Lone parents Work Focused Interviews/New Deal for Lone Parents: combined evaluation and further net impacts

Genevieve Knight
Stefan Speckesser
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João Pedro Azevedo

Policy Studies Institute, the Department of Economics, Royal Holloway, University of London, the Institute of Applied Economic Research, Brazil and the Department of Economics, University of Michigan

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A report of research carried out by the Policy Studies Institute, the Department of Economics, Royal Holloway, University of London, the Institute of Applied Economic Research, Brazil and the Department of Economics, University of Michigan on behalf of the Department for Work and Pensions

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This report reflects some of a set of projects that were carried out jointly and investigated various aspects of the New Deal for Lone Parents (NDLP), Lone Parents Work Focused Interviews (LPWFI) and In Work Benefit Calculation. Genevieve Knight was the overall project leader. The chapter on the net impacts from combined LPWFI/NDLP in 2001 was work carried out by Stefan Speckesser and Genevieve Knight. The additional findings for NDLP for the August-October 2000 eligible participants were produced by João Pedro Azevedo, Peter Dolton and Jeff Smith as an extension to their separately published report re-analysing the NDLP net impacts: Dolton, Smith and Azevedo (2006) *Econometric Evaluation of NDLP*, DWP Research Report.

Another separately published report contains the research on the In Work Benefit Calculation: Knight and Kasparova (2006) *Lone Parents In Work Benefit Calculation: work and benefit outcomes*, DWP Research Report.

The Authors

Genevieve Knight is a Senior Research Fellow at the Policy Studies Institute (PSI). She completed her Ph.D. in Economics in 2003 with the University of Sydney, with a thesis examining the issues in applied evaluation of active labour market programmes. A range of labour market issues have been the main focus of her research. She has worked with PSI since 1998, and has undertaken a broad range of evaluation research.

Stefan Speckesser is Senior Research Fellow at the PSI. He holds a Ph.D. in Economics from the University of Mannheim and a Master in Political Science. Dr Speckesser focuses on micro and macro economic evaluation of further training and employment promotion in Germany and the United Kingdom (UK) applying a variety of micro-econometric approaches based on panel data estimators and non-parametric econometrics.

Jeff Smith is Professor of Economics at the University of Michigan. He received his Ph.D. in Economics from the University of Chicago in 1996, having previously worked with the University of Western Ontario and the University of Maryland. His research is focused on methods for the evaluation of social programs such as job training for the disadvantaged. He has consulted to governments in the United States, Canada, UK and Australia on evaluation issues related to employment, and training programs and educational interventions.

Peter Dolton is Professor of Economics at Royal Holloway College, University of London and Senior Research Fellow at the Centre for Economic Performance at the London School of Economics. He has published numerous articles in economics journals on the applied econometrics, labour economics and the economics of education. His present interests are in the evaluation of active labour market policy.

João Pedro Azevedo holds a Ph.D. in Economics from the University of Newcastle. He is a research fellow of the Institute of Applied Economic Research. He has consulted with the British and Brazilian Governments, as well as the World Bank, United Nations Educational, Scientific and Cultural Organization, United Nations Development Programme and the Inter-American Development Bank on the evaluation and design of social programmes. Professional country experiences include the UK, Brazil, Panama, Guatemala and Honduras.

Abbreviations

BA	Benefits Agency
DWP	Department for Work and Pensions
GMS	Generalised Matching Service
JSA	Jobseeker's Allowance
LPWFI	Lone Parent Work Focused Interview
NDLP	New Deal for Lone Parents
IWBC	In Work Benefit Calculation
WASD	Working Age Statistical Database

Glossary

Additionality — The per cent of exits among the programme participants that are additional.

Counterfactual — Term used in non-experimental analysis of programme impacts to represent the equivalent of the control in an experiment. The control and counterfactual terms are used to describe the outcome of not undergoing treatment.

Endogenous — A term arising from econometric analysis, in which the value of an independent variable is correlated with the error term (dependent on the value of the error term).

Existing claimants — Claimants whose Income Support claim existed at the start date of the Lone Parent Work Focused Interview (LPWFI) programme (30 April 2001).

General equilibrium effects — These are the impacts a programme may have on outcomes and behaviour of non-participants; they come about when programmes affect outcomes and behaviour of non-participants as well as participants. To examine general equilibrium effects requires a general equilibrium framework, the opposite of that defined for partial equilibrium analysis (see *Partial equilibrium*).

Heterogeneous — Differs across groups (opposite of homogeneous, identical across groups).

Impacts — The estimated effect of a programme on an outcome, for example employment, relative to what would have occurred in the absence of the programme.

IS	Income Support. Income Support is a non-contributory, income-assessed benefit available to people who are not required to work.
NDED	New Deal Evaluation Database maintained by DWP's Analytical Services Division. This evaluation database also incorporates data from other sources: data on claimant unemployment extracted from the Joint Unemployment and Vacancies Operating System (JUVOS) maintained by the Office for National Statistics, which is the primary source of published statistics on claimant unemployment; data from the Work Based Learning for Adults (WBLA) Database maintained by the Department for Work and Pensions, and data on age of youngest child of lone parents from the ISCS system, again maintained by the Department for Work and Pensions.
New/repeat claimants	Claimants who started their claim after the start date of the LPWFI programme – hence in this context they started after 30 April 2001, until April 2002.
Non-experimental methods	Similar to quasi-experimental, a term that is used in earlier literature. The underlying ideal is the experiment where both an experimental group and a control group are randomly selected from prospective participants. Hence quasi- or non-experimental methods attempt to find a satisfactory surrogate comparison group for the randomly selected control group.
Outcomes	Social and economic factors liable to be affected by a social programme, which analysts will often treat as dependent variables.
Partial equilibrium	Partial equilibrium analysis means that the effects of policy actions are examined only in the markets which are directly affected; it either ignores effects on other groups in the economy or assumes that the sector in question is very small and therefore has little if any impact on other sectors of the economy. Opposite of general equilibrium.

Treatment This is the term conventionally used in the evaluation literature to indicate the programme and 'treated' is used for those participating in a programme.

Summary

Each chapter of this report investigates the net impacts of the Lone Parent Work Focused Interviews (LPWFI) and New Deal for Lone Parents (NDLP) programmes. However, the first is for the combined LPWFI/NDLP regime in 2001, while the re-analyses focus on the earlier NDLP impacts for the August-October 2000 NDLP eligible participant group.

Evaluation of the combined impacts of NDLP and LPWFI on benefit exit and employment entry, for April 2001-2002

This research evaluates the net impact of the combination of LPWFI and NDLP on the movements off benefit by eligible lone parents. The chief aim of LPWFI was to assist movement into paid employment, with a subsidiary objective of encouraging participation in NDLP. Participation in LPWFI is mandatory for those eligible, while participation in NDLP is voluntary. Lone parents eligible for an LPWFI in the first year of the LPWFI programme, year April 2001/2002, were examined.

The net impact was estimated using propensity score matching methods. A static multiple treatment framework was applied. Only the first programme participation was considered. However, multiple participations introduced by repeated participation in NDLP and review meetings for LPWFI were observed.

Administrative data records on Income Support (IS), other benefits, LPWFI and NDLP participation were used, spanning 1998 to May 2004. The analysis excluded Northern Ireland, Jobcentre Plus and LPWFI pathfinder areas, ONE areas, and the Jobcentre Plus delivery areas. New/repeat claimants and existing claimants were analysed separately. Existing claimants with participation on NDLP prior to April 2001 were excluded from the analysis.

Findings

Among new/repeat claimants there were 24 per cent with no participation, 43 per cent participating in LPWFI only, 29 per cent combining LPWFI with NDLP, and three per cent undertaking NDLP only. For existing claimants, 47 per cent did not

participate, while 33 per cent had only LPWFI, 15 per cent combined LPWFI and NDLP and five per cent self-referred to NDLP.

The analysis of socio-economic characteristic reveals that the participants in different programme alternatives have differing characteristics. Among new/repeat claimants, the age of the youngest child differed strongly between participants of alternative programmes, and lone parents with older children were more likely not to participate in any LPWFI or NDLP alternatives. The existing claimants had quite dissimilar characteristics to the new/repeat claimants, but this largely reflected the different eligibility rules for the existing claimants, and the delay in delivery of LPWFI for the existing claimants. Since only lone parents with a youngest child aged at least 13 were eligible, almost no existing claimants were under 30 years and, compared to new/repeats, a much greater share were over 50 years. Men were least likely to undertake a self-referral to NDLP. Younger existing claimants were more likely to self-refer to NDLP without undertaking LPWFI. Those existing claimants with a youngest child aged 15 were more likely not to participate in LPWFI or NDLP.

The benefit off-flow differed between programme alternatives, and between new/repeats claimants and existing claimants. Some of this difference can be attributed to the differing socio-economic characteristics and delayed delivery for the existing claimants. In interpreting the impact of an evaluation for a welfare-to-work programme, the underlying rate of exit, or turnover, is a relevant consideration. If the base rate of turnover is low, which the descriptive section of this report shows, then even a small absolute impact may be considered a worthwhile gain in practical terms – and this is the case for LPWFI/NDLP.

New/repeat claimants impacts were observed for up to 18 months after eligibility began with the IS claim start. For new/repeat claimants, the combined effect on benefit exit of LPWFI and NDLP (relative to no programme participation) was insignificant in size for the first year, but then positive starting at two and rising to four percentage points at 18 months. Hence in terms of additionality, of those participants who left IS at 18 months, 11 per cent would not have done so if they had not participated in LPWFI/NDLP. The incremental effect on benefit exit of NDLP over LPWFI is quite large, estimated as initially five percentage points but rising to 14 percentage points after one year, and slightly higher at 18 months. However, this estimate is not considered robust due to the high chance of later participation in NDLP undermining the validity of the estimation. Finally, for new/repeat claimants the impact on benefit exit of participation in LPWFI on the effectiveness of NDLP relative to self-referral (i.e. for combined LPWFI/NDLP relative to NDLP only) was positive and rose to nine percentage points after one year, before declining to five percentage points at 18 months. This equates to 14 per cent additional exits among participants due to NDLP who would not have done so if they had only participated in LPWFI.

Existing claimants were also observed for up to 18 months after treatment. For them, the combination of LPWFI and NDLP has an impact on benefit exit rates that varies and is not always positive. However, at 18 months this LPWFI/NDLP impact is

positive at ten percentage points. In additionality, this means at 18 months after participation, of those existing claimants that left benefit, 19 per cent would not have done so if they had not participated in LPWFI/NDLP. As found for new/repeat claimants, starting NDLP after LPWFI has a consistently positive and large effect on benefit terminations for existing claimants, of 14 percentage points after one year, rising to 18 percentage points at 18 months. But also as for new/repeat claimants, this figure is not considered robust. The incremental effect of LPWFI on NDLP effectiveness on benefit terminations was initially insignificant but then **negative and large**. This decrease in the effectiveness of NDLP on benefit terminations may reflect LPWFI introducing participants to NDLP who gain much less than self-referrals. However, as the combined LPWFI/NDLP is the main programme alternative since the introduction of mandatory LPWFI, then the positive net impacts found for this are the most important for consideration of the policy current situation.

Further analysis of NDLP net impacts for the August-October 2000 sample

This chapter reports some additional secondary analyses that have been conducted of the NDLP impact on benefit exit and employment entry for the August-October 2000 sample.

The chapter explores the medium-term impacts of NDLP at 48 months by tracking participants and non-participants from the August-October 2000 eligible NDLP sample, using existing administrative data for NDLP, IS and other benefits data. The pattern of exits and re-entries into IS and other benefits experienced by NDLP participants over time was also explored.

Using the matching process to facilitate comparison of NDLP participants and non-participants, the net impacts of NDLP on benefit exit and employment were examined for the group of NDLP participants that were eligible in August 2000. The net impacts were estimated over the period to August 2004, and so represent medium-term outcomes of NDLP for participants. Using the matching process, it was possible to estimate the impact the programme had on both the probability of return to benefits and the probability of exit to employment. This estimation technique compares the proportion of NDLP participants who were off benefits in any week with the proportion of non-participants off benefits after first having assured like are compared with like by matching these two groups. Similarly, an employment effect is found by comparing the proportion of NDLP participants who are in work in any week with the proportion of non-participants who are in work in the same week.

Findings

The medium-term impacts on employment and benefit exit of the NDLP programme were reasonable in size. At 48 months after NDLP participation, the impact of NDLP raised the proportion off benefit by about 20 percentage points, once remaining

differences were adjusted for. Using the employment data, at 48 months after NDLP participation, the NDLP impact raised employment for participants by 11 percentage points, once remaining differences were adjusted for. However, the quality of the matching was poorer for the employment impact, and the employment data quality used for this analysis was quite low[1]. The NDLP impacts on benefit exit and employment were not constant over time, and mostly fell slightly after longer periods subsequent to participation.

The medium-term impacts of NDLP were estimated for the age of youngest child and by the duration of benefit claim subgroups. The impact of NDLP on benefit exit and employment was found to vary by subgroup. At 48 months after NDLP participation, the adjusted total NDLP impacts on benefit exit ranged from an increase of 22 percentage points for those with youngest child aged 11 to 16 years to 18 percentage points for those with youngest child aged zero to three years. After 48 months, for those on IS for more than 36 months, NDLP raised benefit exit by 26 percentage points while for those on IS for less than three months, this was lower at 16 percentage points. The NDLP employment impacts by subgroup also showed variation, but there was quite poor quality in the matching.

Descriptive statistics showed the labour market histories of NDLP participants in terms of sequences of labour market states. This suggests that the lone parent population typically has a very complex sequence of labour market states. This is especially true of those who were **not** NDLP participants. Compared to non-participants, those who had been on NDLP were much more likely to enter employment as their next state. NDLP participants were also more likely to remain in employment. Furthermore it would seem that this main employment effect occurs after one spell on NDLP as the employment prospects were lower for those who have more than one NDLP spell. Relative to non-participants, the NDLP participants:

- had more spells in employment;
- had longer spells in employment;
- made less frequent changes in labour market state;
- cycled between benefit and employment states less frequently.

It seems that NDLP participants who did not lose contact with their Personal Adviser had a much more straightforward labour market history than those who lost contact with their Personal Adviser. Losing contact with the Personal Adviser was associated with lower employment.

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[1] The Inland Revenue data quality has since been improved, but work is still ongoing at the Department for Work and Pensions to raise this data quality.

1 Introduction

Structure of this report

This report combines two elements of research which investigate the Lone Parent Work Focused Interviews (LPWFI) and New Deal for Lone Parents (NDLP) processes. The first explores the net impacts of the combined LPWFI and NDLP programmes on lone parents' exits from benefit. The second produces further research on the net impacts of the NDLP programme.

Due to the complexity of the analyses, some parts of this report may appear technical. However, the structure is fairly simple. Chapter 2 reports the evaluation of the combined impacts of NDLP and LPWFI on benefit exit and employment entry for those eligible during April 2001-2002. The final chapter reports some additional secondary analyses that have been conducted of the NDLP impact on benefit exit and employment entry for the August-October 2000 sample. At the outset of each chapter, the structure of the chapter is outlined. The detail of the methods is mostly confined to the appendices.

There are some aspects common to the research reported in each chapter. The research used the same administrative data, and the same data refinements are applied in each analysis when using the administrative data. This helps clarify the source of potential differences that might arise from analysis. Both Chapter 2 and Chapter 3 use the same econometric method of propensity score matching to evaluate the programmes, although the multiple alternatives of the evaluation of combined LPWFI/NDLP requires a more complicated version of this method. These evaluations also generally apply the same variables in the analyses.

1.1 Policy background

1.1.1 Increasing lone parents' labour market participation

Lone parents have been one of the main groups addressed within the government's Welfare to Work strategy. The government has set a target to raise the proportion of lone parents in work to 70 per cent by 2010. The importance of this policy relates to

the government's associated target to eliminate child poverty by 2020. Most couples with children are in work, so the largest group of those out of work among households with dependent children is among lone parent families[2]. As a result, a key objective for the Department for Work and Pensions (DWP) is to promote work as the best form of welfare for people of working age (Public Service Agreement, DWP). With this in mind, it is the aim of the DWP to encourage more lone parents to actively seek work and thereby increase the employment rate of lone parents.

Lone parents in the United Kingdom often suffer from low income and a range of barriers to work (Bryson *et al.*, (1997); Evans *et al.*, (2002)). Many lone parents rely on Income Support (IS). A number of recent policies seek to address the difficulties faced by lone parents, including:

- changes to in-work benefits, with the change from Family Credit to Working Families Tax Credit, which includes a Childcare Tax Credit, and now a Working Tax Credit;
- help with the financial transition into paid employment from benefit, through the Lone Parent Benefit Run-on, extended payments of Housing Benefit and Mortgage Interest Run-on;
- establishment of the National Childcare Strategy and a drive to improve childcare provision;
- introduction of the voluntary NDLP in 1998.

Additionally, since April 2001, these policies have been enhanced with:

- the introduction of mandatory LPWFI;
- extra financial help for lone parents entering part-time work of less than 16 hours per week after NDLP participation, in the form of childcare payments for the first 12 months of work;
- an increase in the earnings disregard for lone parents working less than 16 hours per week from £15 to £20 a week;
- an increase in the training allowance for lone parents undertaking work-related training on NDLP from £10 to £15 a week;
- a disregard of the first £10 of child support maintenance.

Further policy changes that variously affect lone parents have also been introduced:

- self-employment option (from Autumn 2001);
- extension of Work Based Learning for Adults to lone parents aged 18-24 (from April 2001);

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[2] There are more than 800,000 lone parents either not working or working less than 16 hours a week. This compares to about 300,000 out-of-work couples (Marsh and Perry 2003).

- Adviser Discretion Fund for lone parents on IS six months or more (from July 2001);
- basic skills screening at initial NDLP interview (from April 2001);
- National Outreach service for partners and lone parents (from April 2002, but now withdrawn);
- the introduction of a new mentoring service, to provide support and advice to lone parents seeking to enter work;
- childcare Partnership Managers to be established in every Jobcentre Plus district from April 2003, to improve access to information about local childcare provision;
- in some areas, Employment Zones to be extended to lone parents;
- reform of the administration of Housing Benefit;
- movement towards paying all benefits electronically (from April 2003)
- reaffirmation of the child poverty target – now to reduce the number of children living in low-income households by at least a quarter by 2005;
- a target to double to 60 per cent the proportion of families with an absent parent on IS who receive maintenance;
- discovery week pilots to boost soft skills such as confidence, and to increase the familiarity of lone parents with the help and support available to them.

1.1.2 New Deal for Lone Parents

NDLP was launched in eight areas as a prototype in July and August 1997, introduced nationally for new and repeat claimants in April 1998, and extended to all existing lone parents on IS in October 1998. It was, and continues to be, a voluntary programme, and all lone parents on IS whose youngest child was under 16 were eligible to join.

There is no need to wait for an invitation: by contacting a lone parent Personal Adviser, an eligible person can join at any time. An interview with a Personal Adviser was a key delivery mechanism for NDLP. The Personal Adviser developed an individually-tailored package of advice and support designed to facilitate a move into employment, which could include:

- providing job search support to customers who are job ready;
- helping lone parents to identify their skills and develop confidence;
- identifying and providing access to education and training opportunities;
- improving awareness of benefits;
- providing practical support and information on finding childcare;
- providing In Work Benefit Calculations and assisting with benefit claims;
- liaising with employers and other agencies offering in-work support.

Although all lone parents on IS with a youngest child aged less than 16 were eligible, NDLP was initially targeted at those whose youngest child was at least five years three months. After May 2000, targeting was extended to include lone parents on IS whose youngest child was at least three years old. From November 2001, NDLP eligibility was extended to lone parents not working and lone parents working less than 16 hours a week[3].

1.1.3 Lone Parent Work Focused Interviews

To help and encourage as many lone parents as possible to participate in NDLP and take up paid employment, a number of further measures were announced in the March 2000 Budget[4]. With effect from 30 April 2001, mandatory LPWFI were introduced for lone parents claiming IS within the following groups:

- new/repeat claimants for IS where the youngest child was at least five years three months at the time of initiating a claim;
- lone parents already claiming IS on 30 April 2001 (known as 'existing claimants') where the youngest child was in the 13-15¾ year age group.

Lone parents with new/repeat claims were to attend their first meeting with a Personal Adviser at the start of their IS claim, and then on an annual basis while they received IS. For lone parents in the existing claimants group, the invitation to attend the first meeting would be sent at specific times, depending on the age of the youngest child. For example, in the first year of the national programme, local offices were instructed to begin with those existing claimants with youngest children closest to the cut-off age of 15 years and nine months. The 13-15 year age group for the existing claimants was interpreted in determining the existing claimants invitations as youngest child turning 13 years within 12 months, to 15 years nine months, i.e. 12 years to 15 years nine months.

LPWFIs were essentially an appointed meeting with a Personal Adviser. The Personal Adviser could use the meeting to provide awareness about the opportunities and the support available to lone parents.

The stated aim of the mandatory LPWFI was to facilitate a movement into paid employment by encouraging the lone parent to seek work and supporting the job search process, and/or encouraging them to take up training opportunities aimed at improving their chances of moving into paid employment. In particular, LPWFI had the additional objective of encouraging participation in NDLP. Although participation in the LPWFI was compulsory, it was not compulsory for lone parents to seek work or

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[3] More detailed information on NDLP can be found on the New Deal website www.newdeal.gov.uk and in Evans *et al.*, (2002) and Evans *et al.*, (2003).

[4] LPWFIs were introduced into legislation in 2000, in the Social Security (Work-focused Interviews for Lone Parents) and Miscellaneous Amendments Regulations 2000, S12000, no. 1926.

join NDLP. Eventually, via LPWFIs, all lone parents making a claim for, or receiving, IS will be given information about NDLP and an opportunity to participate.

The system of mandatory LPWFI was subsequently extended to other groups. Interviews were rolled out gradually depending on the age of the youngest child and for new/repeat claimants**.** The extension groups are:

- April 2002: those whose youngest child is three years or above;
- April 2003: all new and repeat claimants.

For existing claimants, the extension groups are:

- from April 2002: those with youngest child aged nine to 12;
- from April 2003: those with youngest child aged five to eight;
- from April 2004: those with youngest child aged zero to five years and three months, so that all IS lone parent claimants were eligible.

In addition to the extension to coverage, review meetings were started as a follow-up for those eligible for LPWFI. After the first LPWFI, if the customer remained claiming, then a review meeting would take place. The introduction of review meetings was staggered:

- annual reviews started in May 2002 for those eligible new/repeats who had entered the LPWFI system between April 2001-April 2002. Annual reviews also started at this time for the existing claimants who became eligible on 30 April 2001;
- reviews at six months started in October 2002 for all eligible new/repeats who had entered the LPWFI system after April 2002, and then subsequent annual reviews followed these.

Hence, new/repeat claimants of IS who remain on benefit are required to attend a review meeting after six months, and then again six months after that and annually thereafter.

1.2 Policy context

In evaluating a Welfare-to-Work or labour market programme, it is essential to take account of other policy developments which may affect the results. In the context of this research, the introduction of the Jobcentre Plus initiative and some other pilot programmes targeted at lone parents were important to consider.

1.2.1 Jobcentre Plus delivery

Delivery of the LPWFI initiative is increasingly affected by the national implementation of Jobcentre Plus. Jobcentre Plus extends LPWFI to other groups of benefit claimants and places emphasis on priority groups and programmes including lone parents, people from ethnic minority groups, the most disadvantaged in the labour market

and those on New Deal. Initially, there were 56 Jobcentre Plus pathfinder offices offering fully integrated work and benefit services, but a further 225 fully integrated Jobcentre Plus offices were planned to open between October 2002 and April 2003, the majority of which were completed by April 2003. Full integration of all Employment Service and Benefits Agency local offices will take several years, during which time services will continue to be provided in social security offices and Jobcentres as was the case during this research.

The timing of the delivery of Jobcentre Plus is relevant to this analysis because in areas where Jobcentre Plus conversion has taken place, the comparison group of lone parents could also receive LPWFI. This is slightly complicated by the fact that they would need to sign off and start a new IS claim to enter a Jobcentre Plus LPWFI. While it was decided to exclude the few pathfinder areas, the October 2002-April 2003 delivery of Jobcentre Plus affects more than a quarter of the country, making exclusion of affected offices infeasible. Instead, a more complex system of exclusions was applied, so that all new claimants in potentially affected postcode areas are dropped after their Jobcentre Plus delivery date[5].

1.2.2 Pilots affecting the eligible or comparison groups

In addition to these aspects of national provision, several pilot programmes which potentially affected lone parents were operating in selected areas shortly before or overlapping with the introduction of LPWFI. The most relevant to LPWFI over the period of this analysis were the ONE pilots (which were also based on work-focused interviews, for lone parent entrants to IS as well as for entrants to Incapacity Benefit and to Jobseeker's Allowance); Pathfinder pilots for the LPWFI themselves; and the pathfinders for the integrated services of Jobcentre Plus. To simplify the task of the administrative data analysis in Chapters 2 and 3, it was decided to exclude these pilot areas. These exclusions result in a small reduction of the total sample (see Chapter 2 for the exact number). Since administrative data are being used, the sample sizes are sufficiently large for this not to be a problem.

Northern Ireland has been excluded from analysis in Chapters 2 and 3. As a result, the data generally gives coverage of information that represents 'standard' implementation in Great Britain.

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[5] Jobcentre Plus delivery is more difficult to identify as it takes place by postcode area, not Jobcentre district or office. To identify these, analysis of the Jobcentre Plus data was carried out by DWP, and monthly frequencies of starts within postcode areas produced. Where the frequency within postcode area became greater than ten, this was deemed a delivery of Jobcentre Plus, and the month this occurred was set as the roll-out date for that postcode area. This was then mapped onto the IS data, and all claims within the postcode area with a start date after the Jobcentre Plus roll-out were excluded from analysis.

2 Evaluation of combined LPWFI and NDLP

This chapter evaluates the impact of the combined programmes of Lone Parent Work Focused Interviews (LPWFI) and New Deal for Lone Parents (NDLP) on benefit claim terminations by lone parents. The analysis is confined to examining the effects on the initial existing claimants of claims and the first year of entrants after the introduction of LPWFI.

LPWFI for lone parents claiming Income Support (IS) were introduced nationally on 30 April 2001. The system provided a work-focused interview with a Personal Adviser, which was compulsory for eligible lone parents. It was also designed to encourage participation in NDLP, which remained voluntary.

Eligibility for LPWFI was based on the age of the youngest dependent child. Initially, lone parents making a new or repeat claim were eligible if their youngest child was at least five years three months old. Those who had ongoing claims ('existing claimants') at the time when LPWFI were introduced were eligible if their youngest child was aged 13 to 15 years nine months. During this period, NDLP was available to all lone parents claiming IS.

Aim of this chapter

The chief aim of this research is to estimate the labour market effects of NDLP and LPWFI for lone parents. Estimates of the impact of NDLP and LPWFI have been variously estimated. NDLP was evaluated for the period prior to the introduction of LPWFI using matching techniques, with initial evaluation work by National Centre for Social Research (Lessof *et al.*, (2003)) and subsequent work (Dolton *et al.*, (2004)) finding positive employment and benefit exit impacts. These earlier NDLP impact analyses were conducted for clients participating in the period of NDLP when entry was solely via self-referral. However it seems clear that the LPWFI policies might affect this impact, due to the interaction with the eligible groups. LPWFI impacts were assessed using

difference in difference techniques, and found some positive impacts on IS exit for the existing claimants, in analysis disaggregated by existing claimants and new/repeat (Knight and White, 2003; Knight and Lissenburgh, 2004). Participation in NDLP was indirectly accounted for within this analysis, as the technique employed meant that the impact was estimated against a baseline which included NDLP. However, this research adds to the information from these earlier analyses by **directly** accounting for participation in NDLP and LPWFI during the period when both programmes operated together, to capture the separate effects of the programmes.

The impact of NDLP on LPWFI clients is estimated using matched comparison group techniques with propensity score matching methods (see for example Bryson *et al.*, (2002) and Purdon (2002)). This is the same method that was used for the NDLP impact estimates and so facilitates comparison with the earlier NDLP estimates. Using administrative data, matching is applied in the multiple treatment framework, in order to recover the separate impacts of the combined LPWFI/NDLP effect, the LPWFI effect and the NDLP-only effect, for those IS claimants eligible for LPWFI and NDLP. Subgroup impacts for existing claimants and new/repeat claimants provide information on the effectiveness of NDLP for LPWFI clients among differing groups.

The impact of combined NDLP and LPWFI on claimants is examined by tracking participants and non-participants using the available administrative data. A group of participants in the LPWFI period is selected as the programme group and compared with a comparison group selected from those not participating in that programme combination. To create the comparison group, each member of the programme group is matched to one or more comparisons who had not participated. This allows identification of the effects of NDLP in the LPWFI period, the LPWFI effect on NDLP participants, and the joint effect of the combination of LPWFI and NDLP.

Repeated treatment arises from review meetings, among other causes such as repeated claiming. A number of complications arise due to the repeated nature of treatment. These issues are discussed and solutions to the technical problems are put forward.

Overview of this chapter

This chapter might be considered to contain fairly technical content due to the nature of the analysis. However, the structure is fairly simple. Section 2.2 examines the data which assists in assessing the viability of the method. Section 2.3 describes the evaluation approach and gives a technical description of the results of the analysis, while Section 2.4 concludes.

2.1 Data and case selection

This part of the report provides a description of the participation of eligible groups in LPWFI or NDLP. The eligible population of new/repeat and existing claimants on IS from administrative data during the year 2001/2002 was first identified. Then, these eligible groups were observed until April 2004 in a dataset merging benefit and participation in LPWFI and NDLP from the New Deal Evaluation Database (NDED). Based on these merged data, a description of the participation of eligible groups shows very heterogeneous (differing) sequences of multiple and repeated treatments.

The description of multiple and varied treatments is crucial for this impact analysis. This is because the standard methodological literature assumes that a treatment is offered only once. For the programmes considered here, this assumption does not hold. The introduction of review meetings for LPWFI after one year explicitly aims at the repeated participation in LPWFI by the eligible groups.

As there were a substantial number of repeated treatments, the various treatments that can be observed in the merged data need to be described in order to decide which treatments can be evaluated. The description of the multiple treatments consisting of either LPWFI or NDLP is essential for a well-designed categorisation of the treatments that will be evaluated. Additionally, it was important to consider the following:

- if the repeated treatments occur over a short time period, it might be justified to aggregate first and second treatments as a combined intervention and to estimate an aggregate effect of these sequences;
- if the treatment is offered relatively late after the start of the eligibility, only a remaining fraction of the originally eligible persons might participate, resulting in composition effects that should be taken into consideration when evaluating.

The description of multiple treatments allows the application of the matching estimator to identify the effects of NDLP in the LPWFI period, the LPWFI effect on NDLP participants and the joint effect of both interventions. These estimates however have to consider how the actual participation differs from the initially planned delivery of the programmes. In addition it is necessary to adjust the time periods for which the effects are evaluated.

2.1.1 Institutional regulation and delivery of LPWFI

This subsection provides a brief review of the eligibility criteria important for this analysis. After that, the basic eligible groups were identified using the benefit data.

As previously mentioned, lone parents receiving IS payments variously become eligible for LPWFI according to the start date of the claim and age of youngest child (see Table 2.1):

- new/repeat clients initially eligible for LPWFI consisted of lone parents whose IS claims were initiated after the commencement of the LPWFI system on 30 April 2001 if their youngest child was aged at least five years and three months and at most 15 years nine months at the start of the claim;
- the eligible group of existing claimants consisted of lone parents on IS before or on 30 April 2001, with youngest child aged between 13 years and 15 years 9 months to this date. The eligibility for LPWFI was extended successively to other groups.

In addition to the extension of LPWFI coverage from April 2002, review meetings were started as a follow-up for IS claimants remaining on benefit. The introduction of review meetings was staggered. Further background regarding the LPWFI and NDLP programmes is presented in Section 1.1.

The separate analysis for existing claimants and new/repeat claimants has advantages for this evaluation. It will enable separate estimates of additionality for the existing claimants and the new/repeats. This is useful as it is likely the estimates are different, and the estimates for the new/repeats provide a better picture of the longer-term additionality of the programme while the existing claimants are present only in the short- to medium-term.

For the impact analysis, and the descriptive analysis, breakdown by existing claimants and new/repeat claims has other, further consequences. After the introduction of LPWFI, particularly for those among the existing claimants, earlier NDLP participation could precede LPWFI participation and any subsequent NDLP entry. This earlier NDLP participation complicates identification of that group who have not participated in NDLP, and who enter NDLP only after the LPWFI. These differences were considered, and former NDLP participation (any NDLP caseload start before 30 April 2001) was excluded. Consequently, only NDLP participation after 30 April 2001 is evaluated. With this restriction, any NDLP participation in the LPWFI period is considered to be a different treatment than NDLP before April 2001. This is important to the definition of the impact identified with the analysis, as the comparison and participation groups define the impact estimate.

The introduction of the review meetings creates a complex participation structure for the eligible persons remaining on benefit for one year after their initial participation, because this group receives the treatment twice or more often. Both the extent of initial as well as repeated participation, and the timing of first and second participation, are discussed in Section 2.2. This is especially important for the choice of the treatments evaluated. It is also important to the expected way in which a repeated offering might change the estimated treatments effects.

Table 2.1 Eligibility for LPWFI

Financial year	2001/2		2002/3		2003/4		2004/5
	Existing	New/ repeat	Existing	New/ repeat	Existing	New/ repeat	Existing
Benefit receipt	Existing spell on IS on 30/4/01	New/ repeat claim IS from 30/4/01 until 1/4/02	Existing spell on IS on 30/4/01	New/ repeat claim IS from 30/4/01	Existing spell on IS on 30/4/01	New/ repeat claim IS from 30/4/01 until 01/4/02	Existing spell on IS on 30/4/01
Age of youngest child	13-15	>5¼	9-12	>3	5-8	>0	0-4
Review meetings	After 12 months	After 12 months	After six months	After six months	After six months	After six months	After six months

2.2 Basic frequencies of programme participation and characteristics

2.2.1 Participation with multiple and repeated treatments

This section describes which treatments occur for the eligible client groups.

First of all, individuals can in principle start either one of the programme combinations LPWFI/NDLP consisting of participation in either

- LPWFI only;
- in NDLP only;
- the combination of both; or
- none.

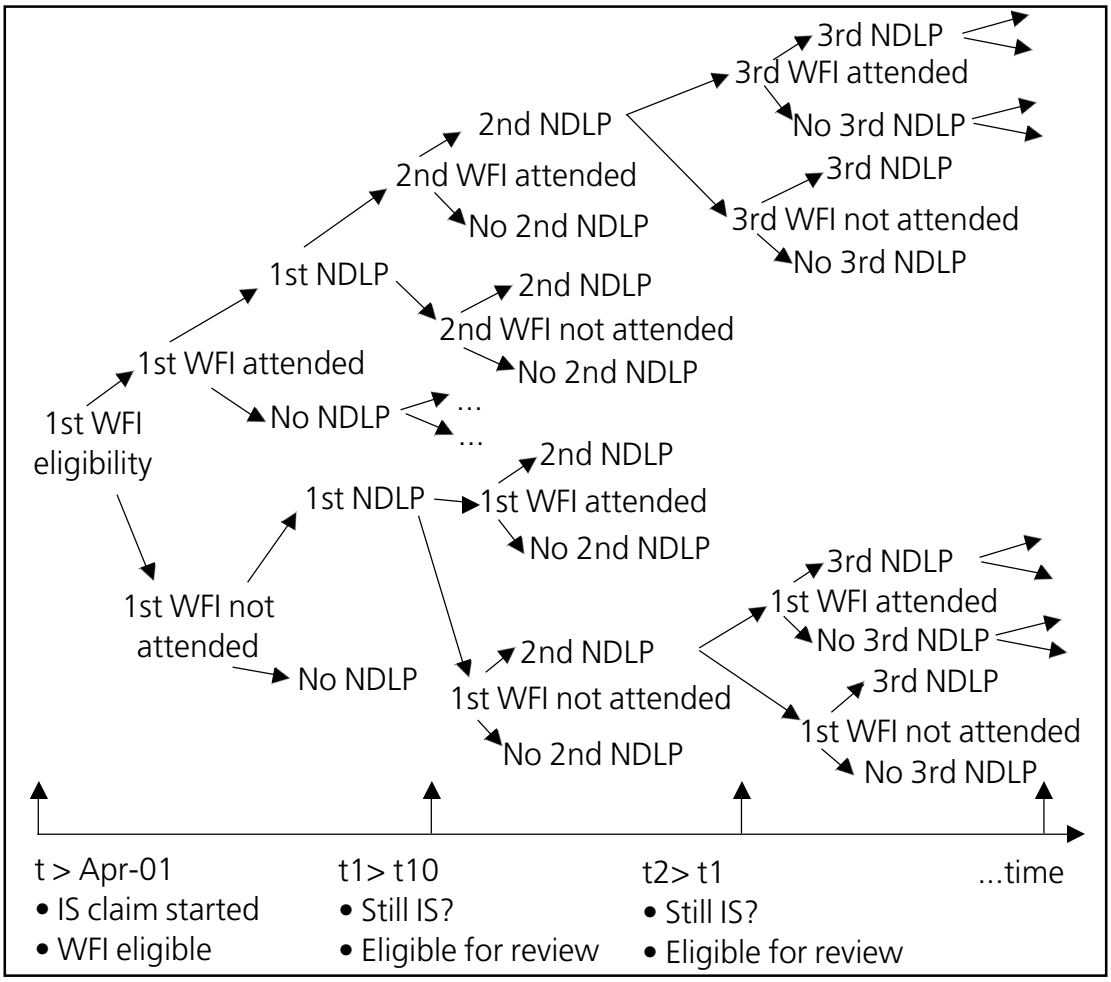
However, this difference applies only to the first treatment, which might be part of a series of repeated treatments. By allowing the eligible IS spells to be linked to up to four spells from the NDED, the extent and timing of any repeated treatments are explored.

As already described, the LPWFI programme is mandatory and will be delivered via review meetings (regularly on an annual basis[6]) for claimants who stay on benefit for more than one year. The repeated treatment offer implies that a subpopulation that remains on IS after this period has another opportunity to make the choice of either one of the treatments.

Since lone parents are a subgroup with a relatively long duration on benefit (see descriptions below), it is likely that a substantial fraction will have the treatment twice or even more often. Figure 2.1 shows how repeated participation could in principle look.

[6] After 2002, every six months.

Figure 2.1 Offering LPWFI with review meetings: A problem of multiple and repeated treatments



In the following, the treatments which can be observed for the eligible population are described. A description of the first treatment out of a sequence of multiple and repeated treatments, is followed by the most important combinations of repeated treatments from the 2001/2 new/repeat and existing claimants. Table 2.2 presents the breakdown for both existing claimants and new/repeat claimants.

Based on the Working Age Statistical Database (WASD) data, a total of 78,418 new claims or restarting claims in the period April 2001- April 2002 were identified as eligible for an LPWFI. Of these, 18,701 spells (24 per cent) neither participated in NDLP nor in LPWFI. Of those who participated in one of the treatments, the majority of 33,879 spells (43 per cent) attended an LPWFI without further participation in NDLP as their first treatment; 23,101 (29 per cent) new claimants attended an LPWFI and started NDLP on the day of the LPWFI or afterwards; whereas three per cent of all claims started NDLP without a previous LPWFI (2,737). Claimants starting either one out of the three treatments however may attend a second, third or fourth treatment (see Table 2.3)[7].

[7] Note that we are here describing spells not individuals, i.e. if a person starts a new claim within the same financial year, this person will appear twice in the data.

The eligible population of IS claimants with existing benefit claims on the 30 April 2001 was observed as 82,802. The majority of the existing claimants (47 per cent) neither attended a LPWFI nor started NDLP in the period between the date of eligibility and the ending date of the claim[8]. The second biggest subgroup of the existing claimants (33 per cent, 27,625) attended a LPWFI as their first treatment without a related participation in NDLP; 12,112 (15 per cent) of the existing claimants started a combination of LPWFI and NDLP, another five per cent (4,073) of all eligible persons started NDLP as self-referrals[9].

Table 2.2 Participation in LPWFI and NDLP by type of first treatment

	New/repeat		Existing claimants	
	Frequency	Per cent	Frequency	Per cent
None	18,701	24	38,992	47
Work Focused Interview (WFI) only	33,879	43	27,625	33
WFI, and NDLP	23,101	29	12,112	15
NDLP only	2,737	3	4,073	5
Total	78,418	100	82,802	100

The first treatment provides a very broad classification for the participating groups and does not necessarily offer a clear picture of how many of the individuals were actually participating in LPWFI or NDLP while on IS. Therefore, in the following, the most important repeated treatments for the 2001/02 new/repeat and existing claimants are described. These allow that individuals might start a second treatment after having had a first treatment already.

[8] Some non-participation results from Labour Market System (LMS) errors, while some is real non-participation. For a full discussion of this see Sections 3.3.1 and 3.3.2 of Knight and Lissenburgh (2005). The scale of contribution due to error is unclear. However, an internal check by the Department for Work and Pensions (DWP) examined LMS SIR listings (lists of all actions on LMS) for each of a random sample of 100 eligible customers for whom no LPWFI data could be found. All meeting types at or around the time of the eligible lone parent IS claim start and end dates were examined. In all cases, no LPWFI information was found. But in 49 of the 100 cases there was some form of meeting at or around the correct time. This could have been in many forms – either an actual meeting indicated by a marker being set, or certain referral types indicating a meeting must have taken place.

[9] Note that the existing claimants consisted of individuals, i.e. if a person stops their IS claim and restarts it later in the analysis period April 2001-April 2002, he/she will be then be counted as a spell in the new/repeat claimants (Table 2.2).

Table 2.3 describes participation in up to four treatments over the period of the eligible group starting with an IS claim in 2001. Since there were 74 different combinations observed for the participants from this group (see Table A.1 and Table A.2), only the 14 most important types of repeated treatments are described. These cover 96 per cent of all occurring treatments.

New/repeat claimants

Among the new/repeat claimants, 25 per cent of all eligible claims attended only one LPWFI without subsequent participation in NDLP (19,706) and another 24 per cent (18,701) did not participate at all in LPWFI/NDLP. Twenty-one per cent of all eligible claims participated once in NDLP and had a previous LPWFI, and finally three per cent had only one treatment in NDLP without previous participation in an LPWFI. To summarise this, 73 per cent of all eligibles participate only once in either one of the three treatments. Substantial numbers participated in NDLP after the second LPWFI (three per cent, 2,258) or repeatedly participated in LPWFI without NDLP (six per cent participated twice, another five per cent participated three times).

Existing claimants

For the existing claimants, there were fewer participants in repeated treatments. This could result from delayed delivery of the programme (see below for the periods on benefit before the first treatment is started for this group). The ten most important combinations of programmes cover 99 per cent of all cases.

The most important group were non-participants with 47 per cent (18,566) of all eligible persons, followed by individuals who attended an LPWFI without subsequent participation in NDLP exactly once. Twelve per cent of the existing claimants started LPWFI/NDLP in combination as their first and only treatment (9,681). Four per cent of all eligible persons started NDLP without LPWFI as their first and only treatment. In total, there were 85 per cent of all individuals (70,489) participating in only one treatment over the duration of their eligible IS claim.

Among those who participated more often, the most important groups consisted of participants observed to have had two sequences in LPWFI without NDLP (eight per cent), followed by a group of individuals who start their NDLP after the second LPWFI and after having decided after their first LPWFI not to participate in NDLP. In all there were 55 different observed combinations of these four treatments.

Table 2.3 New/repeat claimants: Multiple participation in LPWFI and NDLP

Treatment 1	Treatment 2	Treatment 3	Treatment 4	Total	Col. %
LPWFI no NDLP	None	None	None	19,706	25
None	None	None	None	18,701	24
LPWFI NDLP	None	None	None	16,826	21
LPWFI no NDLP	LPWFI no NDLP	None	None	4,914	6
LPWFI no NDLP	LPWFI no NDLP	LPWFI no NDLP	None	3,766	5
LPWFI no NDLP	LPWFI NDLP	None	None	2,258	3
No LPWFI NDLP	None	None	None	2,215	3
LPWFI NDLP	LPWFI NDLP	None	None	1,874	2
LPWFI NDLP	LPWFI no NDLP	None	None	1,598	2
LPWFI NDLP	LPWFI no NDLP	LPWFI no NDLP	None	927	1
LPWFI no NDLP	LPWFI no NDLP	LPWFI NDLP	None	848	1
LPWFI no NDLP	LPWFI no NDLP	LPWFI no NDLP	LPWFI no NDLP	766	1
LPWFI no NDLP	LPWFI NDLP	LPWFI no NDLP	None	517	1
LPWFI no NDLP	LPWFI NDLP	LPWFI NDLP	None	448	1
All other possible treatments				3,054	4
Total				78,418	100

Note: LPWFI no NDLP is the same as LPWFI only; no LPWFI NDLP is the same as NDLP only.

Table 2.4 Existing claimants: Multiple participation in LPWFI and NDLP

Treatment 1	Treatment 2	Treatment 3	Treatment 4	Total	Col. %
None	None	None	None	38,992	47
LPWFI no NDLP	None	None	None	18,566	22
LPWFI NDLP	None	None	None	9,681	12
LPWFI no NDLP	LPWFI no NDLP	None	None	6,713	8
No LPWFI NDLP	None	None	None	3,250	4
LPWFI no NDLP	LPWFI NDLP	None	None	1,485	2
LPWFI NDLP	LPWFI no NDLP	None	None	1,230	1
LPWFI NDLP	LPWFI NDLP	None	None	891	1
LPWFI no NDLP	LPWFI no NDLP	LPWFI no NDLP	None	615	1
No LPWFI, NDLP	LPWFI NDLP	None	None	322	0
No LPWFI, NDLP	LPWFI no NDLP	None	None	161	0
No LPWFI, NDLP	No LPWFI NDLP	None	None	133	0
LPWFI NDLP	LPWFI no NDLP	LPWFI no NDLP	None	117	0
LPWFI no NDLP	LPWFI no NDLP	LPWFI NDLP	None	83	0
All other possible treatments				563	1
Total				82,802	(99)100

Note: LPWFI no NDLP is the same as LPWFI only; no LPWFI NDLP is the same as NDLP only.

Participation in repeated treatments – especially of participation in NDLP after two LPWFI – was important for both the new/repeat as well as for the existing claimants (three per cent and two per cent respectively). The occurrence of this treatment sequence requires a detailed description of the relation between a first and a second treatment, because it is a priori uncertain how the evaluation should deal with such cases.

On the one hand, the very high figures of repeated participation may be caused by the character of the programme itself repeatedly offering the same treatment to the target group by a fixed schedule of six or twelve months. Then, a second participation would only be offered to a subgroup staying longer on benefit than a group participating only once. Consequently, one should consider a reiteration of the programme as causing an incremental effect for a subgroup that remains on benefit longer. In such a case, it would not be justified to classify such a repeated treatment as similar to a treatment in which the LPWFI is attended only once.

On the other hand, it could be appropriate to categorise a treatment in which the second LPWFI precedes the participation in NDLP **if the second LPWFI follows early after a first LPWFI**. Except for the more intensive guidance through the LPWFI component of such programme combinations, it serves the same goal as a combination with only one LPWFI.

Whether programmes should be aggregated or whether it is valid to evaluate a first sequence of the programme consisting of a first participation in LPWFI, NDLP or LPWFI plus NDLP can only be answered based on descriptions of the time between the different sequences of the multiple treatments. Therefore, Section 2.2.2 the different sequences of multiple treatments are described. Whether a clustering of more than one participation in one of the treatments is more appropriate than the evaluation of the first treatment is then discussed further. Initially the timing of the first treatment is described. This might not in all cases coincide with the beginning of the IS claim for the new/repeat claimants. For the existing claimants, it is more likely that it took some time to offer the LPWFI to all eligible persons. Then the timing of the second treatments is described, if such an additional treatment is observed.

2.2.2 Timing of treatments and selection of outcome periods

The institutional regulations suggest that there should be mandatory LPWFI attendance for existing and new/repeat claimants relatively soon after the date of eligibility. With the existing claimants becoming eligible, quite a substantial new customer group was opened, and for such a numerous group, the delivery of LPWFI might have been implemented with delays. If the first participation in LPWFI (or NDLP) for the existing claimants was considerably delayed, it might be justified to evaluate the outcomes not for the period after the existing claimants became eligible for LPWFI, but from the timing of the first treatment onwards. Then, any participation in LPWFI or NDLP might have occurred long after the date of eligibility for LPWFI.

Table 2.5 provides an overview of the occurrence of the first treatment of LPWFI and NDLP for LPWFI eligible IS spells starting in the year 2001/2002: 78,418 lone parents were identified as the eligible population from the WASD data. For the new/repeat claimants starting the IS claim in 2001/2, the timing of the treatments is relative to the starting date of the IS claim. For the existing claimants, the duration of the IS claim and the timing of treatments is relative to the 30 April 2001 (instead of the starting date of the IS claim).

As already mentioned, there was quite a substantial fraction of eligible claimants who did **not** start either one of NDLP or LPWFI. For 18,701 cases from the new/repeat and 38,992 claimants from the existing claimants, a corresponding LPWFI or NDLP participation was not found (Tables 2.5 and 2.6). For these groups, the mean duration of the IS spell from the date of eligibility is relatively short compared to that for participants, 471 days for the new/repeat and 576 for the existing claimants. This difference in the duration of claiming IS seems to suggest delayed implementation of the LPWFI and NDLP programmes, as the mean duration on IS for participants in either one of the treatment combinations is in most cases much longer.

New/repeat

For new/repeat claimants, the first LPWFI is relatively early after the beginning of the IS claim. Compared to the LPWFI, the first participation in NDLP takes slightly longer to eventuate.

Of all new/repeat spells, 33,879 participated in LPWFI only without NDLP, as their first treatment (Table 2.5). For this group, the average number of days on IS before the LPWFI attendance was 46 days, indicating that LPWFI participation is closely related to the beginning of the IS claim in most cases. This becomes more obvious if one considers the median benefit receipt before the attendance of the LPWFI was only six days. It seems therefore justified to start the period of observation for any outcome of a first LPWFI treatment at the beginning of the IS claim.

For a total of 23,101 spells, corresponding to 21 per cent of all eligible spells, the first treatment was LPWFI followed by participation in NDLP. As for participants in LPWFI without subsequent NDLP participation, the mean duration on benefit before the LPWFI attendance date was relatively short (average duration of 25 days, median duration five days). Participants with such a treatment start NDLP with some delay. The mean duration between the LPWFI attendance date and the start of the NDLP caseload was 63 days, the median however was zero days. This indicates that for many participants, the start of NDLP is closely related to the attendance of the LPWFI. However, some individuals do not decide to start NDLP on the date of the LPWFI attendance.

Individuals starting NDLP as self-referrals after becoming eligible for LPWFI started NDLP on average 243 days after the date of eligibility, the median time on IS was 163 days.

These descriptions show that for new/repeat claimants most first treatments for NDLP/LPWFI participants start relatively early. In such cases, it is appropriate to start the period for outcome estimates with the start of the IS claim, i.e. with the date of eligibility rather than the date of the treatment.

Table 2.5 LPWFI eligible IS claims and treatments in LPWFI and NDLP (new/repeat claimants)

	No LPWFI, no NDLP			WFI, no NDLP		
	Mean	Median	N	Mean	Median	N
Duration of IS spell after date of eligibility*	471	365	18,701	577	614	33,879
Time spent from date of eligibility* until first LPWFI attended				46	6	33,879

	WFI, NDLP			No LPWFI, NDLP		
	Mean	Median	N	Mean	Median	N
Duration of IS spell after date of eligibility*	444	335	23,101	530	485	2,737
Time spent from date of eligibility* until first LPWFI attended	25	5	23,101			
Time spent from date of eligibility* until first day of first NDLP	96	17	23,101	243	149	2,737
Days between first LPWFI and the first day of first NDLP	63	0	23,101			

* Date of eligibility: Beginning of the claim.

Existing claimants

For the existing claimants (lone parent IS claimants as of 30 April 2001), quite dissimilar patterns were found for the timing of their first treatment.

Individuals without any participation in LPWFI/NDLP on average had a duration claiming IS of 576 days after 30 April 2001. Individuals starting any of the treatments with LPWFI had considerably longer durations on benefit: Participants in only LPWFI had durations of 840 days claiming benefit on average, while individuals starting NDLP after the LPWFI attendance had an average duration of 632 days on benefit. Participants in NDLP without previous LPWFI attendance had the shortest mean duration claiming IS of 484 days. As for new/repeat claimants, LPWFI participants had considerably longer benefit claims (indicating the delayed delivery of these programmes for the existing claimants, which is now further described).

Eligible existing claimants who started a first treatment were very dissimilar from new/repeat claimants as considerable delay of the delivery for existing claimants was found. Participants in LPWFI without NDLP (27,625) attended their LPWFI on average 267 days after 30 April 2001, approximately nine months into eligibility.

Participants starting NDLP after LPWFI (12,112) waited on average 232 days before attending their LPWFI. After the LPWFI, they waited on average 48 days before starting NDLP.

Individuals whose first treatment was NDLP without a previous LPWFI started on average 200 days after the date of eligibility of the LPWFI, relatively similar to the corresponding group from the new/repeat claimants.

For those starting LPWFI, it might not be justified to start the period of the outcome observation on 30 April 2001, as participation in the treatment seems only to be offered to individuals remaining on benefit for a longer duration after this date.

Based on these descriptions, the starting point for the outcome period should be the starting date of the claim for the new/repeat claimants, as most treatments begin relatively close to this date. For the existing claimants however, there was a substantial delay in the delivery of the LPWFI. Correspondingly, many of the treated individuals attended their first LPWFI months after becoming eligible. Hence, the existing claimants outcome period should start with the date of the first treatment (LPWFI or NDLP).

For the group who do not have a date of first treatment (no participation), a starting date must be imputed. The process of imputation adopted is described further, as this can affect the analysis. The identification of a similar outcome for non-participants requires 'potential dates of participation' for non-participants before any outcome relative to the participation can be generated. Such participation dates for non-participants have been created based on random starting dates with an equal distribution of the starting dates observed for participants[10].

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[10] Alternatively, participants and non-participants could have been matched according to their calendar time of beginning the IS claim and the time spent before the participation in NDLP or LPWFI – whichever comes first. Non-participants with a similar duration of benefit receipt could then provide valid control observations for participants starting any of the LPWFI/NDLP combinations following their eligibility in the year 2001/2 (as suggested in Fitzenberger and Speckesser, (2005)). If such observations were matched, outcomes following participation would correspond to a specific calendar time/benefit duration allowing an identification of the post-programme outcomes without further assumptions as both groups show the same history before the participation in NDLP/LPWFI. However, this approach would not have been a solution for the NDLP/LPWFI evaluation as some participants have no corresponding starting dates of IS before programme participation. They have been out of work for a very long time before participation and are left-censored.

Table 2.6 LPWFI eligible IS claims and treatments in LPWFI and NDLP (existing claimants)

	No LPWFI, no NDLP			WFI, no NDLP		
	Mean	Median	N	Mean	Median	N
Duration of IS spell after date of eligibility*	576	507	38,992	840	955	27,625
Time spent from date of eligibility* until first LPWFI attended				267	249	27,625

	WFI, NDLP			No LPWFI, NDLP		
	Mean	Median	N	Mean	Median	N
Duration of IS spell after date of eligibility*	632	575	12,112	484	393	4,073
Time spent from date of eligibility* until first LPWFI attended	232	214	12,112			
Time spent from date of eligibility* until first day of first NDLP	280	259	12,112	200	136	4,073
Days between first LPWFI and the first day of first NDLP	48	0	12,112			

* Date of eligibility: 30 April 2001.

2.2.3 Timing of the second treatment and clustering of treatments

As already mentioned, it is a priori not clear whether one should evaluate only the first out of a sequence of multiple treatments or whether the first and the second treatment should be aggregated. In the following, the timing of the treatments and the time spent on IS for separate subgroups is explored according to the type of their first treatment.

New/repeat claimants

Eligible lone parents can in principle start either an LPWFI, or an LPWFI followed by NDLP or an NDLP treatment without a previous LPWFI, or none of these treatments.

LPWFI only

Table 2.7 describes the multiple treatment structure of the subgroup of individuals starting a first treatment of LPWFI only after becoming eligible as new/repeat claimants in 2001.

The vast majority of the 33,879 individuals attending a first LPWFI without subsequent NDLP participation neither attended any other LPWFI nor started NDLP without a second LPWFI (19,706, 58 per cent).

Forty-two per cent of all individuals of this subgroup started one of the three treatment combinations after their first participation. For individuals going through a second LPWFI without NDLP, there was an average duration of 397 days on benefit between the day the first LPWFI was attended and the day of the second LPWFI. This corresponds well to an annual review.

About ten per cent of those that participated in a first LPWFI attended a second LPWFI following this with NDLP participation. These individuals had a very similar period between the first and the second LPWFI of 389 days on average. This long duration indicates that participation in the first NDLP after the second LPWFI starts at a much later point in time and so it does not seem to be justified to aggregate the first and the second LPWFI.

A small subgroup started NDLP without a further LPWFI after the first LPWFI. These individuals started their NDLP participation on average 536 days after the first LPWFI. These cases should not be assigned to the group of participants in LPWFI/NDLP as their first treatment, since their participation in NDLP followed very much later and cannot be clearly related to the first LPWFI.

LPWFI and NDLP

Table 2.8 shows how the participants in a first LPWFI/NDLP combination repeatedly participated in one of the three combinations of NDLP and LPWFI.

Almost 73 per cent of the participants in a first combination of LPWFI/NDLP do not start any second treatment in the period of observation (16,826).

Of those who started any other treatment subsequent to a first treatment in LPWFI/NDLP, the participants in a second LPWFI without NDLP were the most important group. Their second LPWFI occurred on average 441 days after the first LPWFI and 391 days after the NDLP participation. Both figures indicate that the second programme started with a substantial time difference to the first LPWFI/NDLP participation.

A small group of 2,749 persons attended a second LPWFI and subsequently participated a second time in NDLP. For participants in such a combination of treatments, there was again a gap of approximately one year between the first and the second LPWFI.

NDLP only

Of those participants whose first treatment consisted of NDLP participation only, 2,215 (81 per cent) did not start any other treatment. The remaining 19 per cent started NDLP with or without a previous LPWFI or only attended an LPWFI.

Of those with repeated participation, individuals who started a first NDLP without a previous LPWFI attended their first LPWFI on average 425 days after their first day on NDLP.

Participants with LPWFI/NDLP as their second programme after the first NDLP participation attended their first LPWFI on average 190 days after the start of the first LPWFI.

Those starting a second NDLP after a first NDLP without LPWFI had a gap of 412 days between the first and the second NDLP start date.

As for other treatments, there is no reason why any alternative clustering than according to the type of the first participation is required for new/repeat claimants.

