

Impacts and Costs and Benefits of the Future Jobs Fund

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1 Introduction

The Future Jobs Fund (FJF) was introduced in October 2009 to support the creation of subsidised jobs for unemployed young people who were at a disadvantage in the labour market.¹ The programme was primarily aimed at 18 to 24-year-olds in receipt of Jobseeker's Allowance (JSA), with a smaller number of places available to JSA claimants aged over 24 in unemployment hotspots². Official Statistics³ indicated that between October 2009 and March 2011, just over 105,000 jobs were created under the FJF. The programme cost approximately £680 million.

The FJF programme was managed by the Department for Work and Pensions (DWP) in partnership with the Department for Communities and Local Government (DCLG), and with input from Jobcentre Plus Regional Government Offices⁴ in England and Devolved Administrations in Scotland and Wales. National organisations and local and sectoral partnerships were invited to bid to create FJF jobs.

This paper describes a quantitative evaluation of the FJF, providing estimates of:

1. the net impact of FJF on the likelihood of young participants (aged under 25) receiving welfare support (defined as being in a FJF job or receiving a main out-of-work benefit or training allowance) over the 104 weeks following the start of their FJF job;
2. the net impact of FJF on the likelihood of young participants (aged under 25) being in unsubsidised employment (defined as being in employment other than a FJF job) over the 104 weeks following the start of their FJF job; and
3. the costs and benefits associated with the FJF programme.

The present analysis focuses on a cohort of young participants who started their FJF job between October 2009 and March 2010. During this period participation in the programme was on a voluntary basis. Some participants included in the analysis participated in FJF before it became an option under the Young Person's Guarantee, details of which are in section 1.2.

The remainder of this section provides context for the study. Section 1.1 describes the rationale for the present analysis. Section 1.2 introduces the policy background to the programme, the reasons for its early termination and

¹<http://webarchive.nationalarchives.gov.uk/20100406130654/http://campaigns.dwp.gov.uk/campaigns/futurejobsfund/index.asp#overview>

² Unemployment hotspots are areas where the claimant unemployment rate is 1.5 percentage points above the national average.

³ http://statistics.dwp.gov.uk/asd/asd1/jsa/ypg/ypg_oct2011.pdf

⁴ Regional Government Offices closed at the end of March 2011.

the overall design of the programme. Section 1.3 describes the overall participation in the programme.

1.1 Rationale for the present analysis

The primary aim of the FJF was to build skills and work experience for disadvantaged young jobseekers to assist them in securing long-term unsubsidised employment.

The challenge faced when evaluating employment programmes such as FJF is that we can never be certain what would have happened to participants if they had *not* taken part in the programme, particularly when participation is voluntary. The Department has produced Official Statistics on the proportion of early participants on benefit for up to twenty months following starting on jobs (see Section 1.3). However, unless we know what would have happened to these participants if they had not started their FJF job, we can not say whether the programme made any difference to their labour market prospects.

Therefore, the aim of the impact analysis is to compare the observed labour market outcomes of FJF participants with an estimate of their 'counterfactual' outcomes (the labour market outcomes that would have occurred in an 'alternative world' if they had not started their FJF jobs).

The methodology draws heavily on the approach used by Ainsworth and Marlow (2011). Propensity Score Matching (PSM) is used to construct a suitable comparison group of non-participants who most closely resemble the group of participants under analysis. The labour market outcomes of the matched non-participant group are then used as an estimate of the counterfactual outcomes of the FJF participants and compared with the observed participant outcomes. The rich data set used comprises the individual characteristics of participants and non-participants. This makes it possible to construct a matched comparison group of non-participants.

Finally, at the end of this report, the impact estimates are used to perform a cost-benefit analysis of FJF, which uses the DWP Social Cost-Benefit Analysis Framework.

A previous evaluation of the FJF was performed by Fishwick et al. (2011), based on the experiences of seven areas of the country. That study presented a preliminary view of the impacts, costs and benefits, based on a quantitative survey and a simple analysis of JSA off-flows. The authors recognised that a more robust analysis would require a carefully selected matched comparison group using individual data; this is the analysis that we have performed in this report.

1.2 Policy Background of the Future Jobs Fund

The FJF was introduced in October 2009 with the aim of preventing long term 'scarring' of young people as a result of the recession⁵. The programme was designed to build skills and work experience for disadvantaged young jobseekers to assist them in securing long-term unsubsidised employment after completing their FJF subsidised job. Time spent in a FJF job is therefore not regarded as an end in itself, but rather as a means of providing skills and experience to help participants to move into unsubsidised employment after the FJF job has ended.

The programme was implemented by the Department for Work and Pensions (DWP) in partnership with the Department for Communities and Local Government (DCLG), and with input from Jobcentre Plus Regional Government Offices in England and Devolved Administrations in Scotland and Wales. Any organisation from the public, private or third sector from across Great Britain was eligible to bid for funding for the creation of jobs on the condition that the posts met certain criteria, outlined in section 1.2.2 below. Participants started on FJF posts between October 2009 and March 2011.

On 25th January 2010 the Government formally introduced the Young Person's Guarantee (YPG). The following options were available under the YPG:

- apply for jobs created through the Future Jobs Fund (FJF);
- apply for a job in a key employment sector, with pre-employment training if needed;
- take up work-focused training;
- take a place on a Community Task Force;
- access help with self-employment; or
- access equivalent provision delivered through New Deal for Young People in Flexible New Deal phase 2 areas.

The YPG was introduced initially as a voluntary programme. The guidance was that it would be available to young people who had been claiming Jobseeker's Allowance for at least six months⁶. From 24th April 2010, while the YPG remained voluntary for young people who had been claiming JSA for six months, young people reaching the ten-month point of their claim were required to take up one of the options. If they were unwilling to take up one of the programmes above then participation in the Community Task Force became mandatory with the possibility of sanctions for non-attendance.

Funding of around £1 billion was originally pledged to the FJF, to be spent between October 2009 and March 2011, to create around 150,000 new jobs.

⁵ <http://www.dwp.gov.uk/docs/building-britains-recovery.rtf>

⁶ A fairly high proportion of (about a third of starts between October 2010 and March 2011) had JSA durations less than six months.

As part of the March 2010 Budget, the previous Government extended the FJF programme for an additional year to March 2012, increasing the number of proposed FJF places to around 200,000, bringing the overall cost to around £1.3bn.

1.2.1 Termination of the Future Jobs Fund

As part of its savings measures to address the UK deficit, the Coalition Government announced in May 2010 that it would save £320 million by ending certain elements of employment programmes, including the further provision of temporary jobs through the YPG.

DWP stopped accepting any further bids for the programme from providers, but stated that existing guarantees would still be met. Jobcentre Plus continued to refer claimants to FJF jobs until 18 March 2011 with the final date for commencement of a FJF job being 31 March 2011. By the end of March 2011 just over 105,000 FJF jobs had started.

1.2.2 Design of the Future Jobs Fund

The criteria for FJF jobs were as follows:

- each job had to be at least 25 hours per week;
- jobs had to be paid at least at the minimum wage;
- the jobs were required to be “additional” posts; i.e. posts that would not exist without the FJF funding and that would not otherwise be filled by the employer as part of their core business;
- jobs were required to last at least six months;
- the work had to benefit local communities; and
- providers were required to provide support for employees to move them into long term, sustained employment.

The cost paid to each organisation was a maximum of £6,500 for each job: 40% (£2,600) was paid in advance to cover set up costs. 60% (£3,900) was claimed in arrears based on actual weeks worked by FJF employees (i.e. £150 per week for a maximum of 26 weeks).

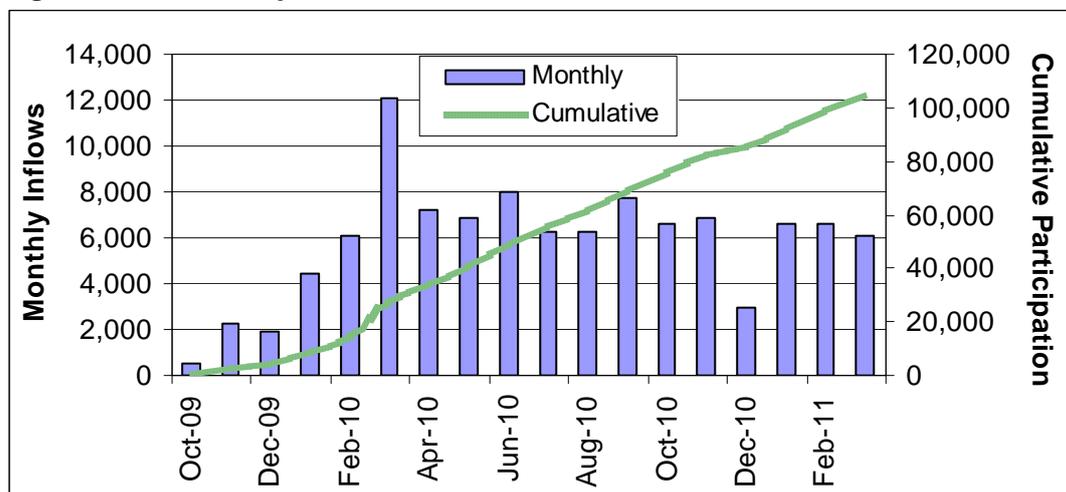
Over the lifetime of the fund 481 organisations, mainly in the public and third sector, received funding to provide jobs through FJF. Jobs were offered by grant recipients with referrals being made through Jobcentre Plus.

1.3 Participation in the Future Jobs Fund

In the period from October 2009 to March 2011, a total of 105,230 participants were placed in FJF funded jobs. Figure 1.1 shows that participation started

slowly with a monthly inflow of 480 participants in October 2009. The monthly inflow rate increased steadily to 6,090 in February 2010, before peaking at 12,080 in March 2010. Between April 2010 and March 2011 participant inflows were steady, typically ranging between 6,000 and 8,000 participant starts per month.

Figure 1.1: Monthly starts and cumulative starts on FJF



Source: Young Person’s Guarantee Official Statistics, October 2011

The programme was primarily aimed at 18 to 24-year-olds in receipt of Jobseeker’s Allowance (JSA), with a smaller number of places available to JSA claimants aged over 24 in unemployment hotspots. The vast majority (89,520; 85%) of all FJF participants were aged between 18 and 24 and the present analysis is restricted to the impacts of FJF on young people.

Participation in the FJF programme was available in all regions across Great Britain. Table 1.1 below shows that the distributions of FJF starts aged 20-24 and claimants aged 20-24 whose JSA claim had reached six months during the period of the cohort do not vary in a similar way across the regions, meaning that the sample chosen may not be representative of the population from which it was selected. The latter distribution provides a rough guide to the eligible FJF population because FJF was an option for those who had been on JSA for at least six months, although Appendix 7 shows that approximately one-third of those who participated in FJF did so before their JSA claim had reached six months’ duration.

Table 1.1 FJF participation and claimants aged 20 to 24 on JSA for at least six months between October 2009 and March 2010 by region

Region	FJF starts⁷ (%)	Claimants on JSA for at least six months⁸ (%)
East Midlands	7	8
East of England	5	7
London	16	12
North East	6	6
North West	16	13
Scotland	10	8
South East	6	9
South West	5	5
Wales	9	6
West Midlands	14	15
Yorkshire & Humberside	7	11
Total	15,430	76,180

Source: DWP Opportunities Database; National Benefits Database.

Last year official statistics were also published on the proportion of participants claiming out-of-work benefits in the twenty months following the start of their FJF job, for a cohort of FJF participants starting between October 2009 and March 2010. The statistics reproduced in Table 1.2 indicate that within the six-month period of starting the FJF job, approximately 11% of participants left FJF early and returned to claiming an out-of-work benefit. Twenty months after the start of their job, approximately 42% of FJF participants were claiming an out-of-work benefit.

⁷ FJF starts where participants were aged 20 to 24.

⁸ JSA claimants aged 20 to 24 whose claim was live within the cohort period (October 2009 to March 2010).

Table 1.2: Proportion of participants claiming out-of-work benefits after the start of their FJF job⁹

October 2009 - March 2010 cohort	JSA (%)	ESA/IB (%)	IS (%)	Any (%)
On benefits 1 month after start	2.2	0.5	0.2	2.8
On benefits 2 months after start	2.7	0.7	0.2	3.7
On benefits 3 months after start	3.6	1.0	0.3	4.9
On benefits 4 months after start	4.9	1.2	0.4	6.6
On benefits 5 months after start	6.5	1.5	0.5	8.5
On benefits 6 months after start	8.6	1.8	0.7	11.1
On benefits 7 months after start	38.3	4.6	1.8	44.8
On benefits 8 months after start	43.0	4.8	2.0	49.8
On benefits 9 months after start	42.5	4.9	1.9	49.4
On benefits 10 months after start	41.7	4.9	2.0	48.7
On benefits 11 months after start	41.4	4.9	2.0	48.4
On benefits 12 months after start	41.2	5.0	2.0	48.2
On benefits 13 months after start	40.7	5.0	2.1	47.8
On benefits 14 months after start	39.8	5.0	2.1	46.9
On benefits 15 months after start	38.4	5.0	2.1	45.5
On benefits 16 months after start	36.6	4.9	2.2	43.7
On benefits 17 months after start	35.4	4.9	2.2	42.6
On benefits 18 months after start	35.0	4.9	2.2	42.1
On benefits 19 months after start	34.8	4.8	2.2	41.8
On benefits 20 months after start	34.6	4.8	2.3	41.6
Cohort size: 22,820				

Source: Young Person's Guarantee: Future Jobs Fund Participant Outcomes Annexe: Official Statistics, April 2012

⁹ Note these statistics relate to 18 to 24-year olds, not 20 to 24-year-olds.

2 Data and Sample Definition

This section outlines the data and sample definition used in the impact analysis. Section 2.1 describes the method of drawing samples from which groups of participants and non-participants for comparison were constructed. Section 2.2 describes the variables used in the analysis. Section 2.3 provides some descriptive statistics for the participant and non-participant samples. Section 2.4 shows the time that participants spent in FJF jobs. Finally, Section 2.5 describes the rate of benefit receipt among participants and non-participants within these samples.

2.1 Sample definitions

This section describes the participant and non-participant samples selected for the main impact analysis (section 4.3 describes a number of sensitivity tests, which use alternative participant and non-participant samples).

2.1.1 Defining the FJF participant sample

The aim of this paper is to estimate the impacts of the Future Jobs Fund (FJF) on young people (aged under 25) who start on the programme. A start is defined as the date that a Jobcentre Plus adviser inputted the date of a start onto the Jobcentre Plus Labour Market System.

The main analysis was performed on a participant sample of 20 to 24-year-olds that started a FJF job between October 2009 and March 2010 and were receiving JSA one week before their job started. Eighteen- and 19-year-olds were not included in the main analysis because the matching approach used relies substantially on the work and benefit history of participants in the 2 years prior to participation, which by definition is unavailable for many 18 to 19-year-olds. However, Section 4.3 describes a sensitivity test to the main impact findings, in which all 18 to 24-year-old participants were included in the analysis.

The participant sample for the main analysis was drawn from the FJF administrative data set. All participants meeting the following criteria were included:

- the participant must be claiming Jobseeker's Allowance (JSA) one week before starting their FJF job;
- the participant must be aged between 20 and 24 at the time of starting their FJF job;

- the FJF start date must be between October 2009 and March 2010;¹⁰ and
- the FJF end date must be available in the data ¹¹ (Section 4.3 describes a sensitivity test which does not include this condition).

The resulting participant sample size was 12,130. Appendix 1 shows in more detail how this sample of 12,130 participants was selected from the total of 105,230 who started FJF over its lifetime.

2.1.2 Defining the non-participant sample

In defining the non-participant sample, the aim is to select non-participants who can best represent what would have happened to FJF participants if they had not participated in FJF. Several options for the comparison group were considered, the pros and cons of which are discussed in some depth in the sensitivity analysis in Section 4.3. This section describes the main issues involved in selecting an appropriate age range for the non-participant sample. Two main options were considered:

1. Use non-participants with the same age range as the participant sample (20 to 24 years old); and
2. Use non-participants who were slightly older than the participant sample (25 to 29 years old).

Each of these has advantages and disadvantages. The advantage of using non-participants of the same age (option 1) is that this group is likely to be similar to the FJF participant sample with regard to both observed and unobserved characteristics. For example, they are likely to have similar levels of work experience, to have similar attitudes, and to be at similar stages of their lives. However, since FJF was widely available to jobseekers within this age group, a disadvantage is that they are likely to have had the opportunity to participate in FJF but to have actively chosen not to participate; therefore there will be a difference in motivation/attitudes between participants and non-participants which will need to be controlled for in the analysis. The other disadvantage is that there was also a wide variety of other employment provision available for young people; if non-participants took up more provision than participants then this would risk skewing the measure of impacts. We are able to monitor the take up of many of the other programmes which are presented alongside the results - but this only gives an understanding of the extent of take up.

The advantage of using non-participants who were slightly older than the participant sample (option 2), is that this group is less likely to have had the opportunity to participate in FJF, so any associated selection bias will be reduced. Also since there were fewer programmes available for older people

¹⁰ This provided a cohort of participants for whom we had a minimum of 104 weeks of outcome data.

¹¹ The FJF end date gives the ability to be able track each participant's labour market status in terms of whether they are on FJF, receiving benefit or in unsubsidised employment in any given week.

this should give a better sense of the impact of FJF. The main disadvantage is that 25 to 29-year-olds are likely to be characteristically different from 20 to 24-year-olds. However they are likely to be similar according to unobservable characteristics, such as motivation. We believe that once we have controlled for a wide range of other variables as described in later sections, there will be little remaining difference between the two age groups.

On balance it was felt that using non-participants aged 25 to 29 was less likely to result in bias than using non-participants aged 20 to 24. For this reason the main analysis used non-participants aged 25 to 29. Section 4.3 describes a sensitivity test which used non-participants aged 20 to 24 to form the comparison group (option 1 above). Also, given that 20-year-olds are very different from 29-year-olds an additional sensitivity test used non-participants aged 25 years old only to try and minimise the difference between the groups.

To compare the outcomes of participants and non-participants over a time period such that non-participants can represent what would have happened to FJF participants if they had not participated, each non-participant was assigned a pseudo start date¹². The pseudo start date for non-participants was subsequently treated as equivalent to the actual start date for participants.

