

Farquharson, Christine; Greaves, Ellen

Research Report

An evaluation of the impact of the Social Mobility Foundation programmes on employment outcomes

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Institute for Fiscal Studies

IFS Report R191

**Christine Farquharson
Ellen Greaves**

An evaluation of the impact of the Social Mobility Foundation programmes on employment outcomes

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Copy-edited by Rachel Lumpkin

The Institute for Fiscal Studies

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7 Ridgmount Street
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Preface

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Christine Farquharson is a Senior Research Economist at the Institute for Fiscal Studies.

Ellen Greaves is a Research Associate at the Institute for Fiscal Studies and graduate student at the University of Bristol.

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Executive summary

While there is broad agreement in the UK on the importance of social mobility, current evidence suggests that social background is more strongly related to outcomes in the UK than in many other developed countries. Educational attainment, university choices, occupation and earnings are all influenced by socio-economic background. These effects show up at each stage of the lifecycle: graduates who attended a state school are less likely than their privately educated classmates to enter a professional occupation, even when they earn the same grades on the same degree at the same university (Macmillan, Tyler and Vignoles, 2015). And within a profession, workers from disadvantaged backgrounds still earn less than their colleagues (Laurison and Friedman, 2016).

In response to these challenges, the Social Mobility Foundation (SMF) was established to make a practical contribution to social mobility in the UK by encouraging access to high-status universities and professional occupations for high-attaining pupils from disadvantaged backgrounds. They offer programmes involving mentoring, internships, support with university applications, and access to skills development workshops.

This report evaluates the impact that the SMF's programmes have had on participants' employment outcomes, including their overall employment rate and the sector and skill level of their first job after university. We compare SMF participants with a matched control group of graduates who have similar observable characteristics, including performance at A-level and parental background.

The research conclusions are limited by low response rates to the employment surveys of SMF participants. Therefore, this report comments on potential improvements to survey design or alternative data collection for employment outcomes in order to increase the number of observations. We also comment on the value of evaluation for charities and other organisations.

Key findings

SMF participants were less likely than similar graduates to be in employment, but more likely to be in postgraduate study.

Compared with a group of graduates who have similar parental background and A-level results, SMF participants who have graduated were 19 percentage points less likely to be in work six months after graduation, but 16 percentage points more likely to be studying for a postgraduate degree.

For those in employment, there is no strong evidence that the SMF's programmes changed the skill level or the industry of participants' first job after graduation.

SMF participants are less likely than a comparison group of employed graduates to be in highly skilled occupations, and slightly more likely to be in one of the SMF's 11 priority sectors. However, we cannot be confident, statistically, that these effects are different from zero.

Limitations in the available data and strong assumptions required for the methodology mean that these findings may not capture the true overall effect of the SMF.

By analysing short-run employment outcomes, we leave out SMF participants who had not yet graduated or had enrolled in postgraduate study. Looking at longer-term employment and earnings will give a better picture of the overall impact of the SMF. While our models include rich information on students' background and attainment, we cannot account for traits that are more difficult to measure, such as motivation.

External quantitative evaluation of programmes has the potential to be beneficial to future participants, charities and other organisation and funders, but can be limited by low response rates.

The benefits of external quantitative evaluation include independent estimates of the programmes' effectiveness and hence reflection, comparison with other organisations, and demonstration of effectiveness to external funders. These benefits are limited to the internal validity of the evaluation and, for comparison, the actions of other organisations. We discuss methods to improve the internal validity of evaluation.

1. Introduction

For at least the last two decades, UK political parties have shared a commitment to improving social mobility. From former Labour Prime Minister Tony Blair, who called for a country where 'no one is excluded from opportunity and the chance to develop their potential', to the current Conservative government's desire for 'a country where everyone has a fair chance to go as far as their talent and their hard work will allow', the idea that a person's background should not limit their potential to achieve appeals across the political spectrum.

In addition to its moral resonance, social mobility – the ability to move between different 'classes', whether defined by income or occupation – has economic benefits as well. If every child fulfilled their potential, through schooling and on to further study or employment, it would improve productivity and therefore standards of living (OECD, 2010).

Unfortunately, evidence suggests that the UK is relatively immobile compared with other developed countries. For example, the UK is characterised by high income inequality and high persistence of income across generations (Corak, 2013; Jerrim and Macmillan, 2015). Measuring mobility by occupation class, Laurison and Friedman (2016) find that traditional professional occupations are 'closed': for example, children with parents in medicine and law are around 20 times more likely to enter these professions than the general population. Even within professions, Laurison and Friedman find evidence of a 'class ceiling', with lower earnings for those from lower socio-economic backgrounds. Considering the evidence across the life-course in England, Crawford et al. (2016) conclude that 'getting a good degree from an elite university is not enough to equalise career opportunities to the professions and prime age earnings for those from different socio-economic backgrounds'.

Against this background, the Social Mobility Foundation (SMF) was founded in 2005 with the aim of facilitating access to professional occupations through advice and work experience. In 2006, the SMF provided internships to 59 Year 12 and 13 pupils (aged 16–18) from disadvantaged backgrounds with high prior attainment. Over time, the support offered by the SMF has widened significantly to include mentoring and a range of events, such as workshops on Russell Group universities and the aptitude tests/interviews they can require, checking of personal statements, and trips to Russell Group universities. Table 1.1 outlines how the content and scope of the SMF programme has developed.

The programmes offered by the SMF could improve access to professional occupations through two channels. First, they could change pupils' education choices. By informing participants about the advantages of applying to high-status higher-education institutions and supporting their applications, the SMF could increase the proportion of students graduating from elite institutions. This in turn could both raise the human capital of SMF participants, and improve their access to the recruiters for professional occupations who target these high-status institutions (Ashley et al., 2015).

The SMF could also affect the choice of subject studied at university. There are high financial returns to certain degree courses and institutions (Chevalier, 2011; Walker and Zhu, 2011; Britton et al., 2016), which are in part due to the professional occupations that become accessible. However, evidence suggests that students from disadvantaged

backgrounds are less likely to apply to the universities and courses with the highest returns, even when they have the same ability as their peers from better-off backgrounds (Boliver, 2013). Because the returns to university, measured by earnings, are so variable across institution and subject, providing students with better information up-front could be an important factor in changing their outcomes.

The second channel through which the SMF's programmes could improve access to professional occupations is providing direct experience with employers and developing a professional network. Comparing individuals with identical educational attainment and higher education choices, those who attended a private secondary school are more likely to be employed in a professional occupation 3.5 years after graduation than those who attended a state secondary school (Macmillan et al., 2015). Assuming that preferences to enter a professional occupation are the same across these two groups, this suggests that educational attainment alone does not entirely level the playing field. The SMF works to improve professional networks and confidence to reduce the barriers that young people with high educational attainment face in access to professional occupations.

Of course, a holistic strategy to improve social mobility would be to invest early in life to prevent gaps in educational attainment from opening up in the first place. Educational attainment at school significantly affects the probability of attending higher education and attending an elite institution (Chowdry et al., 2013) and is the key determinant of the correlation between parental education and children's earnings across countries (Jerrim and Macmillan, 2015). However, research is clear that barriers to professional occupations exist even for those with high academic attainment, such as the students involved with the SMF.

In this report, we focus on two cohorts of participants of the SMF programmes and we evaluate the impact that the programmes had on their employment outcomes shortly after graduation. These individuals were eligible to join the SMF programme in 2009 and 2012, when they were in Year 12 at school (we call these the 2009 and 2012 cohorts, respectively).

In keeping with the predicted education effects outlined above, previous research has demonstrated that participation in an SMF programme is associated with a higher probability of attending a 'high-status' institution for university, subject to assumptions that are similar to those discussed in this report (Crawford, Greaves and Jin, 2015; Farquharson and Greaves, 2021). A companion report to this report, which studies education outcomes two years after A-levels, finds that university participation is markedly higher for SF participants (Farquharson and Greaves, 2021). If these effects on university choices in turn affect labour market returns, then the education or employment outcomes after graduation for SMF participants might also be improved.

This report follows on from that research by providing the first evidence of whether the SMF improved outcomes in the labour market after graduation. In particular, we consider whether the programmes increased participants' chances of being in employment or postgraduate study shortly after graduating. For those who were employed, we also examine whether the SMF influenced the type of job they have, including its sector and skill level.

The report proceeds as follows. Chapter 2 outlines the methodology for this evaluation and presents the data used. Chapter 3 presents the evaluation of the impact of the SMF's work on participants in the 2009 and 2012 cohorts. These results provide only indicative evidence of the impact of the SMF on employment outcomes, as the majority of participants we observe had not yet graduated. Chapter 4 discusses potential improvements to data collection to improve programme evaluation, and the benefits of external evaluation more generally. Chapter 5 concludes.

Table 1.1. Social Mobility Foundation participants and activities

Cohort	Number of participants	SMF activities	2008-09	2009-10	2010-11	2011-12	2012-13
Third cohort of SMF (2009 cohort)	316 pupils	Mentoring or internship Events: Public Speaking skills workshop; Pre-internship induction; Thinking of Oxbridge workshop; Interview Practice and Interview Skills	Y12	Y13			
Fourth cohort of SMF (2010 cohort)	507 pupils	APP ¹ Events: Thinking of Oxbridge & the Russell Group (x3); University visit (x3); Making an Impression Workshop (x4); 'Centre of the Cell'; Interview Skills (x2)		Y12	Y13		
Fifth cohort of SMF (2011 cohort)	650 pupils	APP (expansion of events) Events: Thinking of Oxbridge & the Russell Group (x2); University visit (x5); Making an Impression Workshop (x3); 'Centre of the Cell'; Interview Skills (x2); 'What is Management Consultancy?'; Tour of Houses of Parliament; 'Futures Day' (Career sector insight) (x2)			Y12	Y13	
Sixth cohort of SMF (2012 cohort)	~530 pupils	APP (expansion of events and investment bank residential and Whitehall programmes) Events: Thinking of Oxbridge & the Russell Group (x2); University visit (x7); Making an Impression workshop (x3); Interview Skills (x2); 'What is Management Consultancy?'; Tour of Houses of Parliament; 'Futures Day' (x6); Discussion group (x3)				Y12	Y13

¹ In 2010, the SMF launched the Aspiring Professionals Programme (APP), combining previous elements of SMF support with new activities.

2. Methodology

Key findings

We compare SMF participants with a group of graduates who have similar observable characteristics.