Table 2.7 Timing of second treatment for eligible new/repeat claims 2001, with first treatment LPWFI, no NDLP

	WFI, no NDLP only			WFI, no NDLP and LPWFI, no NDLP		
	Mean	Median	N	Mean	Median	N
Duration of IS spell after date of eligibility*	407	279	19,706	838	866	10,552
Time spent from date of eligibility* until first LPWFI attended	51	6	19,706	40	7	10,552
Time spent from date of eligibility* until second LPWFI attended				438	385	10,552
Days between first LPWFI and second LPWFI				397	373	10,552

	WFI, no NDLP and LPWFI, NDLP			WFI, no NDLP and no LPWFI, NDLP		
	Mean	Median	N	Mean	Median	N
Duration of IS spell after date of eligibility*	742	780	3,463	714	788	158
Time spent from date of eligibility* until first LPWFI attended	31	6	3,463	29	5	158
Time spent from date of eligibility* until second LPWFI attended	420	382	3,463			
Time spent from date of eligibility* until first day of second NDLP	486	415	3,463			
Days between first LPWFI and second LPWFI	389	372	3,463			
Days between second LPWFI and first day of second NDLP	66	0	3,463			
Time spent from date of eligibility* until first day of second NDLP	486	415	3,463	565	562	158
Days between first LPWFI and first day of second NDLP	455	396	3,463	536	539	158

* Date of eligibility: Beginning of the claim, if spell is ongoing, duration until 30 April 2004.

Table 2.8 Timing of second treatment for eligible new/repeat claims 2001, with first treatment LPWFI, NDLP

	WFI, NDLP only			WFI, NDLP and LPWFI, no NDLP		
	Mean	Median	N	Mean	Median	N
Duration of IS spell after date of eligibility*	324	229	16,826	819	856	3,213
Time spent from date of eligibility* until first LPWFI attended	27	5	16,826	21	5	3,213
Time spent from date of eligibility* until first day of first NDLP	101	19	16,826	77	13	3,213
Days between first LPWFI and the first day of first NDLP	66	0	16,826	48	0	3,213
Time spent from date of eligibility* until second LPWFI attended				462	392	3,213
Days between first LPWFI and second LPWFI				441	382	3,213
Time spent from date of eligibility* until first LPWFI attended if first treatment was without LPWFI				462	392	3,213
Days between first day of first NDLP and the LPWFI following the first NDLP				391	372	3,213

Continued

* Date of eligibility: Beginning of the claim, if spell is ongoing, duration until 30 April 2004.

Table 2.8 Continued

	WFI, NDLP and LPWFI, NDLP			WFI, NDLP and no LPWFI, NDLP		
	Mean	Median	N	Mean	Median	N
Duration of IS spell after date of eligibility*	720	772	2,749	644	671	313
Time spent from date of eligibility* until first LPWFI attended	21	5	2,749	16	4	313
Time spent from date of eligibility* until first day of first NDLP	90	15	2,749	82	20	313
Days between first LPWFI and the first day of first NDLP	60	0	2,749	57	0	313
Time spent from date of eligibility* until second LPWFI attended	428	386	2,749			
Time spent from date of eligibility* until first day of second NDLP	469	406	2,749			
Days between first LPWFI and second LPWFI	407	377	2,749			
Days between second LPWFI and first day of second NDLP	41	0	2,749			
Time spent from date of eligibility* until first day of second NDLP	469	406	2,749	471	429	313
Days between first LPWFI and first day of second NDLP	448	394	2,749	454	412	313
Days between first day of first NDLP and second NDLP	390	378	2,749	397	366	313
Time spent from date of eligibility* until first LPWFI attended if first treatment was without LPWFI	428	386	2,749			
Days between first day of first NDLP and the LPWFI following the first NDLP	350	366	2,749			
Time spent from date of eligibility* until first day of second NDLP if first treatment was NDLP without LPWFI	469	406	2,749	471	429	313
Days between first day of first NDLP and second NDLP if first treatment was NDLP without LPWFI	392	378	2,749	397	366	313

* Date of eligibility: Beginning of the claim, if spell is ongoing, duration until 30 April 2004.

Table 2.9 Timing of second treatment for eligible new/repeat claims 2001, with first treatment No LPWFI, NDLP

	No LPWFI, NDLP only			No LPWFI, NDLP and LPWFI, no NDLP		
	Mean	Median	N	Mean	Median	N
Duration of IS spell after date of eligibility*	505	442	2,215	719	812	163
Time spent from date of eligibility* until first day of first NDLP	274	187	2,215	132	3	163
Time spent from date of eligibility* until first LPWFI attended if first treatment was without LPWFI				404	294	163
Days between first day of first NDLP and the LPWFI following the first NDLP				380	336	163

	No LPWFI, NDLP and LPWFI, NDLP			No LPWFI, NDLP and no LPWFI, NDLP		
	Mean	Median	N	Mean	Median	N
Duration of IS spell after date of eligibility*	500	418	211	736	818	148
Time spent from date of eligibility* until first day of first NDLP	59	0	211	172	120	148
Time spent from date of eligibility* until first day of second NDLP	207	25	211	593	608	148
Days between first day of first NDLP and second NDLP	162	43	211	425	391	148
Time spent from date of eligibility* until first LPWFI attended if first treatment was without LPWFI	163	13	211			
Days between first day of first NDLP and the LPWFI following the first NDLP	190	29	211			
Time spent from date of eligibility* until first day of second NDLP if first treatment was NDLP without LPWFI	207	25	211	593	608	148
Days between first day of first NDLP and second NDLP if first treatment was NDLP without LPWFI	230	76	211	412	376	148

* Date of eligibility: Beginning of the claim, if spell is ongoing, duration until 30 April 2004.

Existing claimants

The figures for existing claimants starting LPWFI and NDLP (Tables 2.10-2.12) confirm the impression gained from the descriptions based on the new/repeat claimants. Despite the fact that the delivery of the LPWFI programme for existing claimants was delayed compared to new/repeats, once the first treatment in LPWFI/NDLP was started, any repeated participation took place within a short time as in the case for the new/repeat claimants.

Individuals starting an LPWFI only combination as their second treatment after a first treatment of LPWFI only spent on average 385 days on benefit **between the first and the second LPWFI**. Individuals with LPWFI only as their first treatment starting LPWFI/NDLP as their second treatment were on benefit for 378 days **between the first and the second LPWFI**. Their NDLP spells started on average 58 days after their second LPWFI (median 0). Participants with LPWFI only as their first treatment who then started NDLP without another LPWFI experienced an additional period of benefit receipt of 463 days **between the first and the second treatment** (Table 2.10).

Existing claimants whose first treatment was an LPWFI/NDLP combination experienced on average very similar start dates for their second treatments. In most cases, the time between the first and the second treatment out of a sequence of two treatments corresponded roughly to one year.

Table 2.10 Timing of the treatment for existing claims on 30 April 2001, with first treatment LPWFI, No NDLP (starting date corresponds to 30 April 2001)

	WFI, no NDLP ony			WFI, no NDLP and LPWFI, no NDLP		
	Mean	Median	N	Mean	Median	N
Duration of IS spell after date of eligibility*	770	813	18,566	999	1,097	7,441
Time spent from date of eligibility* until first LPWFI attended	256	211	18,566	290	297	7,441
Time spent from date of eligibility* until second LPWFI attended				675	672	7,441
Days between first LPWFI and second LPWFI				385	372	7,441

	WFI, no NDLP and LPWFI, NDLP			WFI, no NDLP and No LPWFI, NDLP		
	Mean	Median	N	Mean	Median	N
Duration of IS spell after date of eligibility*	910	920	1,572	794	806.5	46
Time spent from date of eligibility* until first LPWFI attended	280	289	1,572	272	254	46
Time spent from date of eligibility* until second LPWFI attended	659	661	1,572			
Time spent from date of eligibility* until first day of second NDLP	717	695	1,572			
Days between first LPWFI and second LPWFI	378	372	1,572			
Days between second LPWFI and first day of second NDLP	58	0	1,572			
Time spent from date of eligibility* until first day of second NDLP	717	695	1,572	735	706.5	46
Days between first LPWFI and first day of second NDLP	437	393	1,572	463	412	46

* Date of eligibility: 30 April 2001, if spell is ongoing, duration until 30 April 2004.

Table 2.11 Timing of the treatment for existing claims on 30 April 2001, with first treatment LPWFI, NDLP (starting date corresponds to 30 April 2001)

	WFI, NDLP only			WFI, NDLP and LPWFI, no NDLP		
	Mean	Median	N	Mean	Median	N
Duration of IS spell after date of eligibility*	561	501	9,681	947	1,027	1,393
Time spent from date of eligibility* until first LPWFI attended	223	204	9,681	271	284	1,393
Time spent from date of eligibility* until first day of first NDLP	276	234	9,681	297	295	1,393
Days between first LPWFI and the first day of first NDLP	54	0	9,681	26	0	1,393
Time spent from date of eligibility* until second LPWFI attended				655	666	1,393
Days between first LPWFI and second LPWFI				384	377	1,393
Time spent from date of eligibility* until first LPWFI attended if first treatment was without LPWFI				655	666	1,393
Days between first day of first NDLP and the LPWFI following the first NDLP				358	372	1,393

Continued

Table 2.11 Continued

	WFI, NDLP and LPWFI, NDLP			WFI, NDLP and no LPWFI, NDLP		
	Mean	Median	N	Mean	Median	N
Duration of IS spell after date of eligibility*	880	893	962	676	666	76
Time spent from date of eligibility* until first LPWFI attended	270	283	962	203	196.5	76
Time spent from date of eligibility* until first day of first NDLP	300	297	962	239	219	76
Days between first LPWFI and the first day of first NDLP	30	0	962	35	0	76
Time spent from date of eligibility* until second LPWFI attended	648	659	962			
Time spent from date of eligibility* until first day of second NDLP	678	672	962			
Days between first LPWFI and second LPWFI	378	375	962			
Days between second LPWFI and first day of second NDLP	30	0	962			
Time spent from date of eligibility* until first day of second NDLP	678	672	962	550	548	76
Days between first LPWFI and first day of second NDLP	408	385	962	346	321.5	76
Days between first day of first NDLP and second NDLP	378	377	962	311	272	76
Days between first day of first NDLP and the LPWFI following the first NDLP	348	371	962			
Time spent from date of eligibility* until first day of second NDLP if first treatment was NDLP without LPWFI				550	548	76
Days between first day of first NDLP and second NDLP if first treatment was NDLP without LPWFI				311	272	76

* Date of eligibility: 30 April 2001, if spell is ongoing, duration until 30 April 2004.

Table 2.12 Timing of the treatment for existing claims on 30 April 2001, with first treatment No LPWFI, NDLP (starting date corresponds to 30 April 2001)

	No LPWFI, NDLP only			No LPWFI, NDLP and LPWFI, no NDLP		
	Mean	Median	N	Mean	Median	N
Duration of IS spell after date of eligibility*	426	318	3,250	818	864	262
Time spent from date of eligibility* until first day of first NDLP	217	144	3,250	119	84	262
Time spent from date of eligibility* until first LPWFI attended if first treatment was without LPWFI				344	321	262
Days between first day of first NDLP and the LPWFI following the first NDLP				225	194	262

	No LPWFI, NDLP and LPWFI, NDLP			No LPWFI, NDLP and no LPWFI, NDLP		
	Mean	Median	N	Mean	Median	N
Duration of IS spell after date of eligibility*	637	591	406	735	747	155
Time spent from date of eligibility* until first day of first NDLP	121	92	406	173	142	155
Time spent from date of eligibility* until first day of second NDLP	338	299	406	535	520	155
Days between first LPWFI and first day of second NDLP						
Days between first day of first NDLP and second NDLP	217	181	406	362	308	155
Time spent from date of eligibility* until first LPWFI attended if first treatment was without LPWFI	295	282	406			
Days between first day of first NDLP and the LPWFI following the first NDLP	173	150	406			
Time spent from date of eligibility* until first day of second NDLP if first treatment was NDLP without LPWFI	338	299	406	535	520	155
Days between first day of first NDLP and second NDLP if first treatment was NDLP without LPWFI	217	181	406	362	308	155

* Date of eligibility: 30 April 2001, if spell is ongoing, duration until 30 April 2004.

Conclusion

This section provides some information about the timing of individual treatments within a sequence of repeated treatments. Based on the distribution of the treatments observed for the spells of the LPWFI eligible population, for new/repeat and existing claimants for the year 2001/02, it is concluded:

- to only evaluate the effects of the first treatment out of a sequence of up to four treatments;
- to restrict the analysis to 12 months after the start of an LPWFI eligible IS claim for the new/repeats and to 24 months after the 30 April 2001 for existing claimants (the first date of the existing claimants' eligibility), taking account of the delayed delivery of the LPWFI for the existing claimants. Since the average waiting period until LPWFI attendance reaches nearly 300 days for existing claimants and the follow-up interview (and therefore the second offer for the treatment) takes place roughly one year after the first meeting, the outcome of the first treatment will be delayed compared to the new/repeats who were offered treatment in most cases shortly after the start of an eligible IS claim;
- only the effects of treatments for the existing and new/repeat claimants during the April 2001-April 2002 period were analysed because the introduction of mandatory six months review meetings after October 2002 restricts this period even further;
- any attempt to estimate the longer-term outcome of a first treatment would result in an estimate consisting of a combination of the effect of a first treatment for individuals who participated only once and the combined effect of first and second treatments for the group that still remains on benefit for longer than one year.

2.2.4 Descriptive analysis

This section describes the socio-economic characteristics of participants in different programmes and shows that the different alternative treatments had different client groups. These observable differences were of particular importance in the impact analyses that are in Section 2.4. The matching methods will need to correct for these differences. They are also potentially of relevance to policy makers.

Characteristics of new/repeat claimants participating in LPWFI/NDLP

While this subsection provides information for the new/repeat claimants, *Characterisations of existing claimants participating in LPWFI/NDLP* (page 47) does the same for existing claimants. Figures on the size of the lone parent claimant population and of the sub-samples analysed in this evaluation study are provided. Some descriptions of outcome variables are also presented. Firstly, the duration of IS claims after the persons became eligible for a LPWFI are illustrated. Then, the weekly benefit receipt rates are described for the period after LPWFI eligibility – these provide descriptions which control for re-entries into IS, for a period up to two years after the date of eligibility.

Socio-economic characteristics: new/repeat claimants

Table 2.13 shows the gender of new/repeat claimants eligible for LPWFI. As expected, most lone parents were women. For the new/repeat sample, the female group was almost seven times the size of the group of male lone parents (87 per cent compared to 13 per cent). Separate descriptions for the participation in the four programmes show that the group of non-participants (without LPWFI or NDLP) had the highest male proportion (16 per cent) followed by the group that participates in NDLP only (13 per cent). The female proportion was the highest for participants in combined LPWFI and NDLP (89 per cent of the participants were women). However, differences were generally not exceptionally pronounced across the different participant groups (Table 2.13).

Table 2.13 New/repeat claims: Gender of participants

	None %	WFI only %	WFI , NDLP %	NDLP only %	Total %
Male	16	12	10	13	13
Female	84	88	89	87	87
Total	18,701	33,879	23,101	2,737	78,418

Data excludes: Northern Ireland, Jobcentre Plus pathfinder, LPWFI pathfinder and ONE areas, Jobcentre Plus roll-out.

The age of eligible new/repeat claimants did not vary significantly for participants of the different programme alternatives. Between two per cent and three per cent of the participants (average three per cent) were aged less than 24 when starting one of the programmes. Generally, the participants in the three treatments of LPWFI/NDLP combinations were slightly younger than non-participants. Thirty-seven per cent of non-participants were below the age of 35 years compared to 40 per cent of those who started an LPWFI as a first treatment, 45 per cent of the LPWFI/NDLP participants and 43 per cent of the NDLP only participants. For the age group of 30-45 years, the picture is similar: 68 per cent of all non-participants were in this age group, compared to 74 per cent of LPWFI participants, 73 per cent of LPWFI/NDLP participants and 72 per cent of NDLP self-referrals. While 18 per cent of the non-participants were of the older age group of lone parents aged above 45, the proportion fell to 12 per cent for LPWFI clients, 10 per cent of LPWFI/NDLP clients and 11 per cent of self referrals to NDLP. Generally, apart from non-participants, the age distribution was quite similar across participant groups for the different programme alternatives (Table 2.14).

Table 2.14 New/repeat claims: Age of participants

	None %	WFI only %	WFI, NDLP %	NDLP only %	Total %
16-24	3	2	3	3	3
25-29	11	12	15	14	13
30-34	23	26	27	26	26
35-39	26	29	29	29	28
40-44	19	19	17	17	18
45-49	10	8	7	8	8
50 and more	8	4	3	3	4
Total	18,701	33,879	23,101	2,737	78,418

Data excludes: Northern Ireland, Jobcentre Plus pathfinder, LPWFI pathfinder and ONE areas, Jobcentre Plus roll-out.

The most important variable initiating participation in either one of the treatments is the age of the youngest child. The age of the youngest child also affects participation in any of the treatments compared to non-treatment. On average, 13 per cent of all eligible persons had youngest children aged 14-15, compared to 17 per cent of the non-participants. For participants in the different treatments, this figure was similar: 11 per cent of all LPWFI participants had youngest children in this age group, 11 per cent of the LPWFI/NDLP participants and eight per cent of the self-referrals to NDLP.

Corresponding figures were found when focusing on the group with youngest children around the school-starting age: 29 per cent of NDLP self-referrals had youngest child aged five to six, compared to only 23 per cent of non-participants. For participants in other programmes (LPWFI and LPWFI/NDLP combinations), 23 per cent and 24 per cent of the client group had the youngest child in this age group. As expected from the age distribution of the participants compared to the non-participants, lone parents with older children (i.e. older lone parents) seemed to be over-represented in the group of non-participants. The distribution of age and the age of the youngest child among participants show that participants in NDLP without a previous LPWFI attendance were more often relatively younger and had younger children (Table 2.15).

Table 2.15 New/repeat claims: Age of participants' youngest child

	None %	WFI only %	WFI, NDLP %	NDLP only %	Total %
5	11	10	11	15	11
6	12	13	13	14	13
7	11	12	12	12	12
8	10	11	11	10	11
9	9	10	10	9	10
10	8	9	9	9	9
11	7	9	8	8	8
12	7	8	7	8	8
13	8	7	7	7	7
14	8	6	6	5	7
15	9	5	5	3	6
Total	18,701	33,879	23,101	2,737	78,418

Data excludes: Northern Ireland, Jobcentre Plus pathfinder, LPWFI pathfinder and ONE areas, Jobcentre Plus roll-out.

On average, more than half of the eligible group (51 per cent of all cases) had more than one child at the start of the IS claim. Differences between the various programme participants and non-participants were hardly noticeable: On average, between 48 per cent and 54 per cent of different groups had two or more children; five per cent of LPWFI participants and five per cent of the non-participants had four or more children, compared to three per cent of the group participating in NDLP. The number of children at the start of the claim was lowest for the group of participants in LPWFI without NDLP (47 per cent). The group starting both LPWFI and NDLP had the highest share of one-child-households with 51 per cent (Table 2.16).

Table 2.16 New/repeat claims: Number of children at start of claim

	None %	WFI only %	WFI, NDLP %	NDLP only %	Total %
1	50	47	51	50	49
2	33	35	34	34	34
3	13	14	11	12	13
4	4	4	3	3	3
5	1	1	0	0	1
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
Total	18,701	33,879	23,101	2,737	78,418

Data excludes: Northern Ireland, Jobcentre Plus pathfinder, LPWFI pathfinder and ONE areas, Jobcentre Plus roll-out.

Information about disability of the claimants can be obtained from the entitlement for a disability premium. A fairly clear difference between participants and non-participants was observed among individuals who did not start any of the LPWFI/NDLP services offered: 19 per cent were entitled to a disability premium compared to five per cent of those who started NDLP with or without a LPWFI. Twelve per cent of eligible claimants who attended LPWFI were entitled to a disability premium.

Table 2.17 New/repeat claims: Disability

	None %	WFI only %	WFI, NDLP %	NDLP only %	Total %
No disability premium	81	88	95	93	89
Disability premium	19	12	5	7	11
Total	18,701	33,879	23,101	2,737	78,418

Data excludes: Northern Ireland, Jobcentre Plus pathfinder, LPWFI pathfinder and ONE areas, Jobcentre Plus roll-out.

There were hardly any differences between the participant groups by Government Office Region. Most participants were from the North West and from London, both with about 14 per cent of all participants.

Among those who do not participate in any of the programme alternatives offered, the share of lone parents based in London was 21 per cent, which is above the distribution of all eligible claimants. Correspondingly, there were not as many participants in the different programme alternatives LPWFI/NDLP and LPWFI in London: only ten per cent of all LPWFI/NDLP participants and 13 per cent of all LPWFI-only participants lived in London. On the other hand, there was a higher share of self-referrals to NDLP (without a previous LPWFI) in London (17 per cent compared to 14 per cent on average).

The regional distribution of participants shows that relative to its total share of eligible spells, NDLP self referrals were higher in London, the East and the South West than the average for lone parents. Participation in LPWFI without NDLP was over-represented in the North West and the East and West Midlands (16 per cent, eight per cent and ten per cent of the total participants in this programme compared to 14 per cent, seven per cent and nine per cent of all eligible spells). Non-participants were under represented in the North West (12 per cent of the groups of non-participants were from the North West compared to 14 per cent of all eligible spells).

Table 2.18 New/repeat claims: Region

	None %	WFI only %	WFI, NDLP %	NDLP only %	Total %
North East	5	6	7	5	6
North West	12	16	14	12	14
Yorkshire and The Humber	7	9	9	7	9
East Midlands	6	8	6	5	7
West Midlands	9	10	8	8	9
Eastern	8	7	7	9	7
London	21	13	10	17	14
South East	11	11	11	10	11
South West	7	7	10	9	8
Wales	5	5	6	8	6
Scotland	9	8	13	9	10
Total	18,701	33,879	23,101	2,737	78,418

Data excludes: Northern Ireland, Jobcentre Plus pathfinder, LPWFI pathfinder and ONE areas, Jobcentre Plus roll-out.

Outflows from IS: new/repeat claimants

In interpreting the impact of an evaluation for a welfare-to-work programme, the underlying rate of exit – or turnover – is a relevant consideration. If the base rate of turnover is low, then even a small absolute impact may be a worthwhile gain in practical terms. Also, additionality estimates related to the success of the programme can be calculated, describing the per cent of exits among the participants that are additional. The exit rate is used to calculate this in conjunction with the impact estimate – the impact estimate for a particular follow-up period is divided by the participant exit rate for that same period, and the result multiplied by 100.

New/repeat claimants on average have relatively high survival rates on the benefit. Table 2.19 summarises the survival rates according to the four different programme alternatives. Within the first 28 days there were virtually no exits from benefit. After two months, the average survival rate on IS was 96 per cent, falling by approximately five percentage points per month until the seventh month. After seven months, an average survival on the eligible IS claim of 72 per cent was observed.

The survival rate continues to decrease after this period, albeit at a smaller rate. After one year, 44 per cent of the new/repeat claimants exited from the spell, i.e. there was an average survival of 56 per cent. After two years, the average survival rate on the original IS spell with LPWFI eligibility was 37 per cent.

When comparing survival on benefit of participants in different programme alternatives, the highest survival rate was observed for participants on LPWFI without NDLP. On average, 64 per cent of these participants were still on benefit after one year without any interruption, 45 per cent after two years. The self-referred participants in NDLP showed an average survival rate of 47 per cent after

one year. After two years, 27 per cent of the participants were still on the same spell of IS – ten percentage points less than the average for all new/repeat claimants. The second highest exit rate from the current IS claim was found among non-participants. Fifty per cent of all individuals starting IS in 2001 without participating in any programme alternative remained on the same benefit spell after one year. After two years, the survival rate on IS was 34 per cent. The lowest survival rate on benefit was observed for participants in the programme combination LPWFI/NDLP.

In general, relatively low exit rates from benefit were found for these lone parents. Accordingly, even a small positive impact from the treatment could be of practical significance (see Section 2.4 for the impact analysis).

Table 2.19 New/repeat claimants: Duration of IS spell, by type of first treatment

	First treatment				
Share remaining on IS after …	**None**	**WFI only**	**WFI, NDLP**	**NDLP only**	**Average**
28 days	99	100	100	100	99
Two months	93	97	95	98	96
Three months	86	93	89	95	90
Four months	80	89	83	91	85
Five months	74	85	77	87	80
Six months	69	81	72	83	75
Seven months	65	78	68	80	72
Eight months	62	75	64	77	69
One year	50	64	47	60	56
18 months	41	53	35	46	44
Two years	34	45	27	35	37
Total	18,701	33,879	23,101	2,737	78,418

Data excludes: Northern Ireland, Jobcentre Plus pathfinder, LPWFI pathfinder and ONE areas, Jobcentre Plus roll-out. Note: Duration related to the beginning of the spell.

Weekly benefit status: New/repeat claimants

Since the survival rates and exit rates from the single spell do not indicate any re-entry into benefit, the description of the average weekly benefit rates for participants in different programme alternatives in this section is more informative. Here, all benefit spells of an eligible lone parent are used to generate an integrated benefit status variable. For this purpose, data were transformed into weekly benefit information summarising whether an individual was on benefit at least three days out of the relevant week. The benefit information used does not only consist of IS, but of any other benefit reported in the WASD data. These weekly benefit rates are described based on graphical representations, to simplify reporting. The figures show the weekly status on benefit for an eligible individual participating in any of the programme alternatives relative to the week when they started their IS claim.

This beginning of the benefit spell is marked by an interruption of the line. Those with a benefit claim in the prior period are recent repeat claimants.

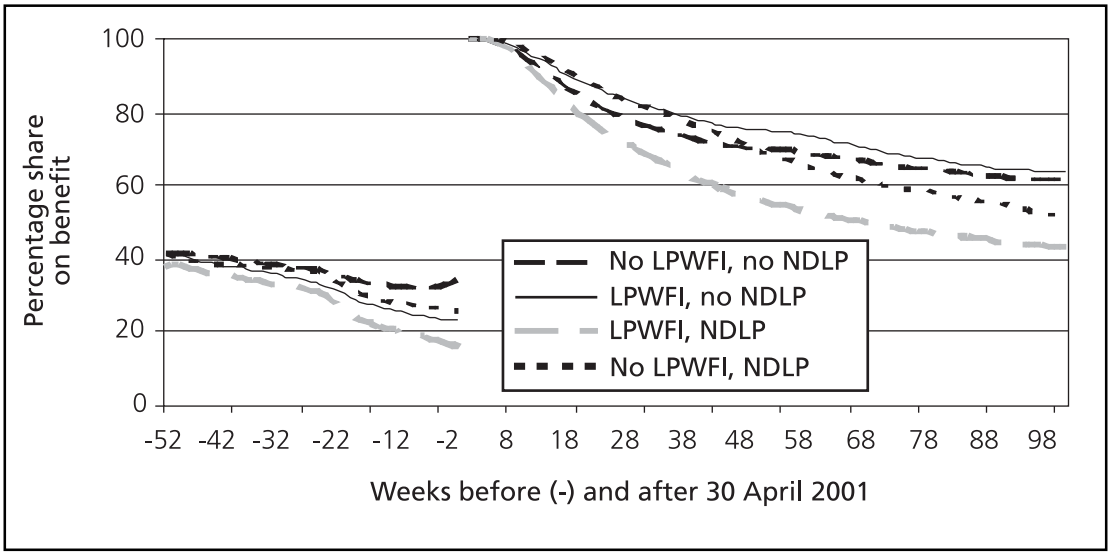
First of all, the descriptions show that between 16 per cent and 39 per cent of new/repeat claimants had already been on benefit in the week before they started the IS claim qualifying them for LPWFI eligibility. However, a substantial fraction of eligible spells were because of a newly started spell after the end of an earlier claim. In many cases, there were spells that ended exactly one day before the beginning of the new spell or overlapping the IS spell.

One year before the start of the eligible IS claim, between 38 and 46 per cent of all individuals who start any programme were already claiming one of the benefits recorded in the WASD data. Certainly, this share of individuals on benefit fell over time to between 16 per cent for individuals who later start LPWFI/NDLP and 34 per cent for non-participants in the week before the beginning of the LPWFI eligible IS claim. Both the rates one year earlier and immediately before the start of the IS claim were smallest for the group starting LPWFI/NDLP later and highest for the group of non-participants. This indicates that the participating population in LPWFI/NDLP was already a group with lower chances of claiming IS long before the programme. In contrast, the non-participants were a structurally different population both in the short term and longer term (one year) before the beginning of the IS claim. Finally, individuals later participating in LPWFI only or NDLP self referrals showed benefit rates at around 23-26 per cent immediately before the start of the LPWFI eligible claim, and the same benefit rates as non-participants one year before the start of their eligible IS claim in 2001.

After the start of the claim, the groups show quite dissimilar benefit rates. One year later, between 57 per cent (participants in LPWFI/NDLP) and 76 per cent (LPWFI only) of the new/repeat claimants were still claiming one of the different types of benefit as recorded in the WASD data. As already described on the basis of survival rates on benefit spell, participants in LPWFI/NDLP had on average the lowest benefit receipt after 52 weeks. Only 57 per cent were still receiving benefit compared to 76 per cent of the individuals who started LPWFI only, and 71 per cent of those without participation in any of the programme alternatives. Seventy per cent of the claimants starting NDLP without LPWFI were still claiming benefit after 52 weeks (Figure 2.2).

Compared to the IS claim survival in the previous subsection, these figures are higher as they control for any re-entry into the benefit system. But they are more informative since they also contain former IS claimants who either exit to an active benefit (Jobseeker's Allowance) or to other benefits which do not currently offer of LPWFI (such as Incapacity Benefit). Due to its comprehensive nature, this indicator is used as the chief outcome variable in the impact analyses in Section 2.3.

Figure 2.2 New/repeat claimants: Weekly benefit rates by type of first treatment



In the following, additional descriptions of the benefit rate illustrate how this indicator varies by socio-economic characteristics both before and after the start of the LPWFI eligible IS claim.

By describing outcomes separately for two different age groups of the youngest child, Figures 2.3 and 2.4 show quite substantial differences between eligible claimants with the age of the youngest child below and above 13 years. Generally, the proportions receiving benefit before the start of the IS claim were slightly lower for eligible persons with younger children. Of those eligible for LPWFI in 2001 who subsequently started the LPWFI/NDLP combination, only 15 per cent were on benefit immediately before the beginning of the eligible spell compared to 19 per cent for the claimants with youngest children aged above 13. This finding is consistently found for all 52 weeks before the beginning of the IS claim qualifying for LPWFI.

The benefit rates after the beginning of the IS claim were very similar for the group participating in LPWFI/NDLP irrespective of the age of the youngest child. Participants in this programme alternative showed the lowest proportion on benefit one year after the beginning of the spell. For participants with children aged 12 and above, only 51 per cent remained on benefit, and for participants with younger children, 57 per cent remain.

Additionally, the group of lone parents with the age of youngest child below 13 and without treatment in NDLP nor LPWFI has the second lowest benefit rate after one year (69 per cent) for lone parents with children aged below 13, followed by NDLP self-referrals with 71 per cent still claiming benefit. For lone parents with a youngest child aged above 12, the benefit rate for NDLP self referrals was much lower (60 per cent) after one year than for non-participants. For participants in LPWFI without a subsequent participation in NDLP, only very slight differences in the benefit rate

were observed after 52 weeks with 76 per cent of lone parents with youngest child below 13 remaining on benefit after one year compared to 73 per cent of those with older children.

To summarise, there were differences between these groups. Lone parents with youngest child below 13 years generally had higher benefit rates after the start of the IS claim and generally lower rates before the beginning of the claim. The relative differences between the different programme alternatives seem to persist (Figures 2.3 and 2.4).

Figure 2.3 New/repeat claimants: Weekly benefit rates for age of youngest child below 13, by type of first treatment

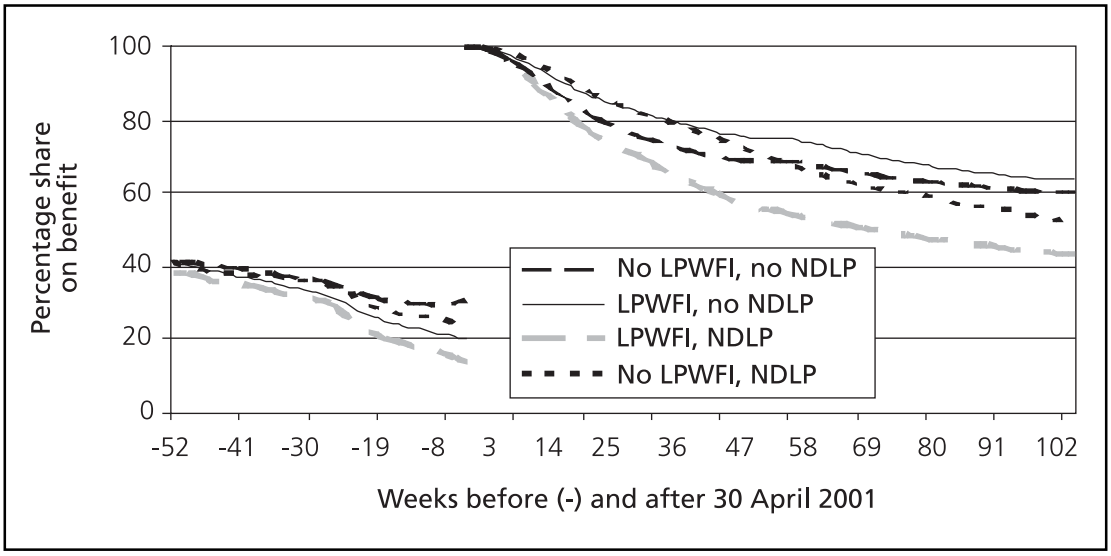
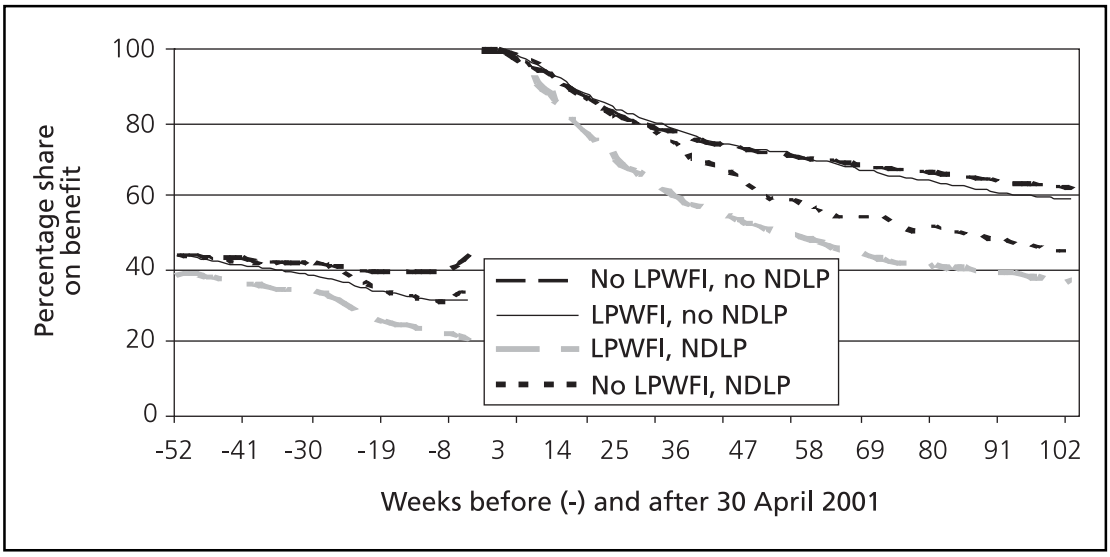


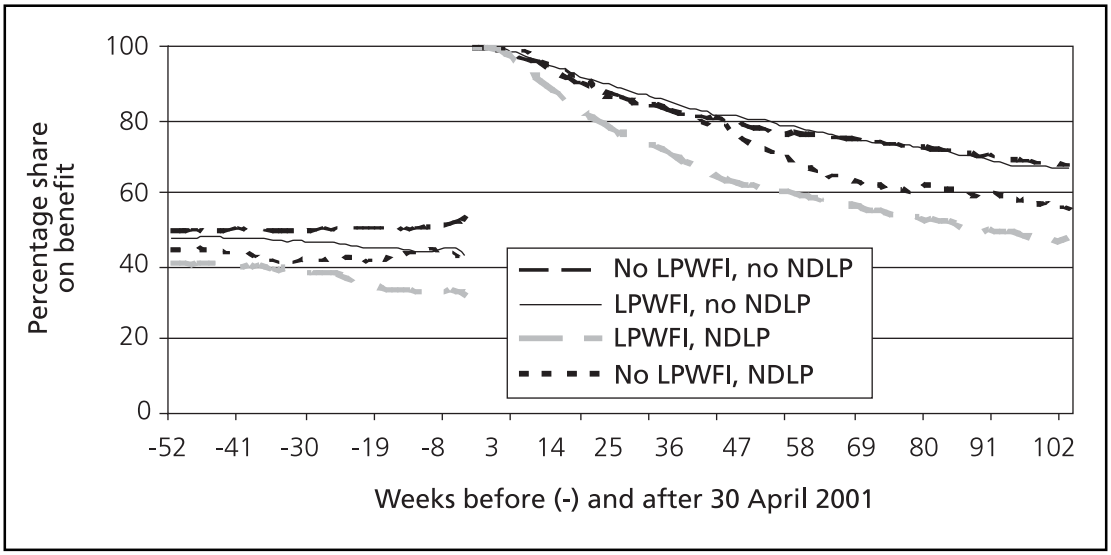
Figure 2.4 New/repeat claimants: Weekly benefit rates with age of youngest child greater/equal 13 by type of first treatment



Differences in the benefit rate between men and women were consistent over all different treatments. The benefit rate of male IS claimants was generally higher both before and after the start of the LPWFI eligible claim. Male lone parents remained on benefit to a greater extent within the first 12 months after the start of the eligible claim. Male participants also showed higher benefit rates before participation. As in the case for women, the rates were highest for lone parents who did not start any of the programme alternatives. The lowest benefit rates were found for participants in the LPWFI/NDLP combination.

It is a consistent picture that the benefit rate for those who started NDLP as self-referrals was much higher than for NDLP participants who previously attended an LPWFI. This pattern might indicate that the introduction of LPWFI reached its goal of offering the treatment to the more promising lone parents (therefore, it might increase the efficiency of NDLP), see Figures 2.5 and 2.6.

Figure 2.5 New/repeat claimants: Male weekly benefit rates, by type of first treatment



The description of benefit rates by age groups in Figures 2.7 to 2.10 shows a fairly consistent pattern for the age groups below 30. The group starting the combination of LPWFI and NDLP had the lowest benefit rate before and after the start of the eligible IS claim, followed by persons who left the spell without participation in any programme alternatives. However, for the age group between 40 and 50, there was a lower benefit rate for NDLP participants than for non-participants.

Much higher benefit rates were observed for the older age group of lone parents which did not participate in LPWFI/NDLP. While the benefit rates were generally higher for this age group for participants of the various programme alternatives, the participants in LPWFI/NDLP had substantially lower benefit rates.

Figure 2.6 New/repeat claimants: Female weekly benefit rates, by type of first treatment

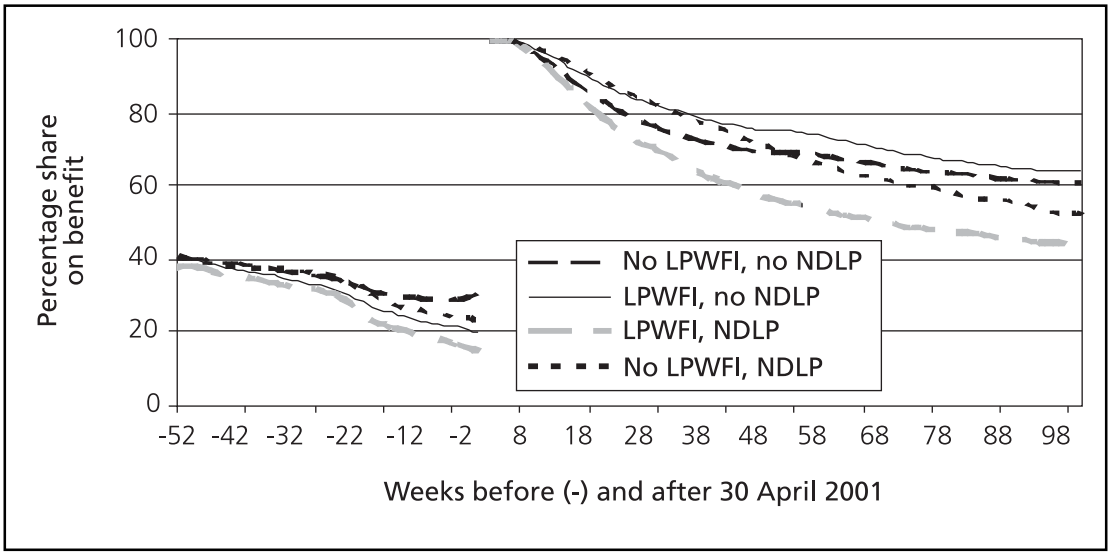


Figure 2.7 New/repeat claimants: Aged below 30, weekly benefit rates by type of first treatment

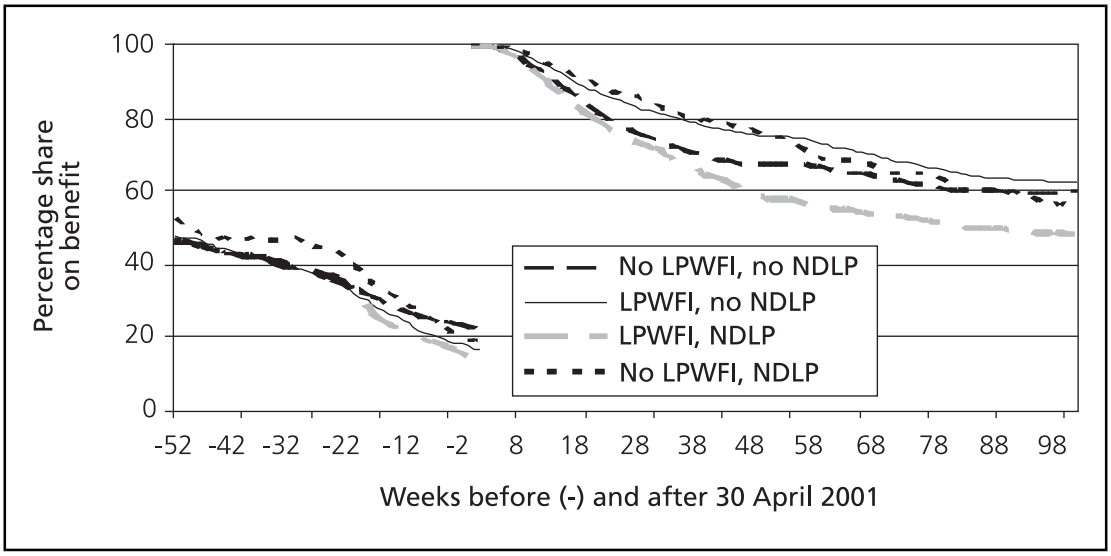


Figure 2.8 New/repeat claimants: Aged 30-39, weekly benefit rates by type of first treatment

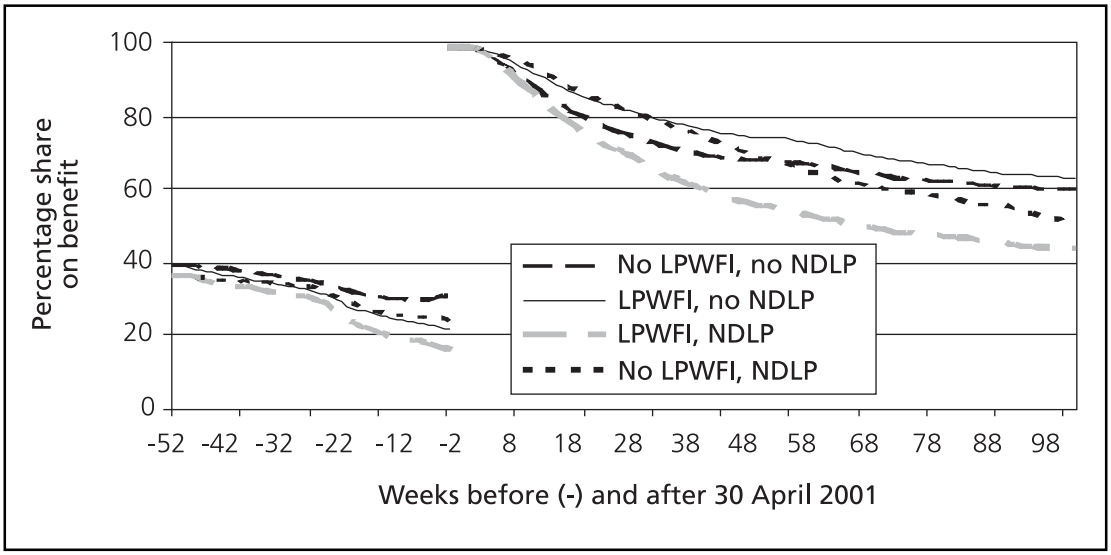


Figure 2.9 New/repeat claimants: Aged 40-49, weekly benefit rates by type of first treatment

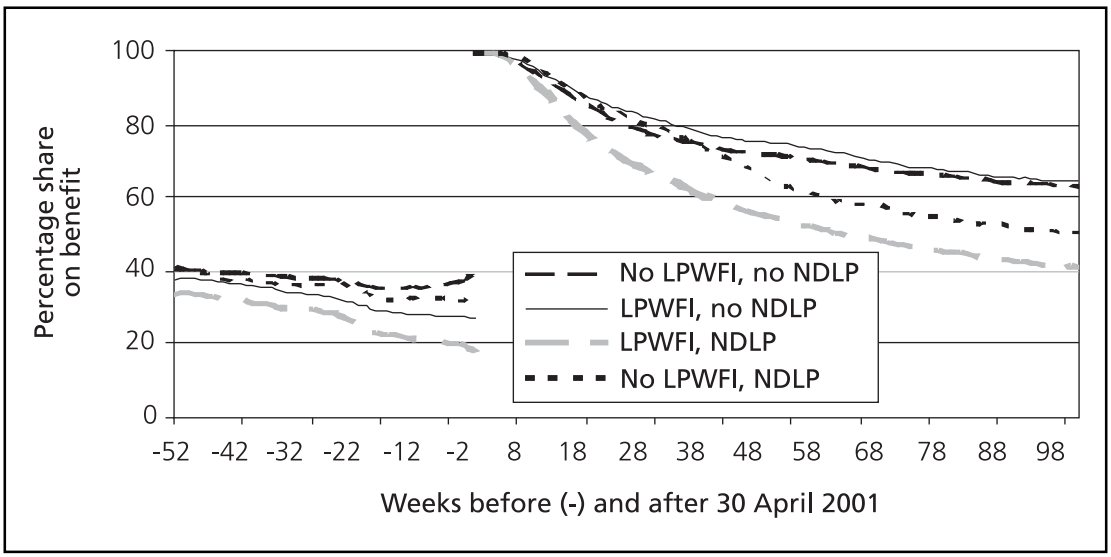
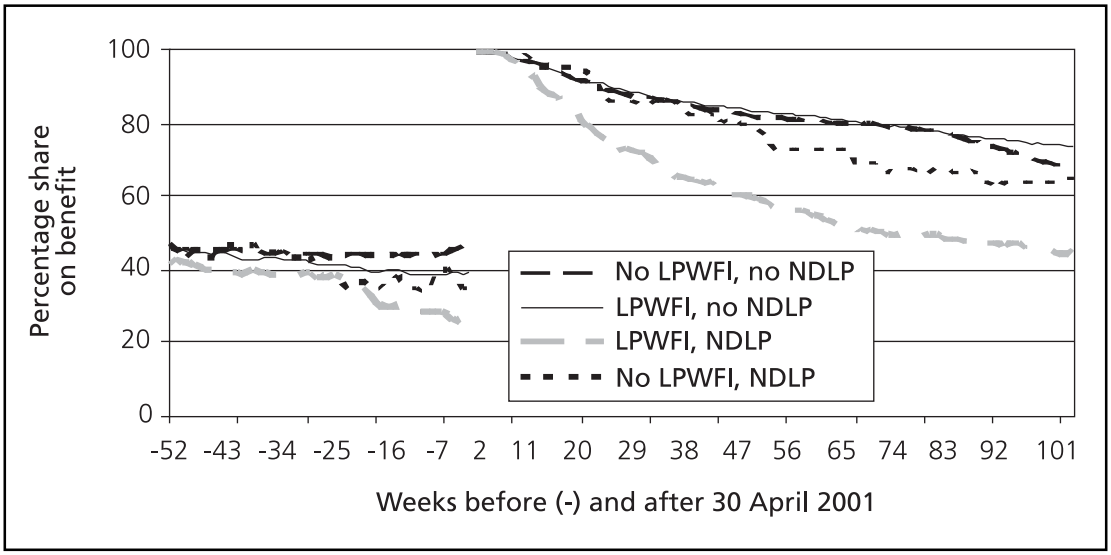


Figure 2.10 New/repeat claimants: Aged above 50, weekly benefit rates by type of first treatment



Characteristics of existing claimants participating in LPWFI/NDLP

Socio-economic characteristics: Existing claimants

Quite dissimilar socio-economic characteristics were found for the existing claimants. There were two important differences in this customer group compared to the eligible persons from the new/repeat claimants:

- existing claimants in 2001 were only eligible if their youngest child was aged 13 to 15, with implications on other socio-economic characteristics like age, disability and the number of children;
- the delivery of the LPWFI programme for the existing claimants was delayed as shown in Section 2.1. Therefore, those participating in LPWFI with or without subsequent participation in NDLP had longer benefit claims on average than customers that did not participate in any of the programme alternatives or started NDLP without a previous LPWFI. This will be of greater importance for the impact analysis in Section 2.3.

As for new/repeat claimants, the existing claimants predominantly consisted of female IS claimants: on average, 14 per cent were male compared to 86 per cent female. Also as for new/repeat claimants, the highest share of male participants was found among non-participants (15 per cent). However, the lowest proportion of men was found among NDLP self-referrals with 11 per cent, a different pattern compared to new/repeat claimants, where the lowest share was among participants in LPWFI/NDLP. The participation in LPWFI only was roughly the same for existing claimants and new/repeat clients (Table 2.20).

Table 2.20 Existing claimants: Gender of participants

	None %	WFI only %	WFI, NDLP %	NDLP only %	Total %
Male	15	13	12	11	14
Female	85	87	88	89	86
Total	38,992	27,625	12,112	4,073	82,802

Data excludes: Northern Ireland, Jobcentre Plus pathfinder, LPWFI pathfinder and ONE areas, Jobcentre Plus roll-out.

Differences in the age groups of existing claimants were more pronounced than for the breakdown of participants by gender. Since only lone parents with an age of the youngest child above 13 were eligible for LPWFI in 2001, there were virtually no clients in the age group below 30. In comparison with the new/repeat claimants there were fewer participants in the age groups below 40, in total only 37 per cent compared to 60 per cent for the new/repeat claimants. In contrast to the new/repeat clients among which the group with LPWFI/NDLP had the highest share of younger participants, the highest share of younger clients of the existing claimants was found among the participants in NDLP without a previous LPWFI: Thirteen per cent of NDLP only participants were younger than 35 years, and 44 per cent younger than 40 years compared to ten per cent or 37 per cent of all existing claimants. The age distribution for the participants in other programmes was similar to the average for all existing claimants.

An obvious difference to new/repeat claimants is the much higher share of participants in the age group above 50: On average, 16 per cent of all existing clients were in this group, compared to four per cent of the new/repeat clients.

As for new/repeat claimants, the existing claimants that participated in NDLP without a previous LPWFI were relatively younger: only nine per cent of these participants were already aged 50 or more. The highest share of older participants was found for non-participants with 18 per cent of the individuals in this subgroup older than 50 (Table 2.21).

According to the eligibility criteria, the participating groups in NDLP/LPWFI had children aged 13 to 15. As for new/repeat clients, participants in NDLP without LPWFI had, on average, younger children. Among these customers a higher share had 13 year old children (51 per cent) compared to the average for the whole eligible population (39 per cent) and a lower proportion were lone parents with children aged 15. The highest share of lone parents with children aged 15 were found among the non-participants (36 per cent versus an average of 16 per cent). For participants starting LPWFI or LPWFI/NDLP, relatively more clients than on average had children aged 13 (Table 2.22). As eligibility for IS normally ceased for lone parents with the youngest child reaching 16 years, some might delay participation since they expected to lose eligibility soon.

Table 2.21 Existing claimants: Age of participants

	None %	WFI only %	WFI, NDLP %	NDLP only %	Total %
16-24	0	0	0	0	0
25-29	1	0	0	0	0
30-34	11	9	11	13	10
35-39	27	26	30	31	27
40-44	27	29	31	30	28
45-49	17	20	17	16	18
50 and more	18	16	10	9	16
Total	38,992	27,625	12,112	4,073	82,802

Data excludes: Northern Ireland, Jobcentre Plus pathfinder, LPWFI pathfinder and ONE areas, Jobcentre Plus roll-out.

Table 2.22 Existing claimants: Age of participants' youngest child

	None %	WFI only %	WFI, NDLP %	NDLP only %	Total %
13	32	44	42	51	39
14	32	38	38	33	35
15	36	18	20	16	27
Total	38,992	27,625	12,112	4,073	82,802

Data excludes: Northern Ireland, Jobcentre Plus pathfinder, LPWFI pathfinder and ONE areas, Jobcentre Plus roll-out.

Participants from the existing claimants had on average fewer children than new/repeat claimants. On average, 57 per cent had only one child at the start of the claim compared to 49 per cent of the new/repeat claimants. Nine per cent of the eligible population from the existing claimants had three children or more when they began claiming IS compared to 17 per cent of new/repeats. Participants in LPWFI or LPWFI/NDLP as well as NDLP self-referral were similar with respect to the number of children living in their household. A slightly higher share of households with only one child were observed for the non-participants (58 per cent) compared to the participants (55 per cent or 56 per cent). The higher share of non-participants with one child might be related to the delayed delivery of the programme for existing claimants. Lone parents with more children face greater barriers to work – accordingly they tend to stay longer on benefit – and are hence more likely to become participants in the LPWFI-related participation alternatives. Therefore, the number of children might be an important predictor of whether the eligible individual starts an LPWFI related treatment or not (Table 2.23).

Table 2.23 Existing claimants: Number of children at start of claim

	None %	WFI only %	WFI, NDLP %	NDLP only %	Total %
1	58	55	56	55	57
2	33	34	35	36	34
3	7	9	9	8	8
4	1	2	1	1	1
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
Total	38,992	27,625	12,112	4,073	82,802

Data excludes: Northern Ireland, Jobcentre Plus pathfinder, LPWFI pathfinder and ONE areas, Jobcentre Plus roll-out.

Compared to 11 per cent of the new/repeat clients, an average 27 per cent of the existing claimants were entitled to a disability premium. As in the case for the new/repeat claimants , the share of clients without an entitlement was highest among the non-participants. The lowest share of individuals with disability entitlement was found among the self-referrals to NDLP (nine per cent were entitled to disability premium), followed by the participants starting NDLP after an LPWFI (12 per cent). The highest share claiming a disability premium was found among participants in LPWFI without any NDLP (33 per cent) and among eligible non-participants (29 per cent). Again, the share of non-participants is presumably smaller because the offer of LPWFI was relatively delayed, so that individuals undertaking LPWFI are a selection of the eligible population with less favourable labour market prospects in general (Table 2.24).

Table 2.24 Existing claimants: Disability premium

	None %	WFI only %	WFI, NDLP %	NDLP only %	Total %
No disability premium	71	67	88	91	73
Disability premium	29	33	12	9	27
Total	38,992	27,625	12,112	4,073	82,802

Data excludes: Northern Ireland, Jobcentre Plus pathfinder, LPWFI pathfinder and ONE areas, Jobcentre Plus roll-out.

Table 2.25 shows the distribution of the four sub samples by Government Office Regions. The concentration of existing claimants was considerably higher in the regions of the North West (16 per cent) and London (20 per cent), and comparatively higher in these two areas than for new/repeat claimants (14 per cent both). Again, the group of non-participants was more numerous in London where 25 per cent of all non-participants were based compared to 20 per cent of all existing claimants, 13 per cent of the LPWFI/NDLP participants and 17 per cent of the LPWFI/No NDLP participants.

Table 2.25 Existing claimants: Region

	None %	WFI only %	WFI, NDLP %	NDLP only %	Total %
North East	5	6	6	6	5
North West	12	20	17	13	16
Yorkshire and The Humber	8	6	8	8	7
East Midlands	5	6	5	7	6
West Midlands	9	9	8	8	9
Eastern	7	5	6	7	6
London	25	17	13	18	20
South East	9	9	12	11	9
South West	7	5	8	10	6
Wales	5	6	7	6	6
Scotland	10	10	10	8	10
Total	38,992	27,625	12,112	4,073	82,802

Data excludes: Northern Ireland, Jobcentre Plus pathfinder, LPWFI pathfinder and ONE areas, Jobcentre Plus roll-out.

Outflows from IS: Existing claimants

As for new/repeat claimants, the duration on the IS spell is described for the participants in different programme alternatives. However, as existing clients becoming eligible for an LPWFI might have quite different spell lengths up to the date of LPWFI eligibility, it is more informative to observe the duration on IS **after the date of eligibility** (instead of the beginning of the IS claim used for the new/repeat sample).

The fraction of claimants who remain on the same IS spell **after 30 April 2001** differ significantly between the participant groups. Until one year after this date, the lowest survival rate on benefit was observed for the non-participant group: 57 per cent of the originally eligible population was still on benefit after 12 months, after two years 58 per cent of all eligible spells **had ended** (42 per cent remained) and at the end of the period of observation in April 2004, 28 per cent were still open. Self referred participants in NDLP showed the second highest exit rate from benefit: Up to eight months after the 30 April 2001, the share of persons remaining on the same benefit spell was still higher than for non-participants (69 per cent compared to 67 per cent), however after one year, there were relatively more clients remaining on the same benefit spell than for non-participants; after three years only 11 per cent were still ongoing.

For those that participated in LPWFI and LPWFI/NDLP, the relatively late delivery of the programme for the existing clients is evident: Seven months after the date of eligibility, 98 per cent of the participants in LPWFI without subsequent NDLP and 94 per cent of all participants in LPWFI/NDLP were still uninterruptedly on benefit (compared to 78 per cent and 68 per cent of the new/repeat claimants). Participants who started any LPWFI-related treatment were on average less likely to leave the

benefit within the first year of LPWFI eligibility. After two years, existing claimants still had a much higher share on benefit compared to the new/repeat claimants.

A part of the differences in duration claiming IS between existing and new/repeat claimants can certainly be attributed to the different socio-economic and labour market characteristics of both groups (older on average, more disablement, older children). However, the late LPWFI programme delivery makes participation endogenous and is an underlying reason why the spell duration for LPWFI participants cannot simply be interpreted causally. The impact analysis in Section 2.3.4 considers the delayed delivery by observing outcomes only for the period **after** an LPWFI participant actually attended LPWFI/NDLP (see Section 2.2, and Table 2.26). This difference to the new/repeat analysis should be carefully noted.

