Research report

The introduction of Jobcentre Plus: An evaluation of labour market impacts

by Rebecca Riley, Helen Bewley, Simon Kirby, Ana Rincon-Aznar and Anitha George

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Abbreviations

ASHE	Annual Survey of Hours and Earnings
CES	Constant elasticity of substitution
DiD	Difference-in-difference
DWP	Department for Work and Pensions
ESA	Employment Support Allowance
EU	European Union
GDP	Gross Domestic Product
HC	House of Commons
HMRC	Her Majesty's Revenue and Customs
IB	Incapacity Benefit
ILO	International Labour Organisation
IS	Income Support
ISLP	Income Support for lone parents
JCD	Jobcentre District
JET	Job Entry Target
JOT	Job Outcome Target
JSA	Jobseeker's Allowance
LFS	Labour Force Survey
NAIRU	Non-Accelerating-Inflation Rate of Unemployment
NBD	National Benefits Database
NIESR	National Institute of Economic and Social Research
NiGEM	National Institute Global Econometric Model
NOMIS	National Online Manpower Information System
OECD	Organisation for Economic Co-operation and Development
ONS	Office for National Statistics
PAYE	Pay As You Earn
PSM	Propensity score matching
SDA	Severe Disablement Allowance

TTWA	Travel-to-Work-Area
WFI	Work-Focused Interview
WPLS	Work and Pensions Longitudinal Study

Summary

The introduction of Jobcentre Plus represented a major change in the delivery of public employment services and social security benefits in Britain. Before 2002 public employment services were delivered through the Employment Service. The job-brokering activities and active labour market policies provided through the Employment Service were directed primarily at people claiming unemployment benefits (Jobseeker's Allowance (JSA)). Separately, a range of social security benefits were provided through the Benefits Agency, including Income Support (IS) and Incapacity Benefit (IB) ('inactive' benefits). Meanwhile, while strong and stable economic growth led to sustained falls in unemployment and those claiming JSA, the number claiming inactive benefits, in particular IB, continued to rise. Between 1995 and 2002, while the number of people claiming JSA had fallen from 2.2 to 0.9 million, the number claiming incapacity benefit had risen from 2.4 to 2.6 million.

In response to this, new Welfare-to-Work initiatives, focusing on those on inactive benefits, were introduced. These included the New Deal for Lone Parents in 1998, the New Deal for Disabled People and mandatory Work-Focused Interviews (WFIs) for lone parents claiming IS in 2001. This change in policy emphasis called for a change in the infrastructure through which core elements of labour market policy were delivered.

Jobcentre Plus was first introduced in October 2001 in a set of Pathfinder Areas, and was subsequently rolled out nationally over the course of the following six years. The roll-out of Jobcentre Plus, which involved a £1.9 billion spend, represented a major overhaul of the infrastructure used to deliver public employment and benefit services. The main change was to bring the Employment Service and Benefits Agency under one roof, providing an integrated service for all people of working age seeking social security benefits and involving a significant rationalisation of estates. This organisational restructuring was accompanied by a significant modernisation of service delivery including office refurbishments, modernised IT systems, performance targets prioritising those furthest away from the labour market, and enhanced job-brokering. Changes in service delivery were particularly significant for IB claimants. Before Jobcentre Plus there was no explicit work-focus associated with benefit delivery for IB customers in most areas of the UK. This changed with the introduction of mandatory WFIs for this group under Jobcentre Plus at claim start and again at 36 months after claim start.

As such Jobcentre Plus has brought a work focus to benefit delivery for people who previously would have been able to claim benefit without simultaneously considering the opportunities for work and the assistance to get into work that might be available. Jobcentre Plus has also enabled the introduction of new policies directed at economically inactive benefit claimants, such as Pathways-to-Work for IB claimants.

