EVALUATION OF THE CAVENDISH ENTERPRISE 'BUSINESS BOOST' PROJECT

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EVALUATION OF THE CAVENDISH ENTERPRISE 'BUSINESS BOOST' PROJECT

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EXECUTIVE SUMMARY

Background

- Cavendish Enterprise's Business Boost trial project involved providing young small firms – typically micro-businesses – with a treatment involving a series of workshops designed to enhance productivity. This was provided largely as a top-up to an advice and mentoring programme called 'Start and Grow'.

- The project was part of the government's Business Basics Programme which has the core aim of identifying cost effective, yet productivity enhancing, programmes of business support for SMEs which can be run at scale throughout the country.

- The programme evaluation was conducted on behalf of the consortium by the Enterprise Research Centre between January 2019 and March 2020.

- The evaluation used a Randomised Controlled Trial approach. This is generally regarded as the most reliable methodology for determining causality and accessing the impacts of an intervention. It involved analysis of three groups of firms: a Treatment group of 150 firms, a Control group of 150 firms, and a Comparison group also of 150 firms.

- The evaluation design recognised that six months after the treatment there are going to be few if any observable changes in business performance. The focus of the analysis is therefore more on attitudinal and behavioural changes with research questions relating to productivity enhancing tools, routines and behaviours.

Key results

- Overall, the findings provide evidence of widespread positive and statistically significant effects of the treatment on awareness of a number of growth and performance related management tools (e.g. critical task lists, business model canvas, lean business canvas, SWOT analysis). These effects prove robust across a range of different model specifications. Effects on the use of the tools are generally somewhat weaker. There is also evidence of increased adoption of various performance related business behaviours (e.g. formation of mission and vision statements, formal business planning).

- All of the businesses in the treated group reported positive outcomes in at least two of the four key areas in which support was provided. More than three quarters of these businesses (78%) reported positive outcomes in all four areas.

- The evaluation data provide good evidence that in most, but not all cases, the treatment received was causally significant to the outputs reported.

- The significance of these effects is striking due to two issues which arose during the conduct of the trial: partial take-up of the treatment and attrition in the follow-on survey.

- Of the 150 companies in the treatment group just 72 companies (49 per cent of the group) attended the whole set of six workshops with 40 attending none of the six workshop sessions. Results for the full and partial treatment groups prove rather similar.

- Attrition between the baseline and follow-on company survey meant that the final analysis includes only 95 firm from the treatment group and 75 each from the control and Comparison groups. Attrition was largely random – baseline characteristics are jointly insignificant in predicting response to the final survey for each group of firms.

Policy implications

- The treatment applied is shown to have clear impacts on productivity enhancing attitudes and behaviours in the target group of firms. We know therefore that interventions like the workshop programmes considered here can focus the attitudes and behaviours of young, micro-businesses on productivity improvement. This programme is relevant across sectors and could be scaled regionally or nationally to involve many more companies.

- The Business Boost trial suggests a number of other considerations which would need to be taken into account in any such roll-out:
  o The current programme involves six workshop sessions and a final mentoring meeting. It may be possible to make the programme more attractive by concentrating input into fewer sessions.
  o Partial attendance could be avoided by charging firms for non-attendance at sessions as one way to encourage firms to complete the whole programme.
  o Some barriers were noted in terms of travel to programme venues, however, and this may need to be considered in terms of any roll-out.
  o The Business Boost programme depends on expert facilitation and business mentoring. Supply capacity is limited in some contexts, particularly perhaps in more rural or peripheral areas.

Lessons for future trials

The Business Boost trial generated some clear findings but also suggests some lessons for those planning future RCTs related to business support, particularly where this involves an element of face-to-face delivery.

- It is important to recognise the challenges in recruiting firms into RCTs which may be greater than other programmes due to the random allocation of support. Significant resources should be available and a clear recruitment strategy developed for future trials.
- It may be advisable to pilot test the intervention itself prior to the RCT. This should help to make the treatment more appealing to potential participants and may help to reduce the probability that firms do not complete the whole of the treatment programme.
- In determining the scale of the trial, effect sizes and traditional power calculations are important. Survey attrition between the treatment and follow-on surveys should be taken into account in the calculations.
- It may be worth considering the replication of RCTs focussing on a particular treatment in differing social and economic contexts. A treatment which 'works' in one set of circumstances may not always be so effective.

SECTION 1: BACKGROUND

1.1 Introduction

This report documents the findings of an evaluation of Cavendish Enterprise's 'Boosting SME productivity' project conducted by the Enterprise Research Centre (ERC). This project is part of the government's Business Basics Programme which is designed to test new approaches to supporting improved performance in micro, small and medium-sized enterprises (SMEs).

The government announced the Business Basics Programme in its Industrial Strategy in 2017. The programme is intended to test innovative ways of encouraging SMEs to adopt existing technologies and business practices that can boost their productivity[1]. In doing so the programme aims to add to the evidence base of what works in driving up SME productivity. The four-year programme runs from 2018 to 2022. It has a £9.2 million budget, and grant funding is allocated to a range of projects through the Business Basics Fund. The Programme is delivered on behalf of BEIS through a partnership with Innovate UK and the Innovation Growth Lab at Nesta.

The objectives of the Business Basics Programme are to:

i. Raise the productivity of small to medium-sized enterprises (SMEs) by identifying and testing the most effective and scalable interventions which encourage SMEs to adopt productivity boosting existing technology and modern business practices testing which interventions have the most impact on SME productivity.

ii. Drive innovation by sourcing new ideas from traditional and non-traditional sources taking a dynamic, experimental approach in order to learn and develop as the project develops supporting new initiatives and leaving a legacy of quality data and evaluation to inform future research.

iii. Enable better investment decisions at a local and national level by providing a new, robust evidence base for those interventions which are the most effective in raising productivity taking an inclusive approach such as by involving SMEs from different areas and different sectors and focusing on the transferability and scalability of interventions.

Funding for the Business Boost Trial which is the focus of this report was agreed in October 2018 as part of the first round of Business Basics projects. The project was designed and implemented by Cavendish Enterprise, a group of four of the largest enterprise agencies across England. Over the past five years Cavendish Enterprise, with other members of the broader Cavendish Consortium, has been working to create a business support structure across England which enables start-up businesses to grow, creating strong and sustainable economic growth.

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[1] https://www.gov.uk/government/publications/business-basics-programme-overview-and-objectives

1.2 Overview of the Business Boost Trial

The Business Boost Trial led by Cavendish Enterprise involves providing young, small firms – typically micro-businesses – with a treatment involving a series of six productivity enhancing workshops supported by a one-to-one session with a business mentor or coach. Where attendees missed elements of the workshops the information was provided during the one-to-one session. This is being provided as a top-up to an established advice and mentoring programme called 'Start and Grow'[2]. The Start and Grow programme itself was designed to reach a large number of people who wanted to start businesses with growth potential. Over 70% of the UK business population is self-employed with around 5% having significant ambition to scale. Start and Grow targeted the 25% who wished to employ people and to grow their businesses but were not at that stage seeking fast growth or high growth. The Start and Grow programme was primarily one-to-one support supplemented with masterclasses. The one-to-one support was intensive at the start-up stage. Support was offered for up to three years and quarterly contact was maintained with the businesses. The range of demands was large. Some participating businesses failed, some never employed people, despite the owners' aspirations, some didn't want any support after start-up and many were content to use the support offered throughout but more or less intensively according to needs and the availability of time. Finally, some businesses were clearly continuing to grow and keen for a type of input that the masterclasses, which were mainly concerned with delivering content, could not provide. The 'Business Boost' intervention was designed to meet the needs of this group through a more interactive group-based programme, based around nationally and explicitly agreed content. Ideally this helps overcome barriers to growth in participating firms by enabling them to use a range of business management tools (critical task lists, business model canvas, lean business canvas, SWOT analysis), develop an effective vision for growth and put in place effective planning and management routines.

The Cavendish Consortium has delivered many programmes in the decade since its inception and, although they have differed to some degree, the common theme running through most of them has been a focus on one-to-one business support. The explicit focus on a group of peers working together towards the same broad end was an important differentiator of the Business Boost project. Cavendish has been moving slowly towards more standardised interventions across the country. This intervention continued to build the base to create a higher degree of common core content than the more locally/regionally based intervention of previous programmes. The adoption of an RCT approach, generally regarded as the most rigorous and reliable approach to evaluating a project such as this (see Box 1.1), was also new for Cavendish. The Start and Grow programme itself is subject to a quasi-experimental design (level 4 on the Maryland Scale) but the results of the trial will not be available until late 2020/early 2021, so only initial findings and qualitative feedback are currently available to inform the intervention. The core aim of the trial was therefore to identify a cost effective, yet productivity enhancing programme of business support for SMEs which can be run at scale throughout the country.

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[2] https://web.archive.org/web/20200121102839/https://www.gov.uk/business-finance-support/start-grow-digital-business-support-platform

Box 1.1: Randomized controlled trials

Randomized Controlled Trials (RCTs) are generally regarded as the optimal and most reliable approach to determining causality and measuring the impacts of an intervention such as a business support project. An RCT is a type of scientific experiment that aims to reduce certain sources of bias when testing the effectiveness of new treatments. This is accomplished by randomly allocating subjects to two or more groups, treating them differently, and then comparing them with respect to a measured response. One group—the treatment group—has the intervention being assessed, while the other - usually called the Control group - has an alternative condition, typically no intervention. The groups are followed under conditions of the trial design to see how effective the experimental intervention was. Treatment efficacy is assessed in comparison to the control (See Box 1.2). There may be more than one treatment group or more than one control or Comparison group.

The Business Boost Trial included three groups of businesses:

- *Treatment group* – a group of approximately 150 companies which had been through the Cavendish Consortium 'Start and Grow' programme and then randomly allocated to the treatment group, i.e. receiving the productivity enhancing workshops[3].

- *Control group* – a group of approximately 150 companies which had been through the Cavendish Consortium 'Start and Grow' programme and then randomly allocated to the Control group. These firms received only the basic 'Start and Grow' support[4].

- *Comparison group* – a group of approximately 150 firms with similar characteristics (age, size, region, sector) to the 'Start and Grow' group but which received neither 'Start and Grow' nor the productivity enhancing workshops.

The Comparison group is not a necessary part of an RCT. However, this third group was included in the analysis to provide a further test of the treatment and provide information on the external validity of the trail, i.e. the applicability of trial results to the general population of small firms outside the treatment and Control groups. The Comparison group was identified immediately after the completion of the treatment period. A sample of companies matching the combined treatment and Control group in terms of business age, size, region and sector was obtained from a commercial list broker. Telephone interviews for the baseline survey were then conducted with firms from this group using sample quotas to ensure the match with the treatment and Control

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[3] Note however that due to recruitment difficulties a number of other firms which were not part of the S&G programme were also included in the treatment and Control groups. This applied to 99 firms in the treatment group and 89 firms in the Control group.

[4] The size of the treatment, control and comparison groups were the maximum which were feasible within the limit of the trial budget. The Business Boost intervention was delivered in cohorts of ten treated businesses (with a parallel group of 10 in the Control group). Additional cohorts were not feasible within the project budget.

group was maintained. Later in this report we provide more detail on the differences in, what were then, non-observable characteristics of the treatment/Control group and the Comparison group.

Baseline data was collected from all three groups of firms by either telephone or through face-to-face interviews by Cavendish Enterprise staff or on-line during the project recruitment period (February to June 2019). A post-treatment follow-on survey of all three groups was conducted by telephone between January and February 2020.

Box 1.2: Stages in an RCT
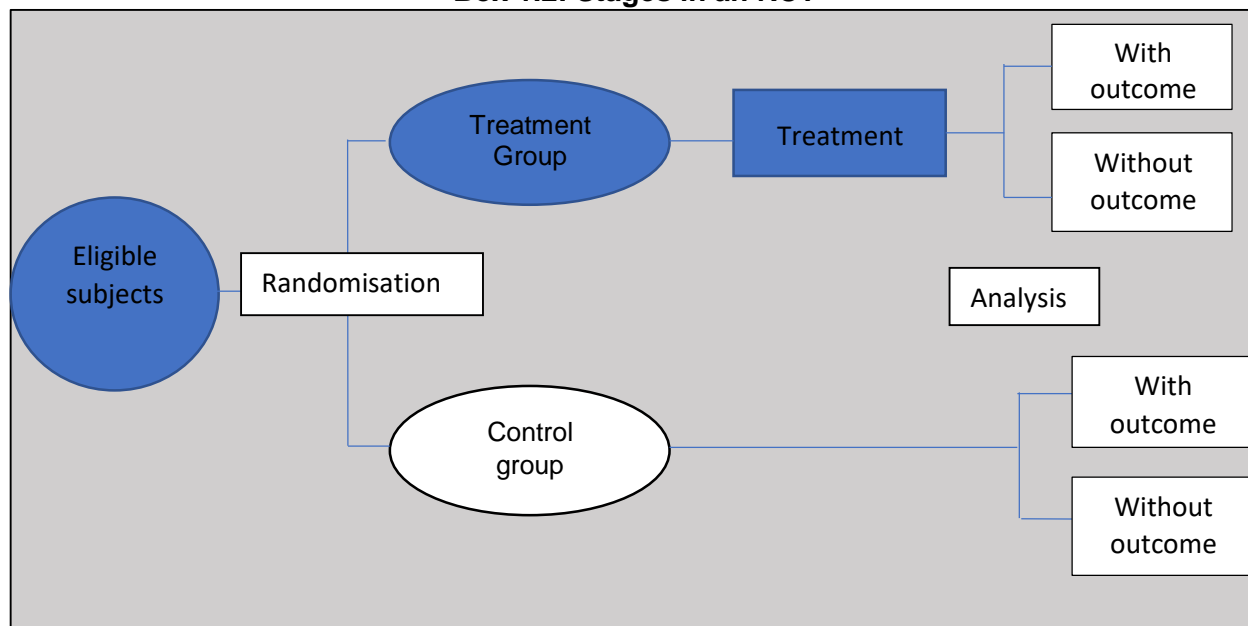
The post-treatment impact period (i.e. the gap between the treatment and the follow-on survey) in the Business Boost Trial was around 6-months. This is too short a period to anticipate bottom line or performance measures to be evident. The follow-on survey therefore focussed on attitudinal and behavioural change in firms with research questions relating to productivity enhancing tools, routines and behaviours. The questionnaires used in the baseline and follow-on surveys are reproduced in Annex A and Annex B.

1.3 Overview of the report

The rest of this report focuses on the design, conduct and outcomes of the Business Boost Trial. Section 2 focuses on the initial design of the Trial and provides a detailed description of the trial intervention and the approach to randomisation. Section 2 also describes the conduct of the trial itself which raised a number of practical issues. Perhaps the most important were difficulties in recruitment, partial take up of the treatment and attrition in the follow-on survey. Each of these have implications for the main trial results which are reported in Sections 3 and 4 dealing with the baseline survey and impact estimates. Section 5 draws out some of the main lessons in terms of 'what works' as well as lessons for future RCTs relating to business support. Survey questionnaires are included in Annexes as are detailed estimation results.

SECTION 2: TRIAL METHODOLOGY AND DESIGN

2.1 Introduction

The overall objective of the Business Boost trial was to identify a cost effective, productivity enhancing programme of business support for SMEs which can be run at scale throughout the country. Although there have been numerous evaluations of this type of business support initiative internationally almost none of these have adopted an RCT based approach[5]. This trial therefore represents an innovative approach to the evaluation of business support programmes and a test both of the intervention itself and also the RCT methodology. The trial was registered with the American Economic Association RCT Registry in December 2019[6].

More broadly, in terms of UK policy, the aims of the productivity enhancing intervention addresses a key finding from a large-scale NESTA research study in 2016 which suggested that new firms created since the 2008-12 recession have dragged down UK productivity. The more recent (2019) Business Productivity Review also emphasises the need for smaller UK firms to raise their productivity, emphasising the importance of the Business Change Cycle which aligns well to the Business Boost intervention[7].

The Business Boost trial focuses on enhancing productivity within an existing cohort of growing micro-businesses from the Start and Grow programme run by the Cavendish Consortium[8]. The Start and Grow cohort provided an ideal group of firms for the study as:

- Start & Grow cohort businesses are typically aged between 1-3 years and are micro-businesses (i.e. with 1-9 employees). This puts them in the most 'at risk' group in terms of potential failure.
- Links with the Start & Grow cohort of firms were already established which it was thought should make recruitment for the trial easier.

In overview, the trial was originally planned to run for 12 months, with six months treatment time and a six-month impact period. The aim was to recruit 300 companies from the Start & Grow cohort to form treatment and Control groups of 150 firms each. In addition, 150 matched micro-businesses from the general population were recruited to form an additional Comparison group.

The treatment involved a series of six workshops designed to develop firms' management and leadership capabilities and contribute to enhanced productivity. However, it was recognised that within the project timeline – i.e. six months after the treatment - there would be few, if any, observable changes in business performance. Instead, therefore the focus of the analysis is on attitudinal and behavioural metrics with research questions relating to productivity enhancing

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[5] Dalziel, Margaret, Why are There (Almost) No Randomised Controlled Trial-Based Evaluations of Business Support Programmes? (February 2018). Palgrave Communications, Vol. 4, Issue 1, pp. 12-12, 2018.

[6] https://www.socialscienceregistry.org/trials/4111

[7] See https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/844506/business-productivity-review.pdf

[8] https://cavendishenterprise.co.uk/programme/start-and-grow/

tools, routines and behaviours. This was recognised in the original Trial Protocol (December 2019) and subsequently during the Treatment period (early 2020) this was refined into four more specific research questions. The development of these more specific research questions reflected further development of the theory of change implicit in the intervention (see the logic model discussion below) and the need to capture short-term outputs from the trial. These were considered in terms of the comparison between Treatment and Control groups and the Treatment and the Comparison group:

- RQ1 Was the treatment effective in helping firms to be aware of and use tools which could help them increase productivity.
- RQ2 Has the treatment helped firms to develop a clearer vision for their business and formulate strategies to improve productivity?
- RQ3 Has the treatment increased the probability that firms are adopting formal business plans and other managerial tools which may contribute to productivity.
- RQ 4 Has the treatment increased the likelihood that firms will undertake investment to improve productivity in future?

The remainder of this section provides an overview of the design of the trial, its practical conduct and outcomes. Later sections provide more detail on the results of the baseline survey of participating firms and treatment effects measured in the follow-on survey.

2.2 Trial design

An overview of the trial design was provided in the original registration in December 2019 prior to the start of the treatment period[9]. The target group for the Business Boost trial was micro-businesses with 1-9 employees. In 2019 this group comprised 1.16m firms across the UK and employed 4.21m people[10]. Typically, micro-businesses are thought to have lower productivity than larger firms and younger micro-businesses in particular experience higher failure rates than larger or more mature companies. A NESTA study in 2016 also suggested that the UK is not creating enough high-productivity start-ups and the productivity of new firms is below its historical levels[11]. The study objectives were therefore to test an intervention to support enhanced productivity among this group of firms and so reduce failure rates[12]. The focus of the trial on micro-businesses also complements other productivity supporting initiatives in the UK such as *Be the Business* which has a focus on boosting productivity in larger firms with 10-249 employees[13].

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[9] See https://www.socialscienceregistry.org/trials/4111

[10] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/852919/Business_Population_Estimates_for_the_UK_and_regions_-_2019_Statistical_Release.pdf

[11] NESTA (2016) 'Sources Of Labour Productivity Growth At Sector Level In Britain, After 2007: A Firm Level Analysis'

[12] Hayton, J (2015) Leadership and Management Skills in SMEs: Measuring Associations with Management Practices and Performance: Technical report, BIS Research Paper No. 224, March 2015.

[13] https://www.bethebusiness.com/

An overview of the key elements of the trial design is included in Figure 2.1.

Figure 2.1: Overview of key trial stages

1	Baseline data collection	450 micro businesses (1-9 employees) Productivity baseline Attitude baseline		
2	Random assignment to groups 1 and 2. Random selection of comparison group.	**Group 1** 150 micro businesses Treatment Group Drawn from Start and Grow cohort	**Group 2** 150 micro businesses Control Group Drawn from Start and Grow cohort	**Group 3** 150 micro businesses Comparison Group Drawn from micro business population
3	Well-defined intervention	Group and 1-1 support over 6 months	No additional support	No support
4	End-programme data collection	450 micro businesses Attitude and activity at end of intervention period		
5	Continuing data collection	450 micro businesses Productivity at times determined by BEIS after trial		

The treatment design drew on the prior experience of the Cavendish Consortium in working with early stage businesses and the importance of peer group learning. The logic model guiding the intervention and research questions was refined as the trial got underway and is outlined in Figure 2.2.

Figure 2.2: Logic model

Inputs	Processes	Outputs	Interim outcomes	Impacts
• Business Basics Funding	• Recruitment and engagement • Training and support • RCT	• A profiling tool • Translation tools • Well-defined processes for replication • change in attitude towards management practices • increase in SME ability to introduce change to organisation	• Selection tools that are diagnostic • Higher productivity • Reliable productivity improvement process tools	• An economy with greater productivity

The trial design envisaged cohorts of businesses brought together to identify and share their individual challenges and inhibitors to improved productivity. Delivery would be undertaken by four principal partners of Cavendish Enterprise: TEDCO, NWES, Business West and Enterprise First. A programme of six workshops were planned with the initial session led by an expert facilitator in a confidential setting framing the programme and harnessing the collective peer to peer support. The aim was for the facilitator to draw out the issues affecting productivity and help each individual business to set their own challenge. This initial session will be followed by 5 further highly interactive sessions with expert input:

- Executing strategy -- working 'on' not just 'in' the business, setting goals, strategy into action.
- Developing lean processes -- process mapping, standardising procedures, streamlining documentation, effective reporting systems.
- Funding growth, access to finance to fund productivity improvements, managing financial information.
- Leadership -- managing change, decision making, confronting blind spots.
- Developing new opportunities, creating change, creating workable solutions.

The final session was followed by a one-to-one mentoring session which provided an opportunity for businesses to catch-up on any sessions missed during the treatment and plan a future development plan.

It was intended originally that programme delivery would commence in January 2019 with firms participating in a baseline survey immediately after randomisation. Delivery of the

treatment was originally planned to end in July 2019 with follow up surveys to be undertaken in August and September 2019.

2.3 Defining Treatment, Control and Comparison groups

The trial design and protocol suggested that 300 firms would be recruited from those which had completed the Start & Grow programme. The scale of the trial was restricted primarily by the available resources. These would then be randomly allocated to Treatment and Control groups on a cohort-by-cohort basis. A further 150 firms – of similar age and size to those in the combined treatment and Control group – were also included in the baseline survey as a Comparison Group with the wider population of early-stage start-up businesses.

2.4 Evaluation and analysis

It was intended that data for the evaluation of treatment effects would be derived from a baseline survey conducted at the time of randomisation and a follow-on survey six months after the end of the treatment. Both surveys were intended to cover all 450 firms included in the trial and both were to be conducted by telephone interviews. Where firms formed part of the Treatment group, however, baseline data was collected either on-line or by telephone by the organisations delivering the treatment.

