Does management training help entrepreneurs grow new ventures? Field experimental evidence from Singapore

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Abstract

Does growth training help entrepreneurs to scale-up new ventures? Our field experiment answering this question uses a sample of 181 startup founders from the population of Singapore-based entrepreneurs in 2017. The treatment consisted of classroom sessions conducted in workshop and lecture formats that provided content in growth-catalyst tools comprising of effective business model design, building effective venture management teams and leveraging personal networks, that help in entrepreneurial resource mobilization. Also, participants received individualized business coaching addressing their venture's issues and challenges in these domains. Our results show that entrepreneurs that received training in the three growth-catalyst tools achieved higher sales and employee growth for their ventures. In addition, entrepreneurs with higher educational attainment, higher prior work experience and higher growth goals benefited much more from the training intervention.

Policy makers in mature market economies emphasize entrepreneurship as a critical driver of long-run economic growth because entrepreneurs starting de-novo ventures are a key source of innovation (Schumpeter, 1934) in the economy. However, entrepreneurs building new ventures experience high failure rates (Carter et al., 1997) stemming from inabilities to overcome their ventures' liabilities of newness and smallness (Stinchombe, 1965). Failure occurs because entrepreneurs may misjudge the quality of the opportunity (Shane & Venkatraman, 2000) or falter during the entrepreneurial resource mobilization process (Clough, Panfang, Vissa and Wu, 2019). Empirical evidence indeed suggests that managing the transition from an infant start-up with some revenues to an adolescent new venture with greater stability of cash flows is a daunting challenge for entrepreneurs (Aldrich, 1999). Practitioner toolkits abound that purport to help entrepreneurs cross this chasm by making them skilled business-builders that hone the market opportunity and build an organization to execute on it. These growth-catalyst tools range from structured ways to craft novel business models (e.g., Osterwalder & Pigneur's (2010) business model canvas), build internal organization (e.g., Wasserman's (2012) founders' dilemmas) and leverage external personal networks (e.g., Baker's (2000) achieving success through social capital). Yet, we lack systematic evidence on whether these tools help, act as placebos or worse, detract entrepreneurs from successfully growing their new ventures. Shedding light on the efficacy of growth-catalyst tools is hence important for policy makers interested in nurturing entrepreneurship, particularly in mature market economies.

Further, examining the efficacy of growth-catalyst tools is also important to the recent growing literature on entrepreneur training (e.g., Anderson, Chandy & Zia, 2015; Bloom et al. 2010; Campos et al., 2017; Chatterji, et al., 2018; Gambardella et al., 2018). Much of this literature examines training in emerging economies (cf. McKenzie & Woodruff, 2014 for a review) with a curriculum that provides content in mainly finance or marketing related concepts,

rather than strategy and organization science concepts[1]. Our study advances the literature on entrepreneurship training in two ways. First, we examine the effect of entrepreneurship training in a mature market economy – a theoretically different context. The theoretical difference arises because entrepreneurship in mature markets is typically opportunity-based whilst emerging market entrepreneurship is largely necessity-based (Reynolds et al. GEM project report; Llyod-Ellis & Bernhardt, 2000; Van Stel, Carree & Thurik, 2005). It is therefore unclear if prior findings on entrepreneurship training from emerging economies will still hold in a mature economy context. Second, we examine the effect of training entrepreneurs in strategy and organization tools and techniques whilst prior research has examined training in finance, marketing concepts, personal initiative, and scientific approach to entrepreneurship. This is also theoretically important because of the potential to identify new and complementary pathways on how entrepreneurship training helps drive success.

We thus ask the broad question: Does strategy and organizations training help entrepreneurs scale-up their ventures? We answer the question through training a sample of Singapore based entrepreneurs in the three growth-catalyst tools of business model innovation, team structuring, and effective networking, using a randomized control trial. The treatment consisted of classroom sessions conducted in workshop and lecture formats on the three tools supplemented by individualized business coaching in applying the tools to address the entrepreneur's specific issues and challenges in these domains. Our findings suggest these training inputs have a causal effect on new ventures' sales and employee growth. In addition, our evidence suggests entrepreneurs with greater initial endowments of educational and work experience as well as more ambitious growth goals benefit more from training. In the following,

[1] An exception is Gambardella et al., (2018) who train Italian nascent entrepreneurs to follow a hypotheses-testing oriented approach to validate their entrepreneurial opportunity

we first develop the key hypotheses tested in this paper. We then describe the empirical setting and methodology followed by a discussion of the results and their implications for both policymakers and the scholarly literature on entrepreneurship training.

Theory and Hypothesis

The two defining features of entrepreneurship are pursuing opportunity under uncertainty and resource scarcity. Entrepreneurs first need to select or construct an opportunity (Shane & Venkataraman, 2000) to create economic value based on a conjecture that their idea fits the needs of a defined set of customers or users. They subsequently mobilize resources to pursue the opportunity (cf. Clough et.al., 2019 for a comprehensive review). Because of uncertainty, entrepreneurs may continually make intentional changes in the strategic direction of their fledgling venture regarding the specific opportunity they are pursuing as well as their mobilization of relevant resources. Innovation methodologies—under the rubric of the "lean start-up" movement (Blank, 2013; Ries, 2011) and the "business model canvas" movement — specify structured processes for developing and testing novel business models.

In addition to business model innovation, practitioners stress the importance of social capital for entrepreneurs. Entrepreneurs with personal networks (their set of interpersonal relationships) that are rich in social capital will find it easier to find relevant others who can help them in the resource mobilization process by making introductions, by sharing useful information and so forth. Practitioner tools and self-help publications on improving social capital stress the importance of building effective personal and professional networks. Academic research has validated this intuition that better-connected entrepreneurs experience superior performance outcomes (cf. Hoang & Yi, 2015 for a recent comprehensive review of the entrepreneurial networks literature).

Finally, practitioners have highlighted the importance of building a strong management team that can lead the expansion of the venture (Drucker, 1985). Specifying ways to attract new top management team members and recruit them into the venture and getting the individuals to work together as a team is a daunting task. Again, academic research has shown that influential resource holders such as professional investors place a lot of importance to the management team of a new venture (e.g., Dimov & Shepherd, 2005).

Our core argument is that training entrepreneurs in these methodologies would increase the salience of business model innovation, networking and team structuring in the minds of entrepreneurs. In addition, the training will also help entrepreneurs apply these tools to address their specific issues and challenges in these domains. In short, training improves entrepreneur's ability as well as willingness to build their venture. To the extent that entrepreneurs correctly apply these growth-catalyst tools, the more likely their ventures' growth-impediments are whittled down. Our logic thus suggests the following main effect hypothesis:

H1: Entrepreneurs that undergo training in the three domain areas (innovation, teams, and networks) experience greater venture growth than entrepreneurs in the control condition

Do some entrepreneurs benefit more than others from training?

We expect that the beneficial effects of training in the three domain areas of business model innovation, networking, and team structuring will be heterogeneously distributed among the entrepreneurs that undergo training, with some ventures systematically benefitting more than others. We propose entrepreneurs' initial human capital endowments of work and educational experience as well as their growth-motivation will positively moderate the effect of such growth-catalyst training on the growth experienced by their ventures.

Entrepreneurs with greater human capital endowment benefit more from training

We propose that founders with greater general human capital (Becker, 1994) - in terms of greater endowments of prior work or educational experience, benefit more from the training. This is because greater human capital in terms of larger endowments of educational and work experience gives founders the absorptive capacity (Cohen & Levinthal, 1990) to assimilate the new knowledge they acquire and to better adapt the new knowledge to the idiosyncratic circumstances of their venture. We more formally hypothesize this complementaryeffect of education and work experience as:

H2a: Entrepreneurs' greater prior educational experience positively moderates the causal effect of training on their venture's growth

H2b: Entrepreneurs' greater prior work experience positively moderates the causal effect of training on their venture's growth

Entrepreneurs with higher growth-goals benefit more from training

In addition, we propose that entrepreneurs with greater growth goals for their venture will benefit more from the training. This is because strategy and organization frameworks related to business model innovation, networking, and team structuring are required in a high-growth context to fuel and sustain that growth. Founders with ambitious growth-goals for their ventures will thus find training in growth-catalyst tools particularly needed and useful. More formally:

H3: Entrepreneurs' greater growth goal positively moderates the causal effect of training on their venture's growth

METHODS

We implemented a randomized control trial with 103 startups in the treatment condition and 78 in the control condition. The startups in the treatment condition received training at the beginning of the study and the startups in the control condition were promised and offered

training 10 months after treatment condition received training by which time all the data collection for the study was completed.

Sample selection and timeline: Startups were selected into the study using a two-stage process (see Figure A1 in Appendix). In Stage 1 a random sample of nearly 14,500 new businesses registered with the Singapore Accounting and Corporate Regulatory Authority (ACRA) in 2016 were sent postal invitations requesting the founders to express interest in participating in the study by completing an online recruitment screener survey. A market research firm was used to use publicly available information to contact the founders of the startups to encourage the founders to fill out the online recruiting screener survey from January to April 2017. The baseline survey was conducted face-to-face with the startups in April of 2017. The training program for the treatment groups was conducted on weekends in May and June of 2017. Two monthly surveys were carried out in June and July 2017 to test for treatment absorption. Two short performance surveys were conducted at midline November 2017 and at endline in February 2018. The final survey was the exit survey in February 2018.

Randomization: In stage 2, there were 302 responders that completed the recruiting screener survey. One hundred eighty-one founders expressed interest to participate in the study and were available to attend the training program as a part of the treatment or control group. One hundred start-ups did not qualify as the founders did not make themselves available for training either at the treatment or control periods. Because there may be no-shows in the treatment condition for reasons, we decided to randomly assign a higher number about 100 startups (actual 103) to treatment and 80 (actual 78) to control condition[2]. The randomizing was done using 'runiform()' function in Stata. We, however, had to do the randomization in four batches as the

[2] A further 21 start-ups that completed the recruiting screener survey after the assignment of startups to treatment and control condition and commencement of the first training session are not part of the analysis (these firms were offered the opportunity to receive training with the control group after the completion of the study).

date of the initial training for the treatment condition approached and still startups were completing the screener survey. We tested if there were systematic differences between the treatment and control group using an ordinary least squares (OLS) estimation predicting the possibility of being assigned to treatment condition as a dependent variable and using the variables used in the paper as independent variables. The F-statistic (Online Appendix: Table A1, Model 1, F-statistic = 1.39) of the estimation as anticipated was not significant suggesting that there are no systematic differences between treatment and control group, although any single variable may be significant by chance. There is no variable that is significant at the conventional $p<.05$ level.

Intention to Treat: The main analysis presented in the paper consists of the 181 entrepreneurs (103 to treatment and 78 to control) randomly assigned to treatment and control conditions at the beginning of the study. Out of startups assigned to the treatment condition, 39 entrepreneurs did not attend the training program. Also, one entrepreneur in the control condition crossed over to the treatment condition.