We use a technique called propensity score matching to identify a similar comparison group. These students have similar A-level grades and subject choices, ethnicity and parental background to SMF participants.

To provide accurate estimates of the impact of the SMF, this methodology requires strong assumptions.

We must assume that participants do not choose to participate in SMF programmes on the basis of characteristics that are not observed in the data and that also influence employment outcomes (such as motivation).

Very low response rates to the SMF's survey mean that these findings should be treated with caution.

Overall, just 16% of SMF participants are included in our analysis of employment status. If this group is not representative of participants as a whole, our estimates will not reflect the true impact of the SMF. Chapter 4 discusses potential improvements to future data collections.

2.1 The evaluation problem

Evaluating the impact of a particular programme (including the work of the SMF) has a number of challenges. In an ideal world, we would compare the outcomes of individuals who participated in the programme (or received the 'treatment') with the outcomes of the same individuals had they not participated in the programme (the 'counterfactual outcome'). This is of course impossible: any one person either participates in the programme or does not, so we cannot observe an outcome for them under both scenarios.

One way to address this problem is to construct an appropriate comparison group who 'look' as similar as possible to programme participants. The outcomes of this comparison group then provide as close a proxy as possible for the 'counterfactual outcome' that we cannot observe for the treatment group. The more similar this comparison group is to the treated APP participants, the more accurate the estimate of the programme's impacts will be.

The construction of an appropriate comparison group is therefore the foundation of a robust evaluation. Ideally, the only difference between the treatment and comparison groups would be the treatment itself. Perhaps the best way of achieving this is for the treatment to be randomly assigned; in this case, treatment status is unrelated to any other characteristics, observed or unobserved, of the individuals in the evaluation.

In the absence of such a randomised experiment, however, researchers have developed a wide range of techniques to construct appropriate comparison groups and hence provide a good proxy for what would have happened to the outcomes of programme participants had they not participated in the programme.

In this report, we use the technique of propensity score matching (PSM), which enables us to ‘re-weight’ individuals from a potential comparison group so that they ‘look’ as similar as possible to SMF participants in terms of their observable characteristics. For this approach to be viable, it is important to have access to a rich set of characteristics that are able to account for all the important ways in which SMF participants differ from individuals in the potential comparison group. In particular, it must be possible to account for all the factors that affect both whether a pupil chooses to participate in SMF programmes and their education and employment prospects.²

The underlying assumption of this approach is one of ‘selection on observables’: we assume that, taking into account the characteristics included in our model, there are on average no differences in unobservable characteristics (such as motivation and innate ability) between the treatment and comparison groups. Fundamentally, this assumption cannot be tested. However, a plausible analysis relies on carefully considering which characteristics are likely to be important for the model, and finding a rich set of data that includes measures of these traits.

To construct an appropriate comparison group, we must therefore have access to a dataset that contains both a rich set of background characteristics to help identify individuals who ‘look’ like SMF programme participants, and information on their subsequent employment outcomes.

2.2 Data

This section summarises the data sources that we use for this evaluation. We use national administrative data on higher education linked to a detailed survey of graduate employment outcomes to provide us with a large set of graduates who could potentially be part of the comparison group.

In an ideal evaluation, we would use the same dataset for information on ‘treated’ students. Unfortunately, the challenge of identifying SMF participants in this administrative dataset means that this was not possible. Instead, the SMF collected data from its participants using surveys that were designed to mimic the administrative datasets as closely as possible, both in the wording of the questions asked and in the timing of the survey.

² Appendix A discusses this methodology in further detail.

This section summarises the data that we have available for participants (from the SMF) and for the matched comparison group (from national administrative data on higher education and employment).

SMF data

Information about programme participants was made available by the SMF. The information about each SMF cohort varies slightly (summarised in Appendix B), but for all cohorts includes a detailed set of pupil and neighbourhood characteristics.

The SMF survey for the 2009 cohort asked about employment outcomes measured six months after graduation (for those who undertook a three-year degree and did not take a gap year), in January 2014. Analogously, the survey for the 2012 cohort was conducted in January 2017. The timing and format of the employment questions were identical to those for the comparison group.

The main employment outcomes constructed from the information in the survey are the following:

- **employment status** – whether in work (full-time or part-time) or postgraduate study, conditional on graduation;
- **high-skilled employment** – whether the graduate is working in a ‘highly skilled’ job, conditional on graduation and employment;
- **employment in an SMF target sector** – whether the graduate is employed in one of the 11 sectors that are targeted by the SMF’s programmes.

These outcomes summarise the extent to which the Aspiring Professionals Programme (APP) affects the crucial first step that graduates take into the labour market. Although early employment outcomes immediately following graduation are not a perfect predictor of longer-run labour market outcomes, they provide a good first indication of the impacts of the SMF compared with a similar group of graduates. We also present illustrative results showing the distribution of salary among employed graduates who were enrolled in the APP and a matched comparison group.

One significant challenge with the SMF data is the low response rate to the survey. As column 2 of Table 2.1 indicates, the majority of participants did not respond to the survey of employment outcomes. This is concerning for our analysis for two reasons. First, the relatively small number of responses limits the precision of our estimates. This means that it is more difficult to identify the impact of the SMF on employment outcomes.

The second reason for concern is that the sample of students who respond to the employment outcomes survey might not be representative of the SMF participants overall. This concern is discussed further in Section 2.3.

HESA-DLHE data

We use national administrative data from the Higher Education Statistics Authority (HESA) to collect information on non-participants to construct a credible comparison group. For this analysis, we use two linked, individual-level datasets:

- the **HESA student record**, which contains information about A-level attainment and background characteristics, such as parental education and socio-economic classification;
- the **Destination of Leavers from Higher Education (DLHE)**, which is a survey of graduates six months after graduation that collects employment information, such as whether the respondent is in full- or part-time work, postgraduate study, or is unemployed; if employed, their Standard Occupation Classification (SOC), salary, how they found their job, and whether their university qualification was a requirement for their job.

As noted above, the SMF surveys asked the same questions for the same census date as those in the DLHE to give comparable information on employment outcomes.

We use the range of background information available in the HESA-DLHE data to create a comparison group of graduates who are as similar as possible to SMF participants. The outcomes for these individuals provide our best estimate of what would have happened to SMF participants had they not been ‘treated’ by the SMF programmes.

While the HESA-DLHE dataset offers advantages in its size and the range of employment outcomes and background characteristics collected, these data are restricted to students who have graduated. This means that we run all of our analysis conditional on attending and graduating from university.³ In addition, outcomes related to the type of job graduates have – whether it is highly skilled or in an SMF career sector – are only defined for students who have a job with a known SOC code.

Common sample

We also condition all of our analysis on being part of a ‘common sample’ so that any differences across outcomes or specifications are not due to changes in the sample. Graduates are included in the common sample if we observe their A-level results, parental education, and employment status (i.e. they responded to the employment survey or are in HESA-DLHE). We also restrict the common sample to ‘comparable’ students in HESA-DLHE by requiring that the comparison group members were resident in England before commencing university study, studied A-levels, and were included in the DLHE survey target population.⁴ Table 2.1 shows the effect that each of these conditions has on the number of students in the common sample.

³ In the sample of students who respond to the SMF employment survey, just five had not started a university course. However, in the broader SMF population, roughly a quarter of students did not report attending a known university when surveyed after receiving their A-level results.

⁴ The DLHE target population includes all students who were reported to HESA as having obtained relevant higher education qualifications in the year from 1 August to 31 July and who studied full- or part-time (this excludes ‘dormant’ students). Relevant qualifications exclude intercalated degrees, awards to visiting students, students on post-registration health and social care courses, and professional qualifications for serving school teachers.

Table 2.1. Remaining sample size after successive common sample restrictions are imposed

Cohort	No condition	Observe employment status	Graduated	Observe A-level grades	Observe parental education	Exclude non-comparable DLHE responses	% of cohort included (employment outcomes)	Employed	Valid SOC code for main job	% of cohort included (job outcomes)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2009 treatment	303	119	56	53	53	53	17%	29	26	9%
2009 comparison	111,051	74,264	74,264	73,884	60,470	49,226	44%	32,762	32,659	29%
2012 treatment	548	209	84	81	81	81	15%	36	34	6%
2012 comparison	111,630	68,076	68,076	68,034	59,970	47,741	43%	30,490	30,471	27%
Pooled treatment	854	328	140	134	134	134	16%	65	60	7%
Pooled comparison	222,727	142,340	142,340	141,918	120,440	96,967	44%	63,252	63,130	28%

Note: Pooled cohort includes both 2009 and 2012 cohorts. In order for employment status to be observed for SMF participants, the treated student must have completed the employment outcomes questionnaire and it must have been linked to their background data. Column 7 gives the proportion of the treatment and control groups included in the common sample for employment status outcomes (shown in Figure 3.2). Outcomes for highly skilled employment and employment in an SMF sector are further conditioned on being employed with a valid SOC code, so these results (shown in Figure 3.3) use the sample in column 10.

Source: Authors' calculations based on data from the SMF and from HESA-DLHE.

2.3 Key assumptions

As discussed in Section 2.1, the comparison of outcomes between the SMF participants and the group of similar graduates observed in HESA-DLHE will allow us to identify the causal impact of involvement with the SMF only if a number of assumptions hold.

First, we must assume that SMF participants and the group of similar graduates have, on average, the same unobservable characteristics prior to the programme after taking into account the characteristics that are observable to us. For example, we require that young people's motivation is on average the same across the two groups, once their A-level grades and other observable characteristics are accounted for.

Despite the rich data available to us, there are likely to be some characteristics of SMF participants that are systematically different to the group of graduates who look most similar according to observable characteristics. This is because SMF participants have been sufficiently motivated to apply to the programme, and are perhaps more likely to have a professional career in mind prior to participation. If this assumption does not hold, the estimated effect will be biased and cannot be interpreted as the true impact of the SMF programme.

Second, we assume that participants who complete the SMF employment survey are similar in observable and unobservable ways to participants who do not complete the survey. Table 2.2 compares the observable background characteristics of SMF participants who do and do not respond to the employment outcomes survey. While those who respond to the survey seem to have slightly higher attainment at A-level than those who do not, there are few statistically significant differences between the groups. The exception is that the participants who respond to the survey had statistically significantly better grades in GCSE English, were less likely to have taken a science at A-level, and were more likely to be white than those who did not respond.