2.4.1 Comparing the Treatment group to the control and Comparison groups

Few systematic differences were anticipated between the Treatment and Control groups and so any systematic differences in a dependent variable between the two groups should be a realistic indication of the impact of the treatment. First, we therefore report a simple means comparison of each indicator for the Treatment and Control groups. Secondly, we consider simple regression models such as:

$$DV_i = \alpha + \beta_1 Treat_i + \beta_2 Controls_i + \varepsilon_i.$$

Random allocation should then mean that the coefficient on the $Treat_i$ term is an accurate indication of the average treatment effect. We include the potential for control variables here to capture any remaining inter-group differences. In particular, we control for business turnover, sources of external advice, business age, the age of the business leader, whether the business is family owned, whether it is female-led, whether it is ethnic minority led, whether it has a business vision or a clear business goal and whether it receives business support. Each of these factors may be linked to our outcome variables. Nevertheless, in unreported regressions, we find that the estimated treatment effects are robust to the exclusion of these control variables, reflecting the absence of observable differences between the two groups. Given that most of the dependent variables are binary, we use Probit and OLS (linear probability models) and for robustness compare outcomes. Thirdly, we consider aggregated dependent variables where the dependent variables are combined indicators of outcome variables for particular research questions. Here, we use Ordered Probit models (see Section 2.7).

Despite matching by size and age, significant differences in characteristics were found between the Treatment and Comparison groups. Specifically, they differ in terms of turnover, the age of the business owner, whether the business is female-led or whether an ethnic minority leads it, whether the business is home based, whether the business leader owned other businesses, whether the business had a clear business vision, and whether it had a clear business goal. The two groups also had different levels of business ambition and different levels of external support before and during treatment. Here we adopt a similar approach to modelling the Treatment v Control groups but include variables to represent all of the observable differences in the vector of control variables to capture the differences in observable characteristics. Specifically, we control for business turnover, sources of external advice, business age, the age of the business leader, whether the business is family owned, whether is it home based, whether it is female-led, whether it is ethnic minority led, whether it has a business vision or a clear business goal, whether it receives business support, the experience of the business leader, and a count variable of the various types of ambitions expressed by the business leader. Additionally, in regressions relative to both the Comparison and Control groups, we include a dummy variable equal to 1 if the business sought external advice during the trial period, and zero otherwise.

Note that we do not control for baseline outcomes due to absence of data[14]. In particular, only outcome measures relating to the adoption of formal business plans and managerial tools are included in the baseline survey. For these, outcomes from the follow on survey were calculated as a specific discrete change from the baseline survey (i.e. a change in firms' position from zero to one). As such, these baseline outcomes were also not included in the regressions due to collinearity issues.

The data includes an indicator variable that shows whether or not the firm was in the Start and Grow cohort. Since some firms within the Treatment and Control groups were part of this cohort, this may introduce stratification bias. However, in unreported regressions, we find no evidence that being part of the Start and Grow cohort affected the estimated treatment effects. When we include it in our regression models estimating the treatment effect relative to the Control group, it did not alter the size or significance of the treatment effect and it was itself insignificant in most cases. In addition, there were no statistically significant differences in the treatment effects between firms that formed part of Start and Grow and those that did not. Thus, stratification bias does not appear to be important for our main results[15].

2.4.2. Analysis of potential selection effects

As we show in Section 3, the Treatment and Control groups are remarkably similar in terms of baseline characteristics, such that the estimated treatment effects relative to the Control group should be internally valid. However, trial participants may be different from the target population along a number of observable and unobservable dimensions, particularly given that the criteria

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[14] Matineze et al., (2018) and Fairlie et al., (2015) adopt a similar approach within a business support RCT framework.
[15] Note that it is not possible to include this variable in regressions relative to the Comparison group since no firms in this group were part of the Start and Grow Cohort.

for selection into the trial included the ambition profile of firms. This has implcations for the external validity of estimated treatment effects.

Indeed, results from Section 3 show that both Treatment and Control groups differ substantially from the Comparison group in terms of observable characteristics. In addition, since trial participants were selected in a different way to the matched Comparison group, they are likely to be different in unobservable ways, such as their motivations, appetite for risk, etc. These differences in observable and unobservable characteristics, potentially correlated with outcomes, together represent a form of section bias, i.e. bias associated with recruitment into the trial.

The extent of this selection bias can be measured by comparing the Control group to the Comparison group. Note that the Comparison group is a matched Control group that is broadly representative of the target population i.e. small and young firms. Since the Treatment group differs from the Control group only in terms of receiving treatment, differences in outcomes of the Control group and Comparison groups should reflect the bias associated purely with selection into the trail i.e. differences between trial participants and the target population. In our analysis, therefore, we estimate the following model:

$$DV_i = \alpha + \beta_1 Control_i + \beta_2 Controls_i + \varepsilon_i.$$

Where $Control_i$ is an indicator variable equal to one if the firm is in the Control group, and zero if it is in the Comparison group; $Controls_i$ is a vector of control variables corresponding to those included in the models comparing the Treatment and Comparison groups and β_1 gives an estimate of the selection bias.

2.5 Trial conduct

In this section we provide a brief overview of a range of operational and practical issues which arose in the conduct of the trial. Perhaps the key issues related to recruitment, delivery of the intervention and attrition in the follow-on survey

2.5.1 Recruitment

The trial design specified three groups of companies would be identified:

> (a) **Treatment group** – a group of around 150 'Start and Grow' companies randomly allocated to the Treatment group, i.e. receiving the productivity enhancing workshops.

> (b) **Control group** – a group of around 150 'Start and Grow' companies randomly allocated to the Control group. These firms received only the basic 'Start and Grow' support.

> (c) **Comparison group** – a group of around 150 firms with similar characteristics (age, size) to the 'Start and Grow' group but which received neither 'Start and Grow' or the productivity enhancing workshops.

Recruitment to the trial Treatment and Control groups started in January 2019 but interest from the Start and Grow cohort was not as high as we had hoped. Anecdotally, we attribute this to some support fatigue, availability of the business for an intensive programme and the nature of the trial. Discussions with the trial sponsors considered a range of alternatives including reducing the scale of the trial and extending the recruitment and treatment period. After some discussion it was decided to broaden the size band to a maximum of 19 employees in line with the secondary research referred to in the bid and to seek additional businesses that would have met the entry criteria for the Start and Grow programme. Essentially, the latter change meant that businesses that were not part of the Start and Grow cohort completed a questionnaire about their growth aspirations. When recruitment was completed in July 2019 the Treatment group included 147 firms of which 99 firms had not completed the Start & Grow programme. The Control group included 153 firms of 89 had not completed the Start & Grow programme.

The Comparison group were recruited at the time of the baseline (telephone survey) with the objective of broadly matching the regional, sectoral, size and age profile of the combined Treatment and Control groups. A sampling frame of micro-firms in the matching regions (East, North East, South East/London, South West) was obtained from a commercial list provider and then filter questions in the baseline survey (e.g. E1A for size and A2 for establishment date) were used to match responses to the combined Treatment and Control groups.

2.5.2 Randomisation

Four delivery partners covering different regions were involved in recruiting participants in the trial. Each delivery partner sought to develop a number of cohorts of around 18-22 participants. Each participant was allocated a unique code by the project administration and randomisation was then done within each cohort using a simple random number generator. A decision rule was then used to allocate each individual to either the Treatment or Control group. Lists of unique codes for the Treatment and Control groups were then passed back to delivery partners and matched with company names. The randomisation process proved effective for the sample as a whole as few significant differences were evident in the characteristics of the Treatment and Control groups (see the discussion of the baseline survey below). The randomisation process meant that the numbers in the Treatment (146) and Control groups (151) were not exactly the same.

2.5.3 Baseline survey

A detailed baseline survey of the Treatment, control and Comparison groups was collected from each group by either telephone, through face-to-face interview by Cavendish Enterprise staff or on-line during the project recruitment period and prior to firms being allocated to either the Treatment or Control groups (February to June 2019). This allowed a comparison of the main characteristics of the three sample groups and provided some initial benchmark indicators on the sample of companies. Section 4 provides an overview of the characteristics and attitudes of the three groups of firms and highlights any systematic differences in characteristics. This is intended to provide an indication of the robustness of the randomisation approach and help understand the profile of the three groups.

The key result from the baseline survey was that the randomisation approach was effective in eliminating almost all systematic differences between the Treatment and Control groups.

Unsurprisingly, significant differences exist in the characteristics of the Treatment and Comparison groups and between Control and Comparison groups.

2.5.4 Uptake of the treatment

In this project the treatment consists of a series of six productivity enhancing workshops held as group sessions followed by a one-to-one session with a business mentor or coach. The six group sessions comprised an initial event led by an expert facilitator in a confidential setting framing the programme and harnessing the collective peer to peer support. The facilitator will draw out the issues affecting productivity and help each individual business to set their own challenge. This initial session was followed by 5 further highly interactive sessions with expert input, focusing on the following themes:

- Executing strategy -- working 'on' not just 'in' the business, setting goals, strategy into action.
- Developing lean processes -- process mapping, standardising procedures, stream- lining documentation, effective reporting systems.
- Funding growth, access to finance to fund productivity improvements, managing financial information.
- Leadership -- managing change, decision making, confronting blind spots.
- Developing new opportunities, creating change, creating workable solutions.

The six workshop sessions were followed by a one-to-one session with an expert mentor. Where attendees missed elements of the workshops the information was provided during the one-to-one session. Here, we focus on attendance at the seven sessions – six workshops and the one-to-one session based on scheme monitoring data.

The proportion of the Treatment group of 146 firms attending each of the seven sessions is profiled in Figure 2.3. As might be anticipated there is some attrition in terms of attendance at the later workshops and relatively low attendance rates at the one-to-one sessions.

Figure 2.3 Proportion of treated group attending workshop and one-to-one sessions
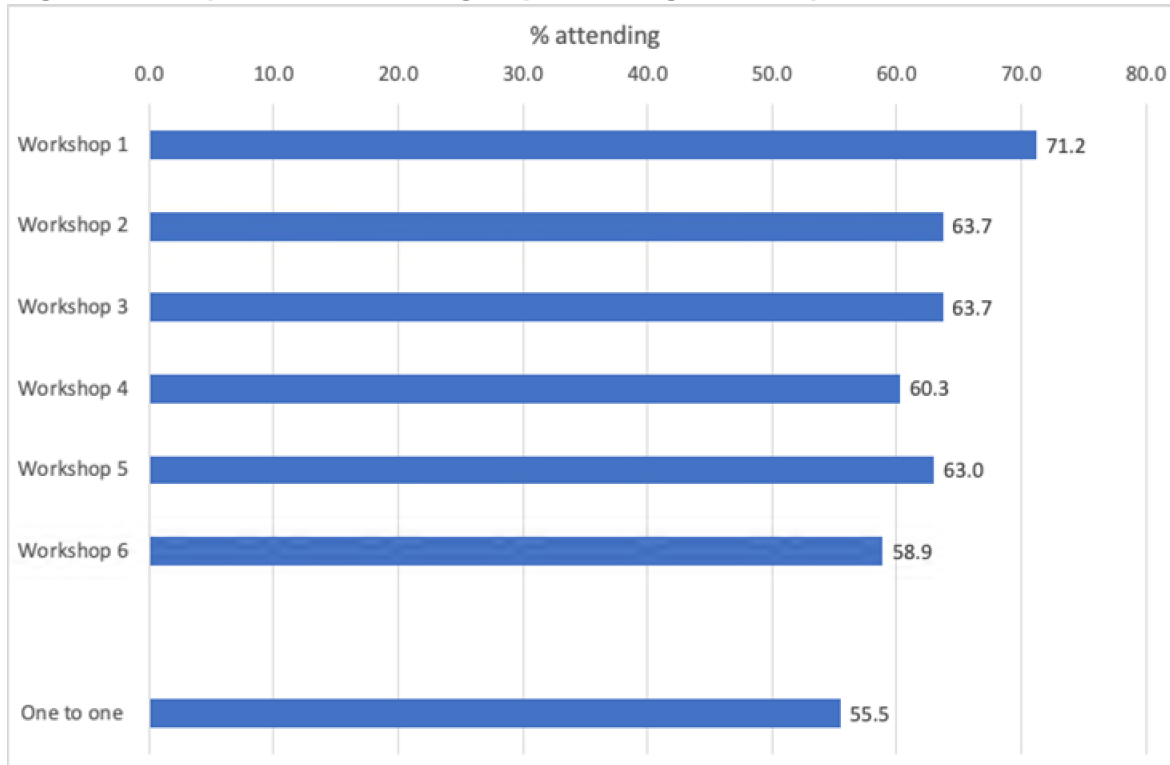
Alongside the overall attendance rate, it is useful to understand how many companies completed the full or only partial treatment. This is the focus of Tables 2.1 and 2.2. Table 2.1 profiles the number of companies by number of workshops attended. 72 companies (49 per cent of the treated group) attended the whole set of six sessions with 39 attending none of the six sessions. Breaking these groups down further suggests the proportion of firms which completed the whole treatment and no treatment (Table 2.2).

(a) **Full-treatment** – 47 firms (32.0 per cent) completed the full treatment of six workshops and the subsequent one-to-one session.

(b) **No treatment** – 24 firms (17.0 per cent) of the treatment group did not attend any workshops or the one-to-one session.

(c) **Partial treatment** – the remaining 75 firms (51.0 per cent) received a partial treatment attending some of the workshops and in some cases the one-to-one session.

Table 2.1: Number of companies attending by different number of workshops

Number of workshops attended	Number of companies	%age
0	39	26.7
1	4	2.7
2	7	4.8
3	3	2.0
4	8	5.4
5	13	8.9
6	72	49.3
Total	146	100.0

Table 2.2: Number of companies attending by different number of workshops and one-to-one session

Number of workshops attended	Did not attend one-to-one	Did attend one-to-one	Total
0	24	15	39
1	2	2	4
2	4	3	7
3	3	0	3
4	4	4	8
5	3	10	13
6	25	47	72
Total	65	81	146

The partial take-up of the treatment by a significant number of firms from the Treatment group, and in some cases no take-up, has implications for the analysis and interpretation of trial outcomes.

A variety of reasons contributed to the partial take-up of the treatment. Among the feedback from delivery partners these included:

● Circumstances of individual businesses changed between recruitment and the timing of the workshop sessions meaning businesses were unable to attend.
● The Business Boost sessions were run in central locations and this meant it was difficult for some firms which were not local to travel to sessions.

- The requirement to attend seven sessions was demanding for small firms. A higher completion rate might have been achieved with fewer sessions.
- Some of the topics covered in the sessions – particularly 'lean processes' – were not seen as immediately relevant by all firms. This influenced attendance at particular sessions.
- In some cases there was a feeling that recruiters did not stress strongly enough the importance of completing the whole group of workshops.

It is difficult to assign any specific weighting to these reasons for partial take-up. Addressing these issues will be important, however, in any wider adoption of the intervention. In unreported regressions, we find that baseline characteristics are individually and jointly insignificant in predicting full treatment take-up relative to partial take-up (Joint Chi-square test=13.36, p-value =0.43). In our analysis, we also find that no statistically significant differences in the estimated treatment effects for fully and partially treated firms (see Table 12 to Table 19 of the Appendix). This may suggest that firms chose to attend sessions they considered relevant, thus maximising their benefits even from partial take up.

2.6 Follow on survey response

Due to slower than anticipated recruitment and a desire to extend the impact period to a minimum of 6-months the follow-on survey was conducted between 15th January and 14th February 2020. The survey - which was conducted by an independent market research company - covered all three groups of firms in the trial and was again conducted by telephone. In each case a preparatory email was sent to potential respondents. Before the start of fieldwork targets of Treatment 130 interviews, Control group 100 interviews and Comparison group 75 interviews were set based on the total number of records. The targets for the Treatment and control were more ambitious than those set for the Comparison group as these businesses had been recruited by Cavendish Enterprise (and in the case of the Treatment group had received significant business support) and they had agreed to taking part in the second wave at the time of recruitment. However, in practice only the target for the Comparison group was achieved with a total of 245 telephone interviews being completed with interviews lasted an average of 16 minutes. Although the achieved sample numbers were lower than the initial target for the Treatment and Control groups, response rates of 71% and 53% are still very high for a typical B2B survey of this nature (Table 2.3).

Table 2.3: Follow-on survey outcomes

	Treatment	Control	Comparison	Total
Total number of records	146	151	150	447
Unusable (e.g. no longer trading, unreachable)	12	10	7	29
% unusable	8%	7%	5%	6%
Total usable sample	134	141	143	421
Completed interviews	95	75	75	245
Response rate	71%	53%	52%	58%
p- values from t-tests of equality between response rates				
Treatment vs Control	0.007			
Treatment vs Comparison	0.007			

As shown in Table 2.3, there are statistically significant differences in the Follow-on survey response rates between the Treatment Group and the Control and Comparison groups. Here, we test for attrition bias, or survey response bias, following Fairlie et al, (2015) and Martinez et al (2018)[16]. We regress attrition status i.e. non-response in the Follow-on survey on baseline characteristics, treatment status and interactions between each baseline characteristic and treatment status. We then test for joint significance of the interaction terms, where joint insignificance indicates absence of attrition bias.

Table 7 in Annex C shows the results from this exercise for the full sample and for trial participants only. In all cases, treatment status itself has no statistically significant impact on attrition status. In addition, the interaction terms between treatment status and covariates are jointly insignificant, indicating the absence of attrition bias resulting from observed characteristics. However, there remains the potential for attrition bias based on unobserved characteristics, leading us to undertake a robustness analysis to check the sensitivity of our results to attrition bias. We present this analysis and results in a later section.

2.7 Approach to impact analysis

The analysis plan was updated (November 2019) in the light of the take up of the treatment and further modified in the light of changes made to the follow-on survey (February 2020). It is recognised that six months after the treatment there are going to be few if any observable changes in business performance. The focus of the impact analysis is therefore more attitudinal and behavioural with research questions relating to productivity enhancing tools, routines and behaviours. The key questions addressed in the analysis plan are as follows:

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[16] Fairlie et al., (2015) https://www.aeaweb.org/articles?id=10.1257/pol.20120337; Martinez et al., (2018) https://www.aeaweb.org/articles?id=10.1257/app.20150245

(a) Was the treatment effective in helping firms to be aware of and use tools which could help them increase productivity?

This was tested using question F1A in the follow-on survey (Annex 2) which aims to test firms' awareness and use of four tools which were introduced as part of the Business Boost programme: critical task lists; the Lean Canvas tool; SWOT analysis and the Business Model Canvas. As responses are binary, we use a series of probit models and linear probability models (LPM) to assess treatment effects.

(b) Has the treatment helped firms to develop a clearer vision for their business and formulate strategies to improve productivity? This would include the development and implementation of business plans.

This was tested using question F1B in the follow-on survey which examines the steps which firms have taken to develop management routines over the previous six months. The question is as follows: 'Thinking about how you have managed and organised your business over the last six months. Do you agree or disagree with the following statements? Respondents were asked about six areas of activity, 'Have you: Developed a clearer understanding of business challenges; Developed more specific business goals; Sought to communicate better with employees; Looked for opportunities for savings and efficiencies; Looked for opportunities to automate processes; Explored alternative finance options; Investigated new markets or products/services'.

In the survey, responses were implemented as a series of Likert indices however for the impact modelling we convert these to binary variables taking a value 1 if respondents 'agree' or 'strongly agree' and 0 otherwise. Probit models and LPM models are then used to estimate treatment effects.

(c) Has the treatment increased the probability that firms are adopting formal business plans and other managerial tools which may contribute to productivity? This would include the development and implementation of business plans.

This relates to questions F2B and F2C in the follow-on survey (see Annex 2) relating to the planning strategies and tools which firms may have in place. Question F2B relates to management tools and systems and was also asked in the baseline survey. Interest here therefore focuses on those firms which have shifted their position over time. The question asks '**Does your business currently have:** A formal written business plan; A plan to improve products or processes (This may be part of your business plan or a separate document); A marketing plan, including details for new products/services and/or new markets; A marketing budget; A corporate website; A training plan; A recruitment budget; A training budget; A cash flow forecast; Regular financial reports e.g. VAT reports.

Responses are again binary suggesting a series of probit models and LPM models for the estimation of treatment effects[17].

Business planning is the focus of an additional question in the follow-on survey F2C as follows '**And thinking specifically about your business plan…?:** Has it been amended or updated since you started the company?; Does it set out how finance will be accessed, used and managed for growth. Binary responses again suggest probit and LPM models for the estimation of treatment effects.

(d) Has the treatment increased the likelihood that firms will undertake investment to improve productivity in future?

This relates primarily to the responses to question G1 in the follow-on survey (see Annex 2). This asks: **Over the next six months, how likely are you to do each of the following. Please answer on a scale of 1 to 5 where 1 is 'very unlikely' and 5 is 'very likely'. The specific items included in the question are:** Increase business turnover; Increase sales and marketing activity; Purchase new equipment; Develop new products/services; Employ more staff; Improve leadership capability; Increase or improve e-commerce. In the survey, responses were implemented as a series of Likert indices however for the impact modelling we convert these to binary variables taking a value 1 if respondents 'agree' or 'strongly agree' and 0 otherwise. Probit models and LPM models are then used to estimate treatment effects[18].

Furthermore, for each of these research questions, we calculate the sum of the individual responses to form an aggregate variable that captures overall responses within the research question. Since this aggregate variable has more than two outcomes with larger values representing higher positive responses, we use an Ordered Probit model to estimate treatment effects. Sub-sample analysis based on the intensity of treatment take up are included in the appendix.

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[17] Here, the binary dependent variable is defined as follows: DV=1 if firm responds 'No' in the baseline and 'Yes' in the follow-on survey. DV=0 all other situations.

[18] Two further questions (G1a) included in the follow-on survey provide an intensity measure for two of these options (sales and marketing activity and increases in sales from e-commerce) and may allow greater discrimination in terms of outputs.

3.1 Introduction

This section provides a brief overview of data collected as part of the baseline survey. This data was collected from each group either by telephone or through face-to-face interview by Cavendish Enterprise staff or on-line during the project recruitment period (February to June 2019). The baseline survey provides evidence of the effectiveness of the randomisation approach adopted as well as highlighting differences in the characteristics of firms in the Treatment and Comparison groups.

3.2 Firm characteristics

Comparing a number of firm characteristics suggests no significant differences between the background of the Treatment and Control groups (Table 3.1). Average employment is approximately 2.1 to 2.2 employees with mean turnover between £99,000 pa and £114,000 pa. Businesses in both groups average around three years old with around a third being female led (i.e. the majority of the leadership team are female). Around a quarter of firms in both groups are members of a business network (Table 4).

Table 3.1: Firm characteristics: Treatment and Control groups

	Treatment N=146	Control N=151	T-test
Employment	2.2	2.1	-0.42 (p=0.67)
Turnover (£000)	98.7	114.4	-0.77 (p=0.44)
Turnover growth (% firms)	81.8	75.7	-1.12 (p=0.26)
Business age (years)	3.2	3.3	-0.73 (p=0.47)
Home based (% firms)	47.3	40.4	-1.19 (p=0.23)
Family owned (% firms)	34.5	37.3	0.51 (p=0.61)
Female led (% firms)	32.2	39.1	1.23 (p=0.21)
EMB led (% firms)	15.1	9.3	-1.52 (p=0.12)
Business network member (% firms)	29.0	28.7	-0.06 (p=0.95)

Both the Treatment and Control groups comprise companies recruited following the Start and Grow programme and other firms with similar growth aspirations. 47 companies within the Treatment group were Start and Grow graduates as were 62 in the Control group. Start and Grow firms employed 2.6 people on average compared to 1.9 among other firms (t=1.78, p=0.07) and had been operating for 3.7 years compared to 2.9 years for other firms (t=6.20, p=0.00). They were also significantly less likely to be a home-based business (31.1 per cent) than other firms (51.0 per cent) (t=3.44, p=0.00). No other significant differences were evident between the two groups of firms.

More significant differences in characteristics are evident between the Treatment and Comparison groups (Table 3.2). Indeed, there are statistically significant differences between five of the nine business characteristics considered. This is a marked contrast to the comparison of the Treatment and Control groups in Table 3.1. Although similar in terms of employment size, age, female ownership and network membership the Comparison group were more likely to be family-owned and had significantly larger average turnover than the Treatment group.