We follow convention and use the original assignment of treatment and control for the 181 startups, i.e., our intention to treat (ITT), for our analysis. The ITT analysis is the convention, because non-compliers are systematic to training interventions and we would like to know the effect of running the program. Furthermore, the ITT is less likely to find significant effects of the treatment as those entrepreneurs that did not attend the training are still retained under the treatment condition even though the entrepreneurs did not get the treatment. Furthermore, the entrepreneur that crossed over from control to treatment is still retained in control even though she received the treatment. Thus, the bias in the ITT analysis is a conservative one, i.e., the researchers are less likely to find significant effects.

To be sure, we conducted additional robustness analysis to check if the entrepreneurs that accepted our invitation to be part of the treatment group and could not attend the training, i.e., non-compliers (39 startups) were any different from the compliers (64 startups) who attended the training and also from the startups in control condition at the beginning of the study (see Table 1 in appendix Model A2). Results of the analysis are consistent with the view that there are no systematic differences between compliers and non-compliers (f-statistic = 1.02 and no variable is significant at $p<.05$) in the treatment condition.

Training Program: The two-day training program was conducted in May and June 2017. In the first day of the training, program participants were taught about how to describe their startup using a business model canvass and identify areas of concern with their start-up's business model (see Table 1). The founders were then provided with a simple framework to diagnose and improve the social capital of their personal network. Finally, founders were provided with a simple framework to analyze venture teams' structure and dynamics. Founders were then taught to use these tools in an integrated manner and customized manner. Thus, founders applied the tools to their specific context by for example identifying flaws in their business model, gaps in their venture teams' structure and broaden their network by specifying the networking tactics to persuade targeted individuals to collaborate with the founder. Next month the founders came back for the second day of training where the founders shared with other participants how they attempted to address the concerns with their business model and their efforts to activate their network or recruit team members. Post the training intervention; the participants were offered access to mentors to discuss issues with their start-ups business model. The mentors were from an institute of innovation and entrepreneurship responsible for incubation and start-up activities at one of the author's university.

Measures of Outcome: We focus on two measures of performance that are widely used in the literature to measure start-up performance: sales and employment. Since the period of the study was a single year, we did not conduct survival analysis. *Sales*: The first measure of performance we studied is sales of the start-up. Sales was measured using a five-category Likert type scale variable that took the value of 1 if the sales were between $0 and $99,999; 2 if between $100,000 and $249,999; 3 if between $250,000 and $499,999; 4 if between $500,000 and $1,999,9999; and 5 if above $2,000,000. *Employees* were measured by the count of full-time equivalent employees. The performance variables were measured in the screener survey, midline and end line surveys.

Independent Variables: The three variables of interest are: treatment, work experience, and education. *Treatment* Variable: The treatment variable takes a value of '1' if the entrepreneur/start-up is in the treatment condition (103 start-ups) or it takes the value of '0' if the entrepreneur/start-up is in control condition (78) based on the randomization at the beginning of the study. *Work Experience*: Is the number of years of work experience that an entrepreneur had before the focal start-up. *Education*: Is a scaled variable that takes the values of between 1 and 7. 1 for primary and below; 2 for O Level; 3 for A Level; 4 for Diploma; 5 for Bachelors; 6 for Masters; 7 for Ph.D. *Growth goal*: We measured growth goals by asking entrepreneurs at the start of the study to report their expected sales of their venture 12 months into the future, using the same five-category Likert type scale used to measure *Sales*.

Control Variables: We use the following variables as control variables in the study that have been shown to influence the performance of the startups. *Ethnicity* takes a value of 1 if the founder is Chinese and otherwise it is 0. *Female* takes a value of 1 if the founder is female otherwise it is 0. *Singaporean* takes a value of 1 if the founder is a Singaporean citizen otherwise it is 0. *Entrepreneurship experience* is an indicator variable set to 1 if the founder was involved

in setting up a new venture prior to the focal startup. *Age* is the count of years since the birth year of the founder.

Estimation Strategy: We use differences in differences estimation strategy with two groups: treatment and control using the ITT OLS regression with clustered standard errors for startups to estimate sales (xtreg in Stata) and Poisson estimation for the count of employees (xtpoission in Stata). Essentially, we test if the interaction between the treatment variable and period (2-category: screener and end line) is significant and positive for sales and employment.

RESULTS

In Table 2A we present the variables used in the study by treatment (Panel A) and control (Panel B) conditions at the start of the study. Note that the sales of the startups in the treatment condition is lower than the control condition. However, as described above there is no systematic difference based on all the variables used in the study. Since we did not do a stratified randomization on the dependent variables it is possible that a variable may be different in treatment and control condition by chance.

Treatment absorption: We test if the training has resulted in differences in the understanding about business model canvass and their startups business model problems, understanding of their social network and how to grow their social network to solve business model problems, roles and rewards in their startup, and how to identify and grow their consumer base (Table 2B). Those who attended the training intervention in the treatment group when compared to those in the control group had used the business model canvass more explicitly in the past two months ($p = 0.04$); became aware of a major problem with their business model ($p = 0.06$); understood the size of their social network ($p = 0.00$); how to build their social network ($p = 0.01$); identify lead users ($p = 0.06$) and reach them ($p = 0.01$); and finally they feel more connected to the entrepreneurial ecosystem ($p = 0.00$). Thus, the training program had resulted

in changes in the thinking and behavior of entrepreneurs who attended the training as they understood and employed the tools that were taught at the training intervention.

--INSERT TABLES 1, 2A, 2B, 3A, & 3B HERE--

Hypotheses testing: Hypothesis 1 predicts that the intervention will have a positive impact on the performance of the entrepreneurs as measured by sales and full-time employees. We test the impact of the training intervention on sales of the startup in Table 3A. Model 2 contains the main effect of period (endline when compared to baseline which is higher and significant suggesting that with time there is an improvement in sales) and treatment. Model 3 is used to test hypothesis 1 on the impact of training on sales. The interaction term *endline X treatment* is the focus of attention in Model 3. We find there is a positive interaction between the treatment and endline variable (b = 0.42; p = 0.04) on sales. The predicted value of sales for those in the treatment condition increases from 1.2 ± 0.05 in the period before treatment to 2.02 ± 0.13 at endline an increase of 68.3 %. Whereas for those in the control condition in the similar period the increase is from 1.35 ± 0.06 to 1.74 ± 0.15 and increase of 29 %. Using simple transformation of the sales scale those in treatment condition had a sales increase of $85,109 whereas those in control condition had an increase of $37,275. Similarly, in Table 3B Model 3 there is a positive interaction between the treatment and endline variable (b = 0.675; p = 0.024) and full-time employees.

Next, we test hypothesis 2a on the joint impact of training and educational attainment of the entrepreneurs on sales. In Table 3A, Model 4, we test and find that the three-way interaction between periods, treatment and entrepreneur education level is positive and significant in the endline (b = 0.449; p = 0.045) in predicting sales (see Figure A2 in the Appendix). However, the results of the three-way interaction on full-time employees are not significant (b = -0.129; p = 0.677) in Table 3B, Model 4. We test hypothesis 2b on the joint impact of training and work

experience of the entrepreneurs on full-time employees. Similar to the pattern we observed for hypothesis 2a when predicting sales, we test and find that in Table 3A, Model 5, that the three-way interaction between periods, treatment and entrepreneur work experience is positive and but not significant at the conventional level in the endline (b = 0.302; p = 0.119) in predicting sales (see Figure A3 in Appendix). In robustness analysis without control variables the interaction is positive and significant at the convention level of significance (Table A3a, Model 4 in Appendix b = 0.05; p =0.038). Again, the results of the three-way interaction on full-time employees are not significant (b = 0.117; p = 0.725) in Table 3B, Model 5.

We test hypothesis 3 on the joint impact of training and growth goal of the entrepreneurs on sales. In Table 3A, Model 6, we test and find that the three-way interaction between periods, treatment and entrepreneur's growth goals is positive and significant in the endline (b = 0.667; p = 0.001) in predicting sales (see Figure A4 in the Appendix). However, the results of the three-way interaction on full-time employees is negative (b = -0.448; p = 0.082) in Table 3B, Model 6.

The results of the three moderation hypotheses appear to be consistent with the view that the more educated, those with greater work experience, and higher growth goals can benefit from the training and grow their business in terms of revenues but not their full-time employees.

Robustness and Supplementary Analysis

We conduct a host of robustness analysis to ensure the reliability of the results we find for the main effect of the treatment. First, we test if the effect of the treatment on the treated, i.e., those who attended the training is present when compared those in the control group (TOT analysis). Second, we test if the attrition of the responders influences the results we find. Third, we conduct outlier analysis rerunning our main results by winsorizing the outliers. Finally, because our study has a control group that had their training withheld till the end, we test in an ex-post analysis if motivation differences exist between treatment and control group.

Treatment Effect on the Treated (TOT): We conduct the effect of treatment on the treated (TOT) analysis, i.e., comparing those who received treatment and those in the control condition. The sample for this analysis consists of 64 cases of those in the treatment condition that attended treatment and one case of those in the control condition the crossed over and attended treatment; which is compared those in the control condition that did not attend treatment at the beginning of the study (77 entrepreneurs). We estimate the predicted possibility of an entrepreneur actually receiving treatment based on the random assignment to treatment or control conditions in the ITT sample. We use the predicted probability as an instrument in the sub-sample of those entrepreneurs who attended the training program (64 cases in the treatment condition and 1 case of cross-over from the control condition) and those who were assigned to the control condition and did not attend the training (77 entrepreneurs) with the treatment group (Ashraf, 2017). We test the main hypothesis 1 on the effect of the treatment on the treated (Table A4 in the Appendix). We find that the magnitude of the treatment, i.e., the endline and treatment interaction is stronger (almost twice the ITT) and similarly significant (Model 2, $b = 1.18$; $p = 0.03$) when predicting full-time employment. Similar when predicting sales the coefficient is larger albeit (Model 1, $b = 0.52$) the statistical power, however, drops below conventional significance ($p = 0.189$). Because the sample for the TOT analysis is smaller the statistical significance is lowered. However the coefficient is again stronger (24% larger) than the treatment effect in the ITT analysis. Taken together these analyses confirm the results of the main analyses used to determine the effect of the intervention.

Sample Attrition: We have an almost 97% response rate for the screener baseline for sales and 98% for full-time employees. In the endline survey on performance approximately 70% responded and provided information on sales and full-time employees. The sample attrition is comparable to other entrepreneurship data collection in developed countries such as the Panel

Study for Entrepreneurial Dynamics (PSED) in the U.S.A. For the main ITT analysis, we assume that non-response is missing at random.