The original business case for Jobcentre Plus set out a list of 12 deliverables against which to justify the investment. Crucially, the business case was based on the assumption that Jobcentre Plus would increase effective labour supply leading to an improvement in the functioning of the labour market, with consequent economic benefits and public expenditure savings. Specifically, it assumed that once up and running, Jobcentre Plus would move more than 140,000 people in the hardest-to-help groups into work every year. However, net additionality – the net change in total employment – was assumed to be only 28,000 (20 per cent), once account was taken of substitution and displacement effects. Additional job outcomes generated in this manner were expected to result in Annually Managed Expenditure (AME) savings of £620 million per annum, just under 60 per cent of the total annual savings to the Exchequer associated with the investment in Jobcentre Plus.

The main objective of the analysis in this report is to assess the labour market impacts of the introduction of Jobcentre Plus. Specific questions addressed are:

- What impact has the introduction of Jobcentre Plus had on the numbers of people moving off benefit and into work?
- What impact has the introduction of Jobcentre Plus had on the employment rate overall and the employment rate of different sub-groups?
- What impact has the introduction of Jobcentre Plus had on the wider economy, including output and the public finances?

Jobcentre Plus was first introduced in 56 Pathfinder sites in 17 clusters across the UK in October 2001. The second stage of implementation, known as Day Two and covering 24 districts, began in October 2002 and was mostly completed in March 2003. The remainder of the national roll out was scheduled in three successive waves between 2003/04 and 2005/06. The staged roll-out facilitates the evaluation of the labour market impacts of Jobcentre Plus, as it allows us to compare benefit off-flows in areas where Jobcentre Plus has been rolled out to benefit off-flows in areas where it has not, and to compare between these areas the change in off-flows over a time period that spans the introduction of Jobcentre Plus. Essentially the staged roll-out provides us with a 'quasi-experiment' where the policy or 'treatment' intensity varies across local areas.

Identification of the impacts of the introduction of Jobcentre Plus on the labour market and the wider economy is achieved by a combined approach involving estimation of the policy effect on the labour market directly from the data and model simulation of the policy effect on the labour market and the wider economy. The key information we wish to obtain is the difference that Jobcentre Plus makes to the number of people moving off benefit, the number of people employed and the wider economy. In order to determine this we need to estimate what would have happened in the absence of the introduction of Jobcentre Plus, as it is impossible to observe the economy with and without the introduction of Jobcentre Plus at the same time.

The analysis in this report can be divided into five components. First, we estimate the impact of Jobcentre Plus on labour market flows within a panel of local-level flow rates where the intensity of Jobcentre Plus 'treatment' varies across areas and time. The main outcome variable considered is the exit rate from benefit to work (the proportion of benefit claimants who leave benefit and find work within a three-month period). Substitution and displacement effects amongst the Jobcentre Plus customer group are automatically accounted for within this set-up, allowing us to capture the net change in labour market transitions amongst benefit claimants arising from the introduction of Jobcentre Plus. Implementation effects are also evaluated within this set-up and are distinct from the longer-term effects of Jobcentre Plus, thus we allow the policy effect to vary over time. Second, we estimate the impact of Jobcentre Plus in Day Two areas on individuals' probability of being on or off benefit using individual claims data. Third, we derive the implications of the estimated changes in local area flow rates for the number of benefit claimants and the level of employment. Next, we assess the relationship between Jobcentre Plus and wages in a panel of local-level wages. Finally, we use the NIESR's macro-modelling facilities (NiGEM) to measure the impacts of Jobcentre Plus on the wider economy. Assumptions are informed by the local area flow analysis.

It is important to be clear about what our impact estimates measure. The analysis here of the introduction of Jobcentre Plus does not capture the costs and benefits of having the Jobcentre Plus agency and all the services that it performs. Rather we capture the effects of the changes in the labour market impacts of the public employment service in Britain brought about by the introduction of Jobcentre Plus. We estimate additional job outcomes for different client groups, where additional job outcomes refer to all job outcomes facilitated through Jobcentre Plus less deadweight (flows

from benefit to jobs that would have occurred without the introduction of Jobcentre Plus) less substitution and displacement (flows from benefit to jobs that occur because of the introduction of Jobcentre Plus at the expense of other job outcomes). We do not take account of any substitution impacts on those not claiming social security benefits, although we would expect these to be small.