Table 3.2: Firm characteristics: Treatment and Comparison group

	Treatment N=146	Comparison N=150	T-test
Employment	2.2	2.5	0.63 (p=0.53)
Turnover (£000)	98.7	310	-4.15 (p=0.00)
Turnover growth (% firms)	81.8	61.9	-3.49 (p=0.00)
Business age (years)	3.2	3.1	-0.33 (p=0.74)
Home-based (% firms)	47.3	28.0	-3.47 (p=0.00)
Family-owned (% firms)	34.5	72.5	7.03 (p=0.00)
Female led (% firms)	32.2	34.0	0.33 (p=0.74)
EMB led (% firms)	15.1	6.7	'-2.33 (p=0.02)
Business network member (% firms)	29.0	32.7	0.68 (p=0.49)

There are also significant differences between the Control and Comparison group. Firms in the Comparison group have higher turnover, are less likely to be home based and ethnic minority owned but are more likely to be family owned.

Table 3.3: Firm characteristics: Control and Comparison group

	Control N=151	Comparison N=150	T-test
Employment	2.1	2.5	1.25 (p=0.20)
Turnover (£000)	114.4	310	-4.15 (p=0.00)
Turnover growth (% firms)	75.7	61.9	-2.3 (p=0.21)
Business age (years)	3.3	3.1	-1.05 (p=0.305)
Home based (% firms)	40.4	28.0	-2.3 (p=0.024)
Family owned (% firms)	37.3	72.5	6.5 (p=0.00)
Female led (% firms)	39.1	34.0	-0.9 (p=0.362)
EMB led (% firms)	9.3	6.7	-0.85 (p=0.046)
Business network member (% firms)	28.7	32.7	0.75 (p=0.458)

The comparison of firm characteristics suggests the effectiveness of the randomisation procedure with no systematic differences between Treatment and Control groups. More systematic differences between the characteristics of the Comparison group on the one hand and the

Treatment and Control groups on the other suggest some selection effects among trial participants which need to be considered in comparing outcomes.

3.3 Entrepreneur characteristics

As with the firm characteristics, there are no systematic differences between the characteristics of the entrepreneurs involved in the Treatment and Control groups (Table 3.4). This is again not the case in the comparison of the Treatment and Comparison groups (Table 3.5) and Control and Comparison Groups (Table 3.6). Entrepreneurs in the Comparison group are older and more likely to be serial entrepreneurs than those in the Treatment and Control groups, again suggesting selection effects among trial participants.

Table 3.4: Entrepreneur characteristics: Treatment and Control group

	Treatment N=146	Control N=151	T-test
Owned other businesses (%)	48.3	51.0	-0.47 (=0.64)
Age (years)	41.5	41.2	-0.26 (p=0.79)
Degree qualif. (%)	60.6	57.7	-0.49 (p=0.62)

Table 3.5: Entrepreneur characteristics: Treatment and comparison group

	Treatment N=146	Comparison N=150	T-test
Owned other businesses (%)	48.3	58.7	1.78 (pp=0.07)
Age (years)	41.5	44.9	2.65 (p=0.01)
Degree qualif. (%)	60.6	53.3	-1.24 (p=0.21)

Table 3.6: Entrepreneur characteristics: Control and Comparison group

	Control N=151	Comparison N=150	T-test
Owned other businesses (%)	51.0	58.7	-4.85 (p=0.00)
Age (years)	41.2	44.9	3.00 (p=0.00)
Degree qualif. (%)	57.7	53.3	-0.75 (p=0.44)

3.4 Ambition

Business ambition has been strongly linked to subsequent strategic decisions[19] and performance and so in this section we compare a series of ambition indicators. This type of factor might be expected to be related to firms' engagement with business support programmes and we might

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[19] See, for example, https://www.gov.uk/government/publications/business-growth-ambitions-among-small-and-medium-sized-enterprises-2016

therefore expect more significant differences between the Treatment and Comparison groups. In each case respondents were asked how important each objective was on a 1 to 5 Likert scale. Here we reduce this to a binary indicator which takes value 1 where a firm said that an objective was either important or very important.

Again, we see little significant difference between the ambition profile of the Treatment and Control groups. Only one of the nine ambition metrics differs significantly between these two groups (Table 3.7). A larger proportion of firms in the Control group see it as important to 'Keep the business similar to now' than in the Treatment group.

Table 3.7: Ambition profile: Treatment and Control group

	Treatment N=146	Control N=151	T-test
Build a national or international business (% firms)	54.5	49.7	-0.83 (p=0.41)
Keep business similar to now (% firms)	22.8	31.3	1.66 (p=0.10)
Grow rapidly and profitably to exit (% firms)	28.3	32.0	0.69 (p=0.48)
Greater personal and family freedom (% firms)	75.9	78.8	0.60 (p=0.55)
Freedom to adapt my own approach (% firms)	89.0	86.1	-0.74 (p=0.46)
Chance to build wealth or income (% firms)	59.3	57.0	-0.40 (p=0.68)
Fulfil personal ambition as business leader (% firms)	76.2	68.9	-1.41 (p=0.15)
Build business to hand on to family (% firms)	28.2	28.0	-0.03 (p=0.97)
To be able to retire (% firms)	22.2	24.7	0.49 (p=0.62)

More difference in the ambition profile is evident between the Treatment and the Comparison group. Here we see significant differences on five of the nine dimensions of ambition, with some of these differences particularly significant (Table 3.8). Differences in four ambition dimensions are evident between the Control and Comparison groups (Table 3.9). Again, the implication is that the randomisation between Treatment and Control group worked effectively to generate similar groups while larger differences are evident between the Comparison group and both the Treatment and Control groups, indicating selection bias among trial participants.

Table 3.8: Ambition profile: Treatment and Comparison group

	Treatment N=146	Comparison N=150	T-test
Build a national or international business (% firms)	54.5	23.5	-5.71 (p=0.00)
Keep business similar to now (% firms)	22.8	64.6	7.93 (p=0.00)
Grow rapidly and profitably to exit (% firms)	28.3	34.0	1.06 (p=0.29)
Greater personal and family freedom (% firms)	75.9	81.9	1.26 (p=0.21)
Freedom to adapt my own approach (% firms)	89.0	88.0	-0.26 (p=0.79)
Chance to build wealth or income (% firms)	59.3	54.0	-0.92 (p=0.36)
Fulfil personal ambition as business leader (% firms)	76.2	60.7	-2.90 (p=0.00)
Build business to hand on to family (% firms)	28.2	43.0	-2.65 (p=0.01)
To be able to retire (% firms)	22.2	51.7	-5.45 (p=0.00)

Table 3.9: Ambition profile: Control and Comparison group

	Control N=151	Comparison N=150	T-test
Build a national or international business (% firms)	49.7	23.5	-4.85 (p=0.00)
Keep business similar to now (% firms)	31.3	64.6	6.05 (p=0.00
Grow rapidly and profitably to exit (% firms)	32.0	34.0	0.35 (p=0.71)
Greater personal and family freedom (% firms)	78.8	81.9	0.65 (p=0.51)
Freedom to adapt my own approach (% firms)	86.1	88.0	0.5 (p=0.62)
Chance to build wealth or income (% firms)	57.0	54.0	-0.5 (p=0.61)
Fulfil personal ambition as business leader (% firms)	68.9	60.7	-1.50 (p=0.14)
Build business to hand on to family (% firms)	28.0	43.0	2.75 (p=0.01)
To be able to retire (% firms)	24.7	51.7	5.00 (p=0.00)

3.5 Joint orthogonality testing

A complementary way of comparing the characteristics of the Treatment, Control and Comparison groups is Joint Orthogonality testing or Balance testing. This involves investigating whether the baseline characteristics outlined above can predict the probability of assignment to the Treatment group. A lack of prediction power of the baseline characteristics would indicate that the groups are balanced in terms of the observable characteristics. For the Control and Comparison groups, we undertake a Probit regression model of the form:

$$Treatment_i = \alpha + \beta X_i + \varepsilon$$

Where $Treatment_i$ is an indicator variable equal to 1 if the firm is assigned to the treatment group and 0 if assigned to the Control group (or Comparison group). X_i is a vector of the baseline firm characteristics, entrepreneur characteristics and ambition profiles in Tables 3.1 to 3.9. We then use a joint Chi-Square test to check if the coefficients β are jointly equal to zero. The results, provided in Table 8 of Annex C, show that baseline characteristics are jointly insignificant in predicting assignment to the Treatment group relative to assignment to the Control group. However, they are jointly significant in predicting assignment to the Treatment group relative to the Comparison group. Here, firms with more employees, firms that receive business support and firms that are likely to increase sales and marketing were more likely to be in the Treatment group. On the other hand, firms with larger turnover, family owned firms, firms that have the ambition to keep their businesses similar to now, and entrepreneurs with the ambition to retire were more likely to be in the Comparison group. Given results in the previous sections, we also estimated the likelihood of assignment to the Control group relative to the Comparison group and the results show joint statistical significance of the baseline characteristics with many of the variables predicting assignment to the Treatment group also predicting assignment to the Control group. Thus, this exercise supports the results of previous sections, suggesting that randomisation was effective in terms of the Treatment and Control group. The fact that trial participants are very different from the Comparison group indicates the presence of selection effects; selection into participation in the trial is clearly influenced by observable characteristics. To account for this, we control for all the variables for which there are significant differences between the Treatment and Comparison groups in our regression estimations of Average Treatment Effects.

We use the same method to investigate whether outcome measures at baseline are successful in predicting assignment to treatment (Table 9 of Annex C). Unfortunately, only outcome measures relating to RQ3, i.e. the adoption of business plans and other managerial tools, were collected at baseline, and we use these variables to predict treatment. There are little differences between the Treatment and Control groups based on these baseline outcomes (see Annex A). The only significant outcome measure in this case relates to having regular financial reports at baseline, where the Control group was more likely than the Treatment group to have these reports. More differences are evident between the Comparison group on the one hand and the Treatment and Control groups on the other. The Comparison group was more likely than both the Treatment and Control groups to have a formal business plan, and less likely than both groups to have a training budget. The Comparison group was also less likely than the Treatment group to have an innovation plan. The test of joint significance of all the baseline outcomes shows no impact for the Treatment group relative to the Control group, but significant impacts for the Comparison group relative to both Treatment and Control groups. Thus, consistent with previous results, it appears randomisation was effective for the Control group; for the Comparison group, systematic differences suggestive of selection effects among trial participants are apparent. Any positive impact of treatment on the adoption of these outcomes may thus be biased by the differences at baseline. As it turns out, our results indicate that treatment was generally unsuccessful in shifting the position of firms regarding adopting these formal plans and managerial tools. In addition, as discussed below, Our analysis of selection effects is also helpful in highlighting this issue for RQ3.

SECTION 4: FINDINGS FROM THE FOLLOW-ON SURVEY

4.1 Introduction

The follow-on survey was designed to provide data on four core research questions (RQs). These were:

- RQ1 Was the treatment effective in helping firms to be aware of and use tools which could help them increase productivity?

- RQ2 Has the treatment helped firms to develop a clearer vision for their business and formulate strategies to improve productivity?

- RQ3 Has the treatment increased the probability that firms are adopting formal business plans and other managerial tools which may contribute to productivity?

- RQ 4 Has the treatment increased the likelihood that firms will undertake investment to improve productivity in future?

As suggested in Section 2, the conduct of the trial highlighted issues with the uneven take-up of the treatment. This suggests the value of comparisons using the whole Treatment group, treated or not, against the Control and Comparison groups as well as sub-groups relating to: (a) fully treated firms and (b) partially treated firms. Here, we report the main Treatment v Control group and Treatment v Comparison group results. Comparing the results by sub groups, we find no significant differences between fully and partly treated firms (Table 12 to Table 19 of the Appendix).

The comparison of the Treatment and Control group reported below provide the main indication of the impact of the treatment. The comparisons between the Treatment and Comparison groups provide an additional validation of the impact of the treatment and also provide some methodological insight into what type of results might have been obtained from the experiment by using a matched Control group rather than an RCT approach.

4.2 Descriptive analysis

Here we discuss some preliminary findings from descriptive analysis of the follow-on survey data. Tables 1 and Table 2 in Annex C show the average number of firms in the Treatment, Control and Comparison groups that report a positive outcome for each outcome measure of interest, as well as tests of equality between means. We also report outcomes for combined outcome measures calculated as the sum of all binary outcome measures associated with each research question.

Note too that in this descriptive analysis differences between outcomes may be due both to the treatment and to differences in characteristics of each group of firms. This is not an issue in the Treatment vs Control comparison as there were few significant differences in firm characteristics

due to the randomised allocation. As the baseline survey suggested, however, there were more significant differences in characteristics between the Treatment and Comparison groups.

The Treatment group clearly outperforms the Control and Comparison groups for RQ1 i.e. "awareness and use of productivity tools", with statistically significant differences across many outcomes. Relative to the Control group, more treated firms reported better "vision and strategies to improve productivity" (RQ2), with statistically significant differences relating to looking for "opportunities for savings and efficiencies" and "opportunities to automate processes"; still, the difference in the RQ2 aggregate measure is not statistically significant. Although the proportion of firms reporting positive outcomes for RQ2 is consistently higher in treated firms relative to the Comparison group, the difference is only statistically significant in terms of "developing a clearer understanding of business challenges". For RQ3, which relates to the "adoption of formal business plans and other productivity enhancing managerial tools", there is no statistically significant difference in the proportion of treated firms reporting positive outcomes relative to firms in the Control group. Relative to the Comparison group, however, more treated firms reported adopting an "innovation plan" and a "corporate website". For RQ4, which relates to the likelihood that firms "will undertake investment to improve productivity in future", there is again no statistically significant   difference between treated firms and the Control group. However, relative to the Comparison group, more treated firms expected "increases in sales and marketing activity", "to develop new products and services" and "increases in sales from e-commerce".

In Figure 4.1, we consider the average number of individual outcomes reported within each RQ. We find that treated firms are only significantly different from the Control group in terms of RQ1 i.e. awareness and use of productivity tools. Here, out of eight possible outcomes (awareness or use of four tools) treated firms reported on average four positive outcomes, compared to about two reported by the Control group. Relative to the Comparison group, there is a significant difference in terms of RQ1 (4 positive outcomes compared to 2), RQ3 (2.4 business plans and managerial tools, compared to 1.7) and RQ4 (about 4 areas of expected increases in productivity enhancing investments, compared to 3.5 areas). Overall, therefore, the impact of treatment in terms of the average number of reported outcomes appears stronger relative to the comparison group. Since the Treatment and Control groups had greater similarity in terms of baseline characteristics (see Section 3), including being partly drawn from the Start and Grow program, these results suggest that the strongest impact of treatment on the number of positive outcomes relates to the awareness and use of productivity tools (RQ1).

In Figures 4.1.1, 4.1.2, 4.1.3 and 4.1.4, we show the distribution of outcomes within each RQ as opposed to averages. For RQ1 (Figure 4.1.1), the density of treated firms reporting being aware of *and* using all four tools (i.e. eight positive outcomes) is much larger in the Treatment group relative to both the Control and Comparison groups. For all groups, the most common number of reported outcomes is two. For RQ2 (Figure 4.1.2), treated firms are again more likely to report positively on all seven possible outcomes, and on 6 out of 7 outcomes. For RQ3 (Figure 4.1.3), there is no obvious difference in the distribution of positive outcomes between the Treatment and Control groups, but firms in the Comparison group are more likely to report no positive outcome. For RQ4 (Figure 4.1.4), there is again little difference in the distribution of positive outcomes

between the Treatment and Control groups. The Comparison group is more likely than both the Treatment and Control groups to report zero or one positive outcome.

In Figure 4.2, we consider whether treated firms were more likely to benefit from more than one area i.e. the diversity of reported outcomes. This is indeed the case, as 100% of treated firms reported positive outcomes in at least two areas, and 79% of them reported positive outcomes in all four areas. Conversely, some firms in the Control and Comparison groups reported positive outcomes in only one area, and a lower proportion of these groups reported positive outcomes in all four areas (64% of the Control group and 56% of the Comparison group). Thus, positive outcomes appear to be more widespread in the Treatment group, with firms benefiting from diverse areas of support.

Overall, analysis of the descriptive data suggests that more treated firms reported positive outcomes, treated firms tended to report a higher number of positive outcomes, and these outcomes were spread more widely across the areas of support. These results are often stronger relative to the omparison group. Next, we undertake more formal analysis of treatment effects using regression models as outlined in Section 2.

Figure 4.1. Average number of reported positive outcomes by research question

Figure 4.1.1. Distribution of reported positive outcomes: RQ1

Density of positive responses for RQ1

Number of possible outcomes=8

Figure 4.1.1. Distribution of reported positive outcomes: RQ2

Density of reported positive responses for RQ2

Number of possible outcomes=7

Figure 4.1.1. Distribution of reported positive outcomes: RQ3

Density of reported positive responses for RQ3

Number of possible outcomes=12

Figure 4.1.1. Distribution of reported positive outcomes: RQ4

Density of reported positive responses for RQ4

Number of possible outcomes=7

Figure 4.2. Percentage of firms reporting any positive outcome in the four areas of support

	One area	Two areas	Three areas	Four areas
Comparison group	4.0	10.7	29.3	56.0
Control group	1	8.0	26.7	64.0
Treatment group		6.3	14.7	79.0

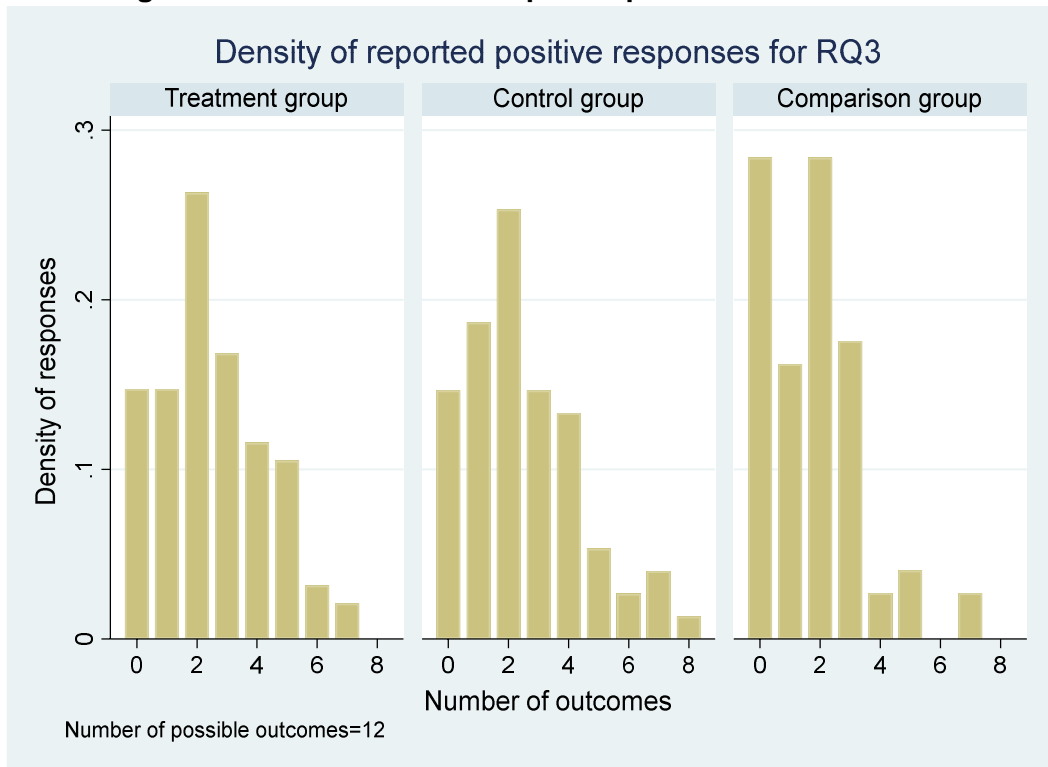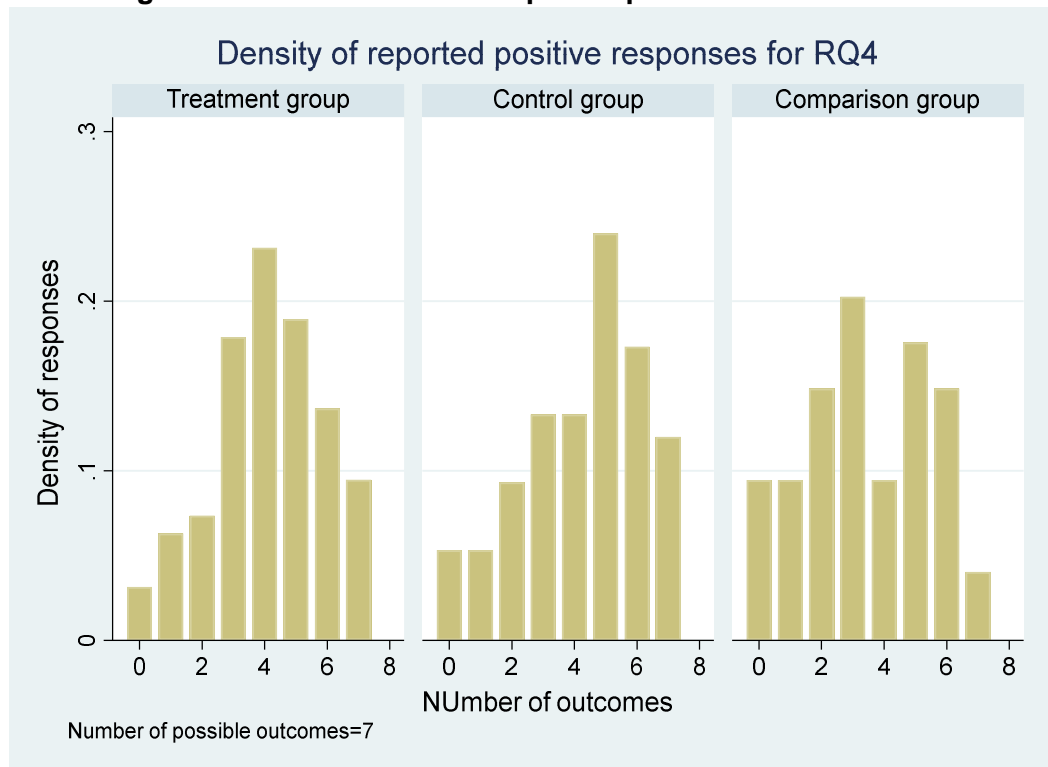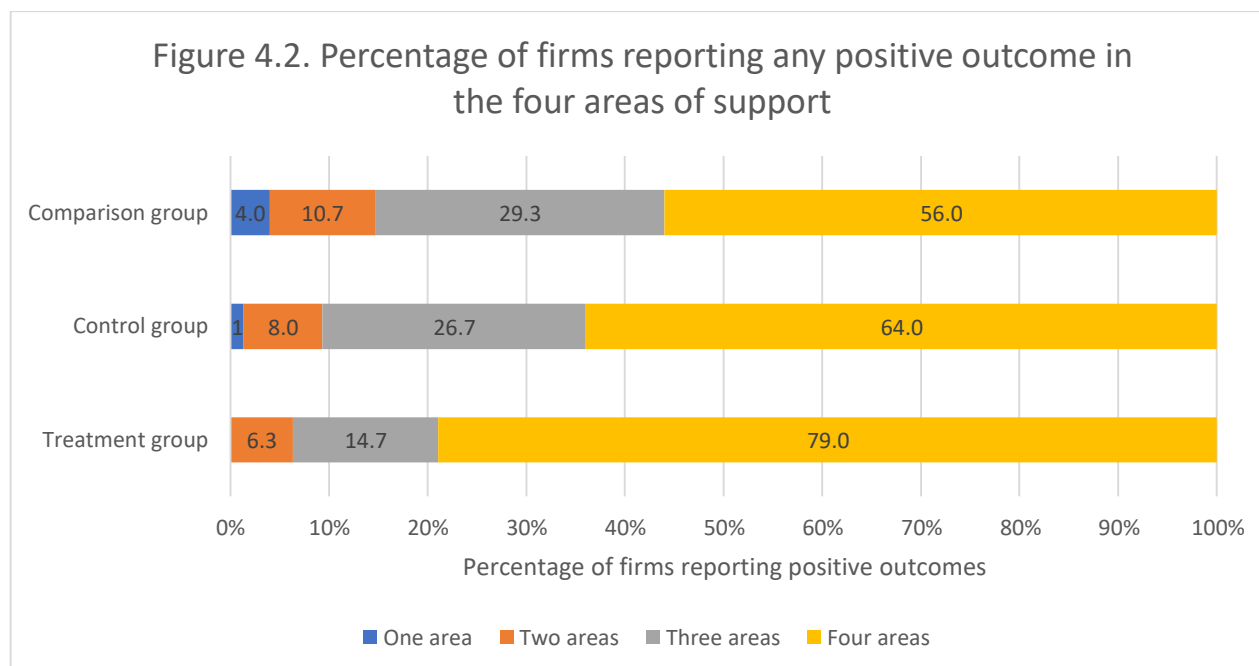Percentage of firms reporting positive outcomes

4.3 Regression analysis

Tables showing the detailed statistical findings from regression analyses of the data relating to the four research questions are included in Table 5 and Table 6 of Annex C. As indicated in Section 2.7, we estimate Probit and linear probability models (LPM) or OLS for each outcome variable, and an Ordered Probit model for the sum of outcomes within each research question. We report average treatment effects in the LPM models and average marginal effects of treatment in the Probit and Ordered Probit models. Each model is estimated for the Treatment group relative to the Control group and relative to the Comparison group. To identify selection effects, each model is further estimated for the Control group relative to the Comparison group. Estimations by Treatment subgroups which discriminate between firms that receive full or partial treatment are presented in the Table 12 to Table 19 of the Appendix. Descriptive statistics of all variables used in the analysis are presented in Table 3 of Annex C.

