

Investment 2050: the diverse founder opportunity

Outlining the research on the disproportionate allocation of venture capital across ethnic groups and sex, and the opportunity to invest in the underrepresented.

By Jason Allen

Introduction

Much has been written on bias in venture capital. And a considerable amount of literature has addressed how that bias impacts diligence protocols, VC involvement, investment size and contracts — which, in turn, lead to worse investment outcomes¹. Significantly less attention has been given measuring the imbalance. Yet in taking the baselines for granted and using capital granted to their white male counterparts as the index, authors leave themselves exposed to the supply-side argument. That is, many firms, VC firms included, continue to argue away the bias by stipulating that there aren't enough qualified women and people of color to fund². This is akin to blaming the fictitious *skills gap* on the equally dubious lack of qualified labor³.

And, unfortunately, there is little in the way of research that connects the supply side data with the flow of venture capital. We have found that the magnitude of the disparity between the funds invested in underrepresented founders and their white male counterparts come into focus when consideration is given to the backgrounds of founders who are who are believed to be more likely to succeed, and the supply of underrepresented founders with those backgrounds are surfaced. In this article, we attempt to advance the conversation on the disparity in funding of underrepresented VC-backed founders by quantifying the supply of skilled, qualified founders relative to the proportion of venture capital they receive.

Notwithstanding the lack of supply-side research, it is peculiar that funding disparities across ethnicity and gender persist in a field where top tier returns are driven by building specialized origination programs⁴ created to identify *unicorns*. VC firms differentiate themselves through deal origination capabilities. And yet gender bias

¹ D. Hsu, O. Bengtsson, "Ethnic Matching in the U.S. Venture Capital Market," Working Paper, Wharton Business School & Lund University, 2012

² <https://www.usnews.com/news/stem-index/articles/2015/06/29/gender-racial-gaps-widen-in-stem-fields>

³ Peter Capelli "Why Good People Can't Get Jobs: The Skills Gap and What Companies Can Do About It," Wharton Digital Press, 2012

⁴ D. Teten, C. Farmer, "Where Are the Deals? Private Equity and Venture Capital Fund's Best Practices in Sourcing New Investments," The Journal of Private Equity, 2010

(Malstrom, Johanson and Wincent, 2017), and ethnicity bias (Hsu and Bengtsson, 2012) show no sign of waning.

The flipside of the lack of attention and rigor given to quantifying the bias is the opportunity for firms focused on addressing bias. The supply of qualified underrepresented founders as measured against the flows of venture capital across ethnic groups indicates the size of that opportunity. Our firm has taken on a series of policies to ensure we not only avoid costly biases, but use them to identify opportunities to invest. In doing so, we believe there is the potential for outsized returns. For example, Dan Lovallo and Olivier Sibony found that executives were able to achieve rates of return 7% higher after implementing proactive steps towards reducing cognitive biases⁵. And Hsu and Bengtsson found that firms that avoided bias during diligence and while harvesting growth had increased IPO and M&A exits¹.

Approach

At the heart of the issue is a disconnect between the core drivers of founder performance and the supply of underrepresented groups with those drivers. We build on the literature addressing the supply and demand of underrepresented groups⁶ by summarizing what has been shown to drive the success of VC-backed founders, and comparing the trends of underrepresented groups with those factors relative to their white male counterparts with those same attributes.

With a clear sense of the proportion of underrepresented founders with success predicting attributes, and measurements of their relative proportion of VC funding, we then make inferences about the size of the opportunity.

Finally, we indicate a set of internal policies aimed at preventing bias and providing our team with an edge.

Success Attributes

There is conflicting research on the relationship between demographics like age and founder success. For instance, First Round Capital, a preeminent early-stage venture capital firm, found correlation between success and younger founders⁷. Meanwhile, The Kauffman Firm, in one of the industries longest and most robust longitudinal studies, found that older founders do better.

