.292*** (0.0344)	0.227*** (0.0296)	0.282*** (0.0348)	0.164*** (0.0202)	0.236*** (0.0235)	0.168*** (0.0202)	0.224*** (0.0238)
Herding	0.140*** (0.0177)	0.142*** (0.0176)	0.173*** (0.0207)	0.162*** (0.0210)	0.136*** (0.0123)	0.140*** (0.0123)	0.179*** (0.0147)	0.169*** (0.0150)
Media * Colocation		-0.207*** (0.0530)		-0.173*** (0.0567)		-0.208*** (0.0357)		-0.166*** (0.0380)
Herding * Colocation			-0.0996*** (0.0332)	-0.0617* (0.0357)			-0.114*** (0.0227)	-0.0778*** (0.0241)
Patent Originality	0.0747 (0.0614)	0.0748 (0.0614)	0.0756 (0.0614)	0.0753 (0.0614)	0.0635 (0.0442)	0.0625 (0.0442)	0.0635 (0.0442)	0.0626 (0.0442)
ln(Entre Age)	0.0754*** (0.0175)	0.0749*** (0.0175)	0.0747*** (0.0175)	0.0746*** (0.0175)	0.0822*** (0.0131)	0.0819*** (0.0131)	0.0809*** (0.0131)	0.0811*** (0.0131)
Herfindahl	0.855*** (0.0563)	0.855*** (0.0563)	0.855*** (0.0563)	0.855*** (0.0563)	0.884*** (0.0430)	0.882*** (0.0430)	0.884*** (0.0430)	0.883*** (0.0431)
Entre Concentration	-0.00158*** (0.0000734)	-0.00156*** (0.0000735)	-0.00157*** (0.0000734)	-0.00156*** (0.0000735)	-0.00188*** (0.0000627)	-0.00186*** (0.0000627)	-0.00187*** (0.0000626)	-0.00186*** (0.0000626)
VC Concentration	0.00403*** (0.000183)	0.00402*** (0.000183)	0.00403*** (0.000183)	0.00402*** (0.000183)	0.00352*** (0.000145)	0.00351*** (0.000145)	0.00350*** (0.000145)	0.00350*** (0.000145)
Firm Age	-0.0106*** (0.000959)	-0.0106*** (0.000960)	-0.0106*** (0.000959)	-0.0106*** (0.000960)	-0.0106*** (0.000799)	-0.0107*** (0.000799)	-0.0107*** (0.000799)	-0.0107*** (0.000799)
Firm Size	-0.0388*** (0.00273)	-0.0389*** (0.00273)	-0.0389*** (0.00273)	-0.0390*** (0.00273)	-0.0398*** (0.00225)	-0.0399*** (0.00225)	-0.0400*** (0.00225)	-0.0400*** (0.00225)
PrevSpending	0.00527*** (0.000543)	0.00528*** (0.000543)	0.00528*** (0.000543)	0.00528*** (0.000543)	0.00480*** (0.000382)	0.00482*** (0.000382)	0.00482*** (0.000382)	0.00483*** (0.000382)
Syndicate Size	-0.0229*** (0.00751)	-0.0234*** (0.00750)	-0.0225*** (0.00750)	-0.0231*** (0.00750)	-0.0238*** (0.00575)	-0.0237*** (0.00574)	-0.0230*** (0.00575)	-0.0231*** (0.00574)
Constant	0.183 (0.121)	0.174 (0.122)	0.174 (0.121)	0.170 (0.122)	-1.243*** (0.0899)	-1.257*** (0.0900)	-1.257*** (0.0900)	-1.264*** (0.0900)
Zone Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	39709	39709	39709	39709	111,906	111,906	111,906	111,906

Table A10. Replication of Base Results Controlling for Local Market Saturation								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Estimator	Logit				Rare Events Logit			
Dependent Variable	Funded	Funded	Funded	Funded	Funded	Funded	Funded	Funded
Colocation	1.339*** (0.0339)	1.369*** (0.0346)	1.383*** (0.0358)	1.393*** (0.0359)	1.342*** (0.0253)	1.374*** (0.0257)	1.397*** (0.0266)	1.407*** (0.0267)