Table 2.26 Existing claimants: Duration of IS spell, by type of first treatment

	First treatment				
Share remaining on IS after …	**None %**	**WFI only %**	**WFI, NDLP %**	**NDLP only %**	**Average %**
28 days	96	100	100	99	98
Two months	92	100	100	97	96
Three months	87	100	100	92	94
Four months	83	100	99	88	91
Five months	78	100	99	84	89
Six months	73	99	97	79	86
Seven months	69	98	94	74	83
Eight months	67	98	92	69	81
One year	57	90	76	53	70
18 months	48	78	53	37	58
Two years	42	66	37	26	48
Three years	28	42	15	11	30
Total	38,992	27,625	12,112	4,073	82,802

Data excludes: Northern Ireland, Jobcentre Plus pathfinder, LPWFI pathfinder and ONE areas, Jobcentre Plus roll-out. Note: duration related to the date of eligibility (30 April 2001).

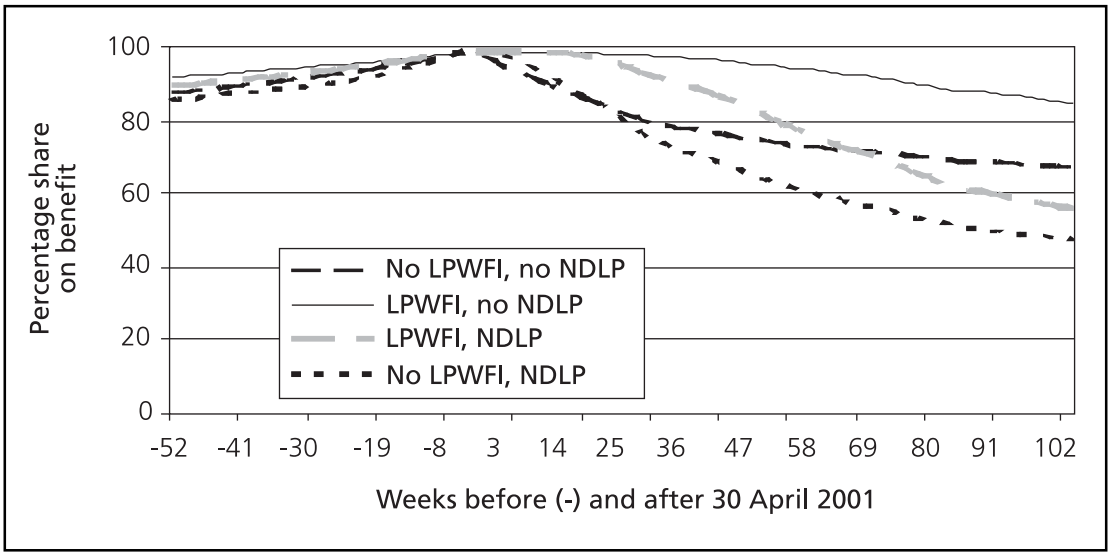
Weekly benefit status: Existing claimants

As for new/repeat claimants, the description of the average weekly benefit rates for participants is more informative than simple benefit exit, as it includes all benefit spells and also controls for re-entering into any benefit. Figures 2.12 to 2.18 show the proportion on any of the benefits recorded in the WASD in the weeks before and after the date 30 April 2001.

As the client group consists of existing claimants, all participants in the different programmes were on benefit in the week of 30 April 2001. One year before the eligibility date for LPWFI, between 86 per cent and 93 per cent of all existing

claimants were already claiming benefit. After becoming eligible for LPWFI, the participants in NDLP only, as well as the non-participants, had similar benefit rates as the new/repeat claimants: 14 per cent of the NDLP only participants left benefit within 20 weeks (compared to ten per cent of the new/repeat claimants) and 14 per cent of the non-treatment group (compared to 15 per cent of the new/repeat claimants). For participants in LPWFI treatments, there were higher benefit rates for the existing claimants than for new/repeats even two years after the date of eligibility. This certainly arises to some extent due to the late delivery of the programme to the existing claimants resulting in an unusual participation structure for LPWFI, as only those with lower chances of leaving benefit got offered the treatment. On the other hand, there were also significant differences in socio-economic variables that might cause the higher benefit rates in the long-run for existing claimants.

Figure 2.11 Existing claimants: Weekly benefit rates, by type of first treatment



Differences in the benefit rate between men and women were comparable to the differences observed for the new/repeat claimants, although the benefit rate of male IS claimants was slightly lower before the date of eligibility than the rate for women.

One year after 30 April 2001, 96 per cent of all male participants in LPWFI only were still claiming benefit, which exactly corresponds to the rate for women. For all other programme alternatives, there were differences in the benefit rates after one year, indicating that men had on average lower off-flows from benefit after the date of eligibility. Sixty-eight per cent of all male participants in NDLP only were still on benefit after one year, compared to 62 per cent of the female participants in this alternative. Of those who participated in LPWFI/NDLP, 83 per cent of the male participants were still on benefit after one year, the corresponding share for women was 81 per cent. The non-participants had the lowest rates of benefit receipt for both men (77 per cent) and women (73 per cent).

After two years, the differences in the outflows from benefit were more pronounced. Again, the highest share of individuals leaving benefit were found for both men and women among the participants in NDLP only (49 per cent of all men left benefit compared to 56 per cent of all women). The participants in LPWFI only still showed the highest share of benefit receipt: 83 per cent of all men and 86 per cent of all women were still on benefit. Forty per cent of all male participants in LPWFI/NDLP left benefit compared to 47 per cent of all female participants. Of those without participation in any of the programme alternatives, 66 per cent of women and 68 per cent of all men were still claiming benefit (Figures 2.12 and 2.13).

Figure 2.12 Existing claimants: Male weekly benefit rates, by type of first treatment

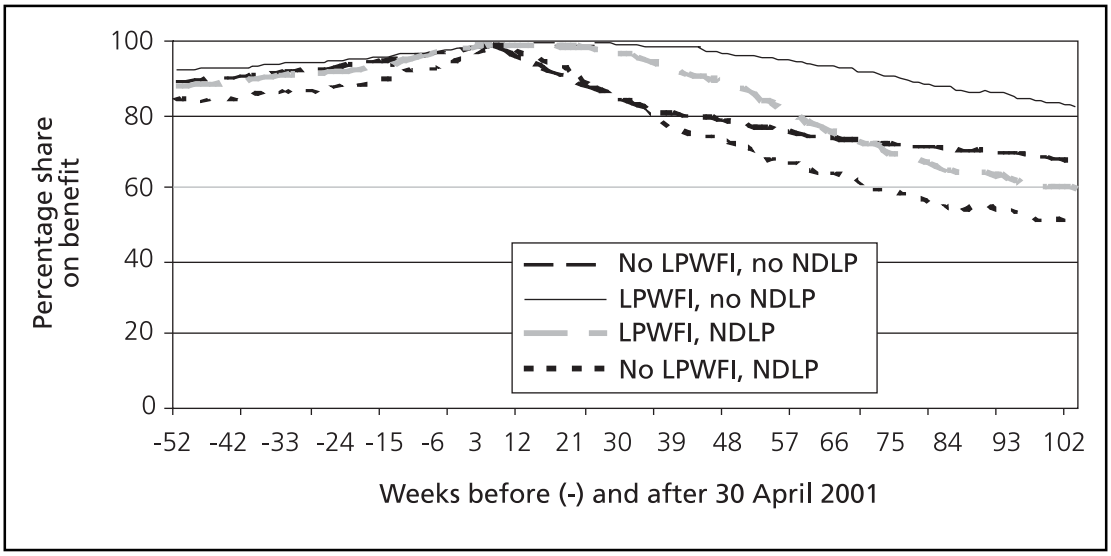
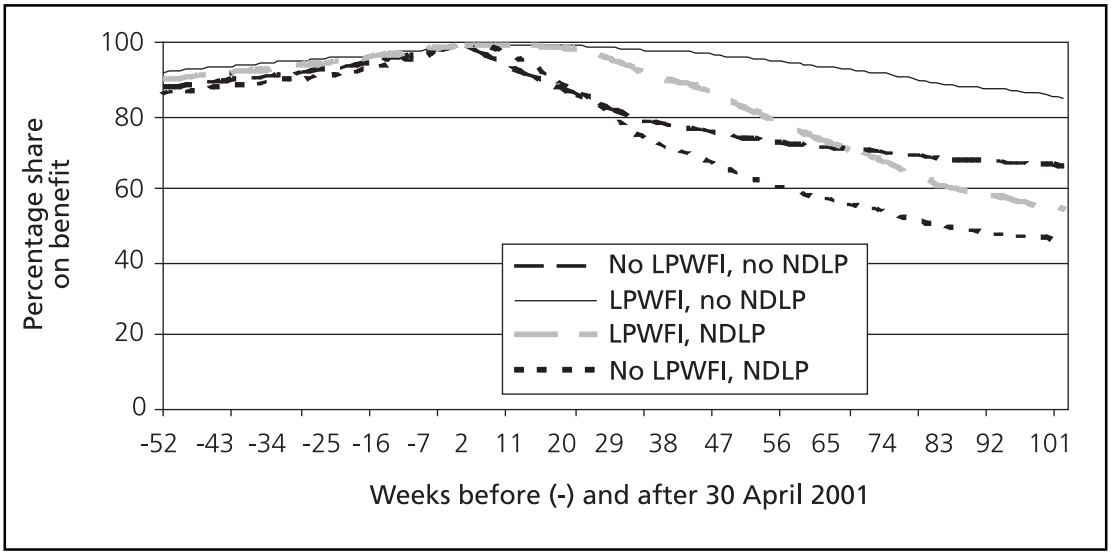


Figure 2.13 Existing claimants: Female weekly benefit rates, by type of first treatment



Figures 2.14 to 2.17 display the differences in survival on benefit for various age groups. There were common features for all age groups. As already shown, participants in LPWFI only always had the highest share on benefit for the period up to two years after the date of eligibility. Participants in NDLP only always had the lowest shares on benefit. These patterns were consistent for all age groups and for both the period before and after the date of eligibility.

There were however quite obvious differences in the level of benefit rates for different age groups. For younger clients, the benefit rates one year after the date of eligibility were generally higher than for older clients: 95 per cent of all participants in LPWFI only and 89 per cent of all participants in LPWFI/NDLP were still claiming benefit after one year. Within the group of 30-40 year old clients, the share remaining on benefit one year after the date of eligibility for participants in LPWFI/NDLP was 82 per cent, for clients aged 40-50 80 per cent and for clients age 50 and older, 81 per cent. In the longer run, this picture changes and the percentage of clients remaining on benefit after two years was lower for participants in the age group below 30 years (51 per cent) and between 30 and 40 years (54 per cent) than for participants in age groups above 50 among existing claimants.

For other programme alternatives, there were less pronounced differences between age groups. With the exception of the very young age group – which only consisted of a small number of observations – participants in NDLP self referrals showed the lowest survival rates on benefit after one year (around 63 per cent for the age groups 30-40, 40-50 and 50+ and ten percentage points higher for the group below 30). After two years, the participants of the age groups 30-40, 40-50 and 50+ have still very similar benefit survival rates, between 43 per cent and 49 per cent, while 59 per cent of the youngest age group still remained on benefit.

An interesting feature, which can be found consistently across all different subgroups, is the relative increase in the outflows from benefit for participants in LPWFI/NDLP compared to non-participation. For a period up to 65 weeks after the date of eligibility, a higher share of participants remained on benefit than for non-participants. This however changes subsequently, so that after two years the share of benefit recipients was lower among participants than among non-participants. This is a finding common across all different age groups.

Figure 2.14 Existing claimants: Aged below 30 weekly benefit rates, by type of first treatment

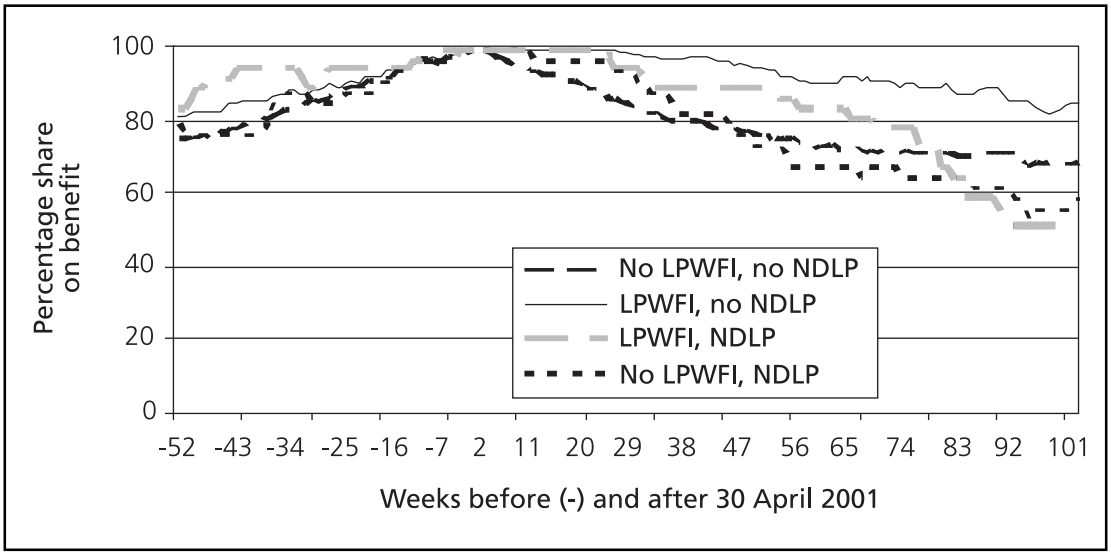


Figure 2.15 Existing claimants: Aged 30-39 weekly benefit rates, by type of first treatment

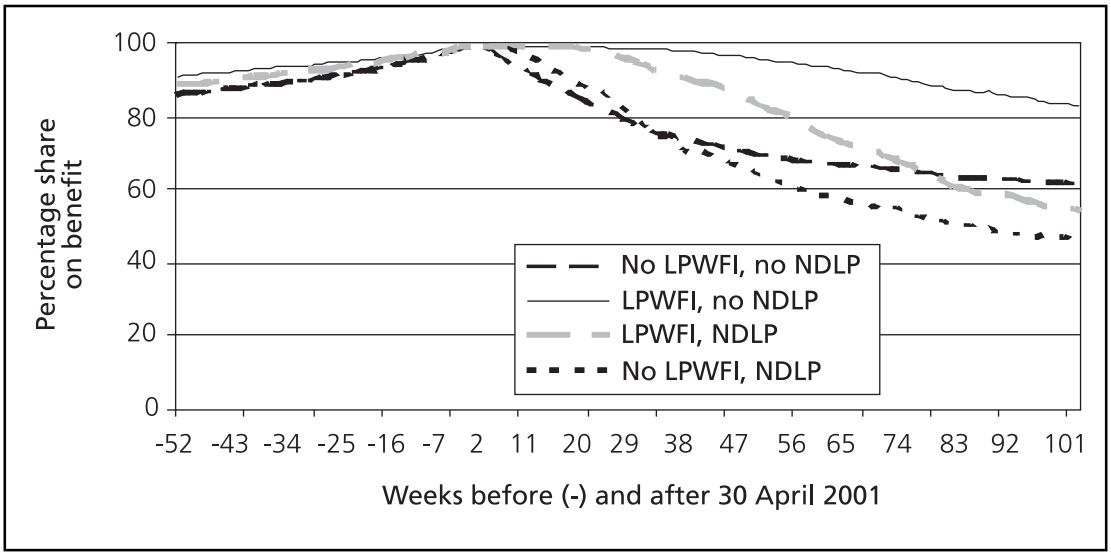


Figure 2.16 Existing claimants: Aged 40-49 weekly benefit rates, by type of first treatment

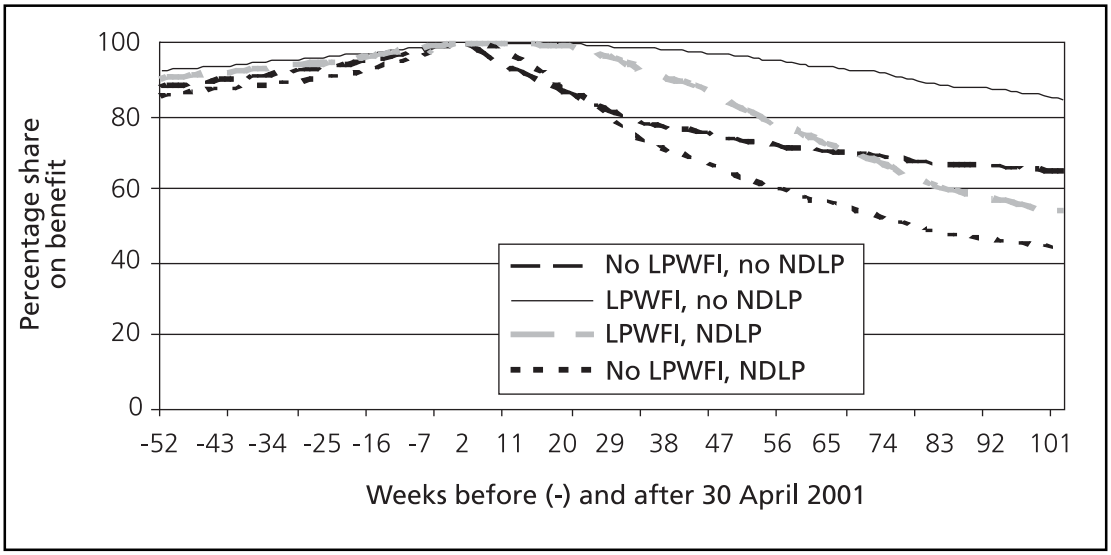
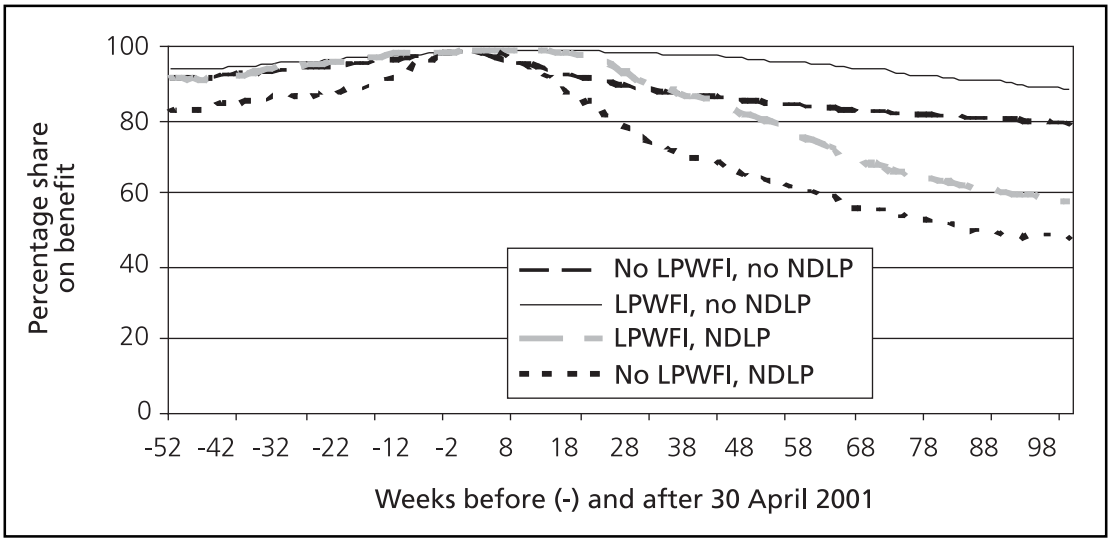


Figure 2.17 Existing claimants: Aged above 50 weekly benefit rates, by type of first treatment



2.3 Impact analysis

2.3.1 Methodology and appropriate interpretation of the net impacts

The earlier analysis in Section 2.2 provides evidence of how participation in LPWFI/ NDLP programme alternatives affects the outcomes for the participants, compared to other alternatives or non-participation. The impact analysis in this section indicates whether there were gains from participation in an LPWFI and how the outcomes from NDLP compare if individuals start the programme with or without LPWFI. To estimate these treatment effects, the outcomes of the four different alternatives are compared. However before the effects are explored, it is important

to outline the restrictions on the nature of the estimated effect. These are outlined under *Treatment effects for multiple participation alternatives* below.

Interpretation is restricted as the descriptive figures in Section 2.2 indicated that a substantial number of individuals receive treatment more than once. The following methodological discussion covers a) which of these treatments can be evaluated and b) how these treatments should be interpreted. After that, the context of the originally proposed framework for the evaluation, of multiple treatments in the context of this observed treatment structure, is introduced. After a formal outline of the approach, the character of the treatment effects is discussed, and estimates are created separately for the existing claimants and new/repeat claimants from the 2001 eligible population.

The descriptive analysis in Section 2.2 showed that for many participants the participation in LPWFI and NDLP treatments occurs repeatedly over the duration of an IS claim. From this point of view, the application of the multiple treatment framework as originally proposed requires some necessary restrictions. The treatments that can be feasibly evaluated are discussed, as well as the period after the treatment for which impact estimates can be created, especially if a second treatment is relatively early after the first treatment. Since the review meeting programme is offered every six months, this is the case for a substantial share of participants.

Treatment effects for multiple participation alternatives

The impact analysis in Section 2.3.4 provides estimates of the treatment effects of separate contributions of NDLP and LPWFI. The impact of NDLP on clients who are going through the LPWFI system compared to eligible persons who self-refer to NDLP is estimated, to produce the relative effect of the LPWFI on NDLP clients. The effect of NDLP itself for clients who are going through the LPWFI system is also estimated. Finally, with the introduction of LPWFI, the allocation of participants in NDLP changed considerably. How the combination of NDLP and LPWFI compares to non-participation is another important effect estimated.

The estimation of the combined LPWFI/NDLP effect in the period after April 2001 is especially important as it might differ from the effects that were found in various NDLP evaluation studies before the introduction of LPWFI. It can be expected that the introduction of LPWFI might also have an impact beyond those who attended the LPWFI, as the introduction of LPWFI can extend participation in NDLP or influence job search behaviour in general, i.e. LPWFI can also influence the behaviour of non-participants. Those who did not participate may have been affected by the existence of LPWFI in a variety of ways: for example, by being told about the meetings when they initiated or enquired about a benefit claim, or by hearing of the meetings from people they knew who had attended. Some of the non-participating LPWFI lone parents who heard about LPWFI may have been stimulated to begin job search, or join NDLP. Others may have tried to switch to a different type of benefits. These could be real consequences of the LPWFI system relevant to NDLP outcomes, even when no LPWFI meetings had taken place.

The key purpose of the impact analysis is the identification of the different effects of NDLP/LPWFI based on the participants in different programme alternatives. Among IS claimants, there were four different groups based on the attendance of LPWFI or participation in NDLP. Conceptually, the best way to capture the full range of impacts is to treat the separate groups one to four as different treatments and apply matching in the multiple treatment framework (Lechner, 2002). This was the matching approach used for NDYP (Bonjour *et al.*, (2001)) and is the preferred approach here for assessing the effect of NDLP on LPWFI clients.

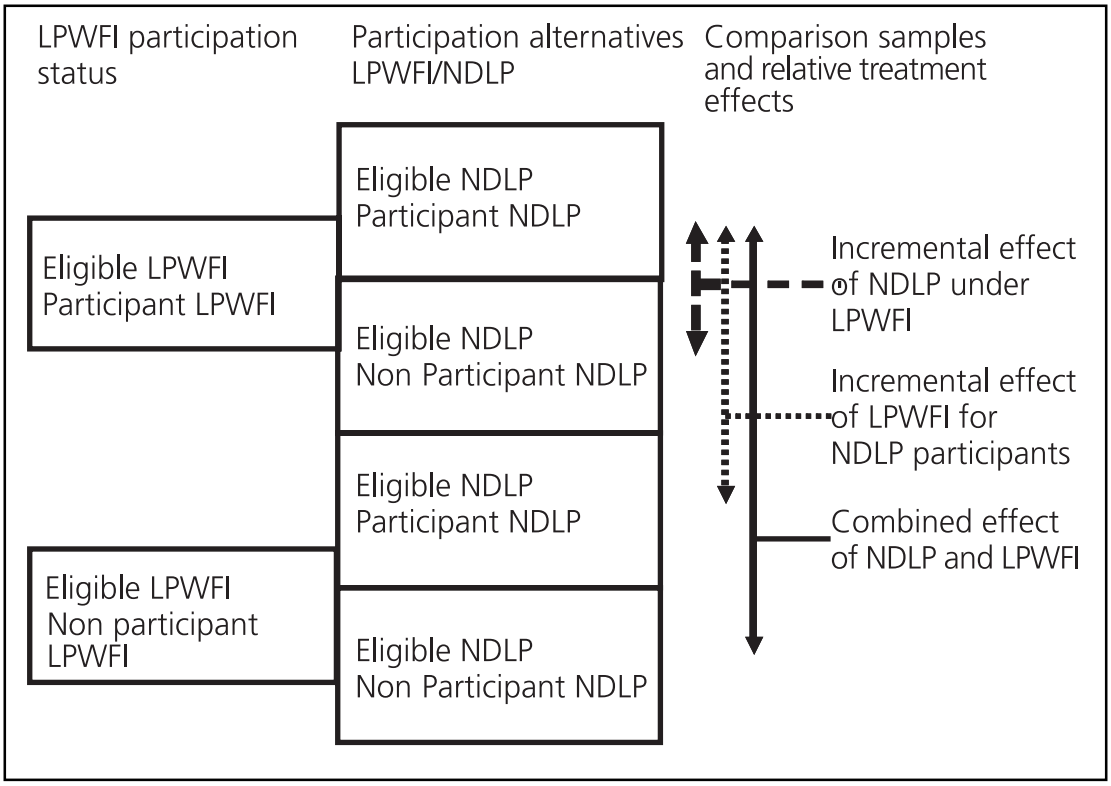
Figure 2.18 shows the four groups to which the multiple treatment matching would be applied. In this framework, the group not participating in any of the two programmes is the non-treatment comparison group. The first three boxes in Figure 2.18 describe the different programme treatments available through the eligible persons' participation status in LPWFI and NDLP.

Certainly, the groups described in Figure 2.18 are a simplification of participation patterns of the eligible population in the LPWFI period compared to those extensively described under Section 2.2. The main purpose is however to estimate the impact of the main alternatives of LPWFI/NDLP of Figure 2.18 in the LPWFI period, to report informative and understandable treatment effects.

Comparing the various outcomes of the participating groups recovers the impacts of the combined LPWFI/NDLP effect, the LPWFI effect and the NDLP only effect, for those participating in LPWFI – provided the participants are similar in terms of their labour market situation and other important socio-economic variables.

It should be noted that the groups without participation in LPWFI may have relatively small sample sizes. As was shown in Section 2.2, approximately 75 per cent of those eligible for the LPWFI system also attend the LPWFI (see also Knight and Lissenburgh 2005), and the share of eligible claimants starting NDLP without a previous LPWFI is especially small (observed self referrals to NDLP: new/repeat claimants 2,737, existing claimants 4,073).

Figure 2.18 Outcomes of LPWFI/NDLP alternatives



In order to estimate informative treatment parameters, the evaluation framework as sketched above must be adjusted to reflect the complex real participation structure. Therefore, several restrictions are imposed both on the participation considered in the impact analysis as well as on the period for which the estimated effects are reported:

- one of the issues that are important in defining the treatment and comparison groups has already been described in Section 2.1.3. Participation in NDLP earlier than April 2001 complicates the identification of that group who have not participated in NDLP. As already discussed, only NDLP participation after the introduction of LPWFI is considered, i.e. earlier NDLP participation is ignored (although this may have occurred for a part of the non-treatment group as defined in Figure 2.18). This might especially affect the existing claimants, as some of these might have participated earlier;
- the other important issue is – as seen in Section 2.2 – that administrative data allows much more complicated participation patterns to be identified than Figure 2.18 claims. These more complicated participation structures cannot be derived from the simple multiple treatment framework.

In the following sections, these restrictions are discussed further, with a methodological discussion of the nature of the net impacts later reported in order to allow appropriate interpretation of the estimates.

Repeated treatments as separate components in a spell based design

The most important restriction of the evaluation approach is that only some treatments are evaluated and others ignored. There is a fundamental decision about which of the observed treatments should actually be evaluated. Under certain assumptions, one could presumably evaluate repeated treatments based on spells of single treatments, considering all treatments to equally contribute to the treatment group irrespective of any previous participation. Such an evaluation design would require modelling the individual decision to start a second treatment in a similar way as a first treatment.

In such a spell-based evaluation design, the decision to participate in a second treatment of the same programme would ignore the fact that this participation depends on the individual's experiences in the first treatment. On the one hand, an individual would learn in the first participation of LPWFI/NDLP the nature of the programme and whether it increases their employment chances. Consequently, an individual starting LPWFI/NDLP a second time has more information about the programme than they had when they participated the first time. On the other hand, this might not be true if the nature of the programme changes over time or if the benefit of the programme does not last very long. Certainly, this assumption could be justified for some elements of the treatment, e.g. the In Work Benefit Calculation (IWBC) which is usually performed for particular jobs. In a second iteration of the programme, individuals would presumably be in a new situation, with alternative job offers. In such a case, the individuals' knowledge from the first LPWFI might not help them to decide whether they should participate a second time.

However, even if there might be reasons why a second participation could be considered to be independent from the first participation, there are two reasons why a spell-based evaluation approach might not be justified, given the structure of the multiple and repeated treatments observed in Section 2.2. These are as follows:

- All observations are independent for first participation in either one of the LPWFI/NDLP options. However, in a spell-based evaluation design, even if the treatments are believed to be comparable, a correlation between different observations would occur. Drawing any inference from such a structure of clustered observations would require controlling for the correlation structure between different observations of treatment and control groups. It is possible to control for such covariance and dependence statistically by clustering the observations.

  However, if a participant chooses one of the treatments as the first treatment and a different one as a second, controlling for dependency would be more difficult. In such a case, the observation would contribute to the evaluation of different participation alternatives. This is because the evaluation study compares the effects of a treatment with the outcome the participant **would have had** in the case of non-participation or in the participation of another alternative, therefore, **the person would be included in both the treatment and the control sample.**

If a matching approach was implemented in order to find the most similar non-participation outcome of a participant, the same person could be drawn from the comparisons and most likely match one observation with itself. Therefore, a straightforward application of a multiple treatment approach is impossible.

- In an evaluation design based on the spells, a person experiencing a treatment twice would contribute to two different effects of the programme. In practice, there is one initial LPWFI/NDLP effect for the first treatment. For the second treatment – even if the correlation of the spells of one individual were controlled for statistically with clustering – the estimated effect is an incremental effect, which is based on the first treatment that has already occurred.

  In the end, the estimated programme effect would consist of a weighted average of initial effects, and incremental second and third effects. Such a weighted average of different treatment effects might be informative in practice, since the repeated delivery of the programme creates such treatments, but it does not correspond to the standard impact estimate of the average net effect of the treatment on the treated, which might be desirable for cost/benefit analysis.

  However, the effects of an initial treatment can be supposed to be different from the effect of an incremental participation because an individual's experiences of the first treatment might then influence the decision for a second participation. An average effect of such heterogeneous treatments might therefore not be very informative.

Repeated treatments as treatment sequences

In the context of repeated participation in NDLP, Dolton, Smith and Azevedo (2006) doubted that a second participation in the same programme can be justified since the benefits for individuals might be relatively low. As long as one believes that the character of the treatment and the characteristics of the individual remain constant over time, it is indeed difficult to give good reasons for a second participation in the same programme. However, if the quality of service offered to the target group changes, the participants may have good reasons for a repeated participation. For relatively new programmes such as LPWFI, there might be an institutional learning process, which improves the quality of the programmes over time. Hence, it could be beneficial for individuals to participate a second time because the quality of the programme improved. It could even be considered a completely different treatment, because it might offer a completely different service to the participants.

Other reasons for repeated participation might be that the effects caused by participation in programmes might be temporary in nature, or reinforced with repeated contact. The additional skills and techniques gained through the programme might be of help for job search, but their impact over an individual's life might be very limited. The usual depreciation of human capital, i.e. the loss of occupational skills in a period of inactivity or unsuccessful job search, might also apply to the skills and help provided through the participation in LPWFI/NDLP. Consequently, participants might have good reasons to repeatedly participate even in a voluntary programme.

The conditions under which individuals decide to participate in a treatment more than once are therefore complex and heterogeneous. The recent literature in the context of repeated treatments suggests that different options exist for the evaluation of the effects of a first treatment and of additional incremental effects for participation in later treatments (e.g. Bergemann, Fitzenberger and Speckesser (2004), Lechner (2004), Gerfin (2004)). There is, however, little consensus yet about the method of choice for such evaluations, and the incremental effects of second treatments usually require certain assumptions under which they can be identified.

Any evaluation of repeated treatments from observational data should explicitly distinguish between initial effects of first and incremental effects of a second participation. Alternatively, one could estimate outcomes of combined treatment and aggregate effects of first and later treatments. The evaluation approach of such incremental effects has to address the problem of identifying an appropriate non-treatment outcome for a sequentially treated individual. Such a framework would require separate econometric modelling of the decision to participate at different points in time while a benefit spell is ongoing, i.e. it would require a dynamic framework. The contemporary literature offers some approaches on dealing with incremental effects of second programme participation (Bergemann, Fitzenberger and Speckesser 2004, Gerfin 2004). In the end, however, a rigorous framework for the evaluation of second participation in the same programmes has not yet been developed.

Up to now, a plausible approach for credible evaluation of the incremental effect of repeated participation has been discussed only theoretically by Lechner and Miquel (2002). This approach models the decision to participate in the second iteration separately from the decision to participate a first time. The corresponding evaluation framework mirrors such a stepwise decision for participation in a two stage procedure of the established multiple treatment approach. Graphically, this approach would correspond to Figure 2.1. The participation in a second treatment occurs at a later point in time – as suggested in the stylised participation process in LPWFI/NDLP Figure 2.1.

The approach by Lechner and Miquel (2002) takes account of the fact that the participation in the second treatment depends on the outcome of the first treatment. Suppose the employment outcome depends on the productivity of an individual, this variable is likely to change its value, e.g. because of NDLP participation. Then, the first participation in NDLP changes one of the important variables triggering the decision to participate in a second NDLP programme. Any productivity information observed at the beginning of the first treatment will not then be informative for the decision to participate in the second treatment. A result of this is that the static conditional independence assumption (CIA) is not credible: A participation decision is not statistically independent conditional on observable characteristics at the beginning of the first treatment.

Lechner and Miquel (2002) produce an alternative version of conditional independence of participation and non-participation in any stage of the treatment sequence. Under certain assumptions, the outcome of a first treatment can serve as a conditioning variable in modelling the selection into the second treatment, if the outcome is considered to be exogenous from participation in the second programme (Lechner and Miquel (2002: 13)). In the event that this outcome also affects the character of the second treatment – e.g. because the effect of the first treatment is path dependent and also materialises over the period of the second treatment – then this assumption can no longer hold and not all parameters can be identified. As an application of modelling repeated treatments under such a framework does not exist so far, this approach is not pursued for this application.

The knowledge base for an evaluation of multiple treatments is weak as long as they cannot be considered to be part of a sequence of treatments for which the basic selection process occurs before the decision for participation in the first treatment, e.g. Bergemann, Fitzenberger and Speckesser (2004).

In this research it was decided to evaluate only any of the first treatments out of a sequence of repeated treatments:

- the analysis is restricted to the first treatment. A static multiple treatment framework as originally laid out in the proposal based on Lechner (1999) is implemented;
- this does not allow the whole range of the LPWFI/NDLP effects, as many individuals experience incremental effects;
- incremental effects of second treatments are not reported[11].

A complete exploration of the effects for repeated participation in mandatory programmes such as LPWFI would certainly be beneficial for both academic research and the policy maker. Unfortunately, it is beyond the scope of this study to examine the whole picture.

Period specificity of programme effects

Further restrictions of the estimated impacts arise from the fact that evaluations based on observational studies usually estimate the hypothetical outcome of a treated individual in the state of non-treatment based on observed outcomes of the non-treated individuals (see the survey by Heckman, LaLonde and Smith (1999)). However, using non-participants for the estimation of the participants' comparison outcome has two implications:

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[11] However, one has to bear in mind that an incremental effect of a second LPWFI is different if the first treatment differs: Any incremental effect of a second LPWFI based on a first LPWFI/NDLP combination might not be comparable to the incremental effect of a second LPWFI based on a first LPWFI participation without NDLP.

- most studies compare the effects for treated and matched control observations at a specific point in time after the beginning of the treatment of the participants. Implicitly, these studies assume that treatment and non-treatment **take place at the same point in time**. However, since the non-treatment/comparison group has no true beginning of the treatment in non-experimental evaluation designs, this is certainly a critical assumption;
- secondly, participants usually experience a period of benefit receipt **before** they start treatment: In order to distinguish participants from non-participants, most evaluation approaches assume that if individuals do not start a certain treatment within a specific period, they automatically belong to the non-treatment/ comparison group.

The fundamental problem of such a design consists of a comparison group that inherently represents a positive selection of individuals. Those individuals in the eligible group who were lucky enough to find employment or to leave benefit without treatment are more likely to be found in the comparison group than in the treatment group. In consequence, any evaluation study has to handle this structural dissimilarity between both groups, giving rise to a selection bias. Fredricksson and Johansson (2003) discuss these practical problems extensively. For this evaluation of LPWFI/NDLP based on non-experimental data, this imposes further restrictions on the estimated impacts.

First, individuals who were not treated (i.e. the No LPWFI, no NDLP group) up to the end of the time window **might be participants in the programme after this time**:

- it is implicitly assumed that a control observation remains a comparison observation. This assumption is critical if one draws any broader inference, as it assumes full compliance of the groups;
- without perfect foresight, it is impossible to create a sample of matched comparison observations of individuals who will never receive treatment at any point in time because the future is unknown;
- it is however possible to consistently estimate the effect of treatment on the treated if one assumes that the timing of treatment matters: e.g. if the treatment in one year differs from the treatment in another year, a comparison group whose members do not start treatment in the specific period could provide a valid non-treatment outcome for this period. Therefore, one has to bear in mind that **any of the estimated effects of the treatment are period specific**.

The second aspect – that a comparison group usually consists of individuals that do not participate in a programme because of leaving benefit before a planned programme could start – implicitly conditions on the outcome variable. The more positive selection of individuals will then automatically be part of the comparison group, resulting in an overestimated non-treatment outcome for the treated. Consequently, downward biased estimators of the effect of treatment on the treated will likely be found.

This second problem requires estimation of the effect of treatment as **an effect restricted to a specific period and for a specific group**. Therefore, the validity of the estimated impacts is restricted to specific entry groups in specific calendar years: IS claimants eligible for LPWFI between April 2001-April 2002.

2.3.2 Propensity score matching

Causal effects of LPWFI and NDLP

Both LPWFI and NDLP are programmes that are accessible for all eligible persons on IS. Certainly, the central question for social scientists as well as for policy makers is whether these programmes actually increase the employment chances of the people they seek to help. However, such a causal effect of LPWFI/NDLP is difficult to detect because one can only observe one outcome for the participants – the participation outcome – and not the alternative comparison/non-participation outcome – the outcome one has to contrast the observed participation outcome to. This is required to estimate the effect of treatment-on-the-treated, the causal effect of the programme following the causality concepts, e.g. by Roy (1951) or Rubin (1974).

The causal effect of treatment-on-the-treated can be identified by comparing the results of a programme for the participating individuals after the treatment with the hypothetical situation of the same individuals if they had not taken part in the programme (see Section A.4.1 for a formal statistical exposition of this same discussion). The evaluation aim is to estimate the effect of treatment-on-the-treated, given by the difference in expected values for the outcome of the group that participated compared to the outcome this group would have had if there was no participation. This is an outcome which cannot be observed for programmes implemented non-experimentally, i.e. the participants will never provide the comparison/non-participation outcome.

In principle, two alternative approaches can be applied to estimate the average non-treatment outcome: the situation of programme participants before treatment (before/after comparison) or a control group of people who did not participate. Matching uses the second of these approaches. However, the average value of the outcome of non-participants typically does not represent the correct average non-treatment outcome. Participants and non-participants might differ in characteristics, which influence the outcome variable. The participants then differ from non-participants before treatment due to observable and unobservable characteristics giving rise to a selection bias. To correct for selection on observables, the CIA is used, which implies that it does not matter that one estimates the average results without treatment based on people in the comparison/non-participating group, as long as they have the same characteristics.

Conditional independence assumption

Under the CIA, the participating group and the non-participating group in a programme are comparable in their non-treatment outcome conditional on the observable characteristics. The observable characteristics consist of many observable

features and should include as many attributes as necessary to describe all the differences between the participants and non-participants. The CIA as discussed here is formally defined in Section A.4.2.

As described under Section 2.3.1, more than one outcome of the programme alternatives in the case of LPWFI/NDLP is observed. In particular, three outcomes of LPWFI/NDLP combinations and one outcome of total non-participation in the programme alternatives. In terms of a causal analysis, such a multiple treatment structure is exactly equivalent to the case for one treatment: Only one of the potential outcomes will be observed, the other alternatives remain all hypothetical counterfactuals.

To find out how much a person is better off due to participation in a combined LPWFI/NDLP, one must consider that this person could have been in any of the two other programme alternatives or could have been a non-participant.

Lechner (1999) proves that the CIA in the case of multiple treatments can be statistically described. Hence any causal effect of participation in a specific programme alternative (e.g. LPWFI/NDLP) compared with the hypothetical participation in another programme (e.g. LPWFI only) can be estimated if these two specific groups are used, conditioning on all the observable characteristics (in this case, the estimated effect would show the relative NDLP effect for participants in LPWFI). All the important policy effects of LPWFI/NDLP can be estimated as outlined under Section 2.3.1, and for each case of impact estimation, only the sub samples of participants in the treatments compared are needed to estimate the relative impact.

The propensity score

The major disadvantage of matching is the 'curse of dimensionality', i.e. it might be difficult to match with respect to a high–dimensional vector of observable characteristics, because one might not be able to find appropriate comparison observations. Therefore, most evaluation studies use the result by Rosenbaum and Rubin (1983) that the CIA also holds with respect to the probability of treatment ('propensity score') as a function of the observable characteristics. The statistical definition of the propensity score as outlined here is provided in Section A4.3.

This result allows matching upon the one-dimensional probability. Effectively the 'closeness' of the propensity score of control observations with respect to the treated individuals is used as an estimator for the non-treatment outcome. This dimension-reduction diminishes the problem of finding adequate matches and the problem of empty cells. However, propensity matching requires that the propensity score has to be estimated itself. Therefore, to draw robust inference for the estimated treatment effect, the standard error of the estimated treatment parameter should take account of the fact that the propensity score used for matching is a pre-estimated quantity (see Heckman *et al.*, (1999, Section 7.4.1)).

As in the case of single treatment, rather than conditioning on the observable characteristics directly, it is possible to condition instead on the propensity score for

the multiple treatment case (Lechner (1999) shows this). Lechner (1999) proves:

- it is sufficient to condition on the propensity score instead of a vector of observable characteristics X;
- as before, only the sub samples of participants in the two treatments being compared are needed to estimate the relative impacts.

If the CIA is satisfied, matching offers an attractive means of carrying out programme evaluations since it is not dependent on any functional form assumptions matching then allows for the heterogeneity of effects across individuals and can correct for important biases associated with evaluations (Heckman *et al.*, (1999)). However, participating individuals can only be matched if individuals with similar characteristics exist among the comparisons/non-participants (i.e. common support in the observable characteristics).

Subject to all requirements mentioned above, the CIA allows non-participants' outcomes to be used to infer participants' counterfactual outcomes, therefore allowing impacts to be estimated. The assumption required to estimate the effects of multiple treatment programmes is an intuitive generalisation of the single case. Now the outcome that would result from treatment is assumed to be independent of treatment group after controlling for differences in individual characteristics.

The quality of matching and bootstrap

Balancing properties for observable characteristics

A simple test for the quality of matching is the standard t-test that assesses whether the means of two groups are statistically different from each other with respect to the observable characteristics prior to treatment. The observable characteristics of the matched controls are based on a local linear model applying the same weighting formula as for the dependent variable, predicting the covariates for the matched sample. These 'non-treatment characteristics of the treated' are then subject to a simple t-test[12]. The complete formula of the test is shown in Section A.4.4.

Pre-programme tests

Pre-programme tests investigate whether the chosen method has properly controlled for selection effects. The idea behind the pre-programme test is that the correction for selection bias should make the employment history of participants and non-participants comparable before treatment. If the matching does not align the pre-programme outcomes for the future participants and the control-group, the validity of the matching is rejected. (Heckman, Hotz 1989: 866). Put differently, significant differences before treatment indicate remaining time-invariant differences, which the matching might not have captured, so that the outcome cannot be observed directly by comparing the outcomes of the treatment group with the matched

[12] The t-test is a ratio of the difference between the two means of the treatment and the matched comparison group (numerator) and the dispersion of the scores (denominator). It is an example of the signal-to-noise metaphor: the difference between the means is the signal; the denominator is a measure of variability that is essentially noise that may make it harder to see the group difference.

control group[13]. The formal definition of this is shown in Section A.4.4. In practice, this pre-programme test is implemented by showing the benefit level for the participants and non-participant groups **before matching**, in graphical representations of the outcomes in Section 2.3.4.

Standard errors and bootstrap

The dimension reduction feature of matching on the propensity score comes at the cost that the propensity score itself is estimated by a parametric probit model. Therefore, the standard errors of the estimated treatment effects are likely to be underestimated. To take account of the sampling variability of the propensity score estimate, one can implement a bootstrap procedure for construction of confidence intervals. This procedure is further described in Section A.4.4. However Abadie and Imbens (2005) find that the bootstrap estimates are not in general valid. As a result, bootstrapping is not implemented, and the cautionary approach should be adopted when considering the standard errors due to **potential underestimation**.

2.3.3 Implementation of matching and tests

Probit model

The evaluation of multiple treatments is implemented by using a propensity score-based estimate for the alternative outcome. For the effects of NDLP and LPWFI/NDLP combinations, participant groups of either two different treatments are selected, as shown earlier in Figure 2.18. Only the sub samples of participants in the two different treatments are needed in order to estimate the effects of the treatment compared to an alternative treatment or non-treatment.

The matching approach is fully based on the propensity score, i.e. there are no additional cells on which direct match is done (later in this report, in Chapter 3, estimates of NDLP for the August 2000 sample include this variation). Following the standard approach for the estimation of the score function, a parametric model is used, which estimates the probability for both the treatment group and the group with alternative treatment to participate depending on observable covariates. The latent model behind this probit model is shown in Section A.4.5.

Conditioning on pre-programme benefit history

The WASD data offers only a selective subset of covariates that could explain why certain individuals start a specific programme alternative while others do not. As a result, the probit estimates use in particular the previous benefit status for modelling an individual's labour market position. The WASD data offers very detailed and long-term information on the phases a person spends on benefit before and after the participation in either one of the programme alternatives, and this information is believed to serve as an important predictor for why individuals start specific treatments. The pre-programme benefit information has been successfully used previously (Dolton, Smith and Azevedo (2006) *Econometric Evaluation of NDLP,* DWP Research Report, and see also Chapter 3 of this report) and proved a powerful

[13] As set out in the formula in equation 5 Section A.4.2, Appendix A.

covariate balancing the differences between groups prior to the start of the programme. As with these other analyses, the detailed pre-programme benefit histories help to match individuals that are most similar with respect to their benefit history. As will be shown, these covariates are important for balancing out remaining differences between participants of different programme alternatives. The construction of these variables is described in Section A.2.1

The estimated model

As further variables, the propensity score estimations for the different treatment/ alternative treatment samples also include the long-term pre-programme benefit receipt for the period of 67-156 weeks before the beginning of the treatment as a further conditioning variable. The related variable in the probit specification offers an average benefit rate for this period.

It is especially important to balance the outcome variables in the period immediately before the beginning of the treatment. The behaviour of participants and non-participants or participants in alternative programmes might change the outcome immediately before the treatment. In other words, individuals are likely to anticipate the participation. Therefore, participants might leave benefit before the treatment, resulting in an outcome before treatment that is endogenous and in a non-treatment group with structurally biased and lower benefit rates before treatment (a term usually referred to as Ashenfelter's Dip (see Bergemann, Fitzenberger and Speckesser (2004)). Consequently, the benefit rates for the six weeks immediately before treatment are separately included in the propensity score estimates.

Other important covariates have been shown in the descriptive analysis of the socio-economic and demographic characteristics of participants in different programme alternatives (see Section 2.2). These include dummy variables for different Government Office Regions as well as age dummies for the participants of different age groups. Other factors – especially the age of the youngest child and the number of children – are included, and the proportion of male and female participants and the entitlement for a disability premium.

For the new/repeat claimants, it is important to additionally control for the starting date of the IS claim with eligibility for LPWFI, since time effects in the evolution of the delivery of the programme can be assumed to exist. Eligible IS claimants starting later in the year might be offered the treatment more quickly than individuals starting the IS claim earlier, because of more experience with the programme after some months and established delivery for eligible claimants. This also accounts for seasonality.

The results of the propensity score estimates for the 2001 new/repeat and existing claimants are reported in Tables A.3 and Table A.4. The three columns and the first rows of the tables indicate for which of the different programme effects the propensity scores are estimated and which treatment groups and alternative groups have been selected. All estimates are based on the same set of observable characteristics as described above. There are however many differences between the specifications as to which variables significantly influence the participation in either one of the programme alternatives.

Propensity score estimates for new/repeat claimants

The results for the propensity estimate of participation in LPWFI/NDLP compared to non-participation are shown in Table A.3. These estimates show that there is a significant influence of the pre-programme benefit history at both three and two quarters before the start of the IS claim with eligibility for an LPWFI. The benefit status two or three quarters before the beginning of the eligible claim has a significantly positive influence for participants who start NDLP without a previous LPWFI compared to non-participants. For other programme alternatives, i.e. NDLP only or LPWFI only, such an influence on the pre- programme benefit rate was not found. These coefficients indicate that the WASD data might not be sufficient to satisfactorily model the decision to start a specific treatment alternative, but they might be capable of modelling why individuals are starting a combined treatment of LPWFI/NDLP compared to non-treatment. The results for the two incremental effects that are estimated and reported later should therefore be interpreted cautiously.

The long-term pre-programme benefit rate indicating the proportion of time spent on benefit of 67-156 weeks before the start of the IS claim is only significant in the specification for the incremental NDLP effect for LPWFI participants. The higher the shares on benefit in this period, the lower is the probability to start NDLP after participation in an LPWFI.

The propensity score estimation also contains the benefit rate for five quarters before the start of the benefit claim with LPWFI eligibility separately. The estimates indicate that there is a positive effect on the benefit status five quarters before the start of the IS claim, i.e. earlier benefit claimants were more likely to start LPWFI/NDLP compared to non-participation, and they were more likely to start LPWFI/NDLP compared to LPWFI only. There is no such influence of the earlier benefit history on participation in LPWFI/NDLP compared to NDLP only.

The short-term benefit status, i.e. the benefit in the six weeks before the start of the IS claim, is also significant. The estimates show consistently a significantly negative effect of benefit one week before the start of the IS claim. This indicates that eligible persons with very short interruptions in their benefit receipt were less likely to start LPWFI/NDLP compared to non-participation, LPWFI/NDLP compared to LPWFI only, as well as LPWFI/NDLP compared to NDLP.

Participants claiming disability premium were less likely to start any of the combined treatments compared to non-treatment or treatment in LPWFI or NDLP only.

The propensity scores also show that regional implementation affects the probability to start the treatment combination of LPWFI/NDLP compared to non-treatment or alternative treatment in NDLP or LPWFI only. The regional variables were in most cases significant, and the propensity score matching can be supposed to balance out the regional participation differences as shown in Section 2.2 of this report.

There was a significant effect of the time of entry into IS on participation in LPWFI/NDLP compared to non-treatment or alternative treatment in NDLP or LPWFI only. Most of the dummy variables that indicate the month when the IS claim started, show significant coefficients.

As expected, age, gender and the age of the youngest child also determine participation in any of the three programme alternatives. Compared to the prime age group of 30 to 34 years, the age groups under 24 years of age and over 45 years have significantly lower probabilities to start any of the different treatment alternatives. The age of the youngest child lowers the probability of starting LPWFI/NDLP compared to non-participation, i.e. participants with older children were less likely to start the treatment alternatives compared to non-treatment. However, the effect of the age of the youngest child is significantly positive for participants in LPWFI/NDLP compared to NDLP self-referrals, indicating that lone parents with older children were more likely to start NDLP after they had an LPWFI compared to a self-referral.

Propensity score estimates for existing claimants

The propensity score estimates for the existing claimants (shown in Table A.3) were very similar to those for the new/repeat claimants. Again, it is obvious that the pre-programme variables have important influences on the participation in the programme alternative LPWFI/NDLP compared to non-participation. This is especially true for participants who had relatively recent claims on IS before the beginning of the programme. However, a similar influence on the participation in LPWFI/NDLP compared to NDLP only or LPWFI only was not found. Again, the results for the incremental effects have to be interpreted with care.

The coefficients for dummy variables indicating the benefit status in either one of the six quarters before the beginning of the treatment were significant in most cases, for participation in LPWFI/NDLP compared to non-participation and NDLP without a previous LPWFI. A specific benefit history seemingly determines the choice of a specific programme alternative: the higher the benefit rate in the previous four quarters before 30 April 2001, the less likely individuals were to start a combined treatment of LPWFI/NDLP, compared to non-treatment and NDLP self-referrals. The very long-term pre-programme history however has a positive impact on LPWFI/NDLP participation compared to non-treatment and NDLP self-referrals.

As expected from the descriptive analysis in Section 2.2, the participation varies very much by the regions. There were negative coefficients for London and positive coefficients for the South East and Wales for any participation in LPWFI/NDLP compared to alternatives without LPWFI or NDLP or non-participation.

Socio-economic variables have a strong influence on participation in the combined treatment LPWFI/NDLP compared to alternative treatments as for the new /repeat claimants. However, due to the very dissimilar eligible population for existing claimants, consisting of older lone parents with older children, there is a positive effect of a higher age on participation compared to the age group of 30-34 year old

lone parents. Lone parents in the age group above 50 have a lower probability of participation for any of the treatment alternatives.

The age of the youngest child has a significant negative influence on participation in LPWFI/NDLP compared to non-participation. Compared to participation in LPWFI or NDLP only, the age of the youngest child has an increasing influence, i.e. there is some selectivity by which programme alternatives are taken up by eligible existing claimants according to the age of the youngest child. The number of children always shows a significantly negative effect on participation in any of the programme alternatives.

Nearest neighbour matching and support

The matching approach for this analysis is a nearest-neighbour-matching where only the 'closest' non-treated individual, i.e. the non-treated individual with the most similar propensity score, is used for comparison. Such a matching approach only overcomes selection bias based on observable characteristics if treated individuals have counterparts in non-treated population (common support requirement). If such similar individuals are not found in every case, it is impossible to identify the non-treatment outcome for these cases. These treated individuals need to be excluded from the analysis because of the missing non-treatment outcome.

If many treated individuals remain 'unmatched', the estimated treatment effect might not be informative for the policy maker. Propensity score matching can only be implemented if the estimated propensity scores of treated and non-treated individuals overlap sufficiently. Figures A.2 and A.3 present histograms showing on the same graph the distributions of the estimates of the propensity, for the treatment and comparison groups in specific treatment alternatives. The figures show the frequency of the different values of the propensity scores for treated and non-treated individuals. The propensity scores were estimated using the covariates X as reported above and shown in Tables A.3 and A.4. The estimated propensity scores of the treated individuals are without exception covered by the values of the control observations. It is thus concluded that a matching based on these propensity scores controls sufficiently for the observable characteristics considered, and the match quality is now assessed.

Matching quality

As previously discussed, the test for the quality of matching is a standard t-test that assesses whether the means of two groups are statistically different from each other with respect to the observable X.

The results of the tests are shown in Tables A.5 to A.8. The matching can only be considered as successful for some variables. For other important covariates, the matching balances out the samples with respect to observable characteristics; however, some differences remain statistically significant. There are still significant differences in the benefit rate immediately before the start of the treatment for participants in LPWFI/NDLP compared to participants in treatment alternatives with

LPWFI only and NDLP only. Besides this very important difference, most other dimensions of the covariates have been balanced out and there are only very few significant differences with respect to the observable characteristics between the treated and the matched control.

Since the matching procedure was only partially successful in creating suitable control groups with respect to the observable covariates, it is suggested that future work apply further methods for the correction of selection bias based on conditional difference-in-differences (DiD) approaches. This might overcome remaining time constant selection bias based on observable and unobservable differences. Heckman *et al.*, (1999) refer to various studies for the United States indicating that conditional DiD combined with nonparametric matching has shown to be a very effective tool in controlling for both selection on observables and unobservables.

2.3.4 Impact estimates on benefit exit rates

This analysis estimates the effects of different programme alternatives on the weekly benefit rates. This corresponds closely to the descriptive analysis of this outcome under *Weekly benefit status: New/repeat claimants* on page 40 and *Weekly benefit status: Existing claimants* on page 52 (see Figures 2.2 and 2.11). The weekly benefit rate comprises all the benefit spells for the eligible lone parent. Again, as in Section 2.2, benefit does not only consist of IS, but of all benefits reported in the WASD data, using an integrated benefit status variable for every week before and after the date of eligibility, until April 2004.

The results are described using graphical representations of the weekly benefit rate. Figures 3.3 to 3.8 show the proportion on benefit **for a period up to 75 weeks (18 months) after the date of eligibility (for the new/repeat) or the beginning of the treatment (for the existing claimants)**. They show the average benefit rate observed for participants compared to the average level of the estimated non-treatment outcome for participants in the three specific programme alternatives.

As already discussed, it is not trivial to decide for which period these outcomes should be observed and compared to the estimated non-treatment outcomes. This analysis uses these different ways of aligning the time axis relative to the treatment because of the following observations:

- since the programmes were usually offered to the new/repeat claimants relatively early after the date of eligibility (a few days), the date of eligibility is used instead of the date of treatment for the starting point of the observation of outcomes for this group. By using the date of eligibility rather than the date of the treatment itself, the problem that persons without any participation in LPWFI/NDLP have no starting (or treatment) date is avoided; or

- the existing claimants, it has already been described that there was a considerable delay in the delivery of the programmes, and individuals starting any of the three programme alternatives of LPWFI/NDLP were very much likely to be a specific selection of individuals remaining on benefit longer than the non-participants. Thus, if the analysis used the date of eligibility for the existing claimants as in the graphical descriptions of Section 2.2, it would be very likely to observe a hugely negative effect in the beginning due to this selection of specific customers over time. Therefore, it was decided to create artificial starting dates for the non-treated individuals and to start the observation of the outcomes after the treatment with the date of the programme participation[14]. The creation of imputed starting dates was described earlier at the end of Section 2.2.2.

The graphical representations not only report the outcomes **after** the treatment, i.e. the benefit rates of treated individuals compared to the benefit rate of matched comparison outcomes, but also the observed outcome of the treated individuals compared to non-treatment outcome for the treated up to one year **before** the treatment, week by week. These pre-programme differences should be interpreted as described in principle under Section 2.3.2. Hence if the matching was sufficient, there should not be any significant differences in means between treated individuals and their estimated non-treatment outcomes before treatment, especially in the time immediately before treatment.

