The Impact of Entrepreneurship Training on Minorities

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1. Introduction

There is still little rigorous evidence on the impact of entrepreneurial training programs both in general and on marginalized groups, such as women (Bruhn et al. 2011; Bruhn et al. 2012; Drexler et al. 2014; Karlan et al. 2011; Karlan et al. 2012). In this context, Elisabeth Lyons and Laurina Zhang (2017) published their article The Impact of Entrepreneurship Programs on Minorities in the American Economic Review. As the title suggests, the paper investigates the impact of entrepreneurship programs on minorities, namely female and non-Caucasian participants. Therefore, the authors develop the hypothesis that female and non-Caucasian participants are affected differently by entrepreneurship programs. Accordingly, the null-hypothesis corresponds to the idea that all participants – no matter their gender or race – are affected similarly by entrepreneurship programs. To reject the null-hypothesis, the authors analyze The Next 36, an entrepreneurship training and incubation program for undergraduate students in and from Canada. Among others they obtain the following results (Lyons & Zhang 2017a):

1. Participation in The NEXT 36 correlates with a 23 percent increase in the likelihood of short-term start-up activity for non-minorities.
2. Participation in The NEXT 36 correlates with a 28 percent increase in the likelihood of ongoing start-up activity for female and 19 percent for non-Caucasian.

A more comprehensive explanation of the topic was published by the authors in the Strategic Management Journal as a research paper titled Who does (not) benefit from entrepreneurship programs? (Lyons & Zhang 2017b).

This project paper tries to replicate the results published by Elisabeth Lyons and Laurina Zhang (2017a) as the final project for the class R for Empirical Economics Research by the Graduate School of Economics (GSE) at the University of Tokyo. Therefore, this paper independently analyses the data provided by the authors via the website of the American Economic Association in R. Unfortunately, however, the scope of the replication paper was narrowed down in the course due to missing data. Although both the authors as well as The NEXT 36 program have been contacted via mail, it was not possible to retrieve the required data. The NEXT 36 program did not respond in time while the authors do not possess the data anymore, due to privacy concerns. Accordingly, Chapter 2 introduces the summary statistics of the sample, while the results of the analysis are presented in Chapter 3 and a conclusion is draw in Chapter 4.

2. Data

The sample includes data from 335 finalists to the NEXT 36 program between the years 2011 and 2015. 179 (53.433 percent) of the finalists were accepted to the program, while 156 (46.567 percent) did not make the cut-off.

Table 1 shortly displays the characteristics for all finalists in the program, while *Table 2* and *Table 3* distinguish between the accepted and not accepted finalists, respectively.

Table 1: Summary Statistics on Characteristics

Variable	Obs.	Mean	Std. Dev.	Mininimum	Maximum
Program participant	335	0.534	0.5	0	1
Interview score	335	6.202	1.863	0.714	10
Priop entrepreneurship experience	335	0.501	0.501	0	1
Female	335	0.266	0.442	0	1
Non-Caucasian	335	0.504	0.501	0	1
Years to graduation	335	0.29	0.802	-1	3
Lives in active start-up region	335	0.43	0.496	0	1
Engineering/science Major	335	0.343	0.476	0	1
Business/economics major	335	0.394	0.489	0	1
Undergraduate college ranking	335	1.66	0.94	1	4

Table 2: Summary Satistics on Characteristics: Accepted Finalists

Variable	Mean	Std. Dev.	Mininimum	Maximum
Interview score	6.89	1.733	1.5	10
Priop entrepreneurship experience	0.564	0.497	0	1
Female	0.279	0.45	0	1
Non-Caucasian	0.492	0.501	0	1
Years to graduation	0.291	0.796	-1	3
Lives in active start-up region	0.436	0.497	0	1
Engineering/science Major	0.38	0.487	0	1
Business/economics major	0.352	0.479	0	1
Undergraduate college ranking	1.726	1.021	1	4

