Institute for Fiscal Studies

An Evaluation of the Impact of the Social Mobility Foundation Programmes on Education Outcomes

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Social Mobility Foundation

J.P.Morgan

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Preface

This work was primarily funded by the Social Mobility Foundation, courtesy of a grant from J.P. Morgan. The Social Mobility Foundation is a charity that aims to address inequality in access to professional occupations for high achieving disadvantaged pupils. Co-funding was from the Centre for the Microeconomic Analysis of Public Policy, hosted at the Institute for Fiscal Studies.

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Executive Summary

- The Social Mobility Foundation (SMF) is a charity that aims to make a practical improvement to social mobility in the UK by encouraging and supporting access to 'high-status' universities and professional occupations for high attaining pupils from disadvantaged backgrounds.

- The SMF's programmes are targeted to those who are eligible for free school meals (or, in earlier cohorts, the educational maintenance allowance) and, amongst the latest cohorts, to those who are in the first generation of their family to attend higher education and who attend a relatively disadvantaged school.

- The SMF's current programmes feature four key elements of mentoring, internships, university application support (including trips to universities and assistance with writing their personal statement, tests and interviews) and skills development workshops. Their main programme is known as the Aspiring Professionals Programme (APP). In recent years, they have also added more specialist programmes run in partnership with other organisations. For example, they run the J.P. Morgan Residential Programme targeted to those living outside London who are interested in a career in banking and finance.

- University participation, and especially participation at a high-status institution in a relevant subject, is a potentially important intermediate step towards accessing the type of professional occupations the SMF targets. This report therefore evaluates the impact of the SMF's programmes on university participation overall and at high-status institutions. It also assesses its effect on subject choice (although this is not explicitly targeted by the SMF's programmes). The impact of the SMF's work on post-graduation education and employment choices, and in particular occupation outcomes, will be evaluated in future by the Institute for Fiscal Studies (IFS) as the required data become available.

- This evaluation compares the education outcomes of SMF participants (collected by SMF via participant questionnaires) with outcomes for a group of pupils with similar observable characteristics (such as performance at secondary school and neighbourhood context), observed in administrative data. This report focuses on the education outcomes for four cohorts of participants with the SMF: the first cohort we look at entered the programme in 2009 (referred to as the 2009 cohort), the second in 2010, the third in 2011 and the fourth in 2012.

- We can interpret the difference in university participation and subject choice between SMF participants and our suitably chosen 'comparison' group of young people as the causal impact of the SMF programmes, under some assumptions, as follows.

  - Participants do not choose to be part of the SMF programme on the basis of characteristics that are not observable to the researcher, and that also influence education outcomes. Examples of such factors could be pupils' motivation and professional aspirations, conditional on performance at secondary school.

  - The sample of participants for which we observe education outcomes are a representative sample of SMF participants.

- We find little evidence to suggest that SMF participants are more likely to go to university at age 18 than a group of pupils with similar prior attainment, subject choice and neighbourhood context. However, amongst those who do go to university, there is strong evidence that SMF participants are more likely to attend a high-status institution.

- Conditional on going to university, the estimated impact on the probability of attending a Russell Group institution is large, equivalent to an increase across SMF cohorts of between 17% and 27%, compared to the level of participation that would otherwise be expected in the absence of the SMF's APP.

- The estimated impact on the probability of attending an institution most likely to be visited by 'top employers' is also large, equivalent to an increase across SMF cohorts of between 13% and 43%, compared to the level of participation that would otherwise be expected.

- The range of estimates for the increase in participation at a high-status institution is roughly equivalent to the difference between achieving three A grades at A-level and three A* grades at A-level, on average, conditional on participation. This gives some sense of the scale of the estimated impact. As an additional comparison, around 65% of pupils who attend independent schools for A-levels and who achieve a high level of attainment (at least three C grades) attend a Russell Group institution, conditional on university participation, compared to over 70% of SMF programme participants.

- The J.P. Morgan Residential Programme was available to a small number of participants in the 2012 cohort. Due to a lack of data availability, the estimates for the 2011 and 2012 cohorts (those participating both in the APP and in the J.P. Morgan Residential Programme) are less reliable and should be interpreted with greater caution. Nonetheless, participants on the J.P. Morgan Residential Programme are substantially more likely to attend a high-status institution than otherwise similar pupils. For example, conditional on going to university, they are around 72% more likely to attend a Russell Group institution and 130% more likely to attend an institution that is amongst the most visited by top employers.

- These results suggest that the SMF programmes are more likely to influence individuals' decisions regarding university choice, or the probability of a successful application to a high-status institution, than to affect the likelihood

of going to university at all. There is also little evidence to suggest that the subject choices of SMF participants are affected by the SMF programmes.

- These results suggest that participation at high-status higher education institutions for high-attaining disadvantaged young people can be significantly affected by involvement with programmes such as the APP run by SMF. However, these estimates can only be regarded as the causal effect of the programme on the outcomes of interest under the assumptions outlined above. In particular, participation in the SMF's programmes must be effectively random conditional on the (rich set of) characteristics we observe.

- While it is impossible to fully judge whether these conditions hold, it is most likely that the estimates are biased upwards (i.e. that the true impact of the SMF programmes is somewhat lower than the estimates we present). This could arise if, for example, SMF participants are, on average, more motivated than our control group (which is plausible because participation in the programme was voluntary rather than mandatory). Notwithstanding these concerns, given the magnitude of the estimated effects, it is likely that the programme has a sizeable positive effect on the likelihood of attending a high-status institution.

1. Introduction

The UK has relatively low levels of intergenerational income mobility (Ermisch, Jantti and Smeeding, 2012), and there is evidence to suggest that professional occupations have become more, not less, socially exclusive over time.[1] Recent evidence suggests that pupils educated in independent schools are more likely to access professional occupations than pupils from state schools, even conditional on prior academic attainment and gaining access to a high-status university (Macmillan, Tyler and Vignoles, 2014). Improving access to professional occupations for disadvantaged young people would therefore make a positive contribution to improving social mobility in the UK.

The SMF was founded in 2005 with the aim of facilitating access to professional occupations through work experience. Participants are likely to have found out about the SMF programme through their school, and may have been encouraged to apply by a teacher. Applicants who met the eligibility criteria were very likely to be admitted to the programme.

In 2006, the SMF provided internships to 59 Year 12 and 13 students (aged 16–18). 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, trips to Russell Group universities and skills workshops. The SMF has grown in size over time; in 2010, existing and new aspects of SMF support were combined into one programme, the Aspiring Professionals Programme (APP) and delivered to over 500 Year 12 students (aged 16–17). The APP includes internships, mentoring, skills development and university application support for its selected participants. Over the first year of the APP, as they are making their university choices and applications, students are offered the following.

- A mentor working in their profession of interest, to correspond with by email roughly once a week, with several opportunities to meet face to face.
- A number of events, provided by the SMF or partner universities and employers. These include skills sessions, days to provide an overview of the roles and requirements of a sector of employment, workshops on 'making an impression' and interview skills and focused events on the Russell Group and Oxbridge.
- Trips to Russell Group universities in and outside London.
- A 'Personal Statement Checking Service'.

[1] http://webarchive.nationalarchives.gov.uk/+/http://www.cabinetoffice.gov.uk/media/227105/fair-access-summary.pdf.

- Information about other opportunities they can pursue beyond those offered by the SMF, such as university summer schools.

- If they have engaged well with the programme, and subject to availability, a one or two week internship in their sector of interest. This normally takes place in the summer between Years 12 and 13. Those most engaged may receive more than one placement in their chosen sector as well as a placement with an MP.

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 (FSMs). Students who have never been eligible for FSMs (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 FSMs and if they will be the first generation in their family to attend university in the UK.[2] For cohorts prior to 2012, participants must have been eligible for FSMs 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.

Two further programmes were offered by SMF in the summer of 2012, which offered the opportunity for those across the country to live in London and to carry out a two-week internship: the J.P. Morgan Residential Programme offered 50 Year 12 students a placement at the global investment bank, while the second year of the Whitehall Social Mobility Internship Programme offered 60 Year 12 students a placement within a government department in Whitehall. For the J.P. Morgan Residential Programme, each young person was matched with a mentor from J.P. Morgan, who acted in a similar role to mentors involved with the APP. It was made clear to applicants that the residential programmes would be of particular interest to students who were considering a career in banking and finance or who had an interest in finance and economics, and to those who had an interest in learning more about the Civil Service, respectively.

Both residential internship programmes also included a range of evening activities, including a theatre trip to a West End show and a trip on the London Eye, and skills and career workshops, as well as sessions about applying to Russell Group universities, including advice about how to strengthen a UCAS application.

The eligibility criteria for these schemes were the same as for the APP, although the schemes were not open to those living in London.

The J.P. Morgan Residential Programme took place between 12th and 25th August 2012. Participants were offered APP activities before and after the internship,

[2] Whether a school is relatively deprived is defined by whether the percentage of pupils eligible for FSMs at the school is higher than the regional average.

such as the personal statement checking service and university events subject to location. A timeline of the SMF activities and support is summarised in Table 1.1.

Education is an important route through which young people from disadvantaged backgrounds can gain access to professional occupations, for example through subject choice at A-level and undergraduate degree, and the perceived status of the higher education (HE) institution. This evaluation therefore focuses on early education outcomes for SMF participants. As subject choice is not an explicit focus of SMF events, any impact of involvement with the SMF on this outcome is likely to come through informal conversations with SMF staff, mentors or colleagues during internships. The impact of SMF's work on occupation outcomes (such as employment in a professional occupation and salary) and later education outcomes (such as degree qualification achieved) will be evaluated as such information becomes available.

This report now 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 who became involved with the charity in 2009 and 2010 (referred to as the 2009 and 2010 cohorts), for whom comparable individuals of the same age are observable.

Chapter 4 presents a more speculative evaluation of the impact of the SMF's work on the 2011 and 2012 cohorts, for whom comparable individuals of the same age are not yet observable.

Chapter 5 concludes.

Table 1.1. SMF participants and activities for sixth-form students

Cohort	Number of participants	SMF activities	2008/09	2009/10	2010/11	2011/12	2012/13
Third cohort of SMF (2009 cohort)	316 students	Mentoring or internship (applied for separately) 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 students	APP Events: Thinking of Oxbridge and 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 students	APP (expansion of events) Events: Thinking of Oxbridge and 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 students	APP (expansion of events and investment bank residential and Whitehall programmes) Events: Thinking of Oxbridge and 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

2. Methodology

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, one 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; an individual either participates in the programme or does not, so one cannot observe outcomes for the same group of individuals 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 idea is to provide a 'counterfactual outcome' to proxy as closely as possible what would have happened to participants' outcomes had they not participated in the programme, and to minimise the selection bias inherent in evaluating a programme in which participants have chosen to take part.

The construction of an appropriate comparison group is therefore the foundation of a robust evaluation. Ideally, the comparison group should be identical to the treatment group in all respects – in terms of characteristics that are both observed and unobserved to the researcher – except that one group received the treatment and the other did not. Perhaps the best way of doing this is for the treatment to be randomly assigned. In the absence of such an experiment, however, a wide range of techniques have been developed to enable researchers to construct appropriate comparison groups and hence to identify a suitable counterfactual outcome to proxy what would have happened to the outcomes of programme participants had they not participated in the programme.

Propensity score matching (PSM) is one such technique.[3] PSM 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 observable characteristics. The key to this approach is that we must have access to a rich enough set of characteristics that we are able to account for all the important ways in which SMF participants differ from individuals in the potential comparison group. In particular, we must be able to account for all the factors that determine whether or not these individuals chose to participate in the programme, and whether they chose to respond to the survey that collected information on their university destinations and on their education and employment prospects. The underlying assumption is one of 'selection on observables'; that is, conditional on the characteristics included in our model, there are no differences in unobservable characteristics (such as motivation and innate ability), on average, between the

[3] Propensity score matching is discussed in more detail in Appendix A.

treatment and control groups. This is a fundamentally untestable assumption, but one which relies primarily on the richness of the data available.