The policy effects we identify are conditional on the Welfare-to-Work programmes already in place. Complementarities between these and the introduction of Jobcentre Plus should be captured by the policy impacts we identify. Our estimates of the impact of Jobcentre Plus do not include the impact of the Pathways-to-Work programme or other changes to Welfare-to-Work provision that were implemented nationally throughout the Jobcentre Plus roll-out period.

The general picture that emerges from the empirical analysis is that Jobcentre Plus has helped to reduce the number of people on out-of-work benefits, and to increase the effective labour supply in Great Britain. Following the initial disruption to the public employment service caused by the introduction of Jobcentre Plus, we find that the changes brought about by the programme are likely to have increased the rate of job-matching for benefit claimants of working age. These improvements are evident for jobseekers, lone parents claiming IS and people claiming disability-related social security benefits.

Our analysis of local area flows and individual claims data both suggest that the introduction of Jobcentre Plus has been associated with an increase in exits from JSA and from benefit more generally for individuals claiming JSA. The local area analysis suggests these exits are likely to have been to jobs. Both analyses show substantial variation in the impacts of Jobcentre Plus across sub-groups. We find that Jobcentre Plus has been associated with an increase in inflows to JSA for some groups, but the evidence is mixed. The disruption caused by the implementation of Jobcentre Plus was associated with significant, but temporary, reductions in flows to and from JSA.

The local area analysis points to an increase in exits from IB off benefit arising with Jobcentre Plus, although we find significant negative impacts for people over 50 with shorter duration claims. This group accounts for approximately five per cent of disabled clients and 15 per cent of exits off benefit from IB. The analysis of individual claims points to a negative impact of Jobcentre Plus on exits from IB off benefit for shorter duration claims. Consistent with the local area analysis these are concentrated amongst older benefit claimants. The more positive picture coming from the local area analysis, in comparison to the individual claims analysis, of the impact of Jobcentre Plus on disabled customers, is likely to be associated with differences in measured policy effects across roll-out waves. We find no evidence to suggest that flows onto disability benefit were affected by Jobcentre Plus. Policy implementation effects were generally not very significant for disabled clients.

The local area flow analysis suggests that the introduction of Jobcentre Plus was associated with an increase in the exit rate from IS to jobs, from IS off benefit (including exits to jobs and other unknown destinations) and from IS to other out-of-work benefits (including JSA) for lone parents. These impacts were typically observed for shorter duration claims. The analysis of individual claims data looks at exits off benefit and finds a small increase in the exit rate from benefit for very short duration claims only. We find some evidence of negative policy start-up effects. We find no evidence that Jobcentre Plus changed inflows of lone parents to IS.

Central estimates suggest that by the time Jobcentre Plus was fully rolled out across the UK, flows from benefit to jobs were likely to be around 40,000 per annum higher than they would have been had the investment not taken place. This is mainly associated with a rise in exits from JSA to jobs. The longer-term effects of these changes in exit rates, if sustained, are to reduce the benefit stock by around 65,000, matched by an equivalent rise in employment. The reduction in the benefit stock is mainly associated with a reduction in the number of IB claimants. This positive impact is greater than that set out in the original business case.

One of the key economic mechanisms through which Jobcentre Plus is likely to affect equilibrium employment is through its impact on the effective labour supply and hence wage pressure. Analysing wages we find some, albeit weak, evidence that Jobcentre Plus has led to a reduction in wage pressure. These types of policy effects are typically more difficult to detect from the data than policy effects on flow rates, because they are likely to be smaller and because the wage data is less accurate.