Table 3: Summary Satisticson Characteristics: Not Accepted Finalists

Variable	Mean	Std. Dev.	Mininimum	Maximum
Interview score	5.411	1.69	0.714	10
Priop entrepreneurship experience	0.429	0.497	0	1
Female	0.25	0.434	0	1
Non-Caucasian	0.519	0.501	0	1
Years to graduation	0.288	0.811	-1	2
Lives in active start-up region	0.423	0.496	0	1
Engineering/science Major	0.301	0.46	0	1
Business/economics major	0.442	0.498	0	1
Undergraduate college ranking	1.583	0.834	1	4

Table 4: Summary Statistics on Outcomes

Variable	Obs.	Mean	Std. Dev.	Mininimum	Maximum
Short-term start-up activity	335	0.209	0.407	0	1
Ongoing start-up activity	335	0.409	0.492	0	1

Table 5: Summary Statistics on Outcomes: Accepted Finalists

Variable	Mean	Std. Dev.
Short-term start-up activity	0.285	0.453
Ongoing start-up activity	0.475	0.501

By controlling for these characteristics of the participants, the authors tried to estimate the impact of participation in the NEXT 36 entrepreneurship training program on the finalists, which were accepted to the program, while comparing their outcome with the finalists, which, ultimately, were not accepted to the program.

Therefore, the data set contains two outcome variables, which are mutually exclusive:

- The first variable (*short_run_activity*) measures the short-term activity of finalists in the start-up sector.
- The second variable (*ongoing_activity*) measures any ongoing activity of the finalists in the start-up scene.

Table 4 as well as *Table 5* and *Table 6* present the summary statistics for finalists, accepted finalists and not accepted finalists with regards to the outcome variables.

It seemed, however, advisable, to add an additional variables to the data set, to measure whether finalists exhibited either short-term or ongoing start-up activity. Therefore, the dummy variable *startup_activity* was created.

Looking at the finalist it can be stated, that 128 (38.2 percent) were not employed in the start-up environment at all, while 207 out of 335 either worked in the short-term (70 or 20.9 percent) or continuously work for a start-up (137 or 40.9 percent). These numbers can be disseminated further by distinguishing between accepted and not accepted finalists. Among the 179 accepted finalists, 136 (75.98 percent) worked in the start-up scene either in the sort-run or at the time of the survey. They account for a total of 65.7 percent of start-up activity after the program. Out of these 136 participants, 51 (37.5 percent) presented short-run activities while 85 (62.5 percent) were still employed by a start-up. Account for a total of percent short-run and percent ongoing start-up activity. At the same time, among the 156 not accepted finalists, only 71 (45.5 percent) presented any start-up activities at all, corresponding to 34.3 percent of total start-up activity. Out of these 71 not accepted finalists, 19 (26.76 percent) were active in the short-run only and 52 (73.24 percent) had ongoing start-up activities.

These results already suggests that, in general, the NEXT 36 had an impact on short-run but not on ongoing start-up activities for participants. Calculating Pearson's R confirms a positive correlation between partici-

Table 6: Summary Statistics on Outcomes: Not Accepted Finalists

Variable	Mean	Std. Dev.
Short-term start-up activity	0.122	0.328
Ongoing start-up activity	0.333	0.473

pation in the program and start-up activity. There is also a slightly positive relationship between acceptance into the program and short-run as well as ongoing start-up activity, whereby the first is significantly higher than the latter.

3. Analysis

The authors, however, were not interested in the general impact of the program on the participants, but on the outcome based on the participant's minority status. Therefore, the data set includes three variables (for summary statistics see *Table 1*).

- The first variable (*minority*) indicates whether a finalist belongs to a minority or not, while the other two variables further specify the minority status.
- The second variable (*female*) indicates whether a finalist is female or not.
- The last variable (*non_white*) indicates whether a finalist is Caucasian or not.