While the lack of major differences between respondents and non-respondents along most observable dimensions is encouraging, it is fundamentally impossible to rule out differences either in unobservable characteristics or in employment outcomes. For example, if students who had a less positive experience with the SMF are less likely to respond to surveys and also have worse employment outcomes, the sample of respondents will not be representative of the whole group of SMF students. Similarly, if participants with poorer employment outcomes are less likely to respond (perhaps because of embarrassment), the sample we analyse will have better outcomes than the average participant, and our estimates of the impact of the APP will be overly positive. Conversely, if participants with better employment outcomes struggle to complete the survey – perhaps because they have demanding jobs – our estimates will be unduly pessimistic.

Table 2.2. Comparison of SMF participants in 2009 and 2012 cohorts who do and do not respond to the employment outcomes survey

Characteristics	Respond	Do not respond	Difference
GCSE points (grade) (average)	52.4 (A)	52.2 (A)	0.2
GCSE points (grade) (lowest of best eight)	49.2 (B)	49.3 (B)	-0.1
GCSE points (grade) (lowest of best five)	53.2 (A)	52.9 (A)	0.3
GCSE points (grade) in English	52.0 (B)	51.3 (B)	0.7**
GCSE points (grade) in maths	53.3 (A)	53.4 (A)	-0.1
A-level points (grade) (average)	109.4 (B)	108.2 (B)	1.2
Take A-level in maths (%)	58.3	62.7	-4.4
Take A-level in a science (%)	55.0	61.6	-6.6*
A-levels below CCC (%)	9.9	13.0	-3.1
A-levels CCC-BBC (%)	19.2	18.4	0.8
A-levels BBB-AAB (%)	35.8	36.2	-0.4
A-levels AAA-A*A*A (%)	30.5	26.5	4.0
A-levels A*A*A* (%)	4.6	5.9	-1.3
Eligible for Free School Meals (%)	52.1	54.7	-2.6
White British ethnic group (%)	24.1	18.7	5.4*
Pre-university residence in London (%)	81.0	83.0	-2.0
Neighbourhood deprivation (IMD)	28.9	30.7	-1.8
% in neighbourhood:			
Own/mortgage for home	28.9	27.0	1.9
Professional occupation	31.9	31.2	0.7
Degree	11.4	10.7	0.7

Note: *, ** and *** denote statistical significance at the 10%, 5% and 1% levels, respectively. Neighbourhood deprivation is measured by the Index of Multiple Deprivation score, with higher scores indicating greater deprivation. 'Professional occupation' includes both higher and lower professional/managerial occupations.

Source: Authors' calculations based on SMF data.

The final requirement for the estimates presented here to reflect the true causal impact of the SMF's programmes is that the programmes' effects on university graduates are the same as their impacts on students who do not graduate from university. This assumption is required as, due to data limitations discussed above, we can only construct the comparison group from a sample of graduates, rather than from the population of A-level pupils. This choice of comparison group restricts our analysis to estimating the impact of the SMF on participants who attend university and graduate within three years, rather than the overall cohort.

Table 2.3 summarises the observed characteristics that we can use to construct a comparison group of individuals who are most similar to the SMF participants. Note that the majority of these characteristics are fixed over time and so will not have been affected by participation in the SMF programme. The exceptions are attainment at A-level, which could be influenced by higher aspirations, and the higher education variables (which we do not use in constructing our preferred comparison group).⁵ Subject choice at A-level would not be affected, as involvement with the SMF occurs after students have started their A-level studies.

Table 2.3 also highlights the characteristics that we are unable to account for. If these characteristics influence both the probability of participating in an SMF programme and employment outcomes, such as working in a professional occupation (over and above characteristics we are able to account for), the estimates we present will be biased.

Table 2.3. Summary of relevant individual and school characteristics that are observed and unobserved

	Observable/available characteristics	Unobservable/unavailable characteristics
Individual characteristics	Cohort, ethnic group	Household income, motivation, career aspirations
Parental background	Parents' education, parents' socio-economic classification	Parental aspirations for children
Attainment at post-compulsory schooling	Number, subject and grade for A-levels	
Higher education	Whether attended a 'high-status' institution; subject choice; degree classification	Whether degree included a 'year in industry'; work experience while studying

Note: 'High-status' institutions are part of the Russell Group or among the top 10 institutions most visited by top employers. While we observe some higher education characteristics, we do not use these in constructing the comparison group because both theory and previous evidence (Farquharson and Greaves, 2021) suggest that these characteristics themselves may be influenced by participation in an SMF programme. This means that using them to construct the control group would understate the impact of the SMF.

⁵ Participation in the SMF programme may affect the status of university attended, and subject choice (Farquharson and Greaves, 2021). To the extent that these attributes also affect employment outcomes, stripping them out of the analysis by requiring the comparison group to attend similar universities would understate the impact of the SMF. Studying only graduates may understate the impact of the SMF if non-graduates have worse employment outcomes.

3. Effects on employment outcomes

Key findings

The SMF programmes reduce the chance of being employed six months after graduation, but increase the probability of being in postgraduate study.

These effects are large – a 19 percentage point reduction in the probability of being employed and a 16 percentage point increase in the probability of being in postgraduate study. We can be confident, statistically, that these effects are not just due to chance, for the sample of SMF students we observe.

There is little evidence that the SMF affects the type of early employment that its graduates take.

Among employed graduates, the SMF reduces the probability of being in high-skilled work and raises the chance of being in an SMF-targeted industry. However, statistically, we cannot be confident that the true impact on either outcome is different from zero. These short-run impacts might also change as more of the SMF participants in postgraduate study enter the labour force.

The SMF has been successful in recruiting relatively disadvantaged students for its programmes.

Compared with the national population of graduates, APP participants are less likely to be from a white ethnic background, to have parents with managerial jobs, or to have university-educated parents. APP participants were also much more likely to live in London during their schooling.

3.1 Characteristics of the SMF participants

Columns 1 and 2 of Table 3.1 present the characteristics of all members of the 2009 and 2012 SMF cohorts included in the common sample alongside the characteristics of only those members of this group who have completed their first degree. In general, SMF participants who have graduated have slightly higher A-level attainment, were less likely to have taken maths and/or a science A-level, and are less likely to have university-educated parents than the overall group of participants who complete the survey. The two groups were roughly equally likely to attend Russell Group institutions.

The other columns of Table 3.1 show how the SMF participants compare with three different sets of graduates drawn from the DLHE dataset of potential comparison group members. The first set, shown in column 3, includes all DLHE respondents who satisfy the common sample conditions described in Section 2.2.

Table 3.1. Comparison of SMF participants with other groups of young people

Characteristics: pooled 2009 and 2012 cohorts	SMF participants	Graduate SMF participants	Graduates	Graduates with high attainment	Graduates with high attainment and RG institution
	(1)	(2)	(3)	(4)	(5)
A-level points (grade) (average)	109.6 (B)	111.1 (B)	93.0 (C)	100.2 (B)	109.1 (B)
A-levels <CCC (%)	9.6	8.2	26.5	0.0	0.0
A-levels CCC–BBC (%)	19.3	19.4	28.7	39.0	11.9
A-levels BBB–AAB (%)	35.9	35.1	28.2	38.3	45.4
A-levels AAA–A*A*A (%)	30.6	30.6	14.3	19.5	36.0
A-levels A*A*A* (%)	4.7	6.7	2.4	3.2	6.7
A-level in maths (%)	58.1	50.7	27.4	30.5	41.0
A-level in a science (%)	54.8	46.3	33.0	34.1	42.2
Either parent has degree (%)	23.6	17.9	56.4	59.2	67.0
Parental socio-economic classification:					
managerial and professional (%)	8.0	8.2	24.4	26.4	31.7
small employers (%)	12.6	12.7	6.0	5.6	4.5
semi-routine occupations (%)	15.6	19.4	8.7	7.9	6.3
White ethnicity (%)	25.5	26.3	81.5	83.3	83.6
Pre-university residence in London (%)	80.1	82.1	16.1	15.8	17.3
Attended RG university (%)	63.1	63.2	34.0	45.6	100
Attended ‘Top 10’ university (%)	36.9	33.1	17.9	24.1	52.3

In full/part-time employment (%)	22.9	48.5	65.2	63.6	58.6
In postgraduate study (%)	16.3	36.6	24.1	25.6	29.1
Number of individuals in common sample	301	134	96,967	71,316	32,492

Note: A common sample is imposed: individuals are included if A-level results and parental education are reported, and employment outcomes are known. 'High attainment' refers to achieving at least three C grades at A-level. Parental socio-economic classification categories are based on the highest-paid parent (or step-parent). RG is an abbreviation for Russell Group. 'Top 10' universities are the most targeted by employers.

Columns 4 and 5 only include graduates who were ‘high-attaining’ at A-level, achieving at least three A-levels with a grade of C or above. This attainment condition is in line with the APP eligibility criteria: the SMF required participants to be predicted to achieve at least one A grade and two B grades. While these high-attaining students are more comparable to the SMF participants, columns 1 and 2 of Table 3.1 show that not all SMF participants meet their predicted grades: just under 30% of SMF students in the common sample received grades of BBC or below at A-level.

However, the SMF participants were far more likely than the graduate population as a whole to attend a Russell Group university. Column 5 of Table 3.1 shows the characteristics of high-attaining students who attended a Russell Group institution. While these students appear more similar to the SMF participants, this condition is not formally imposed in our analysis because the higher rate of Russell Group attendance among SMF participants may itself have been an effect of the programme (Farquharson and Greaves, 2021). Restricting the comparison group to graduates of these institutions could therefore understate the impact of the SMF if one of the ways its programmes improve employment outcomes is through helping students to attend higher-status universities.

SMF selection criteria (other than predicted A-level grades) reflect the aim of the charity to increase access to professional occupations for those from relatively disadvantaged backgrounds. To be eligible for the scheme in 2012, students must have been in Year 12, predicted to achieve at least ABB at A-level and eligible (or have been eligible in the past) for Free School Meals (FSM). Students who have never been eligible for FSM (but have the same level of academic attainment) are eligible if they attend, or have previously attended for GCSEs, a school with a higher than average percentage of students known to be eligible for FSM and if they will be the first generation in their family to attend university in the UK.⁶ For cohorts prior to 2012, participants must have been eligible for FSM or the educational maintenance allowance (EMA), which was assigned on the basis of household income, in addition to the same conditions on high GCSE and predicted A-level attainment.