Simulating the potential macroeconomic effects of these labour market changes on the wider economy we find that the Jobcentre Plus investment is likely to more than have paid for itself. Via an increase in effective labour supply, and hence the overall supply capacity of the economy, Jobcentre Plus is likely to have led to a small rise in Gross Domestic Product (GDP) of about 0.1 per cent. In the short-term there are negative effects on the government's budget balance, associated with the costs of roll-out as well as the negative start-up effects on flows from benefits to jobs. However, with rising employment and GDP, and a reduction in the stock of benefit claimants, the impact on the budget balance becomes positive. By 2015 this would suggest an annual improvement of around 0.1 per cent of GDP. The net present value over this period is about £5.5 billion. The savings from the benefit system are clearly of importance, but it is other factors that drive the improvement in the public finances. A reduction in government interest payments accounts for approximately a third of the cumulative improvement. Sensitivity analyses were conducted around some of the key assumptions, but in all cases the Jobcentre Plus investment appears to have been more than self-financing.

1 Introduction and overview

Over the period 2002-08 the infrastructure for delivering public employment services and social security benefits in Britain underwent major change. Before 2002 public employment services were delivered through the Employment Service. The job-brokering activities and active labour market policies provided through the Employment Service were directed primarily at people claiming unemployment benefits (Jobseeker's Allowance (JSA)). Separately, a range of social security benefits were provided through the Benefits Agency, including Income Support (IS) and Incapacity Benefit (IB).[1] With the introduction of Welfare-to-Work initiatives such as the New Deal for Lone Parents in 1998, the New Deal for Disabled People and mandatory Work-Focused Interviews (WFIs) for lone parents claiming IS in 2001, labour market policy in Britain was increasingly inclusive of people who were economically inactive and on low incomes. The economic background to this was one of strong and stable economic growth, which, although associated with continual falls in unemployment, was failing to engage individuals further away from the labour market. The change in policy emphasis called for a change in the infrastructure through which core elements of labour market policy were delivered.

Jobcentre Plus was first introduced in October 2001 in a set of Pathfinder Areas, and was subsequently rolled out nationally over the course of the following six years. It brought together the Employment Service and those parts of the Benefits Agency dealing with people of working age to provide an integrated and work-focused service to people seeking to claim social security benefits and employers. One of the main innovations of Jobcentre Plus was the extension of the work-first ethic and the concept of rights and responsibilities to all people of working age wanting to claim social security benefits, regardless of their individual situation. Most prominent was the introduction of mandatory WFIs for all benefit claimants and increased efforts to channel people into the New Deals, known as caseloading. The merging into one of the job placement functions and active labour market interventions, previously performed by the Employment Service, and the payment of benefits, previously performed by the Benefits Agency, was also accompanied by the introduction of new IT systems and a rationalisation of the service network. These were intended to increase the efficiency with which benefits and the work-focused service are delivered, to reduce benefit fraud and to improve job vacancy management and job matching.

Quantitative evidence on the labour market impacts of these changes to the public employment service infrastructure is relatively scant. Delivery of the modernised and integrated service network was initially planned for a budget of £2.2 billion, but was delivered for £314 million less[2]. In a report by the House of Commons Committee of Public Accounts[3], the roll-out of Jobcentre Plus was judged to have been a success, in terms of providing a more cost effective service network and an improved customer and working environment. However, the same report goes on to say that '*it is not able to demonstrate clearly whether the project has achieved the business case objective of increasing the number of clients finding work*'.

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1 The Benefits Agency also delivered JSA payments, although receipt of these was conditional on contact with the Employment Service. However, Benefits Agency staff were sometimes located within Jobcentres so that jobseekers did not have to contact two offices (Smith *et al*., 2000).

2 National Audit Office (2008: 12).

3 HC (2008).

The analysis presented in this report aims to fill some of the gaps in the evidence base. In particular, we exploit the differential timing of the roll-out of the policy across local areas in Britain to identify the impact of the introduction of Jobcentre Plus on the numbers of people moving off benefit and into work. Using this and other information we derive implications for the employment rate and the wider economy. Our evaluation adopts a combined approach involving estimation of the policy effect on the labour market directly from the data (including econometric analysis of local area labour market flows and wages, and econometric analysis of individual labour market transitions using administrative data) and model simulation of the policy effect on the labour market and the wider economy.