It is important, however, that while a finalist can either belong to a minority (*minority* = 1) or not (*minority* = 0), the variables indicating sex and race are not mutually exclusive. Accordingly, a finalist can be:

- male and Caucasian (*female* = 0 & *non_white* = 0)
- female and Caucasian (*female* = 1 & *non_white* = 0)
- male and non-Caucasian (*female* = 0 & *non_white* = 1)
- female and non-Caucasian (*female* = 1 & *non_white* = 1)

To understand the impact of the program on these four categories, the paper first examines the admission data (*accepted*) to determine whether finalists are more likely to be accepted to the program based on their minority status. The the outcome (*startup_activity*, *short_run_activity*, *ongoing_activity*) of the program is investigated based on the finalists minority status

3.1 Programm acceptance of minorties

Unfortunately, the authors did not further investigate the relationship between the likelihood of being accepted to the program and the finalist's minority status.

Looking at the data, we can find the following results. Out of 335 finalists 212 (63.28 percent) belonged to a minority. Accordingly 36.7 percent of finalists were male and Caucasian, 12.8 percent female and Caucasian, 36.7 percent male and non_Caucasian, and 13.7 percent female and non-Caucasian. In total slightly more finalist were non-Caucasian (50.4 percent) compared to Caucasian (49.6 percent). At the same time, finalists were predominantly male (73.4 percent) and women accounted for only 26.6 percent. Out of these 212 finalists with minority status 43 (20.28 percent) were female and Caucasian, 123 (58 percent) were male and non-Caucasian, and finally 46 (21.7 percent) were female and non-Caucasian. For more information please consult the Figure 1-4 in the Annex.

In total 179 finalists were accepted to the program. 116 (64.8 percent) of them percent belonged to a minority. This corresponds to the 63.28 percent of finalists. Among the 116 accepted finalists from a minority, 28 (15.6 percent) were female and Caucasian, 66 (36.9 percent) were male and non-Caucasian, and finally, 22 (12.3 percent) were female and non-Caucasian.

Compared to the finalists, slightly less male and Caucasian finalist were accepted to the program (-1.5 percent), more female and Caucasian finalists were accepted to the program (2.8 percent), slightly more male and non-Caucasian finalists were accepted to the program (0.2 percent), and finally less female and non-Caucasian finalists were accepted to the program (-1.4 percent). This suggests, that male Caucasians and female non-Caucasian finalists were underrepresented among the participants, compared to the finalists. In the end, however, female Caucasians and male non-Caucasian finalists might have simply performed better

Table 7: Minority Status on Finalist Acceptance

Predictor	B	SE	t	p
Intercept	0.51	0.045	11.36	<0.001
Minority	0.03	0.057	0.62	0.538

Table 8: Sex and Race on Finalist Acceptance

Predictor	B	SE	t	p
Intercept	0.51	0.045	11.37	<0.001
Female	0.14	0.088	1.57	0.117
non-Caucasian	0.02	0.064	0.38	0.702
Interaction Term	-0.20	0.124	-1.60	0.111

during the selection on average, compared to their counterparts. Accordingly, it makes sense to run a linear regression. Acceptance to the program is the dependent variable, and the finalists' minority status (*Table 7*) or gender and race (*Table 8*) are the independent variables, respectively. None of the explanatory variables, however, are significant. When including more explanatory variables in the model, race and gender are still insignificant (*Table 9*). Instead, the interview score (*average_score*) and the ranking of the school contribute to the likelihood acceptance at a significance level of 99 and 90 percent, respectively:

- a one point higher score in the average interview score (from 1 to 10) is related with a 10 percent higher likelihood of being accepted to the program
- a one point higher school ranking (from 1 to 4) is related with a 5.7 percent higher likelihood of being accepted to the program.

All three models, however, have a very low R-squared and thus, their explanatory power is very limited.