Table 3.1 shows that the SMF participants are distinct from the national population in their background characteristics (namely their ethnicity, pre-university residence in London, and parental education and occupation). The proportion of SMF graduates with white ethnicity is much lower than in any of the three DLHE illustrative samples (26% compared to over 80% of DLHE respondents), while pre-university residence in London is much higher (over 80% compared to 16% of DLHE respondents). SMF participants who have graduated are less likely to have parents with a higher managerial and professional occupation (8% compared to 24% of DLHE respondents) and more likely to have parents who are self-employed or work in semi-routine occupations (13% and 19%, respectively, compared to 6% and 9% of DLHE respondents). Only 18% of SMF graduates had at least one parent who had graduated from university, compared to 56% of DLHE respondents. These differences suggest that the SMF selection criteria are consistent with the scheme’s overarching aim of improving social mobility by recruiting disadvantaged students into its programmes.

These differences also highlight the importance of finding a comparison group of graduates who have similar background characteristics to the SMF cohort. This is because simply comparing the SMF graduates to the national population of graduates, without

⁶ Whether a school is relatively deprived is defined by whether the percentage of pupils eligible for FSM at the school is higher than the regional average.

taking these distinctive characteristics into account, will conflate the impact of the SMF with the impact of these background characteristics on employment outcomes. To avoid this issue, our later analysis carefully constructs a comparison group that ‘looks’ as similar as possible to the SMF participants on these and other observable characteristics. This will enable the impact of the SMF scheme on employment outcomes to be identified in isolation from other characteristics that may also affect post-university prospects.

For this comparison group, we use nearest-neighbour PSM to construct a weighted group of graduates who are as similar as possible in their observable background characteristics to the SMF graduates. For each SMF graduate, this methodology chooses the 10 most similar non-SMF graduates and constructs optimal weights for the comparison group. The matching is conducted based on observable background characteristics: cohort (2009 or 2012); parental education (whether either parent has a degree); socio-economic background (the Socio-Economic Classification of the higher-earning parent); A-level results (average grade and whether achieved three C/B/A/A* grades); A-level subject choice (whether took maths and/or a science); ethnic group (Asian/white/black/non-UK/other); and pre-university residence in London.

Table 3.2 presents the background characteristics of this preferred comparison group and members of the SMF cohorts who had graduated by the time they were surveyed about their employment outcomes. This shows that the matching process was successful in identifying a control group with no significant differences in observable background characteristics (as indicated by the lack of asterisks in column 3). While this does not ensure that all unobservable characteristics of the SMF participants and comparison group are also balanced, it does indicate that this comparison group is more likely to be appropriate for the SMF participants than the larger groups of DLHE students shown in Table 3.1.

Table 3.2. Observable characteristics of SMF participants and the preferred comparison group for employment status outcomes

Characteristics: pooled cohort	SMF participants	Preferred comparison group	Difference
	(1)	(2)	(3)
2009 cohort (%)	38.9	40.3	-1.3
2012 cohort (%)	61.1	59.7	1.3
A-level points (grade) (average)	110.9 (B)	110.29 (B)	0.61
A-levels <CCC (%)	8.4	9.4	-1.0
A-levels CCC-BBC (%)	19.8	18.4	1.5
A-levels BBB-AAB (%)	34.4	32.3	2.0
A-levels AAA-A*A*A (%)	30.5	33.0	-2.5
A-levels A*A*A* (%)	6.9	6.9	0.0
A-level in maths (%)	51.1	51.0	0.2
A-level in a science (%)	46.6	46.6	-0.1
White ethnicity (%)	26.7	28.0	-1.3
Pre-university residence in London (%)	81.7	77.6	4.1
Either parent has degree (%)	18.3	21.4	-3.0
Parental socio-economic classification:			
managerial and professional (%)	8.4	10.5	-2.1
small employers (%)	13.0	14.4	-1.4
semi-routine occupations (%)	19.8	18.6	1.3

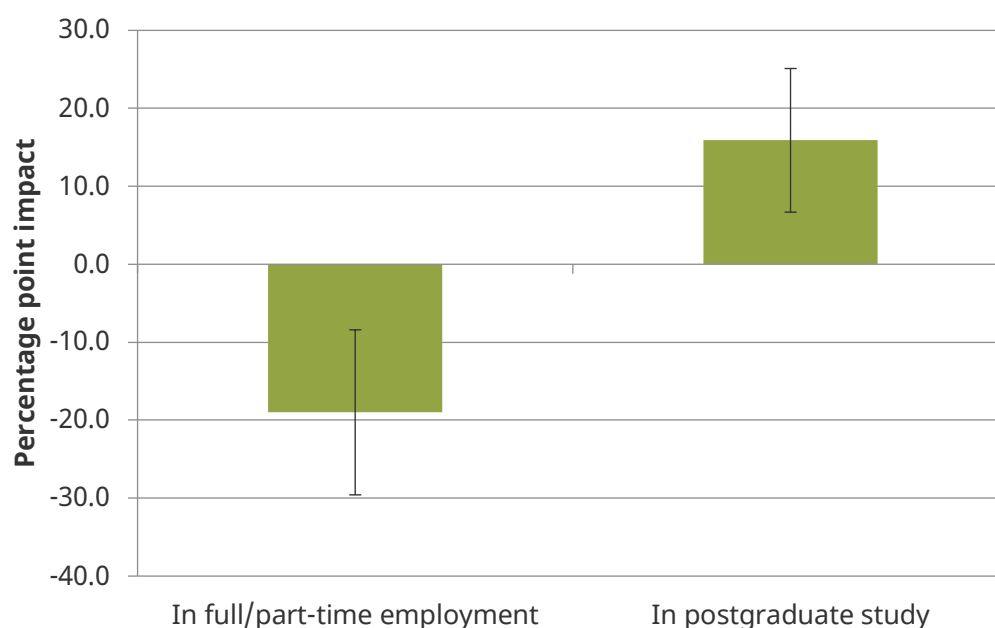
Note: No differences are significant at the 10% level or below. A common sample is imposed: graduates are included if A-level results, demographics and parental education are reported, and employment status is known.

Source: Authors' calculations based on SMF and HESA-DLHE data.

3.2 Effects of the SMF on employment status

Figure 3.1 compares the employment outcomes of SMF participants in the pooled 2009 and 2012 cohort to our preferred comparison group using the matching methodology. The difference in the probability of being employed or in postgraduate study between the SMF students and the comparison group is represented by the bars. The black lines centred on the top of each bar represent the confidence interval for the result; this indicates whether the estimated impact is statistically different from zero. Where we can be confident, statistically, that the impact is different from zero, these confidence intervals do not cross the horizontal line at zero.

Figure 3.1. Estimated impact of SMF programmes on employment status after graduation for the pooled 2009 and 2012 cohorts, relative to comparison group



Note: A common sample is imposed: SMF participants are included if A-level results, demographics, parental education, and employment outcomes are known, and if they have graduated from their first degree. The preferred control group is defined from PSM using nearest-neighbour matching according to the following characteristics: cohort, parental education (whether a parent attended university), parental socio-economic classification, KS5 mean grade, whether three C/B/A/A* grades achieved at A-level, whether an A-level science and/or A-level maths were taken, ethnic group (white/black/other), pre-university residence in London region. Outcomes are measured roughly six months after graduation.

Relative to this preferred comparison group, Figure 3.1 shows that the SMF graduates are 19 percentage points less likely to be in full- or part-time employment and 16 percentage points more likely to be in postgraduate study six months after graduation. These are large differences: a 30% decrease in the probability of employment and a 67% increase in the probability of postgraduate study relative to the matched comparison. The impacts are also strongly statistically significant, which means that, statistically, we are very confident that the SMF has a non-zero impact on employment and postgraduate study among graduates, for the sample of SMF participants we observe.

Previous research estimates a wage premium associated with postgraduate study. For example, Walker and Zhu (2011) find that, for women, undertaking postgraduate study raises wages by, on average, 15% (across all subjects), while for men the premium varies between 5% and 10% depending on subject. This may imply higher lifetime earnings for SMF participants, as they are disproportionately likely to invest in postgraduate study.

These estimates give the overall effect of the SMF's programmes on graduates' employment outcomes. This incorporates both the education channel and the work experience channel discussed in Section 1. As a robustness check, we also included information on the students' university choices (whether they attended a Russell Group institution) when constructing a comparison group. This allows us to look at the impact of the SMF on graduates' outcomes over and above any impact on their university choice.

We find very similar effects on employment and postgraduate study, suggesting that Russell Group participation (over and above other characteristics included in the matching process) is not strongly related to the probability of employment or postgraduate study after graduation.

3.3 Effects of the SMF on employment type

While Section 3.2 considered the impact of the SMF on the employment status of graduates, one of the goals of the programme is also to help participants to access professional occupations. We therefore consider two additional outcomes for employed graduates: the probability of being employed in a highly skilled occupation⁷ and the probability of working in one of the 11 sectors that the SMF targets.⁸

Because the sample for these outcomes is restricted by an additional requirement – graduates must also be employed with a valid profession – we must construct a different optimal comparison group for these outcomes. We use the same methods and set of background characteristics outlined in Section 3.2 to do this. Table 3.3 summarises the characteristics of the employed APP participants and their preferred comparison group; as before, there are no significant differences in observable characteristics, suggesting that the PSM has done a good job of constructing a comparison group that looks similar on these traits.

Figure 3.2 shows the impact of the APP on the probability that employed graduates are in high-status work and working in an SMF sector, relative to this preferred comparison group. As before, the estimated impact is shown by the bars, while the black lines indicate whether we can be confident, statistically, that the true impact is different from zero.

Roughly six months after graduation, employed APP graduates are 10% less likely to be in highly skilled jobs relative to the preferred comparison group. However, the confidence interval shown by the black line crosses zero, so we cannot be confident, statistically, that the true effect of the APP is different from zero. The APP also has a small positive impact on working in one of the SMF's targeted sectors: employed graduates who took part in the APP are 2.4 percentage points more likely to work in one of these sectors six months after graduation than the preferred comparison group. Again, however, this result is not statistically significant and so we cannot be confident, statistically, that the true effect is different from zero.