In addition, we conducted additional analysis by fixing the missing at either the lower or upper bounds of performance variables in the particular period (Table A5 in Appendix). The results of the analysis suggest that when the missing are assumed to be better performers our results for sales are stronger (Appendix: Table A7, Model 2, b = 0.61, p = 0.01) and weaker in effect and statistical significance when missing are considered the lowest performers (Appendix: Table A5, Model 1, b = 0.15, p = 0.35). The results for the full-time employees are set at 95% of employee size to avoid extreme outliers for upper bound and the treatment is a significant predictor of full time employees (Appendix: Table A5, Model 4, b = 0.59, p = 0.02) whereas when missing are set to the lowest level the effect is not significant.

Outliers: Because outliers may bias the results, especially in the case of start-ups, we repeat the hypotheses test by winsorizing the sample. Results of the estimations are similar in the economic and statistical effect of the treatment on sales (Appendix: Table A6, Model 1, b = 0.42, p = 0.04) and full-time employees (Appendix: Table A6, Model 2, b = 0.60, p = 0.02) when compared to estimations used to test the hypotheses.

Motivational Differences: Because we have no placebo treatment to the control group, we worry about the motivational differences influencing the results rather than the content of the training. That is, an alternate explanation for the results of the treatment could be that the assignment of some startups to treatment motivate the founders in the treatment to work harder and/or decreased the motivation of the founders in the control condition. In the exit survey, we asked the founders the two questions that could ex-post be related to the motivational differences between treatment and control groups: their satisfaction with the progress of their startup and their identity as entrepreneurs. Tests of the differences between the treatment and control group

did not reveal any statistically significant differences (Appendix: Table A7). Caution may be warranted in interpreting these results as the non-response rate was particularly high for the exit survey. Only 38 treatment condition and 24 control condition subjects responded to the survey.

Drivers of Education and Work Experience: We tried to further investigate the sources of the education and work experience moderation effect on the relationship between training and the sales of the start-ups. First, we focus on education and we coded the education experience of the entrepreneurs in to three categories: humanities (48), STEM (science, technology, engineer, or math:35), business (88). Results of the three-way interaction between training, period and education categories suggest that when compared to the baseline humanities those in STEM have higher impact of the relationship between training and performance (Appendix: Table A8 Model 1, $b = 0.94$, $p = 0.03$). Second we explore the source of work experience effect on the relationship between training and sales of the start-ups by examining entrepreneurs with: i) venture's products related technologies/technical skills; ii) customers that the venture targets; iii) customer needs that the venture targets; iv) distribution channels the venture targets; iv) suppliers and vendors the venture targets. The results suggest that those entrepreneurs with prior experience in the technology/technical skills related to the start-up products benefited from training more (Appendix Table A9, Model 1; $b = 0.27$; $p = 0.18$).

In sum, the results of the hypotheses testing, additional analysis, and robustness analysis are consistent with the view that the training intervention increases the sales and number of full-time employees in start-ups in the treatment condition. The increase in sales is steeper for entrepreneurs with more education, work experience, and higher growth goals at the start of the training intervention.

DISCUSSION & CONCLUSION

A plethora of practitioner tool-kits purport to help entrepreneurs cross the chasm from spotting a high-potential business opportunity to scaling-up their venture, by making them skilled business and organization builders. But we lack systematic evidence on whether these tool-kits help, are mere placebos or worse! The aim of our paper was to further our understanding on how training business founders in growth-catalyst tools drawn from strategy and organization science influences their ability to grow their new ventures. Consistent with our context of opportunity-based entrepreneurship in a mature market economy, we focused on training a random sample of Singapore-based entrepreneurs in the three growth-catalyst tools of business model innovation, team structuring and effective networking, using a randomized control trial. The treatment consisted of classroom sessions conducted in workshop and lecture formats on the three tools supplemented by individualized business coaching in applying the tools to address the entrepreneur's specific issues and challenges in these domains. Our findings suggest these training inputs have a causal effect on new ventures' sales and employee growth. In addition, our evidence suggests entrepreneurs with greater initial endowments of educational and work experience as well as more ambitious growth-goals benefit more from training. We now close by discussing the contributions our work makes to the academic literature on entrepreneur-training and to policy makers interested in nurturing entrepreneurship in mature market economies.

A large academic literature on entrepreneur training (e.g. Anderson, Chandy & Zia, 2015; Bloom et al. 2010) examines training in emerging economies (cf. McKenzie & Woodruff, 2014 for a review). Much of this prior work focuses on imparting training in basic finance or marketing related concepts (cf. Anderson, Chandy & Zia, 2015), perhaps because that is sufficient to lead to effectiveness in emerging economies where existing practices could be far

from the efficiency frontier. However, there is mixed evidence on the efficacy and impact of these training tools and more importantly, it is unclear whether the impact of these tools could carry-over to entrepreneurs attempting to launch and grow new ventures in mature market economies.

Our work is closer to a more recent strand of the RCT based literature that focuses on training entrepreneurs in the organizational aspects of creating and growing new enterprises. Thus Chatterji, Delecourt, Hasan and Koning (2019) use an RCT approach to provide evidence that Indian entrepreneurs running growth-ventures benefit from peer-advice on people management to drive their venture's growth. Likewise, Camuffo, Cordova and Gambardella (2017) use an RCT approach to provide evidence that Italian nascent entrepreneurs that are taught to adopt a scientific approach to business experimentation make better decisions that improve their nascent start-up's performance. We build on Chatterji et al (2019) by examining how new knowledge in the form of structured frameworks supplemented by customized application through coaching in three strategy and organization domains drives venture growth. While Chatterji et al (2019) situated their study in the Indian entrepreneurial eco-system, our study set in Singapore sheds light on how entrepreneurs from a mature, developed economy context benefit from strategy and organizations training. In this regard, we build on Camuffo et al (2019) who examine a sample of nascent entrepreneurs – defined as individuals trying to launch a venture and are at either the idea or development stage, in a developed economy (Italian) context. In contrast, we focus on entrepreneurs who have already launched their ventures and seeking to grow their start-up.

Our main effect findings that training entrepreneurs in growth-catalyst tools related to business model innovation, networking and team structuring has a causal effect on their venture's growth suggests that more attention needs to be given to strategy and organization

aspects of running new ventures. Furthermore, our interaction effect findings suggest that not all entrepreneurs benefit equally from training in growth-catalyst tools. Rather entrepreneurs with high educational qualifications or higher work experience or higher growth goals benefit disproportionately, suggesting that training in growth-catalyst tools could be particularly useful and effective for entrepreneurs with high general human capital endowments or with greater growth motivations.

We also acknowledge that there are important limitations in our approach. First, we have a limited sample size, which although comparable to several prior published experimental studies, is modest. This limited sample constrains the conclusions we can draw, particularly about contingencies and mechanisms. Further, because we do not observe the entrepreneurs beyond our intervention events, we cannot observe the precise mechanisms through which our training content influences ultimate venture level outcomes. Second, our sample is a highly selected one, which hinders generalizing to the population at large in the Singapore eco-system.

Despite these limitations, to our knowledge, we are one of the first to examine how strategy and organization science based growth-catalyst tools can benefit entrepreneurs interested in growing their ventures. We hope these results encourage new research on entrepreneurs training and inform policymakers, especially in mature market economies where opportunity-based entrepreneurship is an important driver of long-run economic growth.

REFERENCES

Aldrich H (1999) *Organizations Evolving* (Sage Publications Ltd., London).

Anderson SJ, Chandy R, Zia B (2016) *Pathways to Profits: Identifying Separate Channels of Small Firm Growth through Business Training* (The World Bank).

Ashraf N (2017) Analyzing Data.

Baker WE (2000) *Networking smart: how to build relationships for personal and organizational success* (Backinprint.com, Lincoln, Neb.).

Becker GS (1994) Human capital revisited. Becker GS, ed. *Human capital: theoretical and empirical analysis with special reference to education*. (University of Chicago Press), 15–28.

Bhidé AV (2000) *The origin and evolution of new business* (Oxford University Press, Oxford).

Blank S (2013) Why the Lean Start-Up Changes Everything. *Harvard Business Review*(May 2013) (May 1) https://hbr.org/2013/05/why-the-lean-start-up-changes-everything.

Bloom N, Van Reenen J (2010) Why Do Management Practices Differ across Firms and Countries? *The Journal of Economic Perspectives; Nashville* 24(1):203–224.

Campos, F., Frese, M., Goldstein, M., Iacovone, L., Johnson, H. C., McKenzie, D., & Mensmann, M. (2017). Teaching personal initiative beats traditional training in boosting small business in West Africa. Science, 357(6357), 1287-1290.

Camuffo A, Cordova A, Gambardella A (2017) *A Scientific Approach to Entrepreneurial Decision-Making: Evidence from a Randomized Control Trial* (Social Science Research Network, Rochester, NY).

Carter NM, Williams M, Reynolds PD (1997) Discontinuance among new firms in retail: The influence of initial resources, strategy, and gender. *Journal of Business Venturing* 12(2):125–145.

Chatterji A, Delecourt SM, Hasan S, Koning R (2018) When Does Advice Impact Startup Performance? *Strategic Management Journal* (forthcoming).

Clough DR, Fang TP, Vissa B, Wu A (2019) Turning Lead into Gold: How Do Entrepreneurs Mobilize Resources to Exploit Opportunities? *Academy of Management Annals* 13(1):240–271.

Cohen WM, Levinthal DA (1990) Absorptive Capacity: A New Perspective on Learning and Innovation. *Administrative Science Quarterly* 35(1):128–152.

Dimov DP, Shepherd DA (2005) Human capital theory and venture capital firms: exploring "home runs" and "strike outs." *Journal of Business Venturing* 20(1):1–21.

Drucker PF (1985) The Discipline of Innovation. *Harvard Business Review* (1985) https://hbr.org/2002/08/the-discipline-of-innovation.

Furr NR, Cavarretta F, Garg S (2012) Who Changes Course? The Role of Domain Knowledge and Novel Framing in Making Technology Changes. *Strategic Entrepreneurship Journal* 6(3):236–256.

Gambardella, A., Camuffo, A., Cordova, A., & Spina, C. (2018). A Scientific Approach to Entrepreneurial Decision Making: Evidence Form a Randomized Control Trial. Management Science, Forthcoming.

Gavetti G, Rivkin JW (2007) On the Origin of Strategy: Action and Cognition over Time. *Organization Science; Linthicum* 18(3):420-439,544-545.

Hoang, H., & Yi, A. 2015. Network-based research in entrepreneurship: A decade in review. *Foundations and Trends® in Entrepreneurship*, 11(1): 1-54.

Lloyd-Ellis H, Bernhardt D (2000) Enterprise, inequality and economic development. *The Review of Economic Studies; Oxford* 67(230):147–168.

Marvel MR, Lumpkin GT (2007) Technology Entrepreneurs' Human Capital and Its Effects on Innovation Radicalness. *Entrepreneurship Theory and Practice* 31(6):807–828.