The non-participant sample was drawn from DWP administrative data sets. All non-participants meeting the following conditions were included:

- the non-participant must be claiming JSA one week before their assigned pseudo start date;
- the non-participant must be aged between 25 and 29;
- the pseudo start date must be between October 2009 and March 2010; and
- the non-participant must not have participated in the Future Jobs Fund at any time.

The resulting sample size was 232,000 non-participants.

Section 3 describes how suitable 'matched' groups of participants and non-participants were selected from these samples and compared to estimate the impacts of FJF on employment and benefit receipt. This selection was carried out using a Propensity Score Matching methodology.

2.2 Data sources and variables

The evaluation is carried out using administrative data derived from two main sources:

¹² The pseudo starts were generated using the same methodology employed by Ainsworth and Marlow (2011) in their assessment of the European Social Fund. The method outlined in Appendix 2 aligns the non-participants and participants to two time dimensions: calendar time and length of time on benefit so that the distribution of monthly FJF starts mirrors the distribution of monthly pseudo starts.

- 1) *DWP administrative databases*, which provide details of spells on DWP benefits, characteristics of DWP customers (drawn from Jobcentre Plus' Labour Market System which relies on inputs from advisers), sanctions and spells on employment programmes, including FJF, New Deals and the Work Programme; and
- 2) *Her Majesty's Revenue and Customs (HMRC) Tax System*, which provides details of spells in employment.

Given the age group considered in this evaluation it would have also been desirable to draw on data on educational attainment. However, data on qualifications is not systematically recorded on the Labour Market System by Jobcentre Plus advisers.

It is widely recognised that there are both advantages and disadvantages to using administrative data compared with survey data. Outlined below are some of the broad differences between these two methods:

- administrative data allows for a much larger sample size (close to the population) than survey data;
- survey data tends to suffer from non-response;
- administrative data can also suffer from omissions and errors – notably, there are substantial flaws in the HMRC employment data, as set out in section 2.2.2 below;
- administrative data allows variables and outcomes to be tracked over a longer period than survey data, which generally offers only a snapshot in time; however
- administrative data is limited to a pre-defined set of variables, while survey data can provide a richer data set tailored to a specific research question.

While survey data could provide additional variables with which to control for participant characteristics (as found by for example Dolton and Smith, 2011), this study uses purely administrative data for the following reasons:

- the larger sample size allows one to explore the sensitivity and heterogeneity of the estimated impacts with regard to using different participant and non-participant groups (see Section 4.3); and
- the cost and time of undertaking fieldwork to collect survey data is high. Administrative data is readily available on DWP systems.

2.2.1 Description of Variables

Table 2.1 outlines the variables used in the analysis. Section 3 covers the importance of these variables in controlling for selection onto the FJF programme.

Table 2.1: Variables and values used for controlling selection

Variable	Type	Values
Gender	Categorical	<i>Male; Female</i>
Disability	Categorical	<i>Not disabled; Disabled; Unknown</i>
Ethnicity	Categorical	<i>White; Black; Asian; Mixed; Chinese; Other; Unknown</i>
Marital status	Categorical	<i>Single; Married; Widowed; Divorced; Separated; Cohabiting; Unknown</i>
Sought occupation	Categorical	26 broad categories: e.g. <i>“Administrative”</i> ; <i>“Health Professionals”</i> ; <i>“Sales Occupations”</i>
Lone Parent	Categorical	<i>Lone Parent; Not a Lone Parent</i> (at any time within 2 years prior to start date)
Jobcentre Plus District	Categorical	48 Jobcentre Plus districts in Great Britain and <i>Unknown</i>
Low Qualified	Categorical	<i>No; Yes; Unknown</i>
Sanction and Disallowance History	Numerical	Number of benefit sanctions and disallowances received within 2 years before start/pseudo start date
Local Authority labour market characteristics: - Employment rate; - Unemployment rate; - Economic inactivity rate; - Average pay; - Job density; - Vacancy density.	Numerical	Employment, unemployment and economic inactivity rate can range between 0 and 1. Average pay, job density and vacancy density can take any positive value.
Benefit history	Categorical	104 binary variables – one representing each of the 104 weeks prior to FJF start/pseudo start date. Values are: <i>receiving benefit; not receiving benefit</i>
Employment history	Categorical	104 binary variables – one representing each of the 104 weeks prior to FJF start/pseudo start date. Values are: <i>in work; not in work</i>

FJF start month/pseudo start month	Categorical	Months from October 2009 to March 2010 are given distinct values
Benefit start month ¹³	Categorical	Months from October 2007 to March 2010 are given distinct values for the benefit spell prior to FJF start/pseudo start date. All benefit starts prior to October 2007 are grouped as a single value.
Other programme participation. (See Appendix 3 for a full list of programmes included.)	Numerical	Number of days spent on each DWP programme in two years prior to FJF start date. Programmes for which a reliable end date is not held are binary coded to reflect a start on the other programme or no start.
<p>Notes:</p> <p>Individual characteristics are taken from DWP administrative systems. This means that they will be those reported by the individual at the most recent time their data was collected by DWP. This will normally be at the start of their most recent benefit spell. In some cases, for example disability, this may be different from the value at the time of their FJF start/pseudo start date.</p>		

Table 2.2 shows the additional variables that were monitored for each member of the treatment and comparison groups for the two years following the FJF start/pseudo start date. Variables describing programme participation were used to compare the proportion of time spent on other programmes between the treatment and comparison groups.

¹³ Benefit start and end dates refer to the benefit spell leading up to the start of the FJF job.

Table 2.2: Variables monitored following the start/pseudo start date

Variable	Type	Values
Benefit ¹⁴ outcomes	Categorical	104 binary variables – representing each of the 104 weeks following the FJF start/pseudo start date. Values are: <i>in receipt of benefit; not in receipt of benefit.</i>
Employment outcomes	Categorical	104 binary variables – representing each of the 104 weeks following the FJF start/pseudo start date. Values are: <i>in work; not in work.</i>
Number of benefit claims	Numerical - Integer	Number of benefit claims in the 104 weeks following the FJF start/pseudo start date.
Other programme participation. (See Appendix 3 for a full list of programmes included.)	Numerical – continuous/Binary	Number of days spent on each DWP programme in the 104 weeks following the FJF start/pseudo start date. Programmes for which a reliable end date is not held are binary coded to reflect a start on the other programme or no start.
Sanctions and Disallowances	Numerical	Number of sanctions/disentitlements in the 104 weeks following the FJF start/pseudo start date.

2.2.2 Data quality issues

Employment data

The employment data used in this analysis comes from Her Majesty's Revenue and Customs (HMRC) data systems. In most circumstances, employers are obliged to notify HMRC when an employee starts or ends a spell of employment. Employment history and outcomes of individuals were derived using the recorded start and end dates of these notified employment spells. However, there are a number of documented issues with the quality of these data.¹⁵ These are briefly described below:

1. Employment spells are only recorded when a PAYE tax form is submitted. Some employment spells, in particular those for individuals earning less than the PAYE threshold, are therefore not always recorded, as employers are not obliged to submit forms for these individuals. Also, self-employment is excluded;
2. If HMRC do not know the date on which an employment spell started, they assign a start date of 6 April in the year that they become aware of

¹⁴ 'Benefit' is defined as any of four out of work benefits (Jobseeker's Allowance, Incapacity Benefit, Employment and Support Allowance, Income Support) or training allowance. Other benefits are not included in the benefit history variables or outcomes.

¹⁵See for example <http://research.dwp.gov.uk/asd/asd5/rports2007-2008/rrep432.pdf>

the employment spell. This may not be the actual year in which the spell began. A similar process occurs when HMRC do not know the date on which an employment spell ended. In this case they assign an end date of 5 April; and

3. A small number of records contain other known errors, such as missing start dates or missing end dates.

Table 2.3 shows the proportion of employment spells with a potential issue recorded for FJF participants and non-participants. It shows that a high proportion of spells had 5 April end dates or 6 April start dates and that for all suspected errors there are significant differences in proportions between participant and non-participant groups.

Table 2.3: Proportion of Employment Spells with a potential issue

	FJF participants	Non-participants
5 April end date	12.4%	14.5%
Start after end date	0.7%	0.9%
6 April start date	15.1%	17.5%
0/1 day claim	5.3%	5.8%
Missing start date	0.01%	0.02%
Total Employment spells	57,760	956,030

As in other evaluation studies, such as Beale et al. (2008) we have followed advice to mitigate the problem of all dates with errors, by randomly assigning start and end dates within the assigned tax year for records in which they are unknown¹⁶. While we do not expect any systematic bias to result from this process, we note that this leads to a large proportion of individuals being identified as both ‘receiving benefit’ and ‘in work’ in the same week.

We acknowledge that the estimates of the impact of FJF on unsubsidised employment rely on imperfect data. However, they are still useful in assessing how FJF impacts on the future employment prospects of participants, provided there is no systematic bias between recording of employment for participants and non-participants. Of course the robustness of the estimated impacts would be weakened if, for example, employers who take on individuals who were on FJF jobs are more likely than employers on average to record employment starts. Given that the majority of FJF employers were from the public sector it is conceivable that they are more likely to record employment starts than for non-participants. This could lead to the employment impact being overestimated due to instances of employment

¹⁶ Recent research suggests that many employment records without start and end dates may also come from previous tax years. This requires further investigation. However, although we hope that there will not be any systematic bias between the participant and non-participant groups, this does mean that even more caution must be applied to employment impact estimates; not just to this study, but all previous work.

being more frequently recorded for those individuals in the treatment group than for those in the comparison group.

We also note that benefit and employment history are not necessarily the inverse of one another. This is either because the P45 employment record wrongly overlaps with the benefit spell or because some individuals may actually be claiming benefit and be in employment simultaneously. It is also possible that some individuals may be neither claiming benefit nor in employment, for example if they are in education. With this in mind, section 4.2 shows the four mutually exclusive outcomes: on benefit and the three off-benefit outcomes (in a FJF job only, in unsubsidised employment only and neither in unsubsidised employment nor on welfare support).

Section 4.3 describes a sensitivity test that uses an alternative method of cleaning the employment data by adjusting uncertain employment dates around known benefit spell dates.

DWP administrative data

We believe that the recording of the majority of out-of-work benefit and Training Allowance spells to be accurate. However, we should note that there is some inaccuracy in some of the imputed end dates of spells and that some very short spells are omitted. We believe that JSA end dates are accurate in so far as much that if someone fails to sign on JSA then the end date is given as the date of the previous signing. ESA end dates are randomised between the two fortnightly scans between which the person disappears off benefit. If the Department is informed quickly, this should be unbiased; however, if on average individuals take a while to tell the Department, this may be biased forwards. In the case of people moving from ESA to another DWP benefit (e.g. JSA, PC or SP) the end date is set to be the day before the next benefit starts.

With this in mind overall, we believe the estimates for the impact of FJF on benefit/welfare support to be more reliable than the employment impact.

Characteristics data from the Jobcentre Plus Labour Market System contains a number of missing values because advisers do not routinely fill in all of the fields during claimant interviews or the claimant does not disclose the information. This is particularly the case for variables identifying ethnicity and low qualifications. In the case of variables with missing values, 'unknown' is treated as a valid category for controlling for participant characteristics.

Before controlling for characteristics (a process described in Section 3), the proportion of missing or unknown values in the sample is similar among participants and non-participants for the following characteristics:

- ethnicity (4% of participants; 5% of non-participants)
- occupational choice (2% of participants; 3% of non-participants)
- marital status (2% of participants; 3% of non-participants)
- disability (0.2% of participants and non-participants)

- low qualified (75% of participants; 76% of non-participants)

Given that a large proportion of both groups have an unknown value for *low qualified*, one cannot necessarily establish which group has a higher (if different) proportion of people who are low qualified. There are significant differences (at the 5% level) between the proportion of missing or unknown values among participants and non-participants for three variables: ethnicity, marital status and occupational choice. After controlling for characteristics, however, there are no significant differences between participants and non-participants with regard to missing and unknown values.

2.3 Descriptive Statistics

This section describes the basic characteristics of individuals in the main FJF participant and (unmatched) non-participant samples.

Table 2.4 lists summary statistics detailing personal and demographic characteristics, benefit¹⁷ receipt, sanction records and participation in DWP employment programmes other than FJF, measured from the point of their FJF start date/pseudo-start date. This table includes only a number of summary characteristics – for a full list of variables and their value ranges, refer back to Table 2.1.

¹⁷ Benefit receipt is defined as in receipt of an out-of-work benefit or Training Allowance.

Table 2.4: Characteristics of the participant and (unmatched) non-participant samples

	FJF Participants	Non-participants
Observations	12,130	232,000
	Personal/ Demographic Characteristics	
Age (mean years)	22*	27*
Male(%)	73*	79*
Disabled(%)	13*	17*
Ethnic Minority (%)	21*	23*
Low Qualified (%)	23*	20*
Lone Parent (%)	2*	3*
Single (%)	90*	75*
Married (%)	1*	8*
Other marital status (%)	9*	17*
Seeking Professional / Management job (%)	8*	10*
Average Local Authority Unemployment Level (%)	9	9
	Benefit Receipt	
Weeks of the past year on benefit (mean weeks)	40*	31*
Weeks of past six months on benefit (mean weeks)	24*	19*
Weeks of the past year spent in employment (mean weeks)	13*	21*
JSA duration at start (mean weeks)	32*	29*
JSA duration more than six months (%)	66*	45*
Benefit spells over the past year (mean)	3.6*	3.3*
	DWP Programme Participation	
Weeks of the past two years spent on other DWP programmes (mean weeks)	23*	16*
	Benefit Sanctions	
Average number of sanctions per person in the past two years	0.44*	0.33*
* Significant difference at 95% confidence level between the participant and non-participant samples		
Notes:		
For participants, the sum of the mean number of weeks out of the past year spent on benefit and being in employment is greater than the number of weeks in a year. This is because:		
<ol style="list-style-type: none"> 1. some participants are recorded as simultaneously on benefit and in employment; and 2. assumptions that have been made about employment data (c.f. Appendix 6). 		

2.3.1 Comparing FJF participants with non-participants

In terms of demographics, participants were younger (mean age was 22 years old) than non-participants (mean age was 27 years old). This difference reflects the definition of the participant and non-participant samples described in Section 2.1: the age range of participants was 20-24 years, while the age range of non-participants was 25-29.

A higher proportion of participants (23%) than non-participants (20%) were identified as having low qualifications, although the proportion for which no qualifications data was recorded is high. A higher proportion of participants

(90%) than non-participants (75%) were single, as expected given that the participants in the sample were younger than the non-participants.

Participants spent more of the past year on benefit (40 weeks) than non-participants (31 weeks). In particular a much higher proportion (66%) of participants spent more than six months on JSA prior to starting than non-participants (45%); note that although the guidance for eligibility for FJF was 6 months, 34% of participants had been on JSA for less than 6 months when they started their FJF job.

Similarly participants spent less time in employment in the year before starting their jobs (13 weeks compared to 21 weeks). Participants also spent substantially more of the past two years on other DWP programmes (23 weeks) than non-participants (16 weeks).

Overall, before controlling for differences, these statistics suggest that JSA claimants who participated in FJF were further from the labour market than JSA claimants who did not participate.

2.4 Duration of FJF jobs

Employers taking part in the programme were required to offer FJF jobs for a minimum duration of six months. Figure 2.1 below shows the proportion of FJF participants in the sample who remained in their FJF job over the twelve-month period following the start of their job.

Figure 2.1: Proportion of FJF starters in their FJF job over time

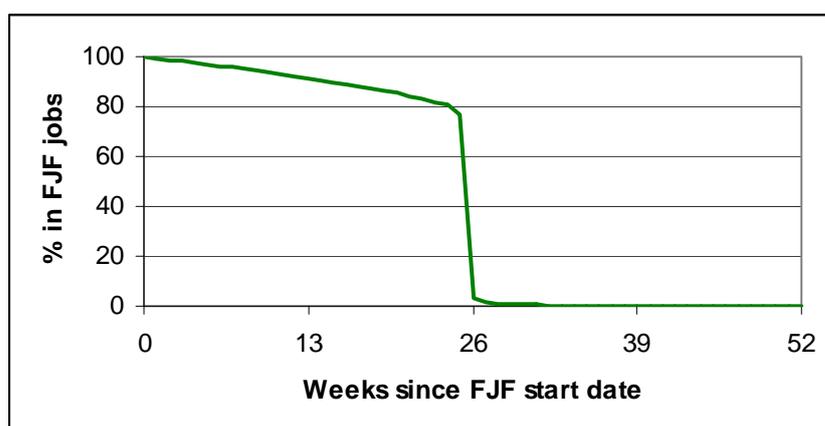


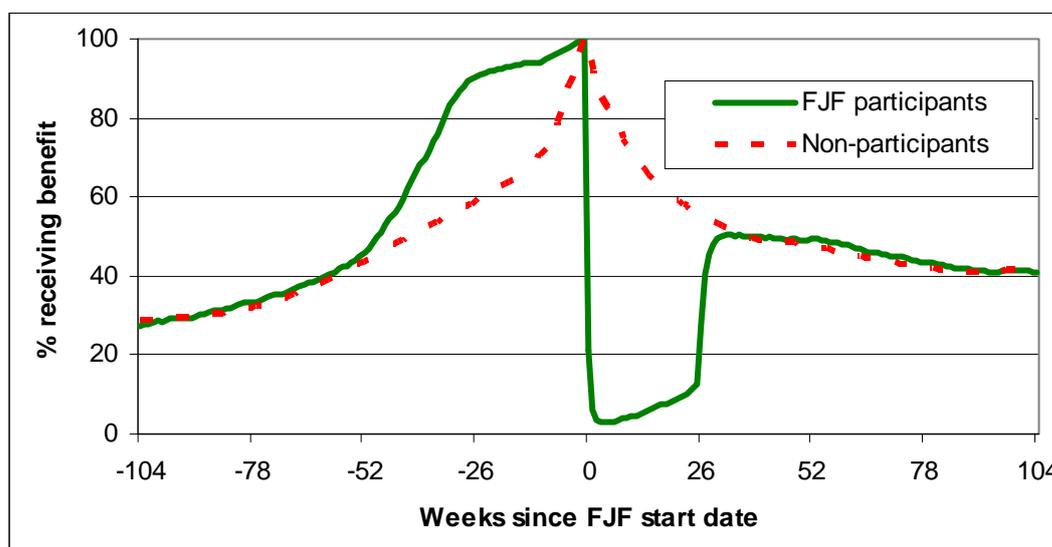
Figure 2.1 shows that after 24 weeks approximately 20% of participants were no longer in their FJF job. As jobs were offered for a minimum of six months, this suggests that 20% of participants left their FJF job early. Of these, about 30% went into unsubsidised employment only, about 50% went onto an out-of-work benefit and about 20% neither went into employment nor onto an out-of-work benefit. This suggests that some participants left to go to non-FJF jobs, but others left for other reasons, including those who chose to leave

(participation in the FJF was voluntary¹⁸) to go back on benefit. Approximately 2% of FJF jobs in the sample lasted more than 26 weeks. The longest FJF job in the sample was recorded to have lasted for 53 weeks¹⁹.