It should be emphasised that these results are measured on a very small subset of the APP cohort, shortly after their graduation. It is possible that longer-run outcomes could paint a different picture. For example, Section 3.2 shows that students who took part in the APP are much more likely to be in postgraduate study. These students may be more likely to have higher-skill occupations when they eventually enter the labour market, but this effect would not be captured in these estimates. Similarly, some of the SMF's targeted

⁷ These are defined in the Graduate Labour Market Statistics as jobs in Major Groups 1–3 of the Standard Occupational Classification (managers and directors, professional occupations, and associated professional and technical occupations).

⁸ These are accountancy, architecture, banking and finance, biology and chemistry, business, engineering and physics, law, media and communications, medicine, politics, and technology. Further details on how these sectors are defined can be found in Appendix C.

sectors – such as medicine – require postgraduate study. The eventual career paths of these students are not taken into account in the estimates presented here.

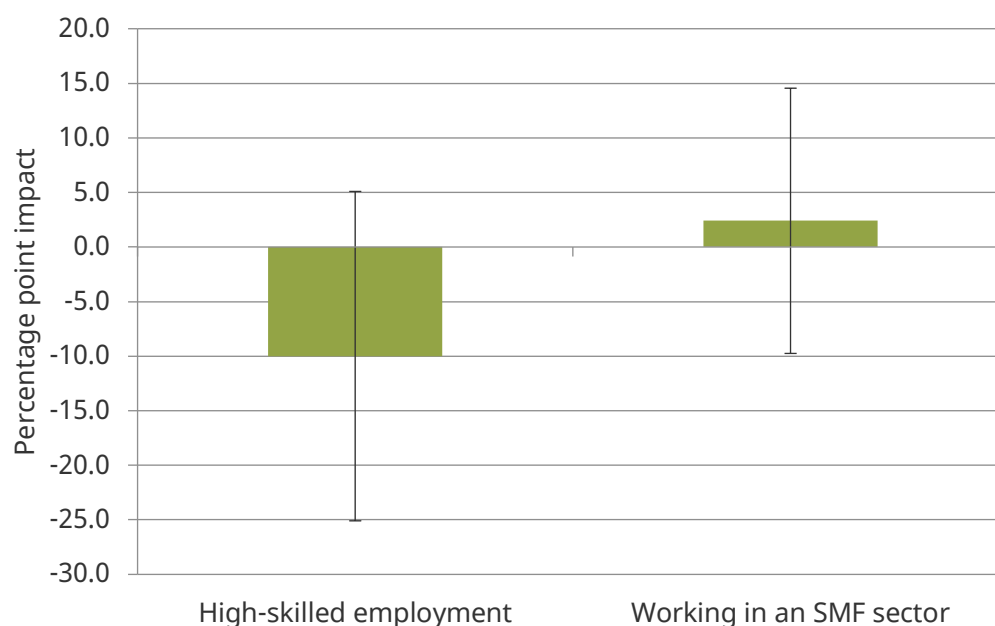
Table 3.3. Observable characteristics of SMF participants and the preferred comparison group for outcomes conditional on employment

Characteristics: pooled cohort	SMF participants	Preferred comparison group	Difference
	(1)	(2)	(3)
2009 cohort (%)	42.4	39.5	2.9
2012 cohort (%)	57.6	60.5	-2.9
A-level points (grade) (average)	110.7 (B)	108.4 (B)	2.3
A-levels <CCC (%)	8.5	11.2	-2.7
A-levels CCC-BBC (%)	20.3	21.9	-1.5
A-levels BBB-AAB (%)	33.9	33.4	0.5
A-levels AAA-A*A*A (%)	30.5	27.8	2.7
A-levels A*A*A* (%)	6.8	5.8	1.0
A-level in maths (%)	50.8	50.8	0.0
A-level in a science (%)	47.5	46.9	0.5
White ethnicity (%)	27.1	27.1	0.0
Pre-university residence in London (%)	81.4	81.4	0.0
Either parent has a degree (%)	20.3	20.2	0.2
Parental socio-economic classification:			
managerial and professional (%)	8.5	7.5	1.0
small employers (%)	10.2	11.7	-1.5
semi-routine occupations (%)	16.9	18.3	-1.4

Note: No differences are significant at the 10% level or below. A common sample is imposed: graduates are included if A-level results, demographics, and parental education are reported, and employment status is known.

Source: Authors' calculations based on SMF and HESA-DLHE data.

Figure 3.2. Estimated impact of SMF programmes on other employment outcomes after graduation for the pooled 2009 and 2012 cohorts, relative to preferred comparison group



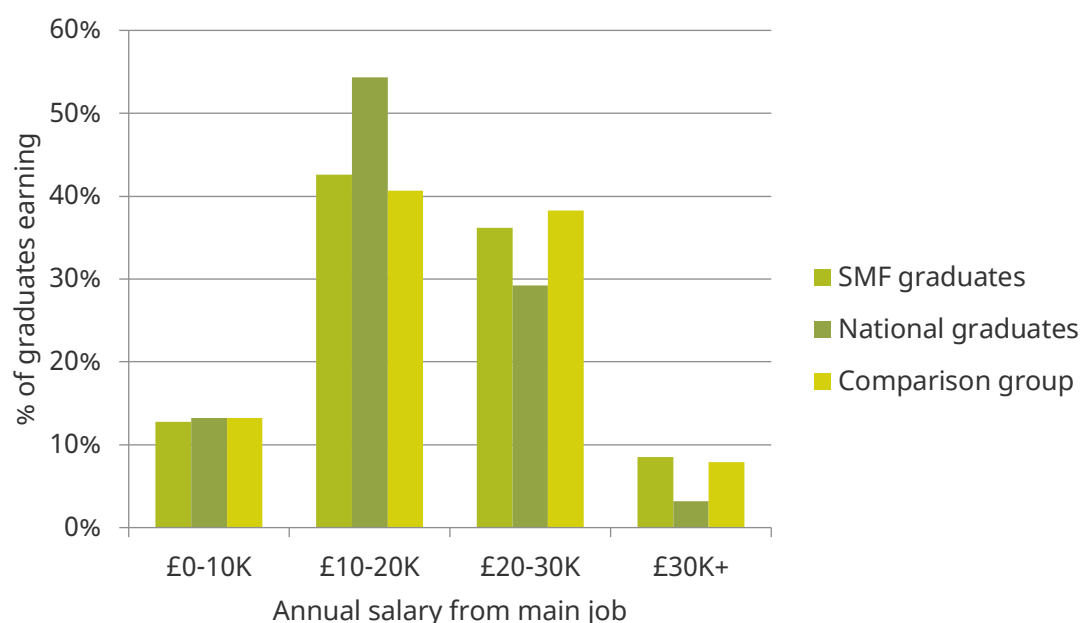
Note: A common sample is imposed: SMF participants are included if A-level results, demographics, parental education, and employment outcomes are known, and if they have graduated from their first degree and are employed with a known SOC code. The preferred control group is defined from PSM among employed graduates with known SOC codes using nearest-neighbour matching according to the following characteristics: cohort, parental education (whether either parent attended university), parental socio-economic classification (SEC codes 1, 4, 9, or SEC code unknown), A-level mean grade, whether three C/B/A/A* grades achieved at A-level, whether an A-level science and/or A-level maths were taken, ethnic group (white/black/Asian/non-UK/other/unknown), pre-university residence in London region. 'High-skilled employment' refers to employment in Major Groups 1–3 of the SOC coding framework. SMF sectors are accounting, architecture, banking and finance, biology and chemistry, business, engineering and physics, law, media and communications, medicine, politics, and technology.

3.4 Comparison of the salary of employed graduates

Both the SMF surveys and the DLHE data also ask employed graduates about their salary in their main job. Unfortunately, the small number of responses to this question in the SMF surveys makes it difficult to precisely estimate the impact of the SMF programmes on salary. Further, starting salary is likely to be a less important predictor of lifetime earnings and social mobility than industry and job skill level due to life-cycle bias (where earnings at a particular point in time are unrepresentative of lifetime earnings; Macmillan et al., 2015). For this reason, in this section we present an overview of the distribution of the salaries of employed graduates rather than estimates of the impact of the APP.

Figure 3.3 shows that, relative to the unweighted population of employed graduates as a whole, SMF participants are less likely to earn £10,000–£20,000 and more likely to earn over £20,000 six months after graduation. However, when we construct a suitable comparison group as outlined in Section 3.2, these differences become much smaller.

Figure 3.3. Distribution of salaries of employed SMF graduates, relative to unweighted and matched comparison groups



Note: A common sample is imposed: SMF participants are included if A-level results, demographics, parental education, and employment outcomes are known, and if they have graduated from their first degree and are employed with a known SOC code and salary. The preferred control group is defined from PSM among employed graduates with known SOC codes and salaries using nearest-neighbour matching according to the following characteristics: cohort, parental education (whether either parent attended university), parental socio-economic classification (those with unknown parental socio-economic classification are excluded), A-level mean grade, whether three C/B/A/A* grades achieved at A-level, whether an A-level science and/or A-level maths were taken, ethnic group (white/black/Asian/non-UK/other/unknown), pre-university residence in London region. Salaries are reported in bins of £5,000; this means it was not possible to adjust for inflation, so the values in the table are nominal. Overall CPI inflation was 6% between the two cohorts included.

Source: Authors' calculations based on SMF and HESA-DLHE data.

4. Maximising the value of evaluation

Evaluation is essential for ensuring that programmes are operating as effectively and efficiently as possible. It serves three goals. First, ongoing evaluation or studies of a smaller-scale pilot can inform the development and refinement of an intervention, ensuring that it operates as well as possible. Second, evaluating different programmes that target the same outcomes allows policymakers and practitioners to compare different ways of reaching the same goal (for example, improving university enrolment). This information makes it possible to target the programmes that will make the most difference to the groups of people who will benefit the most.

Finally, evaluation is widely used by the government and in the charitable sector as a source of lessons for the design of future programmes. *The Green Book* – summarising central government advice on appraisal and evaluation – states that evaluation is important to ‘ensure successful implementation and the responsible, transparent management of public resources’ (HM Treasury, 2020, p. 71) and to identify ‘lessons that can be learnt to improve both the design and delivery of future interventions’ (HM Treasury, 2020, p. 11)

Evaluation can be beneficial to charities in similar ways. Ongoing evaluation can be used to assess whether the objectives of the programme are being met, and possibly improve the effectiveness of a charity’s existing programme for future participants. Comparisons of the effectiveness of different programmes help to ensure that scarce resources are being used in the most effective way, which is an increasingly important concern for funders. Drawing lessons from past evaluations to determine what works well (and, equally important, what worked less well than expected) helps charities to develop new programmes with a greater chance of achieving impact.