Another restriction was implemented for the existing claimants. As there was a very small number of cases (around 0.5 per cent of all eligible IS claimants) receiving the treatment more than 18 months after the eligibility date, these cases were excluded for the analysis of the outcome, because a post-treatment period of 75 weeks (18 months) cannot be observed in such cases. This selection of treatments occurring within 18 months after the eligibility date implies that the analysis is restricted to a subpopulation that starts participation within a certain period, i.e. April 2001 until October 2002. As laid out under Section 2.3.1, treatment effects are, however, always period and time specific, so that this restriction implicitly also applies to the new/repeat claimants (where however, such cases were not observed).

The Figures 3.3 to 3.8 show the observed level of benefit rates for the treated (bold line) and comparisons (dotted line) before and after the date of eligibility (new/repeat claimants)/the date of the programme start (existing claimants), for a period of 52 weeks (one year) **before** the treatment and 75 weeks (18 months) **after** the treatment are reported (the difference between these is the 'impact'). The treatment itself takes place at time zero, marked as an interruption of the curves. The benefit rates are surrounded by the related 95 per cent confidence intervals (without bootstrapped standard errors). These upper and lower five per cent error confidence intervals are marked with grey around each line representing the treatment (bold line) or control group (dotted line). In interpreting the graphs, sometimes the lines

[14] Which is however an imputed date for the non-treated individuals since they certainly do not show a 'date of non-treatment'.

and grey are all overlapping, with no white space in between, and this indicates that there is no statistically significant difference between the treated and control group per cent on benefit. Where the per cent remaining on benefit for the control group (dotted line) lies above that of the programme (treated) group, and there is a gap between the confidence intervals, then the estimated net impact is statistically significant and positive.

Some readers may wish to compute additionality estimates, to find the per cent of exits among the participants that are additional. These can be calculated by dividing the estimated impact (which is the difference between the participants and non-participants exits from IS) at a particular time point, and divide by the participants' exit rate, then multiply by 100. The exit rates are presented earlier in Table 2.19 for the new/repeat claimants and Table 2.26 for the existing claimants. It should be noted that the impacts vary considerably over the time period, and the 18 month end of the follow-up period is a useful period at which to consider the estimated.

New/repeat claimants

In the following, the net impacts of the participation in different programme alternatives of NDLP and LPWFI on the weekly benefit rates are described. It should be strongly cautioned that the impacts are **relative treatments effects** of the programme participation for the participating groups, i.e. the socio-economic characteristics of the different groups are not identical and the selection into several programme alternatives might to a certain extent influence the evaluation results. For the participants however, the matching approach is supposed (this was checked in the earlier Section 2.3.3) to deliver a valid comparison/non-treatment outcome and to draw inference on the treatment effect. This is a treatment effect on the treated, i.e. on the specific groups participating in the years 2001/02 in the programme alternatives within 18 months after their date of eligibility.

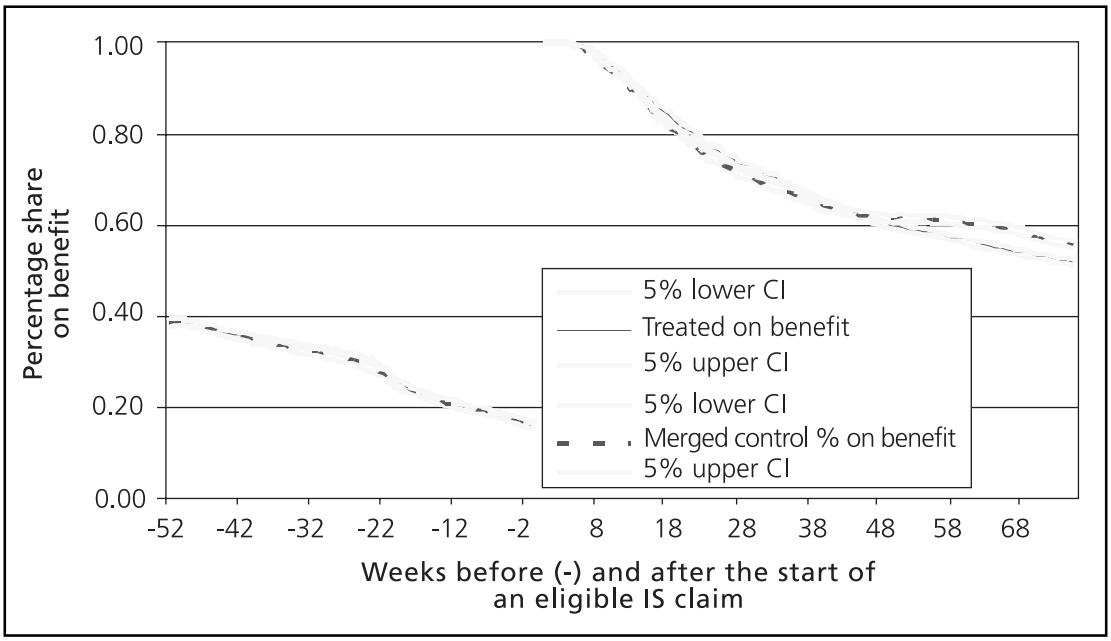
Combined effect of LPWFI/NDLP

Initially the average pre-programme differences between treatment group and estimated non-treatment outcomes are considered (i.e. the outcome these individuals would have had if they had not participated in any of the programme alternatives).

Compared to the description earlier in Figure 2.2 for new/repeat claimants, in which very different benefit rates were observed before the date of eligibility for participants in LPWFI/NDLP compared to non-participation, the differences in the matched samples were negligible in the period before treatment (see Figure 2.19). There is virtually no difference between treated and controls in the matched sample **before** the date of eligibility. However for some of the 52 weeks before the treatment, these small differences might be significant because of the size of the population for which the effect is estimated. Yet, they were very close to zero in size and do not show a structural difference, in the sense that the treatment population shows structurally different outcomes prior treatment. Shortly before the programme participation, there were no significant differences between the average values for the groups any longer (see also the difference in the matched samples in Tables A.5 to A.10).

The impact **after** treatment remains insignificant in size for almost one year. A part of this insignificant effect could result from the starting point of the outcome period that is related to the date of eligibility. As shown in Section 2.2.2, the treatment does not fully coincide with the date of eligibility for the new/repeat claimants. With a median duration of six days and an average duration of 46 days on benefit before the LPWFI was attended, there might not be differences in the matched samples in the first weeks after eligibility because of slow delivery of the programme. Fifty-one weeks after the start of the eligible IS claim, there was a significant difference in the average benefit rates of the treated population compared to the matched comparison outcome. Different point estimates and related confidence intervals indicate that the benefit rate was 60 per cent for the treated compared to 62 per cent for the control outcome. This difference becomes more pronounced in the longer run, increasing to three percentage points for the period until 58 weeks after the date of eligibility and finally remains stable for the remaining period. At the end of the window of observation, there is still a positive programme impact of four percentage points at 18 months, indicating additionality of 11 per cent upon the observed NDLP/LPWFI exit rate of 35 per cent (see Table 2.19). This indicates that the benefit rates of participants were on average reduced by this amount due to this group's participation in the programme.

Figure 2.19 New/repeat claimants: Combined effect of LPWFI/ NDLP in the LPWFI period



Incremental effect of NDLP for LPWFI participants

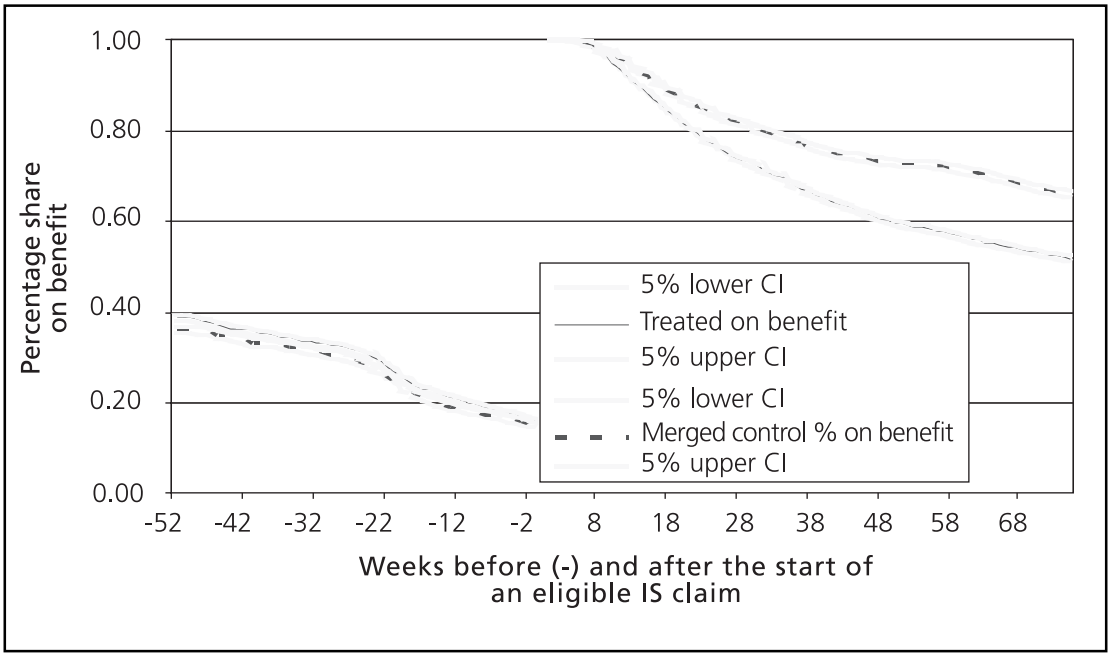
The estimated comparison outcome for NDLP/LPWFI participants, hardly shows any pre-programme difference for the group of participants in LPWFI/NDLP compared to the alternative estimated outcome, if this group had participated in LPWFI only. **Before** treatment, there is a slightly higher average benefit rate for the group participating in the combination of both LPWFI/NDLP compared to the estimated

alternative treatment outcome of individuals who only participated in LPWFI. These differences however decline over time until the time immediately before the date of eligibility.

After the eligibility date, the relative effect of NDLP for LPWFI participants can only be observed after some time. This is mostly because there were persons starting NDLP relatively late after the LPWFI as well as the LPWFI themselves being implemented with some delays, and hence they do not correspond perfectly with the date of eligibility. The share of the benefit recipients among the LPWFI/NDLP participants declines relatively quickly to 82 per cent. This average benefit rate is five percentage points lower than for the estimated alternative participation in LPWFI only. This pronounced difference in the benefit rate increases over time to a 14 percentage points difference after one year and even higher to 18 percentage points at 18 months, which then remains constant until the end of the period considered.

The incremental effect of NDLP over LPWFI seems to be very manifest. However, the effect needs to be estimated with alternative outcomes (i.e. the Inland Revenue data on incomes and employment) to gain some insight into the effect and whether it is a lower or upper bound. Also, the estimated alternative comparison outcome (LPWFI only) might also be biased because the group with the alternative treatment might start NDLP later and then convert to the treatment group. If this was the case, the average for the treatment group might be lower. Then, the estimated difference would certainly reflect a kind of compliance problem, as discussed along the lines of Fredrickson and Johansson (2003). Consequently, caution is needed in interpreting these very pronounced effects.

Figure 2.20 New/repeat claimants: Incremental effect of NDLP relative to LPWFI



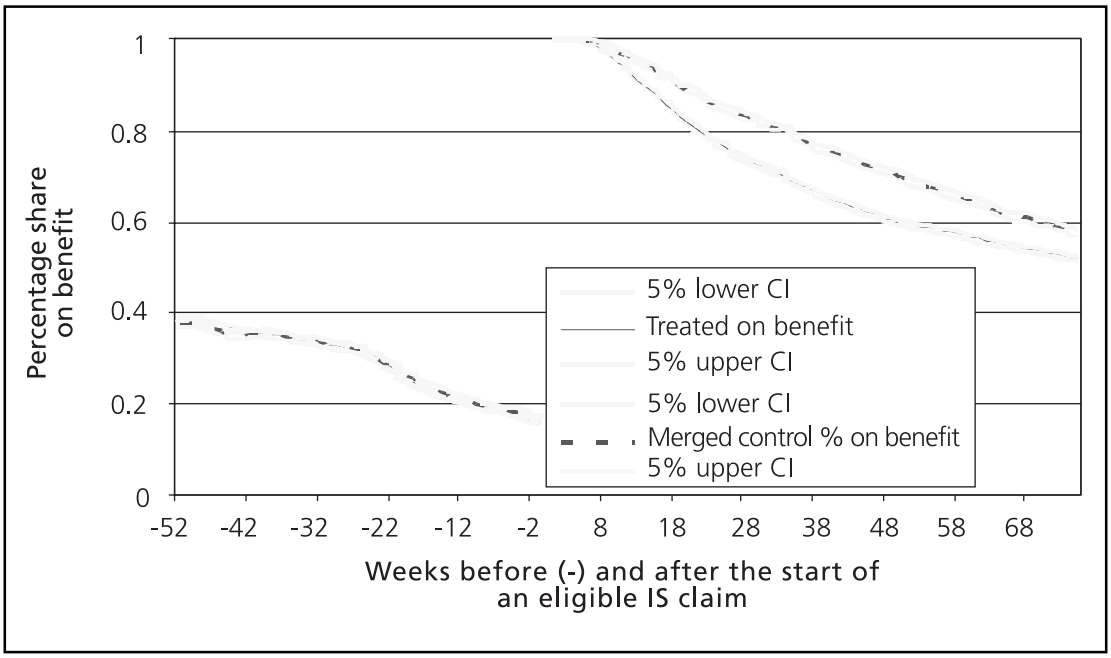
Incremental effect of LPWFI for NDLP participants

The third effect to be reported describes how the relative effectiveness of NDLP changed because of participation in LPWFI. In this case, the treatment group was again participating in the combination of LPWFI/NDLP whereas the alternative treatment would have been a self-referral. Again, there were no differences in the average outcome of LPWFI/NDLP compared to the group of alternative treatment before the date of eligibility.

Twelve weeks **after** the date of eligibility, there was a positive effect of the LPWFI participation. The benefit rate for the group participating in combined LPWFI/NDLP was on average 92 per cent; compared to 96 per cent for the alternative treatment of self-referral to NDLP. The differences in benefit rates remain positive and stable over time, reaching up to nine percentage points after one year. This difference however declines afterwards. The effects in the longer run were therefore smaller, resulting in a five per cent difference between the groups at the 18 months.

Since the LPWFI always precedes the NDLP participation by definition, the LPWFI effect is not likely to face compliance problems as discussed under *Incremental effect of LPWFI for NDLP participants* on page 77, since both groups will remain stable over time. With continuing time, no change of the comparison group (NDLP only) will occur, since any later participation in LPWFI will not be considered as part of the first treatment, but as the second part of a sequence. Therefore, the impacts are relatively valid and convincing.

Figure 2.21 New/repeat claimants: Incremental effect of LPWFI relative to NDLP self referral



Existing claimants

As previously discussed, the effects appear very different for the existing clients starting any of the treatment alternatives. This has multiple reasons:

- as already discussed, the relatively late delivery of the LPWFI programme for the existing claimants might imply that the most promising participants – those for which relatively good employment prospects exists – might have left IS already before being treated. This would result in an on average downward biased outcome of the treatment group even after matching (see discussion at the start of Section 2.3.4). To partially take account of these differences the time axis is realigned relative to the time of the treatment itself instead of the date of eligibility (see Chapter 1);
- on the other hand, the programme was already implemented for some time before existing claimants attended LPWFI and the experiences the caseworkers gained when delivering the programme for the existing claimants might influence the overall effectiveness of the programme. One possible outcome of the delayed implementation could therefore be an increased quality of the LPWFI offered to existing claimants participants. However, further consequence of this could also be that LPWFI specifically changed the participation in NDLP, assigning or encouraging only very promising participants in LPWFI to start NDLP.

Again, the net impacts of the different policies are described based on figures (Figures 2.22 to 2.24) displaying the average benefit rate of treated individuals (bold line) before and after the starting date of the treatment, compared to the average benefit rate of the estimated outcome of the alternative treatment (dotted line).

Combined effect of LPWFI/NDLP

Figure 2.22 describes outcomes for the combined NDLP/LPWFI participation compared to the outcomes these individuals would have had in the case of non-participation in both parts of the treatment. As random starting dates are assigned to the non-treated and match on the short-term and long-term pre-programme benefit history, there are no differences between the groups prior to treatment (the pre-programme tests).

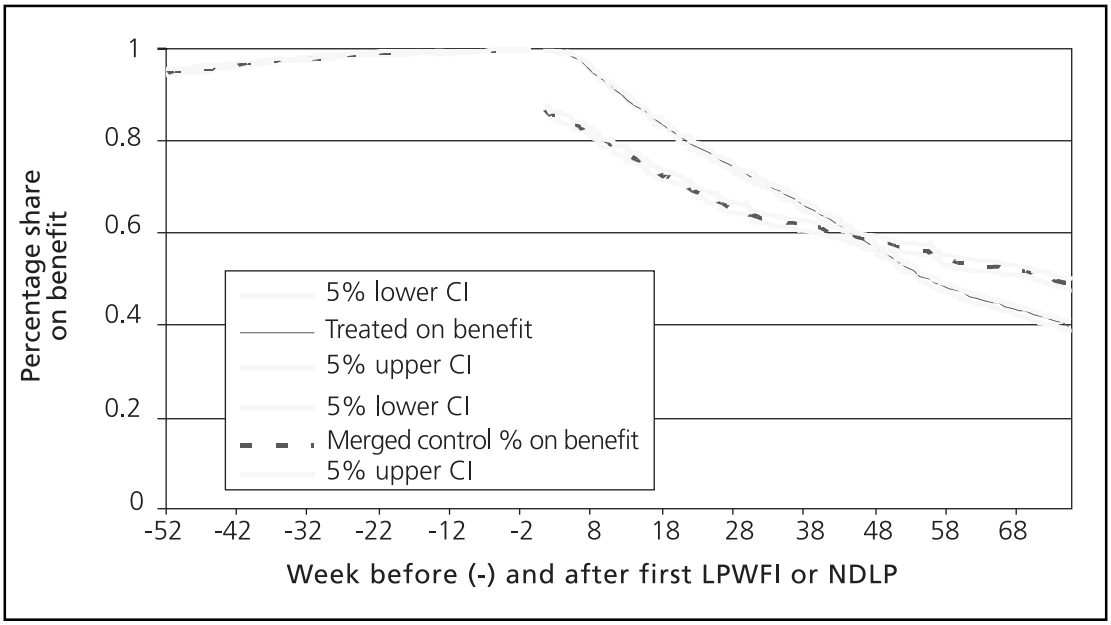
By definition, the average benefit rate of the treatment group is 100 per cent at time of the treatment (time t =1). However, the average benefit rate for a similar comparison group might be different, as random starting dates are assigned to any observation of the naïve comparison group irrespective of their benefit status[15].

First, there was an immediate negative difference in the benefit rate after the treatment date of 15 percentage points, where the comparisons had lower benefit

[15] An alternative definition (not adopted) might be to only considering people who are at least on benefit for as long as the treatment group after the 30 April 2001 and before the actual programme starting date of the treated (Fitzenberger and Speckesser (2005)).

rates than those in LPWFI/NDLP. The benefit rate of the NDLP/LPWFI participants however declines faster, leading to insignificantly small programme effects after nine months and then a positive effect of combined LPWFP/NDLP after one year. This positive effect remains significant up to the end of the period under consideration, where the difference between both rates approaches ten percentage points at 18 months. This indicates that 19 per cent of exits among the LPWFI/NDLP participants were additional (relative to the exit rate observed of 53 per cent – see Table 2.26). It is unclear whether the average effect over all six quarters following the treatment is always positive. However, there is at least a final positive effect that can be attributed to the programme[16] .

Figure 2.22 Existing claimants: Combined effect of LPWFI/NDLP in the LPWFI period



Incremental effect of NDLP relative to LPWFI only

For the evaluation of LPWFI/NDLP compared to the alternative participation in LPWFI only, there was no requirement to create random starting dates. The beginning of the treatment is marked by participation in LPWFI for both the treatment group as well as the comparison group.

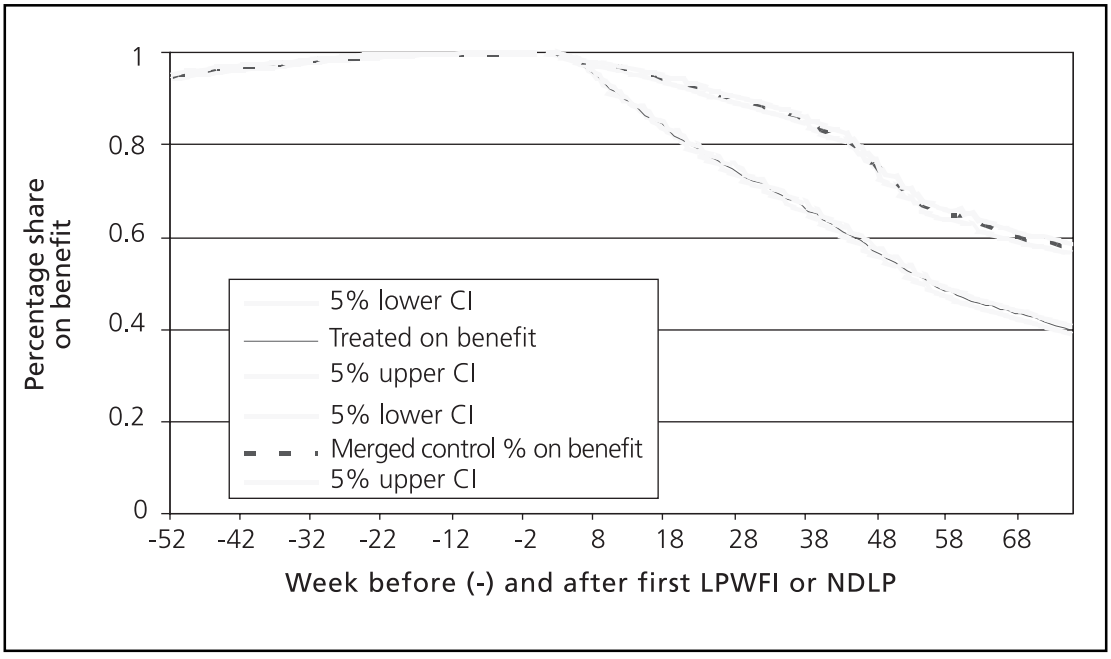
[16] In the earlier version of the analysis where we started the period of observation after treatment at the date of eligibility, we found a similar positive effect in the long run, which however was less pronounced and due to the alignment of the time axis at the date of eligibility, was also much later (after two years). Figure A.4 reports the results originally estimated without an adjustment of the time axis.

As for the new/repeat claimants, a positive incremental effect can be observed relatively early. After eight months, the benefit rate of the combined LPWFI/NDLP group is three percentage points lower than for the matched comparison group of individuals who do not participate in NDLP. This effect stabilises and increases over time. After one year, the LPWFI/NDLP group has on average a 14 per cent lower benefit rate.

As for the new/repeat claimants starting NDLP after LPWFI compared to those without NDLP, the effect is consistently positive and big in size. There are, however, the same caveats to a straightforward interpretation of such a large effect. As in the case for the new/repeat claimants, there might some individuals from the comparison group who convert to the treatment group outside the time observed after 2001 (the compliance problem). For the existing claimants, this might be even more relevant, since the delayed delivery of the LPWFI postpones the possible conversion to a later point in time than for the new/repeat claimants. Thus, the compliance problem can be supposed to be present for the existing claimants.

It is recommended that these preliminary effects be interpreted qualitatively, without too much reliance on the size of the point estimate, as there is evidence that an incremental NDLP effect for the existing claimants is consistently positive outcomes over time[17].

Figure 2.23 Existing claimants: Incremental effect of NDLP relative to LPWFI only



[17] This incremental positive effect for the existing claimants was already found in an earlier analysis without the adjustment of the beginning of the outcome period. See Figure A.4.

Incremental effect of LPWFI for NDLP participants

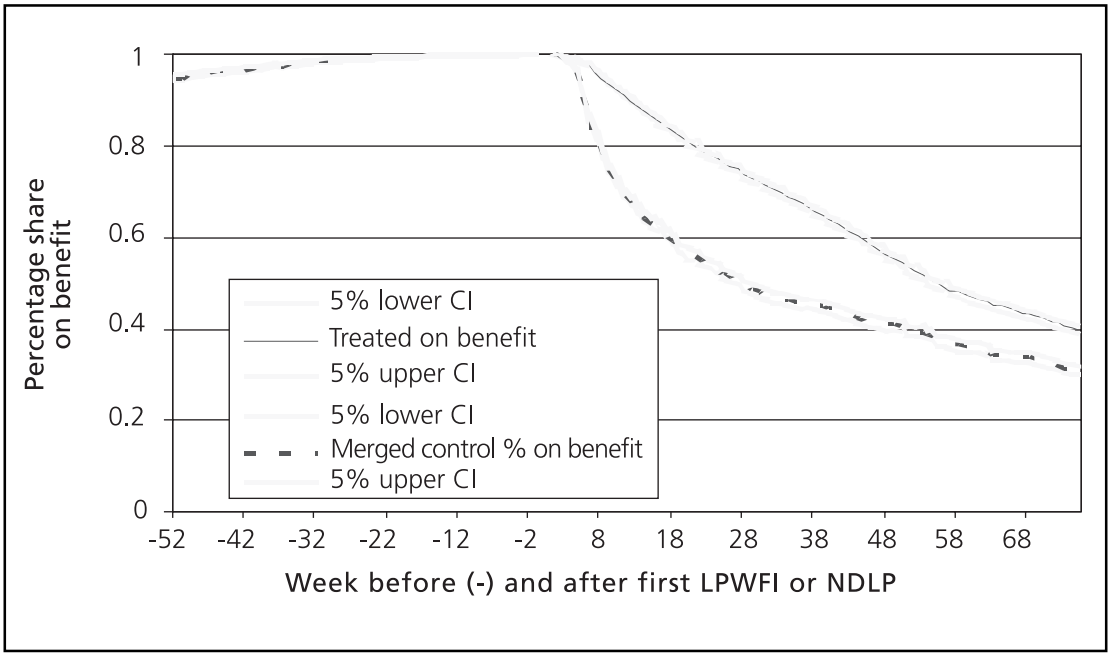
The incremental effect for LPWFI on NDLP participants is shown in Figure 2.24. This effect is insignificant in size shortly **after** the beginning of the treatment and rapidly becomes negative. The difference between both average benefit rates for the treated population and the matched comparison sample reaches up to 20 percentage points in a negative direction.

Again, as for new/repeat claimants, the actual size of this effect is less important than the qualitative evidence which can be obtained. Clearly, the LPWFI participation leads to a **reduced** effectiveness of the NDLP outcome, and self referrals to NDLP show on average lower benefit rates than participants who were beginning the programme after an LPWFI.

The negative incremental effect of LPWFI might indicate that participation via LPWFI leads to an allocation of NDLP participants that benefit much less from NDLP than self-referrals. As was shown in the descriptive analysis under *Characteristics if existing claimants participating in LPWFI/NDLP* on page 47, the self referrals were a very different entry population compared to the participants starting after an LPWFI. However, after matching, most of these observable differences had been balanced out successfully, so that a very similar comparison sample was found for the participants in LPWFI/NDLP. The groups are most similar with respect to their benefit rate before treatment, i.e. the pre-programme test indicates that the comparison sample is appropriate. As the effect is very pronounced and significantly negative, the qualitative evidence is very strong that LPWFI in fact decreased the effectiveness of NDLP for the NDLP participants going through LPWFI beforehand.

Results based on a conditional DiD estimator, as suggested under *Matching quality* on page 73, might bring more evidence.

Figure 2.24 Existing claimants: Incremental effect of LPWFI relative to NDLP self referral



2.4 Summary and conclusions

The net impact of the combination of LPWFI and NDLP on the movements off benefit by eligible lone parents was evaluated. The chief aim of LPWFI was to assist movement into paid employment, with a subsidiary objective of encouraging participation in NDLP. Participation in LPWFI is mandatory for those eligible, while participation in NDLP is voluntary.

The net impact was estimated using propensity score matching methods. A static multiple treatment framework was applied. Only the first programme participation was evaluated out of multiple participations introduced by repeated participation in NDLP and review meetings for LPWFI. Only individuals who were eligible lone parents in the year April 2001/2002 were examined, the first year of the LPWFI programme.

Administrative data records on IS, other benefits, LPWFI and NDLP participation were used, spanning 1998 to May 2004. The analysis excluded Northern Ireland, Jobcentre Plus and LPWFI pathfinder areas, ONE areas, and the Jobcentre Plus delivery areas. New/repeat claimants and existing claimants were analysed separately, reflecting the different programme operation for these two groups, and their different eligibility criteria which translated into different sample constructions and analysis designs. Existing claimants with earlier participation prior to April 2001 were excluded from the analysis.

2.4.1 Participation in NDLP and LPWFI

There was quite a substantial proportion of lone parents who did not start either NDLP or LPWFI. Among new/repeat claimants there were 24 per cent with no participation, 43 per cent with LPWFI only, 29 per cent combining LPWFI with NDLP and three per cent undertaking NDLP only. For existing claimants, 47 per cent did not participate, while 33 per cent had only LPWFI, 15 per cent combined LPWFI and NDLP and five per cent self referred to NDLP.

The greater share of non-participation by existing claimants is partially linked to the observed delayed delivery of the LPWFI programme to the existing claimants. Institutional regulations suggest that there should be LPWFI attendance relatively soon after the date of eligibility. Indeed, for new/repeat claimants the first LPWFI usually occurs relatively early, within a few days after the beginning of the claim. However for the existing claimants, the delay between eligibility and attendance was quite great, with an average wait of 300 days. As a result of this, the analysis period during which the first treatment for new/repeat claimants could take place is 12 months, but 24 months for the existing claimants. This avoids confounding the first treatment with subsequent treatments.

The analysis of socio-economic characteristics revealed that participants in the various programme alternatives had differing characteristics. Among new/repeat claimants, the age of the youngest child differed strongly between alternative

programme participants, and lone parents with older children were more likely not to participate in any LPWFI or NDLP alternatives (these were also the older lone parents). The existing claimants had quite dissimilar characteristics to the new/ repeat claimants, but this largely reflected the different eligibility rules for the existing claimants, and the delay to delivery of LPWFI for the existing claimants. Since only lone parents with a youngest child of at least 13 were eligible, almost no existing claimants were under 30 years and compared to new/repeats a much greater share were over 50 years. Men were least likely to undertake a self-referral to NDLP. Younger existing claimants, with younger children were more likely to self refer to NDLP without undertaking LPWFI. Those existing claimants with youngest child aged 15 were more likely not to participate in LPWFI or NDLP. There were more existing claimants entitled to a disability premium (27 per cent) than among new/ repeat claimants (11 per cent). Those existing claimants with a disability premium were more commonly non-participants or undertook LPWFI only. Those existing claimants in London were more likely not to participate. The study design should eliminate these differences when estimating the impact of the LPWFI and NDLP programmes.

The benefit off-flow and weekly benefit rates differed between programme alternatives, and between new/repeat claimants and existing claimants. Some of this difference can be attributed to the differing socio-economic characteristics, and delayed roll-out for the existing claimants. These findings gave early indications that participation in the various programme alternatives affected benefit terminations.

2.4.2 Impacts on benefit terminations

The validity of the impacts estimated here is restricted to a specific period and group, those eligible during the first year of LPWFI introduction after April 2001.

New/ repeat claimants impacts were observed for up to 18 months **after eligibility began** with the IS claim start. For new/repeat claimants, the combined effect on benefit exit of LPWFI and NDLP was insignificant in size for the first year, but then positive starting at two and rising to four percentage points at 18 months. The incremental effect on benefit exit of NDLP over LPWFI was quite large, estimated as initially five percentage points but rising to 14 percentage points after one year, and slightly higher at 18 percentage points at 18 months. However, the validity of this estimate is not considered to be very robust and it should be viewed as indicative only, for reasons related to the high chance of subsequent participation by the comparisons. Finally, for new/repeat claimants the impact of participation in LPWFI on the effectiveness of NDLP relative to self referral was positive on benefit exit and rises to nine percentage points after one year, before declining to five percentage points at 18 months.

Existing claimants were observed for up to 18 months **after treatment**. For existing claimants, the combination of LPWFI and NDLP had an impact on benefit exit rates that varied and was not always positive, but at 18 months was positive and ten percentage points. As for new/repeat claimants, starting NDLP after LPWFI had a

consistently positive and large effect on benefit terminations for existing claimants, of 14 percentage points after one year, rising to 18 percentage points at 18 months. As for new/repeat claimants, the robustness of this estimate is not proven, and it should be viewed qualitatively, with emphasis on the positive direction rather that the estimate size. The incremental effect of LPWFI on NDLP effectiveness on benefit terminations was initially insignificant but then became negative and large for existing claimants. This decrease in the effectiveness of NDLP on benefit terminations may reflect LPWFI introducing participants to NDLP who gain much less than self referrals.

3 Further analysis of NDLP net impacts for the August-October 2000 sample

This chapter explores the medium-term (four year) impacts of New Deal for Lone Parents (NDLP) by tracking participants and non-participants from the August-October 2000 eligible NDLP sample, using existing administrative data for NDLP, Income Support (IS) and other benefits data. The pattern of exits and re-entries into IS and other benefits experienced by NDLP participants over time is also explored.

Using the matching process to facilitate comparison of NDLP participants and non-participants, the net impacts of NDLP on benefit exit and employment are examined for the sample of NDLP participants that were eligible in August 2000. The net impacts are estimated over the period to August 2004, and so represent medium term outcomes of NDLP for participants. This matching technique was also used in Chapter 2 earlier in this report, however here it is simpler to apply since only one programme alternative exists. Using the matching process, it is possible to estimate the impact the programme had on both the probability of return to benefits and the probability of exit to employment. Section 2.3.2 explains the matching method applied. This estimation technique compares the proportion of NDLP participants who are off benefits in any week with the proportion of non-participants off benefits after first having assured like is compared with like by matching up these two groups. Similarly, an employment effect is found by comparing the proportion of NDLP participants who are in work in any week with the proportion of non-participants who are in work in the same week.

Section B.1 outlined the process by which the raw spell data from several different administrative datasets was merged into a consistent dataset for each individual to described the state they were in during any given week in our time horizon. This data

was also used in a similar fashion in Chapter 2 analyses of the combined impact of NDLP and Lone Parent Work Focused Interview. Section A.1 also provides useful reference material about this data.

3.1 Benefit and employment between August 2000 and August 2004

The analysis here examines the net impact estimates for NDLP using a sample of 69,851 cases from the population of lone parents claiming IS in August 2000, and eligible for NDLP but not yet participants[18]. This sample was selected for the postal survey that formed part of the original evaluation of NDLP net impact estimates[19]. Full details of how this sample of 69,851 was selected from the IS administrative data for August and October 2000 are reported in Phillips *et al.*, (2003).

First the number of observed spells for this sample is described, for all spells observed to August 2004, shown in Table 3.1. Table 3.1 is divided into two where the left hand side presents the frequency count on spells from August 2000 and the right hand side presents figures on the spells from April 2001. This table (and Table 3.2) is split in this way to distinguish on the left hand side the period of the 'observation window' as this is the time from initial sample eligibility of being on IS in August 2000-October 2000, until April 2001, when NDLP participation was identified. In this time period the sample are more likely to remain in the IS spell which brought them into the sample. The final number of spells for this sample was 177,058, and corresponds to almost three separate discrete spells per person.

The first column of Table 3.1 shows that there were in total 76,683 IS spells and 33,323 employment spells between August 2000 and August 2004. This figure of the total number of spells in the final row of the first column, includes the 'participation window' from August 2000 to April 2001 and the whole period up to August 2004 afterwards. The total number of spells drops to 125,854 for the period subsequent to the participation window, which starts on 2 April 2001. In relative terms the proportion of spells in each status is similar in the left and right hand side of Table 3.1, with IS being the status most commonly observed (43 per cent and 47 per cent) followed by employment (19 per cent and 16 per cent) and employment with benefit (14 per cent and 15 per cent). This pattern of spells is not surprising given the nature of the sample frame in August 2000.

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[18] The sample was created by the National Centre for Social Research and the study is reported fully in Lessof *et al.*, (2003) and Phillips *et al.*, (2003). In fact, the 69, 851 cases arose from a main sample of 64,973 from the August 2000 cohort, and a further small sample which were drawn from the October 2000 cohort. The sampling was complex and Phillips *et al.*, 2003 should be consulted for details of this.

[19] Although these original net impact estimates relied on a smaller sample selected from the subsequent face-to-face survey.

Table 3.1 Types of benefit and employment spells observed for the August 2000 sample to August 2004

	Spells from August 2000-August 2004 Full set of spells			Spells from April 2001-August 2004 Spells after 1 April 2001		
	Freq.	Per cent	Cum.	Freq.	Per cent	Cum.
Nothing	17,524	9.9	9.9	10,467	8.3	8.3
IS	76,683	43.3	53.2	58,659	46.6	54.9
IS and Incapacity Benefit (IB)	12,201	6.9	60.1	8,632	6.9	61.8
IB	2,264	1.3	61.4	1,815	1.4	63.2
NDLP	4,267	2.4	63.8	4,024	3.2	66.4
Jobseeker's Allowance	6,129	3.5	67.3	3,569	2.8	69.3
Employment	33,323	18.8	86.1	20,358	16.2	85.4
Employment and benefit	24,667	13.9	100	18,330	14.6	100
Total	177,058	100		125,854	100	

Note: 'Nothing' used in the administrative data for those spells in which the individual was neither in the benefit records nor present in the employment data. August 2000-April 2001 is the period between identified eligibility and sample selection, and NDLP participation, described as the participation window.

A large number of individuals had employment spells which overlapped with some sort of benefit spells. Table 3.2 presents more detail on the exact type of benefit involved when an employment spell was combined with some type of benefit at the same time. The left hand columns of Table 3.2 indicate that almost 70 per cent of these combined employment/benefit spells overlapped with a spell on IS, during the full period. These figures indicate the importance of part-time work for the lone parent population (combined with benefits, which allow a certain number of hours of work) but the very fact that they also qualify for IS support even when they are in employment shows they are poorly remunerated.

In the remaining sections of this report the results will refer only to the spells after the 1 April 2001, unless otherwise specified. This is the follow-up period which is observed after the NDLP participation, and during which the net impacts of NDLP on benefit and employment outcomes can be considered.

Table 3.2 Break down of the observed combined employment and benefit spells

	Spells from August 2000-August 2004 Full set of spells			Spells from April 2001-August 2004 Spells after 1 April 2001		
	Freq.	Per cent	Cum.	Freq.	Per cent	Cum.
Employment IB	856	3.47	3.47	757	4.13	4.13
Employment IS	17,055	69.14	72.61	11,783	64.28	68.41
Employment_IS and IB	2,207	8.95	81.56	1,721	9.39	77.8
Employment_JSA	1,062	4.31	85.86	776	4.23	82.03
Employment_NDLP	1,493	6.05	91.92	1,466	8	90.03
Other	1,994	8.08	100	1,827	9.97	100
Total	24,667	100		18,330	100	

Note: 'Nothing' used in the administrative data for those spells in which the individual was neither in the benefit records nor present in the employment data. August 2000-April 2001 is the period between identified eligibility and sample selection, and NDLP participation, described as the participation window.

3.2 Medium-term NDLP impacts on benefit exit and employment

This section examines the evidence on the impact of NDLP on employment and moving off benefit for the whole sample from August-October 2000, observed for the period from April 2001 to August 2004.

3.2.1 Overall NDLP medium-term impacts

Methods

The approach is to match the NDLP participants with those who look like them from the non-participant sample. The proportion on benefit or proportion in employment over the four years before the possible participation in NDLP, which is the period prior to the NDLP participation, is then used as a measure of how well matched or balanced the two groups are. Impact estimates follow the proportion on benefit or proportion in employment up to four years after they are eligible for treatment, and compare the difference observed for the NDLP participants and non-participants. Only the variables available in the administrative dataset are used. All the counterfactuals were constructed with the nearest neighbour matching with replacement algorithm on PSMATCH2[20].

[20] PSMATCH2 is a Stata ado file written by Edwin Leuven and Barbara Sianesi (2003) (available for download from http://ideas.repec.org/c/boc/bocode/s432001.html).

The full propensity score specifications used control for: gender, age, and region[21], the number of children, age of the youngest child and disability and the pre-programme history described below.

In the pre-programme history three sets of variables were used. The first one was the pre-programme regimes, created by the Card and Sullivan cell matches, in total 45 dummies were created[22], one for each regime. Over 50 per cent of participants and non-participants were found in what is termed the 'existing claimants' category (i.e. 111111). Moreover, the NDLP effect on these 'existing claimants' is strongly different from the new/repeat claimants (for more information see Dolton, Smith and Azevedo (2006)). In order to take this into account, and better distinguish the pre-programme history of the existing claimants from the new/repeat claimants, the specification also included variables that could capture the most recent and the oldest pre-programme history. For the former, a set of dummy variables was used for the six weeks prior to the participation window. For the latter a continuous variable which denoted the proportion[23] of time that each individual was on benefit prior to June 1999 was included. All the impact analysis with the administrative data was carried out with the full sample, for the full set of participants (i.e. Groups A, B and D, see Section B.2 for further explanation of the sample subgroups).

Four dates are shown on the figures plotting the impacts of NDLP:

- date 1 is the first week of June 1999. This is an important date relating to data quality as this is the first month in which the database provides accurate figures for both the existing claimants and new/repeat claimants of individuals on benefit[24];
- date 2 and date 3 represent the postal questionnaire interval from October 2000 to April 2001. The proportion of the sample on benefit reaches 100 per cent for both NDLP participants and non-participants at the beginning of October 2000 due to the eligibility criteria for the postal questionnaire used by Phillips *et al.*, (2003);

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[21] All three variables were categorical. With age being divided on ten categorical variables one for each five years interval between 16 to 64 inclusive, and region being 12 categories, ten for England, plus Wales and Scotland.

[22] All categories with less than 20 observations per cell were pooled together under one single category (i.e. 222222). In total there were 19 cases that fitted this criteria, representing 68 individuals, or less than 0.01 per cent of the full sample.

[23] An alternative specification using a polynomial of the number of weeks on benefit was also tried, but the proportion of time on benefit had a better effect on balancing the non-participant group on the pre-treatment period.

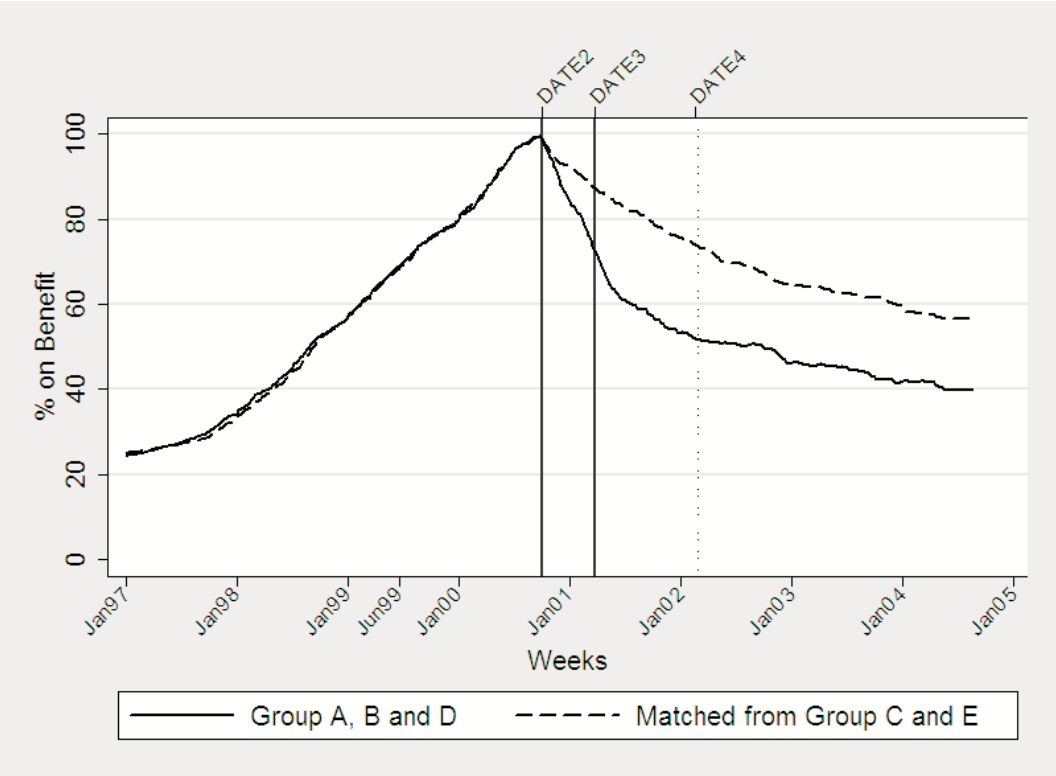
[24] The only reliable benefit receipt information available before June 1999 comes from the JSA database; for all of the other benefits (i.e. IS and IB), complete data are available only after June 1999.

- date 4 is the first week of February 2002, which is the end date for the Phillips *et al.*, (2003) analysis.

Medium-term effects on benefit exit

Figure 3.1 shows the impact estimates on benefit exit. On the left-hand side of Figure 3.1, prior to date 2, the effectiveness of the propensity score matching technique is revealed. It can be interpreted as a specification test. In particular, it is a version of the 'pre-programme' test employed in Heckman and Hotz (1989). In this test, the impact estimation is applied to participants and non-participants in the pre-programme period, and the resulting estimate should be close to zero for effective matching. Almost all the pre-programme differences in benefit between the NDLP participants and non-participants are close to zero. The size of the NDLP impact is shown on the right-hand side after date 3, and seems to diminish slightly as time passes. The NDLP impact on benefit exit varies between 14 to 18 per cent over the period from April 2001 (date 3) to August 2004. This is a reasonably large effect. However, this estimate should be compared to the total impact for NDLP found in the impacts by strata (Section 3.2.2), which accounts for the stratified sampling which affects the make-up of this sample.

Figure 3.1 Weekly proportion of participants and non-participants on benefit 1997-2004 (Sample I-Specification 3)



Notes: Specification 3: included the following variables in the logit propensity score estimation: Age, Region, Age of the youngest child, Number of Children, Card and Sullivan regime dummies, Recent pre-programme history, Oldest pre-program history. Sample 1: Number of NDLP participants 4,245; Number of Non-participants 65,606; Total Sample Size 69,851. 'Participation' defined as having an initial NDLP interview. DATE 1 is the first week of June 1999. DATE 2 and DATE 3 represent the Phillips et al. 2003 postal questionnaire interval from October 2000 to April 2001. DATE 4 is the first week of February of 2002, which is the end date for the Phillips et al. 2003 analysis. Groups A, B & D = participants, groups C& E = non-participants.

Medium-term effects on employment

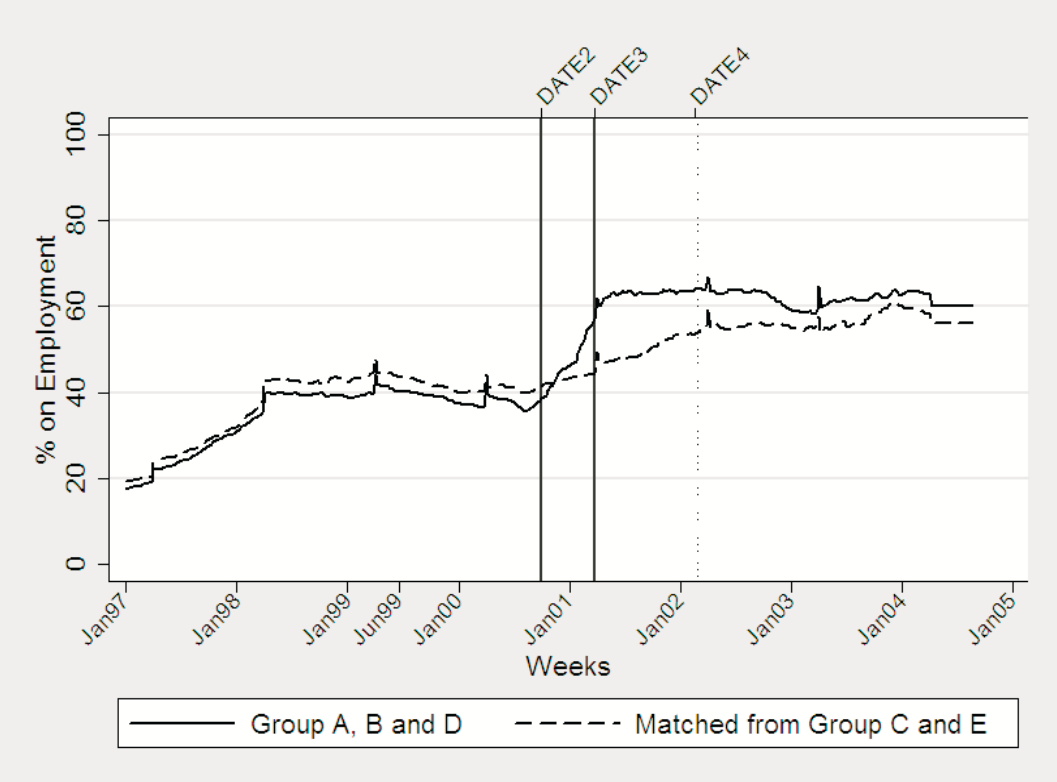
Figure 3.2 shows the weekly proportion of participants and non-participants in employment over the period January 1997 to August 2005. Like Figure 3.1 the graph can be used to interpret the nature of the balancing of the two groups prior to the start of NDLP. Figure 3.2 indicates that there is much more difficulty in matching up the pre-history period in the case of employment compared to claiming on benefit shown in Figure 3.1. This shows up in the difference between the treatment and their matched control group in the pre-NDLP history. It can be seen that the differences between the two groups is rather large – up to five per cent – at certain phases of the pre-treatment window. Part of the reason for this is that the benefit history does not seem to satisfactorily control for the employment history. The same specification was used as for benefit exit.

Interestingly, the matched non-participants had a higher probability of being in employment in the prehistory period. This indicates that the matching process has matched up the NDLP participants with non-participants (who look most like them according to the benefit history and other variables) who had a more favourable employment history prior to NDLP. This suggests that the remaining heterogeneity between the two groups could possibly lead to underestimates of the size of the employment treatment effect, i.e. rather than the heterogeneity being subtracted off the post-treatment difference between the two groups as it was in the benefit history case, it may now be argued that since the non-treated group have better employment records than their treated counterparts then this should be added on the treatment effect.

There are also small spikes in the employment data each year around April time in the fraction of people (in both groups) who are found to be employed. This effect is due to the employment data originating from tax records which rely on yearly returns to retrospectively report employment status. This method of recording then gives rise to these spikes as it is known that during that tax year (starting April 6) the individual was in employment, but the specific start date is missing.

From Figure 3.2 it can be seen that leading up to the census date of August 2000 around 40 per cent of IS claimants were recorded in employment. After NDLP, participation in employment rises to around 63 per cent while for the non-participants it remains below 50 per cent. This NDLP impact on employment is rather large around 18 months after the treatment window but then declines away to around five per cent after almost four years. However, as for the earlier benefit exit impacts, these estimates do not account for the stratified sampling and so the total effects of NDLP for the population in Section 3.2.2 should be considered.

Figure 3.2 Weekly proportion of participants and non-participants in employment 1997-2004 (Sample I-Specification 3)



Notes: Specification 3: included the following variables in the logit propensity score estimation: Age, Region, Age of the youngest child, Number of Children, Card and Sullivan regime dummies, Recent pre-programme history, Oldest pre-programme history. Sample 1: Number of NDLP participants 4,245; Number of Non-participants 65,606; Total Sample Size 69,851. 'Participation' defined as having an initial NDLP interview. DATE 1 is the first week of June 1999. DATE 2 and DATE 3 represent the Phillips et al. 2003 postal questionnaire interval from October 2000 to April 2001. DATE 4 is the first week of February of 2002, which is the end date for the Phillips et al. 2003 analysis. Groups A, B & D = participants, groups C& E = non-participants.

3.2.2 Medium-term NDLP impacts by age of youngest child and claim length

In this section separate impact estimates are created for each subgroup (or stratum) of age of youngest child and claim length, forcing NDLP participants to be matched only to non-participants in the same subgroup (or stratum). This yielded ten different impact estimates at any time point, four for the age of the youngest child categories and six for the pre-programme benefit history categories. These estimates were then combined to create an estimate of the overall impact for the population, which accounted for the sample selection by strata, and applied weighting to regain the population estimate. The first stage of this method yields impact estimates which account for stratified sampling in the sample, by estimating within the strata. Where this approach to estimation is used, the term 'hard-matching' is applied. In order to

get the overall average treatment effect on the treated for the population, these were subsequently weighted according to the population proportion of NDLP participants on each stratum, and then summed[25]. See Table B.4 for the population and sample proportions used for the weights, while Table B.5 shows the sample sizes within each strata category.

Medium-term NDLP impacts by age of youngest child and claim length: Benefit exit

An interesting dimension for policy consideration is the effect of NDLP on different groups of participants.

It must be noted that for this analysis by subgroups, a deterioration of the matching is observed, with sometimes a reasonable gap between the benefit history of the participants and non-participants in the period prior to their NDLP participation (before date 2). This more heterogeneous pre-programme benefit history among participants and non-participants, indicates the interpretation of these results should apply a higher degree of caution. This is most notable for the duration of benefit claiming in Figures 3.4 (three to six months), 3.5 (six to 12 months) and 3.8 (36 months or more), but also for the age of youngest child of 11-16 years in Figure 3.12.

First, the NDLP effect is examined for those individuals with different benefit histories prior to NDLP participation, namely, individuals on IS prior to October 2000 (date 2 on the figures) for less than three months, from three to six months, six to 12 months, 12 to 24 months, 24 to 36 months and for more than 36 months. The overall impact of NDLP on benefit exit at 48 months for these benefit durations prior to participation is tabulated in the lower part of Table 3.3. Table 3.4 shows the similar estimates for three, nine, 24 and 36 months after participation, but with no adjustment figures. To facilitate additionality estimates, i.e. the per cent of exits among the participants that are additional, the observed mean for each group is also presented[26]. Figures 3.3 to 3.8 graph the overall difference between the treatment and matched control group. To be in the eligible sample a claimant must be claiming

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[25] Application of the strata weights returns estimates to the population. As the strata are defined by the same groups that define the subgroups being analysed here, the subgroup estimates are weighted averages of estimates from some but not all of the strata. The weights in this case are the same weights as used for the population, but before use they are rescaled to sum to one for the subgroup. For example, suppose that there were two variables defining the strata, A and B, and that each one is binary. Then there are four strata 00, 01, 10 and 11. The subgroup of individuals with a value of 1 for the first variable combines strata 10 and 11. If there are population weights for the four strata, then the weights for 10 and 11 equal their original weights divided by the sum of the weights for these two strata.

[26] Calculating additionality: Divide the difference between the participant and non-participant exits after X months by the participant exit rate, and then divide by 100.

IS in August 2000 or October 2000. Hence this sample criterion will ensure that the fraction claiming IS at the October 2000 date must reach 100 per cent. In the period prior to NDLP participation, the 'flat' part of Figure 3.3 (and later figures) illustrates the difference between participants and non-participants which has been constrained to be true within this period of benefit claiming – in other words, this segment is flat because only participants and non-participants with these IS claim lengths were considered.

On aggregate these figures show a higher impact of NDLP on benefit exit when the preceding spell on IS was longer. Hence NDLP is having the greatest effect on the existing longer-term claimants. This suggests that the impact of NDLP was most strong for the group of people who usually find exiting the benefit claimant status difficult. One could suggest that this is partly due to existing lone parent claimants who were waiting for the impetus of the assistance of NDLP to do something about exiting their benefit claim. However, if this interpretation is accepted this does mean that the size of the impact effects should be reviewed with caution as later groups of NDLP participants may not experience such a large impact effect (this is because the composition of the programme participants begins to be made up of less existing claimants, as they have already left IS due to the NDLP, and instead includes more first time or repeat claimants). Another noticeable feature is that the difference between participants and non-participants in the period prior to NDLP is not very close to zero in the period prior to June 1999 in Figure 3.4, which relates to those who have been on IS between three and six months.

Figures 3.3 to 3.8 graph the impact analysis by the duration of the IS claim prior to the programme, for each subgroup of benefit duration. The overall effect of NDLP is largest for those with claims of six to 12 months (Figure 3.5) and 24-36 (Figure 3.7) and over 36 months (Figure 3.8). For those with claims of 12-24 months (Figure 3.6), there is much greater variability in the impact, with the impact comparable in size to that of the six to 12 and 24-36 month duration groups in the period prior to February 2002 (date 4), but then much reduced for the later follow-up period – where the participants rate on benefit increases and the comparisons continue to leave benefits. One would expect to find a smaller overall NDLP effect at short durations of less than three months (Figure 3.3) and between three and six months (Figure 3.4) as a greater share of these individuals with brief experience claiming benefit, are often making a claim due to changing circumstances which would not be expected to alter again very quickly. There may be policy interest in the impacts of the programme on the new/repeat claimants rather than the claimants existing claimants existing when the policy was introduced, in which case the impact on the claims less than three months duration is of key interest. However, the impact of NDLP on only those of short durations is not representative of the total effect of NDLP.

