Evaluation of Help to Grow: Management – Preliminary Econometric Analyses

1.1 Introduction

The Department for Business and Trade (DBT) has appointed Ipsos UK to undertake an independent evaluation of the Help to Grow: Management programme (HtGM). The evaluation covers a four-year delivery period from programme launch in June 2021 through to June 2025. The impact strand of the evaluation is based on a 'staggered treatment' or 'pipeline' design whereby the performance of businesses who participated in the early years of the programme are compared to those who took part in later years. The final impact assessment as part of the phase one evaluation will take place in Autumn 2025, ahead of a longer-term evaluation project.

This paper reports on preliminary econometric analyses undertaken in Spring 2025 to test the feasibility of the methodology and its likely robustness, and to capture learning to inform the final impact assessment. These analyses involve making annual comparisons between cohorts of businesses that have joined the programme with the cohorts of businesses that have not yet participated but will do in the future (the comparison group). Productivity impacts can typically take 3-7 years to be measurable, therefore any results presented in this paper are not unexpected but should be regarded as preliminary. They may undergo minor adjustments and refinements during the final stage of the analysis in phase one, occurring in Q4 2025.

This note is structured as follows:

- **Section 1.2** sets out the research questions to be addressed through the impact evaluation.
- **Section 1.3** details the sources of data used in the preliminary econometric analyses.
- **Section 1.4** explains the approach to establishing a comparison group for the impact assessment.
- **Section 1.5** provides technical details on the approach to the preliminary econometric analyses.
- **Section 1.6** presents the results of the preliminary economic analyses by research question.
- **Section 1.7** provides summary conclusions and recommended next steps.

1.2 Research Questions

The research questions to be addressed through the impact evaluation of HtGM are set out in the Evaluation Scoping and Design Report. These focus on evaluating the extent to which the programme has had an impact on business outcomes relating to employment, turnover and turnover per worker (a proxy measure for productivity). These can be assessed using secondary datasets available through the ONS Integrated Data Service (i.e. the Business Structure Database), with analyses providing close to complete coverage of the population of HtGM participants.

DBT specified additional hypotheses they would like tested as part of the preliminary analyses, including exploration of differential impacts by subgroups of programme participants. Addressing some of these questions required additional information collected through a six-month follow up survey of programme

participants, with results only available for a subsample of the population who responded to this. The research questions explored in this phase of analysis are set out in Table 1.1.

Table 1.1: Research questions

Area of exploration	Research question
1. Impact of HtGM on business performance	To what extent does participating in the HtGM programme have an impact on business performance such as turnover, employment and productivity?
2. Impacts by gender	To what extent do the impacts deriving from participation in HtGM vary by gender?
3. Impacts by ethnicity	To what extent do the impacts deriving from participation in HtGM programme vary by ethnicity?
4. Impacts by engagement with mentoring	To what extent do the impacts deriving from completing the HtGM programme vary by levels of engagement with the mentoring element of the programme?
5. Impacts by year of programme start	To what extent are the impacts deriving from completing the HtGM programme different in magnitude year-on-year?
6. Impacts by self-reported business capabilities	To what extent do HtGM businesses that reported high or very high capabilities six months post-completion[1], and who completed a Growth Action Plan, show better performance compared to the control group?
7. Impacts by changes made to business	To what extent do HtGM completers who report having made changes[2] to their businesses following participation in the programme report better performance compared to the control group?
8. Analysis by size	Does size have a significant impact on the business performance of HtGM joiners compared to the control group?
9. Analysis by business school	Are there any differences between Business Schools delivering the programme in relation to impacts for participating businesses?
10. Analysis by course attendance (full vs partial completion)	To what extent are HtGM completers performing differently compared to businesses who enrolled on the programme but did not go on to complete it[3]?
11. Comparison of self-reported confidence in business capabilities before and after participation in HTGM	To what extent do firms report strong capabilities before and after participation in HtGM?

Source: Department for Business and Trade

1.2 Sources of data

The sample for these preliminary analyses was based on records of **6,832 businesses** that enrolled in the HtGM programme between 28/06/2021 and 29/11/2023 drawn from programme monitoring information compiled by the Chartered Association of Business Schools (CABS) who oversee delivery of the programme on behalf of DBT. This included businesses that completed HtGM, as well as those that started

[1] In the context of this analysis, businesses were defined as reporting high or very high business capabilities if they rated their capabilities as 'strong' or 'very strong' in 10 (high) or 14 (very high) of the capability areas in the six-month follow-up survey (set out in full in the Annex (QD1) relating to implementing a business plan and strategy, digitalising systems and processes, developing and introducing new products or services, and entering new markets.

[2] Changes made to the businesses is based on question D3 of the HtGM six month follow up survey. Business owners are asked to select what changes they have they made to their company following the completion of the HtGM programme. The full list of changes is reported in the annex of this paper.

[3] DBT define programme completers as those who complete more than 75% of the HtGM modules.

the programme but did not complete it. A non-completer is defined as someone who completed less than 75% of the HtGM modules.

Information on HtGM participants (i.e. completers, partial completers, and non-completers) was linked by the Office for National Statistics to the Business Structure Database (BSD) using Companies House Reference Number (CRN). Of these, 99% were matched to the BSD, corresponding to a total of **6,773 unique firms**. The Business Structure Database provided longitudinal (i.e. annual) data on the turnover and employment of each firm between 2012 and 2023. These variables were combined to calculate turnover per worker, which has been used as a proxy measure of productivity[4].

Addressing the research questions also required additional information on the characteristics of HtGM participants and the support they received (such as their level of engagement with the mentoring element of the programme). Additional data was gathered through (a) an online post-completion survey of participating firms administered six weeks after their programme end date to gather feedback, and (b) a telephone follow-up survey of firms six-months that completed the programme to gather information on short-term outcomes.

Table 1.2 lists the datasets used in the preliminary analyses, including the variables from the post-completion and follow-up surveys that were added to the regressions.

Table 1.2: Datasets used for the HtGM impact analysis

Dataset	Years covered	Description	Variables
HtGM Monitoring data	2021-2023	Aggregated list of all firms that had registered, completed or withdrew from the HtGM programme as of November 2023. This covered all firms that enrolled in HtGM between 28/06/2021 and 29/11/2023 – a total of 6,832 businesses.	CRN, onboarding date, completion date, withdrawn flag, gender, ethnicity, age and sector.
Business Structure Database (BSD)	2012 – 2023	The Inter-Departmental Business Register (IDBR) provides an annual, statistical snapshot of the UK business population, offering yearly data on employment and turnover. Its coverage is extensive, including all firms registered for VAT or operating a PAYE scheme, which accounts for the vast majority of UK economic activity. A key exclusion, however, is very small businesses. Specifically, enterprises that fall below the mandatory VAT registration threshold and are not registered for	Turnover, employment, sector, region, CRN. Turnover was deflated to 2023 prices using the GDP deflator.

[4] Changes in turnover per worker will only reflect changes in underlying efficiency provided participation in HtGM does not alter the shares of labour, capital, and other inputs in production.