To construct an appropriate comparison group, we must therefore have access to a dataset that contains: (a) a rich set of background characteristics to help identify individuals who 'look' like SMF programme participants; (b) their subsequent education outcomes.

Section 2.2 outlines the data used to construct a credible control group to evaluate the impact of SMF on education outcomes, Section 2.3 outlines the method for doing so and Section 2.4 summarises assumptions under which this approach will enable us to identify the causal effect of the SMF programmes on university outcomes.

2.2 Data

Information about SMF participants was made available by the SMF using information supplied to them from participants and their parents and from their schools/colleges. The information about each SMF cohort varies slightly (summarised in Appendix B), but includes for all cohorts a detailed set of pupil and neighbourhood characteristics. These are summarised in Table 2.1. The university destination survey was completed soon after A-level results day (around September 2010 for the 2009 cohort, September 2011 for the 2010 cohort, and so on), and therefore captures immediate decisions and acceptances for the SMF cohort. Students who decide to reapply or take a gap year will therefore be recorded as not attending higher education, although they may have attended higher education in a subsequent year.

We construct a credible control group of young people from linked individual-level administrative data from schools and universities, specifically, from the National Pupil Database (NPD) and the Higher Education Statistics Agency (HESA) student record data. The NPD comprises an annual census of pupils attending state schools in England, together with the results of national achievement tests for all pupils in England who sat them (including both state and private school students). The HESA data provide an annual census of all students attending HE institutions throughout the UK.

For this project, these linked datasets enable us to follow pupils in England who were in Year 12 in 2008–09 and 2009–10 through the education system, from age 11, through secondary school and post-compulsory education, and on to potential HE participation anywhere in the UK at age 18.

The combined dataset includes public examination results (GCSEs, A-levels and equivalent vocational qualifications) at ages 16 and 18 for all pupils who sat them, as well as an identifier for the school in which they did so. For state pupils, it also includes a variety of background characteristics – such as gender, date of birth, ethnicity, special educational needs (SEN) status, eligibility for FSMs, whether English is an additional language (EAL) and contextual information

about the pupil's local neighbourhood. It also includes information on university destination and subject choice in a similar format to that collected by the SMF.

Outcomes

The impact of the SMF programmes is evaluated according to the following outcomes, which are likely to be predictive of professional occupations later in life.

Defined for all pupils

- **HE participation**: defined as enrolling on a first degree in a UK HE institution included in the HESA data at age 18.

Defined only for those pupils who go to university

- **Russell Group HE participation**: defined as enrolling on a first degree in a UK HE institution that is part of the Russell Group included in the HESA data at age 18.
- **'Top 10' participation**: defined as enrolling on a first degree in a UK HE institution that was one of the ten most visited institutions by top employers in the academic years relevant to the SMF cohorts of interest (2008/09 to 2012/13) included in the HESA data at age 18.
- **Participation outside home region:** defined as enrolling on a first degree in a UK HE institution that is outside the home region, included in the HESA data at age 18.
- **Subject choice**: defined as binary indicators for enrolling on a first degree in each of the following subject areas: business and finance, engineering, law, and maths. The classification of courses into these aggregate groups is given in Appendix C.

Note that all outcomes are defined according to whether the student participates in higher education at age 18, which excludes those who choose to take a gap year or to reapply. This is necessary because information about HE participation is available for the SMF cohort only soon after university destination choices are made and not in subsequent years. However, this may introduce some bias to our estimates if SMF participants are more likely to take a gap year or to reapply once A-level grades are known than students in the selected comparison group.

Common sample

The impact of the SMF programmes on all outcomes defined above are estimated from a common sample, where individuals are included if KS4 and KS5 results are known, and university participation, destination and subject choice are known. This ensures that differences in estimates between outcomes are truly due to differences and not due to changes in the sample. Table D.1 in Appendix D shows the change in the common sample as these increasing conditions are imposed. For the control group, the majority of individuals are excluded from the common sample because they do not achieve at least one pass at A-level. This is

desirable because these individuals would not form a suitable control group for the SMF cohorts. For the treatment group, the majority of individuals are excluded because education outcomes are not observed.

2.3 Construction of a suitable comparison group

We use these data to create a group of individuals who are as similar as possible to the SMF cohorts. The idea is that the outcomes of these individuals act as a proxy for what would have happened to the outcomes of the SMF participants had they not participated in the SMF programmes. Hence, a comparison of the outcomes of the two groups should provide a reasonable indication of the impact of the SMF programmes.

As outlined above, SMF participants must be predicted to achieve at least one A grade and two B grades at A-level. For cohorts prior to 2012, participants must also have been eligible for FSMs or the EMA, which was assigned on the basis of household income. For the 2012 cohort, participants must be eligible for FSMs or be in the first generation of their family to attend university where their school is relatively deprived.[4] We note that whether a student is eligible for the EMA or is the in the first generation of their family to attend university is not observed for the potential comparison group of pupils. We must instead rely on the ability of neighbourhood characteristics (such as the proportion of adults in the local area with a degree level qualification and local area deprivation) to find a suitable comparison group.

Table 2.1 summarises the variables that we use to construct a group of individuals who are most similar to the SMF participants. Note that these characteristics are largely unaffected by participation in the SMF programme, as they are fixed over time. The exception is attainment at A-level, which could be influenced by higher aspirations, but A-level choice would be unaffected given the timing of involvement with the SMF.

We restrict attention to pupils in state schools who achieved at least three C grades at A-level. In addition, we exclude all pupils in schools that have ever been involved with the SMF. This is because potential SMF participants are likely to hear about the SMF programme through their school, and pupils who have heard about the programme but have decided not to apply would not form a suitable control group for SMF participants.

Amongst these pupils, the preferred control group is defined on the basis of PSM using nearest-neighbour matching according to the following characteristics: eligibility for FSMs, ethnic group, London region, local area (percentage of adults with professional occupations and degree level qualifications; classification

[4] Whether a school is relatively deprived is defined by whether the percentage of pupils eligible for FSMs at the school is higher than the regional average.

according to ACORN;[5] Income Deprivation Affecting Children Index – hereafter IDACI – decile) and prior attainment (lowest grade at KS4 from five subjects; KS4 mean grade; KS5 mean grade; whether three C/B/A/A* grades achieved; whether the following subjects – a science A-level, A-level Maths, GCSE English and GCSE Maths – were taken and, for GCSE subjects, the grade achieved if so).

We believe the differences presented for this group are most likely to provide realistic estimates of the impact of the SMF programmes on university participation and other outcomes (under the assumptions outlined below).

Note that the process is slightly more complicated for the 2011 and 2012 cohorts than for the 2009 and 2010 cohorts, because administrative data on the university outcomes of the cohorts who started their A-levels in the same years as the 2011 and 2012 cohorts are not yet available from the Department for Education. Instead, the preferred control group for the 2011 and 2012 SMF cohorts is constructed from the administrative data relevant for the 2010 SMF cohort (making the transition from A-level to higher education in September 2011).

This is problematic to some extent because the pupils in the 2011 and 2012 SMF cohorts faced a higher tuition fee than these earlier cohorts, as the cap was raised from £3,375 to £9,000 for undergraduate courses for those entering higher education from the 2012/13 academic year. While this may cause some bias to the impact estimates, there is some evidence to suggest that the number of applications to university for relatively disadvantaged pupils did not decline markedly in response to the changes in university finance.[6] Also relevant is the removal of the cap on student numbers for those achieving AAB or higher at A-level from 2012/13 and ABB or higher from 2013/14, which means that there was no limit on the number of students with this high level of attainment who could be recruited. As the SMF cohorts are relatively high-attaining, this might suggest that the probability of acceptance to a high-status institution will be higher for the later SMF cohorts. Therefore, it is problematic to compare university attendance at high-status institutions with a control group formed from a previous cohort subject to a cap on student numbers. These impact estimates will be updated when the relevant nationally representative data are available to provide more reliable estimates for the later SMF cohorts, and should until then be treated as preliminary.

2.4 Caveats

In addition to the caveats specific to estimates for the 2011 and 2012 cohorts, discussed above, there are also some more general caveats associated with this estimation method. As discussed in Section 2.1, this comparison of outcomes

[5] ACORN provides a classification of postcodes on the basis of demographic data, social factors, population and consumer behaviour; for further details, see http://acorn.caci.co.uk/.

[6] http://www.ucas.com/news-events/news/2013/analysis-ucas-january-deadline-application-rates-country.

between SMF participants and this similar group of pupils allows one to identify the causal impact of involvement with the SMF, under a number of assumptions.

First, participants who complete the SMF university destinations survey are similar in observable and unobservable ways to participants who do not complete the survey. There is no bias introduced from non-random non-response to the survey under this assumption. It is unlikely to hold in practice, however; young people who fill in the survey may find the SMF programmes more valuable than those who do not; young people who are accepted into their first choice university may feel more positive about the experience and willing to respond than those who are not (although anecdotal evidence from the SMF suggests that this is not universally true).

Table B.2 in Appendix B shows that, based on characteristics that are observed for SMF participants, those who complete the university destinations survey (and have other relevant information) have significantly higher attainment at GCSE and A-level, are more likely to take Maths and a science A-level, are less likely to be eligible for FSMs and are more likely to be White British than those who do not complete the survey. If these characteristics are correlated with education participation, then our estimates of the impact of the SMF programme are likely to be biased.

Second, prior to the programme, SMF participants and our group of similar young people have the same unobservable characteristics (such as motivation and desired career) on average, conditional on characteristics that are observable to us. For example, we require that young people's motivation is the same across the two groups, on average, conditional on GCSE and A-level grades. 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 pupils who look most similar to them on the basis of observable characteristics. This is because SMF participants have been sufficiently motivated (or targeted by teachers) to apply to the programme, and are perhaps more likely to have a professional career in mind prior to participation.

Table 2.1 highlights some of these characteristics. If these characteristics influence education outcomes (above the characteristics we are able to account for) and also influence the probability of participating with the SMF, the estimates we present will be biased. If they are biased, then it is more likely that the estimates are biased upwards (i.e. that the true impact of the SMF programmes is lower than the estimate we present) rather than biased downwards. This is because many of the unobservable characteristics have a positive influence on university participation and facilitating subject choice, and also have a positive influence on application to the SMF programme.

Table 2.1. Summary of individual and school characteristics used to create a credible control group

Observable/available characteristics	Unobservable/unavailable characteristics
Attainment at the end of compulsory schooling: number, subject and grade for GCSE qualifications. We construct a credible control group according to individual's best eight results.	
Attainment at post-compulsory schooling: number, subject and grade for A-level. We construct a credible control group according to all of the individual's results.*	
Individual deprivation: indicator for eligibility for FSMs.	Individual deprivation: household income.
Neighbourhood context: rank of deprivation according to the IDACI; the proportion of adults with a university qualification; the proportion of adults with professional occupations.	Household context: parents' level of education, parents' aspirations.
Individual characteristics: ethnic group.	Individual characteristics: motivation, career aspirations.
School characteristics: the academic attainment of pupils in the previous academic year; the proportion of pupils eligible for FSMs. We are also able to observe schools that have ever had a participating pupil – pupils from these schools are excluded from the potential control group.	School characteristics: availability and quality of careers service; teacher involvement and encouragement.

Note: *We repeat the main analysis without using A-level attainment to form a suitable control group, because attainment could be indirectly affected by participation in the SMF programme. If attainment is positively affected by participation, then matching closely on this set of characteristics would therefore reduce the estimated impact. The results of these robustness checks are commented upon in Chapters 3 and 4.

3. The Early Impact of the SMF: 2009 and 2010 cohorts

3.1 Characteristics of the SMF cohorts

Table 3.1 presents the characteristics of the 2009 SMF cohort, compared to four different sets of pupils. The first is the national population of pupils in post-compulsory education who achieve at least one A-level at grade E. To be more comparable to the SMF cohort, the second group is restricted to those who achieve at least three A-level grades above a C. As the SMF cohort come from disadvantaged backgrounds, the third group is restricted to those eligible for FSMs, and the fourth group to those eligible for FSMs and with high prior attainment at A-level (most similar to the SMF cohort). Figure 3.1 summarises the A-level attainment of SMF participants in more detail.