2.5 Comparing benefit rates of participants and non-participants

Figure 2.2 shows the benefit receipt rates of FJF participants and non-participants in the main analysis sample of JSA customers. The benefit rates shown are for the complete sample in each case, i.e. before any attempt was made to select groups of participants and non-participants with similar characteristics. Differences between participants and non-participants are therefore not attributable to impacts of the FJF job, but rather a combination of FJF impacts and differences in the characteristics of those who participated and those who did not.

Figure 2.2: Benefit receipt rate among participants and non-participants



FJF participants and non-participants had similar rates of benefit receipt until around one year before the FJF job start (or pseudo start for non-participants) date. Over the year leading up to the FJF start date, the benefit receipt rate was much higher for those who went on to participate compared with those who did not. This is unsurprising as FJF was targeted towards more disadvantaged jobseekers that were likely to have spent a higher proportion of the past year receiving benefit.

As participants began their FJF job, the proportion receiving benefit dropped close to zero because participants could no longer receive any of the four

¹⁸ As described in Section 1, The Young Person's Guarantee was introduced as a voluntary programme but was made mandatory in April 2010. The cohort of participants analysed in this paper therefore entered the programme on a voluntary basis.

¹⁹ It is possible that for the small number of jobs which appear to have lasted more than 26 weeks that there might have been a recording error in the job end date.

main DWP out-of-work benefits while on a FJF job. Over the following 26 weeks, of the 20% of participants who were no longer in a FJF job, about half (10% of all participants) left their FJF job early and returned to benefit. Between 26 and 29 weeks after the start of the FJF job, the proportion of participants in receipt of benefit increased to around 48% as the majority of FJF jobs ended. This is a slightly lower rate of benefit receipt than in the non-participant sample (53%). By 35 weeks after the start of the FJF job, the rate of benefit receipt among participants and non-participants was the same (50%), and was similar until the end of the monitoring period.

Overall, these observations suggest that FJF participants tended to be *further from the labour market* than those who do not participate in the weeks leading up to their FJF job. Following their FJF job, participants were almost as likely to be in receipt of benefit as non-participants.

3 Methodology

This section outlines the methodology used to estimate the average effect of the FJF programme on the labour market prospects of participants (the *average effect of treatment on the treated, ATT*).

Section 3.1 describes the Conditional Independence Assumption, which forms the foundation of impact evaluations of this type. This is followed by a description of the Propensity Score Matching (PSM) methodology in Section 3.2 used to control for selection bias and construct a suitable counterfactual for the FJF participant group. Finally, Section 3.3 describes the method used to measure the labour market outcomes of participants and non-participants in the samples, and of using these outcomes to estimate the net impacts of the FJF programme.

3.1 Conditional Independence Assumption

The aim is to estimate the average effect of the FJF programme on its participants. A simple comparison between the employment and benefit outcomes of participants with those of non-participants could be biased if there are systematic differences between these groups which may be related to the labour market outcomes of interest (see Table 2.2). However, if we can control for all characteristics that influence selection onto the programme, then the outcome that would result in the absence of treatment is the same in both cases (Bryson, et al. 2002). The identifying assumption is that, conditional on the variables we have observed (as defined in Table 2.1), the counterfactual outcome is independent of participation. This is known as the 'Conditional Independence Assumption' (CIA). It enables one to infer the counterfactual outcomes for FJF participants, and therefore to attribute any differences between carefully matched participant and non-participant groups to the effect of the FJF programme. Characteristics are controlled for using a Propensity Score Matching methodology, as described in Section 3.2.

The following section discusses how the individual level data (as described in Section 2) allows one to try to control for the difference in typical characteristics between those who start a FJF job and those who do not. Differences in characteristics between these two groups arise as a result of the way participants are selected into jobs, and are therefore known as *selection bias*.

3.1.1 Controlling for selection bias

To understand the differences between FJF participants and non-participants we must consider the mechanism by which Jobseeker's Allowance (JSA) claimants were selected into FJF jobs. Much of the following conjecture for this comes from understanding of the design of the programme and qualitative research by Allaker and Cahill (2011).

The majority of participants on the Future Jobs Fund were referred to the programme by a Jobcentre Plus advisor. Some found out about FJF through other means, but research suggested that this was in a minority of cases.

The guidance given to Jobcentre Plus advisors was that referrals to FJF should generally be the most disadvantaged JSA claimants aged between 18 and 24. However, if posts remained unfilled then advisors could refer young people who they felt would benefit the most from the programme.

Once referred to FJF, potential participants were required to complete an application process before being assigned to specific posts. Prospective employers were asked to keep this process simple to ensure that the most disadvantaged participants were not deterred from applying for posts.

Some districts held FJF jobs fairs where employers conducted interviews on the day. A number of FJF employers also attended local JCP centres and interviewed on site.

At the interview stage, employers were able to accept or reject the participant for the specified FJF post. Applicants who were rejected were given feedback.

This design suggests that selection onto the programme is determined by three interconnecting factors:

1. Selection decisions made by Jobcentre Plus advisors;
2. Self-selection by the individual; and
3. Selection by employers.

In deciding whether to refer a JSA claimant to FJF, a Jobcentre Plus advisor might consider the extent to which a young person needs additional help to gain employment and the extent to which the FJF programme might meet these needs. This will ultimately be a judgment by the advisor but might depend on the demographic characteristics of the participant, the type of job sought, the number and type of FJF jobs available in the local area, the suitability of the participant for specific posts, the perceived motivation of the participant, the familiarity of the particular Jobcentre Plus advisor with FJF, and the availability of other employment support options.

The factors that influence a potential participant's self-selection onto the programme are likely to be similar to those which influence the advisor - it will largely depend on whether they feel that FJF will improve their labour market

prospects and the extent to which they actually want to improve. These factors will be driven by demographic characteristics, motivation and circumstance. Since FJF is one of a range of options available to potential participants, the final decision to apply for a FJF job will be a mutual decision reached after a discussion between the participant and the advisor.

Employers are likely to choose participants who they feel will be of most benefit to them, taking into account the Government subsidy for providing the job. If there are more suitable applicants than they have vacancies, they are likely to choose those who will add the most value to their organisation. These are likely to be those who appear motivated and keen to take up a FJF job. They are also likely to be those with good interpersonal and communication skills as well as any skills which meet the specific requirements of the role.

To allow us to control for the selection bias which results from this process of referral and recruitment, we have brought together a wide range of variables which we hope will act as a proxy for the decision making process, which might affect potential outcomes. In particular, while we have not been able to directly observe the crucial factor of the individual's level of motivation, we hope that these variables together will indirectly capture this characteristic.

Labour market and employment history variables were constructed to attempt to capture labour market attachment. The claimant's sanction record was included to capture an individual's compliance with the benefit system. A record of previous programme participation was used to capture willingness to participate in other employment programmes.

In addition, demographic characteristics such as age, gender, ethnic group, disability, qualification, marital status and lone parent status (see Section 2.2) for the participant and non-participant samples were included. Each individual's stated preferred choice of occupation was also used. Since labour market prospects may be highly dependent on dynamic local labour market characteristics and the local availability of employment provision, each individual's Jobcentre Plus District and the labour market characteristics, such as unemployment rate, of the Local Authority where each individual lived were included as well.

In summary, we try to construct the counterfactual as accurately as we can, using the observable characteristics for which we do have data. There are likely to be many other unobserved variables, which to varying extents will play a role in the referral decision. However, the value of having a rich data set is that, as described above for the *motivation* characteristic, some of the variables which we have observed will indirectly capture the influence of variables we have not observed. For example, while we have not been able to observe personality type, life experience, experience of discrimination, confidence, health, language skills or happiness, we believe that by controlling for gender, age, ethnicity, disability, local deprivation, labour market history, prior programme participation, etc. the model will capture some of their influence by proxy.

Nonetheless, there may well be factors that influence whether or not an individual participates in the FJF for which we cannot control. In particular, taking the qualitative evidence and policy design together, the greatest risk is that we have not fully controlled for a claimant's motivation, which might mean that we will not have accurately reflected the counterfactual's closeness to the labour market, leading to a potential overestimation of the measured impact.

3.2 Propensity Score Matching

The aim of the Propensity Score Matching process is to construct a comparison group of individuals who did not participate in the FJF programme, but who in aggregate are identical to those who did participate in those characteristics which matter. We acknowledge that this is not possible with respect to the age characteristic because the age ranges of participant and non-participant groups do not overlap. However, we feel that that using non-participants of an older age group was marginally less likely to result in bias than using non-participants of the same age group. If this is successfully achieved, we can then use the labour market outcomes of non-participants in the comparison group as an approximation for what the labour market outcomes of participants in the treatment group would have been if they had not participated.

When there are a large number of observed characteristics, as is the case in the present evaluation, direct matching on all characteristics becomes a limited device as the number of dimensions becomes large compared to the number of observations (Rosenbaum and Rubin, 1983).²⁰ Therefore, we follow the literature in using a single balancing score on which to match, which is a function of all the observed variables. The balancing score used is a *propensity score*, which is the probability of an individual being referred to the programme given all of their observed characteristics.

Below is a summary of the Propensity Score Matching (PSM) protocol used in this evaluation to construct suitable treatment and comparison groups from the participant and non-participant samples (Appendix 4 shows a step-by-step guide to the protocol).

Firstly, the probability of participation (dependent variable) was modelled²¹ using the observed individual characteristics of participants and non-participants, as independent variables. From this model, the predicted probability of participation - the 'propensity score' - was calculated for each participant and non-participant in the sample. Secondly, a matched comparison group was constructed by matching²² each participant with the

²⁰ An accessible explanation of how it can be applied to evaluation of labour market policy can be found in Bryson, et al. 2002.

²¹ Using a probit regression.

²² Matching used 'Kernel' matching. For each participant in the sample, all non-participants with propensity scores within the Kernel bandwidth were selected and weighted using an Epanechnikov distribution. The bandwidth determines how closely the propensity score of a non-participant must be to that of a participant for selection into the final matched comparison

average of all non-participants with similar propensity scores, giving more weight to those whose score was nearest.

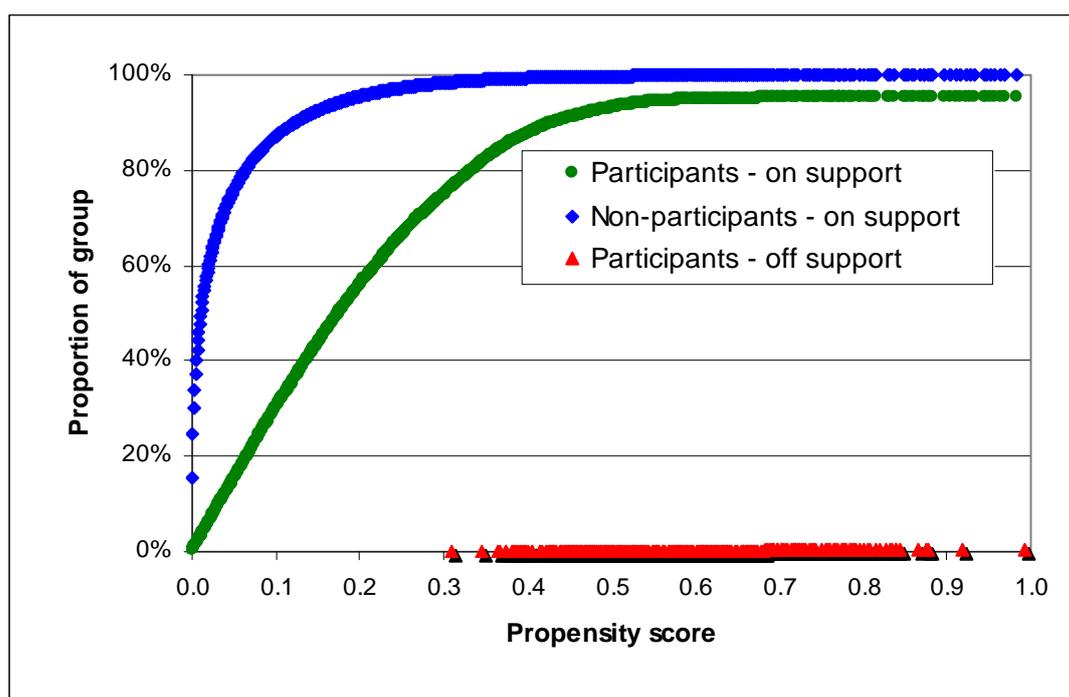
3.2.1 Common Support for Participants

For Propensity Score Matching to be a successful methodology there must be sufficient common support for participants among the non-participant sample. This means that there must be matching non-participants for the vast majority of participants. This is important as any impact estimates are only valid for those participants for whom common support is available.

The propensity score distribution for the sample in the main analysis is given below; each point is the cumulative proportion of the group with propensity scores in increments of 0.001.

Figure 3.1: Propensity Score cumulative distributions of participants and non-participants:

(12,130 participants; 232,000 non-participants)



As expected, the graph shows that propensity scores tend to be higher among participants, although the mean score for both groups is low. The overall mean propensity score is 0.05 (the proportion of the sample receiving FJF support); 24% of non-participants have a score of more than 0.05 compared

group. A bandwidth of 0.0001 was used for the analysis. This bandwidth was shown by Ainsworth and Marlow (2011) to provide a model that retained a high level of common support whilst also ensuring a tight match between non-participants and participants. The matching was carried out using an adaptation of the *Stata* code applied by Thomas (2006), which relies on the *Stata* module *psmatch2* written by Leuven and Sianesi (2003).

with 85% of participants. 2% of non-participants have a score of more than 0.3 compared with 25% of participants. The small proportion of participants (4.7%) for whom no common support is available all have propensity scores above 0.3.

The propensity score distribution for JSA recipients provides a high degree of overlap between participants and non-participants, with over 95% of participants finding common support. We can be confident therefore in generalising from these participants for whom there was a good match to the entire cohort.

3.2.2 Matching Quality

The propensity score model was found to be highly effective in constructing treatment and comparison groups that were well balanced on the observed characteristics.

Table 3.1 shows the unmatched and matched means of a range of variables for the FJF treatment and comparison groups. A full list of variables is not provided here as there are 355 individual variables included in the propensity score model but the list is provided to illustrate the extent to which the PSM methodology selects non-participants with similar characteristics across a range of variables.

Table 3.1: Unmatched and matched means for main analysis²³

Variable	Sample	Treatment	Comparison	% bias	% reduction in bias	t	p> t
Male (%)	Unmatched	73	79	-14.2		-15.9	0.0
	Matched	74	73	0.3	98	0.2	0.8
Disabled (%)	Unmatched	13	17	-10.7		-11.0	0.0
	Matched	13	14	-2.5	77	-1.9	0.1
White ethnicity (%)	Unmatched	79	77	4.9		5.2	0.0
	Matched	79	79	0.4	91	0.3	0.7
Black ethnicity (%)	Unmatched	7	7	2.0		2.2	0.0
	Matched	7	8	-1.0	52	-0.7	0.5
Married (%)	Unmatched	1	8	-31.0		-26.1	0.0
	Matched	1	1	-0.2	99	-0.2	0.8
On an out-of-work benefit 26 weeks before FJF start date (%)	Unmatched	91	59	78.6		70.5	0.0
	Matched	90	90	0.9	99	1.0	0.3
In work 26 weeks before FJF start date (%)	Unmatched	22	41	-41.8		-41.9	0.0
	Matched	23	23	0.1	100	0.1	1.0
Sanction history (Average no. of sanctions applied in past two years)	Unmatched	0.4	0.3	14.4		16.7	0.0
	Matched	0.4	0.5	-1.2	92	-0.8	0.4
District - Derbyshire (%)	Unmatched	1.1	1.5	-3.7		-3.7	0.0
	Matched	1.1	1.2	-0.3	92	-0.3	0.8
Local Authority Unemployment Rate (%)	Unmatched	9.0	8.6	17.5		18.5	0.0
	Matched	9.0	9.0	0.1	99	0.1	0.9
Days out of past two years spent on NDYP or NDLTU (mean)	Unmatched	109	34	61.1		81.6	0.0
	Matched	102	107	-4.1	93	-2.4	0.0
Has been a Lone Parent in past two years (%)	Unmatched	0.2	1.5	-14.6		-12.0	0.0
	Matched	0.2	0.2	-0.1	99	-0.2	0.9
Low Qualified (%)	Unmatched	23	20	7.6		8.4	0.0
	Matched	23	23	-0.1	99	-0.1	0.9

Notes:

The % bias is the difference between the sample means in the treatment and comparison groups as a percentage of the square root of the average of the sample variances in the treated and non-treated groups (Rosenbaum and Rubin, 1983).

The table illustrates that the matching has been effective in balancing the groups on the listed variables. For example, before matching the proportion of participants who are male is 73%, while the proportion of non-participants who are male is 79%. After matching, the participant and non-participant groups both comprise very similar proportions of males (74% and 73% respectively).

²³ Note that differences do remain on some variables – this is only to be expected when looking at the variables individually, and indeed we would expect to see some differences even in a randomised trial.

Prior to matching, there were significant differences (at the 5% level) between participants and non-participants for 321 variables. After matching there were significant differences (at the 5% level) between participants and non-participants for 32 of the 355 variables used. These include the following dummy variables: one variable for participation on an employment programme prior to starting and 31 benefit history variables between 104 and 74 weeks prior to starting.

Figures 3.2 and 3.3 compare the benefit history of participants and non-participants, before and after matching respectively.