This report is structured as follows. The next chapter details the change in policy introduced with Jobcentre Plus, the business case for Jobcentre Plus and sets out the objectives of this evaluation. Chapter 3 outlines the potential labour market implications of the introduction of Jobcentre Plus. Chapter 4 discusses a number of identification issues, including policy measurement, and sets out briefly the components and methodologies of the evaluation. We make clear what our impact estimates measure. Chapters 5-7 discuss our main findings regarding the impacts of Jobcentre Plus on the labour market transitions of the three main benefit client groups (jobseekers, disabled customers and lone parents claiming IS). Chapter 8 discusses what our findings imply about the impacts of Jobcentre Plus on the UK labour market. In Chapter 9 we discuss our findings regarding the wider economic implications of the introduction of Jobcentre Plus, including implications for the public finances. Chapter 10 summarises and compares our evaluation evidence against the Jobcentre Plus business case. Details of our methodology, estimated models and results are shown in Chapter 11 and the appendices to this report.

2 Background and objectives

2.1 The Jobcentre Plus transformation

The roll-out of Jobcentre Plus, which involved a £1.9 billion spend[4], represented a major overhaul of the infrastructure used to deliver public employment and benefit services. The main change was to bring the Employment Service and Benefits Agency under one roof, providing an integrated service for all people of working age seeking social security benefits. This organisational restructuring was accompanied by a significant modernisation of service delivery. As such, Jobcentre Plus has brought a work focus to benefit delivery for people who previously would have been able to claim benefit without simultaneously considering the opportunities for work and the assistance to get people into work that might be available. It has also enabled the introduction of new policies directed at economically inactive benefit claimants, such as Pathways-to-Work for Incapacity Benefit (IB) claimants.

The main aim of Jobcentre Plus is to provide work for those who can, and support for those who cannot. Its key objectives are to:[5]

- increase the effective supply of labour by promoting work as the best form of welfare and helping unemployed and economically inactive people move into employment;
- work towards parity of outcomes for ethnic minority customers;
- pay customers the correct benefit at the right time and protect the benefit system from fraud, error and abuse;
- provide high-quality and demand-led services to employers, which help fill job vacancies quickly and effectively with well-prepared and motivated employees;
- help people facing the greatest barriers to employment to compete effectively in the labour market and move into and remain in work;
- improve continuously the quality, accessibility and delivery of services to all customers;
- ensure that people receiving working-age benefits fulfil their responsibilities while providing appropriate help and support for those without work;
- increase Jobcentre Plus's overall productivity, efficiency and effectiveness.

In order to achieve this aim, Jobcentre Plus offers three distinct services (Riley *et al.*, 2007). First, the work-focused claim process, which involves allocating individuals to the appropriate benefit and a two-way process of getting to know individuals' circumstances and work potential, and of raising individuals' awareness of the opportunities available. The second, programme delivery, follows on from the work-focused claim process and involves more active and targeted provision. The third function of Jobcentre Plus is its job-brokering service. This service supports both the work-focused claim process and programme delivery.

But what actually changed with Jobcentre Plus? It is important to consider this, as it is essentially the labour market impact of these changes that we can evaluate. We do not evaluate the impacts of having the Jobcentre Plus agency and all the services that it performs in comparison to the case

4 National Audit Office (2008: 12).

5 http://www.dwp.gov.uk/about-dwp/customer-delivery/jobcentre-plus/

where Jobcentre Plus simply did not exist. Nor do we evaluate the impact of the various policies that have been introduced since the introduction of Jobcentre Plus, which may not have been possible without Jobcentre Plus. Rather, we evaluate the impact of the organisational changes and modernisation of the public employment and benefit delivery service that were introduced with Jobcentre Plus against a case where these had not taken place.