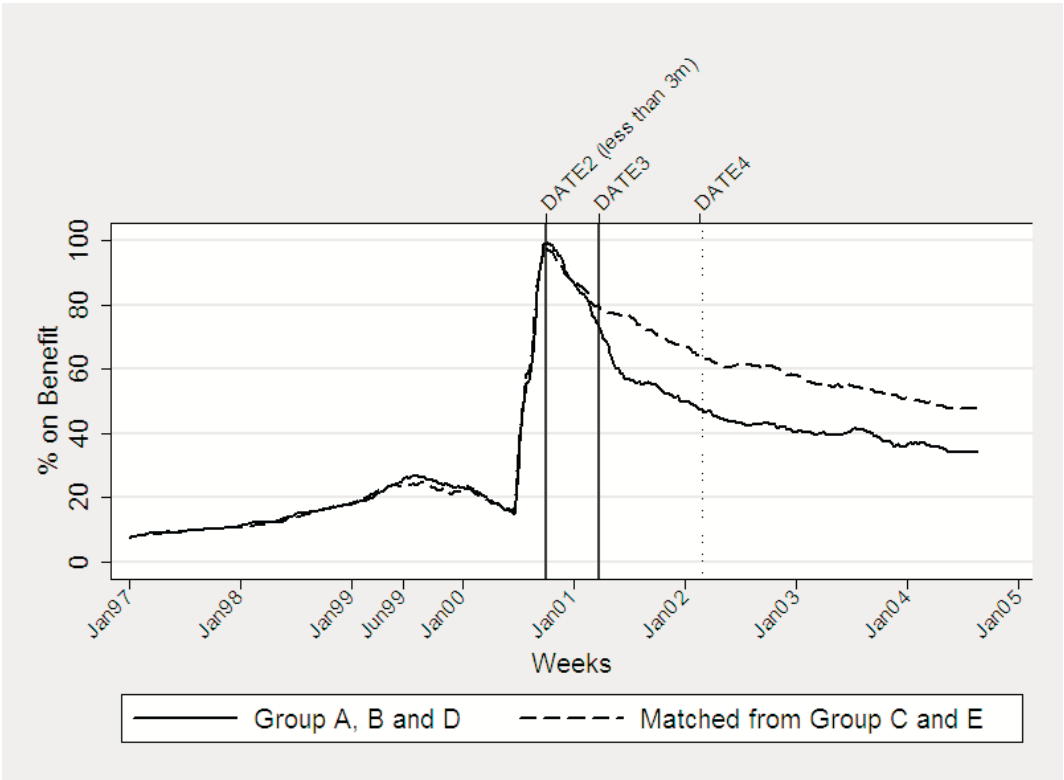
Table 3.3 NDLP 'on-benefit' impact by age of youngest child and duration of IS claim, at 48 months after participation (hard-matched and using Sample I)

Description	Treatment	Remaining heterogeneity	Difference	Treated (mean)	Comparison (mean)
Total (population weighted)	19.40	-0.60	20.00	70.53	51.13
	(0.17)	(0.06)	(0.55)		
Children at the age of zero and less than three	16.96 (0.25)	-0.98 (0.06)	17.95 (1.15)	75.33	58.37
Children at the age of three and less than five	18.58 (0.16)	0.11 (0.08)	18.47 (0.54)	70.53	51.95
Children at the age of five and less than 11	20.33 (0.17)	-0.04 (0.06)	20.37 (0.59)	72.79	52.45
Children at the age of 11 and less than 16	21.23	-1.13 (0.25)	22.37 (0.14)	65.26 (1.43)	44.02
On IS for less than three months	16.07 (0.19)	-0.54 (0.08)	16.62 (0.72)	62.38	46.31
On IS from three to less than six months	13.17 (0.30)	-3.11 (0.21)	16.28 (2.30)	60.6	47.42
On IS from six to less than 12 months	21.05 (0.21)	-1.13 (0.20)	22.18 (1.42)	67.9	46.85
On IS from 12 to less than 24 months	15.87 (0.45)	0.26 (0.16)	15.61 (3.93)	67.37	51.5
On IS from 24 to less than 36 months	18.12 (0.13)	-0.45 (0.08)	18.57 (0.42)	74.1	55.98
On IS for 36 months or more	25.79	0.03	25.76	78.05	52.26
	(0.21)	(0.01)	(0.80)		

Mean difference (standard deviation in brackets) Notes: Sample 1: Number of NDLP participants 4,245; number of non-participants 65,606; total sample Size 69,851. 'Participation' defined as having an initial NDLP interview. Hard-matching: Propensity score matching completed within each stratum to create an impact estimate (these estimates are unweighted); then the total impact estimate is the weighted sum over all strata impact estimates, with population weights. The weights are described in Section B.2. The 'remaining heterogeneity' figure is calculated at 48 months prior to the participation date October 2000 (date 2). Calculating additionality: Divide the difference between the participant and non-participant exits after X months by the participant exit rate, and then divide by 100.

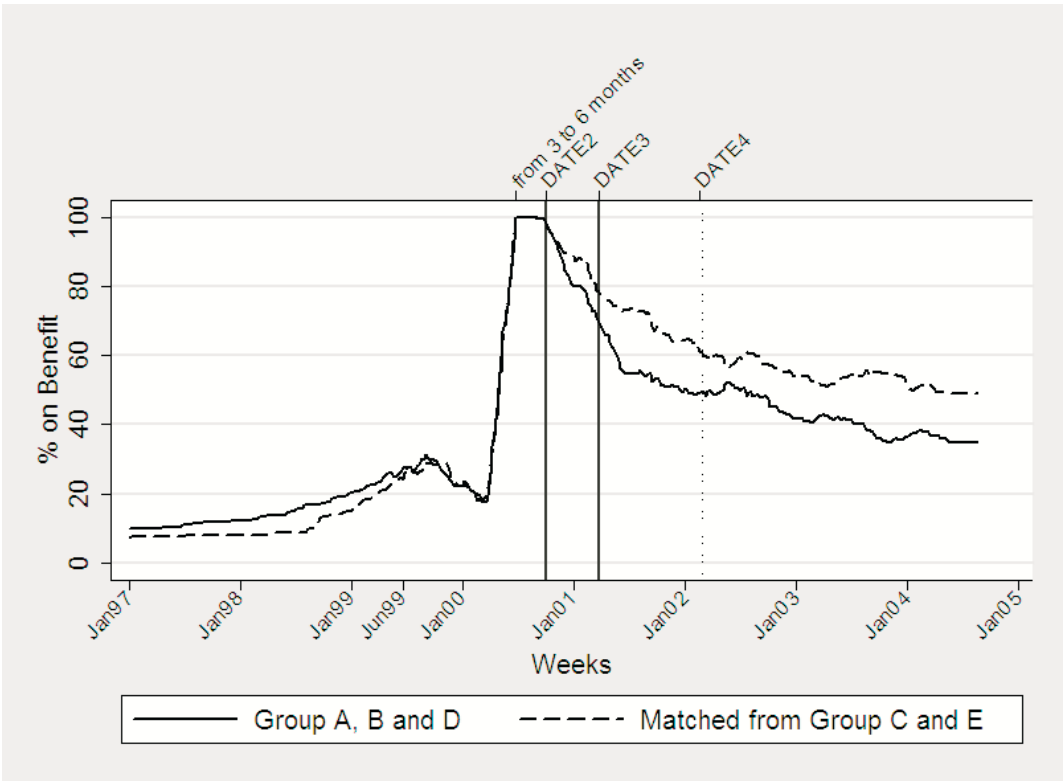
Table 3.3 summarizes the main findings of this sub-section. Overall, outcomes tend to differ more due to the pre-programme benefit history than to the age of the youngest child. Participants who had longer benefit spells had a substantially higher probability of leaving benefit than those with shorter benefit claims.

Figure 3.3 Longer-run NDLP impact by length on IS: Weekly proportion of participants and non-participants on benefit 1997-2004 – on IS for less than three months (Sample I-Specification 3)



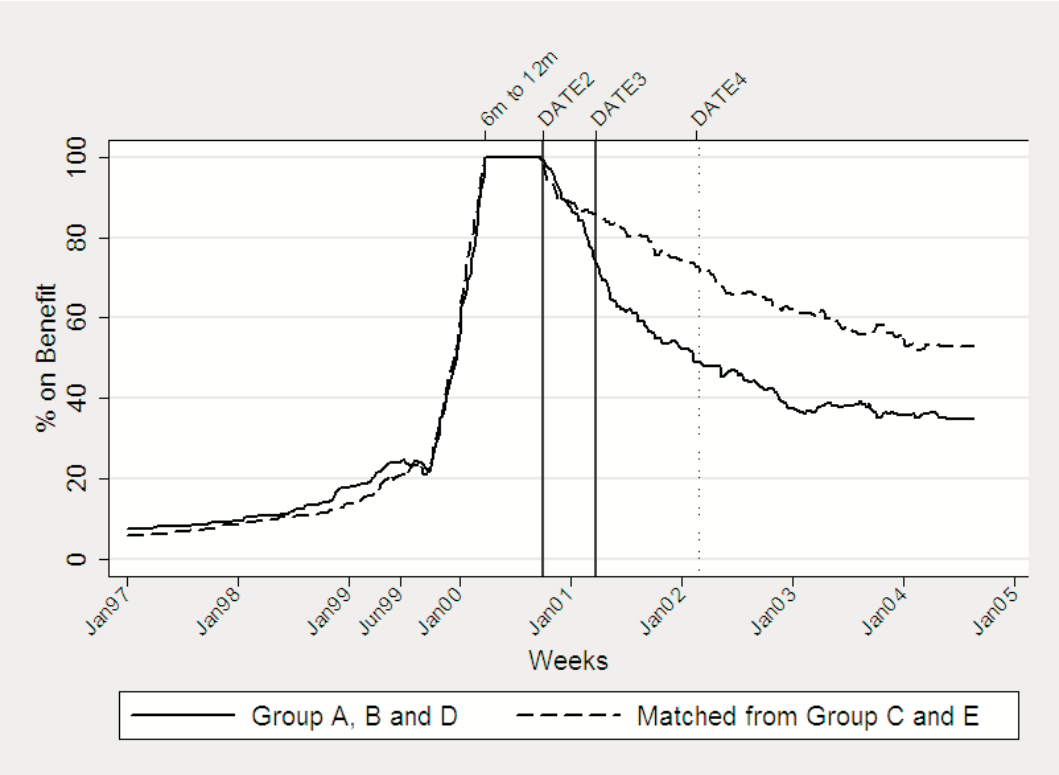
Note: Groups A, B & D = participants, groups C& E = non-participants. See notes figure 3.2.

Figure 3.4 Longer-run NDLP impact by length on IS: Weekly proportion of participants and non-participants on benefit 1997-2004 – on IS from three to five months (Sample I-Specification 3)



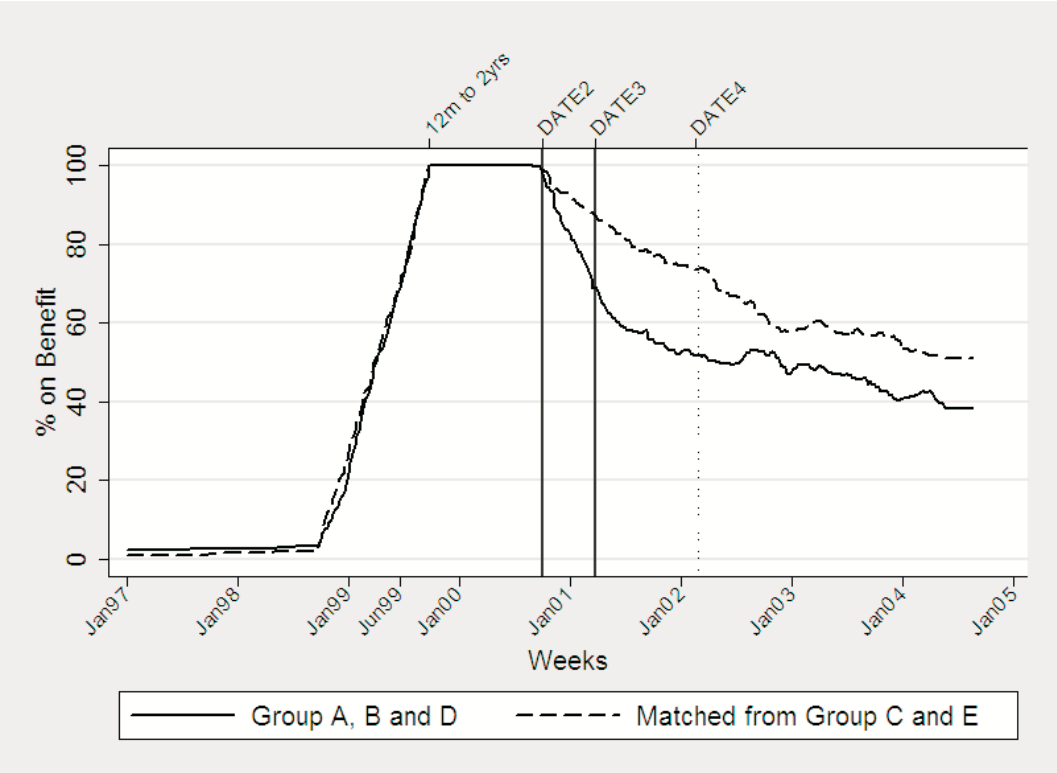
Note: Groups A, B & D = participants, groups C& E = non-participants. See notes figure 3.2.

Figure 3.5 Longer-run NDLP impact by length on IS: Weekly proportion of participants and non-participants on benefit 1997-2004 – on IS from six to 11 months (Sample I-Specification 3)



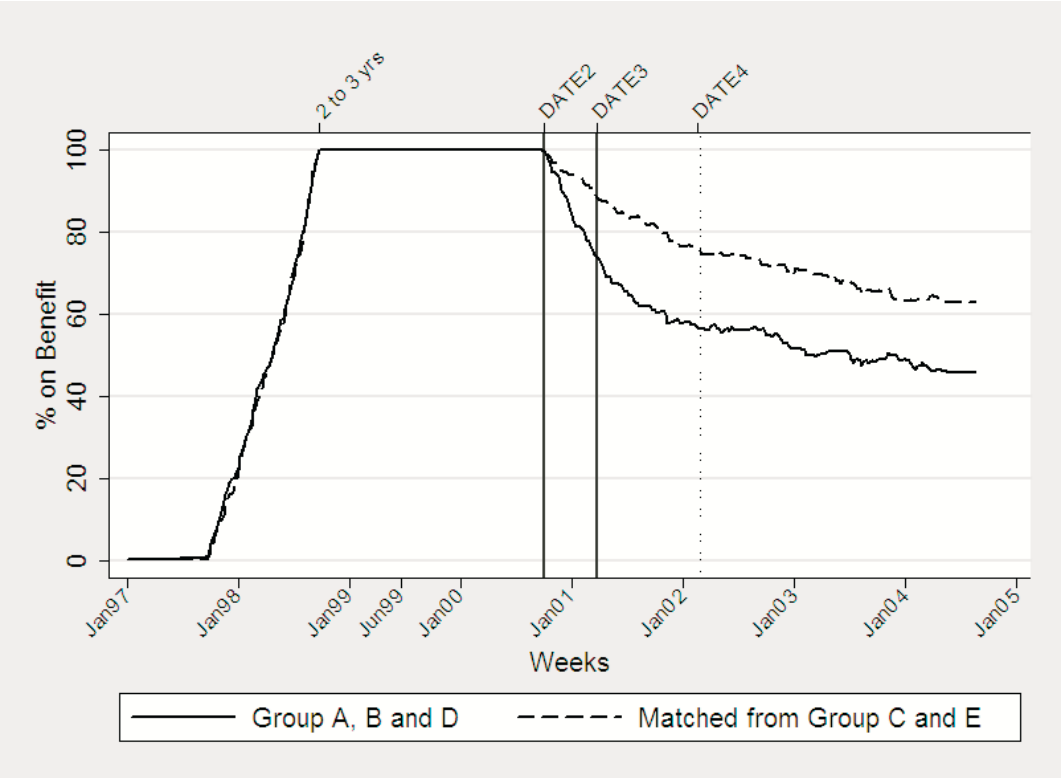
Note: Groups A, B & D = participants, groups C& E = non-participants. See notes figure 3.2.

Figure 3.6 Longer-run NDLP impact by length on IS: Weekly proportion of participants and non-participants on benefit 1997-2004 – on IS from 12 to 23 months (Sample I-Specification 3)



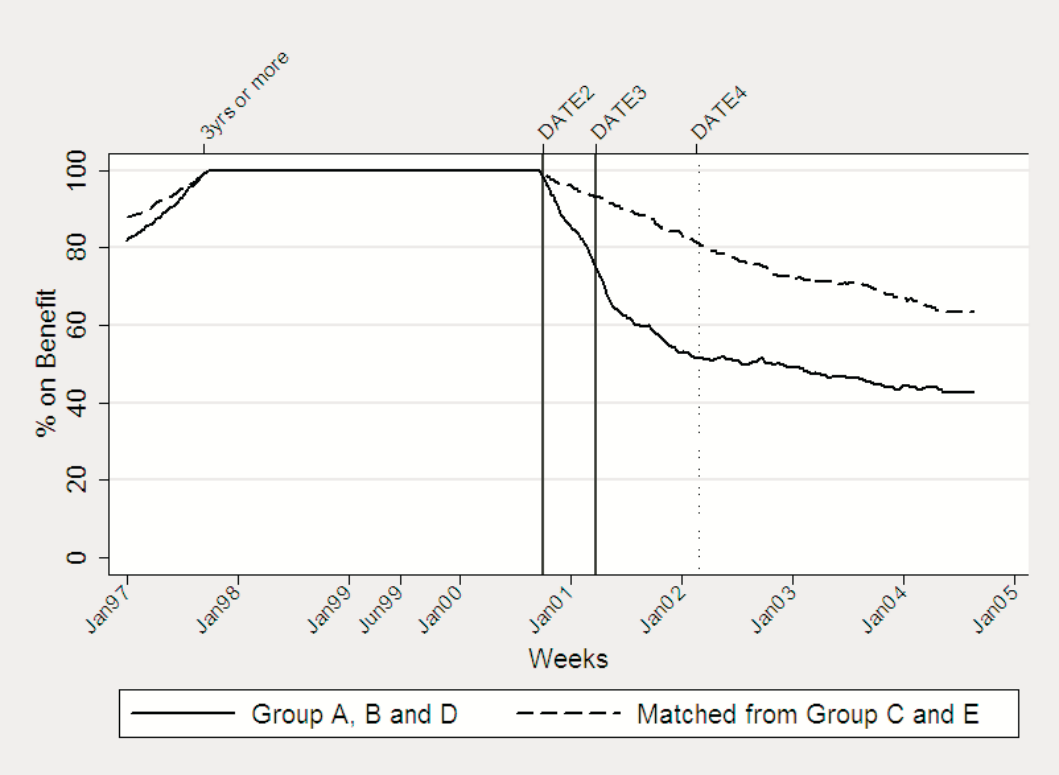
Note: Groups A, B & D = participants, groups C& E = non-participants. See notes figure 3.2.

Figure 3.7 Longer-run NDLP impact by length on IS: Weekly proportion of participants and non-participants on benefit 1997-2004 – on IS from 24 to 36 months (Sample I-Specification 3)



Note: Groups A, B & D = participants, groups C& E = non-participants. See notes figure 3.2.

Figure 3.8 Longer-run NDLP impact by length on IS: Weekly proportion of participants and non-participants on benefit 1997-2004 – on IS for 36 months or more (Sample I-Specification 3)



Note: Groups A, B & D = participants, groups C& E = non-participants. See notes figure 3.2.

The NDLP impact on benefit exit at 48 months for individuals with the youngest child between zero and three, three and five, five and 11, and 11 and 16 years old is also shown in Table 3.3, in the upper half of the table. Table 3.4 shows the similar estimates for three, nine, 24 and 36 months after participation, but with no adjustment figures. Figures 3.9 to 3.12 provide the graphical analysis of NDLP impacts by the age of the youngest child. Comparing Figure 3.12 for those with the oldest child between 11 and 16 to Figure 3.9 for those with the child between zero and three years, there is only a modest difference between the size of the NDLP effects observed over time. However this impact is observed at a much higher level of benefit claiming for those with the oldest child of 11-16 years.

With respect to the age of the youngest child, the figures suggest that lone parents with an older child have a slightly higher probability of leaving benefit than those with a younger one. The effect amounts to around a five per cent difference in the proportion of those on benefit over three years later.

There is around a 15-25 per cent effect of NDLP on benefit exits depending on which group is considered, and an overall 19 percentage point impact on employment at

48 months after participation, rising to 20 percentage points if the remaining matching differences are adjusted for (Table 3.5). The overall NDLP impact on employment varies over time, starting at 22 percentage points at three and nine months after participation, then falling to 18 percentage points at 24 months, and 16 percentage points at 36 months (Table 3.6 – note these are not adjusted for remaining heterogeneity).

Table 3.4 NDLP 'off benefit' impact by age of youngest child and duration of IS claim, up to 36 months after participation (hard-matched and using Sample I)

Description	3 months	9 months	24 months	36 months
Total	21.89	22.24	18.3	16.47
Standard deviation	[0.10]	[0.17]	[0.05]	[0.15]
Comparison group (mean)	82.93	76.15	64.15	58.42
Treated group (mean)	61.05	53.91	45.84	41.95
Children at the age of zero and three	22.75	20.31	16.08	15.55
Standard deviation	[0.19]	[0.23]	[0.18]	[0.20]
Comparison group (mean)	86.65	80.89	69.74	66.51
Treated group (mean)	63.89	60.58	53.66	50.96
Children at the age of three and five	18.30	20.31	19.31	16.25
Standard deviation	[0.15]	[0.16]	[0.15]	[0.13]
Comparison group (mean)	82.62	74.84	64.58	58.76
Treated group (mean)	64.32	54.53	45.27	42.51
Children at the age of five and 11	23.31	22.26	19.11	16.18
Standard deviation	[0.12]	[0.15]	[0.07]	[0.09]
Comparison group (mean)	84.80	77.77	66.60	59.58
Treated group (mean)	61.49	55.51	47.49	43.40
Children at the age of 11 and 16	22.63	25.02	18.86	17.54
Standard deviation	[0.48]	[0.17]	[0.10]	[0.34]
Comparison group (mean)	78.99	72.21	57.84	51.07
Treated group (mean)	56.35	47.19	38.97	33.53
On IS for less than three months	19.63	16.68	16.12	13.78
Standard deviation	[0.10]	[0.12]	[0.13]	[0.30]
Comparison group (mean)	76.48	67.35	56.34	50.52
Treated group (mean)	56.85	50.67	40.22	36.75
On IS from three to six months	18.58	14.04	12.96	13.41
Standard deviation	[0.23]	[0.27]	[0.25]	[0.62]
Comparison group (mean)	73.51	64.39	53.77	50.48
Treated group (mean)	54.93	50.35	40.81	37.07

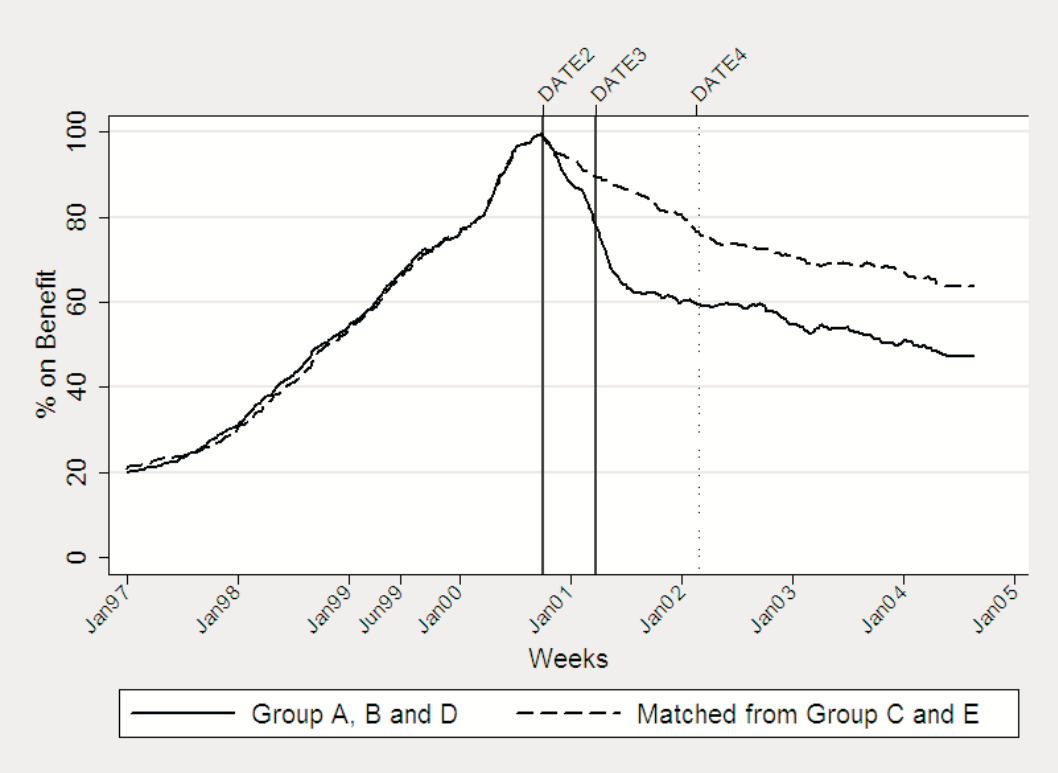
Continued

Table 3.4 Continued

Description	3 months	9 months	24 months	36 months
On IS from six to 12 months	19.61	21.03	24.74	17.99
Standard deviation	[0.51]	[0.24]	[0.24]	[0.64]
Comparison group (mean)	81.59	74.87	61.16	53.85
Treated group (mean)	61.98	53.85	36.42	35.86
On IS from 12 to 24 months	22.97	22.34	9.20	12.32
Standard deviation	[0.19]	[0.23]	[0.14]	[0.12]
Comparison group (mean)	81.80	74.9	58.61	53.37
Treated group (mean)	58.82	52.56	49.41	41.05
On IS from 24 to 36 months	18.35	18.76	19.74	14.65
Standard deviation	[0.18]	[0.24]	[0.26]	[0.29]
Comparison group (mean)	83.76	77.19	70.33	63.19
Treated group (mean)	65.41	58.42	50.59	48.53
On IS for more than 36 months	27.27	30.62	23.40	22.33
Standard deviation	[0.19]	[0.29]	[0.13]	[0.18]
Comparison group (mean)	89.65	84.30	71.81	66.77
Treated group (mean)	62.38	53.68	48.41	44.44

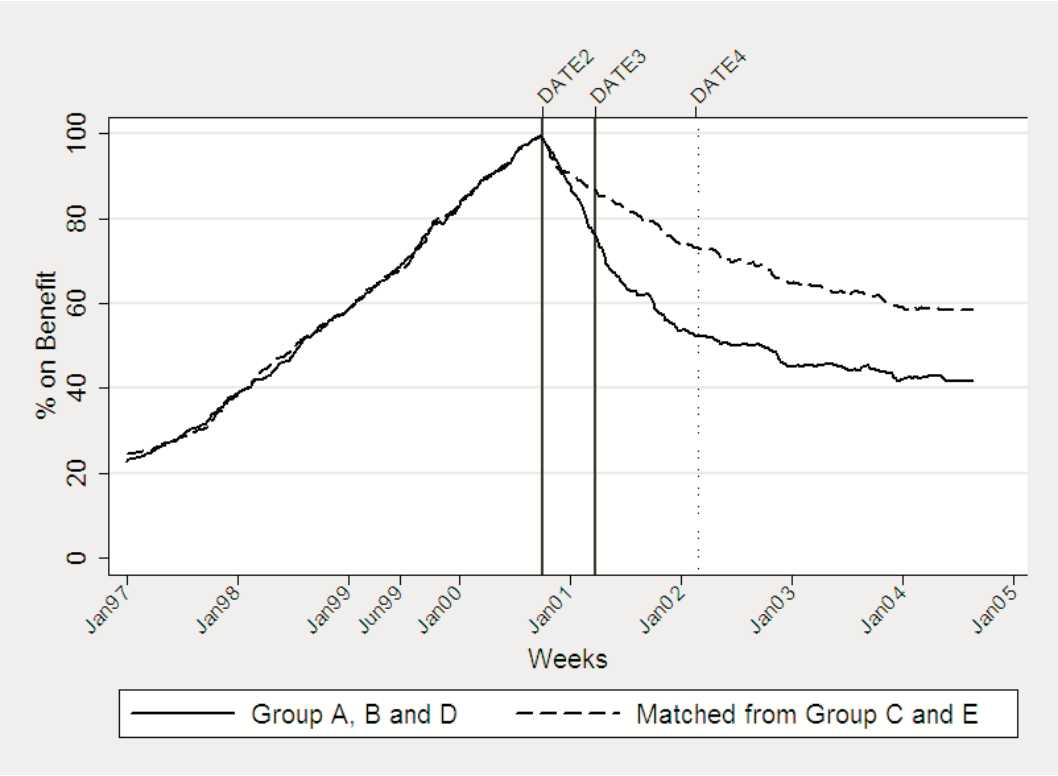
Notes: Sample 1: Number of NDLP participants 4,245; number of non-participants 65,606; total sample size 69,851. 'Participation' defined as having an initial NDLP interview. Hard-matching: Propensity score matching completed within each stratum to create an impact estimate (these estimates are unweighted); then the total impact estimate is the weighted sum over all strata impact estimates, with population weights. The weights are described in Section B.2. Calculating additionality: Divide the difference between the participant and non-participant exits after X months by the participant exit rate, and then divide by 100.

Figure 3.9 Longer-run NDLP impact by age of youngest child: Weekly proportion of participants and non-participants on benefit 1997-2004 – youngest child between zero and two years (Sample I-Specification 3)



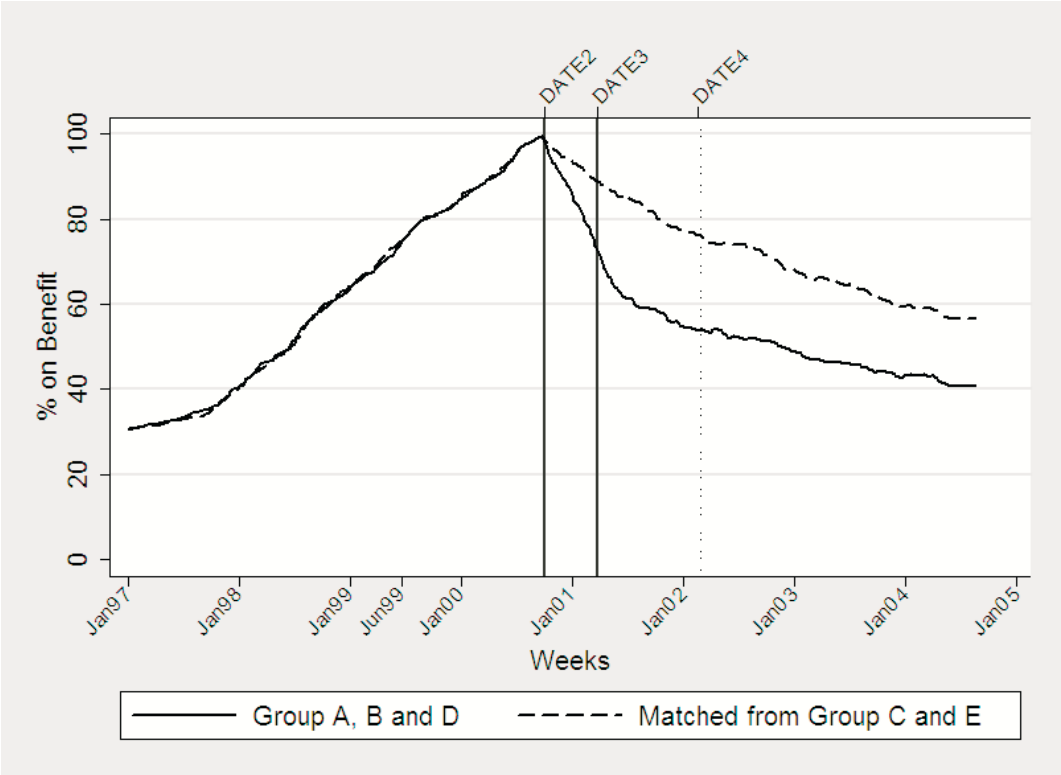
Note: Groups A, B & D = participants, groups C& E = non-participants. See notes figure 3.2.

Figure 3.10 Longer-run NDLP impact by age of youngest child: Weekly proportion of participants and non-participants on Benefit 1997-2004 – youngest child between three and four years (Sample I-Specification 3)



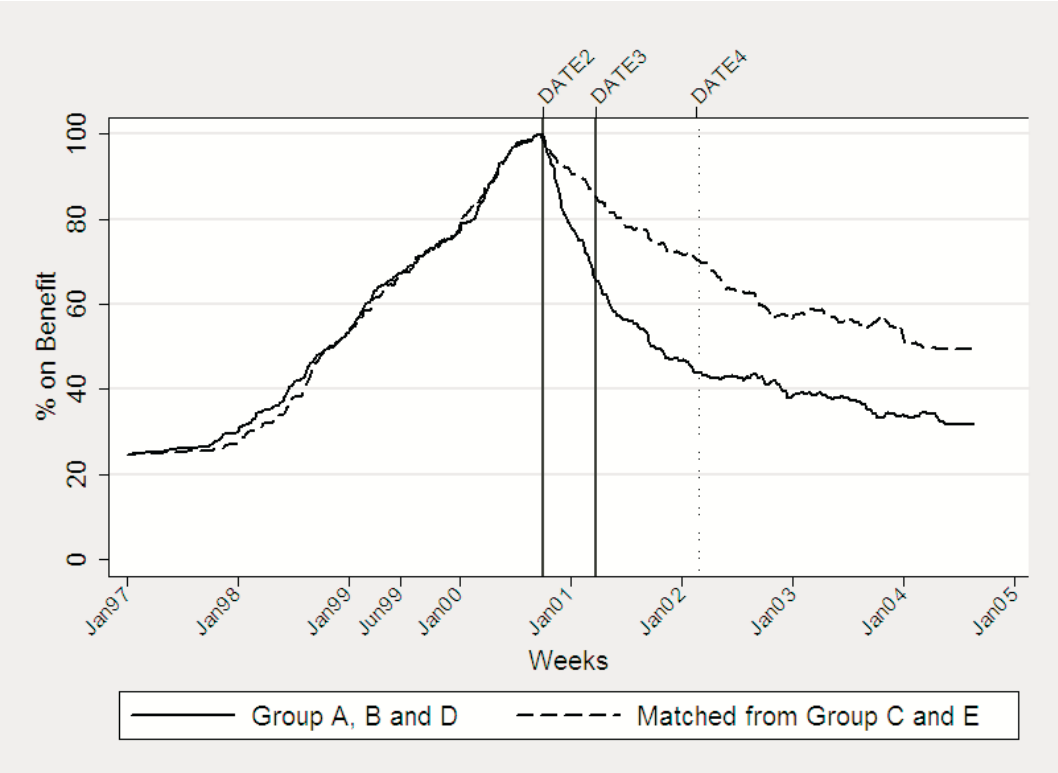
Note: Groups A, B & D = participants, groups C& E = non-participants. See notes figure 3.2.

Figure 3.11 Longer-run NDLP impact by age of youngest child: Weekly proportion of participants and non-participants on Benefit 1997-2004 – youngest child between five and ten years (Sample I-Specification 3)



Note: Groups A, B & D = participants, groups C& E = non-participants. See notes figure 3.2.

Figure 3.12 Longer-run NDLP impact by age of youngest child: Weekly proportion of participants and non-participants on benefit 1997-2004 – youngest child between 11 and 16 years (Sample I-Specification 3)



Note: Groups A, B & D = participants, groups C& E = non-participants. See notes figure 3.2.

Medium term NDLP impacts by age of youngest child and claim length: Employment

The earlier analysis of impacts of NDLP on subsequent benefit exit is now repeated, but for whether an individual is in employment or not. The same specification for the matching procedure was applied, and in a similar fashion, impacts were estimated using 'hard-matching' on the age of youngest child and duration of claim categories. Table 3.5 specifies the average impact for NDLP participants on employment at 48 months, and the adjustment of the heterogeneity correction for each age of youngest child and claim duration category. Table 3.6 shows the similar estimates for three, nine, 24 and 36 months after participation, but with no adjustment figures.

It is clear from the larger size of the 'remaining heterogeneity' figures in Table 3.5 that the matching specification for the employment outcome gives less satisfactory match quality than that which was developed for the off-benefit outcome. This is borne out in Figures 3.13 to 3.22 (left hand side before date 2) in which the pre-NDLP difference between the participants and non-participants are rather large and continue over much of the period prior to NDLP – and therefore are indicative of a

poorer quality of matching. Figure 3.14 for those who have been on IS for between three and six months seems to show the poorest match quality over the period prior to NDLP. For those who have been on IS longer, the matching procedure does better and is satisfactory for those who have been on IS for more than 36 months (Figure 3.18). It seems the combinations of covariates which would better balance the matching for the employment background are not the same as those relating to benefit claiming. This indicates that the 'remaining heterogeneity' between the NDLP participants and non-participants likely underestimates the size of the employment treatment effect.

As found for benefit exit, in most of the period prior to NDLP (before date 2) for claim durations shown in Figures 3.13 to 3.18 (with the exception of Figure 3.13 and 3.17) the non-participants had a higher probability of being in employment. This indicates that the matching process has matched up the NDLP participants with non-participants (who look most like them) who had a more favourable employment history in the pre-treatment window. NDLP participants were more likely to have a history of employment over the four years prior to participation. Again this could indicate that the heterogeneity between the two groups could possibly underestimate the size of the employment treatment effect.

The NDLP impacts on employment are all much lower than the equivalent impacts on benefit exit – usually approximately half the size of the benefit exit impacts. Notwithstanding the poor match quality, the results indicate that there is around a six to ten per cent effect of NDLP on the employment outcome depending on which group is considered, and an overall eight percentage point impact on employment at 48 months after participation, rising to 11 percentage points if the remaining matching differences are adjusted for (Table 3.5). The overall NDLP impact on employment varies over time, starting at 15 percentage points at three months after participation, then falling to ten percentage points at nine months, four percentage points at 24 months and three percentage points at 36 months (Table 3.6 – note these are unadjusted for remaining heterogeneity).

Table 3.5 NDLP 'employment' effect by age of youngest child and duration of IS claim, at 48 months after participation (hard-matched and using Sample I)

Description	Treatment	Remaining heterogeneity	Difference	Treated (mean)	Comparison (mean)
Total	8.31	-2.73	11.04	54.02	62.33
	(0.32)	(0.08)	(1.92)		
Children aged 0 to less than three	10.19 (0.33)	-1.62 (0.09)	11.81 (2.08)	46.61	56.8
Children aged three to less than five	7.48 (0.28)	-4.60 (0.09)	12.08 (1.54)	54.92	62.4
Children aged five to less than 11	5.29 (0.32)	-1.62 (0.10)	6.91 (1.99)	57.67	62.96

Continued

Table 3.5 Continued

Description	Treatment	Remaining heterogeneity	Difference	Treated (mean)	Comparison (mean)
Children aged 11 to less than 16	9.37 (0.43)	-3.10 (0.25)	12.47 (4.32)	56.86	66.23
On IS for less than three months	6.84 (0.25)	1.04 (0.16)	5.80 (1.52)	59.66	66.5
On IS from three to five months	6.25 (0.17)	-10.54 (0.39)	16.79 (3.14)	55.34	61.59
On IS from six to 11 months	7.33 (0.37)	-8.60 (0.12)	15.94 (2.62)	54.16	61.5
On IS from 12 to 23 months	9.61 (0.32)	-1.76 (0.29)	11.38 (3.25)	52.99	62.61
On IS from 24 to 36 months	8.02 (0.53)	1.75 (0.12)	6.28 (5.13)	53.26	61.29
On IS for more than 36 months	9.33 (0.48)	-0.79 (0.10)	10.13 (4.18)	53.58	62.92

Mean difference (standard deviation in brackets). See notes beneath Table 3.4. Calculating additionality: Divide the difference between the participant and non-participant exits after X months by the participant exit rate, and then divide by 100.

Table 3.6 NDLP 'employment' effect over time by age of youngest child and duration of IS claim up to 36 months (hard-matched and using Sample I)

Description	3 months	9 months	24 months	36 months
Total	**15.22**	**10.2**	**4.25**	**3.45**
Standard deviation	[0.05]	[0.24]	[0.19]	[0.25]
Comparison group (mean)	48.18	53.16	54.53	59.75
Treated group (mean)	63.4	63.37	58.78	63.2
Children aged zero to two	**16.78**	**12.49**	**4.71**	**7.19**
Standard deviation	[0.37]	[0.34]	[0.23]	[0.25]
Comparison group (mean)	42.34	46.33	48.13	50.37
Treated group (mean)	59.12	58.82	52.83	57.57
Children aged three to four	**13.42**	**6.71**	**4.81**	**2.84**
Standard deviation	[0.21]	[0.15]	[0.09]	[0.18]
Comparison group (mean)	48.8	55.43	54.42	60.15
Treated group (mean)	62.22	62.15	59.23	62.99
Children aged five to ten	**12.04**	**6.97**	**1.75**	**2.46**
Standard deviation	[0.18]	[0.35]	[0.20]	[0.11]
Comparison group (mean)	51.17	57.75	57.61	62.25
Treated group (mean)	63.22	64.72	59.36	64.71

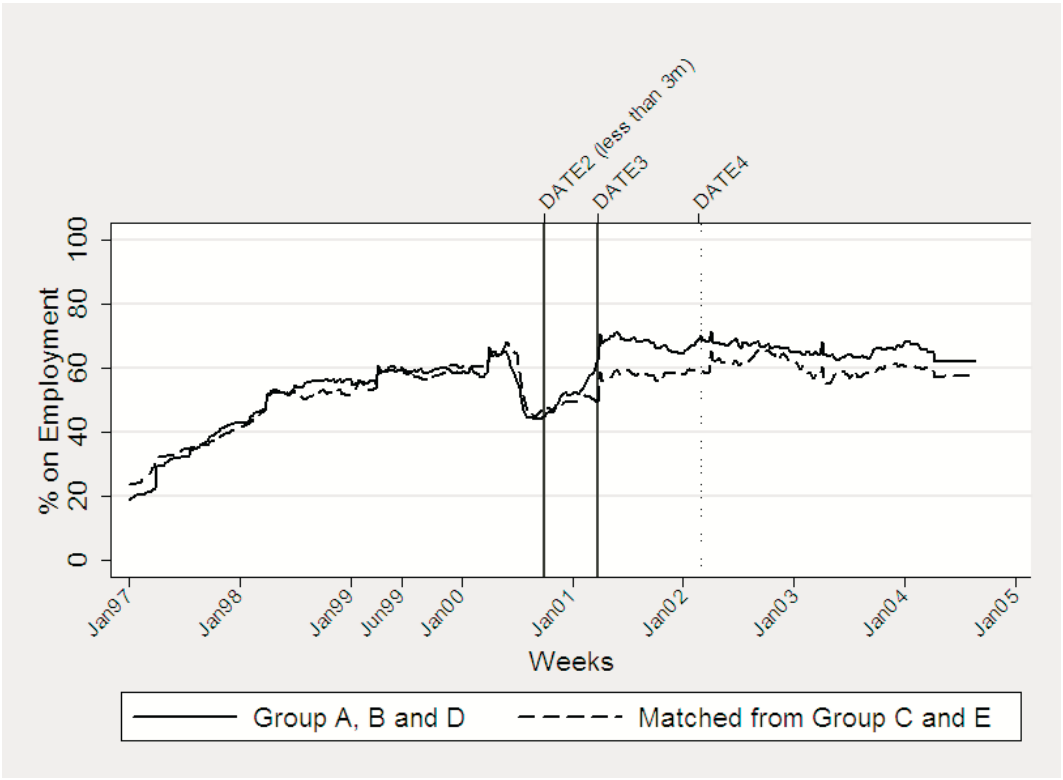
Continued

Table 3.6 Continued

Description	3 months	9 months	24 months	36 months
Children aged 11 to 16	17.26	12.83	5.16	1.55
Standard deviation	[0.48]	[0.53]	[0.38]	[0.61]
Comparison group (mean)	50.4	54.04	57.63	65.23
Treated group (mean)	67.66	66.87	62.79	66.78
On IS for less than three months	9.54	6.25	5.52	7.13
Standard deviation	[0.26]	[0.19]	[0.73]	[0.27]
Comparison group (mean)	59.26	58.53	59.16	60.87
Treated group (mean)	68.81	64.78	64.69	68
On IS from three to five months	7.69	7.43	3.79	1.06
Standard deviation	[0.16]	[0.31]	[0.54]	[0.31]
Comparison group (mean)	55.86	55.4	52.46	60.92
Treated group (mean)	63.55	62.83	56.25	61.98
On IS from six to 11 months	13.11	8.18	0.69	4.45
Standard deviation	[0.25]	[0.31]	[0.19]	[0.35]
Comparison group (mean)	49.08	54.49	57.71	58.33
Treated group (mean)	62.19	62.67	58.4	62.78
On IS from 12 to 23 months	16.24	5.69	12.03	6.30
Standard deviation	[0.22]	[0.26]	[0.65]	[0.31]
Comparison group (mean)	47.1	52.44	51.38	56.99
Treated group (mean)	63.34	58.13	63.41	63.28
On IS from 24 to 36 months	16.23	15.59	0.37	1.86
Standard deviation	[0.81]	[0.61]	[0.39]	[0.61]
Comparison group (mean)	48.11	51.21	54.68	58.01
Treated group (mean)	64.34	66.8	55.05	59.87
On IS more than 36 months	19.48	12.85	3.23	2.10
Standard deviation	[0.45]	[0.30]	[0.29]	[0.13]
Comparison group (mean)	42.73	52.36	54.94	63.52
Treated group (mean)	62.21	65.21	58.17	65.62

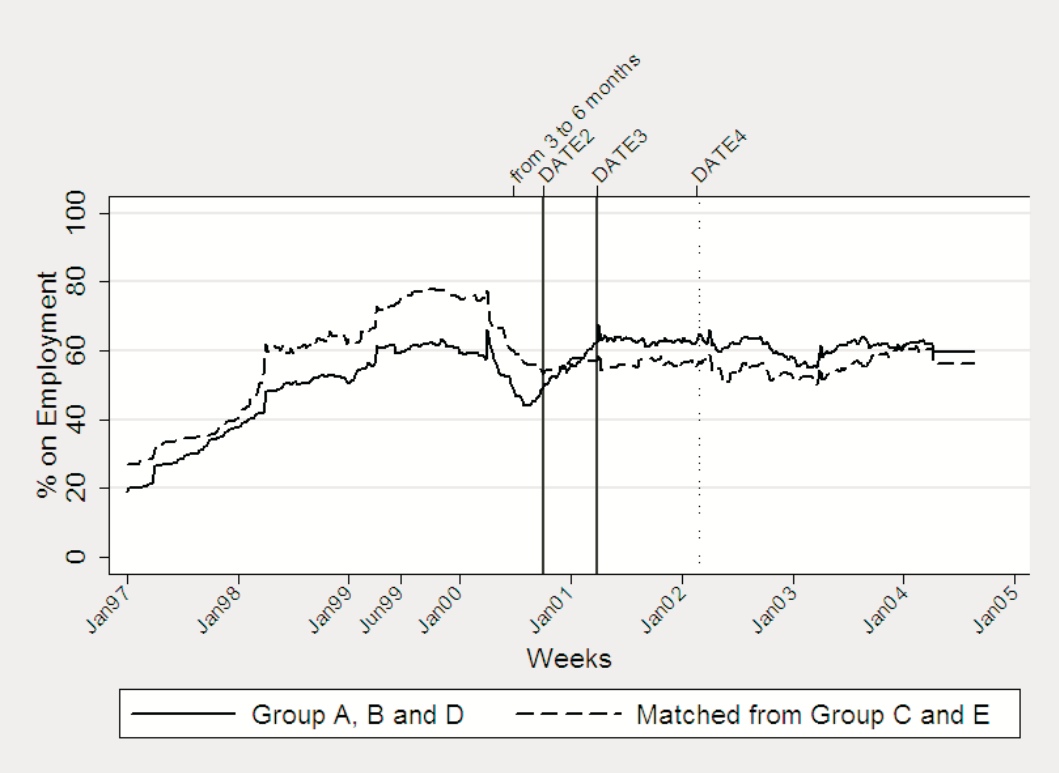
Mean difference (standard deviation in brackets). See notes beneath Table 3.4. Calculating additionality: Divide the difference between the participant and non-participant exits after X months by the participant exit rate, and then divide by 100.

Figure 3.13 Weekly proportion of participants and non-participants in employment 1997-2004 – on IS for less than three months (Sample I-Specification 3)



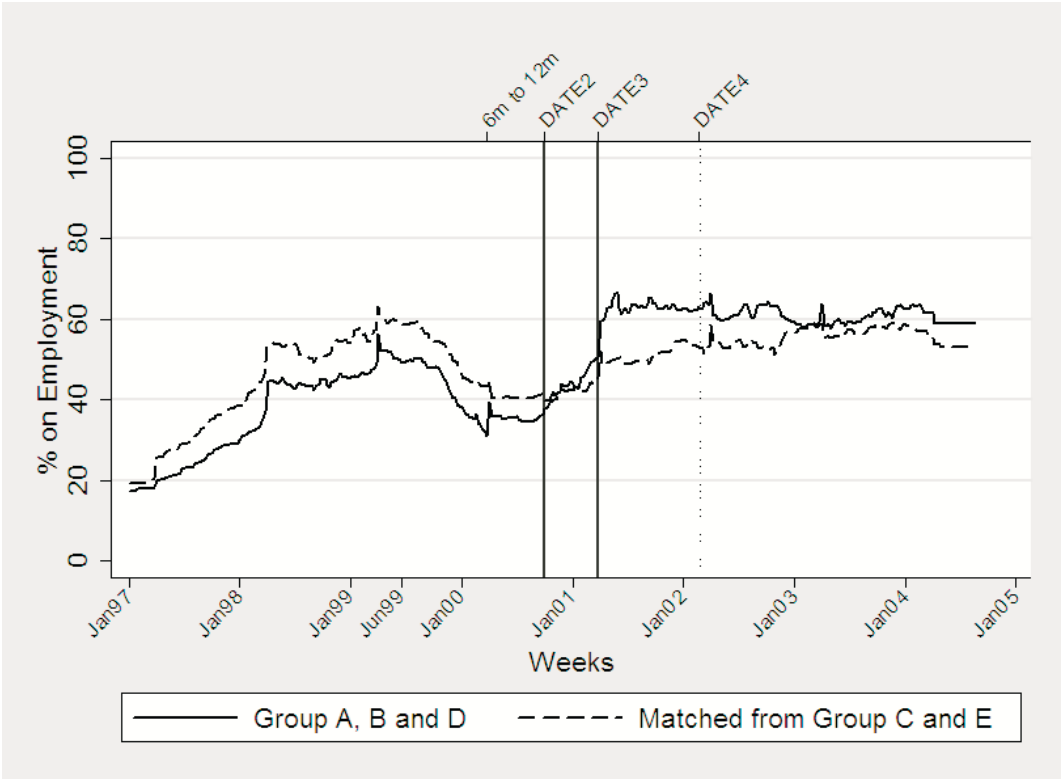
Note: Groups A, B & D = participants, groups C& E = non-participants. See notes figure 3.2.

Figure 3.14 Weekly proportion of participants and non-participants in employment 1997-2004 – on IS from three to five months (Sample I-Specification 3)



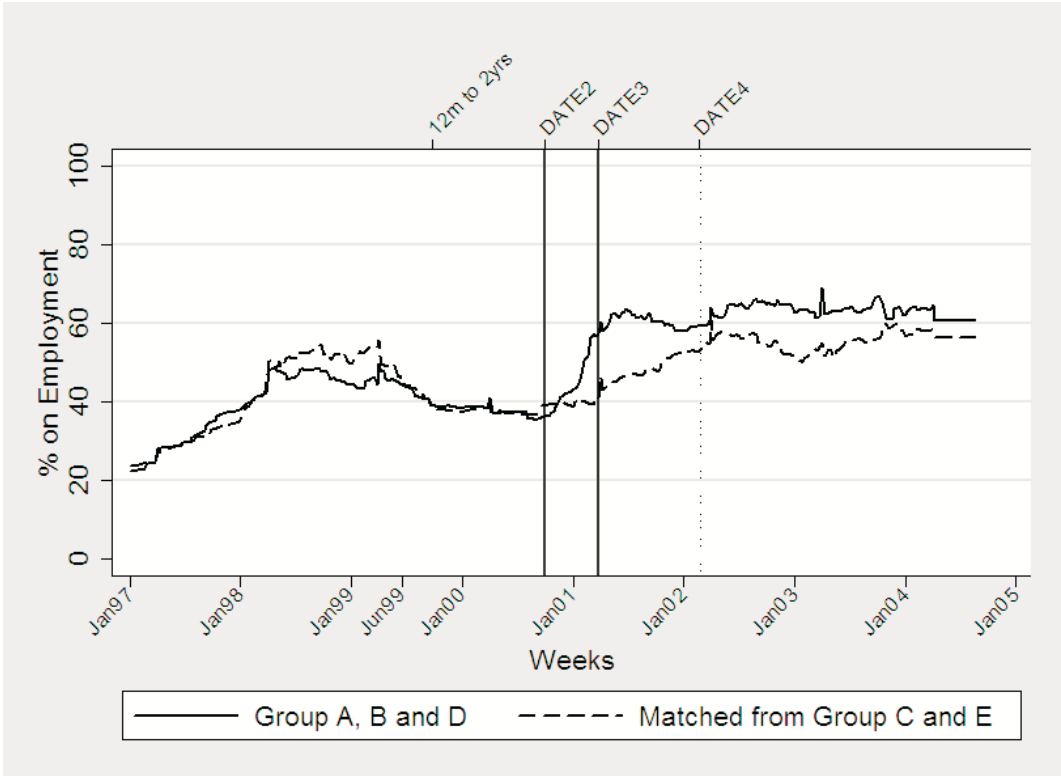
Note: Groups A, B & D = participants, groups C& E = non-participants. See notes figure 3.2.

Figure 3.15 Weekly proportion of participants and non-participants in employment 1997-2004 – on IS from six to 11 months (Sample I-Specification 3)



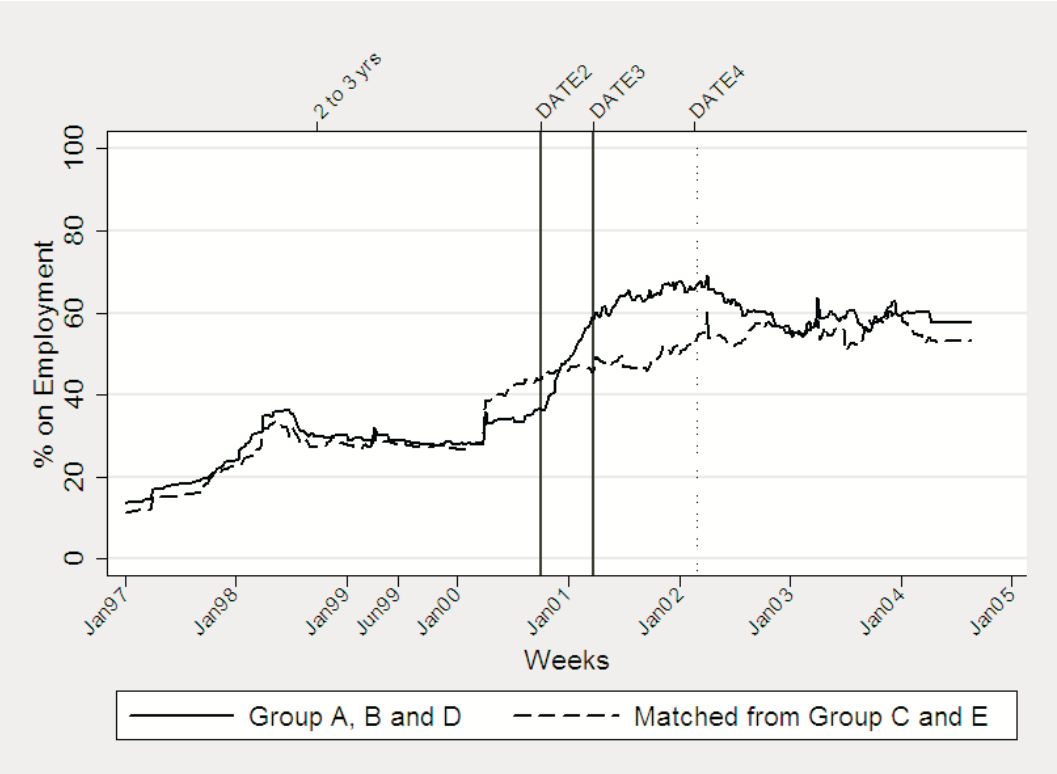
Note: Groups A, B & D = participants, groups C& E = non-participants. See notes figure 3.2.

Figure 3.16 Weekly proportion of participants and non-participants in employment 1997-2004 – on IS from 12 to 23 months (Sample I-Specification 3)



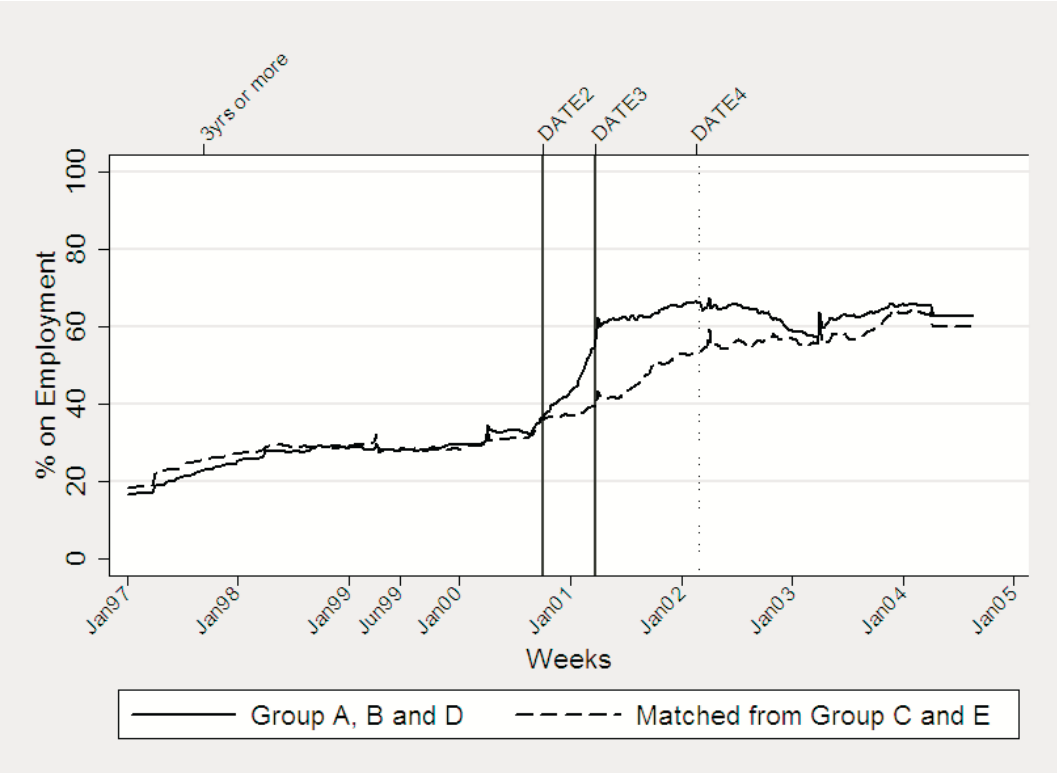
Note: Groups A, B & D = participants, groups C& E = non-participants. See notes figure 3.2.