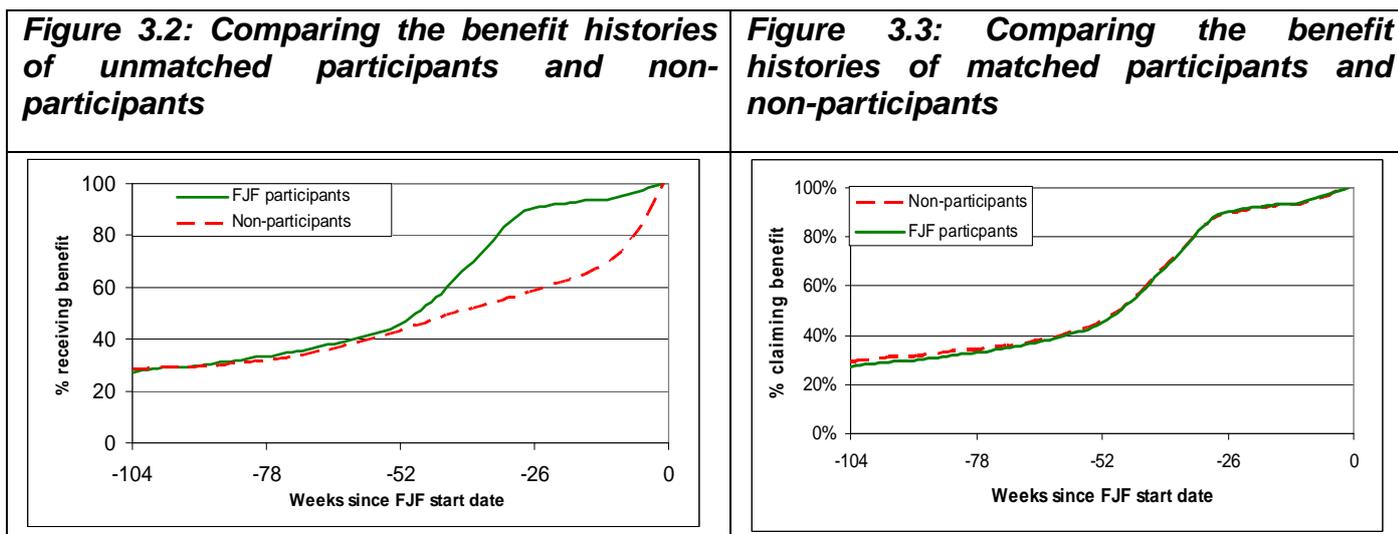


Figure 3.2 shows that the proportion of unmatched non-participants claiming benefit in each week over the two years before their pseudo start date was very different from the proportion of participants claiming benefit in each week over the two years before their FJF start date. This is particularly the case in the year leading up to the FJF start or pseudo start date.

Figure 3.3 shows that after matching, the proportion of matched non-participants claiming benefit in the two years before their pseudo start date much more closely resembles the proportion of participants claiming benefit in the two years before their FJF start. The largest differences are in the time period from 73 weeks to 104 weeks before the FJF start date. The highest difference between the groups in the proportion claiming benefit is just 2.2 percentage points. To adjust for some of this remaining bias between groups with regard to their labour market history a difference-in-differences adjustment is used, which is described in Section 3.3.

Although a number of significant differences remained after matching for the early benefit history variables, the matching process has dramatically reduced the overall bias in benefit history. In some DWP employment programme evaluations (e.g. work experience) no significant differences remained after matching, but a number of significant differences is to be expected; this is sometimes even observed in Random Control Trials.

Table 3.2 shows overall specification statistics for the matching of the participant and non-participant groups. The chi-squared test shows that prior to the match, there was approximately zero probability that the participant and non-participant samples had the same set of characteristics. After matching there was statistically no difference²⁴ between the matched groups in terms of the observed variables at the 5% level. This reinforces the evidence that the matching has been effective.

Table 3.2: Specification statistics for the group matching

Sample	Pseudo R-sq	LR chi-sq	p > chi-sq
Unmatched	0.28	26,730	0.00
Matched	0.00	93	1.00

Finally it must be borne in mind that while the matching appears to be of good quality for the observed variables we cannot know if the same is true for the unobserved variables.

3.3 Measuring Outcomes and Impacts

To estimate the average effect of the FJF employment programme on its participants (the *average effect of treatment on the treated, ATT*), measurements are focused on two main sets of outcome data for each participant and non-participant. In each of the 104 weeks following a participant's start (pseudo start in the case of non-participants) on the FJF programme, the following states were monitored for each individual:

- in receipt of welfare support (defined as being in a FJF job or receiving a main out-of-work benefit or training allowance); and
- in unsubsidised employment²⁵ (defined as employment other than in a FJF job).

These broader outcome measures differ from other evaluations, such as those used by Ainsworth and Marlow (2011), who provided estimates of the impact on the rate of benefit receipt and rate of employment of participants. The reason for this difference lies in the type of employment programme analysed in each case whereby participants can continue to claim benefit whilst on the programme. It therefore made sense to estimate the impacts of each programme on benefit and employment outcomes.

²⁴ The chi-squared non-parametric test is different from significance testing on each individual variable. Therefore, although there are some significant differences at the 5% level between individual variables it is not inconsistent for the chi-squared test to show no significant difference between the groups, at the 5% level.

²⁵ In this paper 'unsubsidised employment' is defined as employment that is not subsidised by FJF funding. There could potentially be other forms of subsidised employment that are not removed from the outcome measure.

In the case of FJF, participants move into employment and away from benefit immediately upon starting their job. It is therefore misleading to treat the spell on FJF as a positive job outcome in itself. Rather it should be considered as a period of subsidised support that helps participants to subsequently move into unsubsidised employment.

One option would be to focus the outcome measures on the period after they leave their spell on FJF only. During this period, the impacts on benefit would be equivalent to the impacts on welfare support, and the impacts on employment would be equivalent to the impacts on unsubsidised employment. However, this approach would not take into account all of the impacts of FJF.

To fully capture the impacts of FJF, we need to measure the labour market outcomes of participants from the point at which they started against the outcomes that would have occurred had they not started. There is a phenomenon commonly observed in employment programmes called a 'lock-in' effect, whereby fewer participants will have found unsubsidised employment during the time in their FJF jobs than they would have done had they not started because they are spending their time engaged in FJF work. As unsubsidised employment is a beneficial outcome, whereas participation in FJF is not a beneficial outcome in itself, then any such impacts of the programme over the period of participation can, in this sense, be regarded as unfavourable. By measuring the impacts of FJF from the start of participation, it is possible to estimate whether any beneficial impacts of FJF occurring after participants leave the programme outweigh the unfavourable impacts caused by this 'lock-in' effect.

In summary, we focus on the impacts of FJF on welfare support and unsubsidised employment over the 104 weeks from the date on which participants begin their FJF spell.

However, for consistency with previous studies and to illustrate the issue described above, the outcomes used in previous impact studies, such as in the evaluation of the European Social Fund, are also measured and presented. i.e. whether the individual was:

- in receipt of any main out-of-work benefit or training allowance; and
- in employment.

In all cases, DWP administrative data was used to determine individual benefit spells, and data originally sourced from the HM Revenue and Customs (HMRC) tax system was used to determine employment spells. Outcomes are identified at weekly intervals following a FJF start or pseudo start. A definitive outcome is assigned where a weekly point in time (7, 14, 21....days after the programme start) is identified as being between a benefit spell start and end or an employment spell start and end (or there is a start but no accompanying end recorded). The outcomes measured are not mutually exclusive, so in any given week an individual may appear as both 'in employment' and 'in receipt of benefit'. The outcome period covers an independently calculated period of

time for each individual, spanning from the individual's FJF start/pseudo start date to 104 weeks later.

By comparing the outcome data of the matched treatment and comparison groups, we are able to estimate the impact of the FJF programme on each outcome over time. Therefore the results presented in Section 4 are presented in terms of programme impacts on the likelihood of participants being in receipt of welfare support, and the likelihood of being in non-FJF employment.

To calculate the net impacts of the programme on a particular outcome for a given week, we first take the mean outcome value of the treatment group (i.e. the proportion of the group who are receiving benefit or are in employment) and subtract the weighted mean outcome value of the comparison group. Thus a raw net impact measure is the absolute percentage point difference between the treatment and weighted comparison groups for the corresponding outcome.

However, some small differences in labour market history between the groups exist after matching, when ideally the labour market histories would be the same. Therefore, a difference-in-differences approach adjusts the impact measure for each week to further reduce this bias. The estimated impacts are adjusted by the average pre-programme differences in labour market outcomes. However, for this particular analysis, this works out at an average of only +0.3 percentage points across the weekly benefit history variables. So if the estimated impact on benefit receipt was found to be 6.3 percentage points, then the estimate would be adjusted to gain a final difference-in-differences adjusted estimate of 6 percentage points (0.3 subtracted from 6.3).

The impacts presented in Section 4 are therefore the difference-in-differences adjusted impacts of the programme on each of the outcomes of interest.

4 Results

This section shows the estimates of the average effect of the Future Jobs Fund (FJF) on participants (the *average effect of treatment on the treated, ATT*).

Section 4.1 presents the main impact estimates for the FJF programme. This is followed by discussion and interpretation of the findings in Section 4.2. Section 4.3 explores the sensitivity and heterogeneity of the estimated impacts by performing the analysis with different groups of participants. Section 4.4 further analyses the results by sub-groups within the sample.

4.1 Impacts of the Future Jobs Fund

The main estimates describe the impact of FJF on a participant's likelihood of being:

- in receipt of welfare support (defined as being in a FJF job or receiving a main out-of-work benefit or training allowance); and
- in unsubsidised employment²⁶ (defined as employment other than in a FJF job).

Impact graphs are extended over a 104-week period prior to the start of the FJF job to illustrate the extent to which the Propensity Score Matching controls for labour market history over the pre-programme period. The impact graphs also show a 95% confidence interval around the central impact estimates²⁷.

4.1.1 The impact of FJF on a participant's probability of receiving welfare support

Before describing the final estimates, we illustrate why we have chosen to estimate the probability of a participant receiving welfare support (which includes being in a FJF job), rather than simply the probability of a participant receiving a main out-of-work benefit.

²⁶ In this paper 'unsubsidised employment' is defined as employment which is not subsidised by FJF funding. There could potentially be other forms of subsidised employment which are not removed from the outcome measure.

²⁷ The method used probably gives an overly cautious approach to errors, leading to confidence intervals that are wider than they might actually be. Errors calculated by `psmatch2` are up to half the size that have been reported and errors in other evaluations appear to be smaller for similar sample sizes, for example Lechner and Wunsch (2009). Standard errors are calculated using a linear probability model. The standard errors suffer from heteroscedasticity and non-normality. There is some debate in the literature as to the best way to calculate errors without being too computationally intensive.

As shown in Figures 4.1 and 4.2, the rate of benefit receipt among participants drops to almost zero during the week in which participants start their FJF job. However, as discussed in Section 3.3, this is not in itself a beneficial impact of the programme, but simply follows from the fact that participants cannot claim benefit whilst in a FJF post. Using the benefit receipt rate as an outcome measure is therefore misleading as it suggests an extremely large impact on participants' dependence on welfare when this is not really the case.

Figure 4.1: Benefit receipt rate among matched participant and non-participant groups

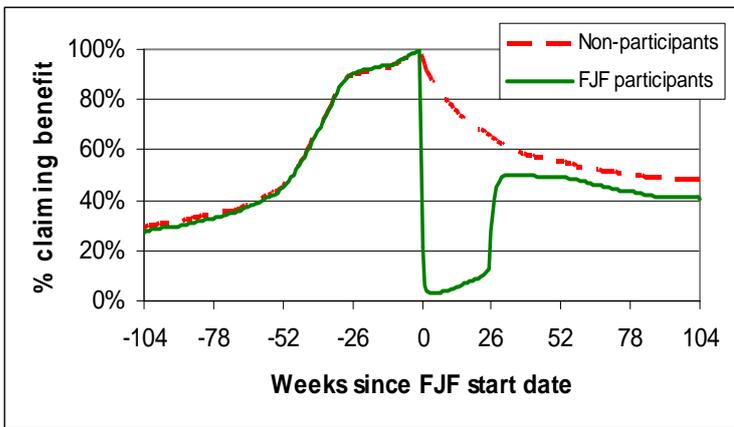
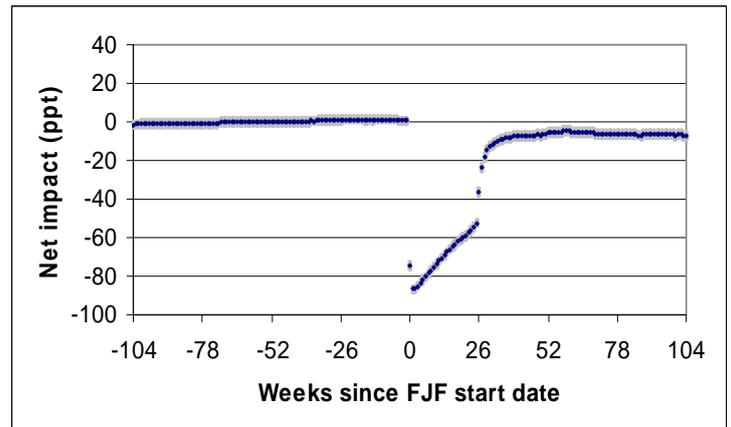


Figure 4.2: Impact of FJF on the likelihood of a participant claiming benefit



As discussed in Section 3.3, FJF is not regarded as a beneficial employment outcome in its own right, but rather as a means of providing skills and experience to help participants to move into unsubsidised employment after the FJF job has ended.

Therefore, Figures 4.3 and 4.4 show the main estimates for outcomes and impacts of FJF on the probability of receiving welfare support, where time spent on FJF is included in the time spent receiving welfare support rather than time in employment.

Figure 4.3: Welfare support rate among matched participant and non-participant groups

Figure 4.4: Impact of FJF on the likelihood of a participant receiving welfare support

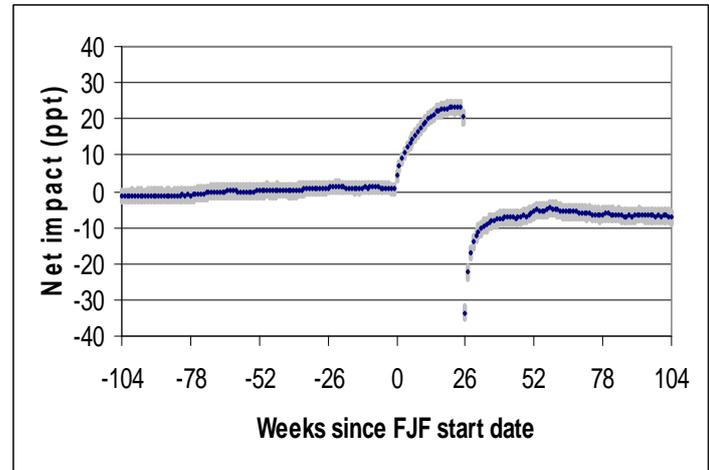
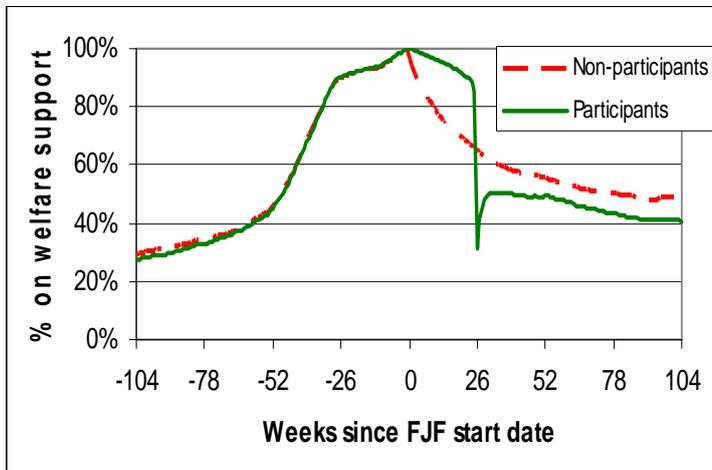


Figure 4.4 shows that the impact of the FJF programme over the first 26 weeks (the length of a typical FJF job), following the start of participation, was to increase the proportion of participants relative to matched non-participants receiving welfare support. This impact averaged 25 percentage points per participant per week over the 26-week period, rising to a peak of 23 percentage points. In other words, during this period, a higher proportion of participants were receiving support in the form of a subsidised FJF job than the proportion of matched non-participants who were receiving benefit. The impact of FJF during this 'lock-in' period amounted to an average of 33 additional days spent receiving welfare support per participant over the first 26 weeks.

In the following period (weeks 27 to 104), the impact of FJF was to decrease the proportion of participants receiving welfare support. The impact over this period averaged approximately -7 percentage points²⁸, amounting to an average of 41 fewer days spent on welfare support per participant.

The impact of FJF on the likelihood of receiving welfare support was -7 percentage points 104 weeks after the start of participation. This impact was stable in the months before the 104-week point. This suggests that the impact of FJF may be sustained at a similar level beyond the 104-week outcome period over which it has been measured.

Over the full 104-week period, the impact of the programme was to decrease the amount of time receiving welfare support by 8 days. The impact of FJF was sustained for long enough to cancel out the extra time that participants

²⁸ When quantifying impacts a minus sign is used to denote that the impact of the programme was to **reduce** the size of the outcome for participants. A reduction in welfare support is a beneficial impact of the programme.

spent on welfare support through FJF. This cancellation effect occurred 86 weeks after the start of participation.

The cost-benefit analysis in Section 5 uses a number of scenarios that project the impact estimates forward by one year and two years. It was felt that, since the projections become more uncertain the longer they are (but the impacts are stable for the last six months of the tracking period), they could extend for at most the two years for which tracking data was available. If the impacts were to be sustained at the same level, then for each year after the 104-week period, the time spent on welfare support would decrease by another 25 days. Therefore the full estimated impact of FJF would be to reduce the number of days on welfare support by 34 days over the three years – and by 59 days over the four years - after starting a FJF job. If the impacts were to start to decay, which we might expect, then the impacts would be less than 25 days a year.

4.1.2 The impact of FJF on a participant’s probability of being in unsubsidised employment

Before describing the final estimates, in a similar way to benefit impacts in the last section, we first illustrate why we have chosen to estimate the probability of a participant being in unsubsidised employment (jobs not subsidised by the FJF), rather than simply the probability of a participant being in employment.

As shown in Figures 4.5 and 4.6, the measured employment rate increases to over 80% among participants during the week in which participants start their FJF job. However, this is not in itself a beneficial impact of the programme, but simply follows from the fact that the majority of FJF jobs are picked up in the HMRC employment data. Using the employment rate as an outcome measure does not tell the whole story because for the first six months after the FJF start date the impact is very large due to the majority of participants being in subsidised FJF jobs.