These potential benefits rely on high-quality evaluations that are able to credibly answer questions about the impact a programme has had, which populations might be expected to benefit similarly, and how the programme brought about these benefits. Therefore, in this chapter, we discuss guidelines for evaluations of charity-led programmes and methods to increase the value of such evaluations.

4.1 Internally valid results

When evaluating a programme, the main question of interest is whether the programme itself led to benefits for participants – that is, whether there is a causal link between receiving the intervention and achieving better outcomes. The extent to which an evaluation is able to answer this *causal* question is called its ‘internal validity’. Any threat to a causal interpretation is a threat to internal validity.

In Chapter 2, we discussed the ‘gold standard’ approach of a randomised controlled trial to estimate causal effects. A well-designed and run experiment has high internal validity, meaning that the evaluators can be very confident that the benefits they see are being caused by the intervention (and not something else).

In the absence of a randomised controlled trial, a number of factors affect the internal validity of an evaluation. These are now discussed in turn, with some guidance for charities on ensuring the highest internal validity.

Outcomes are observed

An evaluation tries to assess the causal impact of a programme on one or more outcomes (for example, university enrolment) for a group of participants, looking at the average impact of the programme across all the participants. In the best-case scenario, where outcomes are observed for all participants, this is straightforward: because the benefit of the programme for each of the participants is captured in the data, evaluators can calculate the average impact, confident that they are taking everyone's experience into account.

Potential difficulties arise when the outcomes of some participants are not observed. Observing outcomes for only some participants is problematic for two reasons. First, a small sample size reduces the statistical power of any analysis. This means that a given effect size will be less likely to be statistically significantly different from zero.

The second concern is that a small sample size is less likely (although not necessarily so) to be representative of participants as a whole. For example, if participants who benefit the most from a programme are more likely to respond to a survey, they will be over-represented in the group of people whose outcomes are observed. As evaluators can only calculate the average impact of the programme for the people whose outcomes they observe, this over-emphasis on the people who benefit will push up the estimate of the average impact of the programme. This is not an internally valid estimate, because it does not reflect the true impact of the programme for all its participants.

It is never possible to know how different the outcomes they observe are from the outcomes of participants as a whole: by definition, evaluators do not know how much people whose outcomes are missing benefitted from the programme. One way to get some indication of the likely scale of the problem is to compare the two groups – with and without observed outcomes – based on baseline characteristics, if these are available from an application form or other source. (See Table 2.2 in this report, for example.) This gives some indication of the likely differences between groups, but the differences in unobservable attributes between the groups (in this case, motivation to achieve a professional job) cannot be observed.

It is therefore important for evaluators to think carefully about how to minimise the risk of missing outcome data, either by choosing data sources where this is less likely to be an issue or by using strategies to maximise the response rates to their surveys. These options are discussed in turn below.

Administrative data linkage

Administrative data are collected by other organisations – usually government organisations – to help administer services such as schooling or hospitals, and they have information on everyone who uses the service. This means that the records are collected whether or not a participant stays involved with the programme and so data are available for most – if not all – programme participants.

Of course, individuals should and do have control of their personal data. This means that consent is an essential prerequisite for linking to administrative data. Evaluators who use administrative data typically ask all participants at the start of the programme whether they are willing to opt in to having their administrative data shared with the evaluation team. It is rare that all participants will consent to this, but consent rates in the UK are typically reasonably high: the SMF began asking participants for consent to linkage to administrative education records in 2016, with a high consent rate. In the 'Millennium Cohort Study', only 0.5% of households refused to have any of their health records linked to the survey data (Mostafa and Wiggins, 2017).

While linking to administrative data can be an effective way to observe outcomes for more participants (and so boost internal validity), it is not a panacea. Although overall consent rates are high, socially disadvantaged groups are less likely to agree to linkage (Mostafa and Wiggins, 2017). This means that disadvantaged groups will be under-represented in the evaluation, which could reduce internal validity if they experience different impacts to better-off groups. Consent rates can also vary depending on how consent is requested (with a better response to face-to-face than web-based contact) and on which administrative data are being requested (Thornby et al., 2017).

Survey response rates

If data linkage is not possible, evaluators should use strategies to maximise the response rate to a survey of outcomes. Our expertise is not in survey design and administration, but we attempt to summarise the main principles here. Participants are more likely to respond to a survey when: the survey is relevant; the survey is concise and clear; contact is established and contact details are correct; participants receive reminders; the participant has intrinsic motivation to respond; and the participant has extrinsic motivation to respond.

Focusing on incentives, Singer and Ye (2013) state that monetary incentives should 'generally be a last resort', with evaluators focusing on increasing the intrinsic motivation for survey participation. Intrinsic motivation is related to the salience of the survey: several meta-analyses have concluded that the salience of a topic is one of the most important factors that influence response rates in mail and Internet surveys (Cook, Heath and Thompson, 2000; Sheehan, 2001).

Evaluators should also ensure that the survey is designed to be concise, engaging, and relevant to participants. Experimental studies and meta-analyses have shown that as questionnaires become longer, fewer respondents start and complete the survey, and that questions positioned later in the survey have less considered answers (Galesic and Bosnjak, 2009; Downes-Le Guin et al., 2012). It may also be prudent to make the survey 'mobile friendly'. Unfortunately, evaluators might sometimes be constrained in their ability to design a user-friendly survey; in particular, if data from the survey will be directly compared with another source (such as administrative data), the importance of making the survey as consistent as possible with the questions asked in the other dataset overrides concerns about the content of the questions. In these cases, it is important that the format and introduction maximise interest and engagement.

A credible comparison group

The impact of a programme is the difference between what happens when participants receive the intervention and what happens when they don't. Unfortunately, these two

situations cannot both be observed: either a participant receives the programme or not. Chapter 2 outlines the importance of constructing a credible comparison group to proxy for this unobservable ‘counterfactual’ scenario.

Credible comparison groups boost internal validity by ruling out alternative explanations for any changes in outcomes that evaluators observe. Without a credible comparison group, evaluators must make so-called ‘naïve’ estimates of a programme’s impact. For example, they might compare participants’ outcomes before and after they receive the programme. But many outcomes change over time for reasons unrelated to the programme – reading ability tends to increase with age even without any special literacy intervention, for example. This ‘before–after’ estimate will therefore include both the impact of the programme and any unrelated changes over time. By tracking the outcomes of a credible comparison group over time, these unrelated changes can be stripped out from the effect, leaving a better estimate of the programme’s true impact.

The more similar the comparison group is to the programme participants, the more credible it is and the more internally valid is the estimate of the programme’s impacts. The underlying assumption of this approach is one of ‘selection on observables’, as discussed in Chapter 2: the assumption that, taking into account the characteristics included, there are, on average, no differences in unobservable characteristics (such as motivation and innate ability) between the treatment and comparison groups. Fundamentally, this assumption cannot be tested, although a close match between the treatment and comparison groups in observable characteristics is reassuring. (See Table 3.2 in this report.)

Alternative comparison groups may be useful for charities and organisations that need timely, but coarser, information to benchmark the success of their programme. Appendix D shows employment outcomes, conditional on graduation from university, for different groups. Organisations can choose which group of graduates is most similar to their participants to act as a ‘rough and ready’ counterfactual group.

4.2 Formative assessment

What can a charity learn from evaluation? Here it is useful to distinguish between qualitative and quantitative evaluation. Our expertise is in quantitative evaluation, which involves statistical analysis to estimate the impact of the programme on pre-specified outcomes of interest to the charity. This has the benefit of being objective and precise, with the ability to compare across evaluations if designed appropriately. ‘Objective’ here means that the programme is compared on outcomes that are observed, rather than self-reported assessments of its value. There is also little scope for subjective classifications of outcomes by the researcher. One drawback of a quantitative approach is that the time-scale can be long, particularly if the outcomes of interest (such as employment) occur years after the programme. This may reduce the relevance of the findings if the programme has changed over this period.

A relevant, internally valid quantitative evaluation provides information about whether the programme is working as expected, with benefits for the outcomes of interest. This provides a clear assessment of whether the programme is meeting its intended aim, for all or a representative sample of participants. With a large enough sample size,

quantitative evaluation can also drill deeper by assessing whether particular groups are benefitting more than others (for example, male versus female participants) or whether particular elements of the programme are more effective. Done well, quantitative information can therefore provide charities with valuable information about whether, how, and for whom their intervention is effective.

Qualitative evaluation involves analysing qualitative data to draw out key themes. Qualitative data can be gathered in many ways, including direct or indirect observations of participants, interviews, case studies and focus groups. Gathering qualitative data can be an important way for charities to explore participant experiences in detail and gather information on outcomes that are difficult to measure quantitatively, such as whether the programme is well received by participants. Typically, qualitative evaluation allows charities to explore these issues in great depth; however, the trade-off is that qualitative evaluation is less well suited to exploring the breadth of experiences of participants as a whole. Qualitative evaluation is also typically conducted during or soon after the programme. This increases the timeliness of the research but means that there are fewer opportunities to explore longer-term outcomes.

Qualitative and quantitative evaluation can complement each other. For example, a charity can collect qualitative data from a selection of focus groups to understand how participants engage with a programme. The quantitative evaluator can then collect data that are relevant to these mechanisms so that the importance of each channel can be tested statistically. Qualitative data can also help to shed light on quantitative results that might appear puzzling at first glance.

4.3 Summative assessment

Summative assessment refers to an evaluation of the final impact of a programme, for use by external parties in addition to the charity. Summative assessment may have particular value for funders by providing an objective measure of performance according to pre-specified outcomes. This is especially valuable where multiple charities have been evaluated using comparable methodologies and outcomes, which allows for a more nuanced understanding of which interventions are particularly effective for which groups. Competition for funding is high, and such summative assessments may be important determinants of successful funding applications. Funders should make a distinction between qualitative and quantitative evaluation methods, alternative quantitative methods (for example, with and without a credible comparison group), and external or internal evaluation.

The Education Endowment Foundation (EEF) is an excellent example of the benefits of comparing multiple programmes along similar dimensions. Common evaluation and reporting standards mean that schools are able to select programmes that have been shown to have the most impact on their outcome of interest. This principle is commendable, but we recognise that it may not be replicable for all sectors and in all cases. This is because a charity's outcome of interest may not perfectly align with an outcome of interest for a competing evaluation. Therefore, there may be a trade-off between running an internally valid and informative evaluation as a formative assessment for the charity, and conducting a summative assessment that is comparable with other evaluations.