Consistent with the SMF selection criteria that SMF participants must be predicted to achieve at least one A grade and two B grades, Figure 3.1 shows that the majority of SMF participants achieve at least three A-levels at grade B or above. A non-negligible proportion of SMF participants also achieve between three A-levels at grade C and three A-levels at grade B (around 20% for the 2012 cohort), which suggests that some participants do not meet their predicted grades. Very few participants achieve below this level, which implies that a credible control group should take attainment at A-level into account.[7]

The eligibility criteria for SMF also accounts for individual deprivation, to reflect the SMF's purpose to increase access to professional occupations for those from disadvantaged backgrounds. Consistent with these eligibility criteria, Table 3.1 shows that the 2009 SMF cohort are distinct from the national population in their background characteristics, with a higher proportion eligible for FSMs (42% compared to 4% of those with high attainment) and a lower proportion with White British ethnic group (32% compared to 83% of those with high attainment). This suggests that accounting for ethnic group and individual level indicators for deprivation will be important to construct a credible control group for the SMF cohort.

The 2009 SMF cohort has higher attainment at KS4 than the national population of A-level pupils. For example, the first row of Table 3.1 shows that the average GCSE points for pupils in the SMF programme is 53 (equivalent to an A grade)

[7] An alternative argument is that A-level attainment could be positively affected by participation in the programme. Accounting for A-level attainment when creating a matched comparison group would therefore match SMF participants to more able peers (who have achieved the same high level of attainment without access to the SMF programme), and hence understate the impact of the SMF programme. We explore this in robustness checks in the subsequent discussion of results. Accounting for A-level attainment when creating our preferred control group reflects our assumption that A-level attainment is unlikely to be significantly affected through participation in the SMF programme, as the participants have been predicted to achieve a high level before application.

compared to 46 (equivalent to a B grade) for those who achieve at least an E at A-level. Similarly, the lowest grade of the best five and eight GCSE results is around two grades higher for the SMF participants. This confirms that SMF participants have a high level of attainment, consistent with SMF's selection criteria. It is therefore important to account for such differences in prior attainment when constructing a credible control group.

Similarly, attainment at KS5 is higher for the SMF cohort than for A-level students as a whole, which reflects SMF selection criteria that participants must be predicted to achieve at least one A grade and two B grades. SMF participants are also more likely to take an A-level in Maths (55% compared with 23% of those who achieve at least one A-level) and in one science subject (53% compared with 28%). This suggests that SMF participants are disproportionately likely to study particular subjects, and it is therefore important to account for A-level subject choice when constructing a credible control group.[8]

The SMF participants are more similar to pupils with relatively high prior attainment (defined as achieving at least three C grades at A-level), both for the national population and the subsample that are eligible for FSMs.

Table 3.1 also summarises local neighbourhood characteristics of the SMF cohort relative to the national population of A-level pupils and A-level pupils eligible for FSMs. The SMF participants are more likely to live in areas with higher deprivation, which is captured by the Index of Multiple Deprivation (IMD) and the IDACI. SMF participants, on average, live in a neighbourhood that is more deprived than around 80% of other areas in England, compared to more deprived than around 53% for the national population that achieve at least one A-level. The level of neighbourhood deprivation is more similar for A-level pupils eligible for FSMs, which is consistent with SMF eligibility criteria. Adults in the local neighbourhood of SMF participants are also less likely to own or have a mortgage for their home (28% compared to 38%). Most relevant to the work of the SMF, adults living in the local neighbourhood of SMF participants are around one-third less likely to have a professional occupation, and are also less likely to have achieved a degree level qualification, although A-level students eligible for FSMs are again more comparable in this regard.

In the years being looked at, SMF participants are disproportionately likely to have studied in London rather than other regions. As London is likely to have distinct opportunities for work experience and proximity to a large number of universities, it will be important to account for this when constructing a credible control group. In addition, the characteristics of pupils in London or the quality of London schools may also lead to higher post-compulsory education outcomes.[9]

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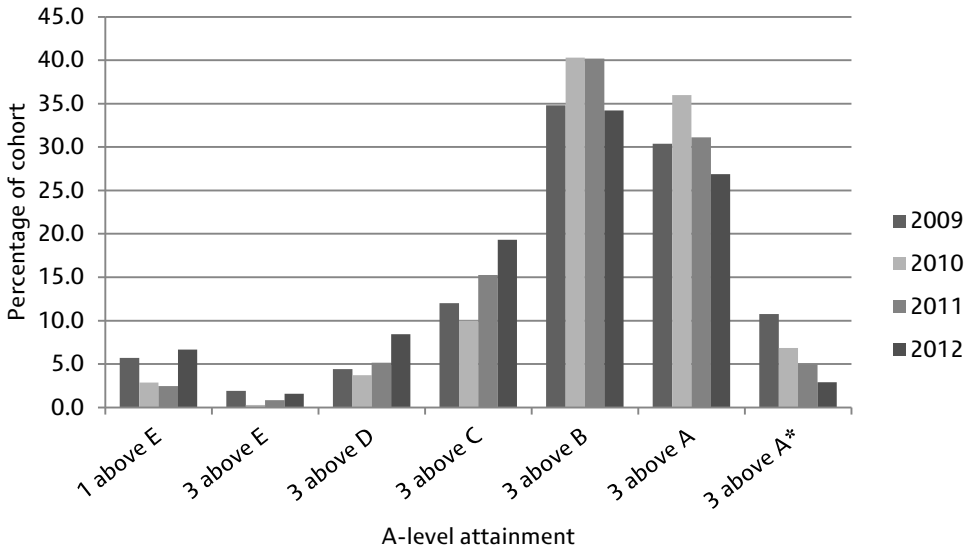
[8] These differences in A-level choices are likely to reflect the interests of the SMF participants prior to their application to the SMF programme. This is because the SMF targets particular occupations, including medicine (which is typically one-third of the cohort), engineering and science.

[9] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/321969/London_Schools_-_FINAL.pdf.

An equivalent summary for the 2010–2012 SMF cohorts is presented in Appendix E, where the 2011 and 2012 SMF cohorts are compared to the national population relevant to the 2010 SMF cohort, as the most recent national data are not yet available. The prior attainment and local neighbourhood characteristics of the later SMF cohorts are very similar to the 2009 SMF cohort. In comparison with the national population of pupils who achieve at least one A-level, the SMF cohorts have higher prior attainment, on average, and live in areas with higher deprivation and with a lower proportion of professional and highly educated adults. The later SMF cohorts are also even more likely to choose an A-level in Maths or a science than the 2009 SMF cohort, while the proportion in the national population is almost unchanged.

For all SMF cohorts, therefore, it is important to find a credible control group to act as the counterfactual for the participants' outcomes that are similar in prior attainment, A-level subject choice, own and neighbourhood deprivation, ethnic group and home region.

Figure 3.1. The attainment at A-level for SMF participants, by cohort



Note: Each bar represents the percentage of the relevant SMF cohort that achieves the level of attainment shown on the *x*-axis. These categories are not cumulative. For example, '3 above A' refers to achieving at least three A grades at A-level, but not achieving as highly as three A* grades at A-level.

Table 3.1. Comparison of SMF participants in 2009 with other groups of young people

Characteristics: 2009 cohort			A-level students		
	SMF participants	National population	A-level students with high attainment	Pupils eligible for FSMs	Pupils with high attainment eligible for FSMs
GCSE points (grade) (average)	53.0(A)	46.2(B)	49.6(B)	43.9(C)	47.7(B)
GCSE points (grade) (lowest of best eight)	49.8(B)	42.0(C)	45.7(C)	38.9(D)	43.0(C)
GCSE points (grade) (lowest of best five)	53.5(A)	45.7(C)	49.5(B)	42.7(C)	46.9(B)
GCSE points (grade) in English	54.1(A)	46.9(B)	50.1(B)	44.6(C)	48.1(B)
GCSE points (grade) in Maths	53.5(A)	46.6(B)	50.1(B)	44.2(C)	48.2(B)
A-level points (grade) (average)	113.1(B)	85.4(C)	103.9(B)	78.6(D)	100.7(B)
Take A-level in Maths (%)	55.1	22.7	34.8	19.0	33.3
Take a science A-level (%)	53.2	28.3	39.6	23.0	37.5
Eligible for FSMs	42.4	5.3	3.7	100.0	100.0
White British ethnic group	32.3	82.1	82.6	47.0	42.8
Neighbourhood deprivation decile (IMD)	7.7	5.3	4.9	8.1	7.9
Neighbourhood deprivation decile (IDACI)	8.1	5.3	4.9	8.2	8.0
Own/mortgage for home: % in neighbourhood	27.5	38.3	38.8	28.4	28.5
Professional occupation: % in neighbourhood	11.1	15.9	17.7	9.3	10.2
Degree: % in neighbourhood	11.1	12.1	12.1	11.1	11.1
Region: London	75.9	14.0	14.6	36.4	40.5
HE participation	84.8	54.5	72.3	51.9	73.6

Conditional on HE participation:					
Russell Group participation	70.5	26.2	42.3	15.5	32.8
'Top 10' participation	42.5	15.2	24.8	8.0	17.2
HE participation outside region	53.4	58.8	65.7	35.8	40.3

Note: A common sample is imposed: individuals are included if KS4 and KS5 results are reported, and university destination and subject choice is known. A higher decile corresponds to a more deprived area. 'High attainment' refers to achieving at least three C grades at A-level.

3.2 Successful construction of a suitable comparison group

As discussed above, our ability to credibly estimate the effect of the SMF programme on university outcomes depends on our ability to construct a comparison group of young people who 'look' as similar as possible to SMF participants.

Table 3.2 shows the characteristics of the treatment and control group after the matching process to construct the preferred control group. It shows that the preferred control group is well balanced with the SMF cohort, because the pupils have very similar prior attainment, ethnicity and region. (Only the difference in average GCSE points in English is statistically significantly different from zero, and only at the 10% level of significance, which is outside conventional levels.) The matching process has done a much better job than simply comparing SMF participants to any of the groups summarised in Table 3.1. As noted, this does not ensure that SMF participants are also very similar to our preferred control group in ways that are unobservable to us (such as their motivation), but it does ensure that they are balanced in these very important observable ways.

3.3 Estimated impact of SMF participation on university participation

Figures 3.2(a) and 3.2(b) compare the education outcomes of the 2009 SMF cohort to our preferred control group (described above). The difference in education outcomes between the SMF cohort and this group of pupils is represented by the bars in each panel.

The statistical significance of the difference in outcomes between the SMF cohort and the control group is represented by the confidence interval (black line) centred around the top of each bar. Where the difference is statistically significant from zero, the confidence interval does not cross zero.[10] This means that we can be confident that the difference between the two groups is not zero.[11]

Relative to this preferred control group, Figure 3.2(a) shows that the 2009 SMF cohort is around 10 percentage points more likely to attend university. This is equivalent to a 12% increase in participation. This provides some evidence that

[10] These confidence intervals are based on a test that the difference between the SMF cohort and treatment group is zero. This premise is called the null hypothesis. 'Statistical significance' means that we can reject the null hypothesis that the difference between the SMF cohort and treatment group is zero. In this case, the tests are based on a 95% confidence interval. If a difference is statistically significant, this means that the chance of observing the difference we do observe if the null hypothesis is actually true (the difference is zero) is less than 5%.

[11] Confidence intervals and significance tests are affected by the size of the sample: when the sample size (or the number of pupils in the SMF cohort) increases, more information is available and so the precision of the estimates (or size of the confidence interval) improves.