Figure 4.5: Employment rate among matched participant and non-participant groups

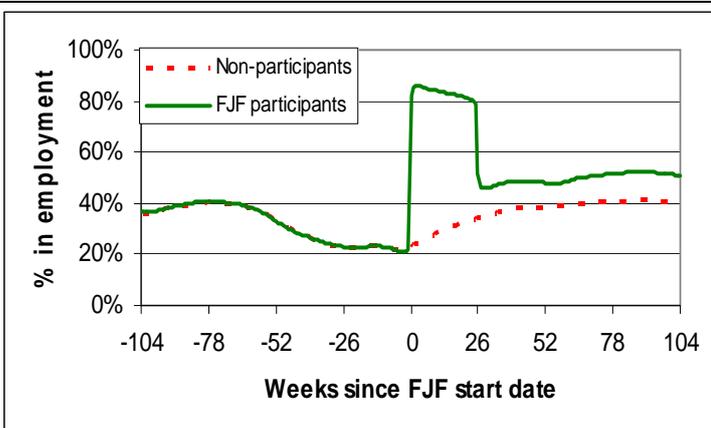
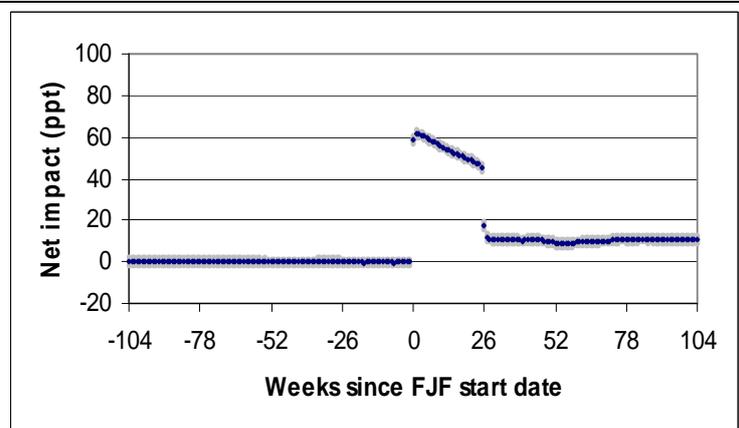


Figure 4.6: Impact of FJF on the likelihood of a participant being employed



Important note on employment impacts

Figures 4.1 to 4.5 highlight the imperfections in the P45 HMRC employment data and expose gaps in the understanding of an individual's status:

- 104 weeks before FJF start, 37% were in employment and 27% were on benefit (there will be some overlap between these two figures). This means that at least 36% (how many more depends on the degree of overlap) were recorded as neither on benefit nor in employment. Their status is unknown; some might be in education but others will be in work but are not recorded to be in employment at that time.
- Approximately 82% of participants were accurately recorded as being in employment in their first week on FJF. Given that all participants were in employment this figure ought to be closer to 100%.
- About 22% of participants were recorded as being in employment the week before starting their FJF spell. However, the real employment rate is likely to be close to zero as all participants were actually claiming benefit in this week.

Although these figures highlight clear issues with the absolute employment rates, as discussed in Section 2.2.2, we believe that the bias in imperfection between the groups is small. However, we acknowledge that the employment impact estimates rely on imperfect data and should be treated with a degree of caution.

The effect on unsubsidised employment does not exactly mirror the effect on benefit receipt because some people in unsubsidised employment can claim a benefit at the same time (e.g. part-time workers on JSA). In Section 4.3, a sensitivity test that uses an alternative method of cleaning the employment data by adjusting uncertain employment dates around known benefit spell dates is described.

Therefore a more appropriate measure of the impact of the programme is to exclude FJF employment spells from the outcome measure: Figures 4.7 and 4.8 show the outcomes and associated impact on unsubsidised employment.

Figure 4.7: Unsubsidised employment rate among matched participant and non-participant groups

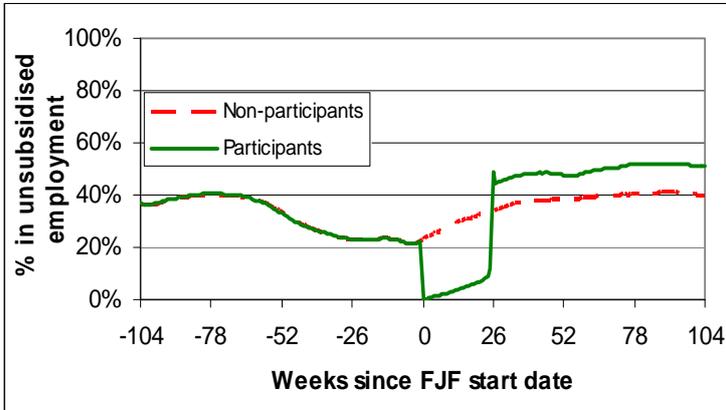


Figure 4.8: Impact of FJF on the likelihood of a participant being in unsubsidised employment

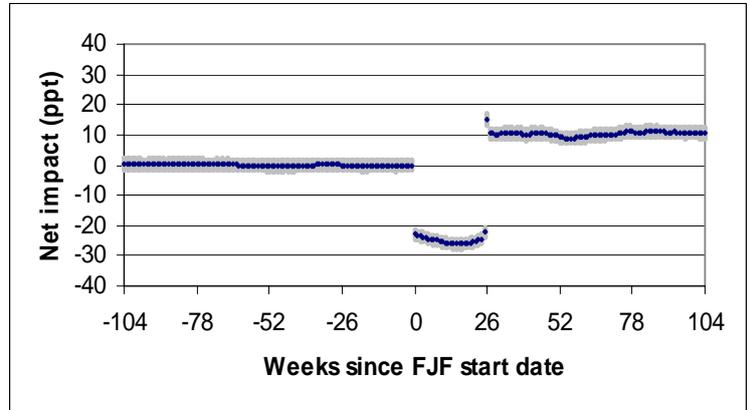


Figure 4.8 shows that the impact of the FJF programme over the first 26 weeks following the start of participation was to decrease the proportion of participants in unsubsidised employment. This impact averaged 25 percentage points per participant per week over the 26-week period. This indicates that during the first 26 weeks, a lower proportion of participants than non-participants were in unsubsidised employment. This is to be expected because the majority of participants remained in subsidised FJF jobs over this 26-week period. The impact of this ‘lock-in’ period amounted to an average of 45 fewer days spent in an unsubsidised job per participant over the first 26 weeks.

In the remainder of the outcome period (weeks 27 to 104), the programme increased the probability of being in unsubsidised employment, averaging approximately 10 percentage points. This means that, over the period from 27 to 104 weeks after starting a FJF job, participants were more likely to be in unsubsidised employment. The impact of the programme over this period amounted to an average of 57 additional days spent in unsubsidised employment per participant.

The impact of FJF on likelihood of being in unsubsidised employment was 11 percentage points 104 weeks after the start of participation. This impact is fairly consistent in the weeks before the 104-week point, having reached 11 percentage points 30 weeks before the end of the tracking period. This suggests that the impact of FJF is likely to be sustained for some time beyond the 104-week outcome period observed.

Over the full 104-week period, the impact of the programme was to increase time spent in unsubsidised employment among participants by 12 days. This means that impact of FJF was sustained for long enough to cancel out the extra time that participants spent on subsidised employment through FJF. This cancellation effect occurred 89 weeks after the start of participation.

As with welfare impacts, the cost-benefit analysis in Section 5 uses a number of scenarios in which the impact estimates are projected forward by one year and two years. If the impacts were to be sustained at the same level, then for each year after the 104-week period, the impacts would increase by another 39 days.²⁹ Therefore the full estimated impact of FJF would be to increase unsubsidised employment by 51 days over the three years – and by 90 days over the four years - after starting a job.

4.2 Discussion of Impact Estimates

The evidence presented in Section 4.1 indicates that the impacts of the Future Jobs Fund (FJF) were:

- Over the six-month period following the start of their FJF job, participants were more likely to be in receipt of welfare support by an average of 18 percentage points and less likely to be in unsubsidised employment by an average of 25 percentage points than if they had not participated. This is an expected 'lock-in' effect of the programme. Over this period the impact amounted to 33 additional days on welfare support and 45 fewer days in unsubsidised employment, per participant.
- Over the 18 months after the lock-in period had ended (i.e. 7-24 months after starting), participants were less likely to be in receipt of welfare support by an average of 7 percentage points and more likely to be in unsubsidised employment by an average of 10 percentage points than if they had not participated. Over this period the impact amounted to 41 fewer days on welfare support and 57 additional days in unsubsidised employment, per participant.
- At 104 weeks following the start of their FJF job, participants were less likely to be in receipt of welfare support by 7 percentage points (or 16% less likely) and more likely to be in unsubsidised employment by 11 percentage points (or 27% less likely) per participant than they would have been had they not participated.

Over this 104-week period, the net impacts of FJF on participants were to:

- decrease the number of days participants spent receiving welfare support by 8 days; and
- increase the number of days participants spent in unsubsidised employment by 12 days.

The cumulative impact estimates are small because the magnitude of the impact on welfare support (or unsubsidised employment) over the final 18

²⁹ If the impacts were to start to decay, then of course the impacts would be less than 39 days a year.

months (months 7-24 since starting) had only just offset the opposing impact on welfare support (or unsubsidised employment) which occurred during the first six months. The cumulative impact per participant reached zero for welfare support and unsubsidised employment by 86 weeks and 88 weeks respectively after starting in FJF jobs,

There is a difference in magnitude between the estimated impacts on welfare support and unsubsidised employment (by 104 weeks this is approximately three percentage points). A similar difference was observed in the estimated impacts on benefit and employment by Ainsworth and Marlow (2011) in their impact evaluation of the European Social Fund.

To understand this difference, it must first be noted that the outcomes and therefore the impacts are not mutually exclusive. This means that there are two additional labour market outcomes:

- being in both states (in unsubsidised employment and receiving welfare support simultaneously); and
- being in neither state (neither in unsubsidised employment nor receiving welfare support).

The impact of FJF on participants being in both states is approximately zero (for most of the last year of the tracking period) while participants are less likely (approximately -4.5 percentage points for most of the last year of the tracking period) to be neither in unsubsidised employment nor receiving welfare support than if they had not participated.

The finding that participants are more likely to be recorded in employment than not on benefit is either true or it might be due to flaws in the HMRC employment data, as outlined in Section 2.2.2 and Section 4.1.2, which could systematically bias the FJF group and inflate the employment impact. We speculate that this might be the case if, for example, FJF participants were more likely to move into public sector employment (this is not unlikely, as a high proportion of FJF posts were within the public sector), and public sector employers were more likely to submit timely and accurate employment records to HMRC. Further research would be necessary to establish how relatively compliant public sector employers are to submitting End of Year returns for their employees to justify this conjecture.

As discussed in section 4.1, the impacts of FJF on both welfare receipt and unsubsidised employment were still strong after 104 weeks, so it is reasonable to assume that they will be sustained for some time beyond the 104-week outcome period. When estimating the full costs and benefits of the programme in Section 5, the impact estimates are therefore projected forward to ensure that the full benefits of the programme are estimated. For each year after the 104-week outcome period in which these impacts are sustained the net impacts of FJF on participants would, on average, be to:

- reduce the number of days participants spent receiving welfare support by 25 days.

- increase the number of days participants spent in unsubsidised employment by 39 days.

Therefore the full estimated impact of FJF would be to reduce time on welfare support by 59 days and increase unsubsidised employment by 90 days over the four years after starting a job. Experience from other labour market programmes indicates that this rate would be likely to decay, in which case the cumulative impacts would be less.

Section 5 shows a full cost-benefit analysis (CBA) of FJF in which the costs and benefits of the programme were evaluated for different scenarios.

4.2.1 Mutually exclusive outcomes

The impact analysis was conducted to understand how participation in FJF affects the likelihood of being in receipt of welfare support or being in unsubsidised employment. In order to estimate the impacts of FJF participation on wages, benefits and other costs within the cost-benefit analysis, different outcomes are required because different costs and benefits are associated with the three “off benefit” outcomes of being in a FJF job only, being in unsubsidised employment only and being neither in unsubsidised employment nor on welfare support. These are illustrated in table 4.1, which shows each set of outcomes and their impacts 13 weeks and 65 weeks after FJF start/pseudo start. The outcomes at 13 weeks illustrate the impacts when participation in FJF had got well under way (half way through the minimum length of a FJF job). Those at 65 weeks illustrate what happened a year afterwards, when all FJF jobs had ended. The commentary below the tables describes the relationship between the impacts discussed in this section and the impacts that are used in the following section of the report.

Table 4.1: Impacts (percentage points) on different outcomes

Non-mutually exclusive outcomes

Week	On welfare support	In unsubsidised employment	Neither
13	20.6	-25.9	-9.9
65	-5.6	10.0	-4.3

Mutually exclusive outcomes

Week	On benefit	Off benefit		
		FJF only	In unsubsidised employment only	Neither in unsubsidised employment nor welfare support
13	-68.9	89.5	-10.6	-9.9
65	-5.6	0.0	9.9	-4.3

The impacts for the mutually exclusive outcomes for each week sum to zero (taking rounding into account), illustrating that they cover all possible states that claimants can be in. Also, the sum of the impacts for “On benefit” and “FJF only” equals the impact for “On welfare support”. The non-mutually exclusive outcomes at week 65 nearly sum to zero - whereas they do not at week 13 - because people are unlikely to be in more than one group at this later stage but there are still some people in unsubsidised employment and on benefit at the same time.

At week 13, 91% of the treatment group are still in their FJF job, which is why the “FJF only” figure is so high. Most of the comparison group is on benefit at this point in time, with approximately half of the remainder either in unsubsidised employment only or neither in work nor on benefit. At week 65, all of the treatment group have left their FJF jobs and are most likely to be in work.

4.2.2 The effects of other DWP programmes on the impact estimates

When interpreting the impact estimates described in Section 4.1, it is important to consider the fact that the Future Jobs Fund was not the only employment support available during the period of analysis. In addition to the standard jobseeker support of fortnightly signings and contact with Jobcentre Plus advisors, DWP also offered a range of other employment support programmes, all of which would have been available to non-participants and participants (when not in a FJF job).

As outlined in Sections 2 and 3, a number of variables were used to capture time spent on other DWP programmes *before* FJF start date or pseudo start date in the propensity score model. The aim of including these variables was both to balance the groups with regard to any positive effects that previous programmes may have had on labour market outcomes and also to capture any associated characteristics, such as motivation, by proxy.

However, some participants and non-participants also spent time on other DWP programmes *after* their FJF start or pseudo start date. On average, non-participants spent an additional 126 days on other DWP programmes (excluding the Work Programme, Get Britain Working Measures and other elements of the Young Person’s Guarantee) in the 104 weeks following their pseudo start date than participants spent over the equivalent period. This is mainly due to participation in Flexible New Deal (FND); on average, non-participants spent an additional 89 days doing this, with 3% of participants and 34% of non-participants starting on FND during those 104 weeks. In addition, 17% of participants and 22% of non-participants were referred to the Work Programme, and 5% of participants and 4% of non-participants started on the Six Month Offer or other options within the Young Person’s Guarantee in the 104 weeks after their start/pseudo start date.

The impact estimates provided in Section 4.1 therefore do not describe the impact of FJF against a baseline of 'no support', but rather the impact of FJF against a baseline of 'other Jobcentre Plus support, including 126 additional days on other DWP programmes'.

We have chosen not to try to adjust the impacts with respect to these other programmes. Rather we have chosen to adjust the cost-benefit analysis (CBA) of the FJF programme in Section 5 to reflect the cost of additional Jobcentre Plus support received by non-participants over the period of analysis. This approach tries to capture the costs and benefits of FJF compared with the costs and benefits incurred by the comparison group, but it does not capture the additional net benefits from the impacts of the other programmes.

Section 4.3 also includes a sensitivity test in which the sample is restricted to include only participants and non-participants from districts in which Flexible New Deal was unavailable. This allows us to explore whether the impacts change in areas where less support was available to non-participants.

4.3 Sensitivity of Impact Estimates

The sensitivity of the impact estimates was explored both in relation to the precise way in which participants and non-participants were selected for analysis and also with respect to the type of matching used for the analysis. The following tests were performed (rationales for each of these along with more detailed descriptions of the findings are reported in Appendix 7):

- Using non-participants aged 20 to 24 instead of 25 to 29;
- Using non-participants aged 25 instead of 25 to 29;
- Using participants aged 18 to 24 instead of 20 to 24;
- Using participants aged 23 to 24 and non-participants aged 25 to 26.
- Restricting the participant and non-participant samples to districts where Flexible New Deal (FND) was not available during the cohort period;
- Using an alternative method of cleaning the HMRC employment data;
- Using a Nearest Neighbour matching methodology;
- Including participants for whom the end date of their FJF spell is unknown
- Using non-participants and participants with more than six months JSA duration before their start or pseudo start date

While some differences were observed, the impact estimates were found to be largely insensitive to each of these alternative implementations. This provided increased confidence that the methodology was robust and that the findings were not biased by the precise specification of the model or the definition of the participant and non-participant samples. However, this sensitivity analysis does not answer the central question of whether there are unobserved differences remaining between the matched participant and non-participant samples.

4.4 Sub-group analysis

The impacts of FJF on a number of sub-groups within the main sample were also investigated. This allows exploration of the heterogeneity of the impacts with regard to pertinent participant characteristics such as gender, ethnicity and disability. This is done by including only participants and non-participants in the sample who meet the specific sub-group requirement. For example, to estimate the impacts of the programme on participants with a disability, both the participant and non-participant samples were restricted to include only people with a disability before using Propensity Score Matching to match on other characteristics.

Table 4.1 shows the impacts of FJF on the labour market prospects of participants within each sub-group. The results show that 104 weeks after starting the FJF programme, welfare impacts on the sub-groups investigated ranged between -5.1 percentage points and -7.9 percentage points. The unsubsidised employment impacts on the sub-groups at 104 weeks ranged between +8.0 percentage points and +10.9 percentage points. The impacts on all subgroups were found to be significantly different from zero at the 5% level.

Whether the variation in impacts between sub-groups within the same category were significantly different to each other at the 5% level was also investigated. In each case (comparing *male* with *female*, *disabled* with *not disabled*, *ethnic minority* with *white* and the *October to December cohort* with the *January to March cohort*) the differences in welfare and unsubsidised employment impacts were not significant.