In general, summative assessments are seen to be more credible when they are conducted by an external (presumably unbiased) evaluator. However, there is a trade-off between this increased credibility for funders and the higher costs associated with hiring an external evaluator.

4.4 Summary

Evaluation has value both in developing and improving an intervention, and in demonstrating its impact. The choice of evaluation method(s) should depend on the goals of the evaluation. For example, qualitative evaluation is likely to be more suitable for formative assessment for immediate adaption of a programme. Quantitative evaluation is more suitable to formative assessment with a large sample size (where differences across subgroups can be explored, for example) or summative assessment of longer-term outcomes.

Where a quantitative evaluation is preferred, there are some general principles that improve the internal validity, and therefore value, of the results. Data collection of participants' outcomes should be as complete and representative as possible (for example, through linkages to administrative data). If outcomes are measured by a survey, it is important to carefully design the survey to maximise response rates. Response rates can be influenced by the survey's salience, length and content, as well as the intrinsic and/or extrinsic motivation of participants.

Internally valid results require a credible comparison group for programme participants. This can account for trends over time and/or particular characteristics of the programme participants. While a randomised controlled trial is the 'gold standard' approach to forming this credible comparison group, alternative approaches can be used. Forming a credible comparison group is aided by full information on baseline characteristics of participants, knowledge of the selection process for the programme and, potentially, access to administrative data. The underlying principle is that the credible comparison group is likely to be similar to the programme group in every way apart from receiving the intervention. Evaluations should be clear in this regard to inform charities and funders of the value of the findings. Outcomes for 'rough and ready' comparison groups, as presented in Appendix D, may be a useful, but coarse, resource for charities and other organisations.

5. Conclusions

Improving social mobility has been a longstanding goal across the political spectrum in the UK. Research points to the importance of higher education choices in raising access to professional occupations for young people from disadvantaged backgrounds. However, recent studies also suggest that social background is related to occupation even for people who make the same university choices and earn the same grades. This suggests that people from disadvantaged backgrounds also face non-educational barriers to entering high-status professions.

The SMF aims to improve social mobility by addressing both of these channels. It offers programmes for high-achieving students from disadvantaged backgrounds that incorporate mentorship, internship opportunities, information, and support with higher education applications. These activities are designed to promote awareness of and enrolment in high-status universities and careers.

Previous research found that the SMF programmes improved the educational outcomes of its participants. University participation increased markedly and statistically significantly, between 8 and 18 percentage points across cohorts, in a context where around 80% of comparison students attended university. The impact of the SMF programmes on increasing university participation is roughly equivalent to increasing attainment for all students to at least three A* grades at A-level from at least three B grades. Conditional on attending higher education, the SMF also had a positive impact on the chances of attending a Russell Group university, which is statistically significant for some cohorts. The size of the estimates would eliminate the difference in Russell Group participation between white students with at least three A grades at A-level, eligible or not for FSM. There is no evidence that participation at a university most visited by top employers increased, however.

This report builds on that analysis to evaluate the post-university outcomes of SMF participants. We use data on two cohorts of students, who joined SMF programmes in 2009 and 2012, to evaluate the programme's impact on their employment, their postgraduate study, and the characteristics of their first job after graduation.

We find that the SMF programmes had a substantial negative impact on the probability that graduates were employed (19 percentage points less likely than a matched comparison group). However, this was largely offset by the programme's positive impact on the likelihood that participants had gone on to postgraduate study (an increase of 16 percentage points). This may imply advantages to the SMF participants in the longer run as postgraduate study is associated with higher wages and greater access to professional occupations (Walker and Zhu, 2011). Among those graduates who were employed six months after graduation, we found little evidence of an impact on the skill level or sector of their job.

However, these early labour market outcomes are unlikely to paint a full picture of the impact of the SMF on employment outcomes. First, we cannot assess the employment outcomes of the large number of students who are engaged in postgraduate study. If these students take more highly skilled jobs or have higher earnings when they eventually enter the labour market, omitting them from the current analysis means that we understate the benefits of the SMF programmes.

Second, the large share of SMF students – more than half – who are still studying when they are surveyed about their employment outcomes is also missing from the current analysis. Many of these students took gap years; if they had built up experience that would be valuable to employers during that time, their outcomes might also differ from the effects we estimate in this report.

The methodology that we employ to construct a credible comparison group from the national population of graduates will give informative estimates of the causal impact of the SMF programmes only if several assumptions hold. First, we assume that once we have taken into account the rich set of background characteristics in our model – including school attainment and subject choice, demographics, and parental background – the decision to participate in an SMF programme is not affected by any other characteristics that would also influence employment outcomes. For example, this rules out motivated students being more likely both to join an SMF programme and to have better employment outcomes after graduation.

The second assumption we make is that the students who responded to the SMF's survey of employment outcomes are similar in both observable and unobservable ways to those who did not respond. Analysis of some of the available demographic characteristics suggests that the two groups are broadly similar on these traits, though respondents had higher grades in GCSE English, were more likely to have taken a science A-level, and were much more likely to be from a white ethnic background. However, the overall similarity between the two groups on observable traits does not prove that they are also similar in unobservable ways (for example, in their motivation or their satisfaction with the SMF) or in their employment outcomes.

Finally, in order for our results to reflect the overall impact of the SMF on all its participants, we must assume that its effects on non-graduates are the same as the effects on graduates reported here.

It is unlikely that all three assumptions hold. While we have carefully constructed a comparison group with the best data available to us, it is not possible to rule out important differences in unobservable characteristics between the SMF participants and the comparison group, nor can we rule out unobservable differences between the SMF respondents and non-respondents. This means that the results we present here should be considered indicative – they are the best evidence available on the impacts of the SMF on the short-run employment outcomes of graduates, but they are not precise causal estimates of the SMF programmes' effects.

Nevertheless, given the political concern for, and economic benefits of, social mobility, the indicative evidence that we provide in this report is timely and important. Prior attainment is the most important predictor of progression to higher education and a professional occupation. The remaining barriers to entry, such as the recruiting strategies of professional firms and exclusive networks, are harder to address. The SMF aims to overcome these kinds of barriers that young people from more disadvantaged backgrounds face. Understanding the extent to which a programme of mentorship, information and support can improve outcomes, even among a high-achieving group of participants with high baseline levels of education, sheds light on whether and how policy interventions to support access to professional occupations for those from disadvantaged

backgrounds could work. Suggestive evidence that postgraduate study is increased for these young people implies that such programmes may have long-run positive effects.

Our discussion of the evaluation of programmes run by charities has highlighted methods for potentially improving the validity of these findings in the future, and the potential gains from a coordinated effort by the charity sector to robustly evaluate its important work.

Appendix A. Propensity score matching

Propensity score matching relies on constructing a suitable comparison group on the basis of a wide range of characteristics that are observable to the researcher (i.e. available in the data at their disposal). The key assumptions underlying this approach are:

- **conditional independence assumption (CIA)** – conditional on all observable characteristics included in the model, the outcomes for the treatment and comparison group would be identical in the absence of the treatment;
- **common support** – there must be some individuals in the comparison group who ‘look’ like the individuals in the treatment group, otherwise it will be impossible to find a suitable match for these individuals.

For the CIA to hold, the researcher must be able to observe all of the characteristics that are relevant both for determining whether the individual is in the treatment or comparison group and for determining the outcomes of interest. This means that the availability and selection of characteristics on which to match is crucial to the likelihood of the CIA holding.

However, the larger the number of characteristics that must be included in the model, the harder it becomes to find a perfect match for each individual. One way to get around this problem is to estimate a propensity score, which is a simple way of summarising an individual’s characteristics. This means that, rather than finding an exact match for each individual in the treatment group in terms of each of their observable characteristics, similar individuals can be found in terms of this summary propensity score.

The propensity score is the predicted probability of being treated. This is estimated from a discrete choice model where the dependent variable is a binary variable equal to one if the individual is in the treatment group, and zero if they are in the comparison group. All characteristics that are thought to predict either the likelihood of treatment or the outcomes of interest should be included in the model. The propensity score can also be adjusted to ‘force’ a match on particularly important observable characteristics.

Once the propensity score has been estimated, individuals in the comparison group are weighted according to how closely matched they are to each individual in the treatment group. There are a number of different approaches to undertaking this weighting process. These include giving weight only to those individuals in the comparison group who are closest in absolute terms to a particular individual in the treatment group (nearest-neighbour matching); allocating a fixed weight to all individuals within a certain absolute distance (radius matching); or allocating weight depending on how close they are to each individual in the treatment group (weighted smoothed matching).

Appendix B. Information available about SMF participants

Table B.1 summarises the available information about APP participants in the 2009 and 2012 cohorts.

Table B.1. Available information about SMF participants

Characteristic	2009 SMF cohort	2012 SMF cohort
FSM eligibility	Yes	No
Education maintenance eligibility	Yes	No
Ethnic group	Yes	Yes
Parents' education	Yes	Yes
School name	Yes	Yes
Postcode	Yes	Yes (limited)
Parent's occupation	Yes*	Yes*
Household income	No	Yes
GCSE grades	Yes	Yes
A-level choices and grades	Yes	Yes
University participation	Yes	Yes
University chosen	Yes	Yes
Course chosen	Yes	Yes
Degree outcome	Yes*	Yes*
Employment status	Yes*	Yes*
Sector of employment	Yes*	Yes*
Salary	Yes*	Yes*

Note: * We observe this information for the subset of the cohort that responded to the SMF employment outcomes survey.

Appendix C. Defining SMF targeted career sectors

Table C.1 presents the career sectors targeted by the SMF and the SOC codes we have used to define employment in them. These ‘core’ occupations are those most directly targeted by the SMF in each sector. Table C.2 presents the additional ‘allied’ occupations that are related to the core occupations.