⁵ <http://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/the-case-for-behavioral-strategy>

⁶ S. Wang, P. Gompers, "Diversity in Innovation," Working paper, Harvard Business School, 2017

⁷ <https://hbr.org/2016/05/4-factors-that-predict-startup-success-and-one-that-doesnt>

While the intrinsic role that demographics (such as age) play on the success of a firm are still up for debate⁸, there is consensus that education and experience are highly correlated with success. But how, exactly? Is it the level of education, the quality of education or the academic pursuits that are the underlying reason why education is correlated with success? The answer is complicated. Research shows correlation between *quality of education* and the ability of founders to raise capital (Wang and Gompers) influences their ability to succeed (First Round Capital). Meanwhile *level of education*, as measured by the level of degree obtained, has been shown to have an actual causal relationship in the success of founders (Cotel and Coleman). This brings us to our first success attribute:

Founders with relatively higher degrees from top schools tend to outperform⁹.

How exactly experience impacts founder success could also use clarification. For example, does simply working in a particular field provide the experience needed, or is it working for a specific set of companies within that field that matters? Some researchers have found prior experience is an important aspect of human capital in predicting entrepreneurial success (Brüderl et al., 1992; Cooper et al., 1994; Head, 2001; Kocak et al., 2010; Van Praag, 2003). However, these findings are not unanimous. The most conclusive research comes again from the Kaufmann study which indicates that founders that have more experience germane to the industry of the startup are less likely to fail, and that serial entrepreneurs are more likely to have an M&A exit. Hence, the second success attribute:

Founders with more domain expertise fare better, and serial entrepreneurs are more likely to found startups that get acquired.

While there is an entire specialty of venture capitalists dedicated to exploring other attributes that drive founder success¹⁰, much of that research is reserved for black box

⁸ The conclusions on the impact of gender and age according to a study completed by First Round Capital <https://hbr.org/2016/05/4-factors-that-predict-startup-success-and-one-that-doesnt> and those by the longitudinal study commissioned by The Kauffman Firm on inc.com/2tkJnSj

⁹ It should be noted that the badge, top school is a subjective one. And the amongst those commonly given the top school moniker – Ivy league, Stanford, Berkeley and MIT – success is far from normally distributed. That said, investor predilection for certain schools, is evidence of their perceptions about the quality of said schools. And it is therefore, part of a self-fulfilling bias that's beyond the scope of this article.

¹⁰ The Quantitative VC, TechnCrunch, Jun 1, 2013

proprietary formulae. That said, there is no greater consensus on the correlation between success and any other factors than those of education and experience. With the prototype of a successful founder established, we can turn to the imbalance of venture capital allocation.

Data

In this article, we examine statistics compiled from 42,502 profiles of venture-backed founders (Wang and Gompers) from 1990 through 2014. Given the sample size and time range, we believe this dataset can be used to make general inferences about investor preference for quality of education, academic interests and experience. More specifically, we extract summary statistics on a founder's school, major and most common prior employers.

We then conduct a time series statistical analysis of STEM degrees granted across ethnic and gender groups, filtering for relevant fields of study as grouped by the National Center for Education Statistics. Levels of degrees attained are preserved to analyze the depth of education in relevant fields.

Finally, we provide analysis on the trends of underrepresented groups in industries that serve as good feeders for the VC-backed companies. We conclude with a look at how the penetration rates in those industries compare to the rates of funding for underrepresented founders.

Analysis

While the role that Science, Technology, Engineering and Math (STEM)-based courses play in launching a company might seem obvious, the extent to which the most popular majors are comprised of STEM-related subjects is interesting. 10 of the top 20 majors for undergrads are STEM related, and those 10 comprise 52.8% of the majors of funded founders (Figure 1). 14 of the top 20 majors for graduates are STEM related and those 14 comprise 64% of the founders funded (Figure 2). The predilection for STEM degrees amongst venture capitalists is clear.

During the period of 1990–2016, only 3.8% of VC-backed companies had Hispanic founders; 0.4% had black founders; and 8.6% had female founders (Figure 3). So was there a dearth of minorities or women STEM graduates that might explain why there aren't more VC-funded companies with these underrepresented groups? It does not appear so.

Hispanics have continued to increase steadily as a percentage of undergraduate and masters STEM degrees conferred since the 1990s and have increased as a percentage of doctorate STEM degrees awarded since 2004 (Figure 4–6). And while the growth in Black undergraduate STEM degrees leveled off in 2000, Blacks have increased as a percentage of STEM-based Masters degrees conferred since the 1990s and have increased as a percentage of the STEM-based Doctorate degrees conferred since 2004 (Figure 4–6).