It is important to note that the sub-group estimates are based on a smaller sample than used in the main analysis. Consequently the impact estimates of the sub-groups are less certain and have larger confidence intervals than the equivalent estimates described in the main analysis.

Table 4.2: Estimated impacts of FJF on participant sub-groups

		Impact on welfare support		Impact on unsubsidised employment	
Sub-group category	Number of participants	Impact at 104 weeks (ppts)	Additional days off welfare support	Impact at 104 weeks (ppts)	Additional days in unsubsidised employment
Main Estimate	12,130	- 7.2 *	8	10.6 *	12
By Gender					
Female	3,300	- 7.2 *	3	9.3 *	-3
Male	8,830	- 7.3 *	9	10.9 *	15
<i>TOTAL</i>	<i>12,130</i>				
By Disability					
Disabled	1,590	- 7.9 *	24	9.3 *	8
Not Disabled	10,520	- 7.3 *	8	10.5 *	9
<i>TOTAL</i>	<i>12,110</i>				
By Ethnicity					
Ethnic Minority	2,050	- 5.1 *	8	8.0 *	2
White	9,620	- 7.7 *	10	10.6 *	11
<i>TOTAL</i>	<i>11,670</i>				
By Cohort					
Oct-Dec 2009	2,040	- 7.0 *	22	10.4 *	11
Jan-Mar 2010	10,090	- 7.5 *	8	10.6 *	12
<i>TOTAL</i>	<i>12,130</i>				

Notes:

An asterisk (*) indicates that the subgroup impact is significantly different from zero at the 5% level.

5 Cost-Benefit Analysis

This section presents a cost-benefit analysis (CBA) of the FJF programme. The methodology underpinning this CBA is outlined in section 5.1. The findings of the CBA are presented in section 5.2. Conclusions are drawn in section 5.3.

5.1 Methodology

The methodology underpinning the CBA of the FJF programme is based on the DWP Social Cost-Benefit Analysis framework³⁰. This framework aims to provide a thorough, consistent and evidence-based approach to the CBA of employment programmes. The application of this approach is outlined below in terms of:

- whose perspective is considered - section 5.1.1;
- which costs and benefits are estimated - section 5.1.2; and
- the estimated scale of the costs and benefits under consideration - section 5.1.3.

The limitations of the adopted methodology are discussed in section 5.1.4.

5.1.1 The perspectives under consideration

The costs and benefits of the FJF programme are considered from the perspectives of:

- the FJF participants (henceforth “participants”);
- participants’ employers;
- the Exchequer (i.e. the government budget perspective); and
- society.

³⁰ For a thorough discussion of the DWP Social Cost-Benefit Analysis framework, see Fujiwara (2010).

For the purposes of this analysis, ‘society’ represents an aggregate of all British citizens. Therefore a cost or benefit to participants, their employers or the Exchequer can also represent a cost or benefit to society. However, it should be noted that many of the gross impacts of the FJF programme are essentially ‘transfer payments’. Transfer payments represent a cost to one group of citizens but a benefit to another. For example, the wages earned during a FJF job represent a benefit to participants but a cost to their employers. Such transfer payments cancel out when estimating the net benefits of a policy from society’s perspective. An example of a *net* benefit to society is the increase in output that occurs when a policy leads to resources being used more efficiently. In the case of the FJF programme, this occurs when participants (who were previously producing no output) produce output during FJF jobs and additional spells in unsubsidised employment. This additional output represents a net benefit to employers and society.

5.1.2 The costs and benefits under consideration

Table 5.1 (below) summarises the FJF impacts which have been translated into monetised costs and benefits for inclusion in this CBA. These impacts and the associated costs and benefits are discussed separately below.

Table 5.1: Monetised costs and benefits of the FJF programme

FJF programme impact	Perspective			
	Participants	Employers	Exchequer	Society
Increase in output	0	+	0	+
Increase in wages	+	-	0	0
FJF employer payments	0	+	-	0
Reduction in operational costs	0	0	+	+
Reduction in benefits	-	0	+	0
Increase in taxes	-	-	+	0
Increase in travel & childcare costs	-	0	0	-
Reduction in healthcare costs	0	0	+	+
Redistributive costs & benefits	+	0	0	+
Social cost of Exchequer finance	0	0	0	-

Key: ‘+’ denotes a net benefit; ‘-’ denotes a net cost; ‘0’ denotes neither a cost nor a benefit.

Increase in output

This refers to the economic output produced by participants during FJF jobs and additional spells in unsubsidised employment. This output represents a benefit to employers (who sell it) and society (which consumes it). DWP does not have information on the value of this output so it is necessary to make a number of assumptions. These are discussed below.

In order to estimate the value of the output produced during additional spells in unsubsidised employment, it is assumed that the labour market is perfectly competitive. This implies that employers will hire workers up to the point where the value of an additional unit of output is equal to the associated cost of production³¹. The cost of production, and therefore the value of the output produced during additional spells in unsubsidised employment, is assumed to equal the commensurate gross wage payments and employers' National Insurance contributions.

The value of the output produced during FJF jobs depends to a greater degree on the initial job readiness of the participants. DWP does not have information on this so two potential scenarios are considered. Under the first scenario it is assumed that, as in the case of output produced during additional spells in unsubsidised employment, the value of the output produced during FJF jobs was equal to the commensurate gross wage payments and employers' National Insurance contributions. This implies that the FJF employer payment represents a pure gain to employers. However, it also implies (unrealistically) that it was in employers' interests to hire the participants even without the FJF employer payment. Under the second scenario, it is conservatively assumed that the output produced by participants during FJF jobs had no value. This implies that the FJF employer payment was a *de facto* subsidy which helped to prevent employers from making a loss. Again, it also seems unrealistic that the output produced by participants during FJF jobs had no value. However, section 5.2.2 shows that considering such extreme scenarios can help to shed light on whether the FJF programme is likely to represent a net cost or benefit to employers and society.

Increase in wages

This refers to the gross wages received by participants during FJF jobs and additional spells in unsubsidised employment. Wages represent a benefit to participants but a cost to their employers. This means they do not represent a

³¹ See, for example, Borjas (2009).

net cost or benefit to society as a whole (except via redistributive effects - see below). DWP does not have information on the wages received by participants. It is assumed that participants in FJF jobs received the minimum wage and worked for 25 hours per week³². This is a 'lower bound' estimate which is increased as part of sensitivity analysis (see section 5.2.2). The weekly wage received by participants in unsubsidised employment is assumed to equal the average weekly wage received by employed former JSA claimants aged 18 to 24³³.

FJF employer payments

This refers to the payments that DWP made to FJF employers. These payments represent a benefit to employers but a cost to the Exchequer. This means they do not represent a net cost or benefit to society as a whole. The average FJF employer payment was approximately £6,850 per participant (in 2012/13 prices).

Reduction in operational costs

This refers to the *net* impact of the FJF programme on DWP's operational costs. The costs of setting up and administering the FJF programme represent a cost to the Exchequer and society (as this diverts economic resources from alternative uses). However, when participants enter FJF jobs and additional spells in unsubsidised employment they are less likely to participate in other DWP programmes³⁴. This translates into operational savings which represent a benefit to the Exchequer and society (as economic resources can be reallocated to alternative uses). Overall, the FJF programme is expected to result in a net reduction in operational costs. Precise estimates of the costs of setting up and administering the FJF programme are not available. However, internal Departmental estimates suggest that these costs would have been small enough to be outweighed by the operational savings.

³² This assumption is broadly consistent with the findings of qualitative research conducted by Allaker and Cavill (2011).

³³ Estimates of the average weekly wage received by employed former JSA claimants aged 18 to 24 are based on the findings of Adams *et al.* (2012).

³⁴ FJF participants were less likely to participate in other DWP employment programmes such as New Deal and Flexible New Deal. They were also less likely to receive support from Jobcentre Plus advisers when in FJF jobs because they were working and no longer claiming Jobseeker's Allowance.

Reduction in benefits

This refers to the *net* reduction in benefit entitlement and take-up that occurs when participants enter FJF jobs and additional spells in unsubsidised employment³⁵. This represents a cost to participants but a benefit to the Exchequer, which means there is no net cost or benefit to society as a whole (except via redistributive effects - see below). Changes in benefit entitlement and take-up are estimated using the DWP Policy Simulation Model³⁶.

Increase in taxes

This refers to the increase in income tax, National Insurance and indirect tax revenue that occurs when participants enter FJF jobs and additional spells in unsubsidised employment. This represents a benefit to the Exchequer but a cost to participants and employers, which means there is no net cost or benefit to society as a whole (except via redistributive effects - see below). Increases in tax revenue are estimated using the DWP Policy Simulation Model³⁷.

The costs and benefits associated with the remaining FJF impacts are described briefly below. For a detailed description of the methodologies used to estimate these costs and benefits, see Fujiwara (2010).

Increase in travel and childcare costs

This refers to the additional travel and childcare costs that are incurred by participants during FJF jobs and additional spells in unsubsidised employment. This also represents a cost to society as the provision of additional travel and childcare services diverts economic resources from alternative uses.

Reduction in healthcare costs

³⁵ Increases in Tax Credit entitlement and take-up are more than offset by reductions in Jobseeker's Allowance, Housing Benefit and Council Tax Benefit.

³⁶ The DWP Policy Simulation Model is a microsimulation model which combines data from the Family Resources Survey with information on the UK tax and benefit systems. This allows users to estimate the changes in benefit payments and tax revenue that occur when unemployed individuals with a given set of characteristics move into work.

³⁷ In order to estimate increases in indirect tax revenue, Office for National Statistics estimates of indirect tax burdens were applied to estimates of participants' disposable income obtained from the DWP Policy Simulation Model.

This refers to the reduction in National Health Service (NHS) costs which is expected to occur when participants enter FJF jobs and additional spells in unsubsidised employment³⁸. This represents a benefit to the Exchequer (via reductions in NHS expenditure) and society (as economic resources which had been allocated to healthcare provision can be reallocated to alternative uses).

Redistributive costs and benefits

This refers to the redistributive costs and benefits associated with monetary transfers between participants, employers and the Exchequer. In line with the methodology prescribed in the HM Treasury Green Book³⁹, participants (who have relatively low incomes) are assumed to value each additional pound more highly than employers and the average taxpayer (who both have a relatively high income compared to participants). This implies, for example, that monetary transfers from the Exchequer to participants represent a benefit to society as a whole. In line with the recommendations of Fujiwara (2010), redistributive costs and benefits are estimated by applying a 'welfare weight' of 2.5 to monetary transfers made to and from programme participants.

Social cost of Exchequer finance

This refers to the cost of raising the tax revenue that was required to finance the FJF programme. This 'deadweight loss' arises because taxation creates market distortions which have an adverse effect on economic efficiency. The distribution of the social cost of Exchequer finance amongst members of society depends on the specific details of taxation policy. For the purposes of this analysis, it is assumed to accrue to society as a whole. In line with the recommendations of Fujiwara (2010), the social cost of Exchequer finance is assumed to equate to 20 per cent of the net cost of the programme to the Exchequer. However, as this estimate is subject to considerable uncertainty, it is only considered as part of sensitivity analysis (see section 5.2.2).

³⁸ Fujiwara (2010) presents evidence of a causal relationship between individuals' employment status and NHS usage.

³⁹ See HM Treasury (2003).

5.1.3 Estimating the scale of the costs and benefits under consideration

The scale of the costs and benefits of the FJF programme depends on the magnitude and the duration of its impacts. Specifically, it depends on the programme's impacts on the amount of time that participants spend:

- in FJF jobs;
- in unsubsidised employment; and
- not in receipt of unemployment benefits (but not in FJF jobs or unsubsidised employment).

These impacts have been derived from the three mutually exclusive “off benefit” estimates presented in section 4.2. However, the costs and benefits of the programme will be underestimated if the impacts persist beyond the tracking period, i.e. 104 weeks after the FJF start date. For this reason, the costs and benefits of the FJF programme were estimated in relation to three possible scenarios:

- (i) the impacts of the programme do not persist beyond the tracking period (this forms the basis of a conservative ‘lower bound’ estimate);
- (ii) the impacts of the programme persist for one year beyond the tracking period; and
- (iii) the impacts of the programme persist for two years beyond the tracking period.

Under the latter two scenarios, it is assumed that the impacts of the FJF programme continue at the same level as at the end of the tracking period, for one and two years respectively⁴⁰. It should be borne in mind that the further the impacts are assumed to persist beyond the tracking period, the less reliable the resultant cost and benefit estimates become.

It is also necessary to account for the possibility that a proportion of the positive employment impacts experienced by FJF participants are obtained at the expense of non-participants. If this is the case then the overall benefits of

⁴⁰ This assumption was made because the estimated impacts of the FJF programme exhibit little variation during the last six months of the tracking period.

the programme will be overstated. In order to account for this ‘substitution effect’, Fujiwara (2010) recommends that estimates of the additional time that participants spend in FJF jobs and unsubsidised employment should be reduced by approximately 45 and 20 per cent, respectively. However, as these estimates are subject to considerable uncertainty, substitution effects are only considered as part of sensitivity analysis (see section 5.2.2).

5.1.4 Limitations

The CBA estimates presented in section 5.2 are subject to two main caveats.

First, the accuracy of the estimates depends on the robustness of the impact estimates from which they are derived (see section 4) and the validity of the assumptions upon which they are based (see sections 5.1.2 and 5.1.3). Uncertainty regarding these inputs has been partially mitigated by undertaking sensitivity analysis (see section 5.2.2).

Second, the CBA estimates exclude a number of potentially significant costs and benefits due to a lack of robust evidence⁴¹. For example, it has not been possible to obtain robust estimates relating to:

- the additional leisure time which participants forego (this represents a potential cost to participants and therefore society);
- the non-pecuniary benefits⁴² associated with FJF jobs and additional spells in unsubsidised employment (these represent a potential benefit to participants and therefore society);
- the cost of hiring and training FJF participants (this represents a potential cost to employers and therefore society);
- the reduction in crime⁴³ which may result from the programme (this represents a potential benefit to society); and

⁴¹ For a thorough discussion of the non-monetised costs and benefits of employment programmes, see Fujiwara (2010).

⁴² A qualitative research study conducted by Allaker and Cavill (2011) suggests that the FJF programme results in several benefits that are not (directly) pecuniary. These include improvements in participants’ confidence levels and skill sets.

⁴³ Fujiwara (2010) presents evidence of a causal relationship between individuals’ income levels and their propensities to commit acquisitive crime. However, the voluntary nature of

- the economic multiplier effect which may result from the programme (this represents a potential benefit to society).

These non-monetised costs and benefits should be borne in mind when interpreting the CBA estimates presented in section 5.2.

5.2 Findings

This section presents estimates of the costs and benefits of the FJF programme. Estimates based on a set of baseline assumptions are presented in section 5.2.1. The effects of varying these assumptions are examined in section 5.2.2.

The estimates presented in this section are expressed in 2012/13 prices and have been discounted in order to account for social time preference⁴⁴.

5.2.1 Baseline estimates

Table 5.2 (below) presents estimates of the costs and benefits of the FJF programme which are based on the following baseline assumptions:

- the value of the output produced during FJF jobs is equal to the commensurate gross wage payments and employers' National Insurance contributions;
- participants in FJF jobs worked for 25 hours per week and received the minimum wage;
- the FJF programme results in redistributive costs and benefits but does not result in substitution effects or a social cost of Exchequer finance; and

FJF participation means that this relationship cannot be used to obtain robust estimates of the programme's effects on crime levels.

⁴⁴ Members of society generally prefer to receive goods and services sooner rather than later. In order to take account of this 'social time preference', costs and benefits which occurred in 'future' periods (i.e. from 2010/11 onwards) have been discounted in line with the methodology prescribed in the HM Treasury Green Book. For a detailed description of this methodology, see HM Treasury (2003).

- the employment impacts of the FJF programme do not persist beyond the tracking period (see section 5.1.3).

Table 5.2: The estimated costs and benefits of the FJF programme under baseline assumptions

FJF programme impact	Cost/benefit per participant (£)			
	Participants	Employers	Exchequer	Society
Increase in output	0	+ 4,400	0	+ 4,400
Increase in wages	+ 4,300	- 4,300	0	0
FJF employer payments	0	+ 6,850	- 6,850	0
Reduction in operational costs	0	0	+ 900	+ 900
Reduction in benefits	- 1,450	0	+ 1,450	0
Increase in taxes	- 1,000	- 100	+ 1,100	0
Increase in travel & childcare costs	- 250	0	0	- 250
Reduction in healthcare costs	0	0	+ 300	+ 300
Redistributive costs & benefits	+ 2,400	0	0	+ 2,400
Social cost of Exchequer finance	0	0	0	0
Total programme impact	+ 4,000	+ 6,850	- 3,100	+ 7,750
<i>Key:</i> '+' denotes a net benefit; '-' denotes a net cost; '0' denotes neither a cost nor a benefit.				
<i>Note:</i> totals may not sum due to rounding.				

The cost and benefit estimates presented in table 5.2 are discussed separately below from each of the perspectives under consideration.

Participants. Table 5.2 shows that, under the baseline assumptions, the FJF programme is estimated to result in a net benefit to participants. This is because the additional wages received by participants are expected to outweigh the costs associated with a net reduction in benefit receipt and net increases in tax liabilities, travel costs and childcare costs. Table 5.2 suggests that, on average, participants are financially better-off by approximately £1,600 as a result of the programme. The assumption that participants value additional income more highly than the average taxpayer means that the programme is also estimated to result in a net redistributive benefit.

Participants' employers. Table 5.2 shows that, under the baseline assumptions, the FJF programme is estimated to result in a net benefit to participants' employers of approximately £6,850 per participant. This is because the value of the output produced during FJF jobs is assumed to equal the commensurate gross wage payments and employers' National Insurance contributions. This implies that the estimated net benefit to

participants' employers is equal to the value of the FJF employer payment. However, it should be borne in mind that this analysis excludes the costs of hiring and training participants. Table 5.2 suggests that the FJF programme would still result in an estimated net benefit to participants' employers provided that such costs do not outweigh the average FJF employer payment of £6,850 per participant.

The Exchequer. Table 5.2 shows that, under the baseline assumptions, the FJF programme is estimated to result in a net cost to the Exchequer of approximately £3,100 per participant. This is because the cost of the FJF employer payment is expected to outweigh the benefits associated with a net increase in tax revenues and net reductions in benefit expenditure, operational costs and NHS expenditure.