Dataset	Years covered	Description	Variables
		PAYE will not appear in the dataset.	
Post-completion survey	2021-2023	An online survey administered by Ipsos to all HtGM participants, six weeks after completion of the course to gather feedback on their experiences. 1,140 firms enrolling between 28/06/2021 and 29/11/2023 responded to the post-completion survey (an unadjusted response rate of 16 percent).	**Question B10.** How many **hours of mentoring** did you complete / attend?
HtGM Six months follow up survey	2021-2023	A telephone survey administered by Ipsos to all HtGM participants, six months after completion of the programme to detect early outcomes and business leaders' views on the programme. 1,356 firms enrolling between 28/06/2021 and 29/11/2023 completed the six-month follow-up survey (an unadjusted response rate of 19.8 percent).	**Question B2 Growth Action Plan**: "Have you produced a Growth Action Plan (GAP) or GAP on a Page for your business as a result of your participation on the Help to Grow programme?" **Question D1 Business Capabilities:** "How would you rate your own firm's capabilities and experience in the following areas". **Question D3 Changes made to the business:** As a result of participation in Help to Grow: Management, have you made changes in any of the following areas to the way you manage, organise, or operate your business?

Productivity impacts typically take 3-7 years to be measurable. Given the launch of Help to Grow: Management in 2021, this report presents uses two years of data from launch. The final phase one evaluation impact report will likely use three years of data from launch. We anticipate that phase two of the evaluation will conduct further rounds of impact analysis on an annual basis, incorporating additional years of data as they become available.

1.3 Selection of a comparison group for impact estimation

A credible assessment of the impacts of HtGM requires comparisons between businesses that participated and an appropriate group of businesses who did not participate, to assess what might have occurred in the absence of the programme. This group of firms should ideally be equivalent to participating businesses in terms of the characteristics associated with future performance – including aspects that are easier to measure (such as trends in turnover growth) and those that may be more difficult (such as growth aspirations or management capabilities).

However, as participating businesses make a choice to seek out support from the programme, they are highly likely to differ from businesses who do not in systematic ways that are associated with their on-

going performance. For example, participating firms may have sought support from the programme because they have a greater level of interest in growing their business. In this case, comparing participating firms to the other SMEs in the wider population would likely overstate the impacts of the programme, as participants could be expected to achieve more rapid growth regardless of the support provided.

Considering the scope for bias resulting from basic comparisons between participating firms and other businesses, the scoping stage of the evaluation put forward an alternative design that exploited the staggered nature of programme delivery. Participating firms enrol in successive cohorts – creating the possibility of comparing firms joining in earlier cohorts with participants that have yet to enrol (a pipeline or staggered treatment design). As comparisons are only made between firms that eventually participate in the programme, it can be assumed that they all share similar characteristics that motivated them to seek out support, potentially mitigating the issues of selection bias identified above.

This approach will produce robust estimates of the impact of the programme if there are no systematic differences between cohorts of firms joining the programme. The purpose of the following analysis is to probe this assumption and explore how far adjustments to the approach might be needed to improve the robustness of the analysis as part of the final evaluation. A particular risk arises from changes in the eligibility criteria introduced in Year 2 which opened up the programme to firms that had participated in a precursor programme and allowed larger businesses to send more than one employee alongside other changes (such as trialling online-only delivery and offering subsidies), which may have made participation attractive to different types of firms).

1.4 Econometric approach

Counterfactual selection will not fully eliminate all the potential sources of bias. In fact, some issues are related to firms' time invariant characteristics (e.g. its location, size, sector, difference in business practices etc) or to specific time shocks that cannot be controlled for by a standard OLS regression model. To mitigate these issues, we firstly estimated the impact of the programme using a 'two-way fixed effects' models as follows:

$$y_{it} = \alpha + \beta T_{it} + \alpha^i + \alpha^t + u_{it}$$

This model explains the relationship between the outcomes of interest for firm i in year t (y_{it}, such as turnover or employment) as a function of:

- Whether a firm had participated in the HtGM programme in year t (T_{it}). This variable took the value of 0 for firms that were to yet to participate in the programme in year t (forming the comparison group for that year), and the value 1 for firms joining the programme in year t and successive years. To illustrate, in the first year of programme delivery, impacts are inferred from comparisons between cohorts joining in year 1 with cohorts joining in years 2 and 3. In the second year, impacts are inferred from comparing the cohorts of firms joining in years 1 and 2 with those joining in year 3 who have not yet participated.

- The parameter β provides an estimate of the causal effect of the schemes' participation on the outcomes of interest.

This approach is also robust to any time invariant but unobserved differences (such as for example a firm's operational structure) between firms (α^i) and unobserved but time specific shocks (such as specific events occurred in a particular year like the Covid-19 pandemic and associated response, represented by the term α^t).

This 'two-way fixed effects' model has been commonly used to estimate the causal effects of programmes in a wide variety of circumstances where 'treatment' is staggered over time. However, research in 2021[5] has indicated that these types of models can produce misleading findings if, for example, the effects of programmes vary across different types of firms. This was addressed by applying the recently developed Staggered Difference-in-Differences estimators which are robust to these problems. This is an extension of difference in differences models to multi-period data proposed by Callaway and Sant'Anna (2021). This approach uses the standard (two period) difference-in-difference estimator comparing each cohort of HtGM firms and every post-treatment period, with the group of untreated firms - including yet to be treated firms (i.e. the early vs. late approach) - forming the control group for these analyses. The estimated effect of the programme is established by taking a weighted average of multiple Average Treatment Effects (ATT)[6]. The group-specific treatment effect estimator can be written as:

$$ATT(g,t) = E\left[\left(\frac{G_g}{E[G_g]} - \frac{\frac{p_g(X)\,(1-D)}{1-p_g(X)}}{E\left[\frac{p_g(X)\,(1-D)}{1-p_g(X)}\right]}\right)(Y_t - Y_{g-1} - m_{g,t}^{ny}\,(X))\right]$$

Where the weights, p, are propensity scores, G is a binary variable that is equal to one for firms first treated in year g, and C is a binary variable equal to one for firms in the potential counterfactual group. The equation above gives the treatment effect at time t for the group of firms enrolling in HtGM at time g, and it is computed by comparing changes in outcomes for group g between period g-1 to that of a control group of yet to be treated firms (C).Our chosen DiD estimator for staggered treatment effects was implemented in STATA using the user-written command 'csdid'. Given the potential drawbacks of the two-way fixed effects models, these results are considered the most robust. Given the availability of HtGM six-months survey variables, these were added to the regressions in addition to the treatment indicator. These include Q6, B3 and D2 as detailed in table 1.2 above.

Finally, the main assumption underpinning the staggered Difference-in-Differences is that, in absence of any intervention, the difference between the outcome variable in the treatment and control groups observed for treatment and control groups (i.e. in this instance the difference between turnover for treatment and turnover for control) would have remained constant over time. This pre-condition allows us to say that if there are any differences between the two groups after the intervention, these can be attributed to the treatment. Our results provide three indictors as to whether parallel trends are satisfied. These are:

- **Average outcome pre-treatment:** This is a test of statistical significance, checking if the average difference in outcome (i.e. mean turnover or employment) between treatment and control, over the years before HtGM, is significantly different from zero. An acceptable result from this test is that this average it is not statistically different, as this would highlight that there are no major differences between the two groups.
- **Number of years pre-treatment where the average difference in outcome is statistically different from zero:** This is the number of years during the pre-treatment period where the average difference between treatment and control is statistically different from zero. The model provides a

[5] Callaway B., Sant'Anna P. "Difference - in –differences with multiple time periods", Journal of Econometrics 2021.
[6] The Average Treatment Effect in the simplest case is the difference of average turnover for the treated group before and after the intervention, subtracted to the difference of average turnover of the control group, before and after the intervention.

test of significance for each year preceding treatment, and if in every year the difference between average turnover in treatment and control groups is not statistically significant, it is a sign that there are no major differences between the two groups.