Table 3.2. Comparison of SMF participants in 2009 with preferred control group

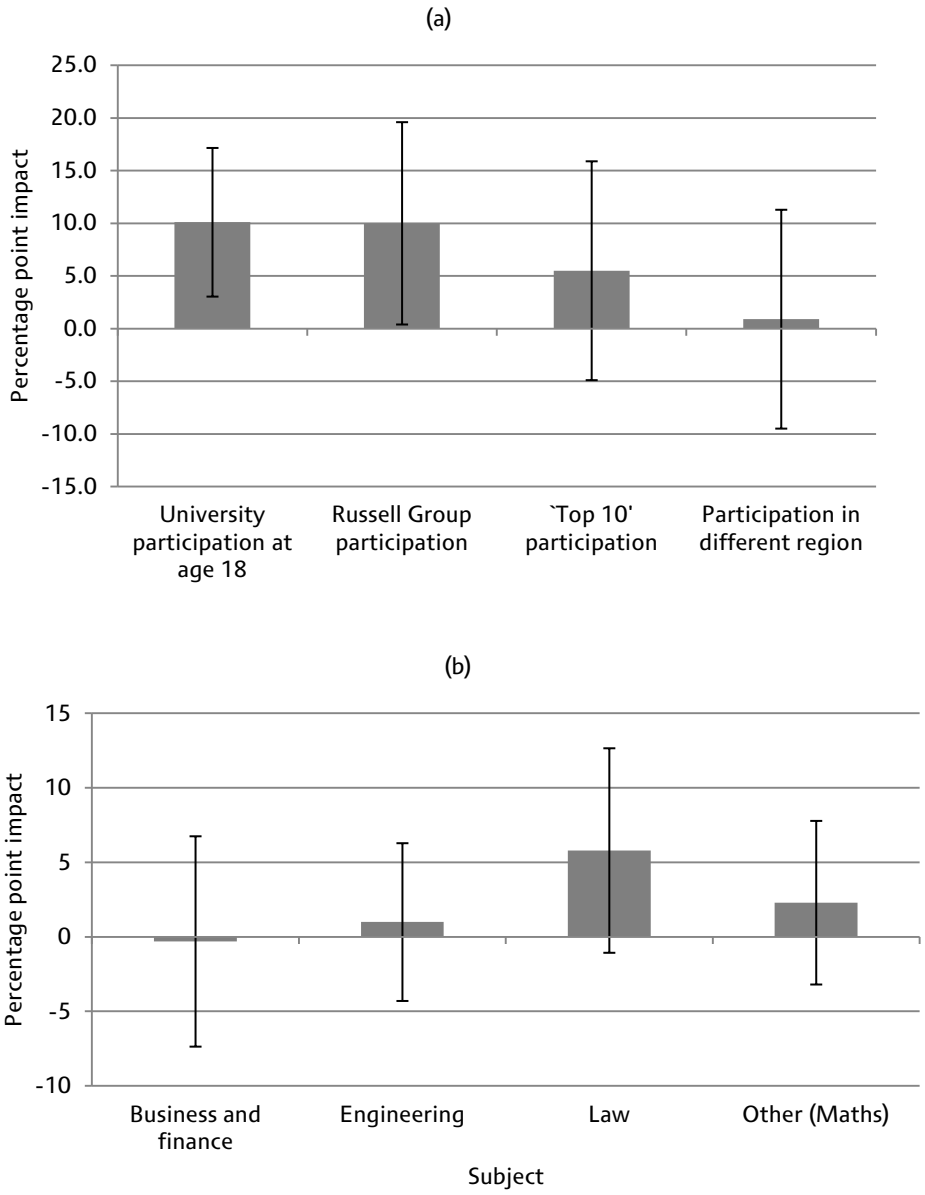
Characteristics: 2009 cohort	SMF participants	Preferred control group	Difference
GCSE points (grade) (average)	53.24	53.09	0.15
GCSE points (grade) (lowest of best eight)	42.63	40.08	2.55
GCSE points (grade) (lowest of best five)	53.71	53.49	0.22
GCSE points (grade) in English	54.19	53.35	0.84*
GCSE points (grade) in Maths	53.68	53.93	–0.25
A-level points (grade) (average)	115.85	116.20	–0.35
Take A-level in Maths (%)	54.75	56.20	–1.46
Take a science A-level (%)	53.29	53.91	–0.62
Eligible for FSMs	40.34	44.32	–3.98
White British ethnic group	35.77	35.40	0.37
Neighbourhood deprivation decile (IMD)	7.66	7.67	–0.02
Neighbourhood deprivation decile (IDACI)	8.06	8.14	–0.08
Own/mortgage for home: % in neighbourhood	27.22	29.58	–2.36
Professional occupation: % in neighbourhood	10.98	11.97	–0.99
Degree: % in neighbourhood	11.30	11.56	–0.25
A-level: three above C	12.41	14.96	–2.56
A-level: three above B	37.96	40.33	–2.37
A-level: three above A	34.31	33.21	1.10
A-level: three above A*	12.41	11.50	0.91
London region	76.64	70.95	5.69

Note: *, ** and *** denote statistical significance at the 10%, 5% and 1% levels, respectively. A common sample is imposed: individuals are included if KS4 and KS5 results are reported, and university destination and subject choice is known. A higher decile corresponds to a more deprived area.

participation in an SMF programme led to a meaningful increase in participation for the 2009 cohort.

There is evidence to suggest that the SMF participants are more likely to attend Russell Group institutions, and suggestive evidence that the probability of attending an institution most frequently visited by top employers is also increased. These outcomes are defined conditional on going to university. These differences are large, equivalent to a 17% increase for Russell Group

Figure 3.2. Estimated impact of SMF programmes on education outcomes for the 2009 cohort compared to the preferred control group



Note: A common sample is imposed: SMF participants are included if KS4 and KS5 results are reported, and university destination and subject choice are known. Russell Group participation, 'Top 10' participation and subject choice outcomes are defined only for pupils who go on to university at age 18. 'High A-level' is defined as achieving at least three C grades. The preferred control group is defined from PSM using nearest-neighbour matching according to the following characteristics: eligibility for FSMs, ethnic group, London region, local area (percentage of adults with professional occupations and degree level qualifications; classification according to ACORN; IDACI decile) and prior attainment (lowest grade at KS4 from five subjects; KS4 mean grade; KS5 mean grade; whether three C/B/A/A* grades achieved; whether the following subjects – a science A-level, A-level Maths, GCSE English and GCSE Maths – were taken and, for GCSE subjects, the grade achieved if so).

participation and a 16% increase for 'Top 10' participation.[12] This suggests that the increase in participation for this cohort seems to be primarily participation at a high-status institution. There is no evidence that participation in the SMF programme increases the probability of attending an institution outside the home region.

Figure 3.2(b) shows that there are no statistically significant or sizeable differences in subject choice between our preferred control group and the 2009 SMF cohort. Again, these outcomes are defined conditional on going to university. Given the set of subjects studied and grades achieved, the participants in the SMF 2009 cohort are not significantly more likely to choose subjects related to the SMF's target professions, with the exception of law. The general pattern is repeated for subsequent SMF cohorts, where there are few significant differences in subject choice between the SMF cohort and preferred control group. Figures F.1–F.3 in Appendix F summarise these results.[13]

Figure 3.3 shows the equivalent estimated impact of the SMF programmes for the 2010 cohort on HE participation. For this cohort, relative to our preferred control group, there is no evidence of a positive impact on university participation or attending an institution outside the home region, although, conditional on going to university, participants are significantly more likely to attend a Russell Group institution. This increase is statistically significant and meaningful (as it was for the 2009 cohort): the increase in Russell Group participation of 11 percentage points is equivalent to an 18% increase. This is a large increase on an already high level of participation. Estimates of this magnitude are not commonly observed for programmes of this kind. Participation at a 'Top 10' institution also increased (although not significantly so) where the increase of 5 percentage points is equivalent to a 13% increase.[14]

As participation overall did not increase significantly, this suggests that the SMF programmes may have been more successful in changing the participants' decisions concerning which universities to apply to, and/or increasing the probability of acceptance at those they had already decided on, rather than increasing their likelihood of applying to university in the first place (or being accepted).

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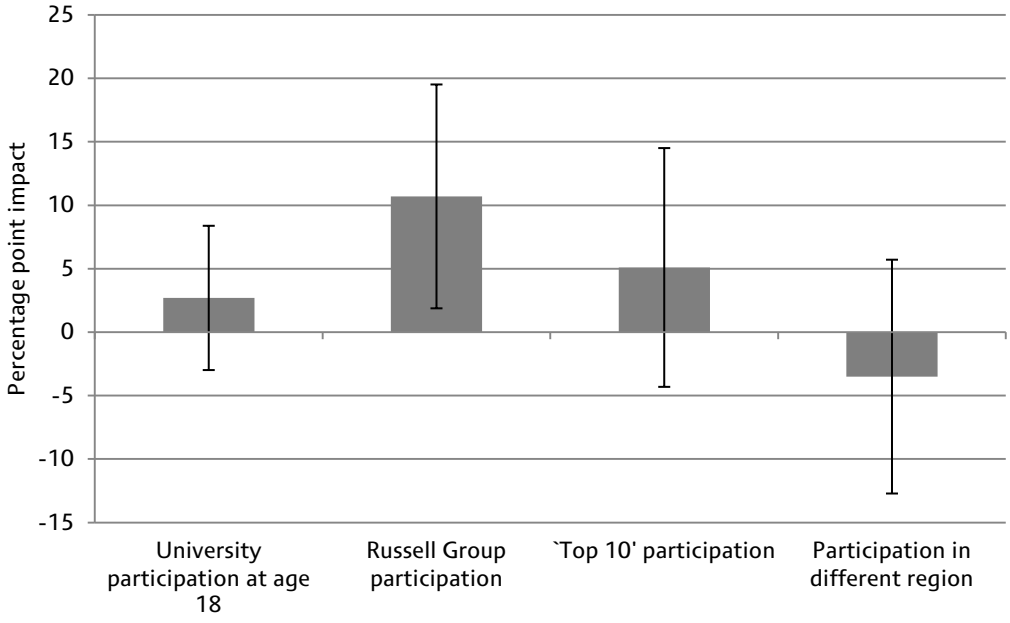
[12] These results are robust to excluding A-level attainment from the characteristics used to find a suitable comparison group. The equivalent percentage point impacts for Russell Group and 'Top 10' participation are 11.5 (compared to 10) and 7.9 (compared to 5.5), respectively, which are not statistically significantly different to the main estimates.

[13] These results are robust to excluding A-level attainment from the characteristics used to find a suitable comparison group.

[14] These results are robust to excluding A-level attainment from the characteristics used to find a suitable comparison group. The equivalent percentage point impacts for Russell Group and 'Top 10' participation are 23.8 (compared to 10.7) and 14.8 (compared to 5.1), respectively, which are not statistically significantly different to the main estimates. These estimates imply a higher impact of the SMF programme for the 2010 cohort, but the match of background characteristics between the SMF participants and preferred control group is much worse than for the main estimates, suggesting that the preferred control group is not suitable.

Figure 3.3. Estimated impact of SMF programmes on education outcomes for the 2010 cohort compared to the preferred control group



[Conditional on participation]

Note: See note to Figure 3.2.

4. The Later Impact of the SMF: 2011 and 2012 Cohorts

The impact of the SMF on later cohorts is estimated using the same methodology as for earlier cohorts. However, as described above, the preferred control group for the 2011 and 2012 SMF cohorts is constructed from the administrative data relevant for the 2010 SMF cohort (making the transition from A-level to higher education in September 2011). This is because the appropriate administrative data are not yet available from the Department for Education.