4.3.1 Analysis of aggregate responses

Figures 4.3 and 4.4 show average marginal effects of treatment from ordered probit regressions on the aggregate outcome measures for each research question, along with 95% confidence intervals (see also Table 4 of Annex C). Figure 4.5 shows the average marginal effects from models comparing the Control and Comparison groups i.e. selection effects.

Figure 4.3 shows the treatment effects relative to the Control group. For RQ1, being in the Treatment group is associated with a significantly lower probability of reporting a small number of positive outcomes and a higher probability of reporting a large number of positive outcomes. For example, within RQ1, the Treatment group were 10.5 percentage points more likely to report 7 out of 8 possible outcomes and 11.3 percentage points less likely to report only one positive

outcome. A similar pattern is observed for RQ2, where there is again a statistically significant positive impact of treatment. Here, firms in the Treatment group were 4.7 percentage points more likely to report 6 out of 7 outcomes, and 4.6 percentage points less likely to report only one positive outcome. The lower panel of Figure 4.3 shows that there is no statistically significant difference between the Treatment and Control groups in terms RQ3 and RQ4.

Figure 4.3. Average Marginal Effects of Treatment on Aggregate Outcomes per Research Question: Treatment vs Control groups
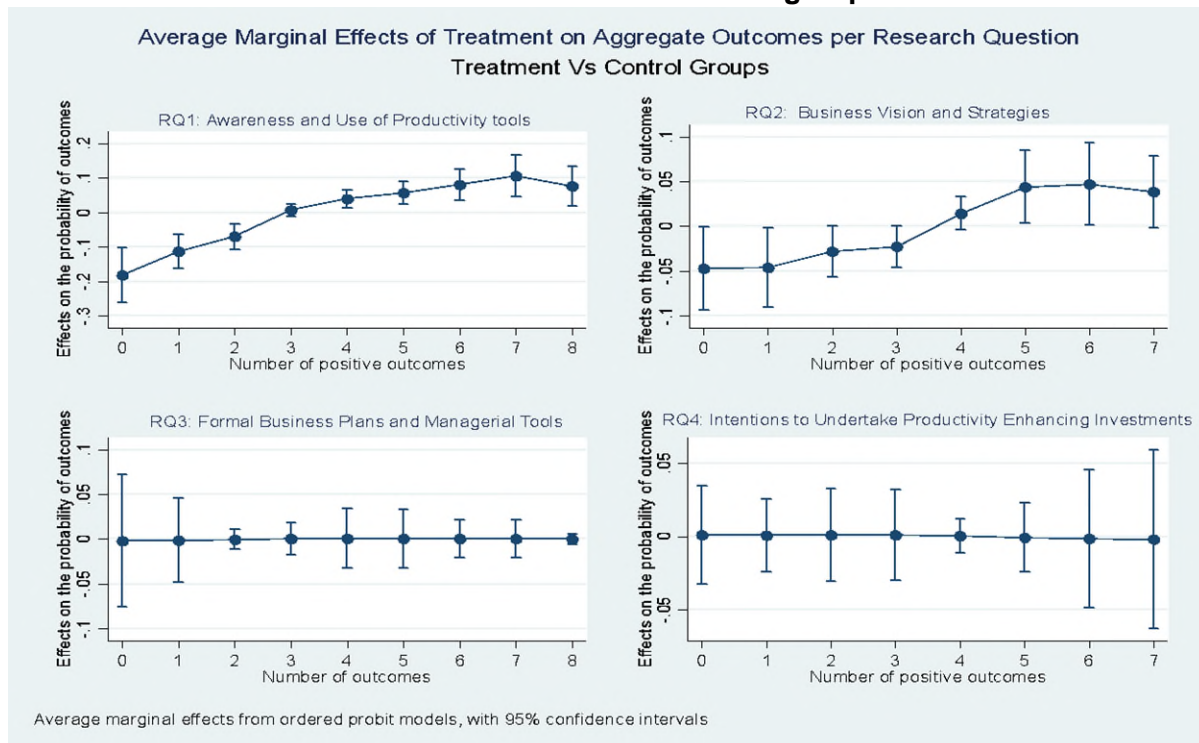

Figure 4.4 shows the corresponding marginal effects of treatment relative to the Comparison group. Here we continue to see a statistically significant positive effect of treatment for RQ1 and RQ2; the magnitudes of the effect on RQ1 is similar to the Control group while the effects on RQ2 are slightly larger. Here, there is also a significant positive impact of treatment for RQ3, where firms in the Treatment group were 5 percentage points more likely to report 5 out of 7 outcomes and 4.3 percentage points less likely to report only one positive outcome[20].

Figure 4.5 shows the corresponding selection effects by comparing the Control and Comparison groups. For RQ1, RQ2 and RQ4, there appears to be little evidence of selection effects, as also evidenced in Table 4 of Annex C where all associated coefficients are statistically insignificant. In particular, the Control group is no more likely than the Comparison group to report positive

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[20] While there are more than 7 possible responses related to RQ3, no one firm reported more than seven positive responses.

outcomes for any of these RQs; there appears to be no additional effect associated purely from selection into the trial. These resuts are corroborated by the similar pattern of effects for these RQs in in Figure 4.3 and Figure 4.4

For RQ3, however, Figure 4.5 and Table 4 of Annex C show that the previously estimated positive impact of treatment relative to the Comparison group suffers from selection bias. The Control group are consistently more likely than the Comparison group to report positive outcomes, with the magnitude of the effect similar to the treatment effects in Figure 4.4.

Overall, the regressions on aggregate outcomes show a clear positive and significant relationship between being in the Treatment group and reporting higher positive outcomes for RQ1 and RQ2 relative to both the Treatment and Comparison groups. As with the descriptive analysis, there is an additional positive impact for RQ3 relative to the Comparison group, but this is significantly biased by selection effects.

Figure 4.4. Average Marginal Effects of Treatment on Aggregate Outcomes per Research Question: Treatment vs Comparison Groups
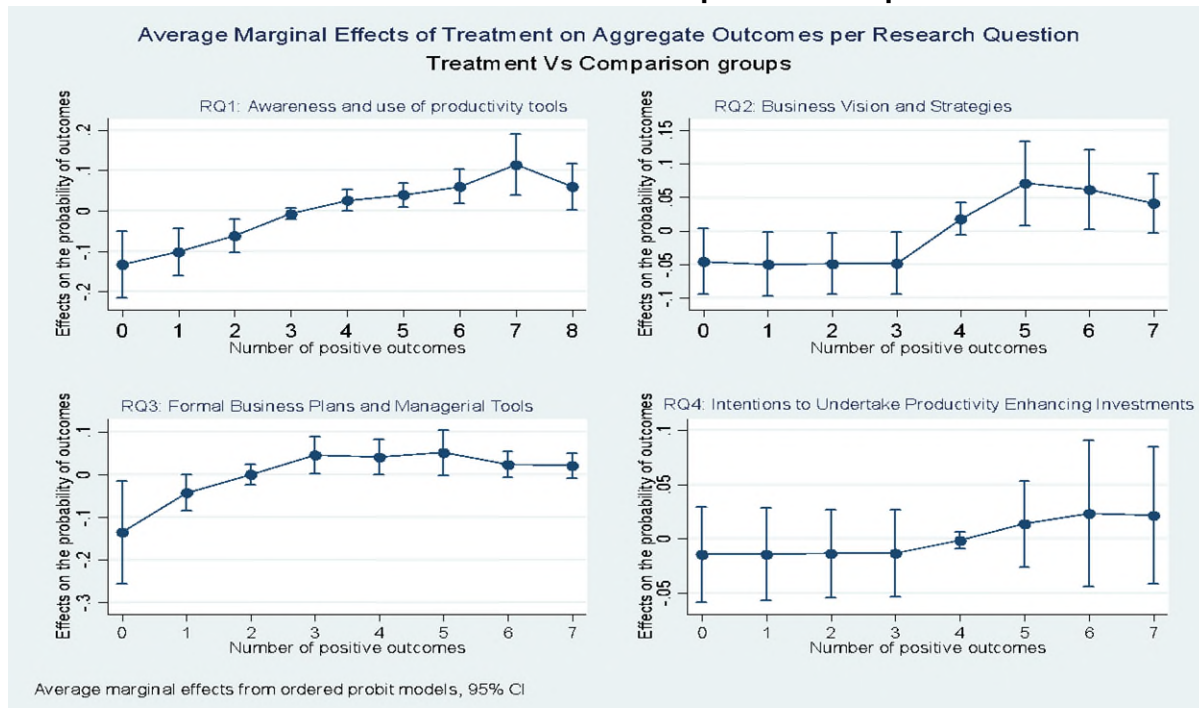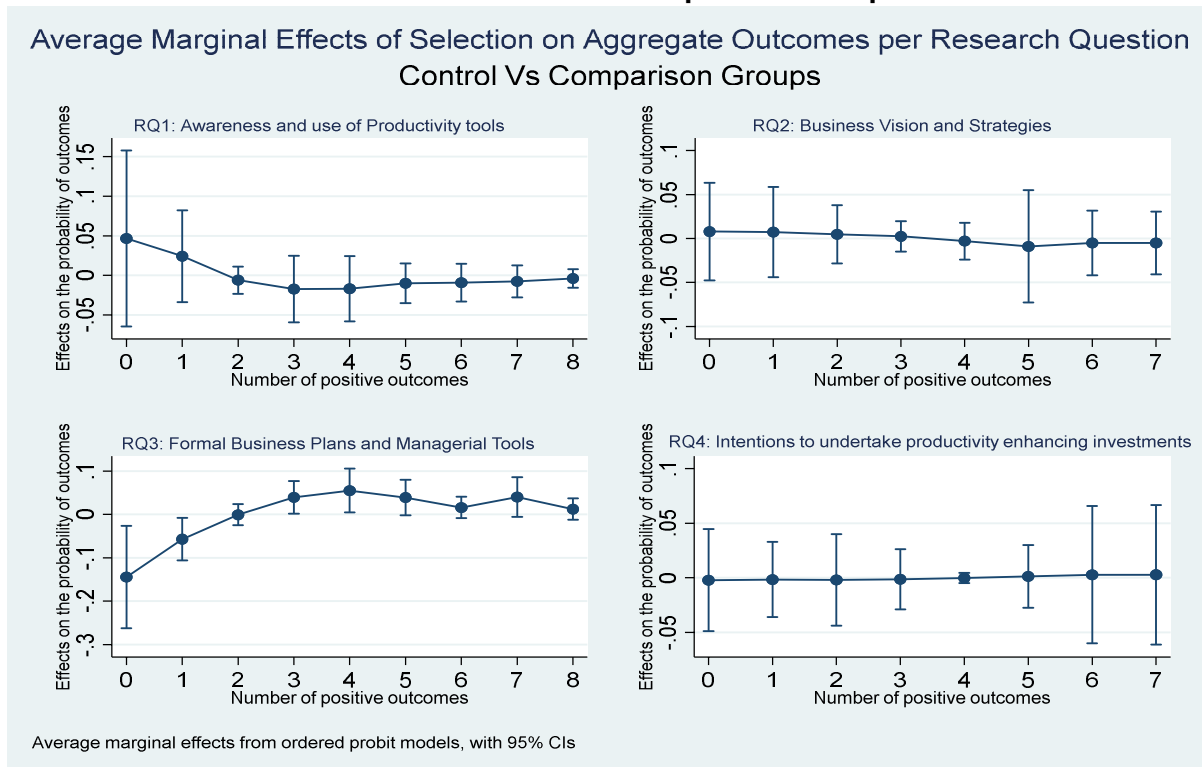
Figure 4.5. Average Marginal Effects of Selection on Aggregate Outcomes per Research Question: Control vs Comparison Groups

Average Marginal Effects of Selection on Aggregate Outcomes per Research Question
Control Vs Comparison Groups

Average marginal effects from ordered probit models, with 95% CIs

4.3.2 Regression analysis of individual outcomes

Table 5 and Table 6 of Annex C show results from LPM and Probit models for the individual outcomes within each research question. We report marginal effects from the Probit models, which represent the treatment effect for an average firm within each group. The LPM coefficients represent the average treatment effect across all firms. Thus, the models report different perspectives of the effect of treatment on the probability that firms report a positive outcome. Generally, the magnitude and significance of treatment effects are consistent across both types of models. In what follows, we summarise the main results from the LPM models which are more readily interpretable.

4.3.2.1 RQ1: Awareness and use of productivity enhancing tools

Whilst impacts vary for the different tools, overall the findings show widespread positive and statistically significant effects of treatment on awareness and use of these tools.

Relative to the Control group, treatment significantly increased the probability of Task Lists awareness (36 percentage points), Lean Canvas awareness (31 percentage points), SWOT awareness (11 percentage points) and Business Canvas awareness (42 percentage points). Treatment also increased the probability of Task lists use (21 percentage points), Lean Canvas use (28 percentage points), SWOT use (26 percentage points) and Business Canvas use (24

Relative to the Comparison group, treatment increased the probability Task Lists awareness (23 percentage points), Lean Canvas awareness (36 percentage points) and Business Canvas awareness (38 percentage points). Treatment also increased the probability of Lean Canvas use (25 percentage points), and Business Canvas use (27 percentage points). Here, treatment had no impact on the probability of SWOT awareness, SWOT use, and Task lists use, indicating that Treatment and Comparison groups are similar in this regard.

Consistent with the aggregate analysis, relative to the Comparison group, being in the Control group is not generally associated with significant differences in the probability of awareness and use of tools, indicating the absence of selection effects. The exception is on the use of Task lists, where the Control group is 21 percentage points *less likely* than the Comparison group to use Task lists. This indicates a negative selection effect, suggesting that without treatment, the Treatment group would have had a worse outcome than the Comparison group. All other selection effects are insignificant.

4.3.2.2 RQ2: Vision and strategies to improve productivity

The findings show that treatment was partially effective in encouraging and enabling treated firms to develop a clearer vision for their business and to formulate strategies to enhance their productivity. Still, it is important to recall that treatment had a strong positive impact on the aggregate measure related to this outcome.

Relative to the Control group, treatment significantly increased the probability that a firm sought opportunities to automate processes by 27 percentage points. All other effects are insignificant. However, there appears to be a negative selection effect, as the Control group is 22% less likely than the Comparison group to seek opportunities to automate processes.

Relative to the Comparison group, treatment increased the probability that a firm sought to communicate better with employees by 34 percentage points. Here, positive selection effects are present, as the Control group is 24 percentage points more likely than the Comparison to seek better employee communication.

Overall, therefore, treatment increased the probability of seeking opportunities to automate processes relative the Control group, and increased the probability of seeking better employee communication relative to Comparison group; both of these effects are associated with selection bias. Treatment had no impact on any other outcome relating to RQ2.

4.3.2.3 RQ3: Business plans and other managerial tools

Generally, relative to the Control group, treatment did not induce a shift in the position of firms regarding adopting formal business plans and managerial tools. There are a few significant treatment effects relative to the Comparison group, but as indicated in the aggregate analysis, these tend to reflect selection effects.

Specifically, relative to the Comparison group, treatment appears to have increased the probability that firms adopted a corporate website by 11 percentage points. Similarly, treatment appears to have increased the probability that firms adopted a cash forecast by 11 percentage points. In both cases, there is a positive selection bias as implied by the comparison of Control and Comparison groups. Finally, treatment increased the likelihood that firms adopted an innovation plan by 16 percentage points.

4.3.2.4 RQ4: Investing to improve future productivity

As with RQ3, treatment had no impact on any outcome relative to the Control group. Relative to the Comparison group, there is no impact on any of the binary outcomes, but treated firms intended to increase e-commerce by a higher magnitude (25.3%). This is associated with a positive selection effect that implies that trial participants intended to increase e-commerce by 12.1% more than the Comparison group. These results should be taken with caution due to small sample sizes.

Overall, treatment had strong effects on the awareness and use of productivity tools relative to both the Control and Comparison groups, and the results imply a general absence of selection effects. Treatment had weaker impacts on developing business vision and strategies. Treatment had no impact on adopting formal business plans and managerial tools and on firm's intentions to undertake productivity enhancing investments relative to the Control group; here, most impacts relative to the Comparison group are ridden with selection effects.

4.4 Assessing survey response bias (attrition bias)

A caveat to the regression analysis above is that there are missing outcomes related to the response rates in the follow-on survey, and that differences in response rates between groups are statistically significant (see Table 2.3). Although tests for attrition bias showed no bias based on observable characteristics (see Table 7 in Annex C), there remains the potential for bias from unobservable factors associated with non-response.

We undertake a robustness analysis to check the sensitivity of our results to attrition bias following a method similar to Kling et al. (2007)[21], Karlan and Valdiva (2011)[22], Fairlie et al, (2015)[23] and Martinez et al (2018)[24]. In particular, for each outcome of interest, we impute missing values for the Treatment, Control and Comparison groups based on assumptions about the outcome levels of non-responders in each group. The main concern with attrition bias is that we may over-estimate the impact of treatment since non-responders in the Treatment group may have lower outcomes than non-responders in the Control and Comparison groups. To check for this bias, we impute missing values for the Treatment group with the mean outcome of the Treatment group *minus* a specified multiple of its standard deviation. For the Control and Comparison groups, we

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[21] https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1468-0262.2007.00733.x
[22] https://www.mitpressjournals.org/doi/abs/10.1162/REST_a_00074
[23] https://www.aeaweb.org/articles?id=10.1257/pol.20120337
[24] https://www.aeaweb.org/articles?id=10.1257/app.20150245

impute missing values with the mean outcome of each group *plus* the specified standard deviation. This should systematically reduce mean outcomes for the Treatment group and increase them for the Control and Comparison groups. We use imputations of 0.05 and 0.1 standard deviations from the mean, and re-estimate all models with the new dependent variables in which missing values are imputed. The dependent variable is non-response; it equals 1 if the firm did not respond to the follow on survey, and zero if it did.

Results from this exercise are presented in Table 10 (LPM models) and Table 11 (Probit models) in Annex C. All previous results remain unchanged and are remarkably robust to a change of 0.05 and 0.1 standard deviations for all three groups of analyses. Importantly, this indicates that attrition is unlikely to have biased the estimated treatment and selection effects, which appear robust to imputation scenarios reflecting reasonable assumptions about the outcomes of non-responders.

4.5 Qualitative feedback on the treatment

As part of the follow-on survey all firms in the Treatment group were also asked to provide comments on their perception of the programme of seminars and workshops. This commentary was provided six months after the intervention so comments tended to be general reflections rather than specific judgements on elements of the programme. Comments were mixed but around three-quarters of firms made positive comments that the programme was valuable and useful for developing their business. A number of participants referred to the value of the peer group elements of the programme and the quality of leadership.

The following were typical of the majority of positive comments on the programme:

'Very useful. I used it to hear from other people on the course and get time to reflect on aspects of the business'.

'I thought it was a good course to help me realize what I wanted to get from running a business. Not necessarily understanding what the business's best interests were, but what mine were and how I could fit that into the business. It made me realize what the selling points were'.

'It has been really useful. We managed to grow the business and open a second premises. In terms of organisation, we have organised our finances better. In terms of just going straight into things, it has made me think about things more before doing things with the business and rather than just going straight into it'.

'It has helped us to manage the business better and give us some insight into how to develop the projects. Also, it has been an informative course'.

Fewer comments were critical of the programme with some emphasis being placed on the greater value participants found in the one-to-one sessions which ended the programme:

'To be honest I didn't find it that useful. The first few sessions went OK, but I didn't find it very useful. There was nothing useful I brought back. The first couple of sessions with things like setting out goals and planning projects, that was useful, but a lot of other thi ngs I didn't find applicable to my business, for example management. I felt I didn't bring anything back from the last couple of sessions. It was the content more than anything. … If I had advanced warning of the content I probably wouldn't have attended'.

'Unfortunately it hasn't helped very much. What we did learn was very basic. I learned most of this in the International Business Bachelors that I studied. What could help more is not necessary a SWOT analysis but I think bookkeeping, finance and lots of marketing. I would also add on more one to one sessions, those are really beneficial. That was when the coach could look more into each individual business'.

'It has been a little bit helpful. My business is a service business and a very unusual business. A lot of it wasn't relevant as I don't hold stock or purchase things as such to sell on. A lot of things was irrelevant but I do sometimes refer back to other things'.

SECTION 5: KEY CONCLUSIONS

5.1 Effectiveness of the evaluation

This evaluation was based on a Randomised Controlled Trial or RCT – the gold standard approach to conducting evaluation studies. Whilst it was necessary to adjust the methodology to address issues stemming from the modest take-up of support by members of the Treatment group, analysis shows that the randomisation process worked well, and the evaluation findings can generally be considered reliable. Comparisons between the Treatment and Control groups provide a robust indication of the effectiveness of the treatment with strong internal validity.

The inclusion of the Comparison group in this evaluation provides a useful illustration of the value of using an RCT to assess the impact of a business support project. If the evaluation had been based only on the comparison of the Treatment and Comparison groups, it would have appeared that the Business Boost project generally had a more positive impact than is revealed from analysis of the (randomly-selected) Control group - particularly in relation to RQ3. This is because a comparison of Treatment and Comparison groups is likely to suffer from selection bias, given differences in observable and unobservable characteristics between these groups. The extent of this bias can be measured by comparing the Control and Comparison groups. Doing this revealed that the estimated positive treatment effects for RQ3 suffer from selection bias, but that this is less important for the estimated positive treatment effects for RQ1 .