- **The parallel test:** This is an additional test of significance, testing if all the average differences in outcome are statistically significant from zero jointly (all at once).[7]

1.5 Impact analysis results

1.5.1 Descriptive statistics of HtGM firms over time

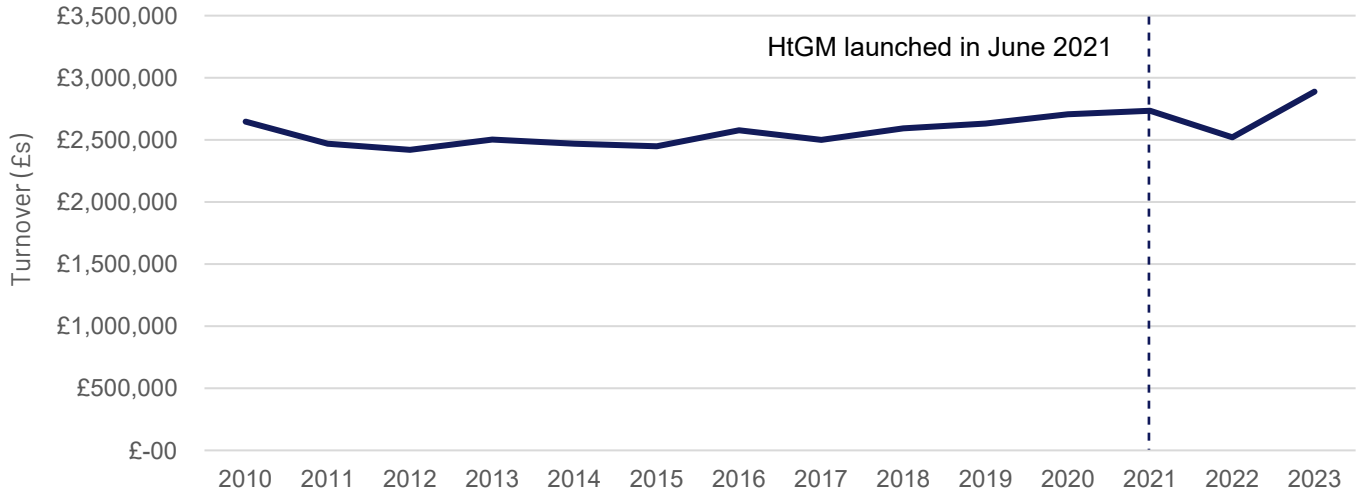
A preliminary analysis of turnover, employment and productivity (calculated as turnover/number of employees) of HtGM participant businesses between 2010 and 2023 was conducted using the BSD dataset.

- **Turnover:** The average annual turnover of firms participating in HtGM was £2.5 million in the decade prior to the start of the programme. A decrease in turnover is observable in 2021 following the Covid-19 outbreak, followed by a return to growth in the most recent year for which data is available (2023).

- **Employment:** Average annual employment amongst participating firms was relatively stable at 20 employees over the period observed. It suggests that the average business size is small (based on ONS' categorisation of SMEs where 0-9 employees is micro, 10-49 is small and 50-249 is medium-sized).

- **Turnover per worker:** Calculated as turnover divided by the total number of employees and used as proxy measure for productivity, increased in participating firms between 2015 and 2016. It then returned to previous levels and remained relatively stable until 2021 before falling in 2022.

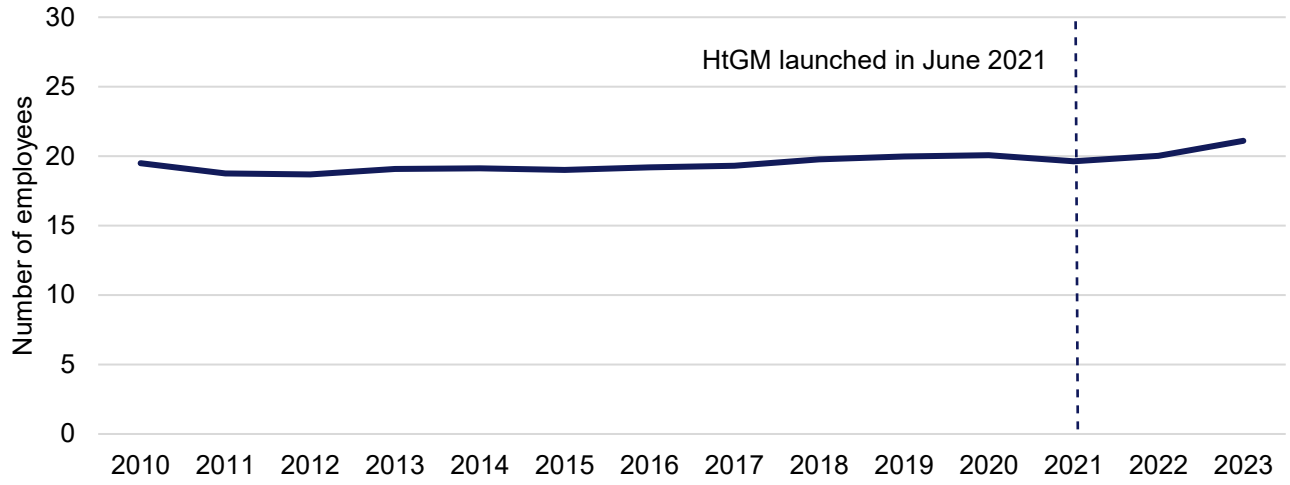
Figure 1.2: Average annual turnover for HtGM participants before and after the start of the programme (2023 prices)



[7] In statistical terms this is a Wald test with the associated chi-squared statistic.

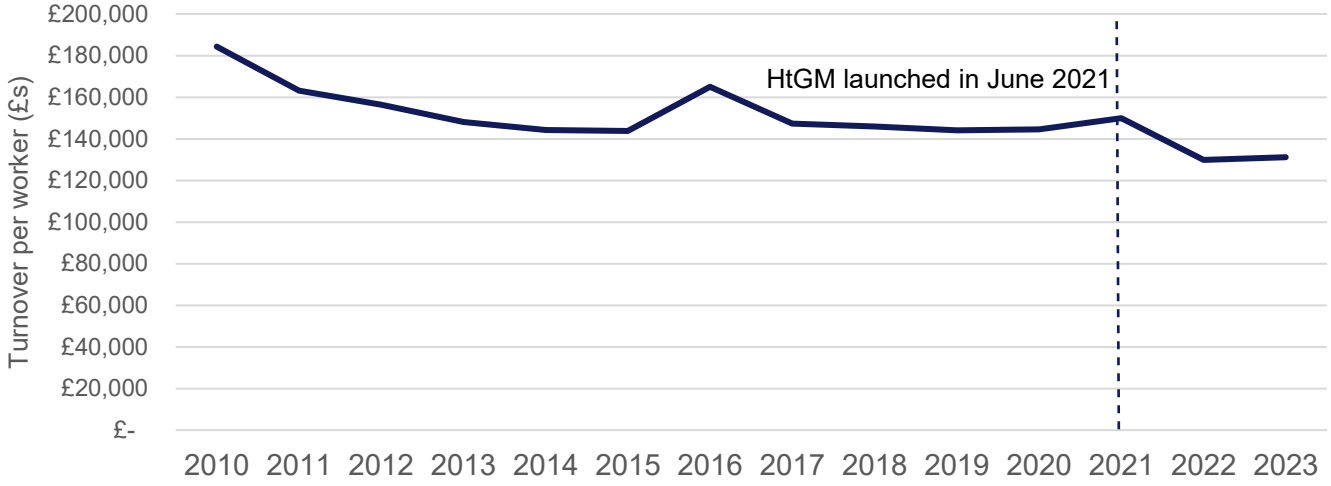
Source: Business Structure Database, Ipsos' analysis (64,304 observations across 6,773 firms linked to BSD)