Hispanics should comprise 4%–12% of venture capital and Blacks should comprise 4%–11% of venture capital, according to the STEM supply argument.

Using the same logic, there's an even larger difference between the supply of women with STEM degrees and their allotment of VC funding. Women comprised 8.6% of the VC-backed founders during the period even though they typically account for 31%–35% of STEM degrees at the Bachelors, Masters and Doctorate level (Figure 7).

While a rigorous determination of the relative work expertise particular to the field of the startup that is up for funding requires significantly more time than we had for this article, there are other analogs for the supply of any group with relevant work experience. One proxy is a measurement of penetration in fields that require similar problem solving and analytical skills. Another is the penetration of the underrepresented group in industries that are feeders for VC-backed founder pipeline.

We assess the penetration of the underrepresented groups in fields requiring problem solving and analytical skills in Figures 9–11. Undoubtedly, launching a company requires a unique skill set. That said, given all ethnic groups ascribed prior positions in VC with prestige relative to positions in other demanding fields, one might draw observations from the difference in ethnic and gender composition across those fields. Said differently: if launching a company is just as sexy, or even more so than, those other fields, underrepresented groups are working at least as hard to become entrepreneurs. And according to their ability to score hire penetration rates in those fields, they should obtain more VC funding.

The disparity between VC-backed founders and consulting and banking penetration rates speaks to the extent of VC bias. For instance, the Wang and Gompers study (Figure 9) data on Black consultants and bankers, demonstrates a large supply of capable talent. While these numbers aren't as illustrative for Hispanics (Figure 10), they certainly are for female founders (Figure 11).

We can make inferences about the types of industries that feed the VC-backed founder pipeline by analyzing the past companies for which founders have worked (Figure 8). This serves as a baseline for our second proxy. The tech companies present in Figure 8 are represented in the industries shown in Figures 12–14. Across the board, the representation of women, Blacks and Hispanics — 31%, 6% and 6% respectively — speaks to how these groups are under-indexed in VC funding (Figure 3), given the relative proportion of them with the requisite experience.

Policies

What follows is a set of policies we have implemented to address and prevent VC bias:

- Internal development (training, apprenticeship)
Borrowing from concepts used to debunk the myth of the gap in labor supply¹¹, the fund will approach the problem from the perspective of a training gap, as opposed to a skills gap, and provide a suite of tools to help founders.
- Deliberately ethnically-diverse diligence teams & capital committees
Structured teams to avoid homily between VC partners and founding teams has been associated with worse investment outcomes (IPO or M&A)².
- Syndicate deals with other trusted venture capitalists addressing the problem
Demonstrating skill in selecting and adding value to other venture capitalists and reciprocal sharing of deal flow drives network effects, which, in turn, drive returns¹². We'll address this through publishing, partnering with thought leaders and building a consortium.
- Expanded geographic reach
Outsized returns often come from outside venture capital firm office locations¹. Our sourcing emphasizes geographic centers that over-index on STEM graduates and under-index on investment.

¹¹ Peter Capelli "Why Good People Can't Get Jobs: The Skills Gap and What Companies Can Do About It," Wharton Digital Press, 2012

¹² Hochberg, Yael V., Alexander Ljungqvist and Yang Lu (2007). "Networks as a Barrier to Entry and the Competitive Supply of Venture Capital." Working paper, Kellogg School of Management, Northwestern University and New York University.

Figure 1. Undergraduate Majors of VC-backed founders

Undergrad Majors			
	Major	Count	Percent
1	Electrical Engineering	1,205	14.3%
2	Computer Science	1,020	12.1%
3	Economics	585	7.0%
4	Business	580	6.9%
5	Engineering	387	4.6%
6	Mathematics	356	4.2%
7	Physics	342	4.1%
8	Mechanical Engineering	302	3.6%
9	Biology	278	3.3%
10	Chemistry	241	2.9%
11	Finance	213	2.5%
12	Computer Engineering	203	2.4%
13	Political Science	189	2.2%
14	Accounting	175	2.1%
15	History	147	1.8%
16	Marketing	144	1.7%
17	Psychology	122	1.5%
18	English	116	1.4%
19	Chemical Engineering	108	1.3%
20	Communication	94	1.1%
STEM Related			52.8%