Figure 4.1 shows that university participation was significantly lower for the SMF cohort relative to the preferred control group. This may be because of the necessity to use a control group from a previous cohort subject to lower tuition fees, although the summary statistics presented in Tables E.1 and E.2 in Appendix E show that the proportion of the SMF cohort that attends higher education also fell between these two cohorts (from 88% to 78%). Note that the probability of taking a gap year or reapplying may also have increased between these cohorts, which would be recorded as not attending in the data collected by SMF (soon after A-level grades are received). It may also be the case that the group of participants in each successive cohort is different, as the size of the cohort expanded and eligible criterion changed.[15] This is suggested by the decreasing attainment across cohorts, on average, which is shown in Figure 3.1. However, this could also be explained by the change in eligibility criteria over time, if pupils eligible for EMA are relatively less disadvantaged than those eligible for FSMs, on average.

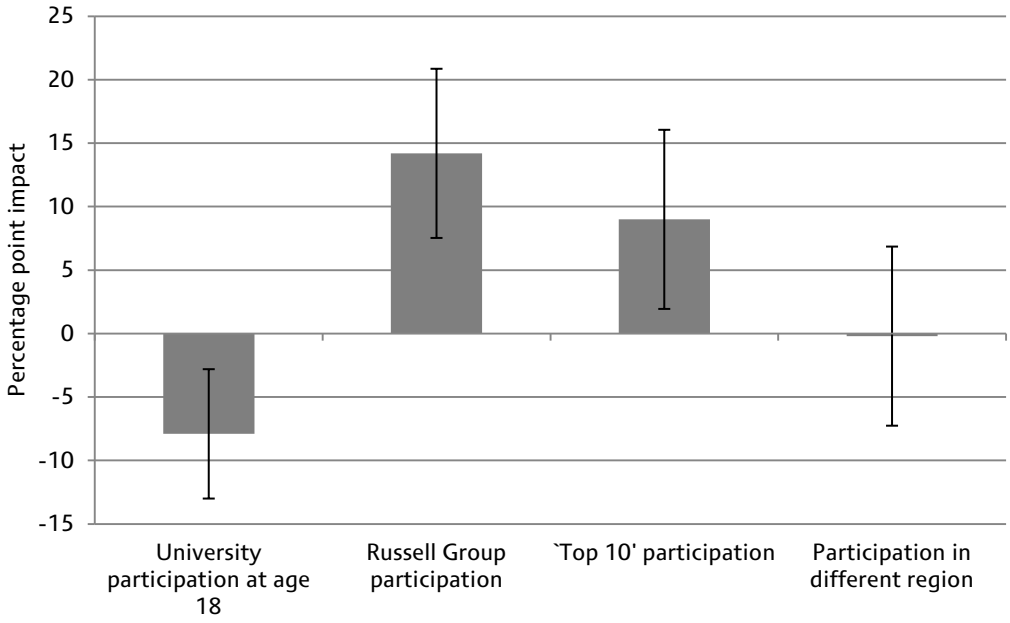
The significant increase in participation in high-status institutions is again replicated, and again is quantitatively meaningful. The 14 percentage point increase for Russell Group participation is equivalent to a 23% increase, and the 9 percentage point increase for 'Top 10' participation is equivalent to a 27% increase.[16]

The following discussion focuses on the 2012 cohort that participated with APP; the J.P. Morgan Residential Programme participants are discussed separately. Figure 4.2 shows that university participation was slightly lower for the 2012

[15] Moving the SMF eligibility criteria from eligibility for FSMs and/or EMA eligibility to eligibility for FSMs only (after the abolition of the EMA) reduced the maximum household income of potential SMF participants by almost one-half. Note that, at the same time, students became eligible for the SMF programmes if they were in the first generation of their family to attend university and if they attended a relatively disadvantaged school. We do not know the average income level for this group.

[16] These results are robust to excluding A-level attainment from the characteristics used to find a suitable comparison group. The equivalent percentage point impacts for Russell Group and 'Top 10' participation are 22.8 (compared to 14.1) and 11.7 (compared to 9.1), respectively, which are not statistically significantly different to the main estimates. These estimates imply a higher impact of the SMF programme for the 2011 cohort, but the match of background characteristics between the SMF participants and preferred control group is much worse than for the main estimates, suggesting that the preferred control group is not suitable.

Figure 4.1. Estimated impact of SMF programmes on education outcomes for the 2011 cohort compared to the preferred control group



Note: See note to Figure 3.2.

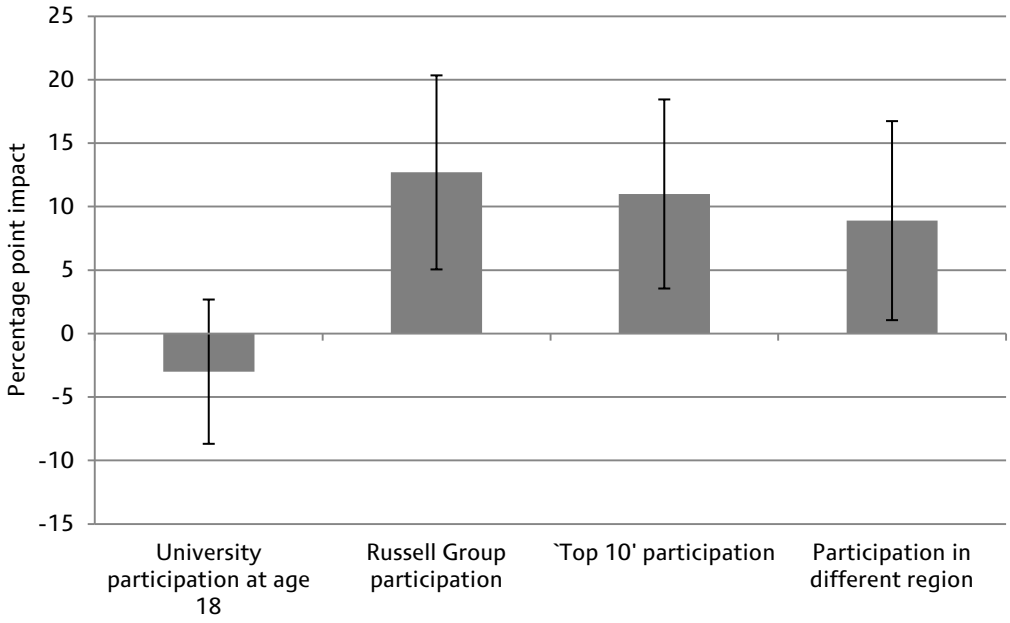
APP SMF cohort relative to the preferred control group, although not significantly so. As for the 2011 SMF cohort, this may be because of the necessity to use a control group from a previous cohort subject to lower tuition fees, although again the summary statistics presented in Tables E.1 and E.3 in Appendix E show that the proportion of the SMF cohort that attends higher education also fell between these two cohorts (from 88% to 82%).

The significant increase in participation in high-status institutions is again evident and quantitatively meaningful. The 13 percentage point increase for Russell Group participation is equivalent to a 27% increase, and the 13 percentage point increase for 'Top 10' participation is equivalent to a 43% increase.[17]

It may be hypothesised that participants outside London gain more from the SMF programme, as alternative programmes and internships are less readily available. Figure 4.3 suggests that the impact for those inside and outside London is relatively similar, however, and is such that participants inside and outside the

[17] These results are robust to excluding A-level attainment from the characteristics used to find a suitable comparison group. The equivalent percentage point impacts for Russell Group and 'Top 10' participation are 16.9 (compared to 12.4) and 12.0 (compared to 11.0), respectively, which are not statistically significantly different to the main estimates. These estimates imply a slightly higher impact of the SMF programme for the 2012 cohort, but the match of background characteristics between the SMF participants and preferred control group is much worse than for the main estimates, suggesting that the preferred control group is not suitable.

Figure 4.2. Estimated impact of SMF programmes on education outcomes for the 2012 APP cohort compared to the preferred control group



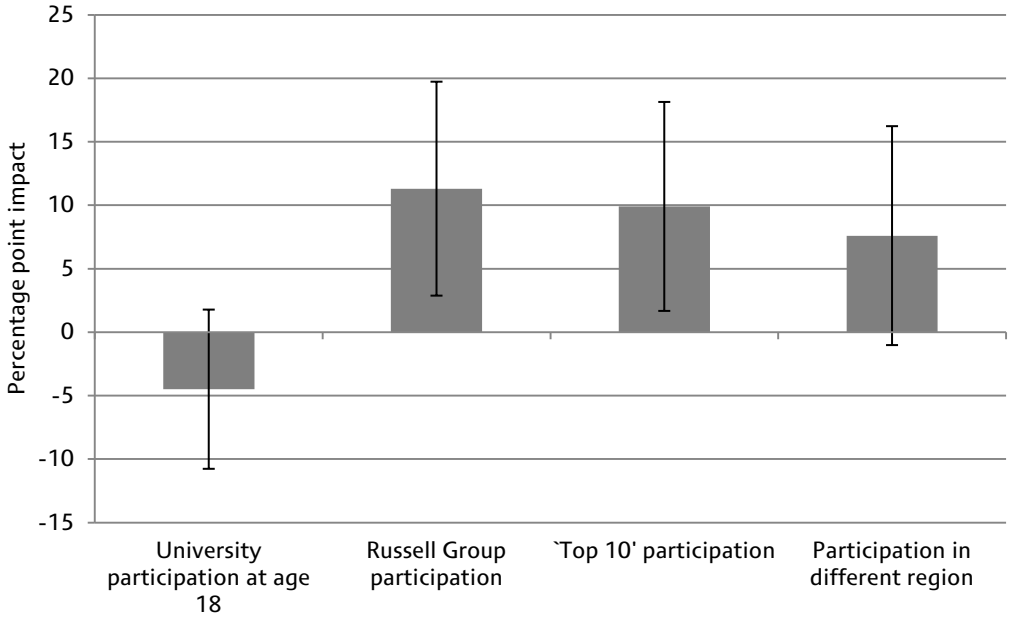
[Conditional on participation]

Note: See note to Figure 3.2. Note that eligibility for FSMs is defined for the SMF cohort according to whether household income is below £16,000 per annum, as eligibility for FSMs is not reported in data collected by the SMF. Note that the following area-characteristics are not included as it was not possible to match these area-characteristics to the SMF cohort: IDACI decile; percentage of adults with professional occupations and degree level qualifications; classification according to ACORN.

capital gain from involvement with the SMF in terms of participation at high-status institutions.

Figure 4.4(a) presents the equivalent estimates for the 2012 J.P. Morgan cohort. Reflecting the high level of participation in high-status institutions, conditional on attending higher education, shown in Column 2 of Table E.3 in Appendix E, the 2012 J.P. Morgan cohort are significantly more likely to participate in both Russell Group and 'Top 10' institutions than the preferred control group. The 31 percentage point increase for Russell Group participation shown in Figure 4.4(a) is equivalent to a 72% increase, and the 35 percentage point increase for 'Top 10' participation is equivalent to a 130% increase. The estimated impact is therefore largest for this group of SMF participants compared with participants on the APP, but it should be noted that the number of participants in the J.P. Morgan Residential Programme is relatively small. It may also be a relatively more selected group (see below).