Marx M, Gans JS, Hsu DH (2014) Dynamic Commercialization Strategies for Disruptive Technologies: Evidence from the Speech Recognition Industry. *Management Science* 60(12):3103–3123.

McDonald R, Eisenhardt KM (2014) *Competing in new markets and the search for a viable business model* (Harvard Business School).

McKenzie D, Woodruff C (2014) What Are We Learning from Business Training and Entrepreneurship Evaluations around the Developing World? *World Bank Res Obs* 29(1):48–82.

Osterwalder A, Pigneur Y (2010) *Business model generation: a handbook for visionaries, game changers, and challengers* (Wiley, Hoboken, NJ).
Ozcan P, Eisenhardt KM (2009) Origin of Alliance Portfolios: Entrepreneurs, Network Strategies, and Firm Performance. *AMJ* 52(2):246–279.
Reynolds P, Bosma N, Autio E, Hunt S, De Bono N, Servais I, Lopez-Garcia P, Chin N (2005) Global Entrepreneurship Monitor: Data Collection Design and Implementation 1998-2003. *Small Business Economics; Dordrecht* 24(3):205–231.
Ries E (2011) *The lean startup: how today's entrepreneurs use continuous innovation to create radically successful businesses* (Crown Business, New York).
Schumpeter JA (1934) Change and the Entrepreneur. *Essays of JA Schumpeter*.
Shane S, Venkataraman S (2000) The promise of entrepreneurship as a field of research. *Academy of Management. The Academy of Management Review; Briarcliff Manor* 25(1):217–226.
Van Stel A, Carree M, Thurik R (2005) The Effect of Entrepreneurial Activity on National Economic Growth. *Small Business Economics; Dordrecht* 24(3):311–321.
Stinchcombe AL (1965) *Social structure and organizations* (Bobbs-Merrill, Indianapolis, IN).
Wasserman N (2012) *The Founder's Dilemmas: Anticipating and Avoiding the Pitfalls That Can Sink a Startup* (Princeton University Press).

Table 1: Description of the Training Intervention

S.No	Topic Title	Session Description	Application Exercises
1	Business Model Innovation	Participants learn about the business model canvass tool for entrepreneurs and applying the tool to their ventures.	Identify the top 3 business model issues that are both urgent and relevant to the participants' specific venture. Specify specific steps to address the issues, including how to identify and access the identified issues.
2	Building Effective Networks	Understand how to build personal networks that are rich in social capital relevant to entrepreneurship	Personalized debriefs that compare participants with their cohort in terms of a snapshot of their current personal network, its fit with the needs of their venture, insights into participants networking styles and how to achieve better alignment between the needs of their task and structure and quality of their networks.
3	Structuring Venturing Teams	Understand how incentives composition and norms affect team functioning in an entrepreneurial context	Applying the DEFT model of venture team structuring to assess timing of entry of new members, incentivizing and managing group dynamics in the specific context of the participant's venture building attempt.
4	Mentoring	Experienced entrepreneurs, domain experts and investors were made available to meet one-on-one with participants, to provide advice for the participant's most pressing business problem.	Entrepreneurs shared their three most pressing business problems with the mentor.

Table 2A: Summary Statistics by Treatment and Control at Baseline

	Panel A: Treatment (103 start-ups)					Panel B: Control (78 start-ups)					t-test	
Variable	Obs.	Mean	Std. Dev.	Min	Max	Obs.	Mean	Std. Dev.	Min	Max	Diff.	p-value
Full time employees	100	0.82	1.62	0	10	77	1.12	1.54	0	5	0.3	0.21
Sales	99	1.18	0.46	1	3	76	1.39	0.73	1	3	0.21	0.03
Education	103	4.99	0.94	2	7	78	4.77	0.85	2	6	-0.22	0.1
Work experience	98	10.5	8.31	0	33	78	9.06	7.26	0	28	-1.44	0.22
Growth goals	95	2.31	1.06	1	5	76	2.66	1.15	1	5	0.35	0.04
Independent business	103	0.94	0.24	0	1	78	0.97	0.16	0	1	0.03	0.27
Female	103	0.3	0.46	0	1	78	0.23	0.42	0	1	-0.07	0.29
Singaporean	103	0.82	0.39	0	1	78	0.77	0.42	0	1	-0.05	0.45
Age	103	37.32	8.96	24	65	77	36.16	8.66	20	63	-1.16	0.38
Entrepreneurship experience	103	0.5	0.5	0	1	78	0.51	0.5	0	1	0.02	0.82

Table 2B: Treatment Absorption Question Two Months Post Training

	Control					Treated					t-test	
	Obs	Mean	Std Dev.	Min	Max	Obs	Mean	Std Dev.	Min	Max	t	p-val
In the past two months I have explicitly used the business model canvas framework to analyze my venture idea	24	4.04	1	3	6	22	4.86	1.08	3	6	2.67	0.01
In the past two months I have become aware of the major weaknesses with my venture's business model	20	4.5	1.19	3	6	23	5.43	0.99	3	6	2.77	0.01
Over the past two months I have developed a good understanding of the size of my personal network	21	4.76	1.26	3	6	22	5.91	0.43	4	6	3.96	0.00
Over the past two months I have developed a good understanding of the diversity of my personal network	24	4.71	1.16	3	6	26	5.69	0.88	3	6	3.35	0.00
Over the past two months I have developed a good understanding that engaging in shared activity is important for building strong connections with my network contacts	25	5.28	1.1	3	6	28	5.93	0.38	4	6	2.8	0.01
In the past one months, I have thought in detail about how to align roles with rewards in my venture's management team	27	4.81	1.11	3	6	24	5.04	1.08	3	6	0.74	0.46
In the past one months, I have thought in detail about why I chose to be a solo founder or a co-founder of my venture	26	5	1.13	3	6	23	5.39	0.94	4	6	1.32	0.19
In the past one month, I have thought in detail about who might be the lead users for my venture's product/service	23	4.7	1.22	3	6	19	5.11	1.1	3	6	1.14	0.26
In the past one month, I have thought in detail about how to reach the lead users relevant for my venture's product / service	22	4.36	1.22	3	6	19	5.26	0.99	4	6	2.61	0.01
In the past one month I felt connected to the Singapore entrepreneurial ecosystem of investors, educational institutions, mentors and other stakeholders	24	3.83	0.96	3	6	17	5.06	1.03	4	6	3.86	0.00

Table 3A XT Regression of Sales[a]

Variables[b]	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Independent business	-0.123	-0.114	-0.122	-0.170	-0.127	-0.136	-0.230
	(0.27) [0.643]	(0.25) [0.650]	(0.25) [0.628]	(0.27) [0.532]	(0.24) [0.600]	(0.25) [0.584]	(0.26) [0.375]
Female	-0.098	-0.086	-0.085	-0.070	-0.081	-0.086	-0.059
	(0.13) [0.436]	(0.12) [0.488]	(0.12) [0.492]	(0.12) [0.565]	(0.12) [0.507]	(0.12) [0.471]	(0.12) [0.613]
Singaporean	0.115	0.118	0.113	0.106	0.107	0.103	0.083
	(0.12) [0.348]	(0.12) [0.335]	(0.12) [0.357]	(0.12) [0.379]	(0.12) [0.379]	(0.12) [0.403]	(0.12) [0.486]
Age	0.003	0.001	0.001	0.001	-0.001	0.001	-0.002
	(0.01) [0.782]	(0.01) [0.902]	(0.01) [0.912]	(0.01) [0.911]	(0.01) [0.916]	(0.01) [0.899]	(0.01) [0.872]
Entrepreneurship exp.	-0.018	0.001	-0.002	-0.007	-0.002	-0.000	-0.010
	(0.11) [0.871]	(0.11) [0.993]	(0.11) [0.982]	(0.11) [0.949]	(0.11) [0.986]	(0.10) [0.999]	(0.10) [0.923]
Education[b]	0.003	-0.012	-0.011	-0.004	-0.016	-0.009	-0.003
	(0.05) [0.947]	(0.05) [0.802]	(0.05) [0.814]	(0.08) [0.959]	(0.05) [0.729]	(0.05) [0.841]	(0.08) [0.974]
Work experience[b]	-0.062	-0.061	-0.058	-0.067	-0.031	-0.050	-0.031
	(0.09) [0.513]	(0.10) [0.523]	(0.10) [0.540]	(0.10) [0.499]	(0.10) [0.765]	(0.10) [0.603]	(0.11) [0.768]
Growth goals[b]	0.313	0.316	0.326	0.319	0.330	0.436	0.436
	(0.07) [0.000]	(0.07) [0.000]	(0.07) [0.000]	(0.07) [0.000]	(0.07) [0.000]	(0.09) [0.000]	(0.09) [0.000]
Treatment		0.018	-0.146	-0.146	-0.145	-0.154	-0.153
		(0.10) [0.856]	(0.08) [0.066]	(0.08) [0.068]	(0.08) [0.071]	(0.08) [0.044]	(0.08) [0.047]
Endline		0.609	0.395	0.404	0.392	0.435	0.461
		(0.10) [0.000]	(0.16) [0.013]	(0.16) [0.010]	(0.16) [0.013]	(0.16) [0.006]	(0.16) [0.003]
Treatment # Endline (H1)			**0.420**	0.373	0.414	0.507	0.464
			(0.20) [0.040]	(0.20) [0.062]	(0.20) [0.042]	(0.21) [0.015]	(0.20) [0.023]
Treatment # Education				-0.035			-0.027
				(0.09) [0.693]			(0.09) [0.755]
Endline # Education				-0.244			-0.315
				(0.18) [0.187]			(0.18) [0.079]
Treatment # Endline # Education (H2a)				**0.449**			**0.509**
				(0.22) [0.045]			**(0.22) [0.020]**
Treatment # Work exp.					-0.012		-0.012
					(0.09) [0.888]		(0.08) [0.884]
Endline # Work exp.					-0.188		-0.228
					(0.13) [0.156]		(0.13) [0.072]
Treatment # Endline # Work exp. (H2b)					**0.302**		**0.417**
					(0.19) [0.119]		**(0.17) [0.014]**
Treatment # Growth goals						-0.266	-0.262
						(0.11) [0.013]	(0.11) [0.013]
Endline # Growth goals						-0.204	-0.273
						(0.16) [0.195]	(0.15) [0.072]
Treatment # Endline # Growth goals (H3)						**0.667**	**0.835**
						(0.21) [0.001]	**(0.21) [0.000]**
Constant	1.459	1.251	1.358	1.406	1.458	1.357	1.588
	(0.51) [0.004]	(0.52) [0.016]	(0.52) [0.009]	(0.55) [0.011]	(0.52) [0.005]	(0.52) [0.009]	(0.56) [0.004]
chi2	32.418	78.047	91.917	101.904	92.253	136.948	149.585

[a] Standard errors in parentheses, p-value in square brackets. N=269. All models with clustered standard errors. [b] Interacting terms (education, work experience and growth goals) are standardized to aid interpretation of three-way-interaction with treatment and endline.