Table C.1. Definition of SMF priority career sectors (core occupations)

SMF sector	SOC 2010 code	SOC 2010 Group Title
Accounting	2421	Chartered and certified accountants
	3537	Financial and accounting technicians
	3538	Financial accounts managers
Architecture	2431	Architects
Banking and finance	1131	Financial managers and directors
	1150	Financial institution managers and directors
	3534	Finance and investment analysts and advisers
Biology and chemistry	2111	Chemical scientists
	2112	Biological scientists and biochemists
	2142	Environment professionals
	2213	Pharmacists
Business	2423	Management consultants and business analysts
	2424	Business and financial project management professionals
	2426	Business and related research professionals
	2429	Business, research and administrative professionals n.e.c.
	3536	Importers and exporters
	3542	Business sales executives
	3545	Sales accounts and business development managers
Engineering and physics	2113	Physical scientists
	2121	Civil engineers
	2122	Mechanical engineers
	2123	Electrical engineers

Law	2124	Electronics engineers
	2126	Design and development engineers
	2127	Production and process engineers
	2129	Engineering professionals n.e.c.
	2412	Barristers and judges
Media and communications	2413	Solicitors
	2419	Legal professionals n.e.c.
	1134	Advertising and public relations directors
	2471	Journalists, newspaper and periodical editors
	2472	Public relations professionals
Medicine	2473	Advertising accounts managers and creative directors
	2211	Medical practitioners
	1116	Elected officers and representatives
	3561	Public services associate professionals
	4112	National government administrative occupations
Politics	4113	Local government administrative occupations
	4114	Officers of non-governmental organisations
	1136	Information technology and telecommunications directors
	2136	Programmers and software development professionals
	2137	Web design and development professionals
Technology	2139	Information technology and telecommunications professionals n.e.c.

Note: Definitions are based on the SMF sector descriptions which were available to participants (e.g. in the links at the bottom of the programme description page, <http://www.socialmobility.org.uk/programmes/app-city>). These are based on the 2010 Standard Occupational Classification codes. 'n.e.c.' is an abbreviation for 'not elsewhere classified'.

Table C.2. Definition of SMF priority career sectors (allied occupations)

SMF sector	SOC 2010 code	SOC 2010 Group Title
Accounting	4122	Book-keepers, payroll managers and wages clerks
	4124	Finance officers
Architecture	2432	Town planning officers
	2435	Chartered architectural technologists
	3121	Architectural and town planning technicians
Banking and finance	4123	Bank and post office clerks
Biology and chemistry	2119	Natural and social science professionals n.e.c.
Business	3539	Business and related associate professionals n.e.c.
	3541	Buyers and procurement officers
	4151	Sales administrators
	4161	Office managers
	4162	Office supervisors
	7111	Sales and retail assistants
	7115	Vehicle and parts salespersons and advisers
	7130	Sales supervisors
Engineering and physics	3113	Engineering technicians
	3114	Building and civil engineering technicians
Law	3520	Legal associate professionals
	4212	Legal secretaries
Media and communications	1132	Marketing and sales directors
	3543	Marketing associate professionals
Medicine	1181	Health services and public health managers and directors
	1241	Health care practice managers
	2219	Health professionals n.e.c.
	2231	Nurses
	3213	Paramedics
Politics	3233	Child and early years officers
Technology	2133	IT specialist managers
	2134	IT project and programme managers
	2135	IT business analysts, architects and systems designers

	3131	IT operations technicians
	3132	IT user support technicians
	5242	Telecommunications engineers
	5244	TV, video and audio engineers
	5245	IT engineers

Note: Definitions are based on the SMF sector descriptions which were available to participants (e.g. in the links at the bottom of the programme description page, <http://www.socialmobility.org.uk/programmes/app-city>). Combined with the list of professions in Table C.1, these professions form an extended definition of jobs related to the SMF career sectors. These are based on the 2010 Standard Occupational Classification codes. 'n.e.c.' is an abbreviation for 'not elsewhere classified'.

Appendix D. Alternative comparison groups

Table D.1. Alternative comparison groups for other programmes: the average outcomes for groups across cohorts.

Example graduate	DLHE cohort	Employment (full/part-time)	Postgraduate study	Conditional on employment			
				High-skilled employment (SOC 1-3)	SMF primary target sector	SMF associated target sector	Salary
Students attaining at least three A* grades at A-level	2012-13	52	38	81	39	55	22,149
	2015-16	51	38	84	45	62	24,322
	Average	52	38	82	41	58	23,105
Non-white students attaining at least three A* grades at A-level	2012-13	50	38	92	53	68	28,049
	2015-16	49	40	92	65	78	28,228
	Average	50	39	92	59	73	28,142
Non-white students with low parent education attaining at least three A* grades at A-level	2012-13	Suppressed					
	2015-16						
	Average						
White students attaining at least three A* grades at A-level	2012-13	53	38	78	36	52	21,011
	2015-16	51	37	81	39	57	23,263
	Average	52	38	79	37	54	21,971

White students with low parent education attaining at least three A* grades at A-level	2012-13	56	36	79	36	53	21888
	2015-16	56	31	84	34	58	23750
	Average	56	34	81	35	55	22660
Students with low parent education attaining at least three A* grades at A-level	2012-13	55	36	81	35	53	22000
	2015-16	54	32	85	37	61	24167
	Average	55	34	83	36	56	22923
Students attaining at least three A grades at A-level	2012-13	57	31	73	31	52	19258
	2015-16	57	31	77	32	52	20832
	Average	57	31	75	31	52	19974
Non-white students attaining at least three A grades at A-level	2012-13	56	30	80	43	63	22809
	2015-16	58	30	83	43	64	23332
	Average	57	30	82	43	63	23070
Non-white students with low parent education attaining at least three A grades at A-level	2012-13	Suppressed					
	2015-16						
	Average						
White students attaining at least three A grades at A-level	2012-13	57	31	72	29	50	18,653
	2015-16	57	32	75	29	50	20,318
	Average	57	31	73	29	50	19,402

White students with low parent education attaining at least three A grades at A-level	2012-13	60	29	71	26	50	18,304
	2015-16	62	29	76	28	49	20,089
	Average	61	29	73	27	49	19,113
Students with low parent education attaining at least three A grades at A-level	2012-13	60	28	71	28	52	18,712
	2015-16	63	27	76	29	51	20,407
	Average	61	28	74	29	51	19,492
Students attaining at least three B grades at A-level	2012-13	61	27	66	24	46	17,663
	2015-16	60	29	72	24	47	19,250
	Average	61	28	69	24	47	18,417
Non-white students attaining at least three B grades at A-level	2012-13	56	29	71	31	54	19,420
	2015-16	58	31	75	32	56	20,507
	Average	57	30	73	31	55	19,978
Non-white students with low parent education attaining at least three B grades at A-level	2012-13	Suppressed					
	2015-16						
	Average						
White students attaining at least three B grades at A-level	2012-13	61	27	66	23	45	17,380
	2015-16	61	29	72	23	45	19,002
	Average	61	28	68	23	45	18,142

White students with low parent education attaining at least three B grades at A-level	2012-13	64	25	64	21	45	17,213
	2015-16	64	27	70	21	44	18,689
	Average	64	26	67	21	44	17,927
Students with low parent education attaining at least three B grades at A-level	2012-13	64	25	64	22	45	17,316
	2015-16	64	27	70	22	46	18,821
	Average	64	26	67	22	46	18,056

Table D.2. Alternative comparison groups for other programmes: the average outcomes for groups across cohorts, conditional on Russell Group attendance

Example Russell Group graduate	DLHE cohort	Employment (full/part-time)	Postgraduate study	Conditional on employment			
				High-skilled employment (SOC 1-3)	SMF primary target sector	SMF associated target sector	Salary
Students attaining at least three A* grades at A-level	2012–13	51	39	81	40	55	22,332
	2015–16	50	38	84	46	63	24,607
	Average	51	39	82	43	59	23,337
Non-white students attaining at least three A* grades at A-level	2012–13	49	40	92	55	70	28,512
	2015–16	48	40	93	67	79	28,892
	Average	49	40	92	61	75	28,710
Non-white students with low parent education attaining at least three A* grades at A-level	2012–13	Suppressed					
	2015–16						
	Average						
White students attaining at least three A* grades at A-level	2012–13	52	39	79	37	53	21,152
	2015–16	51	37	81	40	58	23,456
	Average	51	38	80	38	55	22,137

White students with low parent education attaining at least three A* grades at A-level	2012-13	56	36	79	39	55	22,011
	2015-16	56	30	84	34	58	23,824
	Average	56	34	81	37	56	22,768
Students with low parent education attaining at least three A* grades at A-level	2012-13	55	36	80	38	55	22,304
	2015-16	54	32	86	37	62	24,414
	Average	54	34	83	38	58	23,207
Students attaining at least three A grades at A-level	2012-13	56	31	74	33	54	19,784
	2015-16	56	32	77	35	55	21,235
	Average	56	32	75	34	55	20,451
Non-white students attaining at least three A grades at A-level	2012-13	55	30	81	47	66	23,736
	2015-16	57	31	85	47	66	23,990
	Average	56	30	83	47	66	23,863
Non-white students with low parent education attaining at least three A grades at A-level	2012-13	Suppressed					
	2015-16						
	Average						
White students attaining at least three A grades at A-level	2012-13	56	32	73	31	52	19,089
	2015-16	56	32	76	32	53	20,650
	Average	56	32	74	31	52	19,798

White students with low parent education attaining at least three A grades at A-level	2012–13	59	30	71	28	52	18,861
	2015–16	61	29	76	31	52	20,469
	Average	60	29	73	29	52	19,595
Students with low parent education attaining at least three A grades at A-level	2012–13	59	29	72	31	55	19,341
	2015–16	62	28	77	32	54	20,875
	Average	60	28	74	31	55	20,050
Students attaining at least three B grades at A-level	2012–13	58	29	69	29	51	18,563
	2015–16	58	31	73	29	52	19,758
	Average	58	30	71	29	51	19,149
Non-white students attaining at least three B grades at A-level	2012–13	54	30	74	37	59	21,247
	2015–16	55	32	77	38	61	21,605
	Average	55	31	76	38	60	21,438
Non-white students with low parent education attaining at least three B grades at A-level	2012–13	Suppressed					
	2015–16						
	Average						
White students attaining at least three B grades at A-level	2012–13	59	29	68	27	49	18,124
	2015–16	58	30	72	27	50	19,386
	Average	58	30	70	27	49	18,737

White students with low parent education attaining at least three B grades at A-level	2012–13	61	27	66	25	49	17,988
	2015–16	62	28	71	26	49	19,059
	Average	61	28	69	25	49	18,527
Students with low parent education attaining at least three B grades at A-level	2012–13	60	27	67	26	50	18,200
	2015–16	61	28	71	27	52	19,316
	Average	61	28	69	27	51	18,771

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