3.2 Program outcomes for minorties

To determine whether the training had any impact on the participant start-up activities based on their minority status, it is necessary to run multiple linear regressions. The authors of the paper have chosen the same method. For more information on the summary statistics in the sample please consult the Figure 5-12 in the Annex. First, to isolate the effect of sex on start-up activities four regressions are required impact of the program on

Table 9: Various Characteristics on Finalist Acceptance

Predictor	B	SE	t	p
Intercept	-0.21	0.116	-1.83	0.068
Female	0.07	0.059	1.22	0.224
non-Caucasian	-0.01	0.053	-0.17	0.864
Average Interview Score	0.10	0.014	7.19	<0.001
Years to Graduation	-0.02	0.032	-0.66	0.509
Prior Experience in Entrepreneurship	0.08	0.052	1.52	0.128
Entrepreneurially active region	0.03	0.057	0.46	0.648
Engineering/Science Major	0.03	0.065	0.46	0.644
Business/Economics Major	-0.10	0.062	-1.63	0.104
Undergraduate College Ranking	0.06	0.031	1.87	0.062

Table 10: Short-run effects on female participants

Predictor	B	SE	t	p
Intercept	-0.20	0.179	-1.09	0.278
Program participant	0.15	0.095	1.62	0.110
non-Caucasian	0.09	0.089	1.07	0.289
Average Interview Score	0.03	0.025	1.05	0.299
Years to Graduation	0.10	0.048	2.01	0.047
Prior Experience in Entrepreneurship	-0.07	0.088	-0.80	0.429
Entrepreneurially active region	-0.02	0.092	-0.19	0.853
Engineering/Science Major	-0.03	0.132	-0.24	0.815
Business/Economics Major	0.07	0.094	0.76	0.450
Undergraduate College Ranking	0.03	0.049	0.57	0.567

Table 11: Short-run effects on male participants

Predictor	B	SE	t	p
Intercept	-0.10	0.120	-0.87	0.384
Program participant	0.13	0.057	2.31	0.022
non-Caucasian	-0.03	0.054	-0.58	0.564
Average Interview Score	0.02	0.015	1.30	0.196
Years to Graduation	0.01	0.034	0.38	0.706
Prior Experience in Entrepreneurship	0.13	0.053	2.43	0.016
Entrepreneurially active region	0.08	0.058	1.44	0.150
Engineering/Science Major	0.02	0.063	0.26	0.793
Business/Economics Major	0.14	0.065	2.08	0.039
Undergraduate College Ranking	-0.01	0.033	-0.25	0.804

- Female participants in terms of short-run start-up activities
- Male participants in terms of short-run start-up activities
- Female participants in terms of ongoing start-up activities
- Male participants in terms of ongoing start-up activities

To understand the impact of the program on female participants, both in terms of short-run and ongoing start-up activity, *Table 10* and *Table 11* or *Table 12* and *Table 13* can be compared. Since the paper revolves around the question whether program participation has an impact on start-up activity, the main predictor in the tables is *Program participant*.

In the short-run, female participants are 15.362 percent more likely to work in a start-up, while the impact on their male counterparts is at 13.275 percent. Accordingly, women are deemed to befit on average 2.087 percent more from the program in the short-term. This corresponds to a 15.72 percent higher output for women. At the same time, however, the predictor is not statistically significant for female participants. Additionally, the R-squared of both models is fairly low.

Looking at the ongoing start-up activities, women are 9.144 percent and men are 9.352 percent more likely to continuously work in a start-up. The difference is marginal at absolute -0.2084 percent and relative -2.23 percent. Yet again, however, the predictors are statistically not significant for both models and the R-squared is low.

Second, to isolate the effect of race on start-up activities the same approach is required, comprising the following four regressions to measure the impact of the program on:

- Non-Caucasian participants in terms of short-run start-up activities

Table 12: Ongoing effects on female participants

Predictor	B	SE	t	p
Intercept	0.20	0.224	0.90	0.372
Program participant	0.09	0.119	0.77	0.445
non-Caucasian	-0.02	0.111	-0.19	0.850
Average Interview Score	0.00	0.031	-0.07	0.942
Years to Graduation	-0.07	0.060	-1.11	0.271
Prior Experience in Entrepreneurship	0.34	0.110	3.09	0.003
Entrepreneurially active region	0.06	0.116	0.54	0.590
Engineering/Science Major	-0.06	0.165	-0.35	0.728
Business/Economics Major	-0.09	0.118	-0.73	0.469
Undergraduate College Ranking	0.02	0.061	0.40	0.690