Figure 1.3: Average annual employment within HtGM participants before and after the start of the programme



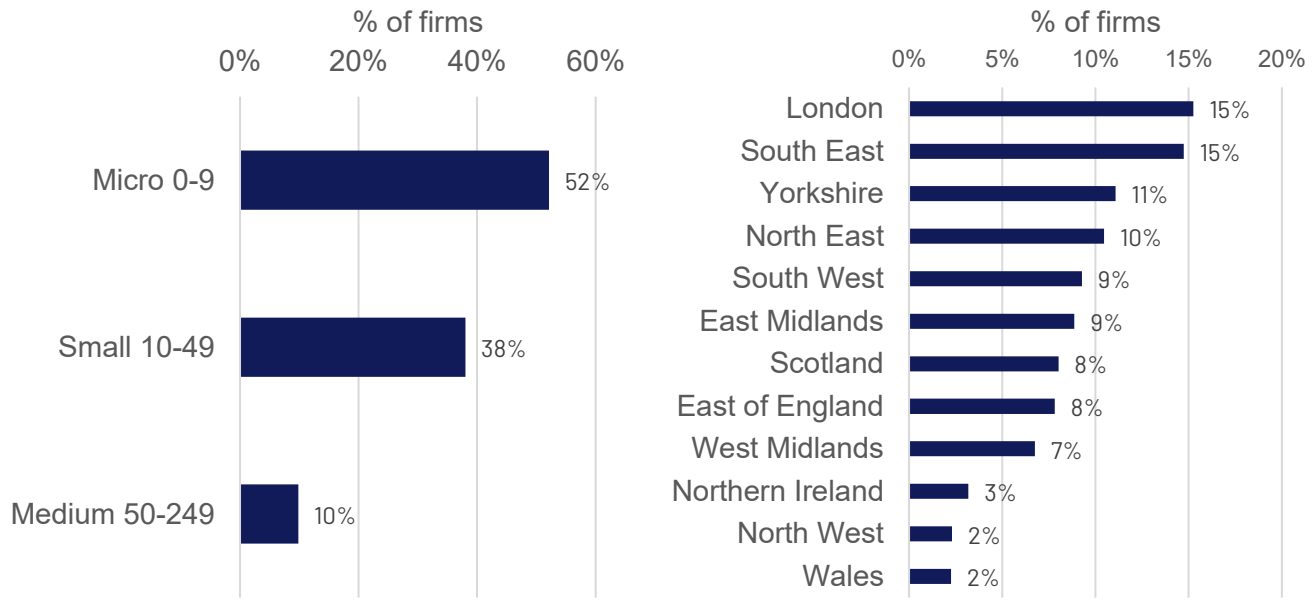
Source: Business Structure Database, Ipsos' analysis (64,304 observations across 6,773 firms linked to BSD)

Figure 1.4: Average annual turnover per worker of HtGM participants before and after the start of the programme (2023 prices)



Source: Business Structure Database, Ipsos' analysis (64,304 observations across 6,773 firms linked to BSD)

Figure 1.5: Left panel: regional distribution of HtGM participant firms. Right panel: HtGM participant size (by number of employees)



Source: Business Structure Database, Ipsos' analysis (6,773 firms linked to BSD)

London and the South-East account for the highest shares of Help to Grow: Management participants (15% each). This is followed by Yorkshire & Humber (11%), North-East (10%) and South-West (9%). Northern Ireland and Wales and account for the lowest shares of programme participant (3% and 2%). Micro businesses, that is companies with less than 10 employees, account for half of the total sample of businesses included in the analysis.

1.5.2 Regression results

This section reports the results of a series of econometric analyses that were undertaken using the Business Structure Database. These provide evidence for the research questions detailed in Table 1.1.

RQ1 & RQ5: Analysis of impacts of HtGM programme attendance on business' performance[8] and annual breakdown

Results based on the population of HtGM enrolments between June 2021 and November 2023

The results of the econometric analyses examining overall impacts on business performance are set out in Table 1.3. These analyses included all firms that enrolled in the programme (including completers, partial completers and non-completers) and were based solely on secondary data, providing close to complete coverage of participants in the first three years of the programme.

- Productivity impacts typically take 3-7 years to be measurable. The results indicated that there was no statistically significant effect of participation in HtGM on turnover, employment, or turnover per

[8] It is important to note that this first analysis was run on all HtGM participants as opposed to HtGM completers like in the rest of the paper. The rest of the analysis focusses on combining the treatment indicator with the survey variables mentioned above. The survey variables are drawn from the HtGM six months follow-up survey which is administered six after the course completion.

worker on average over the two years following participation in the programme. This is not unusual to find at this stage.

- However, as illustrated by Figure 1.6, when the estimated effects of participation in the programme are broken down by year – a statistically significant effect on employment emerges in the second year following initial engagement with the programme (an effect of 7.8 percent, or 1.5 workers per participating firm based on an average number of 20 workers employed by participating firms in 2021[9]). This may suggest that participation in the programme has a delayed effect on the growth of firms (or possibly reflecting recording lags in the BSD).

- There were no effects on turnover or turnover per worker in the analyses. These measures are typically based on VAT returns provided to HMRC. They tend to be associated with longer recording lags than employment measures (which are based on PAYE records). It is plausible that effects on turnover growth are not yet visible and future analyses with more years of data will be needed to explore this further.

- Research question 5 seeks to understand how far the effect of HtGM varies by the year in which firms joined the programme. Statistically significant effects on employment were only estimated for the cohort of businesses joining the programme in 2021 (an average effect of 4.0 percent between 2021 and 2023). However, owing to the 'lagged' nature of the estimated effects, it is too early to provide any definitive comparisons around relative effectiveness over time as the findings imply that impacts take around two years to emerge, and the available data only runs to 2023.

- Robustness checks testing for 'parallel trends' indicated that there were no statistically significant differences in the growth trajectories of firms joining the programme in different years. This provides confidence that the underlying methodology is robust and can be validly applied in the final evaluation (though further checks – e.g. on differences in the sector profile of firms joining in different years – will be applied at this stage).