Many of the services currently provided through Jobcentre Plus existed before the introduction of the Jobcentre Plus agency, sometimes in a different form or under a different name. For example, there was no change in the type or range of Welfare-to-Work programmes available to Jobcentre Plus customers.[6] As set out in Riley *et al.* (2007), the introduction of Jobcentre Plus involved a number of changes, as shown in Sections 2.1.1 to 2.1.4, that affected all benefit claimants of working age.

2.1.1 Integration of the Employment Service and Benefit Agency

This process involved staff reductions, rationalisation of estates and office refurbishments. At launch there were 1,500 Jobcentres and Benefits Agency offices delivering separately. By March 2008 these had been replaced by 799 integrated Jobcentre Plus offices.[7,8]

2.1.2 Modernised IT systems

This primarily refers to the introduction of the Customer Management System, of which the main new features were: integrated electronic information gathering and onward transmission of data to benefit processing systems; responsive interactive customer interface service with built in focus on work and anti-fraud.[9]

2.1.3 Performance targets

Jobcentre Plus introduced a Job Entry Target[10] Point System to help in monitoring its performance. Points were allocated on a scale of 1 to 12 depending on the priority of the client group of the individual moving into work through Jobcentre Plus. Customers claiming Income Support (IS), IB, or the Severe Disablement Allowance achieved the highest priority. Long-term Jobseeker's Allowance (JSA) claimants and customers on the New Deal programmes achieved the next highest priority.

2.1.4 Enhanced job-brokering

New measures introduced include: the introduction of a Sales-Led Vacancy Taking process called Employer Direct; Employer Direct On-line; the introduction of a Candidate Bank; a telephone job matching service (Jobseeker Direct) and Internet Job Bank; enhanced services to small and medium sized enterprises; Specialist Employment Advisers to work with community groups and employers to help with ethnic minority employment in seven cities.

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6 The roll-out of Pathways in Jobcentre Plus areas is not viewed as part of the introduction of Jobcentre Plus.

7 Jobcentre Plus Story, presentation received from the Department for Work and Pensions (DWP).

8 Initially the aim was to reduce the estate from 1,500 sites to 1,000 sites by 2006, but this has since been further reduced with the centralisation of benefit processing; National Audit Office (2008: 10).

9 Corkett *et al.* (2005).

10 In 2006 the Job Entry Target was replaced by the Job Outcome Target (JOT). Under the JOT system performance data are collected automatically from administrative tax and benefit records, rather than from JSA40 administrative returns.

In addition to these changes, the introduction of Jobcentre Plus brought about little difference in the service delivery provided to JSA claimants and lone parents claiming IS. The JSA claim procedure was already work-focused before the introduction of Jobcentre Plus, with fortnightly signing on and mandatory Work-Focused Interviews (WFIs). For most lone parents, the claim procedure was also work-focused before the introduction of Jobcentre Plus, which occurred very close to the national introduction of mandatory WFIs for lone parents in April 2001, in advance of the introduction of Jobcentre Plus. Initially, these were introduced for lone parents making a new or repeat claim for IS whose youngest child was at least five years old. Coverage and frequency of mandatory WFIs for lone parents was gradually extended so that by April 2004 all lone parents claiming IS were receiving mandatory WFIs at claim start, at six and 12 months following claim start, and annually thereafter (Knight *et al*., 2006).[11]

Changes in service delivery were more significant for IB claimants. Before Jobcentre Plus there was no explicit work-focus associated with benefit delivery for disabled customers in most areas of the UK. This changed with the introduction of mandatory WFIs for this group under Jobcentre Plus at claim start and again at 36 months after claim start. WFIs for disabled benefit clients had been introduced in some areas before the introduction of Jobcentre Plus under the ONE Pilot scheme.[12] However, the WFIs provided in the ONE Pilots are likely to have been less work-focused than those provided through Jobcentre Plus, since there was no separation of the discussion of financial support/benefit delivery and the WFI. In Jobcentre Plus customers have a Financial Assessor meeting that deals with the delivery of benefits. It is intended to take place in advance of the WFI to ensure that discussion at the WFI centres around work.