Table 13: Ongoing effects on male participants

Predictor	B	SE	t	p
Intercept	0.37	0.143	2.56	0.011
Program participant	0.09	0.069	1.36	0.175
non-Caucasian	-0.13	0.064	-2.00	0.047
Average Interview Score	0.01	0.018	0.46	0.645
Years to Graduation	-0.02	0.041	-0.47	0.636
Prior Experience in Entrepreneurship	0.20	0.063	3.20	0.002
Entrepreneurially active region	-0.09	0.069	-1.24	0.215
Engineering/Science Major	-0.02	0.075	-0.25	0.802
Business/Economics Major	-0.02	0.078	-0.28	0.777
Undergraduate College Ranking	-0.02	0.039	-0.41	0.680

Table 14: Short-run effects on non-Caucasian participants

Predictor	B	SE	t	p
Intercept	-0.20	0.128	-1.53	0.127
Program participant	0.06	0.064	1.00	0.318
Female	-0.03	0.068	-0.43	0.667
Average Interview Score	0.04	0.018	2.26	0.025
Years to Graduation	0.05	0.036	1.51	0.132
Prior Experience in Entrepreneurship	0.11	0.063	1.72	0.088
Entrepreneurially active region	0.09	0.066	1.34	0.181
Engineering/Science Major	-0.01	0.072	-0.09	0.928
Business/Economics Major	0.17	0.074	2.25	0.026
Undergraduate College Ranking	-0.03	0.042	-0.82	0.412

Table 15: Short-run effects on Caucasian participants

Predictor	B	SE	t	p
Intercept	0.10	0.149	0.66	0.512
Program participant	0.23	0.073	3.18	0.002
Female	-0.13	0.077	-1.74	0.083
Average Interview Score	-0.01	0.019	-0.61	0.541
Years to Graduation	0.02	0.043	0.48	0.633
Prior Experience in Entrepreneurship	0.04	0.066	0.54	0.591
Entrepreneurially active region	0.00	0.075	-0.05	0.957
Engineering/Science Major	0.03	0.089	0.29	0.770
Business/Economics Major	0.04	0.080	0.56	0.576
Undergraduate College Ranking	0.03	0.035	0.75	0.457

- Caucasian participants in terms of short-run start-up activities
- Non-Caucasian participants in terms of ongoing start-up activities
- Caucasian participants in terms of ongoing start-up activities

Similarly, to understand the impact of the program on non-Caucasian participants, both in terms of short-run and ongoing start-up activity, the main predictor *Program participant* in *Table 14* and *Table 15* or *Table 16* and *Table 17* can be compared.

In the short-run, non-Caucasian participants are 6.427 percent and Caucasian participants are 23.224 percent more likely to work in a start-up. Accordingly, in the sort-run non-Caucasians are deemed to befit on average 16.7964 percent less from the program than their Caucasian counterparts. This corresponds to a 72.32 lower output for non-Caucasian participants. At the same time, however, the predictor for non-Caucasian participants is not statistically significant. Additionally, the R-squared of both models is fairly low.

Looking at the ongoing start-up activities, non-Caucasian are 11.651 percent and Caucasian participants are 7.225 percent more likely to continuously work in a start-up. The difference is at absolute 4.4262 percent and relative 61.264 percent. Again, however, the predictors are statistically not significant for both models and the R-squared is low.

Looking at minorities from a more general perspective, the effect of the training participant's minority status on start-up activity can be examined.

Looking at minorities from a more general perspective, it can be said that:

- Minorities are 7.397 percent more likely to engage in short-term start-up activities if they participate in the program. The results are not significant (*Table 18*).