Figure 4.3. Estimated impact of SMF programmes on education outcomes for the 2012 APP cohort compared to the preferred control group: outside London

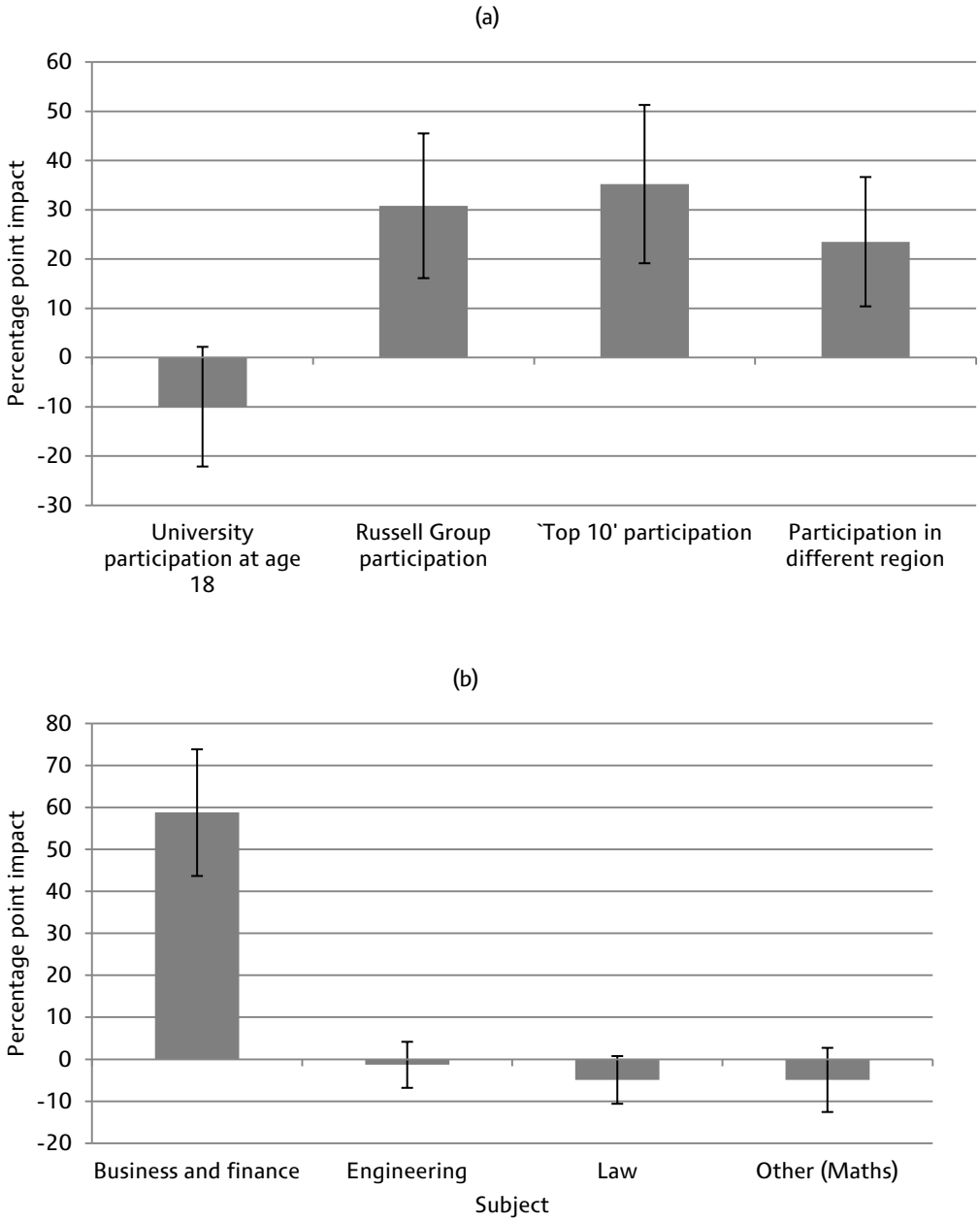


[Conditional on participation]

Note: See note to Figure 3.2. Note that eligibility for FSMs is defined for the SMF cohort according to whether household income is below £16,000 per annum, as eligibility for FSMs is not reported. Note that the following area-characteristics are not included as it was not possible to match these area-characteristics to the SMF cohort: IDACI decile; percentage of adults with professional occupations and degree level qualifications; classification according to ACORN.

Figure 4.4(b) also shows a distinct comparison with participants on the APP: the 2012 J.P. Morgan cohort are significantly more likely to choose a subject related to banking and finance than our preferred control group. This could solely reflect the impact of the J.P. Morgan Residential Programme, but is also likely to reflect some degree of selection into this particular programme. This is because individuals with a pre-existing interest in the banking and finance sector are more likely to apply to the programme, and to have chosen a subject related to this in the absence of involvement with the SMF.

Figure 4.4. Estimated impact of SMF programmes on education outcomes for the 2012 J.P. Morgan cohort compared to the preferred control group



[Conditional on participation]

Note: See note to Figure 3.2. Note that eligibility for FSMs is defined for the SMF J.P. Morgan cohort according to whether household income is below £16,000 per annum, as eligibility for FSMs is not reported. Note that the following area-characteristics are not included: percentage of adults with professional occupations and degree level qualifications; classification according to ACORN.

5. Conclusions

Improving social mobility is a priority for the current government, and there is great interest in the effectiveness of programmes designed to improve outcomes for relatively disadvantaged young people in the UK.

While there is little evidence that participation in one of the SMF's programmes increased participation at university (except for the 2009 cohort) or affected their choice of subject, amongst those who go to university, there is evidence that the SMF programmes improved participation at high-status institutions defined both by Russell Group status and the frequency of visits by top employers. These increases are large in magnitude, between 17% and 27% across SMF APP cohorts for Russell Group participation and between 13% and 43% for participation at an institution most likely to be visited by top employers. The increases are especially large given the high participation rate otherwise expected for this group of academically able individuals in the absence of involvement with the SMF.

To give some sense of the scale, the range is roughly equivalent to the increase in participation, on average, between pupils who achieve three A grades at A-level and three A* grades at A-level. As an additional comparison, around 65% of pupils attending independent schools during their A-levels and achieving a high level of attainment (at least three C grades) attend a Russell Group institution, conditional on university participation.

As participation at a high-status institution tends to be associated with greater access to professional occupations, it is possible that post-graduation labour market outcomes will also be affected; this will be the subject of future work by the Institute for Fiscal Studies (IFS).

This report has demonstrated the data and methods that can be used to evaluate the impact of the SMF programmes by using administrative data to create a reasonable control group. Such methods could also potentially be adopted to evaluate the impact of other programmes with clear eligibility criteria and reasonably rich data on participants, but without access to an experimental control group.

Our approach has been to construct a credible group of pupils to represent the 'counterfactual' outcomes for the SMF participants (or the likely outcomes for this group in the absence of the SMF programmes). To do so, we 're-weighted' individuals in the control group to 'look' as similar as possible to SMF participants. This matching process worked well: our preferred control group has similarly high levels of prior attainment and background characteristics, similar A-level subject choice and neighbourhood context to the SMF cohorts.

There are limitations to analysis of this kind, however, which must be borne in mind. First, it is not possible to construct a group of similar pupils in terms of

motivation or desired professional career prior to participation on an SMF programme. 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 pupils who look most similar on the basis of observable characteristics. This is because SMF participants have been sufficiently motivated (or targeted by teachers) to apply to the programme, and are perhaps more likely to have a professional career in mind prior to participation. Second, our estimates rely on the outcomes we observe for SMF participants being representative of SMF participants as a whole. This is unlikely to hold in practice, as SMF participants included in the analysis (those who respond to the SMF survey on university destinations) have significantly higher attainment at GCSE level and A-level, are more likely to take Maths and a science A-level, are less likely to be eligible for FSMs and are more likely to be White British than SMF non-respondents. If these characteristics are correlated with education participation, then our estimates of the impact of the SMF programme are likely to be biased.

It is not possible to assess the scale of any potential bias, but if the estimates are biased, then it is likely that they are biased upwards (i.e. higher than the true impact of the SMF programme). Notwithstanding these concerns, given the magnitude of the estimated effects, especially in terms of Russell Group participation, it is likely that the programme has a sizeable positive effect on the likelihood of attending a high-status institution.

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 as follows. First, it must be assumed that, conditional on all observable characteristics included in the model, the outcomes for the treatment and comparison groups would be identical in the absence of the pilot; this is known as the conditional independence assumption (CIA). Second, there must be some degree of common support between the characteristics of pupils in the treatment and comparison areas (i.e. 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. 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 all of their observable characteristics, similar individuals can be found in terms of this summary propensity score.

The propensity score is simply the predicted probability 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 to 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.

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, for example, giving weight only to those individuals in the comparison group that 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).

B. Information Available about the SMF Participants

Table B.1. Available information about SMF participants

Characteristics	2009 SMF cohort	2010 SMF cohort	2011 SMF cohort	2012 SMF cohort
Eligibility for FSMs	Yes	Yes	Yes	No
Eligibility for EMA	Yes	Yes	Yes	No
Ethnic group	Yes	Yes	Yes	Yes
Parents' education	Yes	Yes	Yes	Yes
School name	Yes	Yes	Yes	Yes
Postcode	Yes	Yes	Yes	Yes (limited)
Parents' occupation	Yes (subset)*	To follow	To follow	Yes
Household income	No	No	No	Yes
GCSE grades	Yes	Yes	Yes	Yes
A-level choices and grades	Yes	Yes	Yes	Yes
University participation	Yes	Yes	Yes	Yes
University chosen	Yes	Yes	Yes	Yes
Course chosen	Yes	Yes	Yes	Yes
Degree outcome	Yes*	To follow	To follow	To follow
Employment status	Yes*	To follow	To follow	To follow
Sector of employment	Yes*	To follow	To follow	To follow
Salary	Yes*	To follow	To follow	To follow

Note: * We observe this information for the subset of the cohort that responded to an SMF survey of their employment following graduation.

Table B.2. Comparison of SMF participants included and excluded from analysis due to missing data

Characteristics	2009			2010			2011		
	Included	Excluded	Difference	Included	Excluded	Difference	Included	Excluded	Difference
GCSE points (grade) (average)	53.0(A)	52.0(A)	1.0**	53.2(A)	51.7(B)	1.3***	52.9(A)	51.4(B)	0.6***
GCSE points (grade) (lowest of best eight)	49.8(B)	48.4(B)	1.4	50.0(B)	47.3(B)	2.7***	49.6(B)	47.5(B)	2.1***
GCSE points (grade) (lowest of best five)	53.5(A)	52.4(A)	1.1*	53.7(A)	52.1(A)	1.6***	53.3(A)	51.6(B)	1.7***
GCSE points (grade) in English	54.1(A)	53.4(A)	0.7	54.0(A)	52.0(A)	2.0***	53.2(A)	52.2(A)	1.0***
GCSE points (grade) in Maths	53.5(A)	52.7(A)	0.8	53.4(A)	51.8(B)	1.6***	53.5(A)	51.4(B)	2.1***
A-level points (grade) (average)	113.1(B)	110.8(B)	2.3	114.7(B)	97.7(C)	17.7***	111.0(B)	95.8(C)	16.0***
Take A-level in Maths (%)	55.1	32.1	23.0***	65.4	21.2	44.2***	66.6	31.5	35.1***
Take a science A-level (%)	53.2	23.0	30.2***	64.9	20.0	44.9***	67.4	32.6	34.8***
Eligible for FSMs	42.4	56.6	–14.2**	38.8	38.1	0.7	34.1	42.2	–8.1
White British ethnic group	32.3	17.0	15.3***	25.4	22.9	2.5	21.2	16.9	4.3
IMD decile	7.7	8.3	–0.6**	8.0	8.2	–0.2	7.9	8.1	–0.2
IDACI decile	8.1	8.7	–0.6**	8.3	8.6	–0.3	8.4	8.6	–0.2
Own/mortgage for home: % in neighbourhood	27.5	27.0	0.5	29.4	28.2	1.2	29.0	26.5	2.5*
Professional occupation: % in neighbourhood	11.1	10.7	0.4	11.3	10.4	0.9	12.0	11.1	0.9
Degree: % in neighbourhood	11.1	10.6	0.5	10.6	10.4	0.2	10.7	10.0	0.7***

Note: *, ** and *** denote statistical significance at the 10%, 5% and 1% levels, respectively. A common sample is imposed: individuals are included if KS4 and KS5 results are reported, and university destination and subject choice are known. A higher decile corresponds to a more deprived area.