Figure 2. Graduate Majors of VC-backed founders

Graduate Majors (Non MBA)			
	Major	Count	Percent
1	Computer Science	636	16.4%
2	Electrical Engineering	572	14.7%
3	Law	374	9.6%
4	Medicine	275	7.1%
5	Business	180	4.6%
6	Physics	165	4.3%
7	Engineering	163	4.2%
8	Chemistry	155	4.0%
9	Computer Engineering	116	3.0%
10	Biology	114	2.9%
11	Mechanical Engineering	83	2.1%
12	Economics	63	1.6%
13	Mathematics	50	1.3%
14	Science	49	1.3%
15	Chemical Engineering	38	1.0%
16	Material Science	36	0.9%
17	Biomedical Engineering	33	0.9%
18	Education	30	0.7%
19	Psychology	30	0.8%
20	Finance	28	0.7%
STEM Related			64.0%

Figure 3. Summary Statistics of VC Funded Companies 1990-2016

VC-Backed Entrepreneurs		
Gender	# of obs	% of total
Male	38,727	91.1%
Female	3,667	8.6%
Total	42,502	100.0%
Ethnicity	# of obs	% of total
White	33,809	79.5%
Asian	6,717	15.8%
Black	188	0.4%
Hispanic	1,599	3.8%
Total	42,502	100.0%