Although changes in benefit delivery were more overtly significant for IB claimants, their contact with Jobcentre Plus will be significantly less than for other groups. To see this, note that IB claimants account for more than half of Jobcentre Plus clients. But, for example, in the three months to May 2008 (towards the end of the national roll out of Jobcentre Plus), there were 3.5 people initiating a JSA claim for every one person initiating an IB claim (and there were 8.6 new JSA claims for every new lone parent claim for IS).[13] Thus, in terms of exposure to the changes brought about by the introduction of Jobcentre Plus, JSA clients are more significantly affected than any other client group.

2.2 The business case

The original business case for Jobcentre Plus[14] sets out a list of 12 deliverables against which to justify the investment. Crucially, for comparison against the impact estimates we derive, the business case is based on:

- expected 'additional' job outcomes (flows from benefit to jobs) in the hardest-to-help groups of more than 140,000 per annum in the longer term[15];
- an increase in the effective supply of labour leading to an improvement in the functioning of the labour market.

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11 Lone parents who were already claiming IS before the roll out of mandatory lone parent WFIs will of course not have received these during the earlier stages of their claim.

12 The ONE Pilot scheme was introduced throughout 1999 in 12 pilot areas representing nine per cent of working-age benefit claimants in Great Britain.

13 These numbers measure live benefit claims that had lasted up to three months in May 2008, and are not necessarily equal to the gross on-flow to benefits in the three months to May 2008.

14 Jobcentre Plus Integrated Modernisation Business Case, DWP.

15 National Audit Office (2008: 9).

The introduction of Jobcentre Plus was eventually expected to deliver savings to the Exchequer of around £1 billion per annum[16]. According to the business case nearly 60 per cent of these savings would be associated with additional job outcomes generated in this manner. The savings calculation is based on the assumption that only 20 per cent of 'additional' job outcomes are genuinely additional, in the sense that they result in a change in employment, the remainder being offset by substitution and displacement.[17] The savings calculation also assumes that displacement effects generate benefit savings as clients who receive relatively high benefit payments win jobs at the expense of clients who receive lower benefit payments. The business case also assumes savings associated with reduced Jobcentre staff numbers, which we take into account when assessing the impacts of the introduction of Jobcentre Plus on the wider economy, but makes no allowance for changes in government interest payments or changes in tax revenues.

2.3 Existing evidence on labour market impacts

Jobcentre Plus, or at least the introduction of Jobcentre Plus, has already been the subject of extensive evaluation, but most of this concerns the delivery and process of the policy. The evaluation of the impact of Jobcentre Plus on labour market outcomes has mostly been conducted in-house by the DWP and there is as yet no evaluation of the macroeconomic impact of Jobcentre Plus.

Some evidence is available on the labour market impacts of Jobcentre Plus in its early stages. Comparing the actual experience of benefit clients in those areas of the country where Jobcentre Plus was first introduced to a forecast of, or counterfactual for, what might have happened without these changes in infrastructure (based on the change in experience of benefit clients in areas where Jobcentre Plus was not introduced early on), Corkett *et al*. (2005) (Chapter 2) suggest the introduction of Jobcentre Plus was associated with an increase in the numbers of sick and disabled clients leaving social security benefits for work and small improvements in job entry for other client groups. These effects were not evident in the number of people leaving benefit more generally. Corkett *et al.* (2005) also suggest there was evidence of a negative implementation effect on benefit off-flows associated with the initial disruption caused by the change in the service network.

The analysis presented in this report builds on and updates some of the Corkett *et al.* (2005) analysis. Similar to Corkett *et al*. (2005), we rely on the differential roll-out of Jobcentre Plus across the country to identify the impact of the introduction of Jobcentre Plus on labour market flows, but we use an additional three years of information. We further expand upon previous work in at least three ways. First, and importantly, we derive the policy effect on labour market flows by econometric modelling rather than by simple comparison.[18] Second, we derive the policy effect on benefit stocks within a simple model of labour market stocks and flows using the estimates of the policy effect on

16 HC (2008:9).

17 The business case assumes additional jobs arise by the provision of additional lone parent WFIs. Thus there seems to be some overlap with the business case for the introduction of Jobcentre Plus with that for the introduction of mandatory WFIs for lone parents. Our analysis does not estimate the impact of lone parent WFIs.