C. Classification of Subjects into Broad Areas

Table C.1. Classification of subjects in HESA student record data (1)

Accountancy	Architecture	Business and finance	Engineering	Law	Media	Medicine and dentistry
N4 Accounting	H5 Naval architecture	L1 Economics	H0 Broadly-based programmes within engineering and technology	M0 Broadly-based programmes within law	P1 Information services	A1 Pre-clinical medicine
	K0 Broadly-based programmes within architecture	N1 Business studies	H1 General engineering	M1 Law by area	P2 Publicity studies	A2 Pre-clinical dentistry
	K1 Architecture	N2 Management studies	H2 Civil engineering	M2 Law by topic	P3 Media studies	A3 Clinical medicine
	K2 Building	N3 Finance	H3 Mechanical engineering	M9 Others in law	P4 Publishing	A4 Clinical dentistry
	K3 Landscape design	N5 Marketing	H4 Aerospace engineering		P5 Journalism	A9 Others in medicine and dentistry
	K4 Planning urban	N6 Human resource management	H6 Electronic and electrical engineering		P9 Others in mass communications and documentation	B0 Broadly-based programmes within subjects allied to medicine

	K9 Others in architecture	N7 Office skills	H7 Production and manufacturing engineering		B1 Anatomy
		N8 Tourism	H8 Chemical		B2 Pharmacology
		N9 Others in business and administrative studies	H9 Others in engineering		B3 Complementary medicine
					B5 Ophthalmics
					B6 Aural and oral sciences
					B8 Medical technology
					B9 Others in subjects allied to medicine
					D1 Pre-clinical veterinary medicine
					D2 Clinical veterinary medicine and dentistry

Table C.2. Classification of subjects in HESA student record data (2)

Politics	Science and technology	Other (humanities)	Other (maths)	Other (social sciences)	Other (vocational)	Other (other)
L2 Politics	C0 Broadly-based programmes within biological sciences	Q0 Broadly-based programmes within languages	G0 Broadly-based programmes within mathematical sciences	C8 Psychology	B4 Nutrition	D6 Food and beverage studies
L4 Social policy	C1 Biology	Q1 Linguistics	G1 Mathematics	L0 Broadly-based programmes within social studies	B7 Nursing	Y0 Combined
	C2 Botany	Q2 Comparative literary studies	G2 Operational research	L3 Sociology	C6 Sports science	
	C3 Zoology	Q3 English studies	G3 Statistics	L6 Anthropology	D4 Agriculture	
	C4 Genetics	Q4 Ancient language studies		L7 Human and social geography	D5 Forestry	
	C5 Microbiology	Q5 Celtic studies		L9 Others in social studies	L5 Social work	
	C7 Molecular biology	Q6 Latin studies			X0 Broadly-based programmes within education	
	C9 Others in biological sciences	Q7 Classical Greek studies			X1 Training teachers	

	D3 Animal science	Q8 Classical studies	X2 Research and study skills in education
	D9 Others in veterinary sciences	Q9 Others in linguistics	X3 Academic studies in education
	F0 Broadly-based programmes within physical sciences	R1 French studies	X9 Others in education
	F1 Chemistry	R2 German studies	
	F2 Materials science	R3 Italian studies	
	F3 Physics	R4 Spanish studies	
	F4 Forensic and archaeological science	R5 Portuguese studies	
	F5 Astronomy	R6 Scandinavian studies	
	F6 Geology	R7 Russian and East European studies	
	F7 Ocean sciences	R9 Others in European languages	
	F8 Physical and terrestrial geographical and environmental sciences	T1 Chinese studies	

	F9 Others in physical sciences	T2 Japanese studies
	G4 Computer science	T3 South Asian studies
	G5 Information systems	T4 Other Asian studies
	G6 Software engineering	T5 African studies
	G7 Artificial intelligence	T6 Modern Middle Eastern studies
	G92 Others in computing sciences	T7 American studies
	J1 Minerals technology	T9 Others in Eastern …
	J2 Metallurgy	V0 Broadly-based programmes within historical and philosophical studies
	J3 Ceramics and glasses	V1 History by period
	J4 Polymers and textiles	V2 History by area
	J5 Materials technology not otherwise specified	V3 History by topic
	J6 Maritime technology	V4 Archaeology

	J7 Industrial biotechnology J9 Others in technology	V5 Philosophy V6 Theology and religious studies V9 Others in historical and philosophical studies W0 Broadly-based programmes within creative arts and design W1 Fine art W2 Design studies W3 Music W4 Drama W5 Dance W6 Cinematics and photography W7 Crafts W8 Imaginative writing W9 Others in creative arts and design

Table C.3. Classification of subjects in SMF data (1)

Accountancy	Architecture	Business and finance	Engineering	Law	Media	Medicine and dentistry
Accounting and finance	Architectural technology	Actuarial science and mathematics	Aerospace engineering	Criminology and law	Communications media and society	Biomedical science
Accounting with business management	Architecture	BA Business management	Automotive engineering	Honours law	German and international media and communication	Biomedical sciences
Business accounting and finance	Civil engineering and architecture	BA Economics and business management	Biochemical engineering	Law	Media and communications	Biomedicine
Business with accounting and finance	Landscape architecture	Banking and finance	Chemical engineering	Law (llb)	Multimedia	Bioveterinary science
Economics and accounting	K3 Landscape design	Banking and international finance	Civil engineering	Law and criminology	Public relations	BSc Biomed
Finance and accounting	K4 Planning urban	BSc Economics	Computer engineering	Law llb	Spanish and international media and communications	Clinical sciences
	K9 Others in architecture	BSc International management (china)	Electrical and electronics engineering	Law with French	Television and film production	Dentistry

	Business economics and finance	Electrical and electronic engineering	Law with French law	Diagnostic radiography
	Business finance	Electronic engineering	Law with German	Emdp
	Business management	Engineering	Law with law studies in Europe	Medicine
	Business mathematics and statistics	General engineering	IIb law	Medicine–psychology integrated degree
	Business studies	Manufacturing and mechanical engineering	Sociology with law	Medicine and surgery
	Business studies w/economics	Mechanical engineering		Optometry
	Economics	Mechanical engineering with a year in industry		Orthoptics
	Economics and philosophy	Medical engineering		Pharmacology
	Economics and business finance	Petroleum engineer		Pharmacy
	Economics and finance	Science and engineering foundation programme		Veterinary medicine

	Economics and geography	Science and engineering foundation programme (ffx3)
	Economics with finance	
	Economics with French	
	Financial economics	
	Financial mathematics	
	Information management and business studies	
	Information management for business	
	Marketing management	
	Mathematics and economics	
	Mathematics and finance	
	Mathematics business management and finance	

Maths and economics
Maths with economics
Maths with finance
Sociology and business management

Table C.4. Classification of subjects in SMF data (2)

Politics	Science and technology	Other (humanities)	Other (maths)	Other (social sciences)	Other (vocational)	Other (other)
Economics and politics	Artificial intelligence and cybernetics	Ancient world studies	Mathematics	Cultural studies	Adult nursing	
Government and economics	Biochemistry	Archaeology	Mathematics and music	Early childhood studies	Digital animation and interactive design	
Government and history	Biochemistry and molecular medicine	Art	Mathematics BSc	Psychology	Fashion buying and design	
History and international relations	Biological sciences	BA Geography	Mathematics with statistics	Psychology and child development	Foundation degree in professional photography	
History and politics	Biology	Classical archaeology and ancient history	Maths	Sociology	Interior design	
International politics	Chemistry	Classical studies	Pure mathematics	L9 Others in social studies	Photography	
International relations and Arabic	Chemistry with a year abroad	Contemporary Chinese studies			Physiotherapy	
International relations with English and Spanish	Chemistry with biochemistry	Contemporary theatre and performance			Veterinary nursing	
Philosophy politics and economics	Computer science	Dance			X2 Research and study skills in education	
Politics	Computer science and artificial intelligence	Education with English and drama			X3 Academic studies in education	

Politics and Hispanic studies	Computing	English	X9 Others in education
Politics and international relations	Ecology	English and drama	
Politics with international studies	Forensic science	English and German literature	
PPE	Genetics	English and linguistics	
PPS	Geology	English language	
PPSIS	Human biosciences	English language and linguistics	
Social policy and economics	ICT	English language and literature	
	Information management and computing	English language and literature	
	Medical biochemistry	English lit	
	Medical physics	English literature	
	Medicinal and biological chemistry	English with creative writing	
	MSc Chemistry with French	European studies	
	Natural science	European studies and Spanish	
	Natural sciences	Foundation diploma in art and design	

	Natural sciences biological	French
	Neuroscience	French and Spanish
	Physics	Geography
	Physiological sciences	History
	Science and engineering foundation programme biological sciences 4 year	History and American studies
	Sport and exercise science	History and French joint degree
	J6 Maritime technology	Japanese studies
	J7 Industrial biotechnology	Literature and language in education
	J9 Others in technology	Modern history
		Philosophy
		Spanish
		Spanish and French
		Theology

D. Defining a Common Sample

Table D.1. Defining a common sample: remaining sample after each condition is imposed

SMF cohort	No condition	Observe HE participation	Observe Russell Group status*	Observe 'Top 10' status*	Observe whether different GOR*	Observe broad subject area	Observe KS4 results	Observe KS5 results	Total (%)
2009: treatment	323	242	242	242	241	239	160	158	49%
2009: control	282,954	282,954	282,954	282,862	282,862	282,862	274,972	188,047	66%
2010: treatment	516	350	350	350	350	350	350	346	67%
2010: control	285,760	285,756	285,756	285,756	285,756	285,756	277,523	183,925	64%
2011: treatment	664	492	492	492	492	489	489	485	73%
2011: control	282,891	282,886	282,886	282,886	282,886	282,886	274,723	181,442	64%
2012: treatment	642	519	519	519	471	467	455	453	70%
2012: control	279,279	279,279	279,279	279,279	279,279	279,279	271,185	179,481	64%

Note: * Conditional on HE participation.

E. Characteristics of the 2010–2012 SMF Cohorts

Table E.1. Comparison of SMF 2010 cohort with other groups of young people

Characteristics: 2010 cohort	SMF participants	National population	A-level students		
			A-level students with high attainment	Pupils eligible for FSMs	Pupils with high attainment eligible for FSMs
GCSE points (grade) (average)	53.2(A)	46.4(B)	49.8(B)	44.1(C)	48.0(B)
GCSE points (grade) (lowest of best eight)	50.0(B)	42.5(C)	46.0(C)	39.2(D)	43.3(C)
GCSE points (grade) (lowest of best five)	53.7(A)	45.9(C)	49.7(B)	42.9(C)	47.2(B)
GCSE points (grade) in English	53.9(A)	47.1(B)	50.2(B)	44.7(C)	48.2(B)
GCSE points (grade) in Maths	53.4(A)	46.8(B)	50.2(B)	44.4(C)	48.3(B)
A-level points (grade) (average)	114.8(B)	86.3(C)	104.1(B)	79.1(D)	101.0(B)
Take A-level in Maths (%)	65.3	24.4	36.5	20.9	35.5
Take a science A-level (%)	64.5	29.3	41.3	24.5	40.9
Eligible for FSMs	39.4	5.6	3.9	100.0	100.0
White British ethnic group	25.7	81.0	81.7	45.9	41.9
Neighbourhood deprivation decile (IMD)	8.0	5.2	4.8	8.0	7.8
Neighbourhood deprivation decile (IDACI)	8.3	5.2	4.9	8.2	8.0
Own/mortgage for home: % in neighbourhood	29.1	38.3	38.7	28.7	29.4
Professional occupation: % in neighbourhood	11.3	15.7	17.6	9.2	10.3
Degree: % in neighbourhood	10.6	12.0	12.1	11.1	11.1
Region: London	76.0	14.3	15.0	36.5	40.2

HE participation	87.9	61.8	82.1	57.7	82.6
Conditional on HE participation:					
Russell Group participation	73.5	24.7	38.9	14.0	29.5
'Top 10' participation	44.2	14.2	22.6	7.5	16.0
HE participation outside region	57.7	60.7	66.4	40.6	45.4

Note: A common sample is imposed: individuals are included if KS4 and KS5 results are reported, and university destination and subject choice is known. A higher decile corresponds to a more deprived area. 'High attainment' refers to achieving at least three C grades at A-level.