5.2 Overall findings

The core aim of the Boosting SME productivity project was to identify a cost effective, yet productivity enhancing programme of business support for SMEs which can be run at scale throughout the country. In this sense, this evaluation includes useful findings; it provides clear evidence of what has worked well and, also, what has worked less well. There is evidence that in specific areas, at least, the project has enhanced awareness of business tools (RQ1) and led to firms having a clearer vision for future development (RQ2). We find no effects on the use of business tools (RQ3) and plans for future productivity enhancing investment (RQ4) relative to the Control group, and very weak and biased effects relative to the Comparison group.

Our analysis suggests that a larger number of treated firms reported a higher number of positive outcomes across a wider variety of support areas. Treatment also had a strong positive impact on the probability that firms became aware of, and used, productivity-enhancing tools, and that firms developed clearer vision and strategies to improve productivity. Treatment had little impact on the probability that firms are adopting formal business plans and other managerial tools which may contribute to productivity, or that they will undertake investment to improve productivity in future.

5.3 Limitations of the study

As discussed earlier in this report the Business Boost trial encountered a number of operational challenges during its implementation related to recruitment of firms into the trial, the take-up of treatment and attrition between the treatment and follow-on survey. The limited length of the impact period (between the treatment and follow-on survey) also means that attention focussed on behavioural and attitudinal changes rather than objective performance measures such as productivity or business growth. In this section we discuss these potential limitations of the trial before considering the lessons for policy and future trials.

Recruitment to the trial in the way envisaged in the original trial plan proved difficult and the eligible group of firms was therefore extended beyond graduates from the Start and Grow programme. Issues around recruitment were – according to the delivery partners – linked to the nature of the treatment and the nature of the trial itself. For some firms the treatment itself proved unattractive: multiple sessions were seen as requiring strong commitment and holding sessions in centralised locations created travel issues for some companies. The RCT nature of the trial also discouraged some firms from engaging.

The relatively low take up of support by the treatment group is also a cause for concern. It may be that initiatives of this kind need different and more effective recruitment criteria. Alternatively, as take-up is likely to be a function of commitment to both the support and the underlying aim of improving business performance, this kind of self-selection may in fact be useful to achieving project goals. In which case, it can be a positive and desirable element of a business support project such as this. In any case, we find in our robustness analyses that treatment effects do not significantly differ for firms that fully or partially took up support.

Given its timing, relatively soon (six months) after the advice and support was provided, this evaluation was designed to capture data on a range of 'output' measures. For example, development of awareness, capacities and business behaviours that are linked to productivity gains and improved business performance. Therefore, it does not provide evidence of actual improved performance within this timeframe.

In evaluating a business support programme such as this, it is important to have a clear view of what constitutes success. Appropriate success criteria are perhaps more modest than is sometimes assumed. In a programme such as this, the various elements of support provided are invariably more and less relevant to different businesses within the group of treated businesses. And, in practice, the businesses will inevitably focus of those elements they perceive as being most useful to themselves. Accordingly, only a proportion of treated businesses are going to report impacts against any particular criteria.

5.4 Policy implications

The value of RCTs are that they provide robust information which provides evidence on the effectiveness of new policy interventions. Here, the treatment applied is shown to have clear impacts on productivity enhancing attitudes and behaviours in the target group of firms. While this is an important finding in itself, care is necessary in terms of the interpretation of this result and

its potential policy implications. First, our RCT relates only to attitudinal and behavioural change and therefore cannot provide cost-benefit type data on the value of the treatment. This is likely to require a longer-term evaluation of impacts of participating firms. Second, the group of firms here is rather specific in terms of being young, micro-businesses with strong growth ambition. This itself is a substantial and important group of firms nationally and across all sectors but is specific and means that our evidence of the effectiveness of the treatment with this group may not easily be generalised to other groups of firms. Our analysis of potential selection effects has shed some light on where this issue of generalisability is strongest.

We know therefore that interventions like the workshop programmes considered here can focus the attitudes and behaviours of young, micro-businesses on productivity improvement. This programme is relevant across sectors and could confidently be scaled regionally or nationally to involve many more companies. The Business Boost trial suggests a number of other considerations which would need to be taken into account in any such roll-out:

- The current programme involves six workshop sessions and a final mentoring meeting. Attending all of this programme of seven events proved challenging for many firms and it may be possible to make the programme more attractive by concentrating input into fewer sessions.
- Partial attendance of the programme was a challenge during the trial and may reduce the value to participants. Delivery agents suggested the potential for charging firms for non-attendance at sessions as one way to encourage firms to complete the whole programme.
- The programme worked well run in cohorts with delivery partners reporting strong peer-to-peer learning effects. Some barriers were noted in terms of travel to programme venues, however, and this may need to be considered in terms of any roll-out.
- The Business Boost programme depends on expert facilitation and business mentoring. This has cost implications and may also mean that supply capacity is limited in some contexts, particularly perhaps in more rural or peripheral areas.

It would also be important in any roll-out to consider how the attitudinal and behavioural changes induced in participating firms impact in the longer-term on productivity and growth outcomes. This would require a programme of longer-term evaluation and monitoring than that allowed here.

5.5 Lessons for future trials

The Business Boost trial generated some clear findings but also suggests some lessons for those planning future RCTs related to business support, particularly where this involves an element of face-to-face delivery. First, it is important to recognise the challenges in recruiting firms into RCTs. For some firms the timing will be inappropriate. For others the programme or randomisation element of the RCT offer may be unappealing. This means significant resources should be available and a clear recruitment strategy developed for future trials. Second, it may be advisable to pilot test the intervention itself prior to the RCT. This stage – similar to a cognitive test when conducting surveys – should help to make the treatment more appealing to potential participants and may help to reduce the probability that firms do not complete the whole of the treatment programme. A cost-effective way of conducting this testing could be focus groups with some firms from the target group. Third, in determining the scale of the trial effect sizes and traditional power

calculations are important. Survey attrition between the treatment and follow-on surveys (where used) is also important, however, and should be taken into account in the calculations. Finally, it may be worth considering the replication of RCTs focussing on a particular treatment in differing social and economic contexts. Unlike medicine, where the results of experiments are not strongly context specific, the effects of RCTs involving business support will strongly depend on wider economic and social conditions. A treatment which 'works' in one set of circumstances may not always be so effective.

ANNEX A: BASELINE SURVEY QUESTIONNAIRE

Boosting SME productivity

Cavendish Consortium / Enterprise Research Centre

BASELINE SURVEY

INTRODUCTION

Thank you for taking the time to complete these questions.

Please answer the questions in relation to the business signed up to the Business Boost programme.

A. BACKGROUND

ASK ALL
A1.   Please could you tell me your name and business name?
RECORD THE RESPONDENT NAME, BUSINESS NAME. IF KNOWN AT TIME OF INTERVIEW, RECORD UNIQUE PROGRAMME ID

A. Respondent Name	
B. Business Name	
C. Unique ID	

ASK ALL
A2.   In what year did this business start trading?
         AS NECESSARY: By 'start trading' we mean selling your goods/services
PROMPT WITH YEARS. SELECT ONE OPTION

2019	1
2018	2
2017	3
2016	4
2015	5
2014 or earlier	6
(Don't know)	7
(Refused)	8

ASK ALL
A3   Does your business <u>mainly</u> operate from…?
READ OUT CODES 1 AND 2. SELECT ONE OPTION

Yours or someone else's <u>home</u> address	1
A <u>separate</u> business premises	2
(Both)	3
(Don't know)	4
(Refused)	5

ASK ALL
A4   Is your business a family owned business, that is one which is majority owned by members of the same family?
SELECT ONE OPTION

Yes	1
No	2
(Don't know)	3
(Refused)	4

ASK ALL
A5   <u>Including</u> owners or partners, how many people manage this business on a day to day basis?
     AS NECESSARY: Please do not include any owners/partners that aren't involved in the day to day running of the business
ENTER NUMBER

ENTER NUMBER (RANGE=0-99)	
(Don't know)	2
(Refused)	3

ASK ALL
A6   How many, if any, of the people that manage this business are women?
ENTER NUMBER

ENTER NUMBER (RANGE=0 - NUMBER AT A5)	
(Don't know)	2
(Refused)	3

ASK ALL
A7   How many, if any, of the people who manage the business are from ethnic minority groups?
ENTER NUMBER

ENTER NUMBER (RANGE=0 - NUMBER AT A5)	
(Don't know)	2
(Refused)	3

ASK IF ANY BELONG TO ETHNIC MINORITY GROUPS (A7>0)
A8   Which ethnic group(s) do the people who manage the business belong to?
      READ OUT EACH OPTION. TICK ALL THAT APPLY

White	1
Black	2
Asian	3
Mixed	4
Something else (SPECIFY)	5
(Don't know)	6
(Refused)	7

ASK ALL
A9   Are you a member of a formal business organisation or network?
AS NECESSARY: By this we mean organisations such as the Institute of Directors, British Chambers of Commerce, Federation of Small Businesses, etc.
SELECT ONE OPTION

Yes	1
No	2
(Don't know)	3
(Refused)	4

ASK ALL
A10A   Approximately what percentage of your sales are within 30 miles of your business?
      ENTER NUMBER

ENTER PERCENTAGE (0-100%)	
(Don't know)	2
(Refused)	3

ASK IF (DON'T KNOW) % OF SALES AT A10A (A10A=(DON'T KNOW) OR (REFUSED))
A10B   If you had to estimate would you say…?
      READ OUT BANDS. SELECT ONE OPTION

0%	1
1% to 20%	2
21% to 40%	3
41% to 60%	4
61% to 80%	5
81% to 99%	6
100%	7
(Don't know)	8
(Refused)	9

ASK ALL
The next set of questions are about your business objectives.

ASK ALL
B1   The following are a list of objectives that you might have for your business in the next <u>three</u> years. Please rate each one on a scale from 1 to 5 how important they are to you, where 1 is 'not at all important' and 5 is 'very important'.
READ OUT EACH OPTION - RANDOMISE ORDER – CHECK RESPONDENT HAS SCALE RIGHT WAY ROUND.

	1- Not at all important	2	3	4	5 - Very important	(Don't know)	(Refused)
A. To build a national and/or international business	1	2	3	4	5	6	7
B. To keep my business similar to how it operates now	1	2	3	4	5	6	7
C. To grow my business rapidly and profitably with a view to exit	1	2	3	4	5	6	7
D. To develop more professional HR practices in the business	1	2	3	4	5	6	7
E. To create a culture of employee engagement	1	2	3	4	5	6	7
F. To increase the social and environmental benefits of the business	1	2	3	4	5	6	7

ASK ALL

B2   The following are a list of personal objectives that you might have as a business leader in the next three years.

Please rate each one on a scale from 1 to 5 how important they are to you, where 1 is 'not at all important' and 5 is 'very important'.

READ OUT EACH OPTION - RANDOMISE ORDER – CHECK RESPONDENT HAS SCALE RIGHT WAY ROUND.

	1 - Not at all important	2	3	4	5 - Very important	(Don't know)	(Refused)
A. To have greater flexibility for my personal and family life	1	2	3	4	5	6	7
B. To have considerable freedom to adapt my own approach to work	1	2	3	4	5	6	7
C. To have a chance to build great wealth or a very high income	1	2	3	4	5	6	7
D. To fulfil a personal vision of becoming a successful business leader in my community	1	2	3	4	5	6	7
E. To build a business to hand on to my family	1	2	3	4	5	6	7
F. To be able to retire	1	2	3	4	5	6	7

ASK ALL

B3   What are the three main challenges which you have faced in managing your business over the last six months?

READ OUT EACH OPTION - RANDOMISE ORDER OF OPTIONS 1-8. CODES 9-11 SHOULD ALWAYS BE LAST – TICK UP TO THREE THAT APPLY

1. Obtaining finance	1
2. Taxation, VAT, PAYE, National Insurance, business rates	2
3. Staff recruitment and skills	3
4. Regulations/red tape	4
5. Availability/cost of suitable premises	5
6. Competition in the market	6
7. Workplace pensions	7
8. Late payment	8
9. UK exit from the EU	9
10. National Living Wage	10
11. Any other major issues or obstacles? (SPECIFY)	11
12. (None of these)	12
13. (Don't know/No opinion)	13
14. (Refused)	14

D. FINANCE AND BUSINESS SUPPORT

ASK ALL
And moving on to thinking about finance and business support…

ASK ALL
D1   Which of these types of finance, if any, are you using?
READ OUT CODES 1-4. TICK ALL THAT APPLY

Loans from friends and family	1
Bank loan or overdraft	2
Other finance (SPECIFY)	3
Not using any finance	4
(Don't know)	5
(Refused)	6

ASK ALL
D2   Have you tried to obtain external finance for your business in the past six months?
IF YES CLARIFY IF ONCE OR MORE. SELECT ONE OPTION.

Yes – once	1
Yes – more than once	2
No	3
(Don't know)	4
(Refused)	5

ASK ALL
D3   Other than advisory support which you have received from TEDCO / Business West / NWES / Enterprise First, have you sought external advice or information on matters affecting your business in the last six months?
We are only interested when this has been more than a casual conversation.
SELECT ONE OPTION.

Yes	1
No	2
(Don't know)	3
(Refused)	4

ASK IF SOUGHT INFORMATION/ADVICE (D3=1)
D4   Where else have you been for information and advice on managing your business in the last six months?

Please do not include any advisory support which you have received from TEDCO / Business West / NWES / Enterprise First
READ OUT ALL OPTIONS. DO NOT RANDOMISE. TICK ALL THAT APPLY.

Accountant	1
Bank	2
Business adviser/consultant	3
Business Mentor	4
Business network/trade association	5
Chamber of Commerce	6
Friend or family member	7
Government website	8
Internet search/google/other websites	9
Local Authority	10
Local Enterprise Partnership/Growth Hub	11
Non-Executive Director	12
Solicitor/lawyer	13
(Don't know)	14

ASK ALL
D5   Aside from any advice you may receive from TEDCO / Business West / NWES / Enterprise First, how likely are you to seek external advice or information on matters affecting your business over the next six months?
READ OUT. SELECT ONE OPTION.

Very likely	1
Quite likely	2
Not likely	3
Very unlikely	4
(Don't know)	5
(Refused)	6

E. PERFORMANCE OVER THE LAST YEAR

ASK ALL
The following questions relate to business performance. Please be assured your responses will remain anonymous and will only be used by the project team for analysis purposes.

ASK ALL
E1A   Excluding owners and partners, how many employees are currently on your payroll?
PLEASE INCLUDE THE TOTAL NUMBER OF FULL AND PART TIME STAFF
INCLUDE TEMPORARY/CASUAL EMPLOYEES, BUT NOT AGENCY STAFF
EXCLUDE OWNERS/PARTNERS, BUT OTHER DIRECTORS COUNT AS EMPLOYEES
ENTER NUMBER

ENTER NUMBER (RANGE=1-9)	
(Don't know)	2
(Refused)	3

ASK IF (DON'T KNOW) NO. OF EMPS AT E1A (E1A=(DON'T KNOW) OR (REFUSED))
E1B   If you (Don't know) or (Refused) the exact number, Into which of the following bands does your number of employees fall?
        READ OUT BANDS. SELECT ONE OPTION.

0	1
1 - 4	2
5 - 9	3
10+	4
(Don't know)	5
(Refused)	6

ASK ALL
E2   Not counting owners and partners, how many people did your business employ a year ago?
        ENTER NUMBER

ENTER NUMBER (RANGE=0-9)	
(Don't know)	2
(Refused)	3

ASK ALL
E3A   Not counting owners and partners, how many people do you anticipate will be working in this business in a year from now?

ENTER NUMBER

ENTER NUMBER (RANGE=0-999)	
(Don't know)	2
(Refused)	3

ASK IF (DON'T KNOW) NO. OF EMPS AT E3A (E3A=(DON'T KNOW) OR (REFUSED))
E3B   Would you be able to estimate the number of employees working in the business a year from now?

READ OUT BANDS. SELECT ONE OPTION.

0	1
1 - 4	2
5 - 9	3
10 - 14	4
15 - 19	5
20 - 29	6
30+	7
(Don't know)	8
(Refused)	9

ASK ALL
E4A   Can you please tell us the approximate turnover of your business in the past 12 months? If you don't know exactly please provide your best estimate.

ENTER NUMBER

ENTER £ FIGURE	
(Don't know)	2
(Refused)	3

ASK IF (DON'T KNOW) TURNOVER AT E4A (E4A=(DON'T KNOW) OR (REFUSED))
E4B   Would you be able to estimate the turnover of your business in the past 12 months?
READ OUT BANDS. SELECT ONE OPTION.

£0	1
£1 to £24,999	2
£25,000 to £49,999	3
£50,000 - £99,999	4
£100,000 - £249,999	5
£250,000 - £499,999	6
£500,000 +	7
(Don't know)	8
(Refused)	9

ASK ALL
E5   Compared with the previous 12 months, has your turnover increased, decreased or stayed roughly the same?
SELECT ONE OPTION

Increased	1
Decreased	2
Stayed the same	3
(Business not trading more than 12 months ago)	4
(Don't know)	5
(Refused)	6

ASK IF TURNOVER HAS INCREASED / DECREASED (E5 = 1-2)
E6A   By approximately what percentage did your turnover <IF E5=1 increase / IF E5=2 decrease>, compared with the previous 12 months? If you do not know exactly, please give an approximate percentage.
ENTER NUMBER

ENTER PERCENTAGE	
(Don't know)	2
(Refused)	3

ASK (DON'T KNOW)/(REFUSED) PERCENTAGE INCREASE
E6B   Would you be able to estimate what percentage your turnover <IF E5=1 increased / IF E5=2 decreased> in one of the following bands, compared with the previous 12 months?
READ OUT BANDS. SELECT ONE OPTION.

0%	1
1% to 20%	2
21% to 40%	3
41% to 60%	4
61% - 80%	5
81% - 99%	6
100% or more	7
(Don't know)	8
(Refused)	9

F. MANAGEMENT PRACTICES AND LEADERSHIP

ASK ALL
And moving on to think about your management practices and leadership within the business…

ASK ALL
F1   How would you rate your own firm's capabilities in the following areas.

Please rate each area on a scale from 1 to 5, where 1 is 'very weak' and 5 is 'very strong'.
READ OUT EACH OPTION - RANDOMISE ORDER *– CHECK RESPONDENT HAS SCALE RIGHT WAY ROUND.*

	1 - Very Weak	2	3	4	5 - Very Strong	(Don't know)	(Refused)
A. People management	1	2	3	4	5	6	7
B. Implementing a business plan and strategy	1	2	3	4	5	6	7
C. Improving your operating efficiency	1	2	3	4	5	6	7
D. Entering new foreign markets (i.e. exports)	1	2	3	4	5	6	7
E. Developing and introducing new products or services	1	2	3	4	5	6	7
F. Accessing external finance e.g. loans, overdraft, equity finance	1	2	3	4	5	6	7
G. Recruiting new employees	1	2	3	4	5	6	7
H. Using information technology to help grow the business	1	2	3	4	5	6	7

ASK ALL
F2A_1 Would you say your business currently has a clear vision for the future?
        For example: 'Sell the business in 10 years' time', 'Pass it on to other members of the family', 'Build something that looks like X'
        SELECT ONE OPTION.

Yes	1
No	2
(Don't know)	3
(Refused)	4

ASK IF HAVE CLEAR VISION FOR FUTURE (F2A_1=1)
F2A_2 Do you see any particular obstacle to achieving that vision?
        SELECT ONE OPTION.

Yes	1
No	2
(Don't know)	3
(Refused)	4

ASK IF HAVE OBSTACLE (F2A_2=1)
F2A_3 And what is it?
        TYPE IN OBSTACLE IN BOX BELOW

ASK ALL
F2B_1 Do you have quantified goals or targets which you want to achieve over the next year?
SELECT ONE OPTION.

Yes	1
No	2
(Don't know)	3
(Refused)	4

ASK IF HAVE GOALS/TARGETS (F2B_1 = 1)
F2B_2 Do these goals or targets relate to…
READ OUT EACH OPTION – DO NOT RANDOMISE – YES/NO FOR EACH

	Yes	No	(Don't know)	(Refused)
A. Increasing sales	1	2	3	4
B. Entering new markets – sectors or places	1	2	3	4
C. Decreasing costs	1	2	3	4
D. Increasing profits	1	2	3	4
E. Increasing investment	1	2	3	4
F. New/different jobs and/or staff	1	2	3	4
G. New ways of organising/managing the business e.g. new structures, delegation	1	2	3	4
H. New ways of organising product or service	1	2	3	4
I. New/changed products or services	1	2	3	4

ASK ALL
F2B Does your business currently have…
READ OUT EACH OPTION – DO NOT RANDOMISE – YES/NO FOR EACH

	Yes	No	(Don't know)	(Refused)
A. A formal written business plan	1	2	3	4
B. A plan to improve products or processes (This may be part of your business plan or a separate document)	1	2	3	4
C. A marketing plan, including details for new products/services and/or new markets	1	2	3	4
D. A marketing budget	1	2	3	4
E. A corporate website	1	2	3	4
F. A training plan	1	2	3	4
G. A recruitment budget	1	2	3	4
H. A training budget	1	2	3	4
I. A cash flow forecast	1	2	3	4
J. Regular financial reports e.g. VAT reports	1	2	3	4

ASK IF HAVE A BUSINESS PLAN (F2B_A=1)
F2C   And thinking specifically about your business plan…?
READ OUT EACH OPTION – YES/NO FOR EACH

	Yes	No	(Don't know)	(Refused)
A. Has it been amended or updated since you started the company	1	2	3	4
B. Does it set out how finance will be accessed, used and managed for growth	1	2	3	4

ASK ALL
F3   And do you…
READ OUT EACH OPTION – RANDOMISE ORDER OF STATEMENTS – YES/NO FOR EACH.
SELECT ONE OPTION.

	Yes	No	(Don't know)	(Refused)
A. Give employees information about the financial position of the establishment	1	2	3	4
B. Create teams of people, who don't usually work together, to work on a specific project	1	2	3	4
C. Have teams of people that solve specific problems or discuss aspects of work performance? AS NECESSARY: These are sometimes known as "problem solving groups" or "continuous improvement groups"	1	2	3	4
D. Have an equal opportunities policy	1	2	3	4
E. Have formal procedures in place for employee consultation AS NECESSARY: such as a staff association, employee forum or trade union consultation	1	2	3	4
F. Currently hold any ISO Standards i.e. 9001, 27001, 14001	1	2	3	4
G. Have a formal procedure for dealing with discipline and dismissals for non-managerial employees	1	2	3	4

ASK ALL
And looking forward…

ASK ALL
G1.   Over the next six months, how likely are you to do each of the following. Please answer on a scale of 1 to 5 where 1 is 'very unlikely' and 5 is 'very likely'.
READ OUT EACH OPTION - RANDOMISE ORDER – CHECK RESPONDENT HAS SCALE RIGHT WAY ROUND.

	1 - Very Unlikely	2	3	4	5 - Very Likely	(Don't know)	(Refused)
A. Increase business turnover	1	2	3	4	5	6	7
B. Increase sales and marketing activity	1	2	3	4	5	6	7
C. Purchase new equipment	1	2	3	4	5	6	7
D. Develop new products/services	1	2	3	4	5	6	7
E. Employ more staff	1	2	3	4	5	6	7
F. Improve leadership capability	1	2	3	4	5	6	7
G. Increase or improve e-commerce	1	2	3	4	5	6	7

H. ADDITIONAL RESPONDENT DATA

Finally, I would like to ask some questions about yourself. These are just for classification purposes.