Media	0.218*** (0.0295)	0.296*** (0.0344)	0.220*** (0.0295)	0.282*** (0.0348)	0.162*** (0.0202)	0.248*** (0.0235)	0.167*** (0.0202)	0.230*** (0.0238)
Herding	0.136*** (0.0178)	0.138*** (0.0177)	0.179*** (0.0207)	0.166*** (0.0210)	0.128*** (0.0123)	0.133*** (0.0123)	0.187*** (0.0147)	0.175*** (0.0149)
Media * Colocation		-0.241*** (0.0529)		-0.193*** (0.0564)		-0.246*** (0.0357)		-0.185*** (0.0379)
Herding * Colocation			-0.132*** (0.0333)	-0.0897** (0.0358)			-0.154*** (0.0228)	-0.114*** (0.0242)
Patent Originality	0.0655 (0.0614)	0.0653 (0.0614)	0.0663 (0.0614)	0.0659 (0.0614)	0.0500 (0.0442)	0.0485 (0.0442)	0.0493 (0.0442)	0.0483 (0.0442)
In(Entre Age)	0.0720*** (0.0176)	0.0714*** (0.0176)	0.0710*** (0.0176)	0.0708*** (0.0176)	0.0792*** (0.0131)	0.0788*** (0.0131)	0.0772*** (0.0131)	0.0774*** (0.0131)
Herfindahl	0.869*** (0.0564)	0.870*** (0.0565)	0.870*** (0.0565)	0.871*** (0.0565)	0.895*** (0.0431)	0.893*** (0.0431)	0.896*** (0.0431)	0.895*** (0.0431)
Entre Concentration	-0.00109*** (0.0000917)	-0.00105*** (0.0000919)	-0.00107*** (0.0000917)	-0.00104*** (0.0000919)	-0.00131*** (0.0000746)	-0.00127*** (0.0000747)	-0.00127*** (0.0000746)	-0.00125*** (0.0000747)
VC Concentration	0.00419*** (0.000184)	0.00418*** (0.000184)	0.00419*** (0.000184)	0.00418*** (0.000184)	0.00370*** (0.000146)	0.00370*** (0.000146)	0.00369*** (0.000146)	0.00369*** (0.000146)
Firm Age	-0.0106*** (0.000959)	-0.0106*** (0.000960)	-0.0107*** (0.000960)	-0.0106*** (0.000960)	-0.0106*** (0.000800)	-0.0106*** (0.000800)	-0.0106*** (0.000800)	-0.0106*** (0.000801)
Firm Size	-0.0387*** (0.00273)	-0.0388*** (0.00273)	-0.0388*** (0.00273)	-0.0389*** (0.00273)	-0.0395*** (0.00225)	-0.0396*** (0.00225)	-0.0397*** (0.00225)	-0.0397*** (0.00225)
PrevSpending	0.00520*** (0.000543)	0.00520*** (0.000543)	0.00521*** (0.000542)	0.00521*** (0.000542)	0.00477*** (0.000382)	0.00479*** (0.000382)	0.00478*** (0.000382)	0.00479*** (0.000382)
Syndicate Size	0.00304* (0.00159)	0.00312** (0.00159)	0.00318** (0.00159)	0.00320** (0.00159)	0.00286** (0.00114)	0.00294*** (0.00114)	0.00297*** (0.00114)	0.00300*** (0.00114)
Local Saturation	-0.00143*** (0.000159)	-0.00149*** (0.000159)	-0.00149*** (0.000160)	-0.00152*** (0.000160)	-0.00174*** (0.000128)	-0.00180*** (0.000129)	-0.00183*** (0.000129)	-0.00186*** (0.000129)
Constant	0.0300 (0.121)	0.0140 (0.121)	0.0146 (0.121)	0.00678 (0.121)	-1.407*** (0.0895)	-1.431*** (0.0897)	-1.433*** (0.0896)	-1.444*** (0.0898)
Zone Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	39709	39709	39709	39709	111,906	111,906	111,906	111,906

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