Table 3B XT Poisson Estimation of Count of Full Time Employees[a]

Variables[b]	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Independent business	0.066	0.073	0.039	0.323	0.041	-0.002	0.330
	(0.56) [0.907]	(0.54) [0.892]	(0.56) [0.945]	(0.57) [0.569]	(0.56) [0.941]	(0.56) [0.998]	(0.54) [0.544]
Female	-0.484	-0.505	-0.492	-0.485	-0.471	-0.489	-0.472
	(0.30) [0.106]	(0.29) [0.081]	(0.29) [0.093]	(0.29) [0.091]	(0.29) [0.103]	(0.29) [0.095]	(0.29) [0.104]
Singaporean	-0.366	-0.322	-0.305	-0.327	-0.309	-0.345	-0.366
	(0.31) [0.240]	(0.29) [0.269]	(0.29) [0.284]	(0.30) [0.268]	(0.27) [0.256]	(0.30) [0.246]	(0.31) [0.232]
Age	0.004	0.001	0.001	0.001	0.003	-0.002	0.002
	(0.01) [0.763]	(0.01) [0.922]	(0.01) [0.962]	(0.01) [0.931]	(0.01) [0.823]	(0.01) [0.889]	(0.01) [0.864]
Entrepreneurship exp.	0.033	0.121	0.155	0.181	0.134	0.108	0.127
	(0.23) [0.886]	(0.22) [0.582]	(0.22) [0.483]	(0.22) [0.402]	(0.23) [0.554]	(0.22) [0.624]	(0.22) [0.563]
Education[b]	0.064	0.051	0.056	0.245	0.060	0.038	0.231
	(0.14) [0.640]	(0.13) [0.698]	(0.13) [0.670]	(0.20) [0.228]	(0.13) [0.646]	(0.13) [0.769]	(0.20) [0.255]
Work experience[b]	-0.165	-0.174	-0.167	-0.129	-0.142	-0.157	-0.117
	(0.12) [0.167]	(0.12) [0.145]	(0.12) [0.176]	(0.12) [0.288]	(0.19) [0.465]	(0.12) [0.184]	(0.19) [0.529]
Growth goals[b]	0.540	0.571	0.594	0.642	0.594	0.572	0.621
	(0.10) [0.000]	(0.11) [0.000]	(0.11) [0.000]	(0.11) [0.000]	(0.12) [0.000]	(0.16) [0.000]	(0.16) [0.000]
Treatment		0.081	-0.320	-0.295	-0.347	-0.518	-0.531
		(0.21) [0.697]	(0.24) [0.177]	(0.23) [0.200]	(0.25) [0.169]	(0.27) [0.052]	(0.27) [0.053]
Endline		1.123	0.812	0.777	0.819	0.943	0.868
		(0.15) [0.000]	(0.16) [0.000]	(0.15) [0.000]	(0.15) [0.000]	(0.16) [0.000]	(0.18) [0.000]
Treatment # Endline (H1)			**0.675**	0.706	0.695	0.768	0.846
			(0.30) [0.024]	(0.30) [0.017]	(0.31) [0.025]	(0.32) [0.016]	(0.33) [0.010]
Treatment # Education				-0.432			-0.490
				(0.24) [0.069]			(0.24) [0.041]
Endline # Education				0.259			0.230
				(0.14) [0.072]			(0.14) [0.109]
Treatment # Endline # Education (H2a)				**-0.129**			**-0.014**
				(0.31) [0.677]			**(0.30) [0.962]**
Treatment # Work exp.					-0.216		-0.091
					(0.30) [0.476]		(0.30) [0.760]
Endline # Work exp.					0.062		0.081
					(0.18) [0.737]		(0.16) [0.617]
Treatment # Endline # Work exp. (H2b)					**0.117**		**-0.100**
					(0.33) [0.725]		**(0.30) [0.744]**
Treatment # Growth goals						0.536	0.512
						(0.25) [0.034]	(0.24) [0.035]
Endline # Growth goals						-0.224	-0.134
						(0.17) [0.186]	(0.17) [0.425]
Treatment # Endline # Growth goals (H3)						**-0.448**	**-0.588**
						(0.26) [0.082]	**(0.26) [0.022]**
Constant	0.486	-0.126	0.087	-0.214	-0.001	0.228	-0.232
	(0.83) [0.556]	(0.79) [0.873]	(0.80) [0.914]	(0.77) [0.782]	(0.81) [0.999]	(0.81) [0.779]	(0.81) [0.775]
lnalpha	0.202	0.168	0.190	0.152	0.182	0.149	0.108
	(0.36) [0.579]	(0.36) [0.643]	(0.36) [0.599]	(0.38) [0.685]	(0.36) [0.615]	(0.37) [0.683]	(0.38) [0.778]
chi2	68.097	137.310	135.861	173.604	151.787	161.881	191.309
ll	-501.173	-441.547	-436.822	-433.148	-436.170	-428.347	-424.810

[a] Standard errors in parentheses, p-value in square brackets. N=283. All models with clustered standard errors

[b] Interacting terms (education, work experience and growth goals) are standardized to aid interpretation of three-way-interaction with treatment and endline.