Figure 4. Black and Hispanic Undergraduate STEM Degrees Conferred

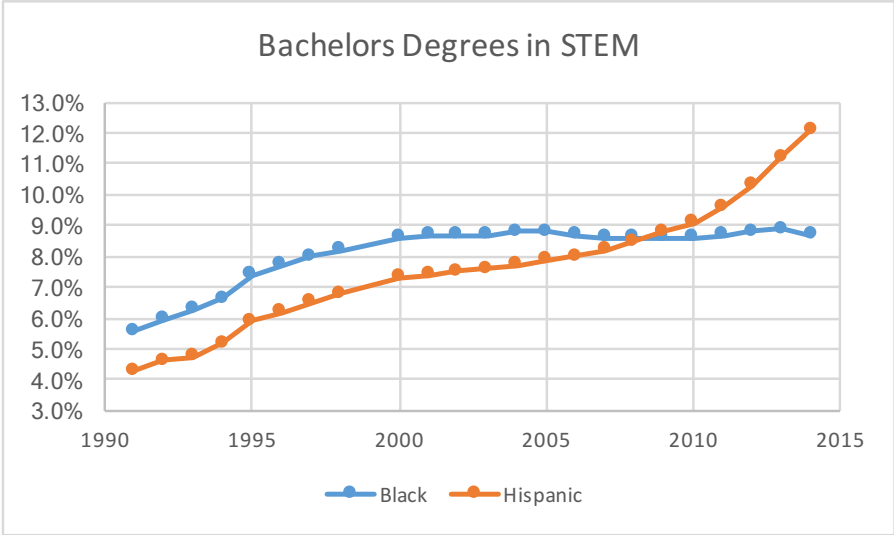


Figure 5. Black and Hispanic Masters STEM Degrees Conferred

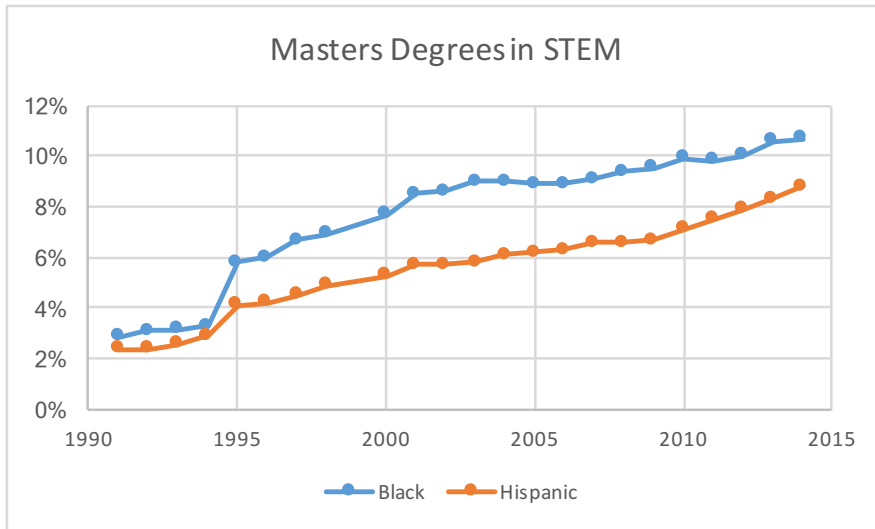


Figure 6. Black and Hispanic Doctorate STEM Degrees Conferred

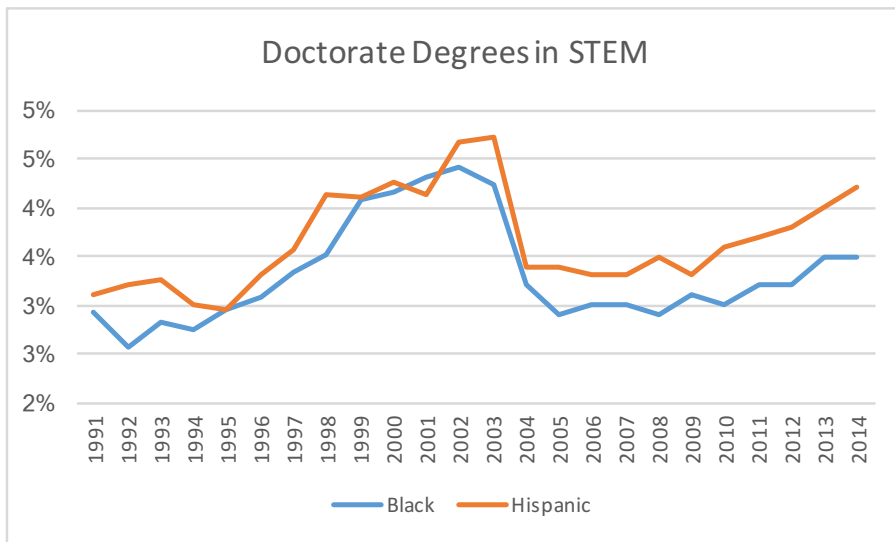


Figure 7. Women as a Percentage of STEM degrees

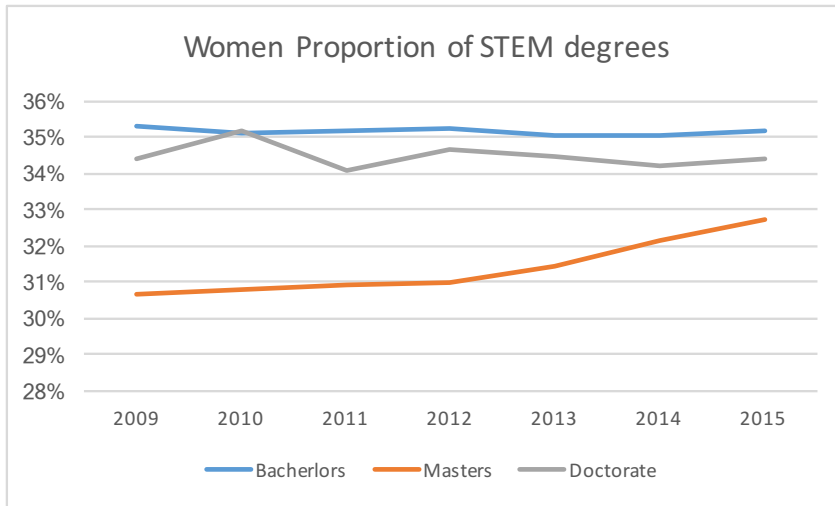


Figure 8. Past Employers that that feed the VC-backed founder pipeline

	Past Employer	Freq.	Percentage
1	Microsoft	557	1.56%
2	IBM	551	1.55%
3	Sun Microsystems	348	0.98%
4	Google	330	0.93%
5	Oracle	295	0.83%
6	McKinsey & Company	293	0.82%
7	Cisco Systems	282	0.79%
8	Intel	251	0.70%
9	Apple Computer	244	0.69%
10	Hewlett-Packard	219	0.61%
11	Yahoo	195	0.55%
12	Stanford University	175	0.49%
13	Goldman Sachs	166	0.47%
14	Motorola	152	0.43%
15	Accenture	119	0.33%
16	Andersen Consulting	117	0.33%
17	AT&T	104	0.29%
18	MIT	103	0.29%
19	Digital Equipment	99	0.28%
20	Bain & Company	95	0.27%
	Top 20 Total	4695	13.18%

