

# The Impact of Entrepreneurship Programs on Minorities

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Over the past decade, significant amounts of public and private resources have been directed toward entrepreneurship training and incubation programs. Despite this trend, there is little consensus on whether entrepreneurs are “born” or whether entrepreneurial abilities can be taught.<sup>1</sup> Moreover, we have little understanding of whether and how the effects of these programs differ across participants, which poses challenges for efficient allocation of resources.

In this paper we explore whether certain minority groups, specifically females and non-Caucasians, may be differentially affected by entrepreneurship programs by analyzing an entrepreneurship training and incubation program for undergraduate students in North America. We do this by comparing subsequent entrepreneurial activity between applicants who are accepted into the program with applicants who are program finalists but not accepted. We measure subsequent entrepreneurial activity by whether finalists work in the startup sector in the period just following the program, and whether they continue to work in the startup sector in the longer run.

We document three results. First, participation in the program is correlated with a 23 percentage point increase in the likelihood of subsequent startup activity in the short term for non-minorities, whereas the effect is less pronounced for minorities. However, the impact of the program is

more pronounced for minorities’ likelihood of ongoing, or longer run, startup activity compared to non-minorities for whom the estimated effect of the program on the likelihood of ongoing startup activity is small and statistically insignificant. Speculatively, this may be because the program expedites the time it takes male and Caucasian finalists to capture program benefits (e.g., networks, capital) they would eventually capture in the absence of the program. Third, the estimated longer run effect of the program for minorities appears to be almost large enough to offset the negative association between being a minority and subsequent entrepreneurial activity. These patterns are qualitatively similar when looking at the disaggregated minority categories, i.e., male versus female or Caucasian versus non-Caucasian. Taken together, these findings suggest that the program may be most effective at increasing the likelihood of pursuing entrepreneurship among people who may otherwise have more difficulty entering into these careers.

There are many reasons to believe that certain subgroups, like minorities, may disproportionately benefit from such programs because they offer resources that are otherwise difficult to secure for minorities. For instance, productive networks are an important input for entrepreneurial success (Granovetter, 2005) and existing evidence suggests that minorities have smaller and less connected networks than otherwise similar non-minorities (Ibarra, 1993; Aldrich and Waldinger, 1990; Seidel, Polzer and Stewart, 2000). In addition to resources, programs may provide minorities with knowledge that are otherwise difficult to access. For instance, Card and Giuliano (2016) find that participation in a gifted/high achiever (GHA) classroom leads to significant achievement gains for non-gifted participants, concen-

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<sup>1</sup>See Martin, McNally and Kay (2013) for a review.

trated among black and Hispanic students, and that these effects persist over time. Furthermore, females and non-Caucasians may face different barriers to entrepreneurship compared to male and Caucasian counterparts. For instance, minority and non-minority entrepreneurs differ in exposure to family self-employment (Dunn and Holtz-Eakin, 2000) and the amount of startup capital they have for their businesses (Fairlie and Robb, 2007). Minority entrepreneurs may also be more likely to face discrimination from investors and consumers (Blanchflower, 2003; Brooks et al., 2014). Our study suggests that the effect of entrepreneurship training is more pronounced for subgroups that may otherwise not have access to entrepreneurial opportunities and is consistent with the interpretation that such programs may help mitigate some of the systematic barriers to entrepreneurship faced by these groups. This finding is consistent with research that shows the program has larger effects on individuals with lower resources and capabilities in entrepreneurship prior to the program (Lyons and Zhang, 2016).

### I. Data and Empirical Strategy

We use data on program finalists from program inception in 2011 to 2015. During this period, 188 finalists were accepted into the program and 166 finalists were not accepted. We have complete data on 179 finalists who are accepted and 156 finalists who are not accepted into the program, and this is the sample we use for our analysis. We examine two measures of entrepreneurial activity: 1) Short Term: whether the finalist has worked with a startup in any capacity (founding/co-founding, work for a startup, work for a venture capital firm) after the program but is no longer working at a startup; 2) Ongoing: whether the finalist is currently working with a startup. The last two variables are used to distinguish between short and longer run effects of the program.<sup>2</sup> Please

<sup>2</sup>The horizon of long term effects depends on the year the finalist applied to the program.

see Lyons and Zhang (2016) for more details on the program and data description.