Figure 3.17 Weekly proportion of participants and non-participants in employment 1997-2004 – on IS from 24 to 35 months (Sample I-Specification 3)



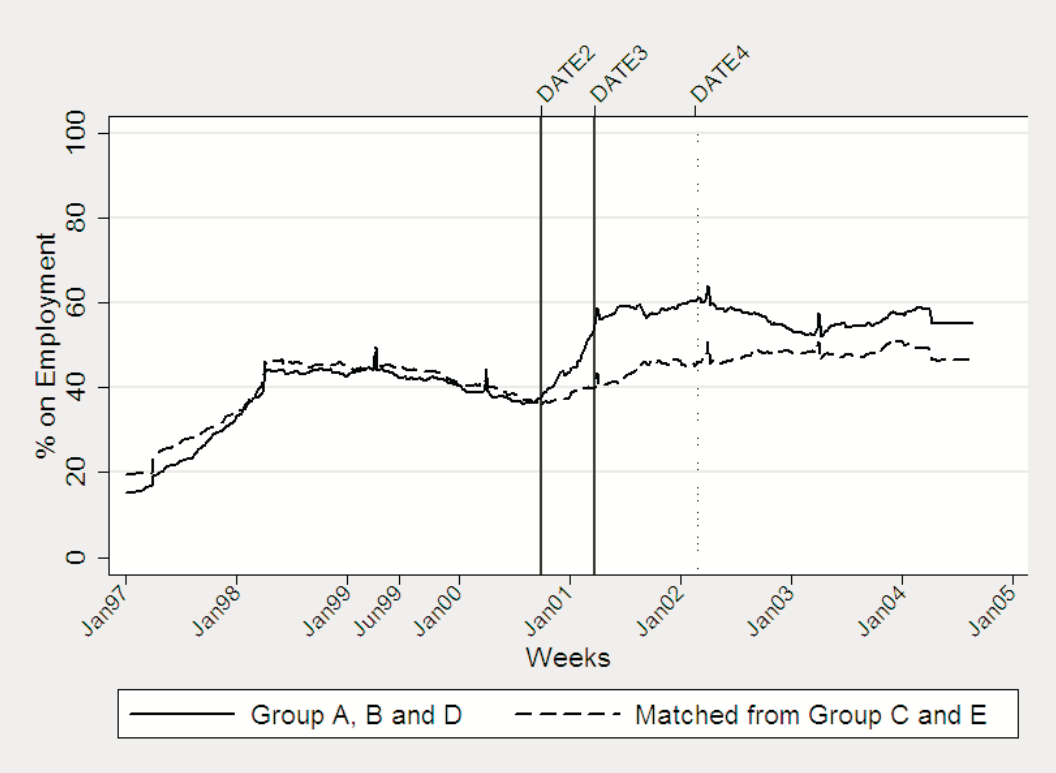
Note: Groups A, B & D = participants, groups C& E = non-participants. See notes figure 3.2.

Figure 3.18 Weekly proportion of participants and non-participants in employment 1997-2004 – on IS for 36 months or more (Sample I, Specification 3)



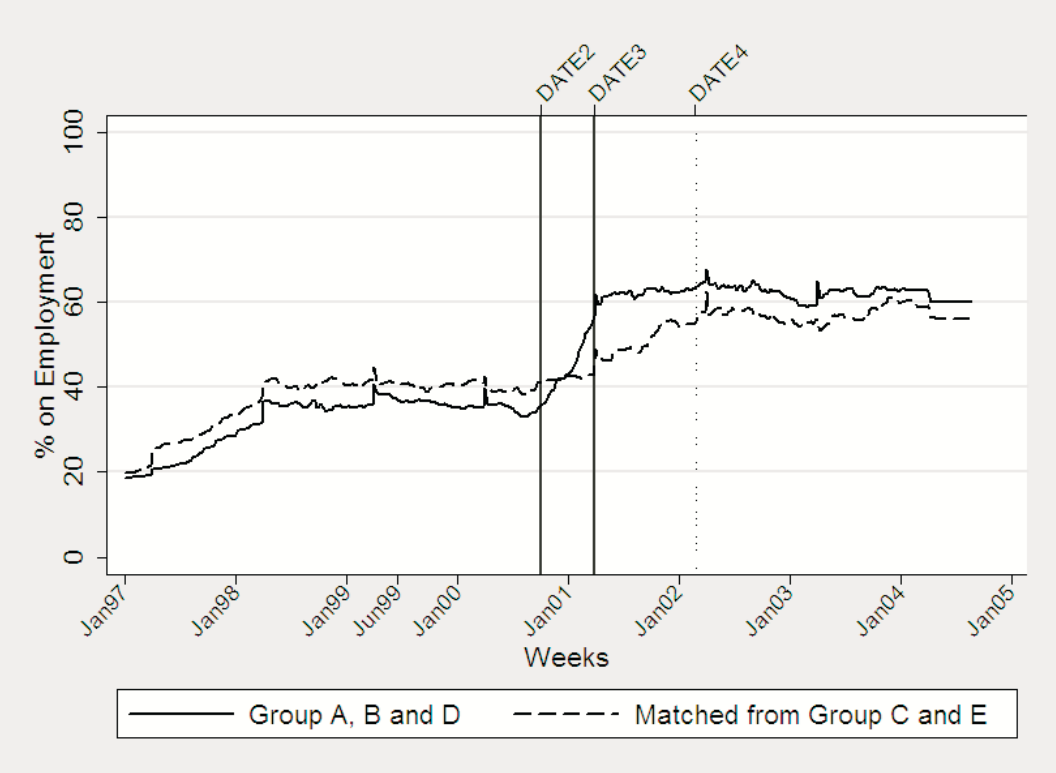
Note: Groups A, B & D = participants, groups C& E = non-participants. See notes figure 3.2.

Figure 3.19 Weekly proportion of participants and non-participants in employment 1997-2004 – youngest child between zero and two years (Sample I-Specification 3)



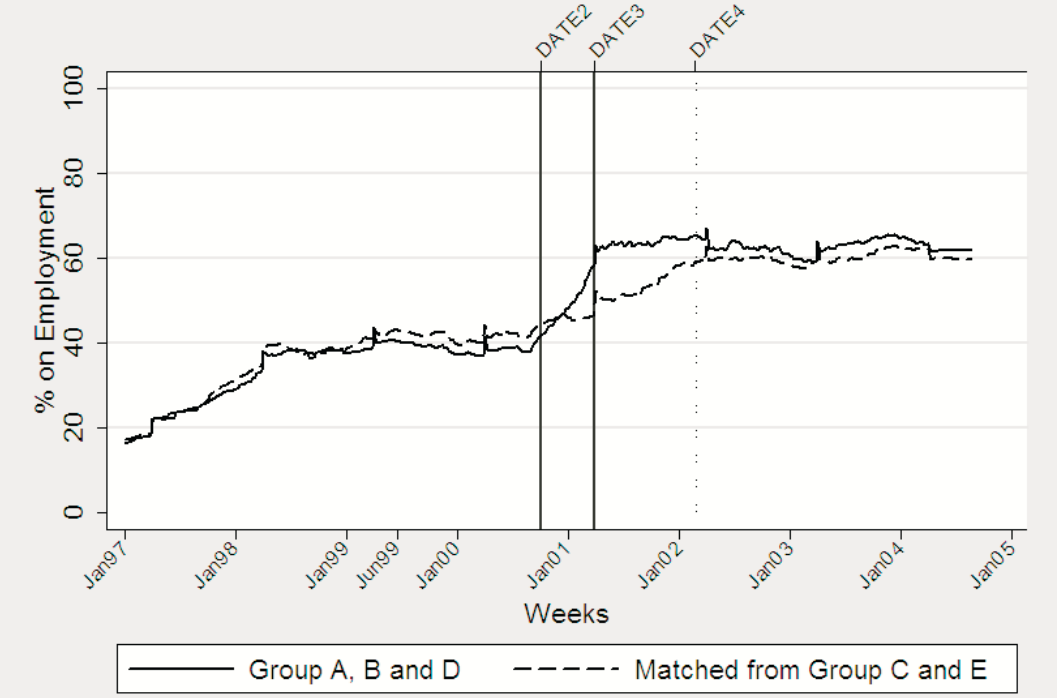
Note: Groups A, B & D = participants, groups C& E = non-participants. See notes figure 3.2.

Figure 3.20 Weekly proportion of participants and non-participants in employment 1997-2004 – youngest child between three and four years (Sample I-Specification 3)



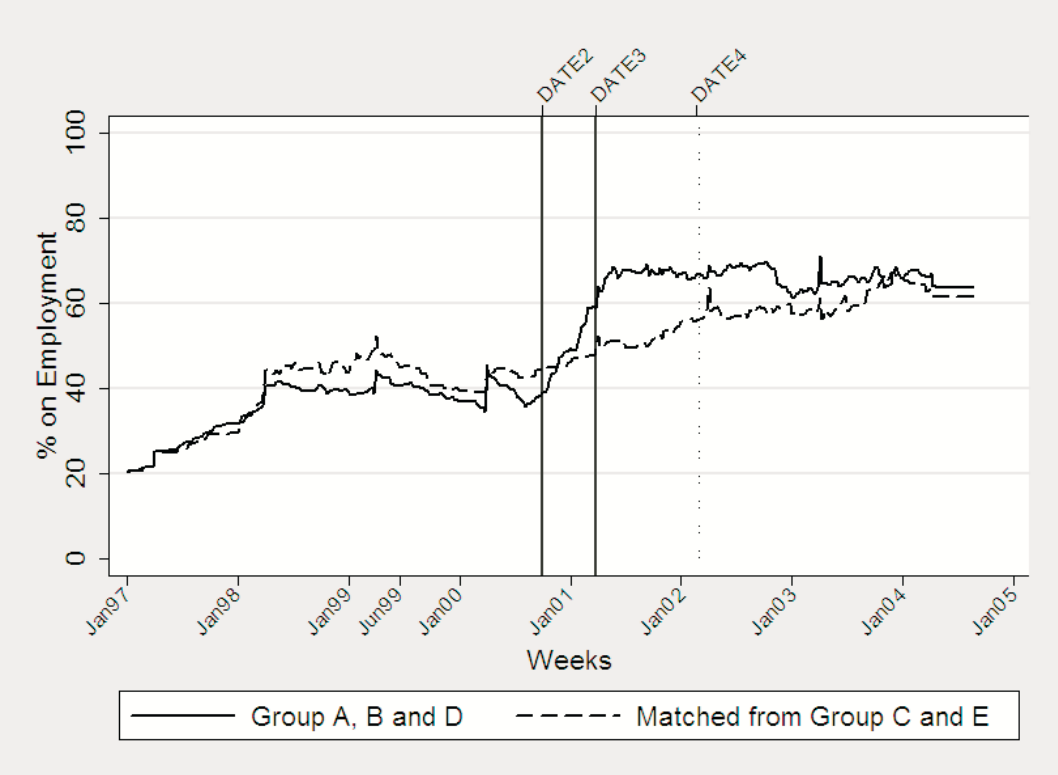
Note: Groups A, B & D = participants, groups C& E = non-participants. See notes figure 3.2.

Figure 3.21 Weekly proportion of participants and non-participants in employment 1997-2004 – youngest child between five and ten years (Sample I-Specification 3)



Note: Groups A, B & D = participants, groups C& E = non-participants. See notes figure 3.2.

Figure 3.22 Weekly proportion of participants and non-participants in employment 1997-2004 – youngest child between 11 and 15 years (Sample I – Specification 3)



Note: Groups A, B & D = participants, groups C& E = non-participants. See notes figure 3.2.

3.3 Patterns of exits and re-entries to IS and other benefits and work, experienced by NDLP participants over time

In this section the main aim is to gain an insight of the pattern of exits and re-entries into IS and other benefits experienced by NDLP participants over time, addressing each of the following questions:

1 To what extent do NDLP participants and non-participants cycle in and out of benefits over time, and in and out of NDLP?

2 To what extent do participants and non-participants cycle in and out of work?

3 What are the destinations of lone parents who leave the programme or IS?

4 For those lone parents that participate in NDLP more than once, in terms of work outcome, do they do better the first time round or on second and subsequent periods of participation?

5 What proportion of re-entries onto NDLP are a one-off and never-repeated, what proportion are longer-term re-entries to the programme, and what proportion have frequent periods in work and on benefit?

6 What happened to the lone parents who participated in NDLP but did not move into work or who 'lost contact' with the NDLP Personal Adviser?

7 What are the initial patterns of exiting NDLP and entering into work?

8 What are the participants in NDLP who do not leave NDLP to go into work doing?

Each of these questions is addressed separately in the order shown above. However, the answers to several of the questions overlap and where this occurs, reference is made to the previous analysis.

3.3.1 Cycling in and out of benefits over time, and in and out of NDLP

The question of how lone parents cycle in and out of NDLP and benefits over time is best addressed by looking at the more frequent patterns of sequences of labour market spells in our data.

For people who have been NDLP participants during the 'participation window' (see Section B.2 for the definition), Table 3.7 presents, in order, reading down the chart, the 15 most common sequences of spells, and Figure 3.23 graphs from left to right the average length of these spells – for each spell, for the people who have that sequence. Table 3.8 and Figure 3.24 perform the same analysis for the NDLP non-participants defined in the 'participation window'. Figures 3.23 and 3.24 show the sequence of states with most people in them at the top of the figure and the least common sequences at the bottom. Also the length of each bar is directly proportional to the time spent in each state (for the sample who have that sequence of states) – hence the longest bars represent the longest durations in the states. In addition each separate state in the sequence has a separate element to the bar in a different colour making the visual interpretation straightforward.

The 15 highest frequency sequences account for 77.67 per cent of the labour market histories of the non-participants but only 62.39 per cent of the histories of the NDLP participants. This means that a higher proportion of participants have more complex labour market histories involving longer sequences of states with fewer people in them than those of the non-participants.

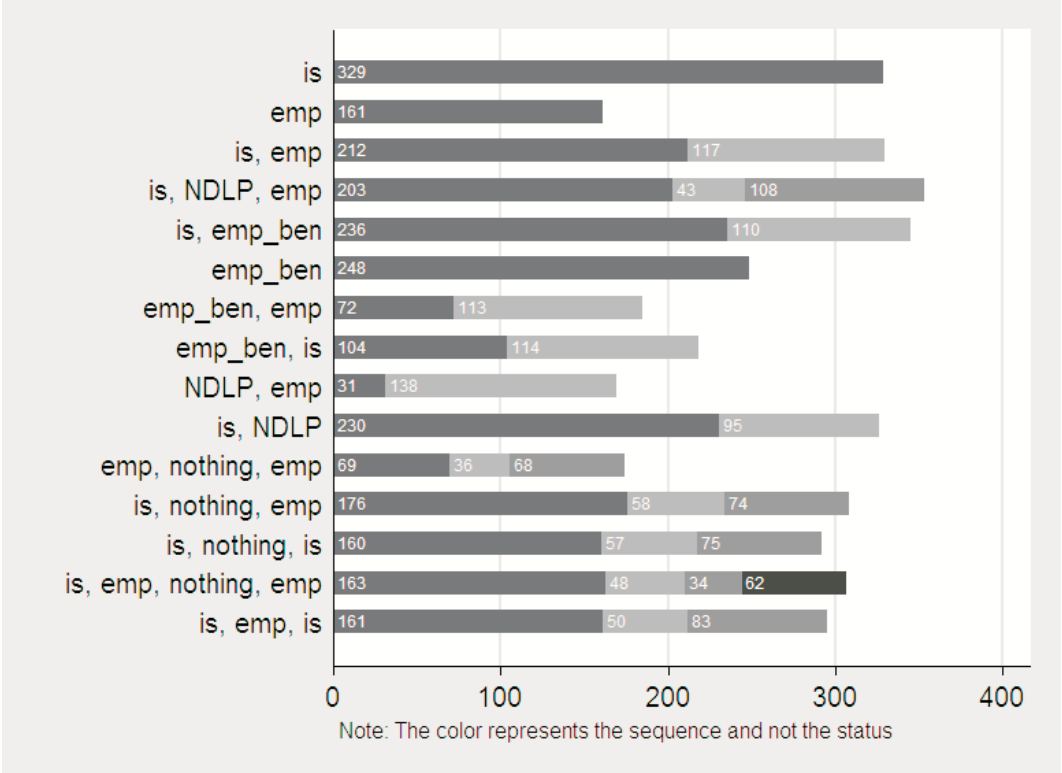
For NDLP participants the first, most common sequence it is to have a continuous spell claiming IS, with nearly 17 per cent (698 people) falling into this category. Figure 3.23 then shows that among this group the average duration claiming IS is 329 weeks. The third most common sequence of spells among the NDLP participants is a spell of IS followed by a spell of employment. Table 3.7 shows that 8.35 per cent of the NDLP participants have this sequence and Figure 3.23 then shows that among this group the average spell length is 212 days on IS followed by 117 days in employment.

Table 3.7 Spell sequences for NDLP participants from the 'participation window' April 2001 to August 2004

Sequence	Freq.	Per cent	Cum.
IS	698	16.66	16.66
EMP	368	8.78	25.44
IS, EMP	350	8.35	33.79
IS, NDLP, EMP	247	5.89	39.69
IS, EMP_BEN	165	3.94	43.63
EMP_BEN	152	3.63	47.26
EMP_BEN, EMP	103	2.46	49.71
EMP_BEN, IS	102	2.43	52.15
NDLP, EMP	97	2.32	54.46
IS, NDLP	87	2.08	56.54
EMP, NOTHING, EMP	58	1.38	57.92
IS, NOTHING, EMP	57	1.36	59.28
IS, NOTHING, IS	49	1.17	60.45
IS, EMP, NOTHING, EMP	41	0.98	61.43
IS, EMP, IS	40	0.95	62.39
Total	4,190	100	

Nothing: Used in the administrative data for those spells in which the individual was neither on benefit nor present in the employment data.

Figure 3.23 Average spell duration for sequences (NDLP participants from 'participation window'), April 2001 to August 2004



Note: Duration in days. The colours are to be interpreted as the spell number. Example from left to right: dark shade on left = 1st spell, next grey shade = 2nd spell etc. Nothing: used in the admin. data for those spells in which the individual was neither on benefit nor present in the employment data.

The similar analysis for the NDLP non-participants is presented in Table 3.8 and Figure 3.24. The NDLP participant group can be broadly compared with the non-participant group using Tables 3.7 and 3.8 against Figures 3.23 and 3.24. It is apparent that a high proportion of non-participants simply remain claiming IS for the whole period. This sequence occupies only 16.66 per cent of participants but 41.54 per cent of non-participants.

Looking at Tables 3.7 and 3.8 and comparing Figures 3.23 and 3.24, the complexity of the labour market spell sequences of the NDLP participants and non-participants can be examined. This comparison shows that fewer sequences involve a spell in employment for the non-participants (only four out of the most popular 15) than for the NDLP participants (eight out of the most popular 15) and that a sequence which involves an employment spell occurs with a higher frequency among NDLP participants. For example the sequence which involves IS then employment occurs for 8.35 per cent of NDLP participants but only 6.35 per cent of non-participants. The duration of the spell in employment is also typically longer than the equivalent spell for non-participants across most sequences, – for example looking at the

sequence of IS then employment, for the participants this involves an average employment spell of 117 days but among non-participants this spell was, on average, only 92 days long. Overall, relative to their non-participant counterparts, the NDLP participants:

- have more spells in employment;
- have longer spells in employment;
- make less frequent changes in labour market state;
- cycle between benefit and employment states less frequently.

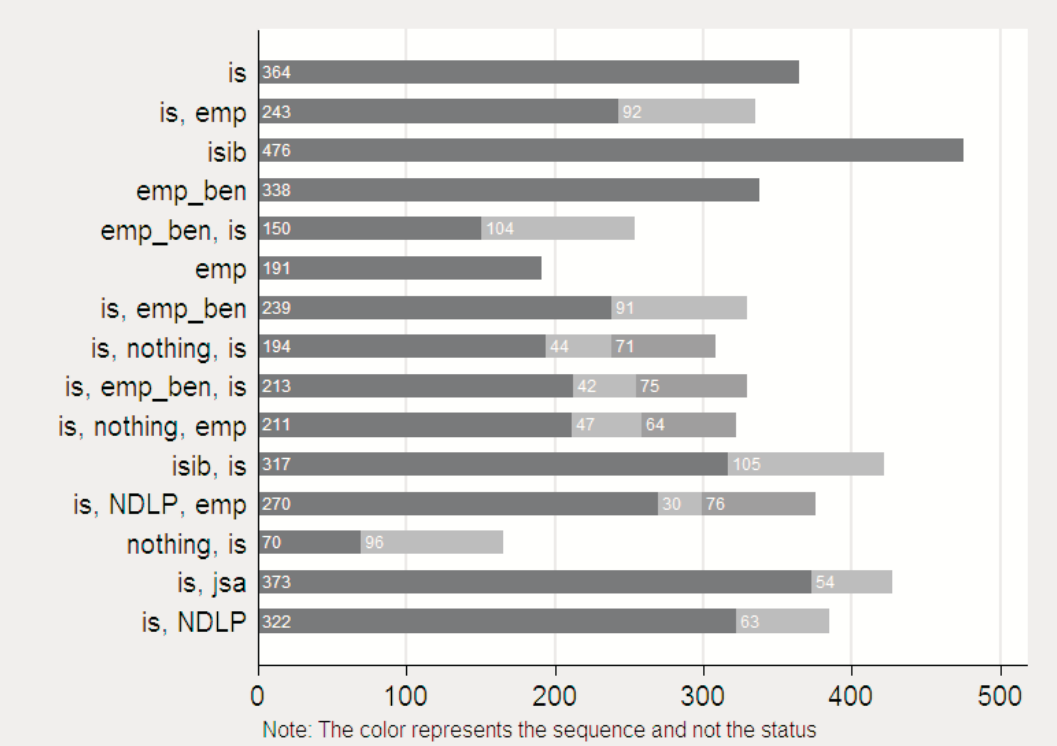
These tables and figures indicate that among the group of lone parents overall there is considerable cycling in and out of unemployment and different benefits but that the NDLP participants are subsequently likely to be in work for a greater proportion of the time on average. These facts are borne out in Figures 3.25, 3.26, 3.27 and 3.28, which graph the proportion of people in each state.

Table 3.8 Spell sequences for non participants at the participation window, April 2001 to August 2004

Sequence	Freq.	Per cent	Cum.
IS	26,338	41.54	41.54
IS, EMP	4,024	6.35	47.88
IS & IB	3,458	5.45	53.33
EMP_BEN	2,642	4.17	57.5
EMP_BEN, IS	2,540	4.01	61.51
EMP	2,101	3.31	64.82
IS, EMP_BEN	1,777	2.8	67.62
IS, NOTHING, IS	1,458	2.3	69.92
IS, EMP_BEN, IS	808	1.27	71.2
IS, NOTHING, EMP	797	1.26	72.45
IS & IB, IS	795	1.25	73.71
IS, NDLP, EMP	733	1.16	74.86
NOTHING, IS	690	1.09	75.95
IS, JSA	552	0.87	76.82
IS, NDLP	539	0.85	77.67
Total	63,411	100	

Nothing: Used in the administrative data for those spells in which the individual was neither on benefit nor present in the employment data.

Figure 3.24 Average spell duration by sequence of benefit (non participants at the participation window), April 2001 to August 2004

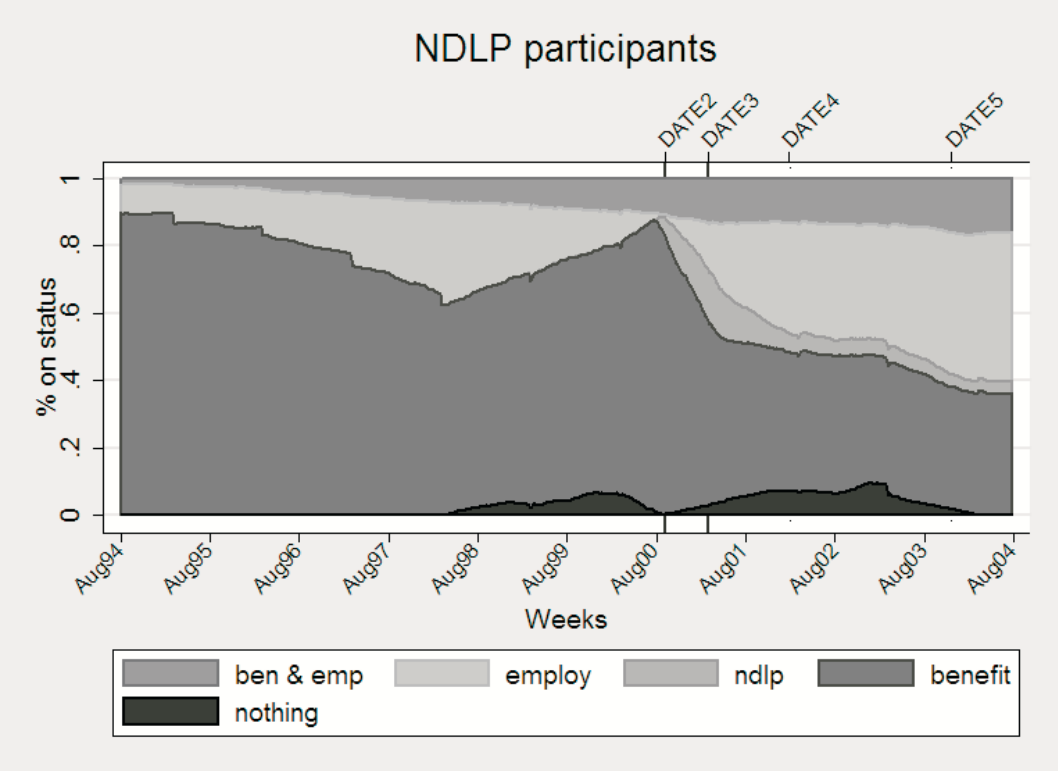


Note: Duration in days. The colours are to be interpreted as the spell number. Example from left to right: dark shade on left = 1st spell, next grey shade = 2nd spell etc. Nothing: used in the admin. data for those spells in which the individual was neither on benefit nor present in the employment data.

3.3.2 Cycling in and out of work

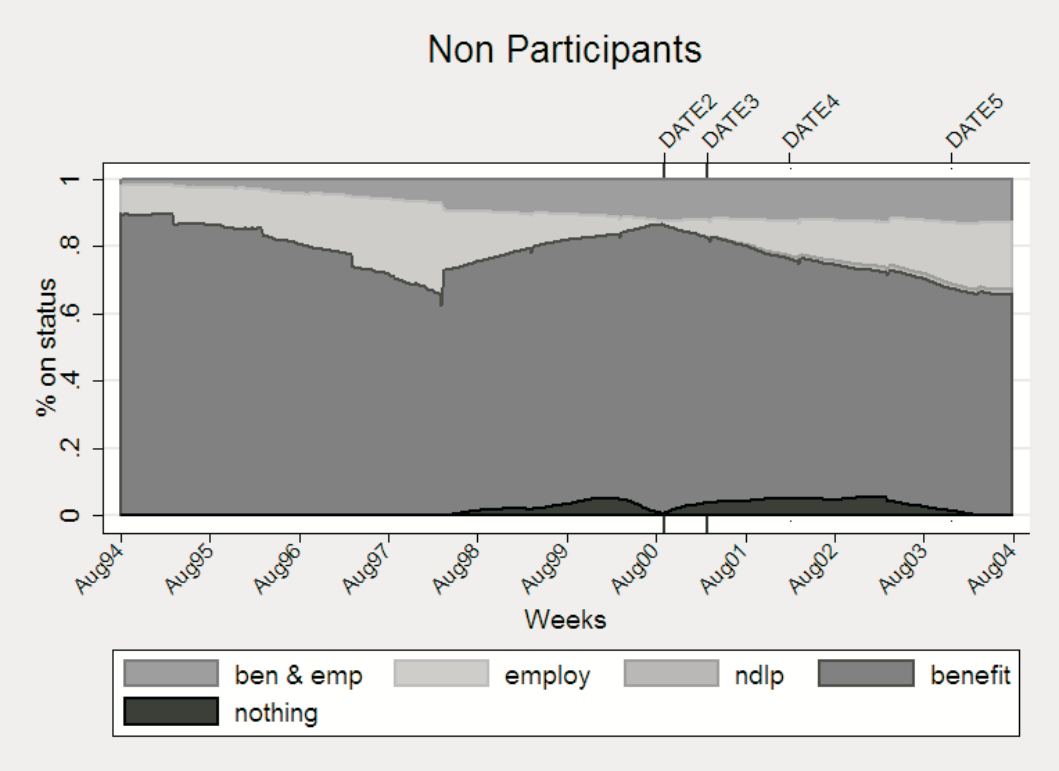
Further evidence on the cycling in and out of different benefit states and in and out of NDLP and other states which do not involve full-time work can be explored by using Figures 3.25 and 3.26. These graph the proportion of people in each state, at each point in time over the August 1994 to August 2004 period for the NDLP participants and the non-participants respectively. In order to simplify the figures, all the different benefits were pooled together under the same category, namely 'Benefit'. A higher proportion of participants are in work after NDLP (in Figure 3.25) than are in Figure 3.26 which relates to non-participants. This is true of the pre-NDLP period before August 2000 and the follow-up period after April 2001, with the fraction in employment increasing faster for NDLP participants up to the August 2005 period than for the non-participants.

Figure 3.25 Proportion of participants on each status at any given week



Note: DATE 1 is the first week of June 1999. DATE 2 October 2000 and DATE 3 April 2001 DATE 4 is the first week of February of 2002.
See Figure 3.2 notes.

Figure 3.26 Proportion of non-participants on each status at any given week



Note: DATE 1 is the first week of June 1999. DATE 2 October 2000 and DATE 3 April 2001 DATE 4 is the first week of February of 2002.
See Figure 3.2 notes.

3.3.3 Destinations of lone parents who leave NDLP or IS

An important question in the evaluation of NDLP is the destination of beneficiaries once they leave NDLP or IS. The transition matrices of the frequencies of what labour market states follow each other in frequency or proportionate terms in the sample reveal this. Six tables of transition matrices are shown in Tables 3.9 to 3.14 in order to understand the patterns of the transitions between states in our data. However, before examining these tables it is appropriate to make clear exactly what constitutes a change of state in the data.

Figure 3.27 illustrates how the transition matrices used in this report were generated. Each vertical line on the figure represents a transition between two statuses. In the case of client 33258, eight transitions were observed, the first one being from Employed to Employed with Benefit, and the last being from JSA recipient to Employed with Benefit. Tables 3.9 to 3.11 present the transition matrices for the whole period where data is available, including the period prior to August 2000. Tables 3.12 to 3.14 present the same matrices for only the transitions that happened after 1 April 2001 and represent the full follow-up period (which is the end of the NDLP participation window). These latter tables are most useful, as

they examine the period after NDLP participation, and reflect the same period used for the impact analyses.

There are two important features of these matrices. First of all, the total number of observed transitions equals the total of number spells minus the total number of individuals in our database. Hence, earlier in Table 3.1 177,058 or 125,854 were observed, and in Tables 3.9 and 3.12, 107,401 and 58,238 were observed. The main diagonal of these transition matrixes should be zero, given that all the consecutive spells of the same benefit were pooled together by the cleaning procedures introduced in Section B.1.

Figure 3.27 Illustration of how the spell transition data was generated

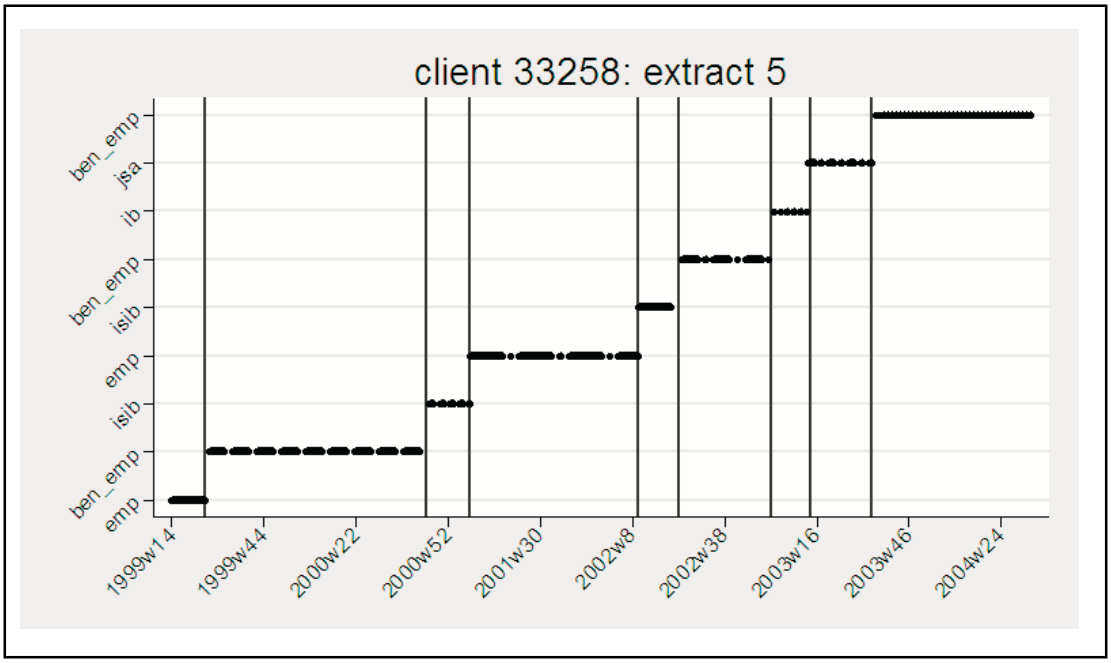


Table 3.9 presents the cell frequencies by consecutive states for the whole period, then Table 3.10 examines the same information expressed in terms of relative joint frequencies. Table 3.11 presents the same information but expresses the relative frequencies as row frequencies. Similar information is shown in Tables 3.12 to 3.14 for the follow-up period after 1 April 2001. This second set of transition matrices is important because it eliminates the transitions that occurred before the NDLP treatment. Most of the findings are similar – whether or not the shorter time horizon is considered – hence the discussion focuses on the whole period provided in Tables 3.9 to 3.11.

There are now two groups of NDLP spells defined. The first are those spells that occurred during the participation windows, here referred as NDLP NCSR; the second set are the NDLP spells which occurred after the participation window, labelled NDLP. This distinction is relevant, because not all NDLP spells occurred during the participation window used for the Phillips *et al.*, (2003) and Lessof *et al.*, (2003)

analyses. There was repeated NDLP participation for some among the initial NDLP participants, and a few cases of non-participants that then joined NDLP after 1 April 2001. The NDLP spells that occurred after 1 April, termed 'NDLP', pool together cases of each of these types. Given the fact that during cleaning of the data, several very short spells were dropped and several others were pooled together, the number of NDLP NCSR spells is actually smaller than the number of NDLP participants identified during the participation window.

There is a high degree of cycling in and out of different benefit states and the state of 'nothing' – where there is no observed status in the data. There is a high degree of mobility between the states of IS, IS with IB, IB, JSA, and employment with benefit. Nevertheless there is also a high degree of transfer between the states of employment into nothing, employment or employment and benefit (30 per cent, 26 per cent and 38 per cent respectively). Importantly, there is a high degree of mobility from NDLP into employment (63.35 per cent) and employment and benefits (13.65 per cent) as the next state (Table 3.11). In the follow-up period, this does not change much, and is 63.4 and 13.62 per cent respectively (Table 3.14). These results are true for both types of NDLP spells (NDLP_NCSR and NDLP), which suggest that these effects were quite stable over time. This suggests the possibility that this lone parent group that undertakes an NDLP spell experiences less benefit dependency and has more longer-run career stability.

Table 3.9 Transition matrix (frequencies – full period)

	After									
	Nothing	**IS**	**IS/IB**	**IB**	**NDLP**	**JSA**	**Employ-ment**	**Empl and Ben**	**NDLP NCSR**	**Total**
Before										
Nothing	0	9,427	746	66	150	934	4,882	1,274	45	17,524
IS	10,203	0	194	80	2,248	2,334	10,578	11,334	1,153	38,124
IS/IB	200	2,981	0	1,482	90	447	308	1,686	46	7,240
IB	86	199	308	0	7	89	223	301	0	1,213
NDLP	182	159	39	15	0	33	1,179	254	0	1,861
JSA	697	1,488	838	50	12	0	727	816	0	4,628
Employment	5,613	4,811	685	90	39	153	0	7,132	9	18,532
Empl and ben	373	10,852	1,258	241	327	291	3,622	0	132	17,096
NDLP NCSR	170	96	12	7	0	12	754	132	0	1,183
Total	17,524	30,013	4,080	2,031	2,873	4,293	22,273	22,929	1,385	107,401

Table 3.10 Transition matrix (sum of cells 100 – full period)

	After									
	Nothing	IS	IS/IB	IB	NDLP	JSA	Employ-ment	Empl and Ben	NDLP NCSR	Total
Before										
Nothing	0.00	8.78	0.69	0.06	0.14	0.87	4.55	1.19	0.04	16.32
IS	9.50	0.00	0.18	0.07	2.09	2.17	9.85	10.55	1.07	35.50
IS/IB	0.19	2.78	0.00	1.38	0.08	0.42	0.29	1.57	0.04	6.74
IB	0.08	0.19	0.29	0.00	0.01	0.08	0.21	0.28	0.00	1.13
NDLP	0.17	0.15	0.04	0.01	0.00	0.03	1.10	0.24	0.00	1.73
JSA	0.65	1.39	0.78	0.05	0.01	0.00	0.68	0.76	0.00	4.31
Employment	5.23	4.48	0.64	0.08	0.04	0.14	0.00	6.64	0.01	17.25
Empl and ben	0.35	10.10	1.17	0.22	0.30	0.27	3.37	0.00	0.12	15.92
NDLP NCSR	0.16	0.09	0.01	0.01	0.00	0.01	0.70	0.12	0.00	1.10
Total	16.32	27.94	3.80	1.89	2.68	4.00	20.74	21.35	1.29	100.00

Table 3.11 Transition matrix (row sums 100 – full period)

	After									
	Nothing	IS	IS/IB	IB	NDLP	JSA	Employ-ment	Empl and Ben	NDLP NCSR	Total
Before										
Nothing	0.00	53.79	4.26	0.38	0.86	5.33	27.86	7.27	0.26	100.00
IS	26.76	0.00	0.51	0.21	5.90	6.12	27.75	29.73	3.02	100.00
IS/IB	2.76	41.17	0.00	20.47	1.24	6.17	4.25	23.29	0.64	100.00
IB	7.09	16.41	25.39	0.00	0.58	7.34	18.38	24.81	0.00	100.00
NDLP	9.78	8.54	2.10	0.81	0.00	1.77	63.35	13.65	0.00	100.00
JSA	15.06	32.15	18.11	1.08	0.26	0.00	15.71	17.63	0.00	100.00
Employment	30.29	25.96	3.70	0.49	0.21	0.83	0.00	38.48	0.05	100.00
Empl and ben	2.18	63.48	7.36	1.41	1.91	1.70	21.19	0.00	0.77	100.00
NDLP NCSR	14.37	8.11	1.01	0.59	0.00	1.01	63.74	11.16	0.00	100.00
Total	16.32	27.94	3.80	1.89	2.68	4.00	20.74	21.35	1.29	100.00

Table 3.12 Transition matrix (frequencies – after 1 April 2001)

	After									
	Nothing	IS	IS/IB	IB	NDLP	JSA	Employ-ment	Empl and Ben	NDLP NCSR	Total
Before										
Nothing	0	4,502	342	58	149	728	3,826	823	39	10,467
IS	4,517	0	153	78	2,242	1,558	7,134	5,603	705	21,990
IS/IB	96	1,155	0	948	90	315	212	890	23	3,729
IB	67	133	217	0	7	66	169	115	0	774
NDLP	182	158	39	15	0	33	1,178	253	0	1,858
JSA	420	278	448	30	12	0	599	318	0	2,105
Employment	2,271	1,526	199	55	39	48	0	1,446	9	5,593
Empl and ben	233	6,441	818	180	326	204	2,461	0	106	10,769
NDLP NCSR	133	91	12	6	0	8	595	107	1	953
Total	7,919	14,284	2,228	1,370	2,865	2,960	16,174	9,555	883	58,238

Table 3.13 Transition matrix (sum of cells 100 – after 1 April 2001)

	After									
	Nothing	IS	IS/IB	IB	NDLP	JSA	Employ-ment	Empl and Ben	NDLP NCSR	Total
Before										
Nothing	0.00	7.73	0.59	0.10	0.26	1.25	6.57	1.41	0.07	17.97
IS	7.76	0.00	0.26	0.13	3.85	2.68	12.25	9.62	1.21	37.76
IS/IB	0.16	1.98	0.00	1.63	0.15	0.54	0.36	1.53	0.04	6.40
IB	0.12	0.23	0.37	0.00	0.01	0.11	0.29	0.20	0.00	1.33
NDLP	0.31	0.27	0.07	0.03	0.00	0.06	2.02	0.43	0.00	3.19
JSA	0.72	0.48	0.77	0.05	0.02	0.00	1.03	0.55	0.00	3.61
Employment	3.90	2.62	0.34	0.09	0.07	0.08	0.00	2.48	0.02	9.60
Empl and ben	0.40	11.06	1.40	0.31	0.56	0.35	4.23	0.00	0.18	18.49
NDLP NCSR	0.23	0.16	0.02	0.01	0.00	0.01	1.02	0.18	0.00	1.64
Total	13.60	24.53	3.83	2.35	4.92	5.08	27.77	16.41	1.52	100.00

Table 3.14 Transition matrix (row sums 100 – after 1 April 2001)

	After									
	Nothing	IS	IS/IB	IB	NDLP	JSA	Employ-ment	Empl and Ben	NDLP NCSR	Total
Before										
Nothing	0.00	43.01	3.27	0.55	1.42	6.96	36.55	7.86	0.37	100.00
IS	20.54	0.00	0.70	0.35	10.20	7.09	32.44	25.48	3.21	100.00
IS/IB	2.57	30.97	0.00	25.42	2.41	8.45	5.69	23.87	0.62	100.00
IB	8.66	17.18	28.04	0.00	0.90	8.53	21.83	14.86	0.00	100.00
NDLP	9.80	8.50	2.10	0.81	0.00	1.78	63.40	13.62	0.00	100.00
JSA	19.95	13.21	21.28	1.43	0.57	0.00	28.46	15.11	0.00	100.00
Employment	40.60	27.28	3.56	0.98	0.70	0.86	0.00	25.85	0.16	100.00
empl and ben	2.16	59.81	7.60	1.67	3.03	1.89	22.85	0.00	0.98	100.00
NDLP NCSR	13.96	9.55	1.26	0.63	0.00	0.84	62.43	11.23	0.10	100.00
Total	13.60	24.53	3.83	2.35	4.92	5.08	27.77	16.41	1.52	100.00

3.3.4 Multiple NDLP participation sequences and work outcomes

This section further considers lone parents who have multiple spells of participation in NDLP. The existence of substantial repeat participation takes us outside the standard evaluation framework usually considered in, for example, Heckman and Robb (1985) and Heckman, LaLonde and Smith (1999), in which a programme is offered once at a single point in time.

Repeat participation raises issues in terms of both the definition of the parameter of interest and in terms of the econometric estimation of treatment effects. For example, there may be additional parameters of interest, such as the impact of the second spell of NDLP participation (to be compared to the impact of the first spell), or the impact of participating twice compared to participating once (which is not quite the same thing because the impact of the first spell can include the possibility of participating again). In the case where the impact of the first spell is of interest, it has to be interpreted to include additional spells of participation as part of the potential outcome associated with the initial treatment.

It is hard to write down an economic model in which individuals choose to participate more than once. In the typical human capital investment model, a standard result is that you want to 'go to school when you are young' in order to have the maximum amount of time over which to amortize your investment, and then to work steadily and avoid school for the remainder of the life cycle. A simple model of NDLP would yield the same conclusion – that you should participate right at the start of the IS spell (or perhaps shortly afterwards when other search options have been exhausted) and then not participate again. To get multiple spells of participation, it is necessary both that the second spell has a potential positive treatment effect (which it may not if participants have 'seen it all' after their initial spell of participation) and you need changes in the opportunity costs of participation

over time. This can occur, for example, if individuals get and then lose a job (a job raises the opportunity cost of NDLP participation) or where, for example, family troubles such as ill health in a child raise the opportunity cost and so lead to temporary withdrawal from NDLP.

The econometric literature has not yet developed confirmed valid methods for handling the case of repeat participation within the treatment effects framework. Moreover, a full analysis along these lines requires time-varying data on family status and health. Although a full analysis of repeat participation is beyond the scope of this report, in Section 3.3.4 evidence on the extent of repeat participation in the NDLP evaluation data is presented and in Section 3.3.4 the implications of repeat participation are discussed for the impact analyses presented earlier in Section 3.2.

Evidence on multiple spells of NDLP participation

Table 3.15 shows the number of spells of NDLP participation after the closing of the participation window for both participants and non-participants. The left side of this table presents the values for Sample I (all eligible lone parents – which has been used in analyses so far) and the right side for Sample III (the Phillips *et al.*, (2003) matched sample – of interest if considering their impacts). In each case, the column for non-participants indicates the number of spells of NDLP participation after the close of the participation window. Of the non-participants in Sample 1, 15.43 per cent who participate after the participation window closes have more than one spell of participation. For the participants in Sample I, any additional spell after the participation window indicates multiple spells of NDLP participation. In Sample I, of 1,465 participants, 331 repeat NDLP participation in the period between April 2001 to August 2004, with the corresponding number of 143 in Sample III.

Table 3.15 Repeat NDLP participation after 1 April 2001 to August 2004, by participation status

	Sample I			Sample III		
Number of NDLP spells	Non-participants	Participants	Total	Non-participants	Participants	Total
1	8,697 84.57	1,120 77.19	9,817 83.66	437 86.19	515 78.27	952 81.72
2	1,379 13.41	271 18.68	1,650 14.06	60 11.83	116 17.63	176 15.11
3	177 1.72	54 3.72	231 1.97	8 1.58	24 3.65	32 2.75
4	24 0.23	5 0.34	29 0.25	2 0.39	3 0.46	5 0.43
5	7 0.07	1 **0.07**	8 **0.07**			
Total	**10,284** **100**	**1,451** **100**	**11,735** **100**	**507** **100**	**658** **100**	**1,165** **100**

Percentages in parentheses.

Table 3.16 presents spell counts for the same samples, but with the count starting at the initial introduction of the NDLP programme on 23 October, 1998. This table reveals that among participants during the participation window, 29.07 per cent (in Sample I) have multiple spells of NDLP participation. This is a substantial amount of repeat participation among participants, well in excess of the rates found for the United States' Job Training Partnership Act (JTPA) programme in Baj and Trott (1993). Comparing Tables 3.15 and 3.16 indicates that a handful of 'NDLP NCSR participants' also had spells that both began and ended **prior to the start** of the participation window for the evaluation (but this was not the case for non-participants). Thus, not all of the multiple spells occurred after the close of the participation window. As the selection procedure for the sample required cases to have no experience of NDLP in the prior data period, this may reflect data error.

Table 3.16 NDLP repeat participation after 23 October 1998 to August 2004 by participation status

	Sample I			Sample III		
Number of NDLP spells	**Non-participants**	**Participants**	**Total**	**Non-participants**	**Participants**	**Total**
1	8,704 84.55	2,843 70.93	11,547 80.73	439 86.25	1,228 72.84	1,667 75.95
2	1,381 13.41	906 22.6	2,287 15.99	60 11.79	365 21.65	425 19.36
3	179 1.74	214 5.34	393 2.75	8 1.57	76 4.51	84 3.83
4	24 0.23	43 1.07	67 0.47	2 0.39	17 1.01	19 0.87
5	7 0.07	1 0.02	8 0.06			
6	0 **0**	1 **0.02**	1 **0.01**			
Total	10,295 100	4,008 100	14,303 100	509 100	1,686 100	2,195 100

Percentages in parenthesis.

Implications of multiple spells of NDLP participation

Similar to multiple spells of NDLP participation among individuals who participate during the window, parallel issues arise from multiple spells among non-participants who participate in NDLP after the window closes. The presence of multiple NDLP spells changes the nature of the participation state (it then includes not just participation during the participation window defined for the study, but also the possibility of repeat participation in later periods).

Thus, even putting aside the issues that the treatment does not start at the same time for all participants, the estimates no longer correspond to the impact of the programme being available in a single period on those who participate during that

period. Now the treatment being evaluated consists of participation during the window relative to non-participation during the window, where both of these states potentially include participation, and repeat participation, in future periods. Although potentially informative, this comparison does not correspond directly to what is normally included in a social cost-benefit analysis considering whether or not to keep the programme as it is or eliminate it.

In thinking about attempting to separately estimate the impact of the second (or third or whatever) spell of NDLP participation, it is not clear a priori whether one would expect repeat spells to have a larger or smaller impact on the labour market outcomes of participants than initial spells. One argument would be that in a second spell, the participant will be better matched to particular services within the NLDP, or at least will benefit in some other way from having already experienced the programme once. On the other hand, suppose that individual impacts have a fixed component, which is common to every spell of participation, and a random component, which varies across spells. Individuals with good fixed components will rarely participate twice, because the large impact they receive the first time leads to benefit exit. In contrast, individuals with a low fixed component may have to participate multiple times before they get a good enough draw on the random component to get them off benefit. Similarly, if individuals who repeat in the NDLP have exceptionally low opportunity costs, perhaps due to very low skills, then later spells of repeat participation may have lower impacts, on average, than initial NDLP participation spells.

The transition of individuals with multiple spells

Another question of importance is what happens to individuals who have more than one spell on NDLP. Table 3.15 tabulates the frequency of observed spells conditional on present labour market state. The table shows that multiple spells on NDLP are the most common repeated spell. Table 3.15 suggests that the NDLP NCSR participants (NDLP during the period August 2000 and April 2001) were slightly less likely to have multiple NDLP spells than those individuals that joined NDLP after the participation window, 17.25 per cent and 17.32 per cent respectively. This will be partly related to the additional observation period they get.

Table 3.17 Proportion of individuals by benefit/program/status and spell number

Data	1	2	3	4	5	6	Total
NOTHING	90.98	7.62	1.25	0.14	0.01	0	100
IS	88.67	9.23	1.84	0.24	0.03	0	100
ISIB	91.78	7.43	0.73	0.07	0	0	100
IB	89.05	10.34	0.62	0	0	0	100
JSA	86.6	11.71	1.45	0.23	0	0	100
EMPLOYMENT	81.72	14.48	3.19	0.55	0.07	0	100
EMPLOYMENT AND BENEFIT	81.96	15.22	2.46	0.33	0.02	0	100
NDLP	82.68	15.06	1.88	0.38	0	0	100
NDLP NCSR	82.75	15.46	1.65	0.14	0	0	100
Total	86.66	11.01	2.02	0.29	0.03	0	100

Table 3.18 shows that only 942 spells were from NLDP participants who had multiple NDLP spells, including those spells that have started and ended during the participation window. Out of those, less than half (or 422 spells) were from NDLP NCSR participants.

Table 3.18 NDLP participants transition matrix (frequencies)

	JSA	Employment	Empl and	NDLP	NDLP NCSR	Total
NDLP	7	389	61	63	0	520
NDLP NCSR	4	311	27	0	80	422
Total	11	700	88	63	80	942

Table 3.19 shows the transition matrix for NDLP participants with multiple spells. While 73.70 per cent of subsequent spells for 'NDLP NCSR' (participants before April 2001) were to employment, only 6.4 per cent were to employment with benefit. Employment and benefit is more commonly observed for individuals that have joined NDLP after the participation window. In addition, repeat NDLP participation is much higher among NDLP NCSR participants than for those individuals that joined NDLP later, 18.90 per cent and 12.12 per cent respectively – again likely to be due to the lengthened observation period.

Table 3.19 Transition matrix (row sums 100)

	JSA	Employment	Employment and benefit	NDLP	NDLP NCSR	Total
NDLP	1.35	74.81	11.73	12.12	0	100
NDLP NCSR	0.95	73.70	6.40	0	18.96	100
Total	1.17	74.31	9.34	6.69	8.49	100

Table 3.20 shows what happens to NDLP participants conditional on how many repetitions of NDLP they have had. Over 70 per cent of those who had a single spell on NDLP moved to employment. In contrast, only 31 per cent of those who left their second spell on NDLP moved to employment[27]. It is important to bear in mind that this considers only the first transition after each one of these spells, and not the current status of these individuals. For those who leave a second spell of NDLP, nearly 55.55 per cent actually entered a third spell.

Table 3.20 Destination of NDLP participants after each NDLP spell

	JSA	NDLP Employment	Empl and	NDLP	NCSR	Total
NDLP round:1	7.01	74.75	16.74	1.5	0	100
NDLP round:2	1.82	30.91	12.73	54.55	0	100
NDLP NCSR round:1	5.15	80.67	10.74	0	3.44	100
NDLP NCSR round:2	4.17	34.72	8.33	0	52.78	100
Total	6.23	75.15	14.45	1.84	2.33	100

Notes:
NDLP round 1 = First NDLP participation for those individuals that were **not** NDLP participants during the participation window.
NDLP round 2 = Second NDLP participation for those individuals that were **not** NDLP participants during the participation window.
NDLP NCSR round 1 = First NDLP participation **after** the participation window for those individuals that were NDLP participants during the participation window.
NDLP NCSR round 2 = Second NDLP participation **after** the participation window for those individuals that were NDLP participants during the participation window.

Re-entry to NDLP

Table 3.21 shows that **of those individuals that re-entered NDLP** (the column marked bold), 78.25 per cent came from a subsequent IS spell, 11.38 per cent came from an employment and benefit spell and 5.20 per cent were neither on the benefit nor employment records. Table 3.14 earlier in Section 3.3 suggested that most individuals that re-entered NDLP (the row marked NDLP) moved to either the

[27] But care must be taken with interpretation, as the observation period after the second spell of NDLP participation might be shorter than for the first spell.

employment or the employment with benefit status, 63.40 per cent and 13.62 per cent respectively. The subsequent NDLP spell tends to be shorter, an average of 40 weeks.

Table 3.21 NDLP re-entry transition matrix (column sums 100 – after 1 April 2001)

	After									
	Nothing	IS	ISIB	IB	NDLP	JSA	Employ-ment	Empl and	NDLP NCSR	Total
Before										
Nothing	0.00	31.52	15.35	4.23	**5.20**	24.59	23.66	8.61	4.42	17.97
IS	57.04	0.00	6.87	5.69	**78.25**	52.64	44.11	58.64	79.84	37.76
ISIB	1.21	8.09	0.00	69.20	**3.14**	10.64	1.31	9.31	2.60	6.40
IB	0.85	0.93	9.74	0.00	**0.24**	2.23	1.04	1.20	0.00	1.33
NDLP	2.30	1.11	1.75	1.09	**0.00**	1.11	7.28	2.65	0.00	3.19
JSA	5.30	1.95	20.11	2.19	**0.42**	0.00	3.70	3.33	0.00	3.61
Employment	28.68	10.68	8.93	4.01	**1.36**	1.62	0.00	15.13	1.02	9.60
Empl and ben	2.94	45.09	36.71	13.14	**11.38**	6.89	15.22	0.00	12.00	18.49
NDLP NCSR	1.68	0.64	0.54	0.44	**0.00**	0.27	3.68	1.12	0.11	1.64
Total	100.00	100.00	100.00	100.00	**100.00**	100.00	100.00	100.00	100.00	100.00

Table 3.20 shows the sequence of spells of individuals that have re-entered NDLP after the participation window. It is important to notice that only the NDLP spells that have ended after the participation window are considered. The sample size is rather small but the most common feature of repeat spells on NDLP is that the first NDLP spells have been followed by a period of 'nothing' or returning to Income Support which then often give rise to a repeat spell on NDLP. This may reflect data recording techniques.

Table 3.22 Most frequent sequences for individuals with multiple NDLP spells

Sequence 2	Freq.	Per cent	Cum.
IS, NDLP, NOTHING, NDLP, EMP	13	10.57	10.57
IS, NDLP, EMP, IS, NDLP, EMP	4	3.25	13.82
IS, NDLP, EMP_BEN, NDLP	4	3.25	17.07
IS, NDLP, IS, NDLP, EMP	4	3.25	20.33
IS, NDLP, NOTHING, NDLP, EMP_BEN	4	3.25	23.58
IS, EMP_BEN, NDLP, EMP_BEN, NDLP	4	3.25	26.83
IS, NDLP, NOTHING, NDLP	3	2.44	29.27

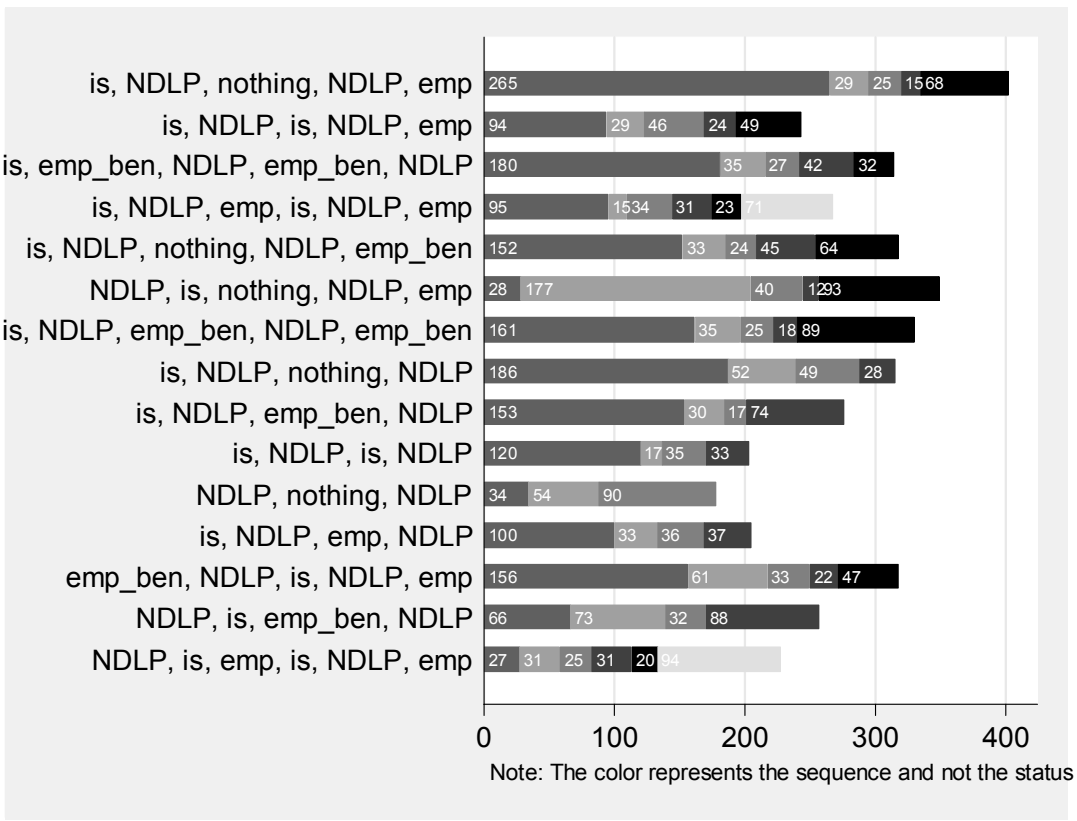
Continued

Table 3.22 Continued

Sequence 2	Freq.	Per cent	Cum.
NDLP, IS, EMP_BEN, NDLP, EMP_BEN	2	1.63	30.89
NDLP, IS, NOTHING, NDLP, EMP_BEN, IS	2	1.63	32.52
NDLP, NOTHING, NDLP	2	1.63	34.15
NDLP, NOTHING, NDLP, EMP	2	1.63	35.77
EMP_BEN, NDLP, IS, NDLP, EMP	2	1.63	37.4
IS, NDLP, EMP, NDLP	2	1.63	39.02
IS, NDLP, EMP, EMP_BEN, NDLP	2	1.63	40.65
Total	123	100	

Figure 3.28 depicts the average sample durations in each state for the most frequently observed sequences. This suggests that where repeated NDLP participation occurs, the average length of time on NDLP is rather short.