Figure 9. African American entry rates in Venture Capital relative to other fields during 2010-2015

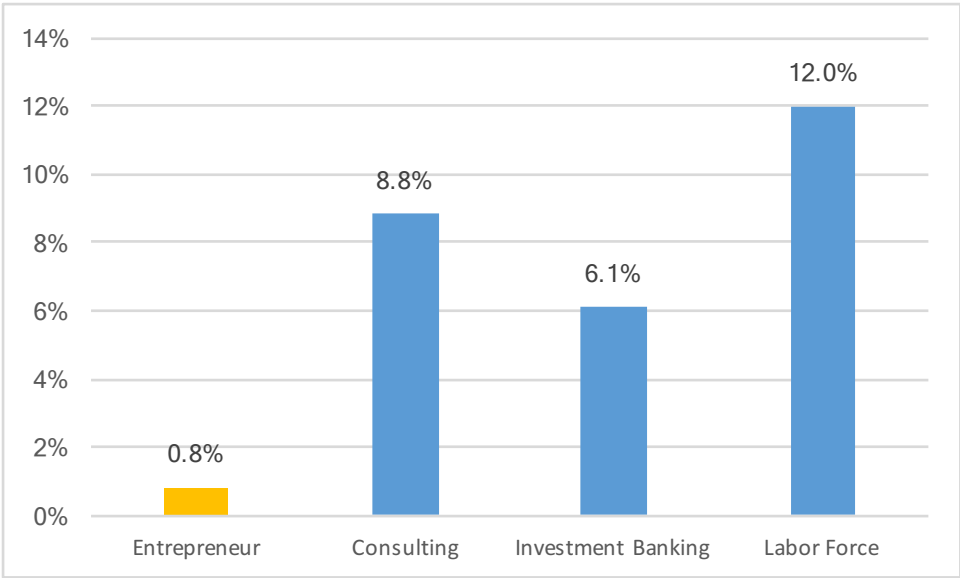


Figure 10. Hispanic entry rates in Venture Capital relative to other fields during 2010-2015

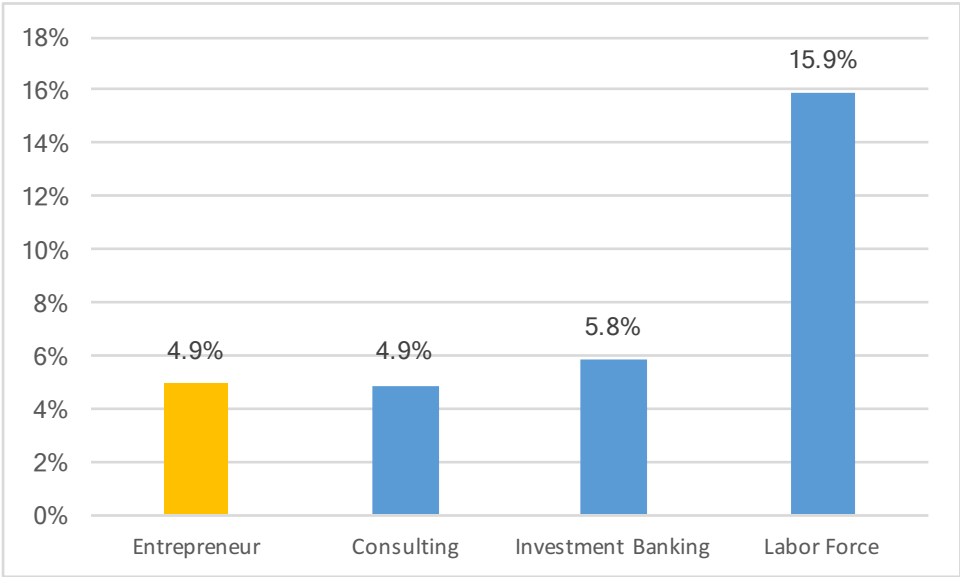


Figure 11. Women entry rates in Venture Capital relative to other fields during 2010-2015