Our empirical strategy restricts our analysis to program finalists - a subset of program applicants who have progressed to the final stages of the application process. This allows us to compare people who participate in the program to those who have invested a substantial amount of effort to participate but are not able to do so. This mitigates some of the concerns related to self-selection into the program although bias likely remains if the program selects applicants that are more likely to become entrepreneurs because of unobserved differences in predisposition for entrepreneurship. In unreported regression analyses, we attempt to control for differences in predisposition and capability for entrepreneurship by the scores they receive from program interviewers<sup>3</sup>, and whether they have prior entrepreneurship experience. Nevertheless, unobserved differences in preference and ability across accepted and unaccepted finalists may still remain and thus we interpret our coefficient estimates as correlations rather than causal effects.<sup>4</sup>

### II. Results

The charts presented below display the difference in mean entrepreneurial activity between accepted and not accepted finalists based on minority status. The measure of minority used in Figure 1 includes both non-Caucasian and female program finalists. As the first two bars in this chart demonstrate, minorities and non-minorities

<sup>3</sup>Applicants receive composite scores from interviewers that measure a number of personal characteristics, such as their passion for entrepreneurship and teamwork.

<sup>4</sup>We note that on most dimensions, such as education background and GPA, accepted and non-accepted finalists look statistically similar on average. We employ coarsened exact matching procedure (Iacus, King and Porro, 2012) where we match accepted and not-accepted finalists on key observables to mitigate concerns that accepted and not-accepted finalists are different by restricting our analysis to observationally more similar finalists without losing too many observations. We also formally examine the extent of the omitted variable bias using the bounding method developed in Oster (2016) and find that our estimates are unlikely to be severely biased by unobservables.

that are accepted into the program are both significantly more likely to engage in short term startup activities on average compared to their unaccepted counterparts. However, the magnitude of the effect of the program on minorities is smaller compared to non-minorities in the short term. In contrast, the effect of the program is significantly more pronounced for minorities' ongoing entrepreneurial activities. In other words, accepted minorities are on average significantly more likely to pursue ongoing startup activity compared to unaccepted minorities. Meanwhile, the effect of the program on non-minorities' ongoing startup activities is small and statistically insignificant.<sup>5</sup>

We find results consistent with the patterns displayed in Figure 1 in regression analyses where we control for observable differences between accepted and unaccepted finalists. For instance, we control for study major, location, program interview scores, prior entrepreneurial experience, year of study, university ranking, and interviewer and year fixed effects. Specifically, we find that participation in the program is associated with an almost 23 percentage point increase in short term startup activity among non-minorities while the effect of the program is less pronounced for minorities in the short run. However, the effect of the program on ongoing startup activity is 20 percentage points higher for accepted minorities compared to accepted non-minorities. While the overall likelihood of startup activity is still higher for accepted non-minorities compared to accepted minorities, the marginal effect of the program is almost large enough to offset the negative association between being a minority and subsequent entrepreneurial activity.

Figure 2 displays the same patterns for the disaggregated categories of minorities: by gender in Panel A and by ethnicity in Panel B. The patterns in both Panels are consistent with those in Figure 1. While male and Caucasian participants are corre-

lated with a higher rate of subsequent entrepreneurial activity in the short run, female and non-Caucasian participants appear to benefit relatively more in the longer term than their unaccepted counterparts. Furthermore, the effects of the program on male and Caucasian finalists' ongoing startup activity are small and statistically insignificant. We find the same patterns hold in regression analyses. We find that program participation is associated with a 28 percentage point increase in ongoing startup activity among females, and an 19 percentage point increase in ongoing startup activity among non-Caucasians. In contrast, the estimated relationship between program participation and ongoing start-up activity is small and statistically insignificant for males and Caucasians.<sup>6</sup>

Combined, these findings suggest that the benefits of program participation are smaller and less persistent for non-minorities than for minorities. Speculatively, this may be because non-minorities are able to accumulate the resources required for a career in entrepreneurship over time even in the absence of the program such that any differences in startup activities between participants and non-participants diminish in the longer run. Minorities may be less able to accumulate these resources in the absence of the program, and thus differences between minority participants and non-participants remain. Taken together, this suggests the program may be most effective at offering opportunities to people who may otherwise have difficulty securing them. This is consistent with evidence that suggests there are

<sup>5</sup>Note that all finalists with ongoing startup activity are excluded from having short term start-up activity in our measure and vice versa.