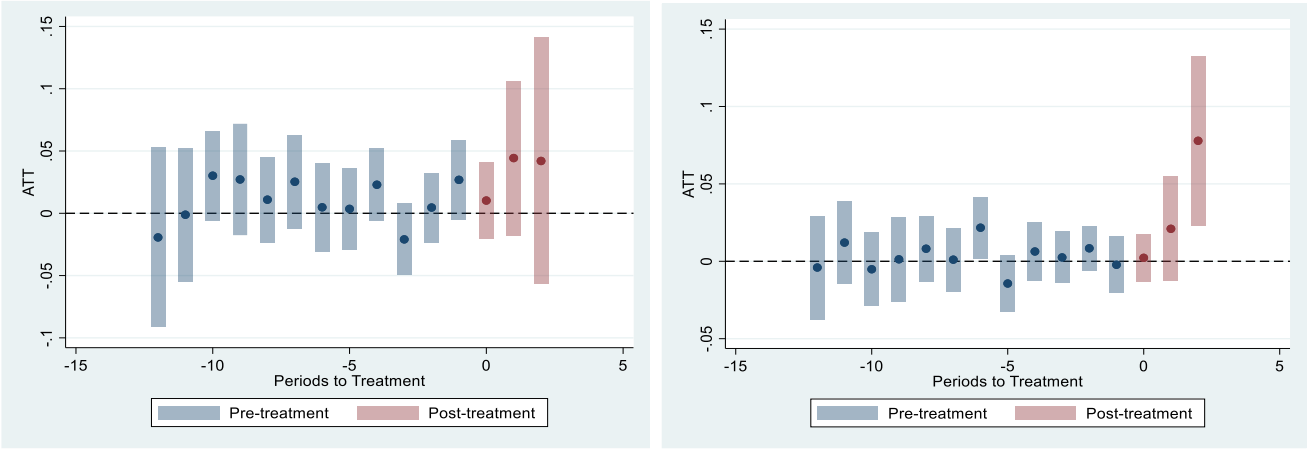
[9] Note that this average is skewed by the presence of a number of medium sized firms – more consideration to the appropriate means of grossing up findings to the population of participants will be given as part of the final evaluation.

Table 1.3: Estimated impacts of HtGM participation on business performance based on the population of participants in the programme between June 2021 and November 2023

Outcomes	Estimated % impact of participation in HtGM (and Confidence Intervals[10]	P-Value	Number of observations	Average pre-treatment coefficient	Number of pre-treatment coefficient statistically different from zero	Outcome of parallel trend test
Turnover	**0.024** LCI -0.016 UCI 0.065	0.235	63,459	0.009* P-value 0.087	0 in 12	Accepted
Employment	**0.016** LCI -0.005 UCI 0.038	0.140	63,459	0.002 P-value 0,359	1 in 12	Accepted
Productivity (Turnover/number of employees)	**0.008** LCI -0.030 UCI 0.046	0.671	63,459	0.006 P-value 0,160	1 in 12	Accepted

Source: Business Structure Database, staggered Difference in Difference regressions. The use of (*) in the table represents whether a coefficient is statistically significant. The number of stars represent the significance level with (*) indicating the coefficient is significant at the 10% level, (**) at the 5% level and (***) at the 1% level.

Figure 1.6: Estimated effects of participation in HtGM on turnover (left hand side), employment (right hand side) by year, population of participants in the programme between June 2021 and November 2023



Source: Business Structure Database, Ipsos analysis.

Results based on the sample of respondents to the six-month follow up survey of HtGM participants between June 2021 and November 2023

As highlighted, addressing some of the research questions will require the integration of additional information from the post-completion survey and six-month follow-up surveys. As this information is only

[10] A confidence interval (CI) is a range of values used to estimate an unknown statistical parameter, such as a population mean. A confidence interval provides a range, along with a specified confidence level, typically 95%, indicating that if the same sampling procedure were repeated 100 times, approximately 95 of the resulting intervals would be expected to contain the true population mean. In this paper, the lower and the upper confidence intervals around the estimated mean, are provided and have been labelled LCI/UCI.

available for a subgroup of the overall population of HtGM participants, there are important questions as to (a) how far this subgroup is representative of the wider population of participants and (b) how far any issues of non-response bias might affect the validity of the findings. This was tested in this preliminary analysis by repeating the analysis above for the subsample of 1,356 completers responding to the six months follow-up survey. The findings of this analysis are set out below:

- In contrast to the findings based on the whole population of HtGM participants, restricting the analysis to firms responding to the survey indicated that participation in the programme had a strong positive effect on growth. The estimated average effect of the programme on turnover and employment between 2021 and 2023 was 15.3 percent and 15.8 percent respectively.

- This strongly indicates that there is a significant issue with non-response bias to the survey – i.e. that responses are skewed towards those that derived the greatest benefit from the programme.

- Robustness checks also indicated that analyses restricted to those responding to the six-month follow up survey violate the 'parallel' trends assumption (as visible in the charts in Figure 1.7).

- This indicates that there may be some significant challenges involved in developing robust estimates of the effects of the programme on subgroups of the population that can only be identified through surveys (with a particular effect on our ability to address RQs 4, 6, and 7). Further investigation will be undertaken into how this issue might be addressed – e.g. via the application of inverse probability weights to control for non-response bias.

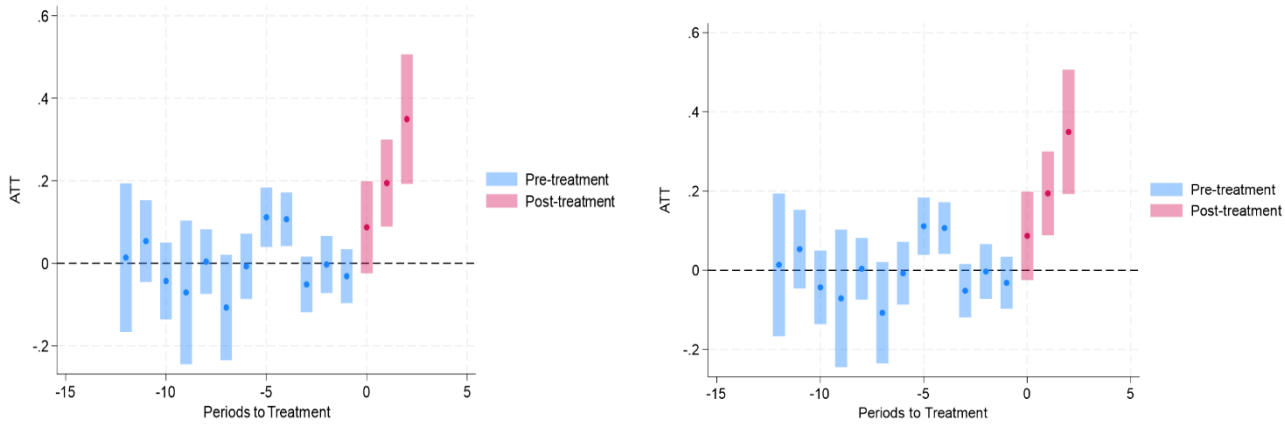
Table 1.4: Estimated impacts of HtGM participation on business performance based on the sample of participants responding to the six-month follow-up survey between June 2021 and November 2023

Outcomes	Estimated % impact of participation in HtGM (and Confidence Intervals[11]	P-Value	Number of observations	Average pre-treatment coefficient	Number of pre-treatment coefficient statistically different from zero	Outcome of parallel trend test
Turnover	**0.153***** LCI 0.060 UCI 0.246	0.001	8,327	-0.002 P-Value 0.874	2 in 12	Rejected
Employment	**0.158***** LCI 0.120 UCI 0.196	0.000	8,327	-0.016 P-Value 0.237	1 in 12	Rejected
Productivity (Turnover/number of employees)	-0.004 LCI -0.095 UCI 0.086	0.915	8,327	0.0143 P-Value 0.227	4 in 12	Rejected

[11] A confidence interval (CI) is a range of values used to estimate an unknown statistical parameter, such as a population mean. A confidence interval provides a range, along with a specified confidence level, typically 95%, indicating that if the same sampling procedure were repeated 100 times, approximately 95 of the resulting intervals would be expected to contain the true population mean. In this paper, the lower and the upper confidence intervals around the estimated mean, are provided and have been labelled LCI/UCI.