ONLINE APPENDIX

Figure A1: Timeline and Sample of Singapore Start-up Scale Program

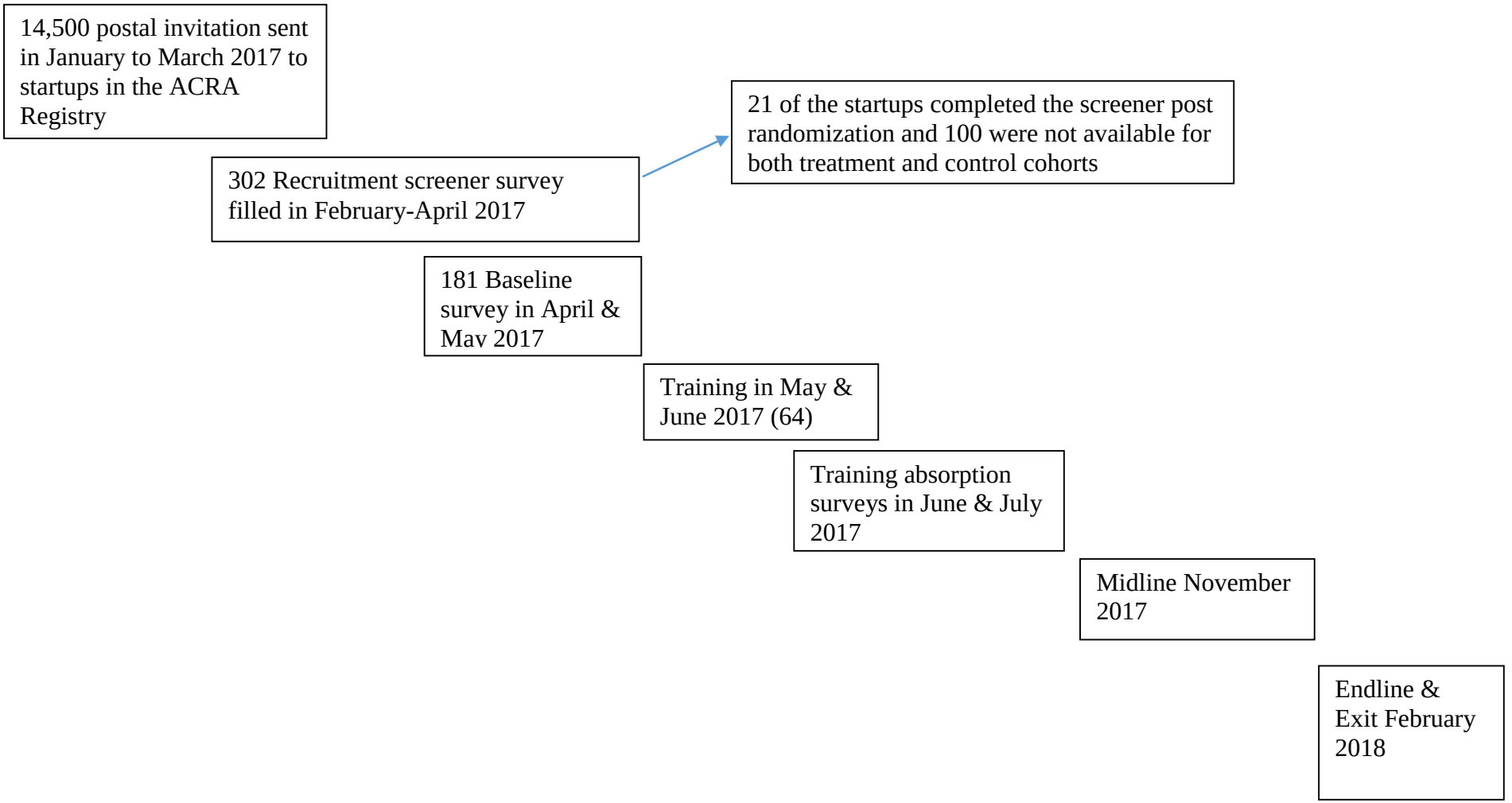

Figure A2: Education Moderating Relationship between Treatment & Sales

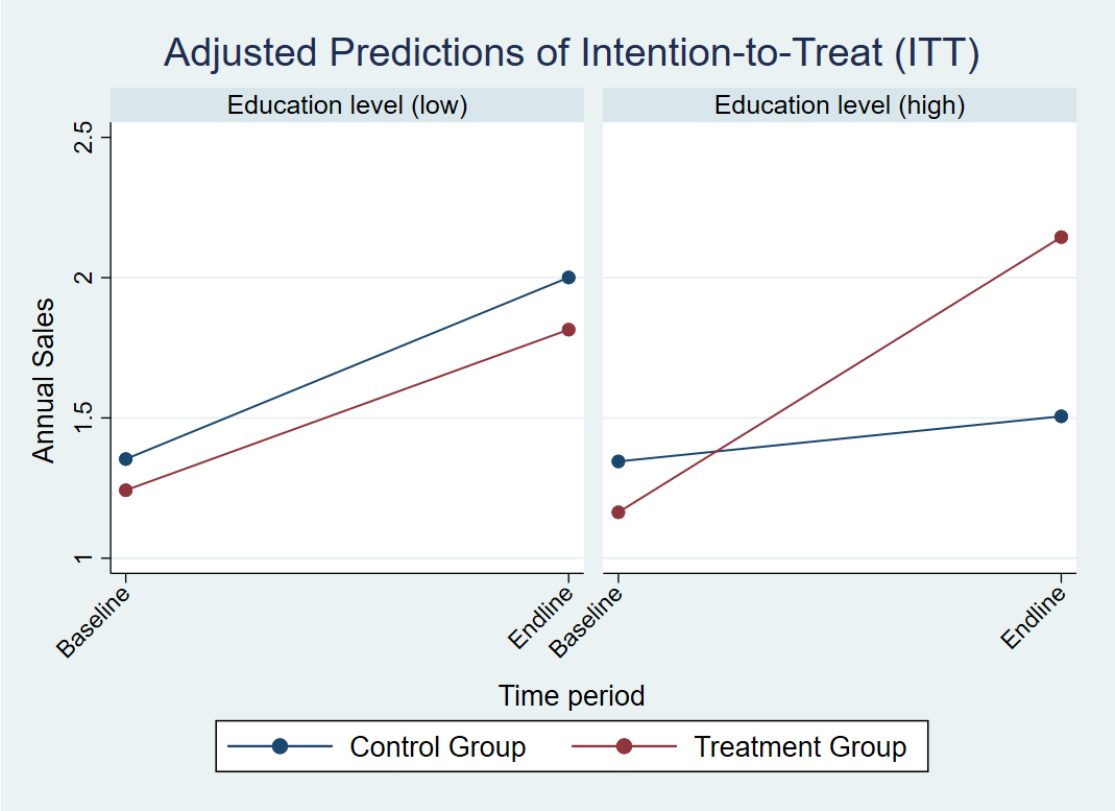

Figure A3: Work Experience Moderating Relationship between Treatment & Sales

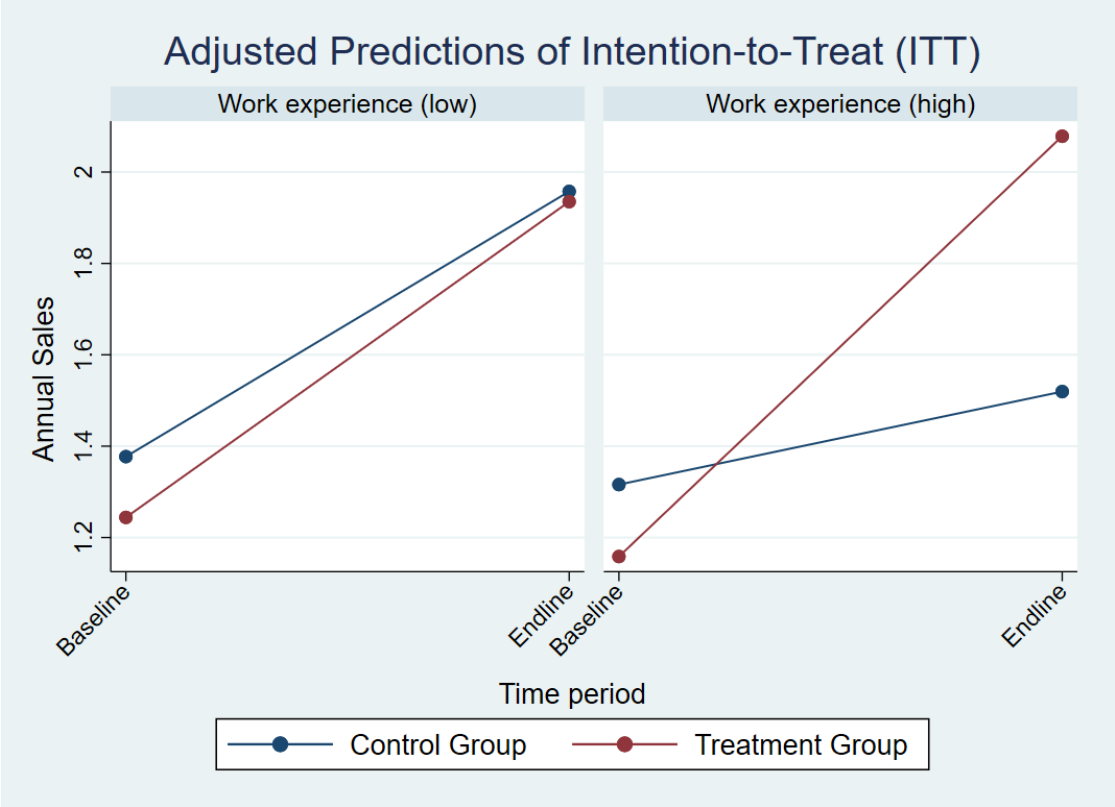

Figure A4: Growth Goal Moderating Relationship between Treatment & Sales

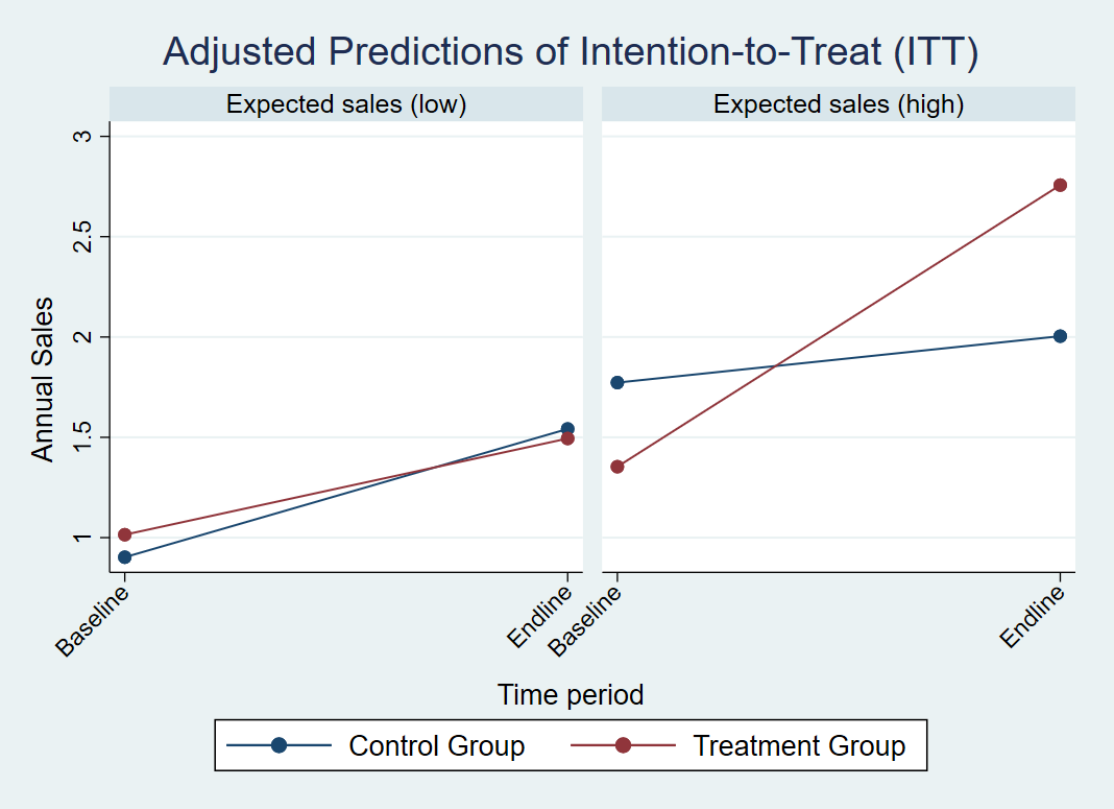

Table A1: F-test for basic variables

	Model 1	Model 2
Sales	-0.135	-0.019
	(0.07) [0.045]	(0.11) [0.866]
Full Time Employee	-0.006	-0.008
	(0.03) [0.831]	(0.03) [0.804]
Independent Biz	-0.189	0.249
	(0.19) [0.333]	(0.23) [0.280]
Female	0.090	0.112
	(0.09) [0.300]	(0.11) [0.310]
Singaporean	0.107	-0.168
	(0.09) [0.259]	(0.13) [0.195]
Age	0.005	0.002
	(0.00) [0.268]	(0.01) [0.790]
Entrepreneurship Exp.	-0.010	-0.147
	(0.08) [0.901]	(0.10) [0.152]
Constant	0.638	0.537
	(0.29) [0.029]	(0.36) [0.140]
r2	0.056	0.075
F	1.391	1.020
p	0.212	0.423
N	171	96

Standard errors in parentheses, p-value in square brackets. Model 1 dependent variable takes the value of 1 if the entrepreneur (103) is assigned to treatment condition and 0 if in control (78). The observations in the Model 1 estimation are 171 (treatment 96 and control 75) due to missing values for explanatory variables. Model 2 dependent variable takes the value of 1 if the entrepreneurs (64) are in the treatment condition and attended training and 0 if the entrepreneurs (39) did not attend training. The observations in the Model 2 estimation are 96 (treatment attended 60, treatment but did not attend 36) due to missing values for explanatory variables.

Table A3a: Robustness Check XT Regression of Sales without Control Variables

	(1)	(2)	(3)	(4)	(5)	(6)
Treatment	-0.077	-0.216	-0.212	-0.222	-0.138	-0.136
	(0.11)	(0.10)	(0.10)	(0.10)	(0.07)	(0.08)
	[0.495]	[0.025]	[0.028]	[0.024]	[0.064]	[0.077]
Endline	0.650	0.465	0.472	0.455	0.463	0.486
	(0.10)	(0.16)	(0.15)	(0.15)	(0.16)	(0.15)
	[0.000]	[0.003]	[0.002]	[0.003]	[0.003]	[0.002]
Treatment # Endline		**0.352**	0.315	0.342	0.429	0.438
		(0.20)	(0.19)	(0.20)	(0.20)	(0.20)
		[0.077]	[0.103]	[0.082]	[0.034]	[0.030]
Education			-0.001			0.010
			(0.10)			(0.08)
			[0.988]			[0.892]
Treatment # Education			-0.038			-0.058
			(0.10)			(0.08)
			[0.710]			[0.495]
Endline # Education			-0.365			-0.359
			(0.19)			(0.18)
			[0.050]			[0.044]
Treatment # Endline # Education			**0.529**			**0.565**
			(0.22)			**(0.22)**
			[0.015]			**[0.009]**
Work exp.				-0.022		-0.031
				(0.09)		(0.07)
				[0.806]		[0.677]
Treatment # Work exp.				-0.012		-0.031
				(0.10)		(0.08)
				[0.905]		[0.697]
Endline # Work exp.				-0.291		-0.283
				(0.14)		(0.13)
				[0.040]		[0.035]
Treatment # Endline # Work exp.				**0.395**		**0.472**
				(0.19)		**(0.17)**
				[0.038]		**[0.007]**
Growth goals					0.432	0.433
					(0.09)	(0.09)
					[0.000]	[0.000]
Treatment # Growth goals					-0.263	-0.250
					(0.10)	(0.10)
					[0.010]	[0.016]
Endline # Growth goals					-0.152	-0.244
					(0.16)	(0.15)
					[0.351]	[0.113]
Treatment # Endline # Growth goals					**0.543**	**0.802**
					(0.21)	**(0.21)**
					[0.010]	**[0.000]**
_cons	1.317	1.395	1.395	1.392	1.331	1.328
	(0.09)	(0.08)	(0.08)	(0.09)	(0.06)	(0.06)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
chi2	43.664	63.115	83.000	62.608	100.283	140.389
sigma_u	0.257	0.274	0.281	0.284	0.000	0.000
sigma_e	0.753	0.745	0.737	0.747	0.746	0.729
rho	0.105	0.119	0.127	0.126	0.000	0.000
p	0.000	0.000	0.000	0.000	0.000	0.000
N	290	290	290	283	277	271

Standard errors in parentheses, p-value in square brackets. All models with clustered standard errors. Moderating variables for models 3 to 6 were center-weighted for ease of interpretation.