Table 16: Ongoing effects on non-Caucasian participants

Predictor	B	SE	t	p
Intercept	0.13	0.154	0.82	0.416
Program participant	0.12	0.077	1.51	0.133
Female	0.02	0.081	0.28	0.779
Average Interview Score	0.01	0.022	0.64	0.523
Years to Graduation	-0.03	0.043	-0.80	0.427
Prior Experience in Entrepreneurship	0.26	0.075	3.44	<0.001
Entrepreneurially active region	-0.11	0.079	-1.34	0.182
Engineering/Science Major	0.03	0.087	0.37	0.715
Business/Economics Major	-0.05	0.088	-0.62	0.537
Undergraduate College Ranking	0.01	0.050	0.27	0.788

Table 17: Ongoing effects on Caucasian participants

Predictor	B	SE	t	p
Intercept	0.40	0.183	2.18	0.031
Program participant	0.07	0.090	0.80	0.423
Female	-0.11	0.095	-1.12	0.266
Average Interview Score	0.00	0.024	0.16	0.875
Years to Graduation	-0.03	0.053	-0.53	0.600
Prior Experience in Entrepreneurship	0.20	0.081	2.42	0.017
Entrepreneurially active region	0.01	0.092	0.10	0.924
Engineering/Science Major	-0.09	0.110	-0.86	0.390
Business/Economics Major	-0.03	0.098	-0.33	0.742
Undergraduate College Ranking	-0.01	0.043	-0.26	0.797

Table 18: Short-run effects on minority participants

Predictor	B	SE	t	p
Intercept	-0.16	0.113	-1.41	0.160
Program participant	0.07	0.058	1.28	0.201
Average Interview Score	0.03	0.016	1.93	0.055
Years to Graduation	0.05	0.031	1.61	0.108
Prior Experience in Entrepreneurship	0.10	0.055	1.73	0.086
Entrepreneurially active region	0.07	0.059	1.19	0.237
Engineering/Science Major	0.00	0.067	-0.06	0.954
Business/Economics Major	0.11	0.062	1.76	0.079
Undergraduate College Ranking	-0.01	0.034	-0.29	0.769

Table 19: Short-run effects on non-minority participants

Predictor	B	SE	t	p
Intercept	0.01	0.180	0.06	0.950
Program participant	0.27	0.088	3.04	0.003
Average Interview Score	-0.01	0.023	-0.48	0.631
Years to Graduation	0.04	0.055	0.64	0.521
Prior Experience in Entrepreneurship	0.05	0.079	0.67	0.505
Entrepreneurially active region	0.04	0.090	0.50	0.619
Engineering/Science Major	0.07	0.103	0.70	0.485
Business/Economics Major	0.10	0.101	1.02	0.310
Undergraduate College Ranking	0.02	0.043	0.53	0.599

Table 20: Ongoing effects on minority participants

Predictor	B	SE	t	p
Intercept	0.13	0.137	0.98	0.328
Program participant	0.15	0.070	2.11	0.036
Average Interview Score	0.01	0.019	0.29	0.771
Years to Graduation	-0.06	0.038	-1.58	0.115
Prior Experience in Entrepreneurship	0.24	0.067	3.61	<0.001
Entrepreneurially active region	-0.05	0.071	-0.76	0.446
Engineering/Science Major	0.04	0.080	0.45	0.653
Business/Economics Major	-0.04	0.075	-0.53	0.597
Undergraduate College Ranking	0.03	0.041	0.66	0.509

Table 21: Ongoing effects on non-minority participants

Predictor	B	SE	t	p
Intercept	0.46	0.214	2.14	0.035
Program participant	0.00	0.105	0.01	0.992
Average Interview Score	0.02	0.028	0.56	0.579
Years to Graduation	0.02	0.066	0.31	0.759
Prior Experience in Entrepreneurship	0.20	0.094	2.17	0.032
Entrepreneurially active region	-0.06	0.106	-0.58	0.566
Engineering/Science Major	-0.16	0.122	-1.28	0.204
Business/Economics Major	-0.04	0.119	-0.34	0.734
Undergraduate College Ranking	-0.05	0.051	-0.88	0.380