Source: Business Structure Database, staggered Difference in Difference regressions. The use of (*) in the table represents whether a coefficient is statistically significant. The number of stars represent the significance level with (*) indicating the coefficient is significant at the 10% level, (**) at the 5% level and (***) at the 1% level.

Figure 1.7: Estimated effects of participation in HtGM on turnover (left hand side), employment (right hand side) by year, population of participants in the programme between June 2021 and November 2023 that responded to the six-month follow-up survey.



Source: Business Structure Database, Ipsos analysis.

RQ2, 3 and 4: Analysis by gender, ethnicity and mentoring.

Details on the gender and ethnicity of HtGM programme participants is collected through monitoring and was available for all firms included in the analyses. Regressions were conducted to test for differences in changes to business turnover, employment and turnover/employees based on the gender of programme participants. The results showed no statistically significant effect on either group as might be expected given that no effect was found at the overall programme level (see Table 1.6 in the Annex).

Regressions were also run to test for differences in changes to business turnover, employment and turnover/employees based on the ethnicity of programme participants. The analysis compared changes in these business performance metrics between White British and Non-White British programme participants. The results show no statistically significant effect on either group (see Table 1.7 in the Annex).

At this preliminary stage, it has not been possible to conduct analysis on the impacts of HtGM by engagement with the mentoring element of the programme. The variable indicating engagement with mentoring is taken from the post-completion survey. This is an online survey issued to all programme participants within six weeks of their expected completion date. The response rate to this survey is 15% (compared to 40% for the six-months follow-up survey), meaning that the number of firms for which this indicator was available was not sufficient to carry out econometric analysis. We will explore the possibility of including this variable in the final analysis, by which time we can expect the sample of firms with this indicator available to be larger.

RQ6 and 7: Effects by self-reported business capabilities and changes made to business post-completion

Addressing these questions relies on information collected through the 6-month follow-up survey to identify firms' self-reported business capabilities across a range of categories and whether they implemented any actions to improve the management or organisation of their business following completion of the

programme. As highlighted by the analysis above, there are major issues around the robustness of impact evaluation findings drawing on the subgroup of firms that responded to the survey owing to non-response bias issues. Further work is needed to establish if these issues can be corrected for in the final analysis.

Despite these limitations, we have conducted preliminary regressions to explore for differences in changes to business turnover, employment and turnover/employees by self-reported business capabilities and changes made to business post-completion of the programme. We have further explored changes on these measures by whether businesses completed a Growth Action Plan (GAP). In addition to the issues noted above regarding potential biases in the subgroup of businesses who completed the survey, this set of results is further limited by small sample sizes. The results (presented in the Annex) should therefore be treated with a high degree of caution.

The analyses found no statistically significant differences in changes to business turnover, employment and turnover/employees by self-reported business capability[12] and whether they had completed a GAP. One of the 30 analyses produced a significant result, indicating an inconclusive relationship between these variables and impacts from the programme. This will be further explored in the final analyses when there will be a larger sample size available and measures taken to address non-response bias in the survey results.

RQ8: Analysis by business size

The regressions described above for turnover, employment and turnover/employees were run separately for businesses of different sizes (micro-businesses with less than 10 employees, small businesses with 10 to 49 employees, and medium sized businesses with 50 to 249 employees). None of the findings were significant at this level of granularity and have not been reproduced here.

RQ9: Analysis by business school

A series of regressions on turnover, employment and turnover/employees was run for each business school in the sample. A total of 58 regressions were run (one for each school), but none of these showed significant results, and in some case sample sizes were quite low (less than 40 firms). For these reasons, the results have not been reported, and understanding how the effects of the programme varies across business schools is likely to prove highly challenging due to sample size constraints.

RQ10: Effects on non-completers

This question aims to explore the degree to which the effects of the programme vary by completion status. Non-completers (businesses that started but left without completing at least 75 percent of the programme) represent a potential 'comparison group' that might be used as an alternative or complementary approach to the staggered treatment design described above. Information on completion status is compiled in monitoring and is available for all participating firms. The analyses completed for RQ1 were applied to the group of firms that were recorded as 'non-completers' to further explore potential suitability of them as an additional comparison group to help raise confidence in the findings:

[12] Programme participants were asked in the 6-month follow up survey to rate their business across a range of capabilities. Six dummy variables were created ranging from low capability (businesses that rated themselves as 'strong' or 'very strong' in 4 out of the 14 categories) through to very high capability (those that rated themselves as 'strong' or 'very strong' in all 14 categories).

- The results indicate that 24 percent of enrolling firms did not complete at least 75 percent of the course modules – implying that this group is sufficiently large to support statistical comparisons.
- The econometric analyses indicated that non-completion had no effect on the performance of businesses – implying that comparisons with completers may be valid (in that non-completers do not derive any performance benefit from their limited engagement with the programme). However, the parallel trends test could not be accepted.
- Further work to establish the pre-programme comparability of completers and non-completers will be undertaken as part of the final analysis.

Table 1.5: Estimated impacts of HtGM participation on businesses that did not complete at least 75 percent of the course modules

Outcomes	Estimated % impact of participation in HtGM (and Confidence Intervals[13]	P-Value	Number of observations	Average pre-treatment coefficient	Number of pre-treatment coefficient statistically different from zero	Outcome of parallel trend test
Turnover	**0.012** LCI -0.048 UCI 0.073	0.687	15,218	0.019 P-Value 0.665	0 in 12	Rejected
Employment	**0.005** LCI -0.026 UCI 0.038	0.723	15,218	-0.009 P-Value 0.751	1 in 12	Rejected
Productivity (Turnover/number of employees)	**0.006** LCI -0.054 UCI 0.068	0.830	15,218	0.029 P-Value 0.463	2 in 12	Rejected

Source: Business Structure Database, staggered Difference in Difference regressions. The use of (*) in the table represents whether or not the coefficient is statistically significant, with the number of stars representing the significance level with (*) indicating it is significant at the 5% level, and (**) representing that it is significant at the 1% level.

RQ11: Checking confidence in business' capabilities before and after HTGM completion

Finally, research question 11 aimed to explore whether businesses who completed HtGM reported strong or very strong business capabilities before the start of HtGM (at the diagnostic stage), reported similarly strong capabilities six-months after completion. The average score at question D1[14] '"How would you rate your capabilities in the following areas" pre-participation was 3.19, indicating "average" capabilities. Following completion of the programme this average increased to 3.66, and the difference is statistically significant.

[13] A confidence interval (CI) is a range of values used to estimate an unknown statistical parameter, such as a population mean. A confidence interval provides a range, along with a specified confidence level, typically 95%, indicating that if the same sampling procedure were repeated 100 times, approximately 95 of the resulting intervals would be expected to contain the true population mean. In this paper, the lower and the upper confidence intervals around the estimated mean, are provided and have been labelled LCI/UCI.

[14] Responses at questions D1 are measured on a 5- point Likert scale, where 1 is very weak, 2 weak, 3 average 4 strong 5 very strong.

1.3 Conclusions

This preliminary analysis indicates that:

- The proposed Staggered Difference in Differences approach is likely to yield robust estimates of the impact of the programme on the overall population and subgroups that can be identified through monitoring.
- Non-completers are a potentially viable additional comparator group that could be integrated into the final report as a complementary robustness check.
- The findings suggest that there are likely to be some issues of non-response bias where analyses depend on information collected through surveys (as the results imply that responses were skewed to those that derived the greatest benefits from their participation). Further work is needed to explore how far these issues might be addressed by applying additional statistical corrections (given the availability of historic performance trajectories for both survey respondents and non-respondents).