ASK ALL

H1   Do you now or have you ever managed or owned any other businesses?

SELECT ONE OPTION.

Yes	1
No	2
(Don't know)	3
(Refused)	4

ASK ALL

H2   Which of the following age ranges do you fall into?

READ OUT UNTIL ANSWER GIVEN. SELECT ONE OPTION.

Under 25	1
25-34	2
35-44	3
45-54	4
55-64	5
65-74	6
75 or over	7
(Refused)	8

ASK ALL

H3   Which of these is the highest level of education that you have attained?

READ OUT OPTIONS. STOP WHEN GIVEN AN ANSWER. SELECT ONE OPTION.

A Doctorate or Master's degree	1
A Bachelor's Degree or equivalent	2
A-levels or an apprenticeship qualification	3
GCSE/O-level or CSEs	4
Other qualifications	5
No formal qualifications	6
(Don't know)	7
(Refused)	8

ASK ALL
H4   And do you live…?
READ OUT. SELECT ONE OPTION.

With a spouse or partner	1
Alone	2
In another type of household	3
(Refused)	4

ASK ALL
H5   And do you…?
READ OUT. CODES 1-2 POSSIBLE BUT CODE 3 IS SINGLE CODE

Live with school age or younger children	1
Have children who have left school / home	2
Not have any children	3
(Refused)	4

K. THANK AND CLOSE

DO NOT ASK RESPONDENT

Was this survey conducted over the phone or face-to-face…?	
Telephone	1
Face-to-face	2
Other	3

Thank you very much for completing the questions.

ANNEX B: FOLLOW ON SURVEY QUESTIONNAIRE

Boosting SME productivity
Cavendish Consortium / Enterprise Research Centre
FOLLOW-ON SURVEY

Sample Type	Sample Code	Interview Target
Cavendish – Business Boost	C1	130
Cavendish – Unsupported	C2	100
Counterfactual	C3	75

INTRODUCTION

ASK ALL
Could I please speak to <INSERT CONTACT NAME FROM SAMPLE>?
Good morning/afternoon, my name is … and I am calling from OMB Research, an independent market research agency.

ASK C1/C2
You should recently have seen an email from <INSERT CAVENDISH CONTACT> at < IF NORTH EAST TEDCO / IF WEST Business West / IF EAST Nwes / IF SOUTH Enterprise First > explaining that we would be contacting you to conduct a short telephone survey < IF C1 to understand the impact of the Business Boost programme IF C2 on your leadership and management practices>.

ASK C3
You may remember that you took part in a survey we conducted on leadership and management practices around 6 months ago and agreed that we could contact you to conduct a follow-on survey. You should recently have seen an email from Michael Farrer explaining that we would be contacting you.

ASK ALL
The research will take around 10 minutes, depending on your answers. Is now a convenient to speak to you or would you prefer to make an appointment for another time?

ADD IF NECESSARY
The findings from this research will feed into a larger study on how government can improve the way they support businesses like yours.
The research is being conducted under the Code of Practice of the Market Research Society, which means that all of the answers you give are strictly confidential and anonymous. Participation in this survey is voluntary.
This project is being conducted by Cavendish Enterprise and Warwick Business School and has been commissioned by the Department for Business, Energy & Industrial Strategy
If you wish to check that OMB Research is a bona fide market research agency, you can contact the Market Research Society on 0800 975 9596, or call Michael Farrer at OMB Research on 01732 220582.

S1 – DELETED
ASK ALL
The information you provide will be used for research purposes only and we will not disclose who has taken part or divulge specific details about your organisation unless you agree to this at the end of the survey.
We comply with the requirements of GDPR, and you can find out more information in our Privacy Notice, which is on our website (IF NECESSARY: www.ombresearch.co.uk/privacy).
All calls are recorded for training and quality purposes.

ASK ALL
S2 – Before I continue, can I confirm that you are happy to participate in the survey on this basis?
Yes, agreed to participate in survey   1 – CONTINUE
No, declined to participate   3 – CLOSE

A. BACKGROUND

A2   DELETED
A3   DELETED
A4   DELETED
A5   DELETED
A6   DELETED
A7   DELETED
A8   DELETED
A9   DELETED
A10A   DELETED
A10B   DELETED

B. BUSINESS AND PERSONAL AMBITION

ASK ALL
The first set of questions are about your business objectives.

ASK ALL
B4   Can I begin by asking whether any of the following have occurred within the business over the last six months…?
DO NOT READ OUT – MULTIPLE CODES POSSIBLE

Business has ceased trading	1	CLOSE
Changes in the leadership team	2	
Ownership of the business has changed	3	
Business has moved premises	4	
None of these	5	
(Don't know)	6	
(Refused)	7	

SCRIPTING NOTE: CLOSE IF B4=1

ASK ALL
B1 The following are a list of objectives that you might have for your business in the next <u>three</u> years.
Please rate each one on a scale from 1 to 5 how important they are to you, where 1 is 'not at all important' and 5 is 'very important'.
READ OUT EACH OPTION - RANDOMISE ORDER – CHECK RESPONDENT HAS SCALE RIGHT WAY ROUND.

	1- Not at all important	2	3	4	5 - Very important	(Don't know)	(Refused)
A. To build a national and/or international business	1	2	3	4	5	6	7
B. To keep my business similar to how it operates now	1	2	3	4	5	6	7
C. To grow my business rapidly and profitably with a view to exit	1	2	3	4	5	6	7
D. DELETED							
E. DELETED							
F. DELETED							

ASK ALL
B2 The following are a list of personal objectives that you might have as a business leader in the next <u>three</u> years.
Please rate each one on a scale from 1 to 5 how important they are to you, where 1 is 'not at all important' and 5 is 'very important'.
READ OUT EACH OPTION - RANDOMISE ORDER – CHECK RESPONDENT HAS SCALE RIGHT WAY ROUND.

	1 - Not at all important	2	3	4	5 - Very important	(Don't know)	(Refused)
A. To have greater flexibility for my personal and family life	1	2	3	4	5	6	7
B. To have considerable freedom to adapt my own approach to work	1	2	3	4	5	6	7
C. To have a chance to build great wealth or a very high income	1	2	3	4	5	6	7
D. To fulfil a personal vision of becoming a successful business leader in my community	1	2	3	4	5	6	7
E. To build a business to hand on to my family	1	2	3	4	5	6	7
F. To be able to retire	1	2	3	4	5	6	7

B3 DELETED

D. FINANCE AND BUSINESS SUPPORT

ASK ALL
And moving on to thinking about finance and business support…

ASK ALL
D1   Which of these types of finance, if any, are you using?
READ OUT CODES 1-4. TICK ALL THAT APPLY

Loans from friends and family	1
Bank loan or overdraft	2
Other finance (SPECIFY)	3
Not using any finance	4
(Don't know)	5
(Refused)	6

ASK ALL
D2   Have you tried to obtain external finance for your business in the past six months?
IF YES CLARIFY IF ONCE OR MORE. SELECT ONE OPTION.

Yes – once	1
Yes – more than once	2
No	3
(Don't know)	4
(Refused)	5

ASK ALL
D3   < IF C1/C2 Other than advisory support which you have received from < IF NORTH EAST TEDCO / IF WEST Business West / IF EAST Nwes / IF SOUTH Enterprise First >, have IF C3 Have > you sought external advice or information on matters affecting your business in the last six months? We are only interested when this has been more than a casual conversation.
SELECT ONE OPTION.

Yes	1
No	2
(Don't know)	3
(Refused)	4

ASK IF SOUGHT INFORMATION/ADVICE (D3=1)
D4   Where have you been for information and advice on managing your business in the last six months?

< IF C1/C2 Please do not include any advisory support which you have received from < IF NORTH EAST TEDCO / IF WEST Business West / IF EAST Nwes / IF SOUTH Enterprise First > >

READ OUT ALL OPTIONS. DO NOT RANDOMISE. TICK ALL THAT APPLY.

Accountant	1
Bank	2
Business adviser/consultant	3
Business Mentor	4
Business network/trade association	5
Chamber of Commerce	6
Friend or family member	7
Government website	8
Internet search/google/other websites	9
Local Authority	10
Local Enterprise Partnership/Growth Hub	11
Non-Executive Director	12
Solicitor/lawyer	13
(Don't know)	14

ASK ALL
D5   How likely are you to seek external advice or information on matters affecting your business over the next six months?
READ OUT. SELECT ONE OPTION.

Very likely	1
Quite likely	2
Not likely	3
Very unlikely	4
(Don't know)	5
(Refused)	6

ASK ALL
The following questions relate to business performance. Please be assured your responses will remain anonymous and will only be used by the project team for analysis purposes.

ASK ALL
E1A   Excluding owners and partners, how many employees are currently on your payroll?
PLEASE INCLUDE THE TOTAL NUMBER OF FULL AND PART TIME STAFF
INCLUDE TEMPORARY/CASUAL EMPLOYEES, BUT NOT AGENCY STAFF
EXCLUDE OWNERS/PARTNERS, BUT OTHER DIRECTORS COUNT AS EMPLOYEES
ENTER NUMBER

ENTER NUMBER	
(Don't know)	2
(Refused)	3

ASK IF (DON'T KNOW) NO. OF EMPS AT E1A (E1A=(DON'T KNOW) OR (REFUSED))
E1B   Into which of the following bands does your number of employees fall?
READ OUT BANDS. SELECT ONE OPTION.

0	1
1 - 4	2
5 - 9	3
10 - 14	4
15 - 19	5
20 - 29	6
30+	7
(Don't know)	8
(Refused)	9

ASK ALL
E2   Not counting owners and partners, how many people did your business employ a year ago?
ENTER NUMBER

ENTER NUMBER	
(Don't know)	2
(Refused)	3

ASK ALL
E3A   Not counting owners and partners, how many people do you anticipate will be working in this business in a year from now?
ENTER NUMBER

ENTER NUMBER (RANGE=0-999)	
(Don't know)	2
(Refused)	3

ASK IF (DON'T KNOW) NO. OF EMPS AT E3A (E3A=(DON'T KNOW) OR (REFUSED))
E3B   Would you be able to estimate the number of employees working in the business a year from now?
READ OUT BANDS. SELECT ONE OPTION.

0	1
1 - 4	2
5 - 9	3
10 - 14	4
15 - 19	5
20 - 29	6
30+	7
(Don't know)	8
(Refused)	9

ASK ALL
E4A   Can you please tell us the approximate turnover of your business in the past 12 months? If you don't know exactly please provide your best estimate.
ENTER NUMBER

ENTER £ FIGURE	
(Don't know)	2
(Refused)	3

ASK IF (DON'T KNOW) TURNOVER AT E4A (E4A=(DON'T KNOW) OR (REFUSED))
E4B   Would you be able to estimate the turnover of your business in the past 12 months?
READ OUT BANDS. SELECT ONE OPTION.

£0	1
£1 to £24,999	2
£25,000 to £49,999	3
£50,000 - £99,999	4
£100,000 - £249,999	5
£250,000 - £499,999	6
£500,000 +	7
(Don't know)	8
(Refused)	9

ASK ALL
E5   Compared with the previous 12 months, has your turnover increased, decreased or stayed roughly the same?
   SELECT ONE OPTION

Increased	1
Decreased	2
Stayed the same	3
(Business not trading more than 12 months ago)	4
(Don't know)	5
(Refused)	6

ASK IF TURNOVER HAS INCREASED / DECREASED (E5 = 1-2)
E6A   By approximately what percentage did your turnover <IF E5=1 increase / IF E5=2 decrease>, compared with the previous 12 months? If you do not know exactly, please give an approximate percentage.
   ENTER NUMBER

ENTER PERCENTAGE	
(Don't know)	2
(Refused)	3

ASK (DON'T KNOW)/(REFUSED) PERCENTAGE INCREASE
E6B   Would you be able to estimate what percentage your turnover <IF E5=1 increased / IF E5=2 decreased> in one of the following bands, compared with the previous 12 months?
READ OUT BANDS. SELECT ONE OPTION.

0%	1
1% to 20%	2
21% to 40%	3
41% to 60%	4
61% - 80%	5
81% - 99%	6
100% or more	7
(Don't know)	8
(Refused)	9

F. MANAGEMENT PRACTICES AND LEADERSHIP

ASK ALL
And moving on to think about your management practices and leadership within the business…
ASK ALL
F1   How would you rate your own firm's capabilities in the following areas.

Please rate each area on a scale from 1 to 5, where 1 is 'very weak' and 5 is 'very strong'.
READ OUT EACH OPTION - RANDOMISE ORDER *– CHECK RESPONDENT HAS SCALE RIGHT WAY ROUND.*

	1 - Very Weak	2	3	4	5 - Very Strong	(Don't know)	(Refused)
A. People management	1	2	3	4	5	6	7
B. Implementing a business plan and strategy	1	2	3	4	5	6	7
C. Improving your operating efficiency	1	2	3	4	5	6	7
D. Entering new foreign markets (i.e. exports)	1	2	3	4	5	6	7
E. Developing and introducing new products or services	1	2	3	4	5	6	7
F. Accessing external finance e.g. loans, overdraft, equity finance	1	2	3	4	5	6	7
G. Recruiting new employees	1	2	3	4	5	6	7
H. Using information technology to help grow the business	1	2	3	4	5	6	7

ASK ALL
F1A. Thinking now about how you manage and organise your business:
a. Are you aware of the following tools which you might use to help develop your business?
IF YES AT F1A.a
b. Have you made use of these tools to help manage or develop your business in the last six months?

		Aware (Y/N)	Used (Y/N)
1	Critical task lists		
2	Lean Canvas tool		
3	SWOT analysis		
4	Business model canvas		

ASK ALL
F1B. Thinking about how you have managed and organised your business over the last six months. Do you agree or disagree with the following statements. Have you….
READ OUT EACH OPTION - RANDOMISE ORDER – CHECK RESPONDENT HAS SCALE RIGHT WAY ROUND.

		Strongly disagree				Strongly agree
1	Developed a clearer understanding of business challenges	1	2	3	4	5
2	Developed more specific business goals	1	2	3	4	5
3	Sought to communicate better with employees	1	2	3	4	5
4	Looked for opportunities for savings and efficiencies	1	2	3	4	5
5	Looked for opportunities to automate processes	1	2	3	4	5
6	Explored alternative finance options	1	2	3	4	5
7	Investigated new markets or products/services	1	2	3	4	5

ASK ALL
F2A_1 Would you say your business currently has a clear vision for the future?
For example: 'Sell the business in 10 years' time', 'Pass it on to other members of the family', 'Build something that looks like X'
SELECT ONE OPTION.

Yes	1
No	2
(Don't know)	3
(Refused)	4

ASK IF HAVE CLEAR VISION FOR FUTURE (F2A_1=1)
F2A_2 Do you see any particular obstacle to achieving that vision?
SELECT ONE OPTION.

Yes	1
No	2
(Don't know)	3
(Refused)	4

ASK IF HAVE OBSTACLE (F2A_2=1)
F2A_3 And what is it?
TYPE IN OBSTACLE IN BOX BELOW

ASK ALL
F2B_1 Do you have quantified goals or targets which you want to achieve over the next year?
SELECT ONE OPTION.

Yes	1
No	2
(Don't know)	3
(Refused)	4

ASK IF HAVE GOALS/TARGETS (F2B_1 = 1)
F2B_2 Do these goals or targets relate to…
READ OUT EACH OPTION – DO NOT RANDOMISE – YES/NO FOR EACH

	Yes	No	(Don't know)	(Refused)
A. Increasing sales	1	2	3	4
B. Entering new markets – sectors or places	1	2	3	4
C. Decreasing costs	1	2	3	4
D. Increasing profits	1	2	3	4
E. Increasing investment	1	2	3	4
F. New/different jobs and/or staff	1	2	3	4
G. New ways of organising/managing the business e.g. new structures, delegation	1	2	3	4
H. New ways of organising product or service	1	2	3	4
I. New/changed products or services	1	2	3	4

ASK ALL
F2B   Does your business currently have…
READ OUT EACH OPTION – DO NOT RANDOMISE – YES/NO FOR EACH

	Yes	No	(Don't know)	(Refused)
A. A formal written business plan	1	2	3	4
B. A plan to improve products or processes (This may be part of your business plan or a separate document)	1	2	3	4
C. A marketing plan, including details for new products/services and/or new markets	1	2	3	4
D. A marketing budget	1	2	3	4
E. A corporate website	1	2	3	4
F. A training plan	1	2	3	4
G. A recruitment budget	1	2	3	4
H. A training budget	1	2	3	4
I. A cash flow forecast	1	2	3	4
J. Regular financial reports e.g. VAT reports	1	2	3	4

ASK IF HAVE A BUSINESS PLAN (F2B_A=1)
F2C   And thinking specifically about your business plan…?
READ OUT EACH OPTION – YES/NO FOR EACH

	Yes	No	(Don't know)	(Refused)
A. Has it been amended or updated since you started the company	1	2	3	4
B. Does it set out how finance will be accessed, used and managed for growth	1	2	3	4

F3   DELETED
ASK ALL
And looking forward…
ASK ALL
G1.   Over the next six months, how likely are you to do each of the following. Please answer on a scale of 1 to 5 where 1 is 'very unlikely' and 5 is 'very likely'.
READ OUT EACH OPTION - RANDOMISE ORDER – CHECK RESPONDENT HAS SCALE RIGHT WAY ROUND.

	1 - Very Unlikely	2	3	4	5 - Very Likely	(Don't know)	(Refused)
A. Increase business turnover	1	2	3	4	5	6	7
B. Increase sales and marketing activity	1	2	3	4	5	6	7
C. Purchase new equipment	1	2	3	4	5	6	7
D. Develop new products/services	1	2	3	4	5	6	7
E. Employ more staff	1	2	3	4	5	6	7
F. Improve leadership capability	1	2	3	4	5	6	7
G. Increase or improve e-commerce	1	2	3	4	5	6	7

ASK IF G1B=4 OR 5
G1a. You suggested you are likely to increase your sales and marketing activity over the next six months. Can you estimate by how much in percentage terms:

1	0-19 per cent
2	20-39 per cent
3	40-59 per cent
4	60-79 per cent
5	80 per cent or more

ASK IF G1G=4 OR 5
G1a. You suggested you are likely to increase sales from e-commerce over the next six months. Can you estimate by how much in percentage terms:

1	0-19 per cent
2	20-39 per cent
3	40-59 per cent
4	60-79 per cent
5	80 per cent or more

H. ADDITIONAL RESPONDENT DATA

H1   DELETED
H2   DELETED
H3   DELETED
H4   DELETED
H5   DELETED

ASK IF SAMPLE GROUP C1 ONLY
H6. One final question. Around 6 months ago you attended a course run by <INSERT PROVIDER NAME> as part of a course called 'Business Boost'. Has the course been useful in helping you manage or organise your business?
Note: If the response is positive, please try and get interviewee to provide specific examples
Note verbatim:

K. THANK AND CLOSE

READ OUT TO ALL
That's the end of the interview, thank you very much for your time today.
Standard thank and close.

ANNEX C: STATISTICAL TABLES

List of Statistical Tables in Annex C

Table 17: RQ2: The Effect of Treatment on Business Vision and Strategies- Differences between full an partial take up of treatment- Treatment vs Comparison

Table 18: RQ3: The Effect of Treatment on Firms' Intentions to Undertake Productivity Enhancing Investments: Differences between full an partial take up of treatment- Treatment vs Comparison

Table 19: RQ4:The Effect of Treatment on Productivity Tool Awareness and Use: Differences between full an partial take up of treatment- Treatment vs Comparison

Treatment Effects from Probit Models of treatment sub-groups

The Effect of Treatment on Productivity Tool Awareness and Use

Table 20: Full Treatment Versus Control

Table 21: Full and Partial Treatment Versus Control

Table 22: Full Treatment Versus Comparison

Table 23: Full and Partial Treatment Versus Comparison

The Effect of Treatment on Business Vision and Strategies

Table 24: Full Treatment Versus Control

Table 25: Full and Partial Treatment Versus Control

Table 26: Full Treatment Versus Comparison

Table 27: Full and Partial Treatment Versus Comparison

The Effect of Treatment on the Adoption of Formal Business Plans and Managerial Tools

Table 28: Full and Partial Treatment Versus Control

Table 28A: Full Treatment Versus Control

Table 29: Full and Partial Treatment Versus Control

Table 29A: Full and Partial Treatment Versus Control

Table 30: Full Treatment Versus Comparison

Table 31: Full and Partial Treatment Versus Comparison

The Effect of Treatment on Firms' Intentions to Undertake Productivity Enhancing Investments

Table 32: Full and Partial Treatment Versus Control

Table 33: Full and Partial Treatment Versus Control

Table 34: Full Treatment Versus Comparison

Table 35: Full and Partial Treatment Versus Comparison

Table 1: Two-sample t test with unequal variances: Outcome Measures for Treatment and Control groups

	Treatment group		Control group			
	N	Mean	N	Mean	t-value	p-value
RQ1						
Task lists awareness	93	0.56	75	0.23	-4.60	0.00
Lean Canvas awareness	94	0.53	74	0.22	-4.35	0.00
SWOT analysis awareness	95	0.84	75	0.80	-0.70	0.48
Business Canvas awareness	95	0.64	75	0.20	-6.40	0.00
Task lists use	52	0.52	17	0.41	-0.75	0.45
Lean Canvas use	49	0.57	16	0.06	-3.90	0.00
SWOT analysis use	79	0.70	60	0.42	-3.40	0.00
Business Canvas use	60	0.50	15	0.33	-1.15	0.25
Aggregate RQ1	95	4.03	75	1.95	-6.60	0.00
RQ2						
Business challenges	95	0.71	75	0.65	-0.70	0.47
Business goals	95	0.61	75	0.65	0.55	0.57
Employee communication	67	0.63	60	0.62	-0.10	0.91
Efficiency savings	93	0.60	74	0.46	-1.85	0.07
Automated processes	95	0.58	73	0.36	-2.90	0.00
Alternative finance	91	0.19	73	0.22	0.50	0.61
Investigating innovation	95	0.59	75	0.52	-0.90	0.37
Aggregate RQ2	95	3.70	75	3.33	-1.25	0.21
RQ3						
Business plan	95	0.12	75	0.11	-0.20	0.85
Innovation plan	95	0.27	74	0.23	-0.65	0.52
Marketing plan	95	0.27	75	0.24	-0.50	0.62
Marketing budget	95	0.24	74	0.23	-0.20	0.85
Website	95	0.14	75	0.07	-1.50	0.14
Training plan	94	0.12	74	0.18	1.10	0.28
Recruitment budget	94	0.12	74	0.10	-0.45	0.64
Training budget	94	0.14	74	0.15	0.20	0.85
Cash forecast	95	0.13	74	0.18	0.90	0.37
Finance report	94	0.14	75	0.15	0.15	0.88
Progress update	53	0.70	48	0.69	-0.10	0.91
Business plan update	52	0.81	47	0.70	-1.20	0.23
Aggregate RQ3	95	2.38	75	2.33	-0.15	0.86
RQ4						
Turnover Increase	95	0.82	75	0.85	0.55	0.58
Marketing Increase	95	0.79	75	0.79	-0.05	0.97
New Equipment	95	0.48	75	0.53	0.65	0.53
Innovation Investment	95	0.63	75	0.63	-0.05	0.95
Staff Increase	95	0.44	75	0.44	-0.05	0.98
Leadership Capability	93	0.49	75	0.48	-0.20	0.85
E-Commerce Increase	92	0.47	74	0.54	0.95	0.35
% Increase In Marketing	67	33.14	52	32.31	-0.20	0.85
% Increase In E-Commerce	39	35.39	35	28.86	-1.15	0.26
Aggregate RQ4	95	4.11	75	4.25	0.50	0.61