- Non-minorities are 26.845 percent more likely to engage in short-term start-up activities if they participate in the program (*Table 19*).
- Accordingly, participating in the program, non-minorities are 19.45 percent more likely to work in start-ups, compared to minorities. This relates to a 130.168 percent difference.
- Minorities are 14.65 percent more likely to continuously engage in start-up activities if they participate in the program (*Table 20*).
- Non-minorities are 0.11 percent more likely to continuously engage in start-up activities if they participate in the program. The results are not significant (*Table 21*).
- Accordingly, participating in the program, minorities are 14.54 percent more likely to work continuously in start-ups, compared to non-minorities. This relates to a 130.17 percent difference.

This means, that the program's impact on non-minorities in the short-run and minorities in ongoing start-up activity, if they participate in the program, is comparable. Although the coefficient for the former is significantly higher, the differences between both categories is the same at approximately 130 percent. The estimators for participating minorities in the short-run and participating non-minorities on ongoing start-up activities are not significant. Nonetheless, it is remarkable, that the training's impact on participating non-minorities for ongoing start-up activity is very low.

Including regressions with interaction terms for sex, race and minority status yields the following results:

- Minorities participating in the program are 13.2 percent less likely to participate in short-term start-up activities compared to not accepted minorities or non-minorities in general. The results are not significant.
- Minorities participating in the program are 16.82 percent more likely to participate in ongoing start-up activities compared to not accepted minorities or non-minorities in general. The results are not significant.
- Women participating in the program are 6.44 percent less likely to participate in short-term start-up activities compared to not accepted women or men in general. The results are not significant.
- Women participating in the program are 8.194 percent more likely to participate in ongoing start-up activities compared to not accepted women or men in general. The results are not significant.
- Non-Caucasians participating in the program are 7.546 percent less likely to participate in short-term start-up activities compared to not accepted non-Caucasians or Caucasians in general. The results are not significant.
- Non-Caucasians participating in the program are 9.5 percent more likely to participate in ongoing start-up activities compared to not accepted non-Caucasians or Caucasians in general. The results are not significant.

4. Conclusion

The authors of the original paper presented the following results: 1. Participation in The NEXT 36 correlates with a 23 percent increase in the likelihood of short-term start-up activity for non-minorities. 2. Participation in The NEXT 36 correlates with a 28 percent increase in the likelihood of ongoing start-up activity for female and 19 percent for non-Caucasian.

After exploring and analyzing the data provided, this paper finds the following relationships:

1. Participation in The NEXT 36 correlates with a 26.845 percent increase in the likelihood of short-term start-up activity for non-minorities.
2. Participation in The NEXT 36 correlates with a 23.224 percent increase in the likelihood of short-term start-up activity for Caucasians (at a 98 percent significance level) and a 13.27 percent increase in the likelihood of short-term start-up activity for men (at a 95 percent significance level)

Accordingly, the paper failed to replicate the results from the original paper. In sum, however, all coefficients are positive, indicating a positive relationship between program participation and start-up activities no matter the participants sex or race. Nonetheless, the majority of the coefficients are statistically insignificant, which bears the question how the authors of the original paper achieve their results.

Up to date many papers tried to measure the impact of training program, but there is little research on the differential impact of entrepreneurial training on minorities. Although the original paper tried to fill this scientific gap, it suffers from very low statistical power due to the low number of observations. Therefore, the authors failed to overcome one of the main criticisms brought forwards by McKenzie et al. already in 2014. For a more successful example, see the Campos et al. (2017).

In the end, it proofed difficult trying to replicate the results, because the raw data was not available and the data provided on the website of the journal was not sufficient. Additionally, this paper is the authors first attempt in replicating a paper published in a renowned journal. Despite a often cited *replication crises*"* he results are not satisfying and the process was not very rewarding.

5. References

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Remark: Due to the requirement and the fact that the data set consist predominantly of dummy variables, the paper does not include graphs. Some bar graphs, however, can be found in the R Markdown file for reference.