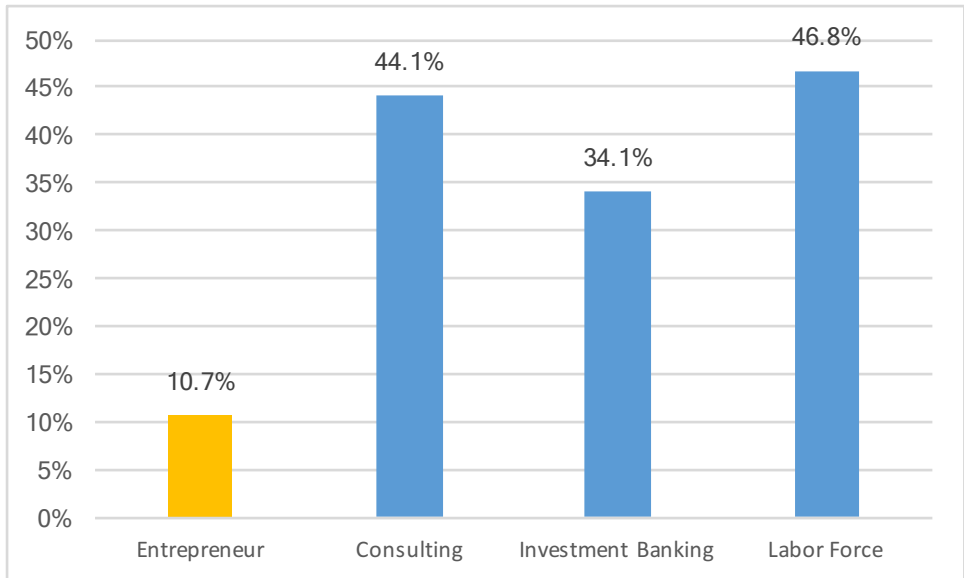


Figure 12. Women as a percentage of relevant tech industries 2006-2015

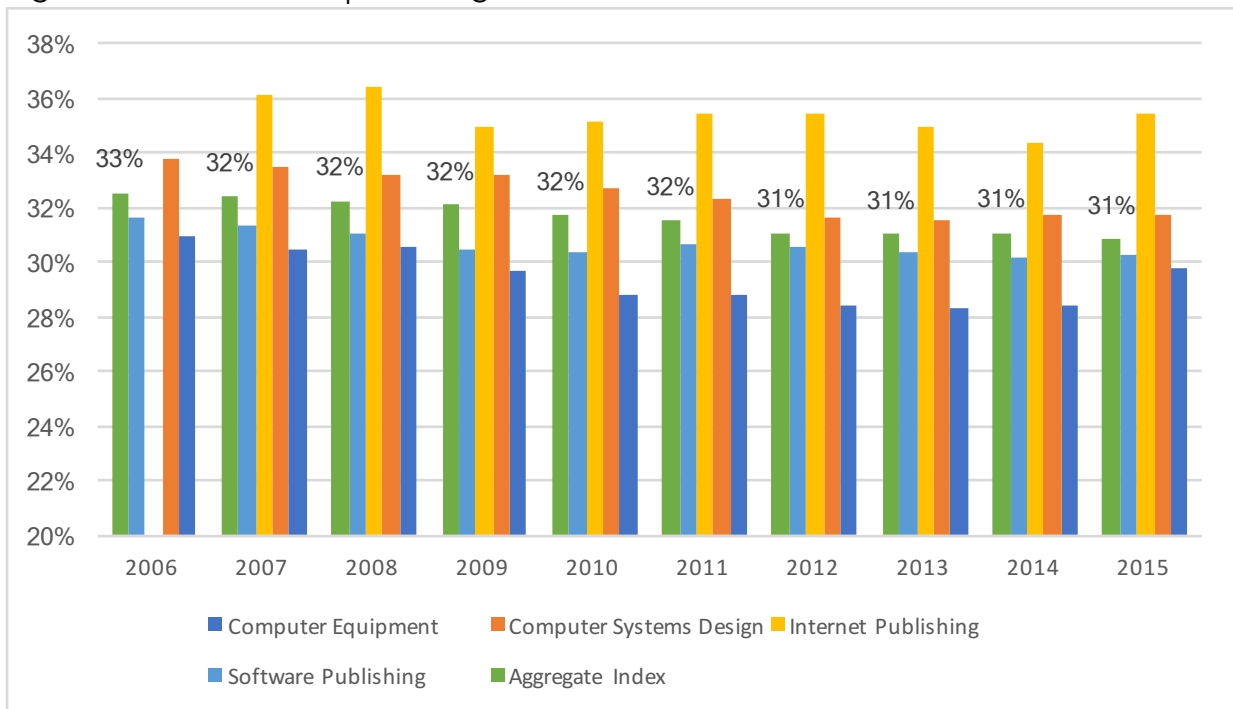