Table 2: Two-sample t test with unequal variances: Outcome Measures for Treatment and Comparison Groups

	Treatment group		Comparison group			
	N	Mean	N	Mean	t-value	p-value
RQ1						
Task lists awareness	93	0.56	73	0.36	-2.65	0.01
Lean Canvas awareness	94	0.53	75	0.12	-6.15	0.00
SWOT analysis awareness	95	0.84	75	0.75	-1.55	0.12
Business Canvas awareness	95	0.64	73	0.22	-6.00	0.00
Task lists use	52	0.52	26	0.54	0.15	0.88
Lean Canvas use	49	0.57	9	0.11	-2.65	0.01
SWOT analysis use	79	0.70	56	0.47	-2.75	0.01
Business Canvas use	60	0.50	16	0.31	-1.35	0.19
Aggregate RQ1	95	4.03	75	2.04	-6.10	0.00
RQ2						
Business challenges	95	0.71	75	0.57	-1.80	0.07
Business goals	95	0.61	75	0.59	-0.30	0.76
Employee communication	67	0.63	64	0.56	-0.75	0.46
Efficiency savings	93	0.60	74	0.54	-0.80	0.43
Automated processes	95	0.58	73	0.45	-1.65	0.10
Alternative finance	91	0.19	71	0.17	-0.30	0.77
Investigating innovation	95	0.59	75	0.53	-0.75	0.47
Aggregate RQ2	95	3.70	75	3.31	-1.45	0.16
RQ3						
Business plan	95	0.12	75	0.12	0.10	0.93
Innovation plan	95	0.27	75	0.12	-2.50	0.01
Marketing plan	95	0.27	72	0.15	-1.85	0.06
Marketing budget	95	0.24	74	0.18	-1.05	0.30
Website	95	0.14	75	0.03	-2.55	0.01
Training plan	94	0.12	74	0.15	0.60	0.55
Recruitment budget	94	0.12	74	0.07	-1.10	0.28
Training budget	94	0.14	74	0.10	-0.85	0.39
Cash forecast	95	0.13	73	0.10	-0.60	0.54
Finance report	94	0.14	75	0.08	-1.20	0.24
Progress update	53	0.70	34	0.77	0.65	0.50
Business plan update	52	0.81	32	0.84	0.40	0.68
Aggregate RQ3	95	2.38	75	1.68	-2.80	0.01
RQ4						
Turnover Increase	95	0.82	75	0.75	-1.20	0.24
Marketing Increase	95	0.79	75	0.67	-1.80	0.07
New Equipment	95	0.48	75	0.40	-1.10	0.28
Innovation Investment	95	0.63	74	0.47	-2.10	0.04
Staff Increase	95	0.44	75	0.40	-0.55	0.58
Leadership Capability	93	0.49	73	0.38	-1.45	0.16
E-Commerce Increase	92	0.47	75	0.41	-0.70	0.49
% Increase In Marketing	67	33.14	48	24.17	-2.25	0.03
% Increase In E-Commerce	39	35.39	28	20.36	-2.60	0.01
Aggregate RQ4	95	4.11	75	3.47	-2.20	0.03

Table 3: Descriptive Statistics of Baseline data

Variable	Treatment Group			Control group			Comparison Group		
	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
External Advice	94	0.38	0.49	75	0.373	0.487	75	0.31	0.46
Turnover	135	98747.73	196513.80	149	114376.90	134564.20	125	310444.8	555933.6
Business Age	138	3.17	1.11	143	3.273	1.164	124	3.13	1.11
Leader Age	145	41.52	10.82	151	41.192	10.452	150	44.87	10.85
Female Led	146	0.32	0.47	151	0.391	0.490	150	0.34	0.48
BAME Led	146	0.15	0.36	151	0.093	0.291	150	0.07	0.25
Business Vision	138	0.78	0.42	144	0.813	0.392	147	0.86	0.34
Business Goals	137	0.77	0.42	145	0.800	0.401	146	0.65	0.48
Business Support	141	0.79	0.41	147	0.741	0.439	146	0.54	0.50
Home Owned	146	0.47	0.50	151	0.404	0.492	150	0.28	0.45
Family Owned	145	0.34	0.48	150	0.373	0.485	149	0.72	0.45
Owns Other Business	143	0.48	0.50	151	0.510	0.502	150	0.59	0.49
Number of Ambitions	141	4.55	1.56	147	4.537	1.709	143	5.00	1.91

Table 4: Average Marginal Effects of Treatment and Selection on Aggregate Outcomes: Ordered Probit Models[25]

Number of outcomes	Treatment v Control		Treatment v Comparison		Control v Comparison	
	Average marginal effect	S.E	Average marginal effect	S.E	Average marginal effect	S.E
RQ1						
0	-0.18***	0.04	-0.13***	0.04	0.05	0.06
1	-0.11***	0.03	-0.1***	0.03	0.02	0.03
2	-0.07***	0.02	-0.06***	0.02	-0.01	0.01
3	0.01	0.01	-0.01	0.01	-0.02	0.02
4	0.04***	0.01	0.03***	0.01	-0.02	0.02
5	0.06***	0.02	0.04***	0.02	-0.01	0.01
6	0.08***	0.02	0.06***	0.02	-0.01	0.01
7	0.11***	0.03	0.11***	0.04	-0.01	0.01
8	0.08***	0.03	0.06***	0.03	0.00	0.01
RQ2						
0	-0.05**	0.02	-0.05*	0.02	0.01	0.03
1	-0.05**	0.02	-0.05**	0.02	0.01	0.03
2	-0.03**	0.01	-0.05**	0.02	0.00	0.02
3	-0.02*	0.01	-0.05**	0.02	0.00	0.01
4	0.01	0.01	0.02	0.01	0.00	0.01
5	0.04**	0.02	0.07**	0.03	-0.01	0.03
6	0.05**	0.02	0.06**	0.03	-0.01	0.02
7	0.04*	0.02	0.04*	0.02	-0.01	0.02
RQ3						
0	0	0.04	-0.14**	0.06	-0.14**	0.06
1	0	0.02	-0.04**	0.02	-0.06**	0.03
2	0	0.01	0.00	0.01	0.00	0.01
3	0	0.01	0.05**	0.02	0.04**	0.02
4	0	0.02	0.04*	0.02	0.06**	0.03
5	0	0.02	0.05**	0.03	0.04*	0.02
6	0	0.01	0.02	0.02	0.02	0.01
7	0	0.01	0.02	0.02	0.04*	0.02
8	0	0.00			0.01	0.01
RQ4						
0	0	0.02	-0.01	0.02	0.00	0.02
1	0	0.01	-0.01	0.02	0.00	0.02
2	0	0.02	-0.01	0.02	0.00	0.02
3	0	0.02	-0.01	0.02	0.00	0.01
4	0	0.01	0	0	0.00	0.00
5	0	0.01	0.01	0.02	0.00	0.01
6	0	0.02	0.02	0.03	0.00	0.03
7	-0.002	0.031	0.02	0.03	0.00	0.03

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[25] We do not report marginal effects from control variables to save to space.

Table 5: The Effect of Treatment on Productivity Tool Awareness and Use: LPM models

VARIABLES	Treatment vs control				Treatment vs comparison				Control Vs Comparison			
	Coeff.	s.e	N	R-squared	Coeff.	s.e	N	R-squared	Coeff.	s.e	N	R-squared
RQ1												
Task lists awareness	0.36***	(0.08)	139	0.18	0.23**	(0.11)	115	0.19	-0.12	(0.11)	109	0.18
Lean canvas awareness	0.31***	(0.09)	138	0.13	0.36***	(0.10)	117	0.16	0.04	(0.10)	110	0.05
SWOT awareness	0.11*	(0.06)	140	0.09	0.08	(0.08)	118	0.13	-0.00	(0.09)	111	0.10
Business canvas awareness	0.42***	(0.08)	140	0.23	0.38***	(0.11)	116	0.27	-0.02	(0.10)	109	0.09
Task lists use	0.21***	(0.07)	139	0.14	0.04	(0.10)	115	0.14	-0.25***	(0.08)	109	0.26
Lean canvas use	0.28***	(0.06)	138	0.22	0.25***	(0.07)	117	0.19	-0.01	(0.04)	110	0.13
SWOT use	0.26***	(0.08)	140	0.17	0.17	(0.11)	118	0.16	-0.08	(0.12)	111	0.20
Business canvas use	0.24***	(0.07)	140	0.16	0.27***	(0.08)	116	0.19	0.04	(0.06)	109	0.12
RQ2												
Business challenges	0.11	(0.08)	140	0.07	0.13	(0.10)	118	0.21	-0.07	(0.12)	111	0.19
Business goals	-0.04	(0.08)	140	0.19	0.01	(0.10)	118	0.23	-0.01	(0.11)	111	0.29
Employee communication	0.08	(0.08)	109	0.23	0.34***	(0.10)	93	0.32	0.24**	(0.11)	91	0.25
Efficiency savings	0.14	(0.09)	137	0.09	0.19	(0.11)	115	0.14	-0.00	(0.13)	109	0.14
Automated processes	0.27***	(0.09)	138	0.11	0.07	(0.12)	117	0.12	-0.22*	(0.12)	108	0.18
alternative finance	0.01	(0.07)	136	0.12	0.12	(0.08)	114	0.16	0.04	(0.08)	107	0.24
Investigating innovation	0.13	(0.09)	140	0.08	0.10	(0.11)	118	0.11	-0.00	(0.12)	111	0.16
RQ3												
Business plan	0.02	(0.05)	140	0.07	0.00	(0.07)	118	0.17	0.03	(0.08)	111	0.21
Innovation plan	0.07	(0.07)	139	0.08	0.16*	(0.10)	118	0.10	0.04	(0.09)	110	0.11
Marketing plan	0.09	(0.08)	140	0.07	0.08	(0.10)	116	0.21	0.02	(0.12)	109	0.06
Marketing budget	0.02	(0.08)	139	0.07	0.03	(0.09)	118	0.12	0.06	(0.10)	110	0.08
Corporate website	0.00	(0.05)	140	0.05	0.11**	(0.05)	118	0.10	0.11**	(0.05)	111	0.12
Training plan	-0.08	(0.07)	139	0.09	-0.01	(0.08)	118	0.24	0.05	(0.08)	110	0.10
Recruitment budget	0.01	(0.06)	139	0.09	0.04	(0.07)	118	0.18	-0.04	(0.07)	110	0.12
Training budget	-0.07	(0.06)	139	0.08	0.02	(0.06)	118	0.21	0.10	(0.08)	110	0.18
Cash forecast	-0.04	(0.07)	139	0.05	0.11*	(0.06)	117	0.09	0.23***	(0.08)	109	0.14
Finance report	-0.01	(0.06)	139	0.07	0.06	(0.08)	117	0.09	0.07	(0.08)	111	0.10
Progress check	-0.02	(0.08)	140	0.12	0.07	(0.11)	118	0.17	0.17*	(0.10)	111	0.31
Business plan update	-0.05	(0.09)	138	0.08	0.09	(0.12)	117	0.06	0.16	(0.12)	110	0.17
RQ4												
Turnover increase	-0.04	(0.07)	140	0.05	-0.03	(0.08)	118	0.21	-0.04	(0.08)	111	0.26
Marketing increase	0.02	(0.07)	140	0.05	0.04	(0.08)	118	0.27	0.04	(0.09)	111	0.30
New equipment	-0.05	(0.09)	140	0.12	0.02	(0.11)	118	0.09	0.02	(0.13)	111	0.14
Innovation investment	0.04	(0.09)	140	0.06	0.14	(0.11)	117	0.15	0.05	(0.12)	110	0.18
Increases staff	0.05	(0.08)	140	0.22	0.16	(0.11)	118	0.15	0.04	(0.11)	111	0.21
Leadership capability	0.07	(0.08)	139	0.13	0.10	(0.12)	116	0.09	-0.09	(0.12)	110	0.23
Increases E-commerce	-0.08	(0.09)	138	0.09	0.00	(0.12)	117	0.14	0.03	(0.12)	110	0.19
% increase in marketing	-0.86	(4.72)	102	0.12	7.23	(4.36)	84	0.22	4.21	(5.30)	76	0.19
% increase in e-commerce	8.78	(7.54)	59	0.09	25.31**	(10.56)	48	0.37	12.09**	(5.27)	48	0.28

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 6: Average Marginal Effects of Treatment on individual outcomes- Probit models[26]

VARIABLES	Treatment vs control			Treatment vs comparison			Controls Comparison		
	Marginal effect	Standard error	N	Marginal effect	Standard error	N	Marginal effect	Standard error	N
RQ1									
Task lists awareness	0.38***	(0.08)	139	0.27**	(0.12)	115	-0.11	(0.12)	109
Lean canvas awareness	0.32***	(0.08)	138	0.36***	(0.10)	117	0.03	(0.10)	110
SWOT awareness	0.10*	(0.06)	140	0.10	(0.09)	104	0.01	(0.10)	105
Business canvas awareness	0.44***	(0.08)	140	0.42***	(0.10)	116	-0.03	(0.10)	109
Task lists use	0.21***	(0.07)	139	0.07	(0.10)	115	-0.18*	(0.10)	109
Lean canvas use	0.28***	(0.06)	138	0.24***	(0.07)	117	0.00	(0.00)	39
SWOT use	0.29***	(0.09)	140	0.20*	(0.11)	118	-0.12	(0.12)	111
Business canvas use	0.25***	(0.07)	140	0.27***	(0.08)	116	0.01	(0.02)	95
RQ2									
Business challenges	0.12	(0.08)	140	0.15	(0.11)	118	-0.08	(0.12)	111
Business goals	-0.07	(0.09)	140	0.02	(0.12)	118	0.01	(0.12)	111
Employee communication	0.11	(0.10)	109	0.49***	(0.14)	93	0.29**	(0.14)	91
Efficiency savings	0.15*	(0.09)	137	0.22*	(0.12)	115	-0.01	(0.12)	109
Automated processes	0.28***	(0.09)	138	0.08	(0.12)	117	-0.26**	(0.12)	108
alternative finance	0.03	(0.07)	136	0.12	(0.08)	114	-0.00	(0.08)	107
Investigating innovation	0.14	(0.09)	140	0.11	(0.12)	118	0.00	(0.13)	111
RQ3									
Business plan	0.02	(0.05)	140	0.02	(0.05)	118	0.03	(0.07)	78
Innovation plan	0.08	(0.07)	139	0.16*	(0.08)	118	0.04	(0.09)	104
Marketing plan	0.08	(0.08)	140	0.07	(0.09)	116	0.03	(0.09)	109
Marketing budget	0.02	(0.07)	139	0.03	(0.09)	118	0.06	(0.09)	110
Corporate website	0.01	(0.04)	140			72			44
Training plan	-0.10*	(0.06)	139	-0.00	(0.02)	112	0.04	(0.08)	110
Recruitment budget	0.01	(0.04)	139	0.01	(0.05)	112	-0.05	(0.07)	110
Training budget	-0.07	(0.06)	139	0.01	(0.02)	118	0.08	(0.06)	104
Cash forecast	-0.03	(0.06)	139	0.09*	(0.05)	111	0.17***	(0.07)	109
Finance report	-0.00	(0.06)	139	0.05	(0.06)	111	0.05	(0.06)	111
Progress check	-0.02	(0.09)	140	0.09	(0.11)	118	0.18	(0.13)	111
Business plan update	-0.05	(0.09)	138	0.10	(0.11)	117	0.18	(0.12)	110
RQ4									
Turnover increase	-0.05	(0.06)	140	-0.04	(0.08)	118	-0.04	(0.08)	105
Marketing increase	0.02	(0.07)	140	0.03	(0.09)	118	0.02	(0.10)	105
New equipment	-0.06	(0.09)	140	0.02	(0.12)	118	0.03	(0.12)	111
Innovation investment	0.04	(0.09)	140	0.17	(0.12)	117	0.07	(0.12)	110
Increases staff	0.05	(0.10)	140	0.17	(0.11)	118	0.04	(0.13)	111
Leadership capability	0.08	(0.09)	139	0.11	(0.11)	116	-0.12	(0.13)	110
Increases E-commerce	-0.09	(0.09)	138	0.01	(0.12)	117	0.03	(0.13)	110

Standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

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[26] Low number of observations relative to the Comparison group for Lean Canvas use and Corporate Website adoption reflect the low number of firms in the Comparison reporting positive outcomes, so that at times Probit models cannot be estimated

Table 7: Testing for attrition bias		
VARIABLES	Nonresponse-Full sample	Non-response-Trial participants
Treatment	-0.381	-0.361
	(0.407)	(0.496)
Chi2 test of joint insignificance of interactions between treatment group and covariates	20.63	25.98
	0.4193	0.1664
p-value		
Observations	324	229

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 8: Joint Orthoganility Testing: Predicting the Probability of Assignment to Treatment Using Baseline Characteristics

VARIABLES	(1) Treatment vs control	(2) Treatment vs comparison	(1) Control vs comparison
Employment	0.027**	0.065***	0.042*
	(0.013)	(0.025)	(0.023)
Turnover	-0.000	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)
Business age	-0.023	0.135**	0.113**
	(0.035)	(0.054)	(0.046)
Home based	0.079	0.157	0.201*
	(0.089)	(0.121)	(0.109)
Family owned	-0.056	-0.514***	-0.362***
	(0.081)	(0.094)	(0.083)
Female led	-0.150*	0.019	0.037
	(0.083)	(0.127)	(0.115)
BAME led	-0.019	0.177	0.133
	(0.134)	(0.209)	(0.189)
Business network membership	-0.012	0.011	0.045
	(0.090)	(0.128)	(0.112)
To build a national and/or international business	0.018	0.172	0.132
	(0.079)	(0.113)	(0.101)
To keep my business similar to how it operates now	-0.130	-0.415***	-0.282***
	(0.081)	(0.100)	(0.094)
To grow my business rapidly and profitably with a view to exit	-0.109	-0.010	0.084
	(0.079)	(0.116)	(0.105)
To have greater flexibility for my personal and family life	-0.074	-0.173	-0.128
	(0.090)	(0.137)	(0.129)
To have considerable freedom to adapt my own approach to work	0.106	0.090	-0.046
	(0.105)	(0.159)	(0.141)
To have a chance to build great wealth or a very high income	-0.016	0.139	0.073
	(0.078)	(0.114)	(0.103)
To fulfil a personal vision of becoming a successful business leader in my community	0.027	-0.024	-0.007
	(0.086)	(0.124)	(0.109)
To build a business to hand on to my family	-0.023	0.145	0.013
	(0.091)	(0.131)	(0.108)
To be able to retire	0.140	-0.331***	-0.220**
	(0.096)	(0.114)	(0.104)
Business vision	-0.013	-0.131	-0.108
	(0.104)	(0.136)	(0.126)
Business goals	-0.123	0.071	0.199*
	(0.101)	(0.122)	(0.110)
Business support	0.057	0.253**	0.152
	(0.095)	(0.124)	(0.111)
Likely to increase sales and marketing activity	0.211*	0.443***	0.131
	(0.125)	(0.122)	(0.127)
Likely to purchase new equipment	-0.090	0.054	0.059
	(0.081)	(0.123)	(0.114)
Likely to innovate	-0.011	0.044	0.108
	(0.084)	(0.116)	(0.104)
Likely to improve leadership capability	-0.001	0.091	0.152
	(0.085)	(0.113)	(0.111)
Likely to improve e-commerce	-0.003	-0.066	-0.062
	(0.081)	(0.120)	(0.101)
Joint balance test (Chi-Square test of joint significance of coefficients)	18.08	64.42***	63.54***
Prob>Chi-Square (P-value)	0.839	0.000	0.000
Observations	216	190	202

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. Table reports marginal effect for the average firm from Probit models

Table 9: Predicting the Probability of Assignment to Treatment Using Baseline Outcomes

VARIABLES	(1) Treatment vs control	(2) Treatment vs comparison	(3) Control vs comparison
A formal written business plan	-0.014	0.254***	0.325***
	(0.072)	(0.066)	(0.067)
A plan to improve products or processes	-0.104	-0.159**	-0.062
	(0.065)	(0.068)	(0.069)
A marketing plan	-0.080	-0.017	0.027
	(0.071)	(0.073)	(0.072)
A marketing budget	0.008	0.035	0.042
	(0.073)	(0.077)	(0.077)
A corporate website	-0.066	-0.059	-0.013
	(0.080)	(0.082)	(0.085)
A training plan	0.029	0.068	0.048
	(0.075)	(0.082)	(0.084)
A recruitment budget	-0.042	0.072	0.036
	(0.121)	(0.112)	(0.109)
A training budget	0.064	-0.169*	-0.234**
	(0.102)	(0.098)	(0.094)
A cash flow forecast	0.098	-0.061	-0.210***
	(0.069)	(0.073)	(0.074)
Regular financial reports e.g. VAT rep	-0.139*	-0.127*	0.020
	(0.071)	(0.076)	(0.083)
Joint balance test (Chi-Square test of joint significance of coefficients)	12.33	27.16***	30.27***
Prob>Chi-Square (P-value)	0.263	0.002	0.001
Observations	291	284	289

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Table reports marginal effect for the average firm from Probit models

Table 10: The effect of Treatment on individual outcomes: Robustness to different attrition scenarios: LPM models