Figure 3.28 Spell duration by sequence of benefits for individuals with multiple NDLP spells



Note: Duration in days. The colours are to be interpreted as the spell number. Example from left to right: dark shade on left = 1st spell, next grey shade = 2nd spell etc. Nothing: used in the admin. data for those spells in which the individual was neither on benefit nor present in the employment data.

Lone parents who participated in NDLP but did not move into work

Lone parents who participated in NDLP who 'lost contact' with the NDLP Personal Adviser

The NDLP programme requires that NDLP participants should have regular contacts with their Personal Advisers as that this should improve their chances of getting a job via the process of monitoring and continuity of guidance and help.

One important question for those who have been on an NDLP spell is the extent to which they lose contact with their Personal Adviser after their spell on NDLP. In the data there is a 'Last action date variable' which was used to identify the last contact that the NDLP participants had with their Personal Adviser. Those individuals with three months or more since their last contact were classified as having lost contact with their Personal Adviser. Table 3.23 shows that the majority of those who have been on NDLP have lost contact with their Personal Adviser, as 73.68 per cent of participants were in this position. Note that this was not the case with the NCSR sample, for whom only 43 per cent have lost contact with their Personal Adviser. This may suggest that there is something atypical about the NCSR sample and this may indeed contribute to the large treatment effects which were found in our previous report.

Table 3.23 Number of NDLP participants who 'lost contact' with the NDLP Personal Adviser

	Did not lose contact	Lost contact	Total
NDLP	757	2,119	2,876
	26.32	73.68	100
NDLP NCSR	791	600	1,391
	56.87	43.13	100
Total	1,548	2,719	4,267
	36.28	63.72	100

Note: Percentage in parentheses.

Table 3.24 shows the distribution of destinations following NDLP for the two groups of interest – namely those who have not lost contact with their Personal Adviser and those that have lost contact. There is little difference between the transition patterns of the two groups as for both around 62-66 per cent moved to a state of being simultaneously on benefits and in employment.

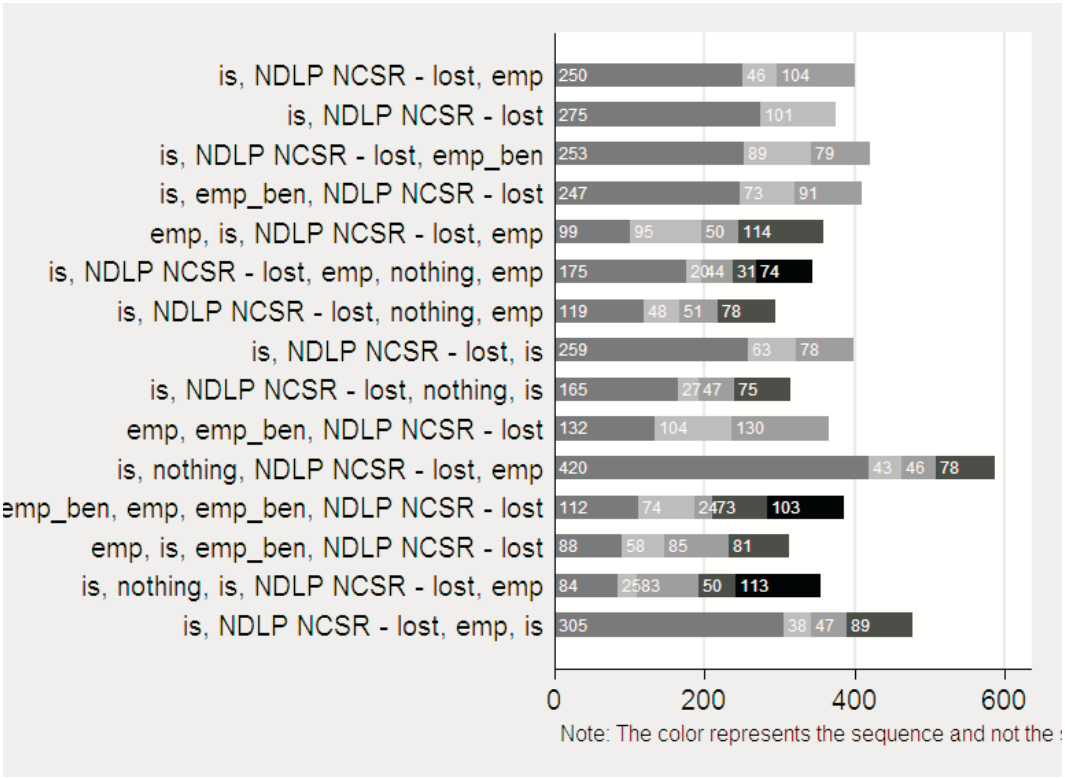
Table 3.24 Destination of NDLP participants who have and have not lost contact with their Personal Adviser

	Nothing	IS	ISIB	IB	JSA	Employ-ment	Empl and	NDLP NCSR	Total
NDLP: Did not lose contact	12.23	8.2	0.86	0.86	0.14	1.73	64.6	11.37	100
NDLP: Lost contact	8.31	8.74	2.83	0.77	0	1.8	62.55	15	100
NDLP NCSR: Did not lose contact	14.99	7.16	1.06	0.53	0	0.93	66.31	8.89	100
NDLP NCSR: Lost contact	13.26	9.77	0.93	0.7	0	1.16	59.07	15.12	100
Total	11.56	8.37	1.67	0.72	0.03	1.48	63.46	12.67	100

Figure 3.29 and Table 3.25 examine the pattern of labour market states for those individuals who have lost contact with their Personal Adviser, using the analytical techniques familiar from previous subsections. Table 3.25 shows that the pattern of these sequences is complex, as only 50 per cent of the sample is characterised by the most frequently observed 15 sequences. Looking in more detail at these top 15 sequences, it seems that most involve more than three states and relatively few of the states last for a long period of time. It is possible that a lone parent NDLP participant **who loses contact with their Personal Adviser** may end up enduring many different labour market states and most of them will not last for long. The most reasonable comparator for this group are those who participate in NDLP and do **not** lose contact with their Personal Adviser.

Table 3.25 and Figure 3.30 repeat the analysis for those individuals that have not lost contact with their Personal Adviser. It seems that these individuals have a much more straightforward labour market history than those who lose contact with their Personal Adviser. Table 3.25 reveals that slightly more than 23 per cent of people who lost contact with their Personal Adviser were **not in employment** whereas Table 3.26 indicates that only around nine per cent of individuals who have **not** lost contact with their Personal Adviser were **not in employment**.

Figure 3.29 Spell duration by sequence of benefits for individuals that lost contact with their Personal Adviser



Note: Duration in days. The colours are to be interpreted as the spell number. Example from left to right: dark shade on left = 1st spell, next grey shade = 2nd spell etc. Nothing: used in the admin. data for those spells in which the individual was neither on benefit nor present in the employment data.

Table 3.25 Most common sequence for those individuals that have lost contact with their Personal Adviser

Sequence	Freq.	Per cent	Cum.
IS, NDLP NCSR – LOST, EMP	108	19.89	19.89
IS, NDLP NCSR – LOST	52	9.58	29.47
IS, NDLP NCSR – LOST, EMP_BEN	16	2.95	32.41
EMP, IS, NDLP NCSR – LOST, EMP	15	2.76	35.17
IS, EMP_BEN, NDLP NCSR – LOST	15	2.76	37.94
IS, NDLP NCSR – LOST, EMP, NOTHING, EMP	12	2.21	40.15
IS, NDLP NCSR – LOST, NOTHING, EMP	10	1.84	41.99
IS, NDLP NCSR – LOST, IS	8	1.47	43.46
IS, NDLP NCSR – LOST, NOTHING, IS	7	1.29	44.75
EMP, EMP_BEN, NDLP NCSR – LOST	6	1.1	45.86
EMP, EMP_BEN, EMP, EMP_BEN, NDLP NCSR -	5	0.92	46.78

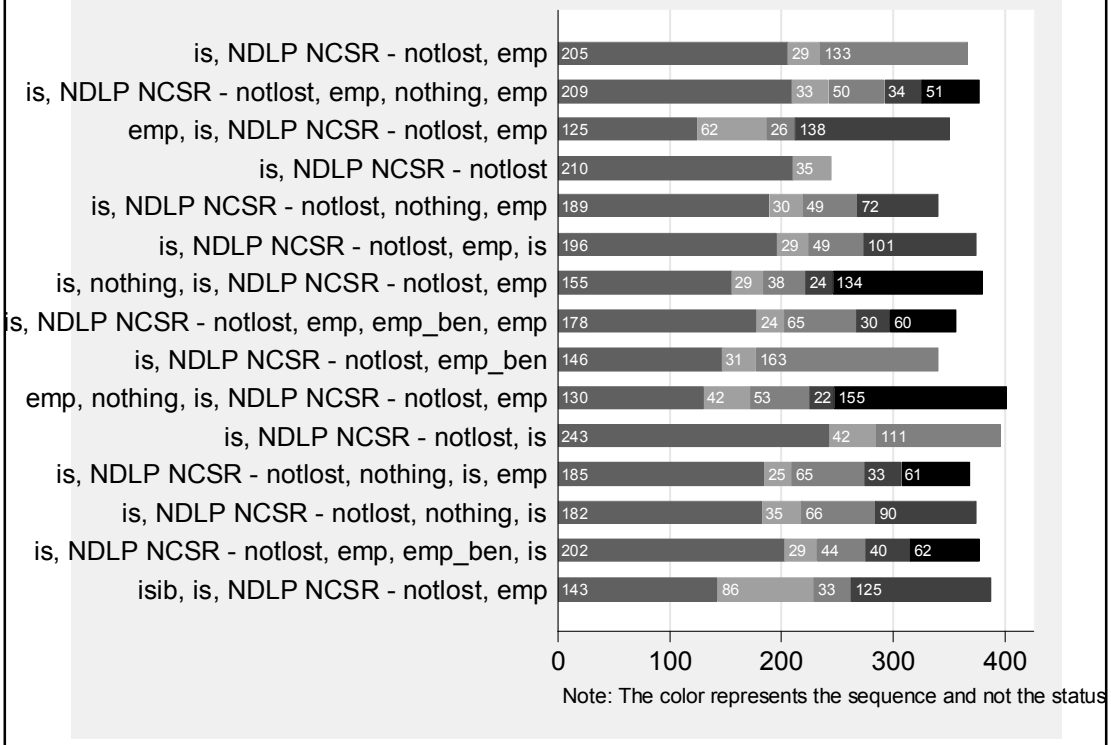
Continued

Table 3.25 Continued

Sequence	Freq.	Per cent	Cum.
EMP, IS, EMP_BEN, NDLP NCSR – LOST	5	0.92	47.7
IS, NOTHING, NDLP NCSR – LOST, EMP	5	0.92	48.62
EMP, IS, NDLP NCSR – LOST	4	0.74	49.36
EMP, NOTHING, IS, NDLP NCSR – LOST, EMP	4	0.74	50.09
Total	543	100	

Lost indicates lost contact with Personal Adviser. Nothing: Used in the administrative data for those spells in which the individual was neither on benefit nor present in the employment data.

Figure 3.30 Spell duration by sequence of benefits for individuals that have not lost contact with their Personal Adviser



Note: Duration in days. The colours are to be interpreted as the spell number. Example from left to right: dark shade on left = 1st spell, next grey shade = 2nd spell etc. Nothing: used in the admin. data for those spells in which the individual was neither on benefit nor present in the employment data.

Table 3.26 Most common sequence for those individuals that have not lost contact

Sequence	Freq.	Per cent	Cum.
IS, NDLP NCSR – NOTLOST, EMP	203	26.43	26.43
IS, NDLP NCSR – NOTLOST, EMP, NOTHING, EMP	25	3.26	29.69
EMP, IS, NDLP NCSR – NOTLOST, EMP	24	3.13	32.81
IS, NDLP NCSR – NOTLOST	24	3.13	35.94
IS, NDLP NCSR – NOTLOST, NOTHING, EMP	21	2.73	38.67
IS, NDLP NCSR – NOTLOST, EMP, IS	20	2.60	41.28
IS, NOTHING, IS, NDLP NCSR – NOTLOST, EMP	15	1.95	43.23
IS, NDLP NCSR – NOTLOST, EMP, EMP_BEN, EMP	13	1.69	44.92
IS, NDLP NCSR – NOTLOST, EMP_BEN	13	1.69	46.61
EMP, NOTHING, IS, NDLP NCSR – NOTLOST, EMP	12	1.56	48.18
IS, NDLP NCSR – NOTLOST, IS	9	1.17	49.35
IS, NDLP NCSR – NOTLOST, NOTHING, IS, EMP	8	1.04	50.39
IS, NDLP NCSR – NOTLOST, NOTHING, IS	7	0.91	51.30
IS, NDLP NCSR – NOTLOST, EMP, EMP_BEN, IS	6	0.78	52.08
ISIB, IS, NDLP NCSR – NOTLOST, EMP	6	0.78	52.86
Total	768	100	

Lost indicates lost contact with Personal Adviser. Nothing: Used in the administrative data for those spells in which the individual was neither on benefit nor present in the employment data.

Patterns of exiting NDLP and entering into work

Of importance in any assessment of the NDLP programme is what those who leave NDLP do after they have left. Table 3.11 shown earlier is the best source of information regarding those NDLP participants who leave NDLP and their exit state on leaving. From Table 3.11 it can be seen that among those who entered NDLP after April 2001 (row labelled NDLP) , 63.35 per cent go into employment, 13.65 per cent enter employment and benefits, 8.54 per cent return to IS and 9.78 per cent could not be found in the tax or benefit data ('nothing') on leaving NDLP. Similarly, for those who entered NDLP during the participation window (NDLP NCSR), 63.74 per cent went into employment, 11.16 per cent enter employment and benefits, 8.11 per cent return to IS and 14.37 per cent could not be found in the tax or benefit data ('nothing') on leaving NDLP.

Another valuable source of information about the population of those who leave NDLP is what happens in aggregate to those who have left as a fraction of our whole sample. This appears in Figures 3.25 and 3.26. The fraction of NDLP participants who leave NDLP enter work in much higher numbers that those who did not participate in NDLP. In addition they are more likely to enter employment and benefit but less likely, as a group, to return to IS.

NDLP participants who do not leave NDLP

This final section addresses the question of what happens to individuals who entered NDLP in the treatment window and were still on NDLP at the end of the survey period.

There are two ways in which this is possible. Firstly, a person is on NDLP throughout the sample period. There were only two cases of individuals that only experienced a single NDLP spell which lasted throughout the sample period, which are not examined further. Secondly, it is possible to start off in NDLP during the participation window, have one or more other experiences after this and then return to NDLP at the end of the window. There is only one individual who started on NDLP and ended on NDLP, with intervening states of one IS and one employment spell in between.

Due to the rare nature of these experiences within the sample, it is not possible to conduct further meaningful analyses about this very small number of individuals who have not moved off NDLP.

3.4 Conclusions

This chapter examined the outcomes for the August-October 2000 sample of eligible NDLP participants. The methods applied to estimate the impacts of NDLP compared the NDLP participants with a group of non-participants who look like them in the sense that they are a matched subset of all sampled non-participants.

The medium term impacts on employment and benefit exit of the NDLP programme are reasonable in size. At 48 months after NDLP participation, the impact of NDLP raised the proportion off benefit by about 20 percentage points, once remaining differences were adjusted for. Using the employment data, at 48 months after NDLP participation, the NDLP impact raised employment for participants by 11 percentage points, once remaining differences were adjusted for. However, the quality of the matching was poorer for the employment impact, and the employment data quality used for this analysis was quite low[28]. The NDLP impacts on benefit exit and employment were not constant over time, and mostly fell slightly after longer periods subsequent to participation.

The medium-term impacts of NDLP were estimated for the age of youngest child and by the duration of benefit claim subgroups. The impact of NDLP on benefit exit and employment varied by subgroup. At 48 months after NDLP participation, the adjusted total NDLP impacts on benefit exit ranged from an increase of 22 percentage points for those with youngest child aged 11 to 16 years to 18 percentage points for those with youngest child aged zero to three years. After 48 months, for those on IS for more than 36 months, NDLP raised benefit exit by 26 percentage points while for those on IS for less than three months, this was lower at

[28] The Inland Revenue data quality has since been improved, but work is still ongoing at DWP to raise this data quality.

16 percentage points. The NDLP employment impacts by subgroup also showed variation, but there was quite poor quality in the matching.

Descriptive statistics showed the labour market histories of NDLP participants in terms of sequences of labour market states. This suggests that the lone parent population typically has a very complex sequence of labour market states. This is especially true of those who are **not** NDLP participants. Compared to non-participants, those who had been on NDLP were much more likely to enter employment as their next state. NDLP participants were also more likely to remain in employment. Furthermore it would seem that this main employment effect occurs after one spell on NDLP as the employment prospects are lower for those who have more than one NDLP spell. Relative to non-participants, the NDLP participants:

- had more spells in employment;
- had longer spells in employment;
- made less frequent changes in labour market state;
- cycled between benefit and employment states less frequently.

It seems that NDLP participants who did not lose contact with their Personal Adviser had a much more straightforward labour market history than those who lost contact with their Personal Adviser. Losing contact with the Personal Adviser was associated with lower employment.

Appendix A
The eligible population, WASD and New Deal Evaluation Database, and Propensity Score Matching

A.1 The eligible population: Using the Working Age Statistical Database

According to regulations for Lone Parent Work Focused Interviews (LPWFI), the eligibility criteria provide the basic selection rule for identification of the eligible population for LPWFI. Lone parents receiving Income Support (IS) on or after 30 April 2001 and whose youngest child at the start of claim or on 30 April 2001 was aged according to the eligibility criteria, were selected. All of these lone parents were also eligible for NDLP.

Working Age Statistical Database (WASD) data offer the whole benefit history since 1998 for individuals who have had at least one spell on benefit. Data provided for this evaluation study consists of WASD spells for lone parents based on the lone parent customer flags in the IS data for the period 2001-03. This extract of the WASD data provides previous and later spells on any of the benefits recorded in the WASD data for this customer group (including Incapacity Benefit, Severe Disability Allowance, Jobseeker's Allowance and others). Consequently, these data also include spells on other benefits and spells during which the customer was not a lone parent. Only individuals who were lone parents in the financial year 2001/02 were selected, i.e. spells with a valid partner flag, indicating that the lone parents were living together with a partner, were not considered eligible for LPWFI.

Additional information was required for the correct identification of the existing claimants on IS who are eligible for LPWFI. Since the WASD data only includes date of birth for the youngest child at the **beginning** or at the **ending** of the claim, the benefit history data was also used for lone parents claiming IS to identify the age of the youngest child on 30 April 2001 for the existing claimants, as this might differ from the date recorded at the beginning of the claim. The date of birth of the youngest child was corrected if the date of birth was different in the historical raw data compared to our extract of the WASD. Since the historical data records changes to ongoing claims (i.e. changes of circumstances), the date of birth of the youngest child related to the claim which was active on 30 April 2001 was used instead of the information provided by the WASD data. If the WASD did not provide any valid date of birth of the youngest child, use was made of the historical raw data in the same way. There were 95,267 new/repeat lone parent IS claimants eligible for LPWFI in 20001/2. There were 98,942 existing claimants.

After identifying the eligible groups for LPWFI based on the claim starting date and the age of the youngest child, it was necessary to implement some further selection rules:

- excluded any identified eligible claims if the area information indicated Northern Ireland. Earlier and later benefit claims in Northern Ireland for eligible lone parents in Britain are included;
- since the extract also included earlier spells or later spells of lone parents, cases with a valid 'partner flag' have been excluded (i.e. these benefit claimants have been lone parents earlier or will be lone parents later than 2001);
- regions participating in Personal Adviser Meetings (PAM) and ONE pilots as well as Jobcentre Plus pathfinder areas were excluded because these areas were already implementing functional equivalents to LPWFI before the nationwide delivery of the programme;
- excluded regions converting to Jobcentre plus over the period of observation from the date of conversion to Jobcentre plus. This restriction is based on the assumption that advisor meetings in Jobcentre plus areas offer a different treatment than LPWFI according to postcode areas. The total number of cases remaining were 79,938 new/repeat and 84,515 existing claimants.

A.2 Merging the eligible population and New Deal Evaluation Database data

Additional to the identified eligible spells for LPWFI for new/repeat and existing claimants, **all benefit** spells were extracted related to this eligible spell for the period 1999-2004 for each individual. These spells – the eligible spell and the previous and subsequent benefit spells – were then merged to the LPWFI/New Deal for Lone Parents (NDLP) spells (from New Deal Evaluation Database (NDED) . The extract of

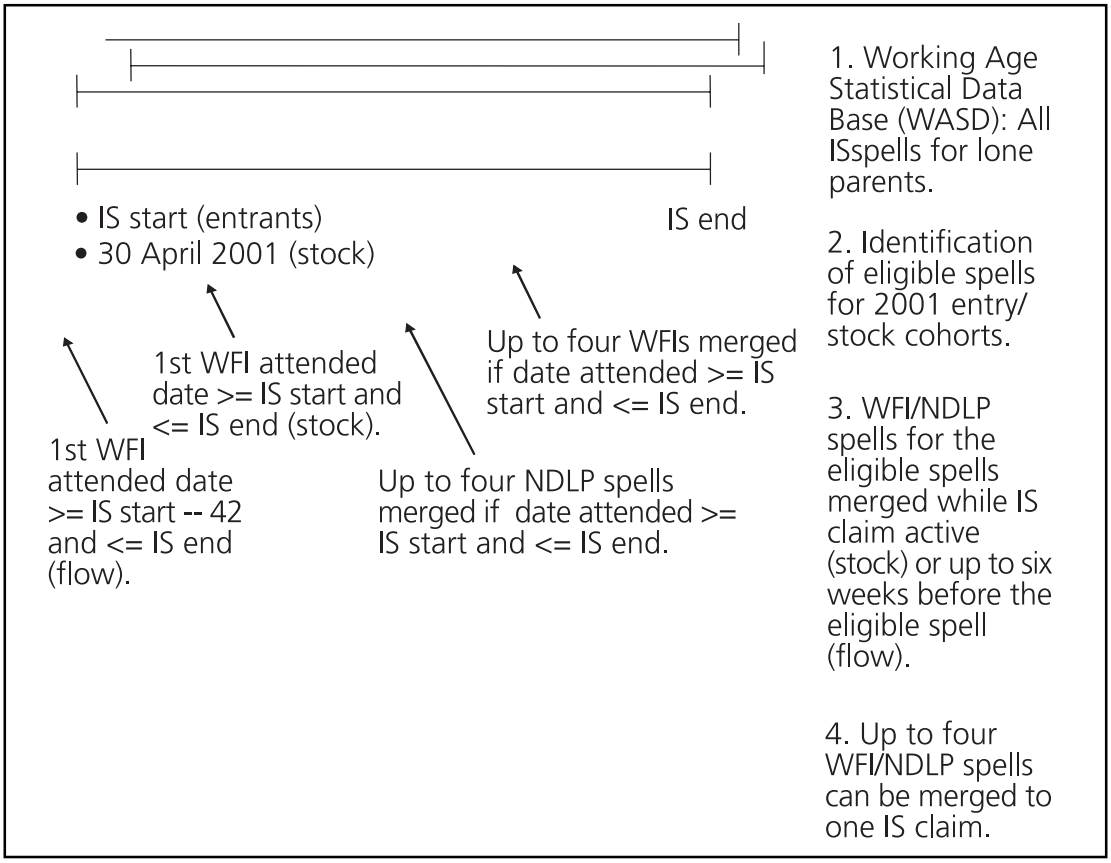
the NDED data for this project was also based on the customer flag for lone parents. Since the customer information should allow the complete identification of spells for the group of lone parents, one should be able to merge all LPWFI/NDLP spells from the NDED data to spells for the eligible population identified from WASD data.

The merge is based on temporal interrelation of the IS claim which was identified as an eligible spell in the WASD data and LPWFI/NDLP spells (from NDED data) that could be related to this spell – see Figure A.1. For the new/repeat sample, the initial merging procedure only allowed LPWFI/NDLP spells to be merged while the IS claim was active, i.e. on or after the first day on benefit and before or on the last day of the benefit receipt). In consequence, a substantial number of LPWFI that were attended earlier than the actual benefit starting date in the WASD data could not be related to the closest benefit spell. Several alternative merging procedures were tested. These included either relating earlier spells to benefit claims only if they were not merged to previous benefit spells or by applying a general rule of relating LPWFI/NDLP to benefit spells that were starting up to six weeks later. By exploring the incorrectly assigned cases, it was decided a general rule could be implemented. This allowed the participation in NDLP and LPWFI to be up to six weeks earlier than the beginning date of the benefit spell. This general rule could in principle cause errors as it might relate an LPWFI claim belonging to an earlier IS claim to a later spell. However, there were only nine cases found for which such earlier spells existed. These nine spells were already active for several months and even for these cases, it seemed more reasonable to relate the LPWFI to the later spell. Consequently, the general six-week rule appears to work well. For the existing claimants starting LPWFI and NDLP, this problem does not exist due to definition, as all spells were active before 30 April 2001 and no LPWFI/NDLP before this date was considered.

Some eligible lone parents might have participated in NDLP before the date of becoming eligible for an LPWFI – especially existing claimants or repeat claimants – because NDLP was launched much earlier, in 1999. For the relation of IS and LPWFI/NDLP spells NDLP spells starting before the date of eligibility for LPWFI were excluded. Consequently, only estimates of an impact of NDLP and LPWFI/NDLP combinations in the period of LPWFI are possible. For all eligible individuals having participated in NDLP before the 30 April 2001 – the earliest date of becoming eligible – there is no analysis.

For eligible existing claimants, the temporal structure is not related to the beginning of the IS spell, because the IS spell might already be active for a very long time before the date of becoming eligible for an LPWFI. Therefore, the period of observation begins on 30 April 2001 instead of using the start date for the IS claim as the starting point of the time axis, i.e. at the date of the eligibility of existing claimants. LPWFI/NDLP spells were merged to the eligible IS spell if the action taken (either LPWFI or NDLP) takes place on or after this date.

Figure A.1 Merging IS and NDED data and temporal interrelation of eligibility and treatment



Information on NDLP and LPWFI attendance spells were merged to the IS spell whenever the following criteria were fulfilled:

- LPWFI are only considered if the date of the interview attended is not earlier than six weeks before the beginning of an LPWFI eligible IS claim.
- NDLP information from the NDED data is only considered a valid treatment if the date of NDLP caseload corresponds to the start of the LPWFI eligible IS claim or at most six weeks prior to this interval.
- Both LPWFI and NDLP must not start later than the ending date of the IS claim making the lone parent eligible.
- If sequential treatments are considered, the treatment is believed to be an LPWFI/ NDLP combination if the LPWFI attendance date precedes the NDLP caseload or takes place on the same day.
- If the NDLP caseload starts at least one day before the LPWFI attendance date, the NDLP was defined as a self-referral, i.e. this is an NDLP spell without a previous LPWFI.

A.2.1 Benefit receipt history variables

The benefit receipt histories are summarised in the spirit of Card/Sullivan (1988) using quarterly dummy variables, which indicate whether a person was on benefit

during one, two, three, or more quarters before the beginning of the specific programme alternative. These dummy variables are defined applying the following procedure:

- Weekly panel data was created, which records whether a person was on benefit in any of the weeks between 1999 and 2004, for which the WASD data delivers the related benefit spells. With such a structure, one can observe the benefit status for all individuals in any week before and after treatment.
- Since the individuals from the new/repeat claimants might begin the IS spell with eligibility for an LPWFI any time between 30 April 2001 and 1 April 2002, the **time is related to the beginning of the IS claim: for example** – the week before the start of the IS claim is week one before the programme.
- Since programme participation by the existing claimants was significantly delayed as shown in Section 2.2 of this report, individuals who remain on benefit for a longer duration are more likely to start any of the programme alternatives than individuals who exit relatively early. Therefore, the pre-programme benefit history was related to the beginning of the treatment for the existing claimants and not related to the date of eligibility (30 April 2001) as was the case for the new/ repeat claimants (for which the beginning of the IS claim was used). This adjustment of the time relative to the treatment for the existing claimants has two further consequences:
  - since individuals who are not participating in any of the different programme alternatives do not show a beginning date for the programme, arbitrary starting dates were assigned to all observations of the non-treatment population, which were drawn randomly from the starting dates observed in the sample of participants in the specific programme alternative. This issue only affects the estimation of the combined effect of LPWFI/NDLP, because programme starting dates are only missing for the group of non-participants.

    For all participants in NDLP/LPWFI however, either the starting date is the date when the LPWFI was attended or when the NDLP caseload begins, whichever comes first.
  - since there are imputed programme starting dates for the non-participants, one might observe individuals who are not on benefit at the treatment time. This needed to be controlled for by additional covariates.
- Once the weekly data is related to the beginning of the treatment, these panel data are aggregated into six quarters, each consisting of 11 weeks before the treatment. As for Dolton, Smith and Azevedo (2006), dummy variables were defined indicating whether a participant/non-participant was at least half of the time of a quarter on benefit or not.
- The information provided by these dummy variables are then concatenated into a string variable. There are 2 x 2 x 2 x 2 x 2 x 2 = 64 possible string codes, with values between 0000000 and 111111. A person who was on benefit in all six quarters before the beginning of the IS claim (new/repeat) or the beginning of the programme (existing claimants) will show a value of 111111, a person who was on benefit two quarters before this date has the value of 000010.

Based on the concatenated string variable, dummy variables were defined indicating the most important pre-programme benefit histories and included in the propensity score estimation.

A.3 Multiple repeated treatments

Table A.1 New/repeat claimants: Sequences of multiple repeated treatments, in descending order

Treatment 1	Treatment 2	Treatment 3	Treatment 4	Total	Col. %
LPWFI only	None	None	None	19,706	25
None	None	None	None	18,701	24
LPWFI/NDLP	None	None	None	16,826	21
LPWFI only	LPWFI only	None	None	4,914	6
LPWFI only	LPWFI only	LPWFI only	None	3,766	5
LPWFI only	LPWFI/NDLP	None	None	2,258	3
NDLP only	None	None	None	2,215	3
LPWFI/NDLP	LPWFI/NDLP	None	None	1,874	2
LPWFI/NDLP	LPWFI only	None	None	1,598	2
LPWFI/NDLP	LPWFI only	LPWFI only	None	927	1
LPWFI only	LPWFI only	LPWFI/NDLP	None	848	1
LPWFI only	LPWFI only	LPWFI only	LPWFI only	766	1
LPWFI only	LPWFI/NDLP	LPWFI only	None	517	1
LPWFI only	LPWFI/NDLP	LPWFI/NDLP	None	448	1
LPWFI/NDLP	LPWFI only	LPWFI/NDLP	None	384	0
LPWFI/NDLP	LPWFI/NDLP	LPWFI/NDLP	None	357	0
LPWFI/NDLP	LPWFI/NDLP	LPWFI only	None	345	0
LPWFI/NDLP	NDLP only	None	None	276	0
LPWFI/NDLP	LPWFI only	LPWFI only	LPWFI only	179	0
NDLP only	LPWFI/NDLP	None	None	154	0
LPWFI only	NDLP only	None	None	143	0
NDLP only	NDLP only	None	None	135	0
LPWFI only	LPWFI only	LPWFI only	LPWFI/NDLP	117	0
NDLP only	LPWFI only	None	None	112	0
LPWFI only	LPWFI/NDLP	LPWFI only	LPWFI only	109	0
LPWFI only	LPWFI only	LPWFI/NDLP	LPWFI/NDLP	65	0
LPWFI/NDLP	LPWFI/NDLP	LPWFI only	LPWFI only	64	0
LPWFI only	LPWFI only	LPWFI/NDLP	LPWFI only	60	0
LPWFI/NDLP	LPWFI only	LPWFI only	LPWFI/NDLP	52	0
LPWFI only	LPWFI/NDLP	LPWFI only	LPWFI/NDLP	50	0
LPWFI/NDLP	LPWFI/NDLP	LPWFI/NDLP	LPWFI/NDLP	38	0
LPWFI only	LPWFI/NDLP	LPWFI/NDLP	LPWFI/NDLP	37	0
LPWFI/NDLP	LPWFI/NDLP	LPWFI/NDLP	LPWFI only	35	0
LPWFI only	LPWFI/NDLP	LPWFI/NDLP	LPWFI only	35	0
LPWFI/NDLP	LPWFI only	LPWFI/NDLP	LPWFI only	33	0

Continued

Table A.1 Continued

Treatment 1	Treatment 2	Treatment 3	Treatment 4	Total	Col. %
LPWFI/NDLP	LPWFI only	LPWFI/NDLP	LPWFI/NDLP	28	0
LPWFI/NDLP	LPWFI/NDLP	LPWFI only	LPWFI/NDLP	27	0
NDLP only	LPWFI only	LPWFI only	None	22	0
NDLP only	LPWFI/NDLP	LPWFI only	None	18	0
NDLP only	LPWFI/NDLP	LPWFI/NDLP	None	18	0
LPWFI/NDLP	LPWFI only	NDLP only	None	12	0
LPWFI only	LPWFI only	NDLP only	None	12	0
NDLP only	LPWFI only	LPWFI only	LPWFI only	11	0
NDLP only	LPWFI only	LPWFI/NDLP	None	11	0
LPWFI/NDLP	NDLP only	NDLP only	None	10	0
LPWFI/NDLP	NDLP only	LPWFI/NDLP	None	10	0
NDLP only	NDLP only	NDLP only	None	9	0
NDLP only	LPWFI/NDLP	LPWFI only	LPWFI only	9	0
LPWFI only	NDLP only	NDLP only	None	8	0
LPWFI/NDLP	NDLP only	LPWFI only	None	8	0
LPWFI only	LPWFI/NDLP	NDLP only	None	7	0
LPWFI only	NDLP only	LPWFI only	None	5	0
LPWFI/NDLP	NDLP only	LPWFI/NDLP	LPWFI only	5	0
NDLP only	LPWFI only	LPWFI only	LPWFI/NDLP	5	0
LPWFI/NDLP	LPWFI/NDLP	NDLP only	None	5	0
LPWFI/NDLP	NDLP only	LPWFI only	LPWFI only	3	0
NDLP only	NDLP only	LPWFI only	None	3	0
NDLP only	LPWFI/NDLP	NDLP only	None	3	0
NDLP only	LPWFI/NDLP	LPWFI/NDLP	LPWFI only	3	0
NDLP only	LPWFI/NDLP	LPWFI/NDLP	LPWFI/NDLP	3	0
LPWFI only	NDLP only	LPWFI only	LPWFI only	2	0
LPWFI only	LPWFI only	LPWFI only	LPWFI/NDLP	2	0
LPWFI only	LPWFI/NDLP	NDLP only	LPWFI/NDLP	2	0
NDLP only	LPWFI/NDLP	LPWFI only	LPWFI/NDLP	2	0
LPWFI/NDLP	LPWFI/NDLP	LPWFI/NDLP	LPWFI/NDLP	2	0
LPWFI/NDLP	NDLP only	LPWFI/NDLP	LPWFI/NDLP	1	0
NDLP only	NDLP only	LPWFI/NDLP	None	1	0
LPWFI only	LPWFI only	NDLP only	LPWFI/NDLP	1	0
LPWFI only	LPWFI only	NDLP only	LPWFI/NDLP	1	0
NDLP only	LPWFI only	NDLP only	None	1	0
NDLP only	LPWFI only	LPWFI/NDLP	LPWFI/NDLP	1	0
LPWFI/NDLP	LPWFI/NDLP	NDLP only	LPWFI only	1	0
LPWFI/NDLP	LPWFI/NDLP	LPWFI only	LPWFI/NDLP	1	0
NDLP only	LPWFI/NDLP	LPWFI/NDLP	LPWFI/NDLP	1	0
				78,418	100

Table A.2 Existing claimants: Sequences of multiple repeated treatments, in descending order

Treatment 1	Treatment 2	Treatment 3	Treatment 4	Total	Col. %
None	None	None	None	38,992	47
LPWFI only	None	None	None	18,566	22
LPWFI/NDLP	None	None	None	9,681	12
LPWFI only	LPWFI only	None	None	6,713	8
NDLP only	None	None	None	3,250	4
LPWFI only	LPWFI/NDLP	None	None	1,485	2
LPWFI/NDLP	LPWFI only	None	None	1,230	1
LPWFI/NDLP	LPWFI/NDLP	None	None	891	1
LPWFI only	LPWFI only	LPWFI only	None	615	1
NDLP only	LPWFI/NDLP	None	None	322	0
NDLP only	LPWFI only	None	None	161	0
NDLP only	NDLP only	None	None	133	0
LPWFI/NDLP	LPWFI only	LPWFI only	None	117	0
LPWFI only	LPWFI only	LPWFI/NDLP	None	83	0
LPWFI/NDLP	NDLP only	None	None	71	0
NDLP only	LPWFI only	LPWFI only	None	67	0
LPWFI only	LPWFI/NDLP	LPWFI only	None	53	0
LPWFI only	NDLP only	None	None	45	0
NDLP only	LPWFI/NDLP	LPWFI/NDLP	None	43	0
LPWFI/NDLP	LPWFI/NDLP	LPWFI only	None	38	0
LPWFI/NDLP	LPWFI only	LPWFI/NDLP	None	34	0
NDLP only	LPWFI/NDLP	LPWFI only	None	30	0
LPWFI only	LPWFI/NDLP	LPWFI/NDLP	None	30	0
LPWFI/NDLP	LPWFI/NDLP	LPWFI/NDLP	None	26	0
NDLP only	LPWFI only	LPWFI/NDLP	None	25	0
LPWFI only	LPWFI only	LPWFI only	LPWFI only	24	0
NDLP only	NDLP only	NDLP only	None	11	0
LPWFI/NDLP	LPWFI only	LPWFI only	LPWFI only	9	0
NDLP only	LPWFI/NDLP	NDLP only	None	6	0
NDLP only	LPWFI only	LPWFI only	LPWFI only	4	0
NDLP only	NDLP only	LPWFI/NDLP	None	4	0
LPWFI only	LPWFI only	LPWFI/NDLP	LPWFI only	3	0
LPWFI only	LPWFI only	NDLP only	None	3	0
NDLP only	LPWFI only	NDLP only	None	3	0
LPWFI/NDLP	LPWFI/NDLP	LPWFI only	LPWFI only	3	0
NDLP only	LPWFI/NDLP	LPWFI only	LPWFI only	3	0
LPWFI/NDLP	LPWFI/NDLP	NDLP only	None	3	0
NDLP only	NDLP only	LPWFI only	None	3	0
LPWFI only	LPWFI/NDLP	LPWFI only	LPWFI only	2	0
NDLP only	LPWFI/NDLP	LPWFI only	LPWFI/NDLP	2	0

Continued

Table A.2 Continued

Treatment 1	Treatment 2	Treatment 3	Treatment 4	Total	Col. %
LPWFI/NDLP	NDLP only	LPWFI/NDLP	LPWFI/NDLP	2	0
NDLP only	NDLP only	LPWFI/NDLP	LPWFI/NDLP	2	0
LPWFI/NDLP	NDLP only	NDLP only	None	2	0
LPWFI/NDLP	LPWFI only	LPWFI only	LPWFI/NDLP	1	0
LPWFI/NDLP	LPWFI only	LPWFI only	LPWFI/NDLP	1	0
NDLP only	LPWFI only	LPWFI only	LPWFI/NDLP	1	0
LPWFI/NDLP	LPWFI only	LPWFI/NDLP	LPWFI/NDLP	1	0
NDLP only	LPWFI only	LPWFI/NDLP	LPWFI/NDLP	1	0
LPWFI only	LPWFI/NDLP	LPWFI only	LPWFI/NDLP	1	0
LPWFI/NDLP	LPWFI/NDLP	LPWFI/NDLP	LPWFI/NDLP	1	0
LPWFI only	LPWFI/NDLP	NDLP only	None	1	0
LPWFI only	NDLP only	LPWFI only	None	1	0
NDLP only	NDLP only	LPWFI only	LPWFI/NDLP	1	0
LPWFI/NDLP	NDLP only	LPWFI/NDLP	None	1	0
NDLP only	NDLP only	NDLP only	LPWFI/NDLP	1	0
				82,802	100

A.4 Formal statistical exposition of the propensity score matching

A.4.1 Causal effects of LPWFI and NDLP

The causal effect of treatment-on-the-treated can be identified by comparing the results of a programme (Y^1) for the participating individuals after the treatment $(D=1)$ with the hypothetical situation of the same individuals if they had not taken part in the programme $(Y^0 \mid D=1)$. The parameter of interest is the effect of treatment-on-the-treated given by the difference in expected values for the outcome of the group that participated compared to the outcome this group would have had if there was no participation, formally denoted as:

$$(1) \qquad \theta(x) = E\left(Y^1 \middle| D=1\right) - E\left(Y^0 \middle| D=1\right).$$

This is an outcome which one cannot observe for programmes implemented non-experimentally, i.e. the participants will never provide the non-participation outcome. Therefore, the main problem of this and all evaluation studies based on non-experimental data consists of estimating $E(Y^0 \mid D=1)$.

In principle, two alternative approaches can be applied to estimate the average non-treatment outcome: the situation of programme participants before treatment (before/after comparison); or a control group of people who did not participate. The major drawback of the before/after comparison lies in the assumption of a constant

average non-treatment outcome over time for the treated population. For instance, changes in the overall state of economy might lead to a violation of this assumption:

(2) $E\left(Y^{1}{}_{t0}\middle|D=1\right)\neq E\left(Y^{0}{}_{t1}\middle|D=1\right),$

where $t0$ denotes a point of time before treatment and $t1$ after treatment. The average value of the outcome of non-participants typically does not represent the correct average non-treatment outcome either. Participants and non-participants might differ in characteristics, which influence the outcome variable:

(3) $E\left(Y^{0}\middle|D=1\right)\neq E\left(Y^{0}\middle|D=0\right).$

thus the participants differ from non-participants before treatment due to observable and unobservable characteristics giving rise to a selection bias. To correct for selection on observables, the Conditional Independence Assumption (CIA) is used.

A.4.2 Conditional independence assumption

Under the CIA, one gets:

(4) $Y^{0}\coprod D\mid X=x,\forall x\in\chi$

indicating that the participating group and the non-participating group in a programme are comparable in their non-treatment outcome Y^0 conditional on X. In statistical terms, the non-treatment outcome is statistically independent (denoted by $\coprod$) from the actual participation status D as long as one conditions on observable characteristics X. This, however, requires the auxiliary condition that the observable characteristics of both groups are part of the same attribute space (denoted by χ) for which the treatment effect is defined. Consider X to consist of a vector of many observable characteristics, i.e. it is multidimensional and covers as many attributes as necessary.

For the combined LPWFI/NDLP programme, three outcomes of LPWFI/NDLP combinations were observed and one outcome of total non-participation in the programme alternatives. More generally, observe m different programme outcomes and one non-participation outcome $(Y^0|D=0)$. In terms of a causal analysis, such a multiple treatment structure is exactly equivalent to the case for one treatment: With $M+1$ treatments, only one of the potential outcomes $\{Y^0,Y^1,\ldots Y^m\}$ will be observed, the other alternatives remain all hypothetical counterfactuals.

To find out how much a person is better off due to participation in a combined LPWFI/NDLP, one must consider that this person could have been in any of the two other programme alternatives or could have been a non-participant. The mean effect of participation in this treatment compared to other alternatives for those receiving treatment m can be written as:

(5) $\theta^{m,l}(x)=E\left(Y^{m}\middle|D=m,X=x\right)-E\left(Y^{l}\middle|D=m,X=x\right)$

where $D \in \{0,1,...M\}$ denotes the type of treatment. In the relevant methodological paper, Lechner (1999) shows that the conditional independence becomes:

(6) $$Y^0 \coprod D \mid X = x, D \in (m,l) \forall x \in \chi$$

in the case of multiple treatments. This means that any causal effect of participation in a specific programme alternative (denoted as treatment m, e.g. LPWFI/NDLP) compared with the hypothetical participation in another programme (denoted as treatment l, e.g. LPWFI only) can be estimated if these two specific groups are used and one conditions on a vector of observable characteristics X (in this case, the estimated effect $\theta^{m,l}$ would show the relative NDLP effect for participants in LPWFI). One is able to estimate all important policy effects of LPWFI/NDLP as outlined under section 2.3.1. In any case, only the sub samples of participants in treatments m and l are needed to estimate $\theta^{m,l}(x)$.

A.4.3 The propensity score

The major disadvantage of matching is the 'curse of dimensionality', i.e. it might be difficult to match with respect to a high–dimensional vector of observable characteristics, because one might not be able to find appropriate comparison observations. Therefore, most evaluation studies use the result by Rosenbaum and Rubin (1983) that the CIA in equation (4) also holds with respect to the probability of treatment ('propensity score') $P(X)$ as a function of the observable characteristics X, i.e.:

(7) $$Y^0 \coprod D \mid P(X) = x, \forall x \in \chi .$$

This result allows matching upon the one-dimensional probability. Effectively the 'closeness' of the propensity score of control observations with respect to the treated individuals is used as an estimator for the non-treatment outcome. This dimension-reduction diminishes the problem of finding adequate matches and the problem of empty cells. However, propensity matching comes at the cost that the propensity score has to be estimated itself. Therefore, to draw robust inference for the estimated treatment effect, the standard error of the estimated treatment parameter should take account of the fact that the propensity score used for matching is a pre-estimated quantity, see Heckman *et al.*, (1999, Section 7.4.1).

As in the case of single treatment, rather than conditioning on X, it is possible to condition instead on the propensity score for the multiple treatment case. In his important paper, Lechner (1999) proves that for the multiple treatment case, equation (7) becomes:

(8) $$Y^l \coprod P^{l|ml}(X) = P^{l|ml}(x), S \in \{m,l\}, \; 0 < P^{j|ml}(x) < 1, \; \forall x \in \chi, \; \forall j = m,l$$

This equation is of enormous help for our analysis, as it implies two different aspects:

- it is sufficient to condition on the propensity score instead of a vector of observable characteristics X;

- as before, only the sub samples of participants in treatments m and l are needed to estimate $\theta^{m,l}(x)$.

If the CIA is satisfied, matching offers an attractive means of carrying out programme evaluations since it is not dependent on any functional form assumptions matching then allows for the heterogeneity of effects across individuals and can correct for important biases associated with evaluations (Heckman *et al.*, (1999)). However, participating individuals can only be matched if individuals with similar characteristics x exist among the non-participants (i.e. common support in x).

A.4.4 The quality of matching and bootstrap

Balancing properties for observable characteristics

The complete formula of the balancing test is:

(9) $$t = \left(\overline{X_i} - \overline{X_{j(i)}}\right) / \sqrt{\operatorname{var} X_i /(N) + \operatorname{var} X_{j(i)} /(N)}$$

where $\overline{X}_i$ is the mean of the observable characteristics X of the treatment sample, $\overline{X}_{j(i)}$ is the sample means of the observable characteristics predicted as the control outcome for the treatment sample analogously to (9) for all observable characteristics, $var\, X_i$ is the sample variance of the treatment, $var\, X_{j(i)}$ is the variance of the predicted control observations, and N is the sample size of the treatment sample or the matched controls.

Pre-programme tests

With propensity score matching implemented, the average outcome variable Y – the proportion on benefit – of participants N_t in a specific treatment of LPWFI/NDLP should correspond to the control group representing the outcome this group would have had in case of participation in an alternative programme of LPWFI/NDLP.

(10) $$PPT_t = \frac{1}{N_t} \sum_{i=1}^{N_t} \Delta Y_{i,t}$$

This should be the case for any of the weeks $t < 0$ before the beginning of the eligible IS claim (for the new/repeat) or for the weeks before the participation in LPWFI/NDLP (for the existing claimants).

Bootstrap

The basic principle of the bootstrap involves repeated estimation of the parameter of interest by randomly drawing new samples with replacement from the original data. The sampling procedure with replacement implies that one can select certain observations two or more times and others not at all. Each sample then is slightly different from the original sample. Repeating this procedure for a large number, one gets pseudo samples similar to the underlying distribution of the data. The data is resampled before estimating the propensity score and before fixing the bandwidth in the sample of the non-treatment observations. As a result, the estimated outcomes within the matched samples estimates from the pseudo samples take into

account the sampling error of the propensity score. One repeatedly estimates the coefficients of the outcome equation from the random samples and calculate the empirical variance of the estimated coefficients in order to obtain bootstrap standard errors of our estimates. These standard errors then do not rely on any distributional assumptions (such as normality).

However the use of the bootstrap in this context is not completely clear. Abadie and Imbens (2005) recently showed that the bootstrap is in general not valid, even in the simple case with a single continuous covariate where the estimator is root-N consistent and asymptotically normal with zero bias. Their paper discusses how the extreme non-smoothness of the nearest-neighbour matching estimator violates the standard conditions for the bootstrap. Consequently, the bootstrap variance diverges from the actual variance.

Fitzenberger/Speckesser (2005) have pointed out that matching procedures based on local linear or Nadaraya-Watson estimators have a number of theoretical advantages compared to nearest neighbour matching. The asymptotic properties of kernel-based methods are straightforward to analyse. Additionally, it has been shown that bootstrapping provides a consistent estimator of the sampling variability of the matching estimators as set out in (7) and (8) earlier in Section A.4.3.

A.4.5 Probit model

The latent model behind the probit model used for the propensity estimation can be represented as follows:

(11) $$S_{i,t}^{l|ml*} = X_{i,t}^{'}\beta + \varepsilon_i$$

Where $\varepsilon_i \sim N(0,1)$ is an idiosyncratic error term for every individual observation i.e. any person (i) participates in period t in the programme alternative l given that this person can participate in either one of the alternatives m and l based on the observable characteristics of this person in the period t. The vector X represents all important observable characteristics that determine whether a person participates in m or in l.

The model observed in the data is a model of binary choice with:

$$S_{i,t}^{l|ml} = \begin{cases} 1, & if \quad S_{i,t}^{l|ml*} > 0 \\ 0, & if \quad S_{i,t}^{l|ml*} \leq 0 \end{cases}$$

where the event $S_{i,t}^{l|ml} = 1$ occurs with probability π and fails to occur with probability 1- π. Since π is a probability, one can take any probability distribution function in order to parameterise π.

As long as $f(X, \beta)$ is a probability distribution function, it will necessarily follow the restriction that π_i stays in the [0,1]-interval. Parameterise the probability of treatment π_i as the cumulative distribution function of the standard normal distribution and estimate the binary choice model as a probit model.

The matching parameter – the propensity score – is then predicted as:

(12) $X'_i \hat{\beta}$.