Figure 13. Blacks as a percentage of relevant tech industries 2006-2015

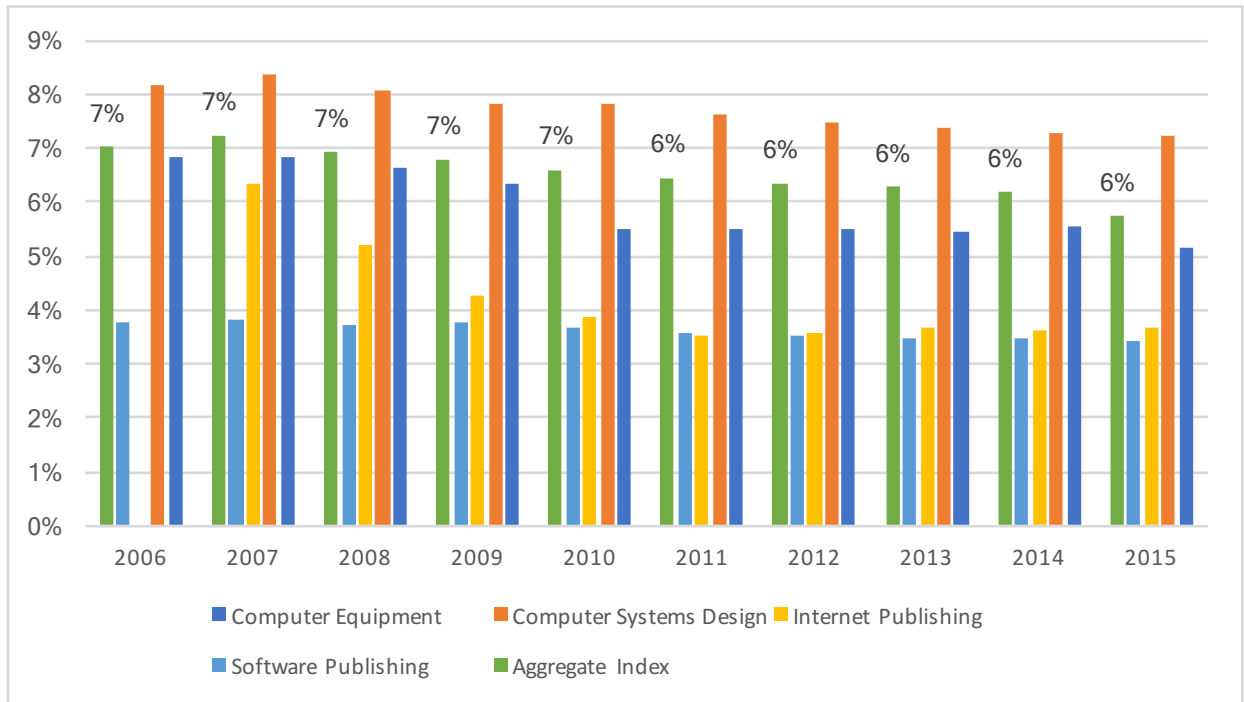


Figure 14. Hispanics as a percentage of relevant tech industries 2006-2015