Annex

Questions from the HtGM participant six-month follow-up survey administered by Ipsos.

B2. ACTION

Have you produced a **Growth Action Plan** (GAP) or GAP on a Page for your business as a result of your participation on the Help to Grow programme?

SINGLE CODE

1. Yes
2. No
3. Don't know
4. Prefer not to say

D1.BUSOUTCOME

How would you rate your own firm's capabilities and experience in the following areas:

SINGLE CODE. REVERSE SCALE. RANDOMISE LIST. ASK AS GRID.
READ OUT

A. Implementing a business plan and strategy
B. Developing and introducing new products or services
C. Using data to inform decision making
D. Digitalising systems and processes
E. Using digital technology to help grow the business
F. Entering new markets (including exporting overseas)
G. Understanding different types of customers and how to meet their needs
H. Understanding your business' positioning compared to market competitors
I. Communicating the business vision, mission and value statements
J. Leading through change and uncertainty
K. Implementing a development plan for employees
L. Understanding the effectiveness of operational processes and how they could be improved.
M. Understanding financial management and the use of financial data to support strategic decision making in the organisation
N. Accessing external finance e.g. loans, overdraft, equity finance

1. Very weak
2. Weak
3. Average
4. Strong
5. Very strong
6. DO NOT READ OUT Don't know
7. DO NOT READ OUT Refused

D3.WHATCHANGE1

As a result of participation in Help to Grow: Management, have you made changes in any of the following areas to the way you **manage, organise, or operate** your business?

[IF LONGTIDUINAL (S_POSTCOMPLETE = 1) Again, please answer based on any changes that you have made since participating in the programme, even if you also mentioned these in the previous survey you took completed.

MULTICODE EXCEPT DK AND NONE OF THE ABOVE AND NA.
READ OUT
Innovation and markets

1. Leadership and employee engagement
2. Vision, purpose and brand
3. Customer targeting
4. Data analytics
5. Operational efficiency
6. Carbon footprint
7. Financial management, including accessing finance
8. Technology adoption
9. Other WRITE IN
10. DO NOT READ OUT None of these
11. DO NOT READ OUT Don't know
12. DO NOT READ OUT Refused

Research question 2: Gender

Table 1.6: Gender

Outcomes	Estimated % impact of participation in HtGM (and Confidence Intervals) - Male	P-Value	Number of observations	Outcome of parallel trend test	Estimated % impact of participation in HtGM (and Confidence Intervals) - Female	P-Value	Number of observations	Outcome of parallel trend test
Turnover	0.018 LCI -0.038 UCI 0.073	0.535	37,487	Rejected	0.009 LCI -0.064 UCI 0.083	0.805	21,568	Rejected
Employment	0.013 LCI -0.016 UCI 0.043	0.374	37,487	Rejected	0.012 LCI -0.027 UCI 0.052	0.539	21,568	Rejected
Productivity (Turnover/number of employees)	0.004 LCI -0.048 UCI 0.057	0.875	37,487	Accepted	-0.003 LCI -0.075 UCI 0.069	0.933	21,568	Rejected

Table 1.6 shows that there were no statistically significant differences in the impact of HtGM on business turnover, employment or productivity between male and female programme participants.

Research question 3: Ethnicity

Table 1.7: Ethnicity

Outcomes	Estimated % impact of participation in HtGM (and Confidence Intervals) – White British	P-Value	Number of observations	Outcome of parallel trend test	Estimated % impact of participation in HtGM (and Confidence Intervals) – Non-White British	P-Value	Number of observations	Outcome of parallel trend test
Turnover	0.019 LCI -0.030 UCI 0.068	0.453	42,950	Accepted	0.034 LCI -0.039 UCI 0.107	0.357	20,509	Rejected
Employment	0.018 LCI -0.006 UCI 0.042	0.132	42,950	Rejected	0.013 LCI -0.031 UCI 0.057	0.557	20,509	Rejected
Productivity (Turnover/number of employees)	0.000 LCI -0.0467 UCI 0.047	0.986	42,950	Accepted	0.021 LCI -0.045 UCI 0.087	0.53	20,509	Rejected

Table 1.7 shows that there were no statistically significant differences in the impact of HtGM on business turnover, employment or productivity between White British and non-White British programme participants.

Research question 6: Impacts by self-reported business capabilities

Table 1.8: Businesses reporting low capabilities[15]

Outcomes	Estimated % impact of participation in HtGM (and Confidence Intervals[16]) without GAP variable	P-Value	Number of observations	Outcome of parallel trend test	Estimated % impact of participation in HtGM (and Confidence Intervals) with GAP variable	P-Value	Number of observations	Outcome of parallel trend test
Turnover	-0.103 LCI -0.575 UCI 0.370	0.670	280	Accepted	0.072 LCI -0.580 UCI 0.724	0.829	205	Accepted
Employment	0.274 LCI -0.027 UCI 0.576	0.074	280	Accepted	0.473 LCI -0.193 UCI 0.752	0.001	205	Accepted
Productivity (Turnover/number of employees)	-0.377 LCI -0.798 UCI 0.044	0.079	280	Accepted	-0.401 LCI -1.064 UCI 0.262	0.236	205	Accepted

[15] Low business capabilities: HtGM participants who rated themselves as 'strong' or 'very strong' on 1-4 business capabilities in the 6-month follow-up survey

[16] A confidence interval (CI) is a range of values used to estimate an unknown statistical parameter, such as a population mean. A confidence interval provides a range, along with a specified confidence level, typically 95%, indicating that if the same sampling procedure were repeated 100 times, approximately 95 of the resulting intervals would be expected to contain the true population mean. In this paper, the lower and the upper confidence intervals around the estimated mean, are provided and have been labelled LCI/UCI.

Table 1.9: Businesses reporting low-medium capabilities[17]

Outcomes	Estimated % impact of participation in HtGM (and Confidence Intervals[18]) without GAP variable	P-Value	Number of observations	Outcome of parallel trend test	Estimated % impact of participation in HtGM (and Confidence Intervals) with GAP variable	P-Value	Number of observations	Outcome of parallel trend test
Turnover	-0.331 LCI -0.699 UCI 0.038	0.078	472	Accepted	-0.234 LCI -0.715 UCI 0.246	0.339	328	Accepted
Employment	-0.144 LCI -0.306 UCI 0.018	0.081	472	Accepted	-0.085 LCI -0.259 UCI 0.088	0.336	328	Accepted
Productivity (Turnover/number of employees)	-0.186 LCI -0.548 UCI 0.175	0.312	472	Accepted	-0.149 LCI -0.644 UCI 0.346	0.555	328	Accepted

[17] Low-medium business capabilities: HtGM participants who rated themselves as 'strong' or 'very strong' on 6 business capabilities in the 6-month follow-up survey

[18] A confidence interval (CI) is a range of values used to estimate an unknown statistical parameter, such as a population mean. A confidence interval provides a range, along with a specified confidence level, typically 95%, indicating that if the same sampling procedure were repeated 100 times, approximately 95 of the resulting intervals would be expected to contain the true population mean. In this paper, the lower and the upper confidence intervals around the estimated mean, are provided and have been labelled LCI/UCI.