A.5 Propensity score estimates

Table A.3 New/repeat claimants: Propensity score estimates

Relative programme effect	Combined LPWFI/NDLP			Incremental NDLP LPWFI/NDLP			Incremental LPWFI LPWFI/NDLP		
Treatment	LPWFI/NDLP			LPWFI/NDLP			LPWFI/NDLP		
Alternative treatment	None			LPWFI/No NDLP			No LPWFI/NDLP		
	Coef.	Std. Err.	z	Coef.	Std. Err.	z	Coef.	Std. Err.	z
Prehist 000001	-0.05	0.08	-0.62	0.13	0.07	1.88	-0.05	0.13	-0.37
Prehist 000011	-0.05	0.09	-0.55	-0.01	0.07	-0.14	0.04	0.14	0.27
Prehist 000111	-0.04	0.09	-0.44	0.06	0.08	0.81	-0.01	0.15	-0.08
Prehist 001111	-0.08	0.10	-0.83	0.01	0.09	0.13	0.00	0.17	0.00
Prehist 100000	0.13	0.07	1.84	0.04	0.06	0.73	-0.18	0.11	-1.55
Prehist 110000	0.15	0.09	1.70	-0.03	0.07	-0.41	0.12	0.15	0.82
Prehist 111000	0.32	0.10	3.10	0.09	0.08	1.03	0.19	0.17	1.10
Prehist 111100	0.23	0.12	1.93	0.02	0.10	0.23	0.22	0.20	1.11
Prehist 111110	0.18	0.12	1.50	-0.06	0.10	-0.59	0.00	0.20	-0.02
Prehist 111111	-0.02	0.10	-0.24	-0.11	0.08	-1.27	0.03	0.17	0.17
Prehist other	0.08	0.06	1.42	0.06	0.05	1.32	0.10	0.10	1.04
Long-term pre-programme history	-0.03	0.02	-1.49	-0.05	0.02	-2.52	-0.01	0.04	-0.41
On benefit one quarter before start of elig. IS	0.01	0.06	0.12	0.05	0.05	0.99	0.04	0.10	0.38
On benefit two quarters before start of elig. IS	-0.08	0.05	-1.60	0.06	0.04	1.45	-0.12	0.08	-1.51
On benefit three quarters before start of elig. IS	-0.04	0.05	-0.93	-0.06	0.04	-1.61	0.00	0.08	0.00
On benefit four quarters before start of elig. IS	-0.06	0.05	-1.26	-0.08	0.04	-1.85	0.02	0.08	0.20
On benefit five quarters before start of elig. IS	0.18	0.05	3.84	0.22	0.04	5.64	0.03	0.08	0.37
On benefit six quarters before start of elig. IS	0.07	0.06	1.22	-0.07	0.05	-1.46	-0.02	0.10	-0.22
On benefit six weeks before start of elig. IS	0.10	0.06	1.61	0.06	0.05	1.18	-0.05	0.10	-0.52
On benefit five weeks before start of elig. IS	-0.11	0.08	-1.36	-0.16	0.07	-2.29	-0.08	0.13	-0.57
On benefit four weeks before start of elig. IS	0.11	0.08	1.40	0.17	0.07	2.41	0.00	0.13	0.01

Continued

Table A.3 Continued

Relative programme effect	Combined LPWFI/NDLP			Incremental NDLP LPWFI/NDLP			Incremental LPWFI LPWFI/NDLP		
Treatment	**LPWFI/NDLP**			**LPWFI/NDLP**			**LPWFI/NDLP**		
Alternative treatment	**None**			**LPWFI/No NDLP**			**No LPWFI/NDLP**		
	Coef.	**Std. Err.**	**z**	**Coef.**	**Std. Err.**	**z**	**Coef.**	**Std. Err.**	**z**
On benefit three weeks before start of elig. IS	0.04	0.08	0.54	0.00	0.07	-0.02	0.02	0.12	0.20
On benefit two weeks before start of elig. IS	-0.08	0.07	-1.23	-0.08	0.06	-1.32	-0.06	0.11	-0.54
On benefit one week before start of elig. IS	-0.48	0.05	-10.34	-0.15	0.04	-3.64	-0.21	0.08	-2.70
Disability premium entitlement	-0.81	0.02	-33.83	-0.57	0.02	-25.85	-0.07	0.05	-1.52
North East	0.25	0.04	6.36	0.19	0.03	6.28	0.09	0.07	1.32
North West	0.15	0.03	4.63	0.08	0.03	3.14	0.01	0.06	0.16
Yorkshire and The Humber	0.18	0.03	5.06	0.15	0.03	5.35	0.04	0.06	0.68
West Midlands	-0.01	0.03	-0.34	0.08	0.03	2.78	-0.07	0.06	-1.09
Eastern	-0.11	0.04	-3.05	0.16	0.03	5.48	-0.22	0.06	-3.68
London	-0.48	0.03	-15.17	-0.04	0.03	-1.41	-0.39	0.05	-7.17
South East	-0.01	0.03	-0.43	0.13	0.03	4.93	-0.07	0.06	-1.18
South West	0.25	0.04	7.07	0.35	0.03	12.42	-0.06	0.06	-1.01
Wales	0.21	0.04	5.56	0.32	0.03	10.36	-0.17	0.06	-2.76
Scotland	0.31	0.03	9.22	0.44	0.03	16.21	0.12	0.06	2.17
Eligible IS claim starts April 2001	0.07	0.09	0.76	0.21	0.08	2.68	-0.17	0.14	-1.27
Eligible IS claim starts May 2001	0.05	0.03	1.73	0.08	0.03	3.23	-0.13	0.05	-2.57
Eligible IS claim starts June 2001	0.10	0.03	3.39	0.03	0.02	1.20	0.02	0.05	0.41
Eligible IS claim starts July 2001	0.09	0.03	2.86	0.06	0.02	2.23	0.15	0.05	2.75
Eligible IS claim starts August 2001	0.11	0.03	3.44	0.05	0.03	2.11	0.12	0.05	2.10
Eligible IS claim starts October 2001	-0.04	0.03	-1.34	0.03	0.03	1.07	-0.16	0.05	-3.10
Eligible IS claim starts November 2001	0.00	0.03	0.07	0.05	0.03	1.78	-0.15	0.05	-2.84
Eligible IS claim starts December 2001	-0.06	0.03	-1.82	0.11	0.03	3.80	-0.17	0.06	-2.92
Eligible IS claim starts January 2002	0.02	0.03	0.50	0.08	0.03	2.93	-0.11	0.05	-2.13
Eligible IS claim starts February 2002	-0.03	0.03	-0.98	0.00	0.03	-0.15	-0.18	0.05	-3.23

Continued

Table A.3 Continued

Relative programme effect	Combined LPWFI/NDLP			Incremental NDLP LPWFI/NDLP			Incremental LPWFI LPWFI/NDLP		
Treatment	**LPWFI/NDLP**			**LPWFI/NDLP**			**LPWFI/NDLP**		
Alternative treatment	**None**			**LPWFI/No NDLP**			**No LPWFI/NDLP**		
	Coef.	**Std. Err.**	**z**	**Coef.**	**Std. Err.**	**z**	**Coef.**	**Std. Err.**	**z**
Eligible IS claim starts March 2002	0.07	0.03	2.30	-0.05	0.03	-1.77	-0.15	0.05	-2.84
Age under 20	-0.94	0.15	-6.11	-0.27	0.17	-1.57	-0.06	0.35	-0.16
Age between 20-24	-0.21	0.04	-4.84	0.02	0.04	0.54	0.01	0.07	0.09
Age between 25-29	-0.04	0.02	-1.89	0.00	0.02	0.15	0.04	0.04	1.11
Age between 35-39	0.02	0.02	1.25	0.00	0.01	-0.16	-0.03	0.03	-0.89
Age between 40-44	-0.03	0.02	-1.49	-0.05	0.02	-2.95	-0.01	0.03	-0.22
Age between 45-49	-0.20	0.03	-7.31	-0.13	0.02	-5.44	-0.15	0.05	-3.20
Age between 50-54	-0.28	0.04	-6.86	-0.15	0.04	-4.13	-0.07	0.08	-0.88
Age between 55-59	-0.76	0.08	-9.84	-0.45	0.08	-5.98	-0.11	0.17	-0.66
Age of youngest child	-0.01	0.00	-3.40	0.00	0.00	-0.31	0.02	0.00	5.52
Number of children	-0.11	0.01	-13.07	-0.10	0.01	-14.67	0.00	0.01	-0.05
Sex	0.12	0.02	6.06	0.07	0.02	4.12	0.02	0.03	0.69
Intercept	0.43	0.05	8.46	-0.24	0.04	-5.56	1.25	0.09	14.57
Number of obs			40,022			55,260			24,990
LR chi2(57)			5,203			2,533			607
Prob > chi2			0			0			0
Pseudo R2			0			0			0

Table A.4 Existing claimants: Propensity score estimates

Treatment	LPWFI/NDLP			LPWFI/NDLP			LPWFI/NDLP		
Alternative	None			LPWFI/No NDLP			No LPWFI/NDLP		
Treatment effect	Combined LPWFI/NDLP			Incremental NDLP			Incremental LPWFI		
	Coef.	Std. Err.	z	Coef.	Std. Err.	z	Coef.	Std. Err.	z
Prehist 000001	-1.30	0.34	-3.80	-0.08	0.64	-0.13	-0.05	0.56	-0.08
Prehist 000011	-1.84	0.35	-5.32	0.07	0.64	0.11	-0.52	0.55	-0.94
Prehist 000111	-1.43	0.35	-4.13	0.36	0.63	0.57	0.01	0.53	0.01
Prehist 001111	-1.28	0.36	-3.59	0.55	0.64	0.86	-0.16	0.56	-0.29
Prehist 100000	0.75	0.43	1.73	-0.50	0.70	-0.71	1.12	0.58	1.95
Prehist 111000	0.49	0.73	0.67	0.62	0.83	0.75	0.17	0.95	0.18
Prehist 111100	0.40	0.52	0.76	0.55	0.65	0.85	0.19	0.74	0.2
Prehist 111110	-0.17	0.42	-0.40				0.66	0.64	1.03
Prehist 111111	-0.87	0.40	-2.16	0.73	0.68	1.08	0.40	0.60	0.66
Prehist other	-1.19	0.34	-3.46	0.63	0.63	0.99	0.02	0.53	0.04
Long-term pre-programme history	0.12	0.03	4.09	-0.04	0.03	-1.41	0.29	0.05	6.30
On benefit one quarter before programme	-0.28	0.13	-2.23	-0.12	0.16	-0.76	-0.37	0.18	-2.00
On benefit two quarters before programme	-0.18	0.12	-1.48	-0.13	0.14	-0.93	-0.33	0.17	-1.98
On benefit three quarters before programme	-0.04	0.12	-0.34	-0.23	0.14	-1.61	0.50	0.18	2.85
On benefit four quarters before programme	-0.27	0.12	-2.30	-0.21	0.15	-1.47	-0.33	0.17	-1.93
On benefit five quarters before programme	0.67	0.14	4.73	-0.07	0.21	-0.36	0.99	0.20	4.88
On benefit six quarters before programme	1.41	0.30	4.64	-0.15	0.61	-0.24	0.74	0.52	1.41
On benefit six weeks before programme	0.00	0.25	0.00	-0.68	0.55	-1.24	-0.89	0.53	-1.68
On benefit five weeks before programme	-0.02	0.34	-0.07	-0.36	0.89	-0.41	0.16	0.66	0.23
On benefit four weeks before programme	0.67	0.37	1.82	0.88	0.92	0.95	-0.58	0.88	-0.66
On benefit three weeks before programme	0.17	0.43	0.39	1.41	0.83	1.70	0.52	1.02	0.51
On benefit two weeks before programme	-0.32	0.36	-0.90	-1.18	0.63	-1.88	-0.90	0.79	-1.14
On benefit one week before programme	-0.95	0.02	-49.78	-0.75	0.02	-39.78	0.18	0.04	4.55
North East	0.21	0.05	4.43	0.12	0.04	2.93	0.25	0.07	3.73
North West	0.25	0.04	6.49	0.06	0.04	1.56	0.31	0.06	5.38
Yorkshire and The Humber	0.03	0.04	0.69	0.26	0.04	6.34	0.26	0.06	4.08
West Midlands	-0.15	0.04	-3.44	0.03	0.04	0.65	0.17	0.06	2.68
Eastern	-0.14	0.04	-3.04	0.28	0.04	6.28	0.10	0.07	1.46

Continued

Table A.4 Continued

Treatment	LPWFI/NDLP			LPWFI/NDLP			LPWFI/NDLP		
Alternative	None			LPWFI/No NDLP			No LPWFI/NDLP		
Treatment effect	Combined LPWFI/NDLP			Incremental NDLP			Incremental LPWFI		
	Coef.	Std. Err.	z	Coef.	Std. Err.	z	Coef.	Std. Err.	z
London	-0.58	0.04	-15.23	-0.07	0.04	-1.98	-0.05	0.06	-0.93
South East	0.09	0.04	2.23	0.24	0.04	6.23	0.20	0.06	3.41
South West	0.05	0.04	1.14	0.43	0.04	9.94	0.08	0.06	1.29
Wales	0.29	0.05	6.17	0.25	0.04	5.76	0.29	0.07	4.26
Scotland	-0.01	0.04	-0.27	0.12	0.04	3.21	0.30	0.06	4.81
Age under 20	-0.31	0.29	-1.08	-0.07	0.37	-0.18	0.33	0.62	0.53
Age between 20-24	-0.34	0.20	-1.71	-0.29	0.23	-1.23	-0.34	0.34	-1.00
Age between 25-29	-0.38	0.13	-2.90	-0.16	0.15	-1.06	-0.03	0.24	-0.11
Age between 35-39	0.27	0.03	10.37	-0.05	0.03	-1.64	0.04	0.04	0.99
Age between 40-44	0.34	0.03	12.99	-0.06	0.03	-2.28	0.08	0.04	1.99
Age between 45-49	0.31	0.03	10.85	-0.17	0.03	-5.64	0.06	0.05	1.40
Age between 50-54	0.22	0.03	6.60	-0.30	0.03	-8.97	0.10	0.06	1.81
Age between 55-59	-0.24	0.05	-4.62	-0.62	0.05	-11.83	0.16	0.11	1.52
Age of youngest child	-0.15	0.01	-14.95	0.05	0.01	5.38	0.18	0.02	10.97
Number of children	-0.05	0.01	-4.63	-0.04	0.01	-3.50	-0.04	0.02	-2.06
Sex	0.06	0.02	2.59	0.06	0.02	2.84	-0.09	0.04	-2.51
Intercept	0.63	0.30	2.12	-0.90	0.35	-2.58	-1.96	0.55	-3.59
Number of obs		32,771.00			33,002.00			13,958.00	
LR chi2(44)		4,715.37			2,539.07			732.29	
Prob > chi2		0.00			0.00			0.00	
Pseudo R2		0.11			0.06			0.05	
Log likelihood =		-18,292.02			-19,467.38			-7,300.47	

A.6 Common support

Figure A.2 New/repeat claimants: Predicted propensity scores, combined LPWFI/NDLP (i), incremental NDLP (ii) and incremental LPWFI (iii), (left: N, right: kernel densities)

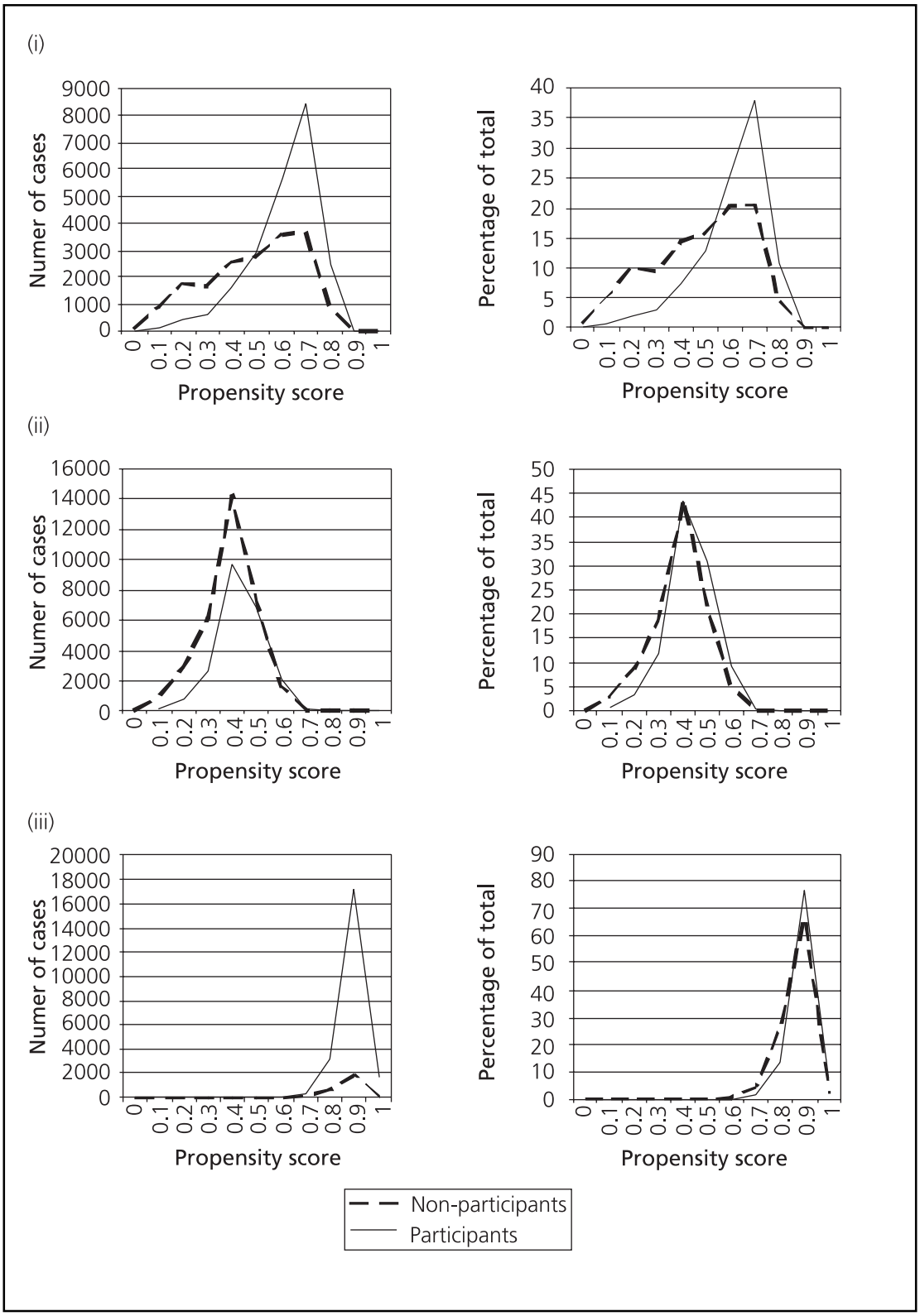
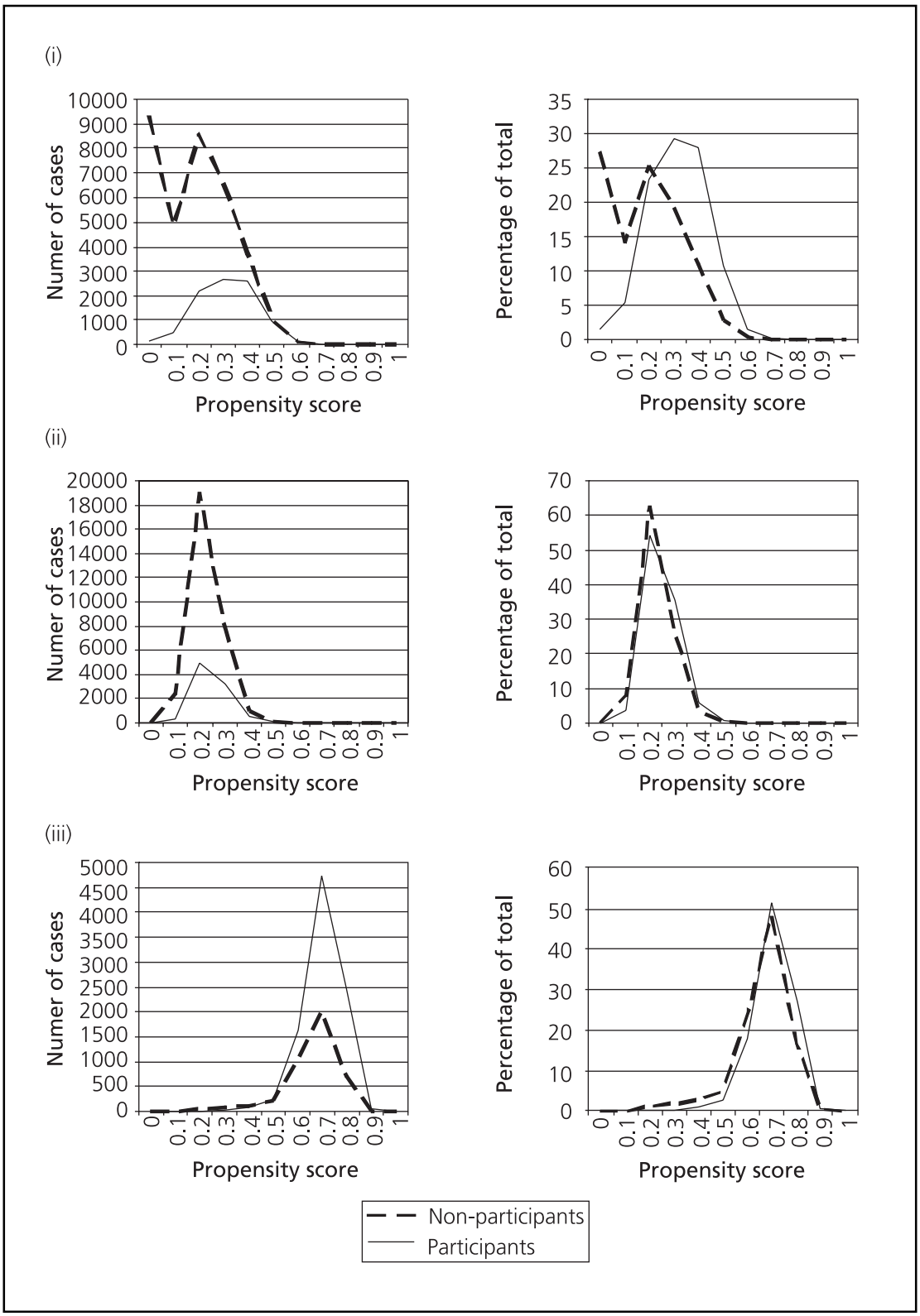


Figure A.3 Existing claimants: Predicted propensity scores, combined (i), incremental NDLP (ii) and incremental LPWFI (iii), (left: N, right: kernel densities)



A.7 Matching quality

Table A.5 New/repeat claimants: Differences in matched samples (selected co-variates) for participants in LPWFI/NDLP compared to non-participants

	Mean treatment group	Mean non-treatment group	Matched non-treatment outcome	t-test
Long-term differences	0.39	0.41	0.38	-3.48
Benefit rate six weeks before eligibility	0.18	0.32	0.18	-0.69
Benefit rate five weeks before eligibility	0.18	0.32	0.18	-1.13
Benefit rate four weeks before eligibility	0.18	0.32	0.17	-0.70
Benefit rate three weeks before eligibility	0.17	0.33	0.17	-0.42
Benefit rate two weeks before eligibility	0.16	0.33	0.16	-0.58
Benefit rate one week before eligibility	0.16	0.34	0.16	-0.80
IS beginning April 2001	0.01	0.01	0.01	-0.30
IS beginning May 2001	0.10	0.10	0.10	-1.58
IS beginning June 2001	0.12	0.10	0.12	1.72
IS beginning July 2001	0.12	0.10	0.12	1.12
IS beginning August 2001	0.10	0.09	0.10	1.68
IS beginning September 2001	0.09	0.10	0.09	1.64
IS beginning October 2001	0.08	0.09	0.07	-2.84
IS beginning November 2001	0.06	0.07	0.06	-0.04
IS beginning December 2001	0.10	0.10	0.10	0.88
IS beginning January 2001	0.07	0.08	0.07	0.26
IS beginning February 2001	0.08	0.08	0.08	-1.38
Age of claimant under 20	0.00	0.00	0.00	0.47
Age of claimant between 20-24	0.03	0.03	0.03	-0.61
Age of claimant between 25-29	0.15	0.11	0.14	-1.88
Age of claimant between 35-39	0.29	0.26	0.29	0.81
Age of claimant between 40-44	0.17	0.19	0.17	0.00
Age of claimant between 45-49	0.07	0.10	0.06	-0.88
Age of claimant between 50-54	0.02	0.04	0.02	-1.29
Age of claimant between 55-59	0.00	0.02	0.00	-0.82
Age of claimant between 60-64	0.00	0.02	0.00	0.00
Age of youngest child at start of claim	9.14	9.53	9.11	-0.97
Number of children at start of claim	1.67	1.75	1.68	0.72
Gender	0.90	0.85	0.90	2.61

Table A.6 New/repeat claimants: Differences in matched samples (selected co-variates) for participants in LPWFI/NDLP compared to participants in LPWFI only

	Mean treatment group	Mean non-treatment group	Matched non-treatment outcome	t-test
Long-term differences	0.39	0.41	0.37	-5.64
Benefit rate six weeks before eligibility	0.18	0.25	0.17	-4.10
Benefit rate five weeks before eligibility	0.18	0.25	0.16	-4.32
Benefit rate four weeks before eligibility	0.18	0.24	0.16	-4.03
Benefit rate three weeks before eligibility	0.17	0.24	0.16	-3.87
Benefit rate two weeks before eligibility	0.16	0.24	0.15	-3.34
Benefit rate one week before eligibility	0.16	0.24	0.15	-3.07
IS beginning April 2001	0.01	0.00	0.01	-0.55
IS beginning May 2001	0.10	0.09	0.10	-0.09
IS beginning June 2001	0.12	0.12	0.12	-0.06
IS beginning July 2001	0.12	0.11	0.13	3.18
IS beginning August 2001	0.10	0.10	0.10	1.76
IS beginning September 2001	0.09	0.09	0.09	-0.50
IS beginning October 2001	0.08	0.08	0.07	-1.82
IS beginning November 2001	0.06	0.05	0.06	-1.01
IS beginning December 2001	0.10	0.09	0.10	-0.37
IS beginning January 2001	0.07	0.08	0.07	-0.42
IS beginning February 2001	0.08	0.09	0.08	-0.02
Age of claimant under 20	0.00	0.00	0.00	-1.67
Age of claimant between 20-24	0.03	0.02	0.03	-0.06
Age of claimant between 25-29	0.15	0.12	0.14	-0.94
Age of claimant between 35-39	0.29	0.29	0.30	2.45
Age of claimant between 40-44	0.17	0.19	0.17	-0.49
Age of claimant between 45-49	0.07	0.08	0.07	-0.49
Age of claimant between 50-54	0.02	0.03	0.02	-1.32
Age of claimant between 55-59	0.00	0.01	0.00	-1.17
Age of claimant between 60-64	0.00	0.00	0.00	0.00
Age of youngest child at start of claim	9.14	9.25	9.09	-1.82
Number of children at start of claim	1.67	1.78	1.67	-0.24
Gender	0.90	0.88	0.90	1.52

Table A.7 New/repeat claimants: Differences in matched samples (selected co-variates) for participants in LPWFI/NDLP compared to participants in NDLP only

	Mean treatment group	Mean non-treatment group	Matched non-treatment outcome	t-test
Long-term differences	0.39	0.43	0.37	-5.23
Benefit rate six weeks before eligibility	0.18	0.30	0.19	0.91
Benefit rate five weeks before eligibility	0.18	0.29	0.18	1.11
Benefit rate four weeks before eligibility	0.18	0.29	0.18	2.28
Benefit rate three weeks before eligibility	0.17	0.29	0.18	2.18
Benefit rate two weeks before eligibility	0.16	0.28	0.17	1.02
Benefit rate one week before eligibility	0.16	0.28	0.17	1.33
IS beginning April 2001	0.01	0.01	0.01	0.59
IS beginning May 2001	0.10	0.11	0.11	2.29
IS beginning June 2001	0.12	0.10	0.12	2.16
IS beginning July 2001	0.12	0.08	0.12	-0.09
IS beginning August 2001	0.10	0.07	0.10	2.35
IS beginning September 2001	0.09	0.11	0.09	-1.16
IS beginning October 2001	0.08	0.09	0.08	-0.89
IS beginning November 2001	0.06	0.07	0.05	-4.00
IS beginning December 2001	0.10	0.11	0.10	-1.30
IS beginning January 2001	0.07	0.09	0.08	1.49
IS beginning February 2001	0.08	0.09	0.08	-0.45
Age of claimant under 20	0.00	0.00	0.00	-1.26
Age of claimant between 20-24	0.03	0.03	0.02	-2.31
Age of claimant between 25-29	0.15	0.14	0.14	-1.10
Age of claimant between 35-39	0.29	0.29	0.28	-1.22
Age of claimant between 40-44	0.17	0.17	0.18	1.95
Age of claimant between 45-49	0.07	0.09	0.06	-1.46
Age of claimant between 50-54	0.02	0.02	0.02	1.18
Age of claimant between 55-59	0.00	0.01	0.00	-0.40
Age of claimant between 60-64	0.00	0.00	0.00	0.00
Age of youngest child at start of claim	9.14	8.89	9.11	-0.88
Number of children at start of claim	1.67	1.69	1.68	0.81
Gender	0.90	0.88	0.90	3.02

Table A.8 Existing claimants: Differences in matched samples (selected co-variates) for participants in LPWFI/NDLP compared to non-participants

	Mean treatment group	Mean non-treatment group	Matched non-treatment outcome	t-test
Long-term differences	0.83	0.79	0.85	4.01
Benefit rate six weeks before eligibility	1.00	0.76	1.00	-1.53
Benefit rate five weeks before eligibility	1.00	0.75	1.00	-1.06
Benefit rate four weeks before eligibility	1.00	0.74	1.00	-0.20
Benefit rate three weeks before eligibility	1.00	0.74	1.00	0.57
Benefit rate two weeks before eligibility	1.00	0.73	1.00	0.44
Benefit rate one week before eligibility	1.00	0.72	1.00	0.00
Age of claimant below 20	0.00	0.00	0.00	0.97
Age of claimant 20-24	0.00	0.00	0.00	-1.06
Age of claimant 25-29	0.00	0.01	0.00	-0.22
Age of claimant 35-39	0.30	0.27	0.30	-0.31
Age of claimant 40-44	0.31	0.27	0.31	-0.32
Age of claimant 45-49	0.18	0.17	0.18	1.07
Age of claimant 50-54	0.08	0.10	0.08	0.32
Age of claimant 55-59	0.02	0.04	0.02	0.42
Age of claimant 60-64	0.00	0.03	0.00	0.00
Age of youngest child at start of claim	13.79	14.03	13.82	3.38
Number of children at start of claim	1.55	1.52	1.55	-0.09
Gender	0.88	0.85	0.88	-0.12

Table A.9 Existing claimants: Differences in matched samples (selected co-variates) for participants in LPWFI/NDLP compared to participants in LPWFI only

	Mean treatment group	Mean non-treatment group	Matched non-treatment outcome	t-test
Long-term differences	0.83	0.85	0.84	2.26
Benefit rate six weeks before eligibility	1.00	1.00	1.00	2.24
Benefit rate five weeks before eligibility	1.00	1.00	1.00	1.46
Benefit rate four weeks before eligibility	1.00	1.00	1.00	0.72
Benefit rate three weeks before eligibility	1.00	1.00	1.00	0.30
Benefit rate two weeks before eligibility	1.00	1.00	1.00	-0.15
Benefit rate one week before eligibility	1.00	1.00	1.00	0.00
Age of claimant under 20	0.00	0.00	0.00	-1.58
Age of claimant between 20-24	0.00	0.00	0.00	-0.27
Age of claimant between 25-29	0.00	0.00	0.00	-0.22

Continued

Table A.9 Continued

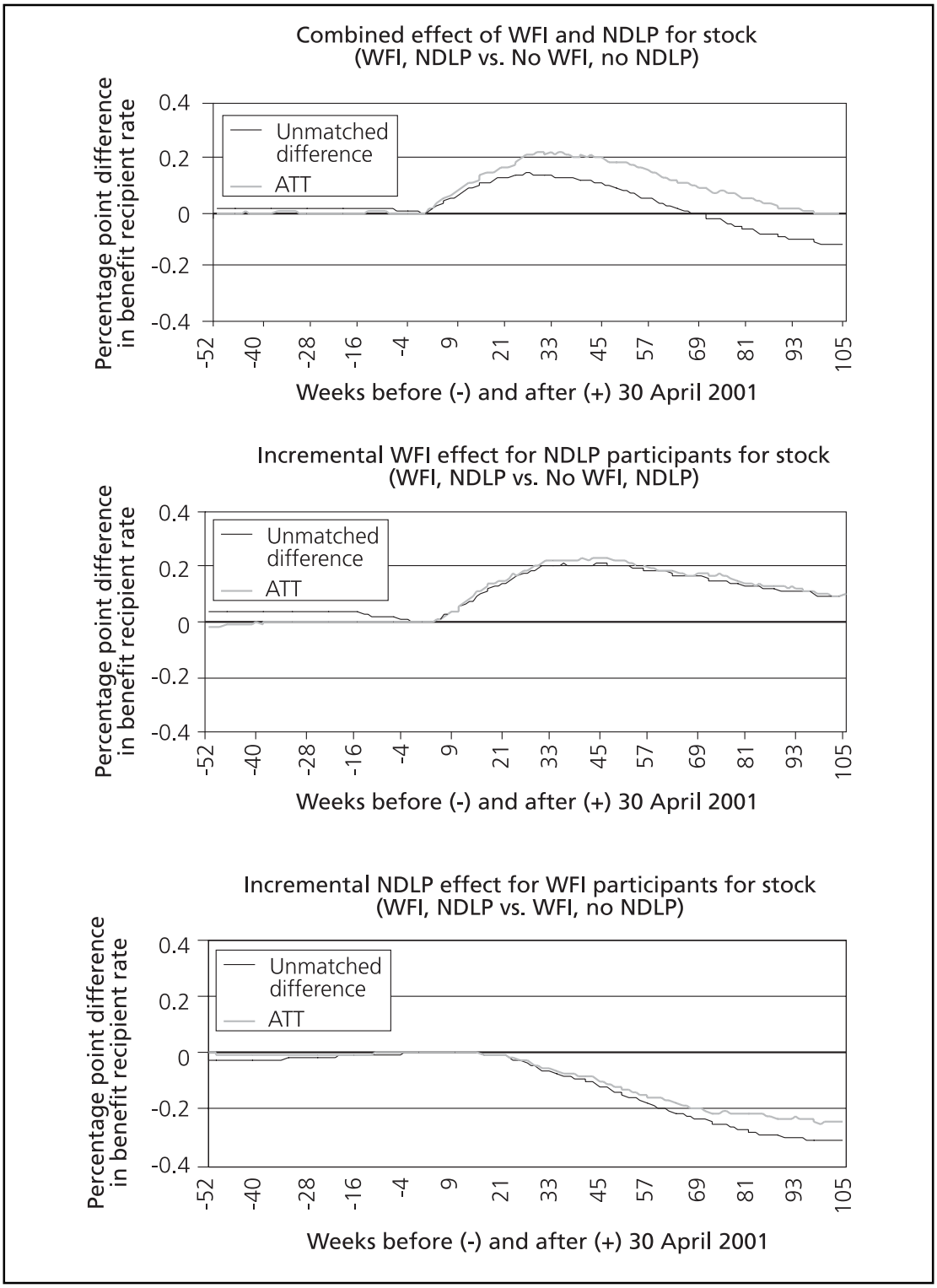
	Mean treatment group	Mean non-treatment group	Matched non-treatment outcome	t-test
Age of claimant between 35-39	0.30	0.26	0.30	-0.92
Age of claimant between 40-44	0.31	0.29	0.31	-0.42
Age of claimant between 45-49	0.18	0.20	0.18	0.68
Age of claimant between 50-54	0.08	0.12	0.08	0.28
Age of claimant between 55-59	0.02	0.04	0.02	1.36
Age of claimant between 60-64	0.00	0.00	0.00	0.00
Age of youngest child at start of claim	13.79	13.76	13.83	4.65
Number of children at start of claim	1.55	1.58	1.55	-0.18
Gender	0.88	0.87	0.88	-0.68

Table A.10 Existing claimants: Differences in matched samples (selected co-variates) for participants in LPWFI/NDLP compared to participants in NDLP only

	Mean treatment group	Mean non-treatment group	Matched non-treatment outcome	t-test
Long-term differences	0.86	0.83	0.86	6.65
Benefit rate six weeks before eligibility	1.00	0.99	1.00	2.00
Benefit rate five weeks before eligibility	1.00	0.99	1.00	1.21
Benefit rate four weeks before eligibility	1.00	0.99	1.00	0.72
Benefit rate three weeks before eligibility	1.00	0.99	1.00	1.48
Benefit rate two weeks before eligibility	1.00	0.99	1.00	1.16
Benefit rate one week before eligibility	1.00	0.99	1.00	0.00
Age of claimant under 20	0.00	0.00	0.00	-2.24
Age of claimant between 20-24	0.00	0.00	0.00	0.19
Age of claimant between 25-29	0.00	0.00	0.00	-3.30
Age of claimant between 35-39	0.30	0.31	0.29	-1.63
Age of claimant between 40-44	0.31	0.30	0.32	2.35
Age of claimant between 45-49	0.18	0.17	0.18	0.70
Age of claimant between 50-54	0.08	0.07	0.08	-0.52
Age of claimant between 55-59	0.02	0.01	0.01	-3.69
Age of claimant between 60-64	0.00	0.00	0.00	0.00
Age of youngest child at start of claim	13.79	13.67	13.82	3.78
Number of children at start of claim	1.55	1.56	1.55	-0.48
Gender	0.88	0.89	0.90	3.73

A.8 Alternative outcomes for the existing claimants

Figure A.4 Existing claimants: Differences in matched samples: Effects of different programme alternatives on the weekly benefit recipient rate[29]



[29] The period of observation begins with the date of eligibility instead of the date for programme participation.

A.8.1 Potential further research

This analysis examined the impact on benefit terminations of participation in the LPWFI and NDLP programmes. However, a key assumption is that the matching technique has resolved differences in the characteristics of participants in the various alternatives. A number of improvements to the analysis are considered plausible for future research. These include the following:

- additional outcome estimates:
  - additional results based on Income Revenue data for employment and earnings, for all different programme alternatives of the 2001/2 new/repeat claimants and existing claimants;
  - incremental effects of second treatments for some important programme alternatives (see Tables 2.3 and 2.4), especially the incremental effects of a second LPWFI;
- sensitivity analyses for the reported effects:
  - sensitivity analysis for a sub sample of new/repeat claimants with similar characteristics as the existing claimants to explore how outcomes might be attributed to differences in the implementation process rather than characteristics;
  - comparisons to an incremental NDLP effect for LPWFI participants (both existing claimants and new/repeat claimants) based on LPWFI survey data (also collected during 2001);
  - comparisons to a conditional difference-in-differences estimators for the incremental LPWFI effect for NDLP participants;
  - comparisons to alternative outcome estimates for the existing claimants based on a comparison sample with claimants who are on benefit **at least as long** as the treatment group after the 30 April 2001 (i.e. changing the imputation of the start date for the non-participants);
  - comparisons to selective key outcomes based on kernel matching with bootstrapped standard errors (i.e. examining the importance of the nearest neighbour matching choice).

These additional analyses would help validate and conclude the evidence regarding the impacts of these programmes over this period.

Appendix B
Use of the Master Index and IR Data and explanation of the data and sample terms used

B.1 Using the Master Index and the Inland Revenue data

B.1.1 Overlapping spells

In this section the logical problems with the data are explored, which result from merging the benefit administrative data with the Inland Revenue employment data. The most common problems of reconciling the spell data from the different administrative data sources are described. By the use of concrete real individual case history examples these complexities are described and explanations tell exactly what changes have been made to the final reconciled spell data. All of the alterations to the data were done with the explicit guidance and advice of the experts from the Department for Work and Pensions (DWP).

A number of persons appear to have overlapping spells. In most cases these are feasible admissible contemporaneous spells since people can be on New Deal for Lone Parents (NDLP) at the same time as claiming any benefits such as Income Support (IS), Incapacity Benefit (IB) or Jobseeker's Allowance (JSA). A person can also claim both IS and IB at the same time. However, some overlaps are technically impossible, since no one can simultaneously receive IS and JSA or IB and JSA. All together these illegal overlapping spells were slightly less than 1.0 per cent of the total sample of 69,829 claims.

There were three major possible reasons for overlaps:

- recoding of missing values or improbable dates (e.g. 1/9/2025): The standard advice is that in both cases the claim remains active at the date of the extract;

- random imputation of end dates: Sometimes there may be an overlap as a client finishes a claim on IB or IS and moves onto JSA. This occurs because the IS and IB, DWP computer programmes update the data only once every two weeks (six weeks in the case of the IB database), and so the actual end date of a claim is not known. This means that the programme estimates an end date for claims within a two weeks interval. So the estimated end date may fall after the date the claimant starts to claim JSA, although they were not, in reality, claiming them both at the same time;
- simultaneous enrolments: a third reason for overlaps is that branches used to put applications through the IS and JSA channels at the same time so that, if the claimant did not qualify for JSA they would receive an IS payment instead (so in this case it is likely that the IS claim is the 'real' one). This is something to bear in mind when information on JSA spells earlier than the participation date are used as conditioning information or as a benchmark to compare post-participation history.

In order to overcome the problems of inadmissible spell overlaps the raw spell data was modified in a number of ways:

- for IS claims that overlapped any other claim for a period of 18 days or less, the end date of the overlapped claim was pushed back to the day before the start date of the subsequent claim. This was done because it was known that the end dates of the IS claims are randomly imputed within approximately a two week interval;
- in cases of two IB claims, the first of which had a missing end date and still appeared to be active, and the second started on a later day, the two spells were combined into a single spell with the start date of the earlier spell and the end date of the later spell;
- in cases with overlapping claims on JSA and IS or IB, the JSA claim takes priority over the IS or IB claim. As mentioned earlier, JSA clients have to come in to the Jobcentre Plus office every two weeks to sign on, so their information is most likely to be more accurate and up to date than the IB and IS data.

In addition to the above mentioned procedure, wes:

- dropped overlapping spells (identical start and end date);
- removed spells shorter than nine weeks;
- merged consecutive multiple spells of the same BENEFIT/STATUS (a five weeks interval still considered a continuous spell).

The addition of the Inland Revenue employment records created several new sources of information, specifically the employment status, and the creation of the employment with benefit status (exact or partial). Given the interest in the transition to and from different labour market and benefit statuses, it was necessary to include a new status which is termed 'nothing', for those spells in which the individual was neither on benefit nor present in the employment data.

Figure B.1 illustrates the spell history of a particular individual. As it can be seen, this individual presented four different spells from 1998 to 2004, three intermittent employment spells and one continuous IS spell. It is important to notice that two of the employment spells were shorter than nine weeks.

Figure B.1 Raw spells in the administrative data

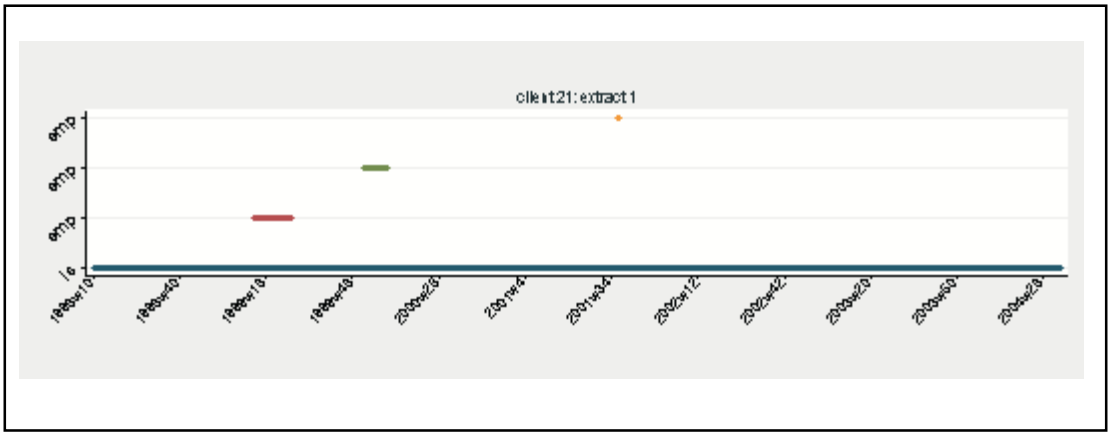


Figure B.2 illustrates how the spells of this individual were changed. Two of the three employment spells were dropped, due to the fact that they were shorter than nine weeks. The remaining employment spell, changed its status to an 'Employment with Benefit' spell, given that there was a continuous IS spell during the whole period. And finally, the IS spell was broken, in two separate spells.

Figure B.2 Spells after cleaning start and end dates

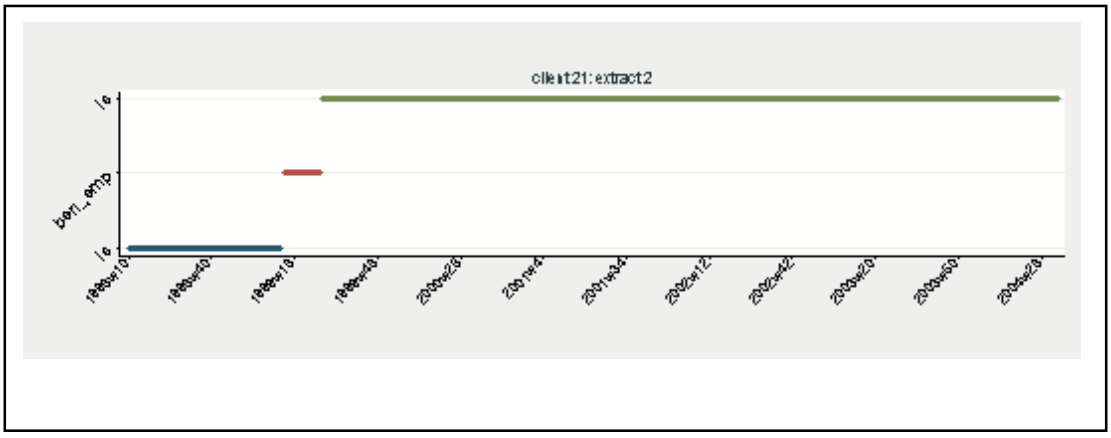
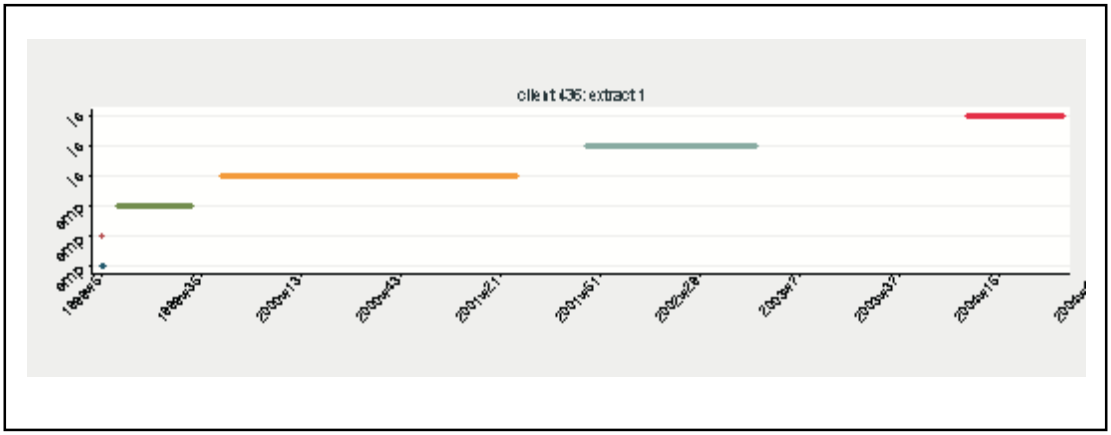


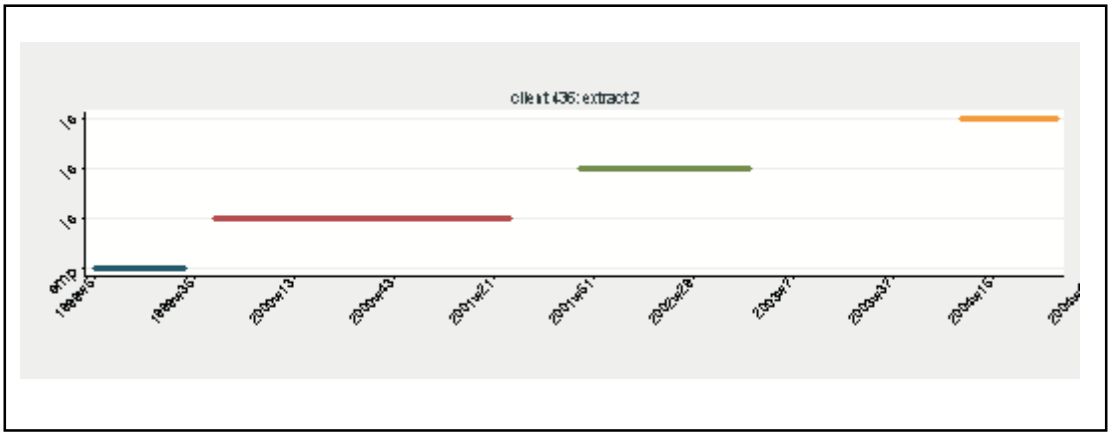
Figure B.3 shows an alternative case in which the individual had six different spells, three in employment and three on IS.

Figure B.3 Raw spells



Once the start and end dates of the different spells were cleaned, and all the spells that merged were separated by less than five weeks, four different spells were left. All the employment spells were merged into a single one.

Figure B.4 Spells after cleaning start and end dates



However, there were still a few empty spells. In order to address this issue, two spells with nothing for those cases in which the interval was longer than five weeks were included, and the consecutive spells merged in which the intervals where shorter than five weeks. The final result was a spell history with six different spells (Figure B.5).

Figure B.5 Spells after including empty periods (nothing)

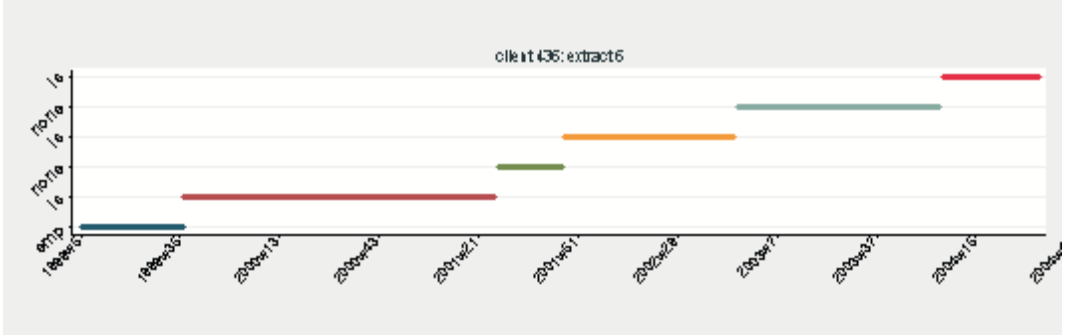
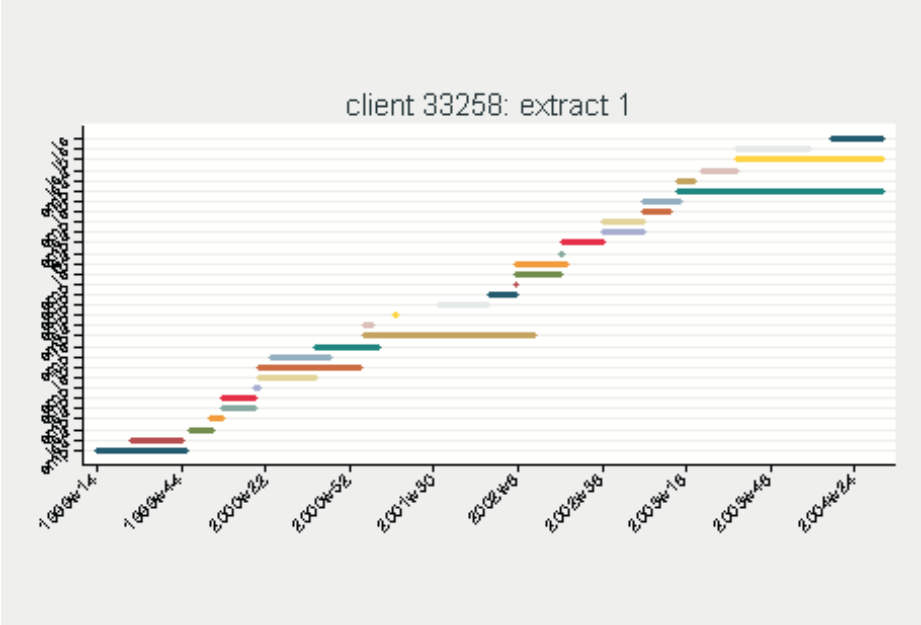


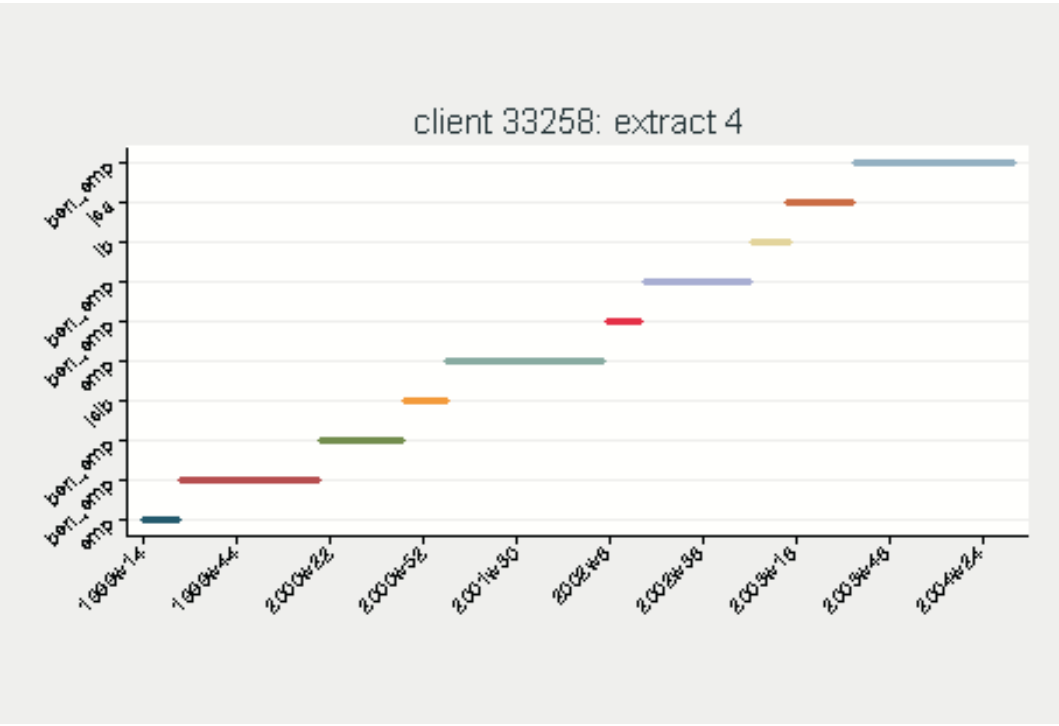
Figure B.6 illustrates a more extreme case in which the client presented 31 spells, including many overlaps.

Figure B.6 Raw spells



The removal of the overlapping claims and the merge of multiple consecutive spells of the same benefit brought this number down to 19 spells (Figure B.7).

Figure B.7 Spells after cleaning start and end dates

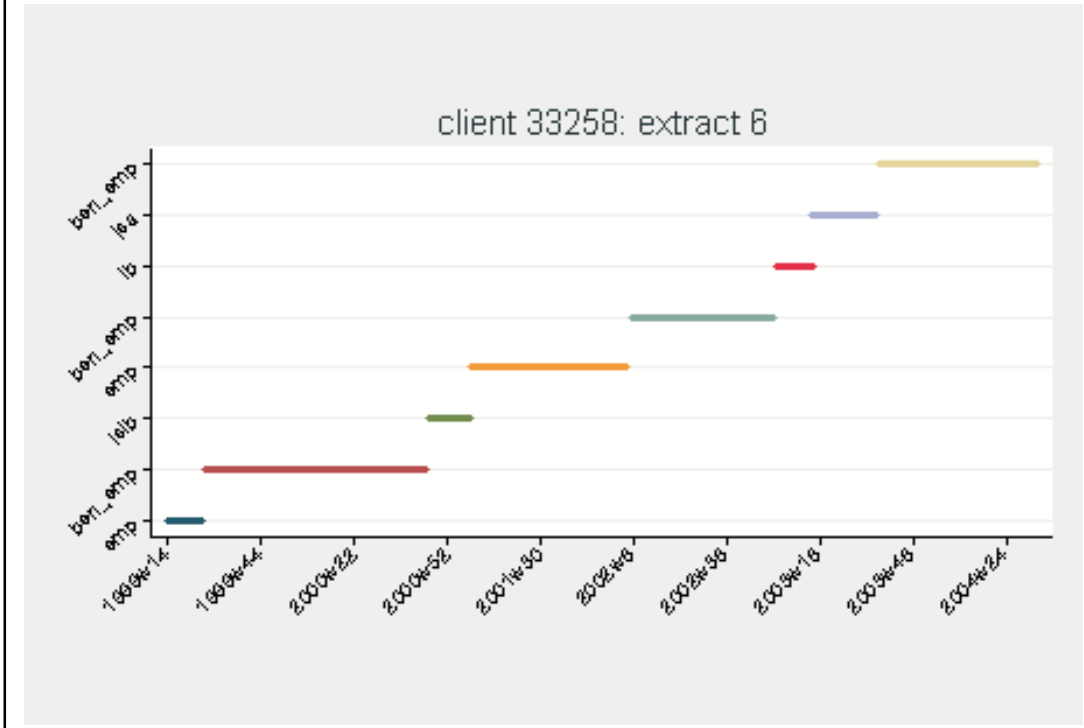


The last step was the merge of shorter spells (smaller than nine weeks), which brought the number of spells to eight (Figure B.8). The process by which this simplification of such a complex history is made inevitably involves a compromise between having a history that has too many short spells, many of which are overlapping and therefore invalid, and using (potentially inappropriate) rules which arbitrarily simplify the history and result in lost information. The second of these is undertaken with two main justifications:

- there are relatively few very complex histories like the one represented in Figure B.6 above which require strong re-interpretation and therefore most of the histories require very little revision to make them understandable and consistent; and
- since these histories were summarised in descriptive statistics then the more complex histories would be completely lost without some simplification.

Further examination and comparison of Figures B.6 and B.7 shows that the main simplification results from the elimination of time periods in which the individual is inadmissibly reported doing more than one thing at the same time. These rules of simplification allow reasonable disentanglement of the basic pattern of this person's labour market history.

Figure B.8 Spells after merging short periods (smaller than nine weeks)



B.2 Brief explanation of the data and sample terms used

The sample used in analysis is the same as the one used in Lessof *et al.*, (2003), and comprises a stratified sample of the NDLP eligible population of 69,851 cases. Therefore, all the lone parents in the sample were IS claimants in August and October 2000 and eligible for NDLP, but not on NDLP at that time.

Tables B.1 and B.2 explain the composition of the sample in detail, as it was set out for the Lessof *et al.*, (2003) analysis. The composition was set up based on the '**observation window**' from August 2000 (i.e. from the point the first sample was drawn) until April 2001 (when it was necessary to select the participants and non-participants for the face-to-face survey). This is also referred to in the text as the 'participation window'.

'Participation', itself was defined as having **an initial NDLP interview** recorded in the Labour Market System (LMS) data on NDLP in the NDLP database. It should be noted that this definition differs from the official definition of NDLP caseload. The definition of non-participation refers to all those not classified as a participant (i.e. lone parents who had not had an initial interview with NDLP). This differs from Section two in this report, where the impact analyses for the combined NDLP/LPWFI examined participation using the official definition of NDLP caseload – recorded with an NDLP caseload start date.

Table B.3 gives the key definitions that are used for the analyses in Section 4: the **full sample** or **Sample I**, and **Sample III** also termed '**the matched sample**'. In section 4, impact estimates using only the information in the administrative data were constructed by comparing the **participants in Groups A, B and D** with the **non-participants in Groups C and E**.

In some analyses there are two groups of NDLP spells – these are found in analyses considering spells and multiple participation in NDLP. **NDLP NCSR** are those participation spells that occurred **during** the participation window (1 August 2000 to 1 April 2001), those labelled **NDLP** occurred **after** this participation window. Hence the NDLP spells that were used to identify the treatment group were classified as 'NDLP NCSR', while the NDLP spells that occurred after 1 April 2001 are referred to as simply 'NDLP'. In refining the data, several short spells where dropped, and several others were pooled together, and so the number of NDLP NCSR spells is actually smaller than the full number of NDLP participants identified during the participation window.

Table B.1 Composition of the sample

	Participants Individuals identified as participants on the NDLP database within the study window, i.e. between August 2000 and April 2001		Non-participants Individuals who were not identified as participants on the NDLP database within the study window
	GROUP A (1,209)	GROUP B (1,787)	GROUP C (39,277)
Cases for whom we have administrative and postal survey data	Individuals who participated in NDLP and then returned their postal questionnaire. Because of this they could not be used for the subsequent sampling	Individuals who returned their postal questionnaire and then participated in NDLP This group formed the participant sample	Non-participants who returned their postal questionnaire. This group formed the pool from which the matched sample of non-participants was selected
	GROUP D (1249)		GROUP E (26,329)
Cases for whom we have administrative data only	Participants who did not return their postal questionnaire. Because of this they could not be used for the subsequent sampling		Non-participants who did not return their postal questionnaire. Because of this they could not be used for the subsequent sampling

Source: Phillips *et al.*, Figure 2.2.

Table B.2 Selection and response rates for the two key sample sub-groups

	GROUP B (1,787) The **participant** sample	GROUP C (39,277) The pool from which the matched sample of **non-participants** was selected
	GROUP B1 (1,269)	**GROUP C1 (1,253)**
Cases for whom we have administrative, postal survey and face-to-face interview data (survey respondents) (2,522)	Participants who responded to the survey.[1] Of these: a) 1,071 confirmed in the survey that they were participants; b) the survey participation status of a further ten could not be checked; c) 188 said in the survey that they were non-participants.	**Matched** non-participants who responded to the survey.[2] Of these: a) 1,067 confirmed they were non-participants during the survey; b) for 12 their survey participation status could not be checked; c) During the survey 174 said they were participants.
	GROUP B2 (517)	**GROUP C2 (576)**
Cases for whom we have administrative and postal survey data only	Participants who did not respond to the face-to-face survey	Matched non-participants who did not respond to the survey
		GROUP C3 (37,446) Non-participants who were not matched to participants

Source: Phillips *et al.*, (2003), Figure 2.5.1.

[1] This figure excludes one participant who responded to the survey but did not give consent for the interview data to be used in analysis. This case is removed from all discussions relating to survey data, but included in administrative or postal data analyses.

[2] This figure excludes two non-participants who responded to the survey but did not give consent for the interview data to be used in analysis. These cases are removed from all discussions relating to survey data, but included in administrative or postal data analyses.

Table B.3 Different sample definitions

Sample number	Sample description (groups)	Number of NDLP participants	Number of non-participants	Total sample size
I	A, B, C, D and E	4,245	65,606	69,851
III	B, C1 and C2	1,777	1,819	3,596

Table B.4 Relative frequencies of the population, used for Sample I weights in hardmatching for estimate of total impact

Strata Category	Relative frequency Sample I	Relative frequency Population	Ratio population/ sample
1 - y0-3, lt three months	0.031	0.010	0.313
2 - y0-3, 3-lt six months	0.032	0.033	1.022
3 - y0-3, six months-lt 12 months	0.061	0.057	0.925
4 - y0-3, 12 months to 24 months	0.083	0.080	0.969
5 - y0-3, two years to lt three years	0.036	0.045	1.262
6 - y0-3, three years or more	0.032	0.046	1.453
7 - y3-5, lt three months	0.018	0.006	0.317
8 - y3-5, 3-lt six months	0.042	0.012	0.289
9 - y3-5, six months-lt 12 months	0.024	0.020	0.820
10 - y3-5, 12 months to 24 months	0.030	0.032	1.062
11 - y3-5, two years to three years	0.027	0.029	1.044
12 - y3-5, three years or more	0.069	0.097	1.406
13 - y5-11, lt three months	0.035	0.010	0.302
14 - y5-11, 3-lt six months	0.086	0.027	0.316
15 - y5-11, six months-12 months	0.053	0.032	0.596
16 - y5-11, 12 months to 24 months	0.050	0.052	1.041
17 - y5-11, two years to lt three years	0.032	0.035	1.097
18 - y5-11, three years or more	0.128	0.198	1.541
19 - y11-16, lt three months	0.012	0.004	0.291
20 - y11-16, three-lt six months	0.014	0.014	0.977
21 - y11-16, six months - 12 months	0.013	0.017	1.292
22 - y11-16, 12 months - 24 months	0.012	0.021	1.737
23 - y11-16, two years to three years	0.011	0.016	1.485
24 - y11-16, three years or more	0.070	0.110	1.573

Note: The weights reflect the ratio in column 3, but were scaled to sum to 1.

Table B.5 Breakdown of sample by age of youngest child – benefit duration

	Freq.	Per cent	Cum.
1 - y0-3, lt three months	3,942	5.64	5.64
2 - y0-3, 3-lt six months	1,814	2.6	8.24
3 - y0-3, six months-lt 12 months	3,503	5.01	13.26
4 - y0-3, 12 months to lt two years	5,357	7.67	20.92
5 - y0-3, two years to lt three years	2,869	4.11	25.03
6 - y0-3, three years or more	4,179	5.98	31.01
7 - y3-5, lt three months	1,468	2.1	33.12
8 - y3-5, 3-lt six months	2,055	2.94	36.06
9 - y3-5, six months-lt 12 months	1,303	1.87	37.92
10 - y3-5, 12 months to lt two years	1,810	2.59	40.51
11 - y3-5, two years to lt three years	1,428	2.04	42.56
12 - y3-5, three years or more	4,571	6.54	49.1
13 - y5-11, lt three months	2,826	4.05	53.15
14 - y5-11, 3-lt six months	3,885	5.56	58.71
15 - y5-11, six months-lt 12 months	2,826	4.05	62.76
16 - y5-11, 12 months to lt two years	2,983	4.27	67.03
17 - y5-11, two years to lt three years	2,213	3.17	70.2
‘8 - y5-11, three years or more	9,663	13.83	84.03
19 - y11-16, lt three months	1,634	2.34	86.37
20 - y11-16, three-lt six months	646	0.92	87.29
21 - y11-16, six months-lt 12 months	911	1.3	88.6
22 - y11-16, 12 months to lt two years	1,028	1.47	90.07
23 - y11-16, two years to lt three years	909	1.3	91.37
24 - y11-16, three years or more	6,028	8.63	100
Total	69,851	100	

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