Table A3b: Robustness Check XT Poisson Estimation of Count of Full Time Employees without Control Variables

	(1)	(2)	(3)	(4)	(5)	(6)
Treatment	-0.008	-0.307	-0.290	-0.441	-0.368	-0.454
	(0.22)	(0.25)	(0.25)	(0.26)	(0.24)	(0.26)
	[0.971]	[0.220]	[0.243]	[0.093]	[0.124]	[0.078]
Endline	1.052	0.789	0.766	0.788	0.937	0.873
	(0.14)	(0.15)	(0.15)	(0.15)	(0.16)	(0.18)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Treatment # Endline		**0.523**	0.545	0.646	0.705	0.855
		(0.27)	(0.27)	(0.31)	(0.31)	(0.34)
		[0.055]	[0.042]	[0.038]	[0.024]	[0.012]
Education			-0.062			0.247
			(0.17)			(0.18)
			[0.714]			[0.169]
Treatment # Education			-0.121			-0.471
			(0.22)			(0.23)
			[0.583]			[0.041]
Endline # Education			0.295			0.211
			(0.14)			(0.14)
			[0.032]			[0.141]
Treatment # Endline # Education			**-0.159**			**0.004**
			(0.27)			**(0.30)**
			[0.550]			**[0.989]**
Work exp.				-0.038		-0.081
				(0.20)		(0.18)
				[0.848]		[0.658]
Treatment # Work exp.				-0.452		-0.111
				(0.29)		(0.30)
				[0.115]		[0.707]
Endline # Work exp.				-0.009		0.065
				(0.18)		(0.16)
				[0.961]		[0.688]
Treatment # Endline # Work exp.				**0.200**		**-0.036**
				(0.34)		**(0.32)**
				[0.556]		**[0.911]**
Growth goals					0.543	0.578
					(0.15)	(0.15)
					[0.000]	[0.000]
Treatment # Growth goals					0.533	0.531
					(0.22)	(0.24)
					[0.017]	[0.025]
Endline # Growth goals					-0.215	-0.138
					(0.17)	(0.17)
					[0.200]	[0.408]
Treatment # Endline # Growth goals					**-0.383**	**-0.575**
					(0.24)	**(0.26)**
					[0.105]	**[0.025]**
_cons	-0.056	0.100	0.090	0.096	-0.174	-0.188
	(0.17)	(0.16)	(0.16)	(0.16)	(0.17)	(0.17)
	[0.741]	[0.521]	[0.564]	[0.544]	[0.305]	[0.281]
lnalpha	0.440	0.449	0.432	0.423	0.175	0.144
	(0.29)	(0.29)	(0.30)	(0.32)	(0.36)	(0.40)
	[0.133]	[0.127]	[0.145]	[0.186]	[0.629]	[0.721]
chi2	77.661	77.454	107.863	96.011	149.799	166.982
ll	-496.691	-493.440	-490.956	-472.097	-450.600	-430.151
p	0.000	0.000	0.000	0.000	0.000	0.000
N	306	306	306	298	292	285

Standard errors in parentheses, p-value in square brackets. All models with clustered standard errors. Moderating variables for models 3 to 6 were center-weighted for ease of interpretation.

Table A4: TOT analysis on Sales and Full Time Employee

	(1) Sales	(2) Full-time Employees
Treatment*	-0.130	-0.814
	(0.16) [0.404]	(0.44) [0.066]
Endline	0.402	0.823
	(0.17) [0.015]	(0.16) [0.000]
Treatment* # Endline	0.522	1.182
	(0.40) [0.189]	(0.53) [0.025]
Work Exp.	-0.004	-0.025
	(0.01) [0.737]	(0.02) [0.121]
Education	-0.008	0.248
	(0.08) [0.916]	(0.18) [0.175]
Growth goals	0.284	0.445
	(0.07) [0.000]	(0.09) [0.000]
Independent Biz	-0.385	0.095
	(0.39) [0.328]	(0.73) [0.897]
Female	-0.114	-0.328
	(0.14) [0.430]	(0.30) [0.274]
Singaporean	0.133	-0.243
	(0.13) [0.309]	(0.29) [0.394]
Age	-0.003	0.005
	(0.01) [0.835]	(0.01) [0.738]
Entrepreneurship Exp.	-0.072	0.116
	(0.12) [0.566]	(0.23) [0.610]
Constant	1.166	-2.250
	(0.74) [0.115]	(1.46) [0.122]
Lnalpha/ Sigma_e	0.786	0.160
		(0.39) [0.682]
chi2	71.144	124.247
Log likelihood		-356.131
N	220	232

* Instrumented; Standard errors in parentheses, p-value in square brackets. Model 1 is panel OLS regression and Model 2 is panel Poisson regression both with clustered standard errors.

Table A5: Lower and Upper Bound Analysis of Sales and Employees

	Sales		Full-time Employees	
	(1) Lower bound	(2) Upper bound	(3) Lower bound	(4) Upper bound
Treatment	-0.167	-0.099	-0.291	-0.292
	(0.08) [0.043]	(0.09) [0.269]	(0.27) [0.285]	(0.22) [0.190]
Endline	0.213	0.960	0.622	1.359
	(0.13) [0.103]	(0.17) [0.000]	(0.16) [0.000]	(0.17) [0.000]
Treatment # Endline	0.149	0.611	0.250	0.591
	(0.16) [0.346]	(0.22) [0.005]	(0.35) [0.474]	(0.25) [0.017]
Work Exp.	-0.010	-0.006	-0.021	-0.018
	(0.01) [0.373]	(0.01) [0.625]	(0.02) [0.196]	(0.01) [0.152]
Education	0.007	-0.074	0.109	-0.129
	(0.05) [0.890]	(0.06) [0.245]	(0.16) [0.505]	(0.09) [0.145]
Growth goals	0.216	0.219	0.493	0.147
	(0.06) [0.000]	(0.05) [0.000]	(0.10) [0.000]	(0.06) [0.018]
Independent Biz	-0.125	-0.005	0.269	-0.098
	(0.28) [0.657]	(0.25) [0.983]	(0.60) [0.655]	(0.40) [0.805]
Female	-0.060	-0.047	-0.515	0.114
	(0.11) [0.601]	(0.14) [0.731]	(0.31) [0.095]	(0.17) [0.514]
Singaporean	0.083	0.165	-0.425	0.084
	(0.11) [0.459]	(0.14) [0.225]	(0.31) [0.176]	(0.19) [0.650]
Age	0.006	-0.008	0.006	0.002
	(0.01) [0.539]	(0.01) [0.498]	(0.01) [0.674]	(0.01) [0.855]
Entrepreneurship Exp.	-0.064	0.131	-0.016	0.135
	(0.10) [0.509]	(0.11) [0.253]	(0.24) [0.948]	(0.15) [0.372]
Constant	0.772	1.375	-1.658	0.306
	(0.47) [0.098]	(0.51) [0.007]	(1.33) [0.214]	(0.64) [0.630]
sigma_u	0.337	0.179		
Lnalpha/ Sigma_e	0.689	0.977	0.392	-0.039
			(0.35) [0.268]	(0.29) [0.894]
chi2	48.651	239.676	70.028	711.830
Log likelihood/Rho			-513.772	-667.171
N	332.000	332.000	332.000	332.000

Standard errors in parentheses, p-value in square brackets. Models 1 & 2 are panel OLS regression and Models 3 & 4 are panel Poisson regression all with clustered standard errors.

Table A6: Winsorized Estimations of Sales ITT analysis and Full Time Employee (Winsorized top 1%)

	(1) Sales	(2) Full-time Employees
Treatment	-0.146	-0.314
	(0.08) [0.066]	(0.23) [0.170]
Endline	0.395	0.687
	(0.16) [0.013]	(0.16) [0.000]
Treatment # Endline	0.420	0.602
	(0.20) [0.040]	(0.25) [0.015]
Work Exp.	-0.007	-0.022
	(0.01) [0.540]	(0.02) [0.161]
Education	-0.012	-0.018
	(0.05) [0.814]	(0.14) [0.897]
Growth goals	0.293	0.495
	(0.06) [0.000]	(0.09) [0.000]
Independent Biz	-0.122	0.194
	(0.25) [0.628]	(0.54) [0.720]
Female	-0.085	-0.488
	(0.12) [0.492]	(0.25) [0.050]
Singaporean	0.113	-0.092
	(0.12) [0.357]	(0.24) [0.701]
Age	0.001	-0.003
	(0.01) [0.912]	(0.01) [0.803]
Entrepreneurship Exp.	-0.002	0.364
	(0.11) [0.982]	(0.20) [0.064]
Constant	0.768	-1.119
	(0.51) [0.131]	(1.09) [0.304]
lnalpha/ Sigma_e	0.735	-0.047
		(0.37) [0.899]
Chi2	91.917	153.633
Log likelihood		-409.500
N	269.000	280.000

Standard errors in parentheses, p-value in square brackets. Model 1 is OLS regression and Model 2 is Poisson regression both with clustered standard errors.

Table A7: Exit Survey Question (ITT) to Ascertain Motivation or Identity Differences

	Control					Treated					t-test	
	Obs	Mean	Std Dev.	Min	Max	Obs	Mean	Std Dev.	Min	Max	t	p-val
Are you satisfied with the progress of the new business since April/ May 2017? (1 = Highly satisfied, 5 = Highly dissatisfied)	23	3.26	0.92	2	5	36	3.5	1	1	5	-0.94	0.35
Entrepreneurial identity (5-item scale)	24	4.67	1.24	1.5	6.67	38	4.86	0.85	2.83	6.33	-0.67	0.51

The exit survey was conducted in the first quarter of 2018 (between 19 January and 6 April 2018). Survey was dispensed on online platform.