Table 1.10: Businesses reporting medium capabilities[19]

Outcomes	Estimated % impact of participation in HtGM (and Confidence Intervals[20]) without GAP variable	P-Value	Number of observations	Outcome of parallel trend test	Estimated % impact of participation in HtGM (and Confidence Intervals) with GAP variable	P-Value	Number of observations	Outcome of parallel trend test
Turnover	0.015 LCI -0.424 UCI 0.455	0.946	779	Accepted	-0.143 LCI -0.579 UCI 0.293	0.521	637	Accepted
Employment	0.061 LCI -0.049 UCI 0.171	0.276	779	Accepted	0.082 LCI -0.050 UCI 0.215	0.224	637	Accepted
Productivity (Turnover/number of employees)	-0.046 LCI -0.456 UCI 0.364	0.826	779	Rejected	-0.225 LCI -0.596 UCI 0.146	0.235	637	Rejected

[19] Medium business capabilities: HtGM participants who rated themselves as 'strong' or 'very strong' on 8 business capabilities in the 6-month follow-up survey

[20] A confidence interval (CI) is a range of values used to estimate an unknown statistical parameter, such as a population mean. A confidence interval provides a range, along with a specified confidence level, typically 95%, indicating that if the same sampling procedure were repeated 100 times, approximately 95 of the resulting intervals would be expected to contain the true population mean. In this paper, the lower and the upper confidence intervals around the estimated mean, are provided and have been labelled LCI/UCI.

Table 1.11: Businesses reporting medium-high capabilities[21]

Outcomes	Estimated % impact of participation in HtGM (and Confidence Intervals[22]) without GAP variable	P-Value	Number of observations	Outcome of parallel trend test	Estimated % impact of participation in HtGM (and Confidence Intervals) with GAP variable	P-Value	Number of observations	Outcome of parallel trend test
Turnover	0.129 LCI -0.307 UCI 0.565	0.561	704	Accepted	0.158 LCI -0.323 UCI 0.638	0.52	610	Accepted
Employment	0.064 LCI -0.064 UCI 0.191	0.327	704	Accepted	0.067 LCI -0.072 UCI 0.206	0.346	610	Accepted
Productivity (Turnover/number of employees)	0.065 LCI -0.300 UCI 0.431	0.726	704	Accepted	0.091 LCI -0.313 UCI 0.494	0.659	610	Accepted

[21] Medium-high business capabilities: HtGM participants who rated themselves as 'strong' or 'very strong' on 10 business capabilities in the 6-month follow-up survey

[22] A confidence interval (CI) is a range of values used to estimate an unknown statistical parameter, such as a population mean. A confidence interval provides a range, along with a specified confidence level, typically 95%, indicating that if the same sampling procedure were repeated 100 times, approximately 95 of the resulting intervals would be expected to contain the true population mean. In this paper, the lower and the upper confidence intervals around the estimated mean, are provided and have been labelled LCI/UCI.

Table 1.12: Businesses reporting high capabilities[23]

Outcomes	Estimated % impact of participation in HtGM (and Confidence Intervals[24]) without GAP variable	P-Value	Number of observations	Outcome of parallel trend test	Estimated % impact of participation in HtGM (and Confidence Intervals) with GAP variable	P-Value	Number of observations	Outcome of parallel trend test
Turnover	0.586 LCI -2.029 UCI 3.201	0.661	466	Accepted	0.601 LCI -2.050 UCI 3.251	0.657	451	Accepted
Employment	-0.309 LCI -0.814 UCI 0.197	0.231	466	Accepted	-0.297 LCI -0.810 UCI 0.216	0.256	451	Accepted
Productivity (Turnover/number of employees)	0.895 LCI -1.514 UCI 3.304	0.467	466	Accepted	0.898 LCI -1.544 UCI 3.340	0.471	451	Accepted

[23] High business capabilities: HtGM participants who rated themselves as 'strong' or 'very strong' on 10 business capabilities in the 6-month follow-up survey

[24] A confidence interval (CI) is a range of values used to estimate an unknown statistical parameter, such as a population mean. A confidence interval provides a range, along with a specified confidence level, typically 95%, indicating that if the same sampling procedure were repeated 100 times, approximately 95 of the resulting intervals would be expected to contain the true population mean. In this paper, the lower and the upper confidence intervals around the estimated mean, are provided and have been labelled LCI/UCI.

Table 1.13: Businesses reporting very high capabilities[25]

Outcomes	Estimated % impact of participation in HtGM (and Confidence Intervals[26]) without GAP variable	P-Value	Number of observations	Outcome of parallel trend test	Estimated % impact of participation in HtGM (and Confidence Intervals) with GAP variable	P-Value	Number of observations	Outcome of parallel trend test
Turnover	0.093 LCI -0.244 UCI 0.431	0.588	302	Accepted	0.154 LCI -0.213 UCI 0.521	0.41	272	Accepted
Employment	-0.000 LCI -0.297 UCI 0.296	0.998	302	Accepted	-0.001 LCI -0.332 UCI 0.329	0.993	272	Accepted
Productivity (Turnover/number of employees)	0.094 LCI -0.235 UCI 0.423	0.577	302	Accepted	0.156 LCI -0.201 UCI 0.512	0.392	272	Accepted

[25] Very-high business capabilities: HtGM participants who rated themselves as 'strong' or 'very strong' on 14 business capabilities in the 6-month follow-up survey

[26] A confidence interval (CI) is a range of values used to estimate an unknown statistical parameter, such as a population mean. A confidence interval provides a range, along with a specified confidence level, typically 95%, indicating that if the same sampling procedure were repeated 100 times, approximately 95 of the resulting intervals would be expected to contain the true population mean. In this paper, the lower and the upper confidence intervals around the estimated mean, are provided and have been labelled LCI/UCI.

Research question 7: Impacts by changes made to the businesses as a result of HTGM

Table 1.14: Changes made to the business after completing HtGM

Outcomes	ATT and Confidence Intervals[27]	P-Value	Number of observations	Average pre-treatment coefficient	Number of pre-treatment coefficient statistically different from zero	Parallel Trend test respected
Turnover	**0.035*** LCI -0.002 UCI 0.074	0.068	63,459	0.007 P-value 0.171	2 in 12	Yes
Employment	**0.029***** LCI 0.009 UCI 0.050	0.004	63,459	0.0006 P-Value 0.852	3 in 12	No
Productivity (Turnover/number of employees)	0.005 LCI -0.030 UCI 0.042	0.754	63,459	0.006 P-Value 0.156	2 in 12	No

Source: Business Structure Database, staggered Difference in Difference regressions. The use of (*) in the table represents whether or not the coefficient is statistically significant, with the number of stars representing the significance level with (*) indicating it is significant at the 5% level, and (**) representing that it is significant at the 1% level.

Research question 7 focussed on understanding if businesses who completed HtGM and reported having made some changes as a result of the programme, performed better than the counterfactual group. Results show that completing the programme and applying changes to the business was associated with an increase of 3.5 % in turnover and 3% employment for early joiners compared to late participants.

[27] A confidence interval (CI) is a range of values used to estimate an unknown statistical parameter, such as a population mean. A confidence interval provides a range, along with a specified confidence level, typically 95%, indicating that if the same sampling procedure were repeated 100 times, approximately 95 of the resulting intervals would be expected to contain the true population mean. In this paper, the lower and the upper confidence intervals around the estimated mean, are provided and have been labelled LCI/UCI.

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