Table E.2. Comparison of SMF 2011 cohort with other groups of young people

Characteristics: 2011 cohort	SMF participants	National population	A-level students		
			A-level students with high attainment	Pupils eligible for FSMs	Pupils with high attainment eligible for FSMs
GCSE points (grade) (average)	52.9(A)	46.4(B)	49.8(B)	44.1(C)	48.0(B)
GCSE points (grade) (lowest of best eight)	49.6(B)	42.5(C)	46.0(C)	39.2(D)	43.3(C)
GCSE points (grade) (lowest of best five)	53.3(A)	45.9(C)	49.7(B)	42.9(C)	47.2(B)
GCSE points (grade) in English	53.2(A)	47.1(B)	50.2(B)	44.7(C)	48.2(B)
GCSE points (grade) in Maths	53.5(A)	46.8(B)	50.2(B)	44.4(C)	48.3(B)
A-level points (grade) (average)	111.1(B)	86.3(C)	104.1(B)	79.1(D)	101.0(B)
Take A-level in Maths (%)	66.6	24.4	36.5	20.9	35.5
Take a science A-level (%)	67.6	29.3	41.3	24.5	40.9
Eligible for FSMs	33.8	5.6	3.9	100.0	100.0
White British ethnic group	21.2	81.0	81.7	45.9	41.9
Neighbourhood deprivation decile (IMD)	8.0	5.2	4.8	8.0	7.8
Neighbourhood deprivation decile (IDACI)	8.4	5.2	4.9	8.2	8.0
Own/mortgage for home: % in neighbourhood	29.0	38.3	38.7	28.7	29.4
Professional occupation: % in neighbourhood	12.0	15.7	17.6	9.2	10.3
Degree: % in neighbourhood	10.7	12.0	12.1	11.1	11.1
Region: London	87.0	14.3	15.0	36.5	40.2
HE participation	78.4	61.8	82.1	57.7	82.6

Conditional on HE participation:					
Russell Group participation	73.9	24.7	38.9	14.0	29.5
'Top 10' participation	41.6	14.2	22.6	7.5	16.0
HE participation outside region	55.1	60.7	66.4	40.6	45.4

Note: A common sample is imposed: individuals are included if KS4 and KS5 results are reported, and university destination and subject choice are known. A higher decile corresponds to a more deprived area. 'High attainment' refers to achieving at least three C grades at A-level.

Table E.3. Comparison of SMF participants in 2012 with other groups of young people

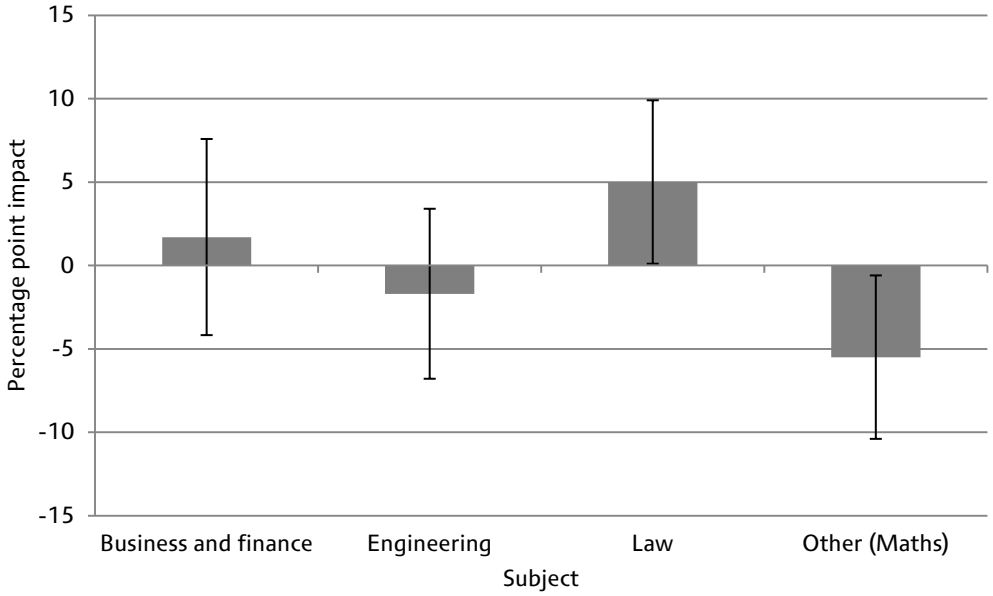
Characteristics: 2012 cohort	SMF participants: APP	SMF participants: J.P. Morgan	A-level students: National population	A-level students: A-level students with high attainment	A-level students: Pupils eligible for FSMs	A-level students: Pupils with high attainment eligible for FSMs
GCSE points (grade) (average)	52.6(A)	51.2(B)	46.4(B)	49.8(B)	44.1(C)	48.0(B)
GCSE points (grade) (lowest of best eight)	48.8(B)	45.7(C)	42.5(C)	46.0(C)	39.2(D)	43.3(C)
GCSE points (grade) (lowest of best five)	52.7(A)	51.5(B)	45.9(C)	49.7(B)	42.9(C)	47.2(B)
GCSE points (grade) in English	52.8(A)	51.2(B)	47.1(B)	50.2(B)	44.7(C)	48.2(B)
GCSE points (grade) in Maths	53.4(A)	53.4(A)	46.8(B)	50.2(B)	44.4(C)	48.3(B)
A-level points (grade) (average)	107.0(B)	107.5(B)	86.3(C)	104.1(B)	79.1(D)	101.0(B)
Take A-level in Maths (%)	62.5	66.0	24.4	36.5	20.9	35.5
Take a science A-level (%)	64.5	49.1	29.3	41.3	24.5	40.9
Eligible for FSMs	68.8	75.0	5.6	3.9	100.0	100.0
White British ethnic group	16.9	35.8	81.0	81.7	45.9	41.9
Neighbourhood deprivation decile (IMD)*	9.2	7.7	5.2	4.8	8.0	7.8
Neighbourhood deprivation decile (IDACI)*	9.2	7.3	5.2	4.9	8.2	8.0
Own/mortgage for home: % in neighbourhood*	20.6	33.7	38.3	38.7	28.7	29.4
Professional occupation: % in neighbourhood*	8.1	9.6	15.7	17.6	9.2	10.3
Degree: % in neighbourhood*	8.6	11.4	12.0	12.1	11.1	11.1
Region: London	86.9	0.0	14.3	15.0	36.5	40.2
HE participation	81.6	75.5	61.8	82.1	57.7	82.6

Conditional on HE participation:						
Russell Group participation	61.3	73.8	24.7	38.9	14.0	29.5
'Top 10' participation	36.6	61.9	14.2	22.6	7.5	16.0
HE participation outside region	53.2	81.0	60.7	66.4	40.6	45.4

Note: A common sample is imposed: individuals are included if KS4 and KS5 results are reported, and university destination and subject choice is known. A higher decile corresponds to a more deprived area. 'High attainment' refers to achieving at least three C grades at A-level. Note that eligibility for FSMs is defined for the SMF cohort according to whether household income is below £16,000 per annum, as FSM eligibility is not reported. Note that the area-characteristics are observable for the minority of the SMF cohort: percentage of adults with professional occupations and degree level qualifications; classification according to ACORN. *Observable for a small subset of the APP participants as home address was not routinely collected.

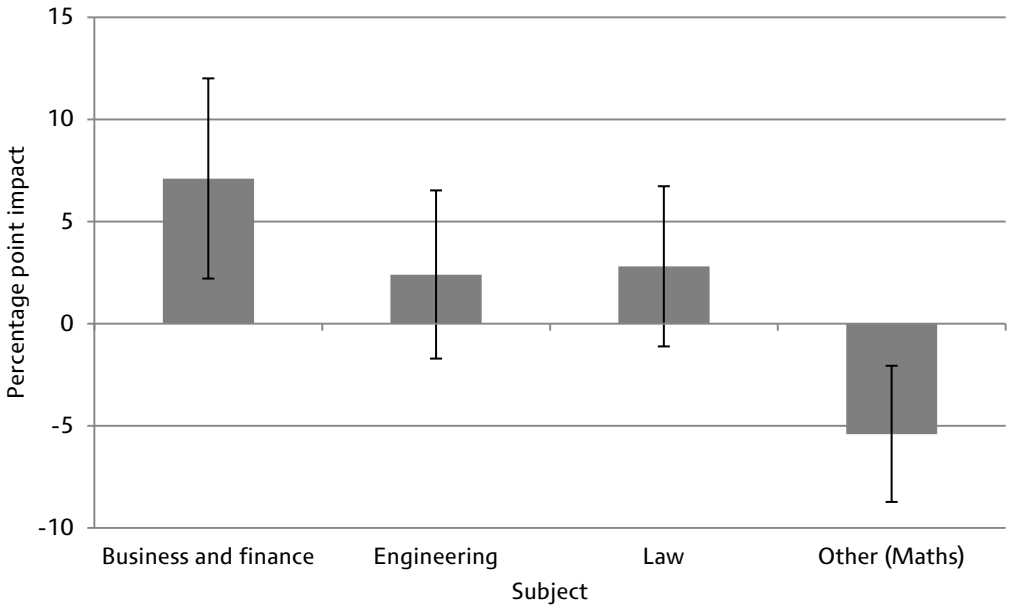
F. Estimated Impact of SMF Programmes on Subject Choice for the Later Cohorts

Figure F.1. Estimated impact of SMF programmes on education outcomes for the 2010 cohort compared to the preferred control group



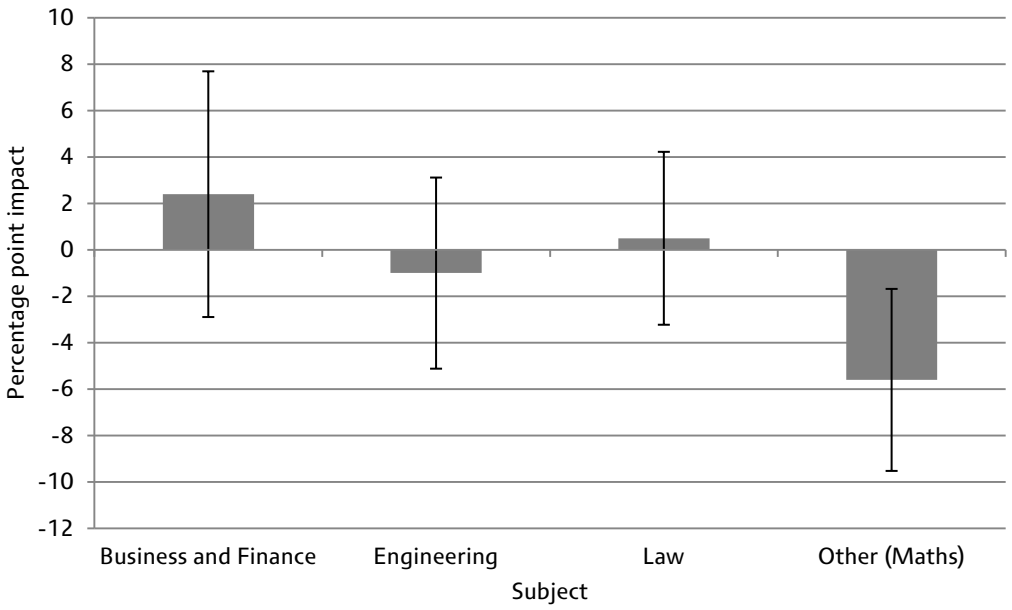
Note: See note to Figure 3.2.

Figure F.2. Estimated impact of SMF programmes on education outcomes for the 2011 cohort compared to the preferred control group



Note: See note to Figure 3.2.

Figure F.3. Estimated impact of SMF programmes on education outcomes for the 2012 cohort compared to the preferred control group



Note: See note to Figure 3.2. Note that eligibility for FSMs is defined for the SMF cohort according to whether household income is below £16,000 per annum, as eligibility for FSMs is not reported. Note that the following area-characteristics are not included as it was not possible to match these area-characteristics to the SMF cohort: percentage of adults with professional occupations and degree level qualifications; classification according to ACORN.

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