	VARIABLES	Treatment vs control				Treatment vs comparison				Control Vs Comparison			
RQ1													
0.05 SD	Task lists awareness	0.36***	(0.08)	140	0.18	0.23**	(0.10)	140	0.16	-0.14	(0.11)	111	0.17
	Lean canvas awareness	0.31***	(0.08)	140	0.13	0.36***	(0.10)	118	0.19	0.03	(0.10)	111	0.05
	SWOT awareness	0.11*	(0.06)	140	0.09	0.08	(0.08)	118	0.16	-0.00	(0.09)	111	0.10
	Business canvas awareness	0.42***	(0.08)	140	0.23	0.38***	(0.10)	118	0.13	-0.02	(0.10)	111	0.09
	Task lists use	0.20***	(0.07)	140	0.13	0.04	(0.10)	118	0.27	-0.25***	(0.08)	111	0.26
	Lean canvas use	0.28***	(0.06)	140	0.23	0.25***	(0.07)	118	0.14	-0.01	(0.03)	111	0.13
	SWOT use	0.26***	(0.08)	140	0.17	0.17	(0.11)	118	0.19	-0.08	(0.12)	111	0.20
	Business canvas use	0.24***	(0.07)	140	0.16	0.27***	(0.08)	118	0.16	0.04	(0.06)	111	0.12
0.1 SD	Task lists awareness	0.36***	(0.08)	140	0.18	0.23**	(0.10)	118	0.19	-0.14	(0.11)	111	0.17
	Lean canvas awareness	0.31***	(0.08)	140	0.13	0.36***	(0.10)	118	0.19	0.04	(0.10)	111	0.05
	SWOT awareness	0.11*	(0.06)	140	0.09	0.08	(0.08)	118	0.16	-0.00	(0.09)	111	0.10
	Business canvas awareness	0.42***	(0.08)	140	0.23	0.37***	(0.10)	118	0.13	-0.02	(0.10)	111	0.09
	Task lists use	0.20***	(0.07)	140	0.13	0.03	(0.10)	118	0.27	-0.25***	(0.08)	111	0.26
	Lean canvas use	0.28***	(0.06)	140	0.22	0.25***	(0.07)	118	0.14	-0.01	(0.03)	111	0.13
	SWOT use	0.26***	(0.08)	140	0.17	0.17	(0.11)	118	0.19	-0.08	(0.12)	111	0.20
	Business canvas use	0.24***	(0.07)	140	0.16	0.27***	(0.08)	118	0.16	0.04	(0.06)	111	0.12
RQ2													
0.05 SD	Business challenges	0.11	(0.08)	140	0.07	0.13	(0.10)	118	0.21	-0.07	(0.12)	111	0.19
	Business goals	-0.04	(0.08)	140	0.19	0.01	(0.10)	118	0.23	-0.01	(0.11)	111	0.29
	Employee communication	0.04	(0.06)	140	0.20	0.30***	(0.09)	118	0.25	0.23**	(0.10)	111	0.21
	Efficiency savings	0.14	(0.09)	140	0.09	0.17	(0.11)	118	0.14	-0.01	(0.13)	111	0.14
	Automated processes	0.27***	(0.08)	140	0.11	0.08	(0.12)	118	0.12	-0.22*	(0.12)	111	0.17
	alternative finance	0.01	(0.07)	140	0.12	0.10	(0.08)	118	0.14	0.03	(0.08)	111	0.22
	Investigating innovation	0.13	(0.09)	140	0.08	0.10	(0.11)	118	0.11	-0.00	(0.12)	111	0.16
0.1 SD	Business challenges	0.11	(0.08)	140	0.07	0.13	(0.10)	118	0.21	-0.07	(0.12)	111	0.19
	Business goals	-0.04	(0.08)	140	0.19	0.01	(0.10)	118	0.23	-0.01	(0.11)	111	0.29
	Employee communication	0.03	(0.06)	140	0.20	0.30***	(0.09)	118	0.25	0.23**	(0.10)	111	0.21
	Efficiency savings	0.14	(0.09)	140	0.09	0.17	(0.11)	118	0.14	-0.01	(0.13)	111	0.14
	Automated processes	0.27***	(0.08)	140	0.11	0.08	(0.12)	118	0.12	-0.22*	(0.12)	111	0.17
	alternative finance	0.01	(0.07)	140	0.12	0.10	(0.08)	118	0.14	0.03	(0.08)	111	0.22
	Investigating innovation	0.13	(0.09)	140	0.08	0.10	(0.11)	118	0.11	-0.00	(0.12)	111	0.16
RQ3													
0.05 SD	Business plan	0.02	(0.05)	140	0.07	0.00	(0.07)	118	0.17	0.03	(0.08)	111	0.21
	Innovation plan	0.07	(0.07)	140	0.08	0.16*	(0.10)	118	0.10	0.04	(0.09)	111	0.11
	Marketing plan	0.09	(0.08)	140	0.07	0.08	(0.10)	118	0.20	0.02	(0.12)	111	0.06
	Marketing budget	0.03	(0.08)	140	0.07	0.03	(0.09)	118	0.12	0.06	(0.10)	111	0.08
	Corporate website	0.00	(0.05)	140	0.05	0.11**	(0.05)	118	0.10	0.11**	(0.05)	111	0.12
	Training plan	-0.08	(0.07)	140	0.09	-0.01	(0.08)	118	0.24	0.05	(0.08)	111	0.09
	Recruitment budget	0.01	(0.06)	140	0.09	0.04	(0.07)	118	0.18	-0.04	(0.07)	111	0.12
	Training budget	-0.07	(0.06)	140	0.08	0.02	(0.06)	118	0.21	0.11	(0.08)	111	0.17
	Cash forecast	-0.04	(0.07)	140	0.05	0.11*	(0.06)	118	0.09	0.22***	(0.08)	111	0.14
	Finance report	-0.01	(0.06)	140	0.07	0.06	(0.08)	118	0.09	0.07	(0.08)	111	0.10
	Progress check	-0.02	(0.08)	140	0.12	0.07	(0.11)	118	0.17	0.17*	(0.10)	111	0.31
0.1 SD	Business plan update	-0.04	(0.08)	140	0.08	0.09	(0.12)	118	0.06	0.16	(0.12)	111	0.17
	Business plan	0.02	(0.05)	140	0.07	0.00	(0.07)	118	0.17	0.03	(0.08)	111	0.21

	coef	(se)	N		coef	(se)	N		coef	(se)	N	
Innovation plan	0.07	(0.07)	140	0.08	0.16*	(0.10)	118	0.10	0.04	(0.09)	111	0.11
Marketing plan	0.09	(0.08)	140	0.07	0.08	(0.10)	118	0.20	0.02	(0.12)	111	0.06
Marketing budget	0.03	(0.08)	140	0.07	0.03	(0.09)	118	0.12	0.06	(0.10)	111	0.08
Corporate website	0.00	(0.05)	140	0.05	0.11**	(0.05)	118	0.10	0.11**	(0.05)	111	0.12
Training plan	-0.08	(0.07)	140	0.10	-0.01	(0.08)	118	0.24	0.05	(0.08)	111	0.09
Recruitment budget	0.01	(0.06)	140	0.08	0.04	(0.07)	118	0.18	-0.04	(0.07)	111	0.12
Training budget	-0.07	(0.06)	140	0.08	0.02	(0.06)	118	0.21	0.11	(0.08)	111	0.17
Cash forecast	-0.04	(0.07)	140	0.05	0.11*	(0.06)	118	0.09	0.22***	(0.08)	111	0.14
Finance report	-0.01	(0.06)	140	0.07	0.06	(0.08)	118	0.09	0.07	(0.08)	111	0.10
Progress check	-0.02	(0.08)	140	0.12	0.07	(0.11)	118	0.17	0.17*	(0.10)	111	0.31
Business plan update	-0.04	(0.08)	140	0.08	0.09	(0.12)	118	0.06	0.16	(0.12)	111	0.17
RQ4												
0.05 SD Turnover increase	-0.04	(0.07)	140	0.05	-0.03	(0.08)	118	0.21	-0.04	(0.08)	111	0.26
Marketing increase	0.02	(0.07)	140	0.05	0.04	(0.08)	118	0.27	0.04	(0.09)	111	0.30
New equipment	-0.05	(0.09)	140	0.12	0.02	(0.11)	118	0.09	0.02	(0.13)	111	0.14
Innovation investment	0.04	(0.09)	140	0.06	0.14	(0.11)	118	0.15	0.05	(0.12)	111	0.17
Increases staff	0.05	(0.08)	140	0.22	0.16	(0.11)	118	0.15	0.04	(0.11)	111	0.21
Leadership capability	0.07	(0.08)	140	0.13	0.10	(0.12)	118	0.09	-0.09	(0.12)	111	0.23
Increases E-commerce	-0.08	(0.09)	140	0.09	0.00	(0.12)	118	0.14	0.04	(0.12)	111	0.19
0.1 SD Turnover increase	-0.04	(0.07)	140	0.05	-0.03	(0.08)	118	0.21	-0.04	(0.08)	111	0.26
Marketing increase	0.02	(0.07)	140	0.05	0.04	(0.08)	118	0.27	0.04	(0.09)	111	0.30
New equipment	-0.05	(0.09)	140	0.12	0.02	(0.11)	118	0.09	0.02	(0.13)	111	0.14
Innovation investment	0.04	(0.09)	140	0.06	0.14	(0.11)	118	0.15	0.05	(0.12)	111	0.17
Increases staff	0.05	(0.08)	140	0.22	0.16	(0.11)	118	0.15	0.04	(0.11)	111	0.21
Leadership capability	0.07	(0.08)	140	0.13	0.10	(0.12)	118	0.09	-0.09	(0.12)	111	0.23
Increases E-commerce	-0.08	(0.09)	140	0.09	0.00	(0.12)	118	0.14	0.04	(0.12)	111	0.19

Table 11: The effect of Treatment on individual outcomes: Robustness to different attrition scenarios: Probit models

VARIABLES	Treatment vs control			Treatment vs comparison			Control Vs Comparison		
	M.E	S.E	N	M.E	S.E	N	M.E	S.E	N
RQ1									
0.05 SD Task lists awareness	0.38***	(0.08)	140	0.24**	(0.12)	118	-0.19	(0.12)	111
Lean canvas awareness	0.32***	(0.08)	140	0.36***	(0.10)	118	0.07	(0.09)	111
SWOT awareness	0.10*	(0.06)	140	0.10	(0.09)	104	0.01	(0.10)	105
Business canvas awareness	0.44***	(0.08)	140	0.37***	(0.11)	118	-0.06	(0.10)	111
Task lists use	0.22***	(0.07)	140	0.04	(0.10)	118	-0.31***	(0.10)	111
Lean canvas use	0.28***	(0.06)	140	0.24***	(0.07)	118	0.00	(0.00)	40
SWOT use	0.29***	(0.09)	140	0.20*	(0.11)	118	-0.12	(0.12)	111
Business canvas use	0.25***	(0.07)	140	0.23***	(0.09)	118	0.00	(0.02)	97
0.1 SD Task lists awareness	0.38***	(0.08)	140	0.24**	(0.12)	118	-0.19	(0.12)	111
Lean canvas awareness	0.32***	(0.08)	140	0.36***	(0.10)	118	0.07	(0.09)	111
SWOT awareness	0.10*	(0.06)	140	0.10	(0.09)	104	0.01	(0.10)	105
Business canvas awareness	0.44***	(0.08)	140	0.37***	(0.11)	118	-0.06	(0.10)	111
Task lists use	0.22***	(0.07)	140	0.04	(0.10)	118	-0.31***	(0.10)	111
Lean canvas use	0.28***	(0.06)	140	0.24***	(0.07)	118	0.00	(0.00)	40
SWOT use	0.29***	(0.09)	140	0.20*	(0.11)	118	-0.12	(0.12)	111
Business canvas use	0.25***	(0.07)	140	0.23***	(0.09)	118	0.00	(0.02)	97
RQ2									
0.05 SD Business challenges	0.12	(0.08)	140	0.15	(0.11)	118	-0.08	(0.12)	111
Business goals	-0.07	(0.09)	140	0.02	(0.12)	118	0.01	(0.12)	111
Employee communication	0.06	(0.08)	140	0.35***	(0.11)	118	0.28**	(0.12)	111
Efficiency savings	0.15*	(0.09)	140	0.19*	(0.11)	118	-0.03	(0.12)	111
Automated processes	0.27***	(0.09)	140	0.07	(0.12)	118	-0.25**	(0.12)	111
alternative finance	0.02	(0.08)	140	0.07	(0.08)	118	-0.02	(0.10)	111
Investigating innovation	0.14	(0.09)	140	0.11	(0.12)	118	0.00	(0.13)	111
0.1 SD Business challenges	0.12	(0.08)	140	0.15	(0.11)	118	-0.08	(0.12)	111
Business goals	-0.07	(0.09)	140	0.02	(0.12)	118	0.01	(0.12)	111
Employee communication	0.06	(0.08)	140	0.35***	(0.11)	118	0.28**	(0.12)	111
Efficiency savings	0.15*	(0.09)	140	0.19*	(0.11)	118	-0.03	(0.12)	111
Automated processes	0.27***	(0.09)	140	0.07	(0.12)	118	-0.25**	(0.12)	111
alternative finance	0.02	(0.08)	140	0.07	(0.08)	118	-0.02	(0.10)	111
Investigating innovation	0.14	(0.09)	140	0.11	(0.12)	118	0.00	(0.13)	111
RQ3									
0.05 SD Business plan	0.02	(0.05)	140	0.02	(0.05)	118	0.03	(0.07)	78
Innovation plan	0.07	(0.07)	140	0.16*	(0.08)	118	0.04	(0.09)	105
Marketing plan	0.08	(0.08)	140	0.05	(0.10)	118	0.01	(0.10)	111
Marketing budget	0.01	(0.07)	140	0.03	(0.09)	118	0.07	(0.09)	111
Corporate website	0.01	(0.04)	140			72			44
Training plan	-0.11*	(0.06)	140	-0.00	(0.02)	112	0.05	(0.09)	111
Recruitment budget	-0.01	(0.05)	140	0.01	(0.05)	112	-0.03	(0.07)	111
Training budget	-0.08	(0.06)	140	0.01	(0.02)	118	0.11	(0.07)	105
Cash forecast	-0.05	(0.06)	140	0.07	(0.05)	112	0.18***	(0.06)	111
Finance report	0.01	(0.06)	140	0.06	(0.06)	112	0.05	(0.06)	111
Progress check	-0.02	(0.09)	140	0.09	(0.11)	118	0.18	(0.13)	111

0.1 SD	Business plan update	-0.04	(0.09)	140	0.11	(0.11)	118	0.19	(0.12)	111
	Business plan	0.02	(0.05)	140	0.02	(0.05)	118	0.03	(0.07)	78
	Innovation plan	0.07	(0.07)	140	0.16*	(0.08)	118	0.04	(0.09)	105
	Marketing plan	0.08	(0.08)	140	0.05	(0.10)	118	0.01	(0.10)	111
	Marketing budget	0.01	(0.07)	140	0.03	(0.09)	118	0.07	(0.09)	111
	Corporate website	0.01	(0.04)	140			72			44
	Training plan	-0.11*	(0.06)	140	-0.00	(0.02)	112	0.05	(0.09)	111
	Recruitment budget	-0.01	(0.05)	140	0.01	(0.05)	112	-0.03	(0.07)	111
	Training budget	-0.08	(0.06)	140	0.01	(0.02)	118	0.11	(0.07)	105
	Cash forecast	-0.05	(0.06)	140	0.07	(0.05)	112	0.18***	(0.06)	111
	Finance report	0.01	(0.06)	140	0.06	(0.06)	112	0.05	(0.06)	111
	Progress check	-0.02	(0.09)	140	0.09	(0.11)	118	0.18	(0.13)	111
	Business plan update	-0.04	(0.09)	140	0.11	(0.11)	118	0.19	(0.12)	111
RQ4										
0.05 SD	Turnover increase	-0.05	(0.06)	140	-0.04	(0.08)	118	-0.04	(0.08)	105
	Marketing increase	0.02	(0.07)	140	0.03	(0.09)	118	0.02	(0.10)	105
	New equipment	-0.06	(0.09)	140	0.02	(0.12)	118	0.03	(0.12)	111
	Innovation investment	0.04	(0.09)	140	0.16	(0.12)	118	0.06	(0.12)	111
	Increases staff	0.05	(0.10)	140	0.17	(0.11)	118	0.04	(0.13)	111
	Leadership capability	0.09	(0.09)	140	0.11	(0.11)	118	-0.12	(0.13)	111
	Increases E-commerce	-0.09	(0.09)	140	0.01	(0.12)	118	0.04	(0.13)	111
0.1 SD	Turnover increase	-0.05	(0.06)	140	-0.04	(0.08)	118	-0.04	(0.08)	105
	Marketing increase	0.02	(0.07)	140	0.03	(0.09)	118	0.02	(0.10)	105
	New equipment	-0.06	(0.09)	140	0.02	(0.12)	118	0.03	(0.12)	111
	Innovation investment	0.04	(0.09)	140	0.16	(0.12)	118	0.06	(0.12)	111
	Increases staff	0.05	(0.10)	140	0.17	(0.11)	118	0.04	(0.13)	111
	Leadership capability	0.09	(0.09)	140	0.11	(0.11)	118	-0.12	(0.13)	111
	Increases E-commerce	-0.09	(0.09)	140	0.01	(0.12)	118	0.04	(0.13)	111

APPENDIX: TREATMENT EFFECTS FROM PROBIT MODELS BY TREATMENT SUB-GROUPS[27]

Table 12: RQ1:The Effect of Treatment on Productivity Tool Awareness and Use- Differences between full an partial take up of treatment- Treatment vs Control

VARIABLES	Task lists awareness	Lean canvas awareness	SWOT awareness	Business canvas awareness	Task lists use	Lean canvas use	SWOT use	Task lists awareness
Fully treated vs Control	0.372***	0.335***	0.085**	0.401***	0.278***	0.557***	0.266***	0.351***
	(0.080)	(0.091)	(0.037)	(0.070)	(0.106)	(0.175)	(0.077)	(0.113)
Partially treated vs Control	0.362***	0.336***	0.089**	0.414***	0.292***	0.590***	0.263***	0.354***
	(0.077)	(0.092)	(0.040)	(0.073)	(0.110)	(0.178)	(0.076)	(0.114)
Observations	139	138	140	140	139	138	140	140
Chi-sq test	0.450	0.0557	0.0646	0.314	0.439	0.572	0.120	0.0381
P-value	0.502	0.813	0.799	0.575	0.507	0.450	0.729	0.845

Marginal effects from Probit models. Standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 13: RQ2: The Effect of Treatment on Business Vision and Strategies- Differences between full an partial take up of treatment- Treatment vs Control
The Effect of Treatment on Business Vision and Strategies: Probit models

VARIABLES	Business challenges	Business goals	Employee communication	Efficiency savings	Automated processes	Alternative finance	Investigating innovation
Fully treated vs Control	0.105	-0.058	0.097	0.139*	0.276***	0.029	0.129
	(0.067)	(0.082)	(0.083)	(0.078)	(0.081)	(0.069)	(0.079)
Partially treated vs Control	0.106	-0.061	0.094	0.139*	0.278***	0.031	0.131
	(0.068)	(0.086)	(0.080)	(0.078)	(0.083)	(0.075)	(0.080)
Observations	140	140	109	137	138	136	140
Chi-sq test	0.00503	0.384	0.317	0.00582	0.131	0.126	0.217
P-value	0.943	0.536	0.573	0.939	0.718	0.723	0.641

Marginal effects from Probit models. Standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

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[27] Small cell sizes meant some models could not be estimated. Where this is the case, models are omitted from the tables.

Table 14: RQ3: The Effect of Treatment on Firms' Intentions to Undertake Productivity Enhancing Investments: Differences between full an partial take up of treatment-Treatment vs Control

VARIABLES	Innovation plan	Marketing plan	Training plan	Recruitment budget	Training budget	Cash forecast	Finance report	Progress check	Business Plan update
Fully treated vs Control	0.078	0.078	-0.086**	0.008	-0.064	-0.033	-0.004	-0.019	-0.044
	(0.081)	(0.084)	(0.039)	(0.050)	(0.041)	(0.055)	(0.057)	(0.081)	(0.086)
Partially treated vs Control	0.081	0.076	-0.064**	0.008	-0.060	-0.030	-0.004	-0.020	-0.044
	(0.084)	(0.082)	(0.026)	(0.053)	(0.040)	(0.052)	(0.051)	(0.086)	(0.087)
Observations	139	140	139	139	139	139	139	140	138
Chi-sq test	0.176	0.271	1.606	0.0188	0.125	0.151	0.00512	0.0517	0.00992
P-value	0.674	0.602	0.205	0.891	0.724	0.697	0.943	0.820	0.921

Marginal effects from Probit models. Standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 15: RQ4:The Effect of Treatment on Productivity Tool Awareness and Use: Differences between full an partial take up of treatment- Treatment vs Control

VARIABLES	Turnover increase	Marketing increase	New equipment	Innovation investment	Increases staff	Leadership capability	Increases E-commerce
Fully treated vs Control	-0.057	0.017	-0.058	0.038	0.041	0.071	-0.080
	(0.076)	(0.064)	(0.083)	(0.080)	(0.077)	(0.080)	(0.083)
Partially treated vs Control	-0.055	0.017	-0.057	0.038	0.043	0.073	-0.081
	(0.074)	(0.063)	(0.082)	(0.080)	(0.080)	(0.083)	(0.084)
Observations	140	140	140	140	140	139	138
Chi-sq test	0.0374	0.0233	0.126	0.000163	0.148	0.380	0.0631
P-value	0.847	0.879	0.723	0.990	0.701	0.538	0.802

Marginal effects from Probit models. Standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0$.

Table 16: RQ1:The Effect of Treatment on Productivity Tool Awareness and Use- Differences between full an partial take up of treatment- Treatment vs Comparison

VARIABLES	Task lists awareness	Lean canvas awareness	SWOT awareness	Business canvas awareness	Task lists use	Lean canvas use	SWOT use	Task lists awareness
Fully treated vs Comparison	0.233**	0.390***	0.076	0.381***	0.075	0.465**	0.174*	0.416***
	(0.104)	(0.117)	(0.064)	(0.100)	(0.107)	(0.182)	(0.098)	(0.160)
Partially treated vs Comparison	0.238**	0.399***	0.076	0.382***	0.073	0.448***	0.179*	0.421***
	(0.104)	(0.120)	(0.067)	(0.105)	(0.104)	(0.170)	(0.102)	(0.161)
Observations	115	117	104	116	115	117	118	116
Chi-sq test	0.172	0.222	0.000664	0.00147	0.0547	0.235	0.261	0.0283
P-value	0.679	0.638	0.979	0.969	0.815	0.628	0.609	0.866

Marginal effects from Probit models. Standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 17: RQ2: The Effect of Treatment on Business Vision and Strategies- Differences between full an partial take up of treatment- Treatment vs Comparison
The Effect of Treatment on Business Vision and Strategies: Probit models

VARIABLES	Business challenges	Business goals	Employee communication	Efficiency savings	Automated processes	Alternative finance	Investigating innovation
Fully treated vs Comparison	0.123	0.014	0.360***	0.193*	0.067	0.152	0.095
	(0.081)	(0.098)	(0.095)	(0.100)	(0.099)	(0.116)	(0.103)
Partially treated vs Comparison	0.120	0.014	0.354***	0.185*	0.070	0.123	0.095
	(0.079)	(0.103)	(0.087)	(0.097)	(0.103)	(0.091)	(0.105)
Observations	118	118	93	115	117	114	118
Chi-sq test	0.0527	0.0182	0.0579	0.788	0.324	0.927	0.00868
P-value	0.818	0.893	0.810	0.375	0.569	0.336	0.926

Marginal effects from Probit models. Standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 18: RQ3: The Effect of Treatment on Firms' Intentions to Undertake Productivity Enhancing Investments: Differences between full an partial take up of treatment-Treatment vs Comparison

VARIABLES	Innovation plan	Marketing plan	Training plan	Recruitment budget	Training budget	Cash forecast	Finance report	Progress check	Business Plan update
Fully treated vs Comparison	0.180	0.071	-0.009	0.007	0.064	0.165	0.054	0.085	0.101
	(0.111)	(0.105)	(0.058)	(0.057)	(0.068)	(0.123)	(0.079)	(0.106)	(0.111)
Partially treated vs Comparison	0.199*	0.074	-0.005	0.009	0.073	0.151	0.062	0.088	0.104
	(0.118)	(0.107)	(0.035)	(0.072)	(0.078)	(0.107)	(0.093)	(0.109)	(0.114)
Observations	118	116	112	112	118	111	111	118	117
Chi-sq test	1.095	0.145	0.0222	0.0164	0.254	0.178	0.307	0.313	0.558
P-value	0.295	0.703	0.881	0.898	0.614	0.673	0.580	0.576	0.455

Marginal effects from Probit models. Standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 19: RQ4:The Effect of Treatment on Productivity Tool Awareness and Use: Differences between full an partial take up of treatment- Treatment vs Comparison

VARIABLES	Turnover increase	Marketing increase	New equipment	Innovation investment	Increases staff	Leadership capability	Increases E-commerce
Fully treated vs Comparison	-0.045	0.028	0.015	0.130	0.155	0.102	0.007
	(0.094)	(0.079)	(0.109)	(0.090)	(0.105)	(0.109)	(0.104)
Partially treated vs Comparison	-0.041	0.026	0.015	0.149	0.152	0.102	0.007
	(0.086)	(0.073)	(0.109)	(0.101)	(0.102)	(0.110)	(0.102)
Observations	118	118	118	117	118	116	117
Chi-sq test	0.191	0.0686	3.18e-08	1.472	0.0978	0.000580	0.00362
P-value	0.662	0.793	1	0.225	0.754	0.981	0.952

Marginal effects from Probit models. Standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

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