Table A8: Drivers of Education

	Model 1: Sales	Model 2: Full-time Employees
Treatment	0.086	0.613
	(0.15) [0.580]	(0.44) [0.165]
Endline	0.583	0.651
	(0.25) [0.019]	(0.29) [0.027]
Treatment # Endline	-0.125	-0.117
	(0.31) [0.683]	(0.36) [0.746]
Business	0.178	0.605
	(0.21) [0.407]	(0.46) [0.183]
STEM	0.266	0.644
	(0.17) [0.123]	(0.37) [0.083]
Treatment # Business	-0.193	-1.520
	(0.23) [0.408]	(0.67) [0.023]
Treatment # STEM	-0.414	-1.285
	(0.21) [0.045]	(0.56) [0.021]
Endline # Business	-0.105	-0.222
	(0.53) [0.843]	(0.54) [0.679]
Endline # STEM	-0.386	0.322
	(0.35) [0.272]	(0.34) [0.347]
Treatment # Endline # Business	0.195	1.344
	(0.62) [0.753]	(0.76) [0.078]
Treatment # Endline # STEM	0.944	0.761
	(0.44) [0.032]	(0.53) [0.148]
Work Exp.	-0.007	-0.028
	(0.01) [0.613]	(0.02) [0.097]
Growth goals	0.297	0.548
	(0.06) [0.000]	(0.10) [0.000]
Independent Biz	-0.112	0.144
	(0.26) [0.666]	(0.50) [0.774]
Female	-0.120	-0.511
	(0.13) [0.354]	(0.28) [0.073]
Singaporean	0.098	-0.544
	(0.13) [0.455]	(0.28) [0.051]
Age	-0.001	0.012
	(0.01) [0.933]	(0.02) [0.447]
Entrepreneurship Exp.	-0.008	0.220
	(0.11) [0.946]	(0.20) [0.269]
Constant	0.653	-1.731
	(0.52) [0.211]	(0.86) [0.045]
lnalpha/ Sigma_e	0.758	0.042
		(0.37) [0.910]
Chi2	95.560	170.290
Log likelihood		-410.141
N	255	269

Standard errors in parentheses, p-value in square brackets. Model 1 is panel OLS regression and Model 2 is panel Poisson regression all with clustered standard errors. Models are tested with three-categorical education (Humanities, Business and STEM) independent variable.

Table A9: Drivers of work experience

	Sales					Full-time Employees				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Treatment	-0.145	-0.141	-0.141	-0.140	-0.145	-0.185	-0.178	-0.186	-0.178	-0.202
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.22)	(0.23)	(0.23)	(0.23)	(0.23)
	[0.083]	[0.091]	[0.088]	[0.096]	[0.082]	[0.408]	[0.432]	[0.410]	[0.441]	[0.369]
Endline	0.381	0.385	0.385	0.384	0.382	0.794	0.819	0.779	0.801	0.752
	(0.16)	(0.16)	(0.16)	(0.17)	(0.16)	(0.14)	(0.14)	(0.15)	(0.15)	(0.16)
	[0.019]	[0.019]	[0.020]	[0.020]	[0.018]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Treatment # Endline	0.386	0.396	0.397	0.391	0.405	0.596	0.594	0.624	0.615	0.626
	(0.20)	(0.20)	(0.20)	(0.20)	(0.20)	(0.28)	(0.29)	(0.28)	(0.29)	(0.28)
	[0.058]	[0.053]	[0.052]	[0.056]	[0.045]	[0.032]	[0.037]	[0.029]	[0.036]	[0.026]
Tech Skills	-0.069	-0.114	-0.119	-0.110	-0.114	-0.282	-0.025	-0.061	-0.030	-0.023
	(0.09)	(0.07)	(0.07)	(0.07)	(0.07)	(0.20)	(0.18)	(0.17)	(0.18)	(0.17)
	[0.435]	[0.088]	[0.076]	[0.100]	[0.087]	[0.168]	[0.887]	[0.727]	[0.864]	[0.892]
Customer	0.123	0.122	0.122	0.123	0.124	-0.854	-1.049	-0.860	-0.844	-0.841
	(0.08)	(0.10)	(0.08)	(0.08)	(0.08)	(0.20)	(0.22)	(0.20)	(0.20)	(0.20)
	[0.124]	[0.233]	[0.123]	[0.118]	[0.120]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Customer Needs	0.001	0.002	0.030	0.005	0.003	0.137	0.149	0.061	0.152	0.144
	(0.09)	(0.09)	(0.12)	(0.09)	(0.09)	(0.22)	(0.23)	(0.27)	(0.23)	(0.22)
	[0.992]	[0.983]	[0.796]	[0.952]	[0.974]	[0.543]	[0.518]	[0.822]	[0.516]	[0.521]
Distribution	-0.040	-0.046	-0.043	-0.044	-0.041	0.337	0.312	0.315	0.182	0.330
	(0.10)	(0.10)	(0.10)	(0.11)	(0.10)	(0.16)	(0.16)	(0.16)	(0.18)	(0.16)
	[0.683]	[0.639]	[0.659]	[0.695]	[0.671]	[0.034]	[0.055]	[0.052]	[0.315]	[0.042]
Suppliers	0.137	0.140	0.139	0.139	0.156	0.533	0.538	0.542	0.549	0.390
	(0.08)	(0.09)	(0.09)	(0.09)	(0.11)	(0.18)	(0.18)	(0.18)	(0.18)	(0.22)
	[0.106]	[0.104]	[0.106]	[0.109]	[0.171]	[0.003]	[0.002]	[0.003]	[0.002]	[0.075]
Treatment # Tech Skills	-0.092					0.141				
	(0.09)					(0.24)				
	[0.298]					[0.561]				
Endline # Tech Skills	-0.106					0.381				
	(0.16)					(0.14)				
	[0.514]					[0.008]				
Treatment # Endline # Tech Skills	0.265					-0.148				
	(0.20)					(0.23)				
	[0.181]					[0.528]				
Treatment # Customer		-0.052					0.162			
		(0.09)					(0.23)			
		[0.575]					[0.477]			
Endline # Customer		0.056					0.349			
		(0.17)					(0.12)			
		[0.748]					[0.004]			
Treatment # Endline # Customer		0.059					-0.292			
		(0.20)					(0.24)			
		[0.768]					[0.220]			
Treatment # Customer Needs			-0.102					-0.048		
			(0.09)					(0.23)		
			[0.266]					[0.834]		
Endline # Customer Needs			0.027					0.364		
			(0.17)					(0.14)		
			[0.877]					[0.012]		
Treatment # Endline # Customer Needs			0.122					-0.200		
			(0.20)					(0.24)		
			[0.541]					[0.405]		
Treatment # Distribution				-0.082					0.052	
				(0.10)					(0.22)	
				[0.389]					[0.809]	
Endline # Distribution				0.024					0.315	
				(0.18)					(0.13)	
				[0.895]					[0.012]	
Treatment # Endline # Distribution				0.158					-0.306	
				(0.21)					(0.23)	
				[0.459]					[0.191]	
Treatment # Suppliers					-0.100					-0.008
					(0.10)					(0.22)
					[0.321]					[0.972]
Endline # Suppliers					0.031					0.276
					(0.17)					(0.11)
					[0.859]					[0.013]
Treatment # Endline # Suppliers					0.122					-0.091
					(0.21)					(0.22)
					[0.555]					[0.678]
Education	0.032	0.032	0.032	0.029	0.032	0.114	0.111	0.114	0.100	0.116

	Sales					Full-time Employees				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.12)	(0.13)	(0.13)	(0.12)	(0.13)
	[0.528]	[0.526]	[0.524]	[0.563]	[0.528]	[0.362]	[0.379]	[0.375]	[0.418]	[0.360]
Growth goals	0.223	0.221	0.221	0.223	0.220	0.474	0.464	0.451	0.456	0.455
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.10)	(0.10)	(0.09)	(0.10)	(0.09)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Independent Biz	-0.256	-0.236	-0.256	-0.264	-0.242	0.338	0.364	0.297	0.280	0.370
	(0.17)	(0.17)	(0.17)	(0.17)	(0.17)	(0.44)	(0.45)	(0.44)	(0.46)	(0.45)
	[0.141]	[0.170]	[0.130]	[0.117]	[0.160]	[0.446]	[0.419]	[0.503]	[0.542]	[0.407]
Female	-0.084	-0.087	-0.086	-0.085	-0.087	-0.496	-0.520	-0.544	-0.531	-0.510
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.25)	(0.25)	(0.25)	(0.25)	(0.24)
	[0.460]	[0.438]	[0.433]	[0.446]	[0.428]	[0.046]	[0.039]	[0.027]	[0.032]	[0.037]
Singaporean	0.113	0.114	0.119	0.116	0.110	-0.263	-0.241	-0.216	-0.238	-0.255
	(0.13)	(0.12)	(0.12)	(0.12)	(0.12)	(0.26)	(0.25)	(0.26)	(0.25)	(0.25)
	[0.373]	[0.353]	[0.339]	[0.350]	[0.372]	[0.318]	[0.343]	[0.399]	[0.349]	[0.316]
Age	-0.002	-0.001	-0.001	-0.001	-0.001	-0.022	-0.021	-0.019	-0.020	-0.020
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
	[0.760]	[0.820]	[0.855]	[0.829]	[0.850]	[0.090]	[0.104]	[0.146]	[0.125]	[0.110]
Entrepreneurship Exp.	0.073	0.072	0.072	0.074	0.077	0.385	0.383	0.386	0.390	0.389
	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.19)	(0.18)	(0.19)	(0.18)	(0.18)
	[0.474]	[0.479]	[0.485]	[0.472]	[0.448]	[0.041]	[0.037]	[0.037]	[0.035]	[0.035]
Constant	0.860	0.828	0.833	0.858	0.830	-1.356	-1.412	-1.398	-1.286	-1.390
	(0.43)	(0.43)	(0.43)	(0.43)	(0.43)	(1.05)	(1.05)	(1.05)	(1.04)	(1.06)
	[0.044]	[0.053]	[0.050]	[0.048]	[0.051]	[0.195]	[0.181]	[0.182]	[0.215]	[0.188]
lnalpha/ Sigma e	0.733	0.736	0.737	0.735	0.735	0.051	0.052	0.038	0.044	0.044
						(0.37)	(0.37)	(0.37)	(0.37)	(0.37)
						[0.889]	[0.888]	[0.919]	[0.905]	[0.904]
Chi2	115.213	117.282	116.719	117.952	118.033	212.681	205.664	214.049	207.148	217.354
Log likelihood						-425.580	-426.611	-425.877	-426.805	-426.818
N	269	269	269	269	269	282	282	282	282	282

Standard errors in parentheses, p-value in square brackets. Models 1 to 5 are panel OLS regression and Models 6 to 10 are panel Poisson regression; all with clustered standard errors. Five survey questions (not related to highly related on 7-point Likert scale) representing participants relevant working experience on i) venture's products related technologies/technical skills (Tech Skills); ii) customers that the venture targets (Customer); iii) customer needs that the venture targets (Customer Needs); iv) distribution channels the venture targets (Distribution); and v) suppliers and vendors the venture target (Suppliers) are tested as separate independent variables. Responses for relevant work experience were centre-weighted for ease of interpretation.