<sup>6</sup>One concern is that if minorities are less able to enter into professional service jobs (e.g., investment-banking or consulting) than non-minorities, then perhaps they are more likely to pursue alternative career options like entrepreneurship. We find that minority and non-minority applicants are relatively comparable in observable characteristics, such as their average interview score and college majors. The main difference is that minorities less likely to have prior entrepreneurship experience, which we control for in our regressions. We also do not find clear evidence that employment opportunities differ by minority status as minorities are not differentially likely to pursue other career opportunities on average (e.g., professional services, graduate school, government/non-profit).

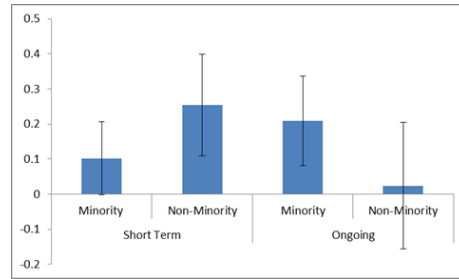


FIGURE 1. DIFFERENCES IN ENTREPRENEURIAL ACTIVITY BETWEEN ACCEPTED AND NOT ACCEPTED FINALISTS BY MINORITY STATUS

*Note:* Each bar displays the average difference between accepted and not accepted finalists' short run and ongoing entrepreneurial activity by minority status. Standard errors of differences are indicated on each bar.

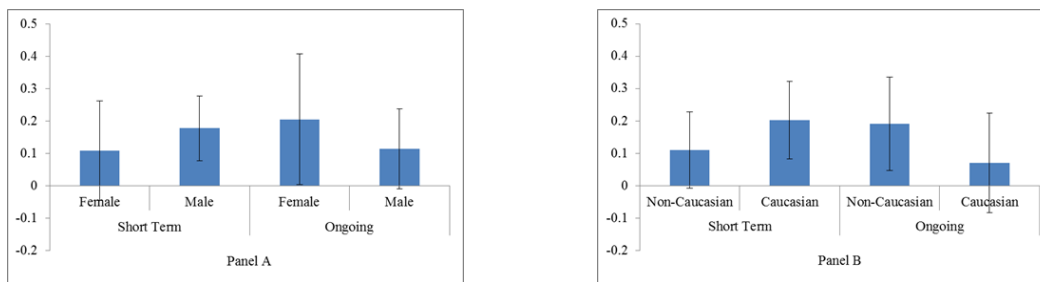


FIGURE 2. DIFFERENCES IN ENTREPRENEURIAL ACTIVITY BETWEEN ACCEPTED AND NOT ACCEPTED FINALISTS BY DISAGGREGATED MINORITY CATEGORIES

*Note:* Each bar displays the average difference between accepted and not accepted finalists' short run and ongoing entrepreneurial activity by gender and ethnicity status. Standard errors of differences are indicated on each bar.

systematic barriers for minorities in pursuing entrepreneurship (Blanchflower, 2003; Fairlie, 2006; Ghani, Kerr and O'Connell, 2013; Brooks et al., 2014).

### III. Conclusion

Our study documents an increase in the likelihood that minorities pursue entrepreneurial activity following participation in an entrepreneurship training program. We find the magnitude on minorities is larger and more persistent than the effect on non-minorities. While we are unable to directly test for the cause of this increase, our findings are consistent with the interpretation that entrepreneurship training programs offer resources and capabilities that these subgroups would otherwise have difficulty to access. Most studies on policy interventions directed towards increasing entrepreneurship have focused on

developing economies (e.g. Field, Jayachandran and Pande, 2010; Ghani, Kerr and O'Connell, 2014) where the barriers to entrepreneurship, such as access to capital, are arguably more severe than those faced by entrepreneurs in high income countries. Our results suggest that even in a setting where we expect barriers to entrepreneurship to be less severe, entrepreneurship training programs have the largest impact on socially disadvantaged groups. Moreover, our results highlight that the heterogeneous effects of entrepreneurship programs is an important consideration for allocation of funding, program strategy, and for potential program participants.

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