Society. Table 5.2 shows that, under the baseline assumptions, the FJF programme is estimated to result in a net benefit to society of approximately £7,750 per participant. This is largely due to the additional economic output that is produced by participants during FJF jobs and additional spells in unsubsidised employment. The assumption that participants value additional income more highly than the average taxpayer means that the programme is also estimated to result in a net redistributive benefit. However, it should be borne in mind that the estimated net benefit to society excludes the cost of administering the programme and the cost of hiring and training participants. Table 5.2 suggests that the FJF programme would still result in a net benefit to society provided that the sum total of these costs was less than £7,750 per participant.

5.2.2 Sensitivity analysis

As noted in section 5.1, there is considerable uncertainty regarding the accuracy of the baseline assumptions. For this reason, the net benefits of the FJF programme were estimated on the basis of several potential scenarios (see table 5.3 below).

Table 5.3: The estimated net benefits of the FJF programme under various scenarios

Scenario	Net benefit per participant (£)			
	Participants	Employers	Exchequer	Society
(1) Baseline assumptions	+ 4,000	+ 6,850	- 3,100	+ 7,750
(1a) FJF job output has no value	+ 4,000	+ 3,750	- 3,100	+ 4,650
(1b) Higher FJF job wages	+ 6,500	+ 6,850	- 2,100	+ 11,200
(1c) Redistributive costs & benefits excluded	+ 1,600	+ 6,850	- 3,100	+ 5,300
(1d) Full substitution effects included	+ 4,000	+ 6,850	- 4,300	+ 5,350
(1e) Partial substitution effects included	+ 4,000	+ 6,850	- 3,300	+ 7,300
(1f) Social cost of Exchequer finance included	+ 4,000	+ 6,850	- 3,100	+ 7,100
(1g) Employment impacts persist for one year beyond the tracking period	+ 5,500	+ 6,850	- 2,500	+ 9,800
(1h) Employment impacts persist for two years beyond the tracking period	+ 6,950	+ 6,850	- 1,950	+ 11,850
(2) Conservative assumptions	+ 1,600	+ 3,750	- 4,300	+ 1,100
(3) Optimistic assumptions	+ 9,450	+ 6,850	- 950	+ 15,350

Key: '+' denotes a net benefit; '-' denotes a net cost.
Note: totals may not sum due to rounding.

Scenarios (1a) to (1h) in table 5.3 show the effects of varying each of the baseline assumptions individually, *whilst holding the other baseline assumptions constant*. These scenarios are discussed separately below.

Under scenario (1a) it is assumed that the output produced during FJF jobs has no value. As mentioned in section 5.1.2, this assumption is likely to be unrealistically conservative. However, it is notable that the estimated net benefits to participants' employers and society remain positive even under such a conservative assumption.

Under scenario (1b) it is assumed that the weekly wage received by participants in FJF jobs is equal to the average weekly wage received by employed former JSA claimants aged 18 to 24. This assumption is likely to be unrealistically optimistic⁴⁵. However, it is notable that the estimated net benefit

⁴⁵ Scenario (1b) is considered for illustrative purposes only. The findings of Allaker and Cavill (2011) suggest participants might have been more likely to have worked for 25 hours per week and received the minimum wage.

to the Exchequer remains negative, despite the implication that tax revenues and benefit savings were higher than under the baseline assumptions.

Under scenario (1c) it is assumed that the FJF programme did not result in redistributive costs or benefits. Under this scenario the estimated net benefits of the programme to participants and society are approximately £2,450 lower per participant than under the baseline assumptions, although both estimates remain positive. Excluding redistributive costs and benefits does not affect the estimated net benefits to the Exchequer or participants' employers.

Under scenarios (1d) and (1e) it is assumed that the FJF programme results in substitution effects. This implies that a proportion of the positive employment impacts experienced by participants are obtained at the expense of non-participants. Under scenario (1d) it is assumed that substitution effects apply to both FJF jobs and spells in unsubsidised employment. Under scenario (1e) it is assumed that they only apply to the latter⁴⁶. Table 5.3 shows that including substitution effects increases the estimated net cost of the programme to the Exchequer (by approximately £1,200 and £200 per participant under scenarios (1d) and (1e), respectively). This is because the 'substituted' non-participants would be expected to pay less tax and receive more benefits than under the baseline assumptions. Including substitution effects also reduces the estimated net benefit to society (by approximately £2,400 and £450 per participant under scenarios (1d) and (1e), respectively). This is mainly because the 'substituted' non-participants would be expected to produce less output than under the baseline assumptions. However, table 5.3 shows that the estimated net benefit to society remains positive under both scenarios (1d) and (1e).

Under scenario (1f) it is assumed that the FJF programme results in a social cost of Exchequer finance. Under this scenario, the estimated net benefit of the programme to society remains positive but is approximately £650 lower per participant than under the baseline assumptions. Including the social cost of Exchequer finance does not affect the estimated net benefits to participants, their employers or the Exchequer.

Under scenarios (1g) and (1h) it is assumed that the employment impacts of the FJF programme persist beyond the tracking period for one year and two years, respectively (see section 5.1.3). This essentially 'scales up' the cost and benefit estimates associated with the baseline scenario, with the exception of the FJF employer payment. This means that the longer the programme's impacts are assumed to persist for, the greater the estimated

⁴⁶ FJF jobs were required to be "additional" posts, i.e. posts that would not exist without FJF funding. However, the extent to which this was the case in practice is unclear.

net benefit to participants, the Exchequer and society. Table 5.3 suggests that each additional year of impacts reduces the estimated net cost to the Exchequer by approximately £600 per participant. However, the impacts would have to persist at a sustained rate for several years for the programme to result in an estimated net benefit to the Exchequer.

Scenario (2) in table 5.3 shows the estimated net benefits of the FJF programme under the most conservative combination of assumptions considered in this analysis. Under this scenario it is assumed that:

- the output produced during FJF jobs has no value;
- participants in FJF jobs worked for 25 hours per week and received the minimum wage;
- the FJF programme does not result in redistributive costs and benefits but does result in substitution effects and a social cost of Exchequer finance; and
- the positive employment impacts of the FJF programme do not persist beyond the tracking period (see section 5.1.3).

Table 5.3 shows that, even under the particularly conservative assumptions of scenario (2), the FJF programme is still estimated to result in a net benefit to participants, their employers and society. However, it should be borne in mind that these estimates exclude the cost of administering the programme and the cost of hiring and training participants. Table 5.3 suggests that, under scenario (2), the sum total of these costs would have to exceed £1,100 per participant for the programme to result in an estimated net cost to society. The average cost of hiring and training participants would have to exceed £3,750 for the programme to result in an estimated net cost to their employers.

Scenario (3) in table 5.3 shows the estimated net benefits of the FJF programme under the most optimistic combination of assumptions considered in this analysis. Under this scenario it is assumed that:

- the value of the output produced during FJF jobs is equal to the commensurate gross wage payments and employers' National Insurance contributions;
- the weekly wage received by participants in FJF jobs is equal to the average weekly wage received by employed former JSA claimants aged 18 to 24;

- the FJF programme results in redistributive costs and benefits but does not result in substitution effects or a social cost of Exchequer finance; and
- the positive employment impacts of the FJF programme persist for two years beyond the tracking period (see section 5.1.3).

Scenario (3) is potentially unrealistically optimistic, not least because it incorporates what is likely to be an overestimate of the wages earned by participants in FJF jobs (see above). This scenario is only considered because it shows that, even under the most optimistic combination of assumptions considered in this analysis, the FJF programme is still estimated to result in a net cost to the Exchequer.

5.3 Conclusions

There is considerable uncertainty regarding the costs and benefits of the FJF programme. However, it is notable that under *all* of the scenarios considered in this analysis, the programme is estimated to result in a net cost to the Exchequer and a net benefit to participants, their employers and society as a whole.

Under the baseline assumptions the FJF programme is estimated to result in⁴⁷:

- a net benefit to participants of approximately £4,000 per participant;
- a net benefit to employers of approximately £6,850 per participant;
- a net cost to the Exchequer of approximately £3,100 per participant; and
- a net benefit to society of approximately £7,750 per participant.

Assuming that the cohort of young participants who started their FJF job between October 2009 and March 2010 is representative of all FJF participants⁴⁸ then, under the baseline assumptions, the total net cost of the programme to the Exchequer is estimated to be in the region of £330m. Although the gross cost to the Exchequer was approximately £720m, it is

⁴⁷ All figures are expressed in 2012/13 prices.

⁴⁸ This is a bold assumption given that, for example, 15% of all FJF participants were over 25 years old.

estimated to have recouped roughly 50 pence for each pound that was spent on the programme.

It should be noted that the longer the beneficial impacts of the programme persist beyond the tracking period, the greater the estimated net benefit to participants, the Exchequer and society. However, these impacts would have to persist at a sustained rate for many years for the programme to result in an estimated net benefit to the Exchequer. If the impacts were to decay over time then it would take even longer and depending on the rate of decay there might never be an estimated net benefit to the Exchequer.

It is important to reiterate that the cost and benefit estimates presented in this paper are subject to the caveats discussed in section 5.1.4. The accuracy of these estimates is dependent on the robustness of the impact estimates from which they are derived and the validity of the assumptions upon which they are based. It should also be borne in mind that a number of potentially significant costs and benefits have been excluded from this analysis due to a lack of robust evidence. These include the non-pecuniary benefits associated with FJF participation (e.g. improvements in participants' confidence) and any additional training costs incurred by FJF employers.

6 Conclusions

This report showed the results of an evaluation of the Future Jobs Fund (FJF) for young Jobseeker's Allowance claimants. We have presented an **impact analysis** with respect to labour market outcomes for the two years after starting on the programme; this was followed by a **cost-benefit analysis** of the programme.

Impact Analysis

The impact analysis considered the impacts on two main outcomes over the 104 weeks following starting in a FJF job:

- welfare support⁴⁹ (defined as in receipt of an out-of work benefit or training allowance or in a FJF job); and
- unsubsidised employment (defined as in employment other than a FJF job).

The results showed that:

- Over the six-month period following the start of their FJF job, participants were more likely to be in receipt of welfare support by an average of 18 percentage points and less likely to be in unsubsidised employment by an average of 25 percentage points than if they had not participated. This is an expected 'lock-in' effect of the programme. Over this period the impact amounted to 33 additional days on welfare support and 45 fewer days in unsubsidised employment, per participant.
- Over the 18 months after the lock-in period had ended (i.e. 7-24 months after starting), participants were less likely to be in receipt of welfare support by an average of 7 percentage points and more likely to be in unsubsidised employment by an average of 10 percentage points than if they had not participated. Over this period the impact amounted to 41 fewer days on welfare support and 57 additional days in unsubsidised employment, per participant.
- At 104 weeks following the start of their FJF job, participants were less likely to be in receipt of welfare support by 7 percentage points (or 16% less likely) and more likely to be in unsubsidised employment by 11

⁴⁹ After completing a FJF job (only 3% of participants were still on FJF after 6 months and 1% two weeks later) welfare support is equivalent to the definition of being in receipt of an out-of-work benefit or Training Allowance; likewise unsubsidised employment is the equivalent of employment.

percentage points (or 27% more likely) per participant than they would have been had they not participated.

In total, over the two years following the start of participation, the net impacts of FJF on participants were to:

- decrease the number of days that participants spent receiving welfare support by 8 days; and
- increase the number of days that participants spent in unsubsidised employment by 12 days.

The cumulative impact estimates are small because the magnitude of the impact on welfare support (or unsubsidised employment) over the final 18 months (months 7-24 since starting) had only just offset the opposing impact *on* welfare support (or unsubsidised employment) which occurred during the first six months. The cumulative impact per participant reached zero for welfare support and unsubsidised employment by 86 weeks and 88 weeks respectively after starting in FJF jobs,

A number of scenarios were explored in which the impact estimates were projected forward. In a scenario in which impacts are sustained at a similar level over time, for each year after the tracking period, the impacts would:

- reduce the number of days participants spent receiving welfare support by 25 days.
- increase the number of days participants spent in unsubsidised employment by 39 days.

Therefore the full estimated impact of FJF would be to reduce time on welfare support by 59 days and increase unsubsidised employment by 90 days over the four years after starting a job. Experience from other labour market programmes indicates that this rate would be likely to decay, in which case the cumulative impacts would be less.

A number of sensitivity tests showed that the impact estimates were largely insensitive to alternative implementations and sub-groups. This increases confidence that the methodology was credible and the findings were not biased by the definition of the chosen participant and non-participant groups.

Nonetheless, the analysis is complex and caution should be applied to the results. Overall our judgement is that the method is more likely than not to generate an overestimate of the impacts for the following reasons:

- FJF was a voluntary programme and therefore participants would probably have been more likely to be motivated to work than other JSA claimants. It is extremely difficult to be confident of capturing all self-selection effects in a matching approach. We have tried very hard to design the matched comparison group so as to mimic FJF

participants as accurately as possible and capture the motivational differences between participants and non-participants. However, we recognise that although the matching on observed variables appears to be of good quality there is a strong possibility that we have not captured all self-selection bias from unobserved variables. This is a common risk for any evaluation of labour market policies where individuals actively choose to participate.

- The impacts are estimates of the additional effect on participants but **not** on the overall labour market, which might be less (particularly in the short-term) if there are knock-on effects on other groups. For example it is possible that the programme may have caused some substitution effects (i.e. an employee taken on as part of FJF by an employer displaces someone else who would have been hired). While the design of the programme – in particular, the stipulation that all jobs should be additional – would in theory have minimised this, it is possible that in practice some jobs were not additional.

The two impact measures are broadly consistent in terms of overall magnitude and pattern of impact. However it is also possible that the employment impacts are slightly inflated because FJF participants were more likely to move into public sector employment and public sector employers may be more likely to submit timely and accurate employment records to HMRC; further research would be required to verify this. However, in common with other evaluations, the employment impacts are less robust than benefit impacts because the HMRC tax data does not capture all employment outcomes, and cannot always be matched to benefit records. This means the benefit and employment impacts cannot be directly compared, and the benefit impact is likely to be a more robust estimate.

One factor that could drive the impact estimates presented downwards is that the impact is not against 'nothing' but against a background of support, which includes Jobcentre Plus support and other programmes. In particular, on average, non-participants spent an additional 89 days on Flexible New Deal than participants over the 104-week tracking period.

The influence of additional programme support was explored in two ways:

- When participants and non-participants in Flexible New Deal districts were removed from the sample, the size of the welfare support impact at the two-year mark increased by approximately one percentage point⁵⁰ (from -7 to -8). In a similar way, when the non-participant sample was taken from 20 to 24-year-old JSA claimants (who would have received more support than 25 to 29-year-olds), the welfare support and unsubsidised employment impacts reduced in size by approximately 1.5 percentage points.

⁵⁰ Although the results from the sensitivity give some sense of the influence of FND for a small group of participants, we cannot extrapolate with any assurance what the impacts of FND might be. An impact assessment of FND will be forthcoming next year.

- Although the impacts were not adjusted, the cost-benefit analysis took into account the fact that additional or fewer people in the comparison group went on other employment programmes (but it did not take into account the effects of the employment programmes).

The evaluation considered only participants who started their FJF job between October 2009 and March 2010. Although we would not expect the impacts to vary a great deal over time, there should be some caution in extrapolating the impacts to the entire FJF programme. In particular this cohort predates the mandatory phase of the YPG, and it is likely that the impact will have been different in the mandatory phase. In addition, the impact may vary with the changing state of the wider labour market, both because it may affect the characteristics of those joining the FJF and the chances of finding unsubsidised employment for both participants and non-participants. However, we note there were no evident shifts in the labour market between the two phases of FJF, so we would expect this effect to be small.

Finally, the evaluation looks at net impacts in terms of welfare support and unsubsidised employment only. Other reports, including Allaker (2011) and Fishwick et al (2011) documented that FJF has other benefits for participants and employers. Some of these are captured in the cost–benefit analysis which considered the benefits to society.

Cost-benefit analysis

There is considerable uncertainty regarding the costs and benefits of the FJF programme. However, under *all* of the scenarios considered in this analysis, the programme is estimated to result in a net cost to the Exchequer and a net benefit to participants, their employers and society as a whole.

Under the baseline assumptions the FJF programme is estimated to result in⁵¹:

- a net benefit to participants of approximately £4,000 per participant;
- a net benefit to employers of approximately £6,850 per participant;
- a net cost to the Exchequer of approximately £3,100 per participant;
- and
- a net benefit to society of approximately £7,750 per participant.

Under the baseline assumptions, the total net cost of the programme to the Exchequer was estimated to be approximately £330m. The gross cost to the Exchequer was approximately £720m but it is estimated to have recouped roughly 50 pence for each pound that was spent on the programme.

The longer the beneficial impacts of the programme persist beyond the 104-week tracking period, the greater the estimated net benefit to participants, the

⁵¹ All figures in the cost-benefit analysis are expressed in 2012/13 prices.

Exchequer and society would be. Since the impacts on welfare support and unsubsidised employment remained at around the same level for the final six months of the tracking period, it would be justified to assume that they would continue after this point. However, these impacts would have to persist at a sustained rate for many years for the programme to result in an estimated net benefit to the Exchequer. If the impacts were to decay over time then it would take even longer and depending on the rate of decay there might never be an estimated net benefit to the Exchequer.

It is important to reiterate that the accuracy of the cost and benefit estimates is very much dependent on the robustness of the impact estimates from which they are derived and the validity of the assumptions upon which they are based.

It should also be borne in mind that a number of potentially significant costs and benefits have been excluded from this analysis due to a lack of robust evidence. These include the non-pecuniary benefits associated with FJF participation (e.g. improvements in participants' confidence) and any additional training costs incurred by FJF employers.

7 Appendices

7.1 Appendix 1 – Defining the Participant Sample

Table 7.1 below shows how the participant sample of 12,130 was derived from the total number who participated in FJF over its lifetime. It shows that of the 105,230 total FJF participants, 27,210 started during the cohort period (October 2009 to March 2010). Of these, 15,470 were aged between 20 and 24 years old. Removing participants for whom the start and end date of their FJF spell was not accurately known left 12,150. Finally, restricting the sample to participants who were recorded on DWP systems as receiving Jobseeker's Allowance one week before their FJF start date left 12,130 participants. This was the final participant sample used in the main analysis.

Table A.1: Sampling valid participants using selection conditions

Condition for selection	Valid Participants Remaining
Total FJF participation (October 2009 to March 2011)	105,230
Participants start during the cohort period (October 2009 to March 2010)	27,210
Participants are aged 20 to 24	15,470
FJF start and end date are both known ⁵²	12,150
Participants are recorded as receiving Jobseeker's Allowance one week before their FJF start date	12,130

⁵² Over 3,000 FJF participants were excluded from the sample in the main analysis because the end date of their FJF spell was unknown. In Appendix 7 the sensitivity of the estimates to including these participants was explored.

7.2 Appendix 2 – Generating Pseudo Start Dates

The benefit and employment outcomes of individual participants in the treatment group were measured weekly from the date on which they start their FJF job. However, because participation can occur at any time during an individual's claim, non-participants in the comparison group have no natural start date from which outcomes can be measured. It was therefore necessary to assign a 'pseudo start date' to each non-participant so that a time-based comparison between groups can be made. These pseudo start dates must identify a period of time over which non-participants can best represent what would have happened to FJF participants if they had not participated in the programme.

The method used for generating pseudo starts is as described in Ainsworth and Marlow (2011). This aims to align the non-participants and participants with respect to two time dimensions: calendar time and length of time on benefit.

The method used for generating pseudo start dates is as follows:

1. All participant records were separated according to the benefit start month of the participant – i.e. separate data sets were created for participants starting benefit in October 2008⁵³, November 2008, December 2008, and so on up to March 2010 (the latest FJF start month included in the analysis);
2. For each of these participant data sets, the proportion of FJF starts occurring in each possible FJF start month was calculated.
3. All non-participant records were then separated according to the benefit start month of the non-participant, in the same manner as carried out in Step 1 for participants;
4. For each non-participant benefit start month file, a pseudo start month was randomly assigned from the distribution of FJF start months gained from the participant file with the equivalent benefit start month.
5. A random date was generated in the assigned month from a flat distribution (i.e. all dates within the month were equally likely).
6. If an assigned pseudo start date occurred at a time when the non-participant was not claiming JSA, then the pseudo start was considered 'invalid' and the record was removed from the sample.

⁵³ Note that records with benefit start dates prior to October 2008 were kept together as a single file. This was because it was assumed that the decision of when to begin FJF participation would not depend on benefit start month for those who had been on benefit for such a long period.

7. Table A.2 shows that the distribution of FJF starts closely mirrors the distribution of pseudo starts (unmatched) and then after matching the distribution is almost identical to the distribution of pseudo starts.

Table A.2: Comparison of distribution of starts and pseudo starts

	Unmatched		Matched	
	Non-Participants	Participants	Non-Participants	Participants
Oct-09	2%	1%	1%	1%
Nov-09	10%	9%	9%	9%
Dec-09	7%	7%	7%	7%
Jan-10	17%	17%	17%	17%
Feb-10	22%	22%	23%	22%
Mar-10	41%	44%	44%	43%
Total	231,740	12,130	11,550	11,550

7.3 Appendix 3 – Matching on other DWP programme support

Participants and non-participants may have been on employment programmes other than FJF prior to their start or pseudo start date. To ensure that the impacts measured are balanced with regard to the amount of past additional support received, matching on the time spent on each of 14 DWP employment programmes in the two years prior to the start or pseudo start date is employed. Programmes included are as follows:

- Flexible New Deal (FND);
- New Deal for Young People (NDYP);
- New Deal for the Long Term Unemployed (NDLTU);
- New Deal for Disabled People (NDDP);
- Pathways to Work (PtW);
- European Social Fund (ESF).
- New Deal for Lone Parents (NDLP);
- Basic Skills (BS);
- Work Based Learning for Adults (WBLA);
- Employment Zones (EZ);
- New Deal for Partners (NDP);
- Young Person's Guarantee (YPG) – which includes other programmes other than FJF: Community Task Force and Pre-employment training;
- Six Month Offer (6MO); and
- Work Programme (WP).

The number of days spent on each of these programmes, in the two years prior to start/pseudo start date, were used as variables in the propensity score model. There are two exceptions to this:

1. The total number of days spent on either of NDYP or NDLTU was used in the model. This is because these programmes were targeted at 18 to 24-year-olds and 25-plus-year-olds respectively. The treatment group comprised only 20 to 24-year-olds, while the comparison group comprised only 25-plus-year-olds, so including the programmes separately would not be possible.
2. For YPG and 6MO a single binary variable was included, which indicated whether an individual had one or more spells on either of these programmes. This is because accurate start and end dates for spells from these programmes were not available.

7.4 Appendix 4 - Controlling for Labour Market History

As discussed in section 3.1, the labour market history of an individual provides an important proxy for unobserved characteristics, such as motivation to work, which will jointly influence both the participation decision and the outcomes in the absence of participation. It is therefore important to control for benefit and employment history in the propensity score model.

A common method described in the literature for controlling for labour market history is the approach adopted by Card and Sullivan (1988), in which a single variable is constructed to describe the labour market position of each individual over time. However, Ainsworth and Marlow (2011) proposed an alternative method of controlling for labour market history, which has been adopted in this analysis. This appendix outlines the advantages of using the Ainsworth and Marlow approach.

In the approach utilised by Card and Sullivan, a single variable is constructed to represent an individual's labour market history. For example, a string variable of eight binary characters could represent whether an individual was in or out of employment in each of eight time periods. This approach has the advantage that a single variable can indicate not just the length of time an individual has spent receiving benefit or in employment, but also a timeline of moving in and out of each labour market state.

A disadvantage of this approach is that the number of permutations of the constructed string variable is 2^N , where N is the number of time periods independently represented in the history string. Therefore, each additional time period included in the string doubles the number of possible permutations. Constructing a variable which describes eight periods of three months (i.e. two years of benefit history) therefore results in 255 ($2^8 - 1$) dummy variables. Using such labour market history variables therefore requires a trade-off between ensuring the quality of the labour market variable (in terms of describing labour market history with sufficient resolution over a sufficiently long duration) and ensuring that the variable is not over-specified by producing too many dummy variables in the propensity score model.

The alternative approach proposed by Ainsworth and Marlow to control for labour market history has therefore been adapted to control for labour market history with higher resolution over longer durations. To implement this method 104 independent binary variables, which represent an individual's benefit receipt or non-receipt in each of the 104 weeks prior to the FJF start or pseudo start date, were generated. A further 104 independent binary variables, which represent whether an individual is in or out of employment in each of the 104 weeks prior to the FJF start or pseudo start date, were then generated. In this way, it is possible to control for 104 weeks of labour market history using the resulting 208 variables in the propensity score model. To gain equivalent resolution and duration using the approach adopted by Card and Sullivan would have required approximately 2^{104} variables in the model.

7.5 Appendix 5 – Matching Protocol

The matching protocol used in this evaluation to construct suitable treatment and comparison groups from the participant and non-participant samples is as follows.

1. Define a participant (treatment) sample within the analysis cohort period, as specified in Section 2.1.1;
2. Define a non-participant (comparison) sample within the same cohort period, as specified in Section 2.1.2;
3. Combine the records from steps 1 and 2 to produce a single sample comprising treatment and comparison records;
4. Code an indicator variable Z , which is 1 for treatment records and 0 for comparison records;
5. Specify and estimate a binary probit for $p(x) := P(Z=1 | X=x)$;
6. Restrict the sample to common support: remove all treatment records for which no comparison record falls within the Kernel bandwidth (a bandwidth of 0.0001 was used in the primary analysis);
7. Implement a Kernel ‘one-to-many’ matching approach:
 - a. Select a treatment record and identify all comparison records with propensity scores lying within the Kernel bandwidth of the treatment record score;
 - b. Apply a weighting to the comparison records using an Epanechnikov distribution such that those with closer propensity scores to the treatment record are weighted higher than those with more distant propensity scores;
 - c. Repeat steps *a* and *b* until all treatment records have been selected. The weighting applied to comparison records for each repeated step is added to the cumulative weighting from all previous steps (the total weighting of all comparison records is therefore equal to the number of treatment records).
8. Use the final weights for each comparison record to calculate a weighted mean for each outcome variable in $Z=0$;

7.6 Appendix 6 – Sensitivity Analysis

During the development stages of the analysis, the sensitivity of the impact estimates were explored both in relation to the precise way in which participants and non-participants were selected for analysis and also with respect to the type of matching used for the analysis. The rationale for each of the sensitivity tests and the main results are as follows.

Sensitivity to the age range of non-participants

In the main analysis, participants aged 20 to 24 and non-participants aged 25 to 29 were included. There are a number of advantages to using participants and non-participants within these age ranges, as discussed in Section 2.1. However, the disadvantage of using groups with different age ranges is that they are likely to differ in other observed and unobserved characteristics. While the matching methodology is likely to be successful in balancing the groups with regard to observed characteristics (see Section 3.2.2), it may not necessarily be the case that the matching successfully balances the groups with regard to unobserved characteristics.

Two sensitivity tests using groups of non-participants who were more similar in age to the participant sample than in the main analysis were performed. These were:

1. a non-participant sample of jobseekers aged 20 to 24 – the same age range as the participant sample;
2. a non-participant sample of jobseekers aged 25.

Using a non-participant sample of jobseekers aged 20 to 24 produced slightly lower impact estimates than the main analysis. After 104 weeks, the impact of FJF on the likelihood of a participant receiving welfare support was -5.6 percentage points, compared with -7.2 percentage points in the main analysis. After 104 weeks, the impact of FJF on the likelihood of a participant being in unsubsidised employment was +8.9 percentage points, compared with +10.6 percentage points in the main analysis.

We might contend that the main reason that the impact estimates were slightly smaller than those in the main analysis was because the matched non-participant group was less likely to go on other DWP programmes than the participant group, than in the main analysis. In fact, the matched non-participant group spent 6 fewer additional days on other DWP programmes than in the main analysis, although this does not include other elements of the Young Person's Guarantee/Six Month Offer (in which 12% of the non-participant sample started, compared to 4% in the main analysis).

Using a non-participant sample of jobseekers aged 25 produced very similar impact estimates to the main analysis. After 104 weeks, the impact of FJF on

the likelihood of a participant receiving welfare support was -7.5 percentage points, compared with -7.2 percentage points in the main analysis. After 104 weeks, the impact of FJF on the likelihood of a participant being in unsubsidised employment was +10.5 percentage points, compared with +10.6 percentage points in the main analysis.

Sensitivity to the age range of FJF participants

In the main analysis, participants aged 18 and 19 were not included in the sample. As discussed in Section 2.1, this is because they do not have as much work and benefit history as older participants to control for through the Propensity Score Matching methodology, and other data which could serve the same purpose, such as educational achievements, was not available.

However, while the matched groups may be less well balanced on characteristics than in the main analysis, it is still useful to test the sensitivity of including 18- and 19-year-olds on the estimated impacts. This will provide some indication as to whether the main estimates are likely to be valid for 18- and 19-year-old participants as well as for 20 to 24-year-olds as included in the main sample.

Using a participant sample of jobseekers aged 18 to 24 produced slightly lower welfare support impact estimates but similar employment impacts to the main analysis. After 104 weeks, the impact of FJF on the likelihood of a participant receiving welfare support was -5.4 percentage points, compared with -7.2 percentage points in the main analysis. After 104 weeks, the impact of FJF on the likelihood of a participant being in unsubsidised employment was +11.0 percentage points, compared with +10.6 percentage points in the main analysis.

Using a participant sample of jobseekers aged 23 to 24 and a non-participant sample of jobseekers aged 25 to 26 produced slightly lower welfare support impact estimates and employment impacts than for the main analysis. After 104 weeks, the impact of FJF on the likelihood of a participant receiving welfare support was -6.3 percentage points, compared with -7.2 percentage points in the main analysis. After 104 weeks, the impact of FJF on the likelihood of a participant being in unsubsidised employment was +8.9 percentage points, compared with +10.6 percentage points in the main analysis.

Sensitivity to restricting the sample to Jobcentre Plus Districts where Flexible New Deal (FND) was not available

Section 4.2.1 quantified the amount of other DWP support that participants and non-participants received, other than FJF. Non-participants spent on average an additional 126 days on other DWP programmes, in particular 89 days on Flexible New Deal (FND), over the 104-week period (34% of non-participants took up FND compared to 3% of participants). Therefore the sensitivity of the estimates were explored by restricting the sample to

Jobcentre Plus Districts in which Flexible New Deal was unavailable (roughly half the country). In the remaining Districts, non-participants spent on average 55 fewer additional days on other DWP programmes.

After 104 weeks, the impact of FJF on participants in these Districts was slightly larger than in the main estimates. The impact on welfare support was -7.9 percentage points, compared with -7.2 percentage points in the main estimates. The impact on unsubsidised employment was +12.1 percentage points, compared with +10.6 percentage points in the main estimates.

This suggests, as might be expected, that the impact of FJF as measured against standard jobseeker support (i.e. without some individuals taking up FND) is likely to be greater than the impacts reported. This is because the impacts reported are for the labour market prospects of participants compared with what they would have been if they had not participated in FJF, when some individuals had gained support through participation in FND as well as standard jobseeker support.

Note that although the results from this sensitivity test give some sense of the influence of FND, we cannot extrapolate with any assurance what the impacts of FND might be. There are three reasons: firstly, only some non-participants and participants took up FND in the main analysis; secondly, the results apply to a very small and particular group and thirdly the influence of the other DWP programmes remains.

Sensitivity to the method of cleaning HMRC employment data

As discussed in Section 2.2.2, a large proportion of employment spells on the data set provided by HMRC have missing start or end dates. The primary estimates were achieved after a process of randomising the missing start and end dates across the tax year in which they were known to occur⁵⁴. While we do not expect any systematic bias to result from this process, we note that this leads to a large proportion of individuals being identified as both 'receiving benefit' and 'in work' in the same week.

To provide additional assurance that the employment impact estimates were not biased by the randomisation process, the sensitivity of the employment impact estimates to an alternative method of randomisation was tested during the model development stage.

The alternative approach makes two main assumptions:

⁵⁴ Recent research suggests that many employment records without start and end dates may also come from previous tax years. This requires further investigation. However, although we hope that there will not be any systematic bias between the participant and non-participant groups, this does mean that even more caution must be applied to employment impact estimates; not just to this study, but all previous work.

1. that the DWP benefits data is correct; and
2. that an individual cannot be simultaneously in employment and receiving Jobseeker's Allowance (JSA).

The first step of this approach is, as previously, to randomise missing start and end dates across the tax year in which they were known to occur. Then the randomised dates are adjusted such that they do not fall within a known JSA spell of the individual, as described below:

- If a JSA spell overlaps with the employment end date, a new employment end date equal to the JSA start date is assigned;
- If a JSA spell overlaps with the employment start date, a new employment start date equal to the JSA end date is assigned; and
- If a JSA spell fully encloses the employment spell, the employment spell is assumed to be incorrect and is removed.

While using this alternative method of cleaning the employment data led to lower proportions of individuals in both the treatment and comparison groups being identified as in employment for any given week, the impact on employment was similar for both methods. After 104 weeks, the impact of FJF on participants on the likelihood of a participant being in unsubsidised employment was slightly larger than in the main analysis. The impact was +11.8 percentage points, compared with +10.6 percentage points.

We therefore conclude that the method with which the employment data was cleaned does not appear to systematically bias the impact estimates.

Sensitivity to the method of matching

The main analysis uses a Kernel one-to-many matching process to construct a comparison group of non-participants, as described in Section 3.2. During the model development stage, the sensitivity of the impact estimates to using an alternative methodology (Nearest Neighbour Matching) was explored. This is a one-to-one matching protocol whereby each participant is matched with a single non-participant – the one with the most similar propensity score.

Using Nearest Neighbour Matching produced very similar impact estimates to using Kernel Matching. After 104 weeks, the impact of FJF on the likelihood of a participant receiving welfare support was -7.4 percentage points, compared with -7.2 percentage points in the main analysis. After 104 weeks, the impact of FJF on the likelihood of a participant being in unsubsidised employment was +10.4 percentage points, compared with +10.6 percentage points in the main analysis.

However, the quality of matching itself was lower in the case of the Nearest Neighbour Matching than the Kernel Matching, as indicated by the specification statistics for the two models. For this reason Kernel Matching was chosen for the main analysis.

Sensitivity to including participants for whom the end date of their FJF spell is unknown

Section 2.1 described the selection conditions for FJF participants to be included in the sample. One of these conditions was that the end date of the participant's FJF spell must be available in the data. This was necessary to identify whether each individual was in a FJF job, receiving benefit or in unsubsidised employment in any given outcome week.

However, as shown in Appendix 1, by applying this condition the available sample in the main analysis was reduced by more than 3,000 participants. A sensitivity test which includes participants with unknown FJF end dates in the sample was therefore carried out. In this sensitivity test, it was possible to measure only impacts on benefit and employment, rather than the preferred estimates of the impacts on welfare support and unsubsidised employment (see Sections 3.3 and 4.1 for more information on the difference between these measures). This sensitivity test is therefore intended to ensure that the benefit and employment impacts do not change substantially when participants with unknown end dates are included.

The estimated impacts were identical to the main estimates. After 104 weeks, the impact of on benefit receipt was -7.2 percentage points and the impact on employment was +10.6 percentage points.

Sensitivity to using non-participants and participants with more than six months JSA duration before their start or pseudo start date

FJF was an option under YPG, which was introduced initially as a voluntary programme available to young people who had been claiming Jobseeker's Allowance for at least six months. However, Table A.3 shows that there was a high proportion of the sample whose start date or pseudo start date was before they had been on JSA for six months. Therefore this analysis used only those participants and non-participants who had been on JSA for at least six months.

Table A.3: Length of JSA spells prior to start/pseudo start among FJF participants and non-participants

Length of JSA spell prior to start/pseudo start	Participants	Non-participants
0-6 months	34%	55%
6-9 months	31%	16%
9-12 months	26%	14%
>12 months	9%	14%
Total	12,130	231,740

The sensitivity to removing those participants and non-participants who had not been on JSA for six months was tested. The estimated impacts were very

similar to the main estimates. After 104 weeks, the impact on welfare support was -6.2 percentage points, compared with -7.2 percentage points in the main estimates. The impact on unsubsidised employment was +10.9 percentage points, compared with +10.6 percentage points in the main estimates.

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Authors

Simon Marlow
Adam Hillmore
Paul Ainsworth

Department for Work and Pensions