18 For example, having specified an underlying economic model we include relevant determinants of outcomes to control for other differences between changes in outcomes for clients in areas where Jobcentre Plus has been introduced and areas where it has not; we explore the robustness of the results to the baseline assumptions used to assess the counterfactual (time periods and control areas); we consider the statistical validity of the model using current econometric techniques; and we present the statistical significance of the estimated policy effects.

flow rates. Third, in estimating the policy effect we distinguish explicitly (and consistently) between implementation and longer-term effects. Further, our approach allows us to provide direct estimates of additionality.

The evaluation of the ONE pilot programme, which in many respects functioned as a pilot scheme for Jobcentre Plus, also provides some evidence on the likely labour market impacts of Jobcentre Plus. Evaluating the effects of ONE on individual exits from benefit using a difference-in-differences approach to identify the treatment effect, Kirby and Riley (2004) found there was no effect from participation in the ONE pilot programme on the exit rate from benefit for any of the main benefit client groups. There were some tentative results that the probability of exit for JSA clients may have been adversely affected by ONE, but this seems to have been due to implementation problems. Many of the lessons from the ONE pilot scheme were taken on board in the design of Jobcentre Plus (Corkett *et al.*, 2005), and thus Jobcentre Plus delivery is not strictly comparable to the ONE pilots.

2.4 Objectives of the evaluation

The main objective of the analysis in this report is to assess the labour market impacts of the introduction of Jobcentre Plus. Specific questions addressed are:

- What impact has the introduction of Jobcentre Plus had on the numbers of people moving off benefit and into work?
- What impact has the introduction of Jobcentre Plus had on the employment rate overall and the employment rate of different sub-groups?
- What impact has the introduction of Jobcentre Plus had on the wider economy (e.g. output and consumption)?

Given the scale of the Jobcentre Plus intervention, and the way in which it is intended to operate, the additional effect of the introduction of Jobcentre Plus on aggregate employment is unlikely to be replicated by a simple aggregation of the net effect on individuals, nor is it likely to be replicated by looking at short-term outcomes alone. Therefore, in measuring the additional or net effect of Jobcentre Plus on the aggregate labour market, the analysis aims to take into account the direct effects of Jobcentre Plus on individual participants, as well as the indirect effects of Jobcentre Plus on non-participants and on participants themselves, and aims to consider the time scales over which these changes are likely to take place. We do so by assessing the data at different levels and by adopting dynamic modelling approaches.

3 Jobcentre Plus, the labour market and the wider economy

The changes brought about with the introduction of Jobcentre Plus may have contributed to an increase in employment through several channels, with more people moving from benefit to work. The most important of these are likely to be through enhanced job-matching and increased labour market participation amongst disadvantaged groups, both potentially leading to an increase in the effective labour supply and an increase in the number of people in work. Riley *et al.* (2007) discuss in some detail the potential labour market effects of the Welfare-to-Work policies and employment services provided by Jobcentre Plus. Here we discuss the potential changes to exits from benefit to work for the three main client groups that may arise with the changes in service delivery brought about with Jobcentre Plus (outlined in Chapter 2). We also discuss potential impacts on the wider economy associated with these changes.

3.1 Potential impacts of Jobcentre Plus on the labour market and benefit flows

The significant staff reductions, rationalisation of estates and introduction of new IT systems that Jobcentre Plus involved is likely to have led to some initial disruption in service delivery to all three main groups of benefit customer. This may have reduced the job-finding rate temporarily for all benefit client groups. However, one might expect any temporary disruption effects to have been most severe for Jobseeker's Allowance (JSA) claimants, since they are typically in more frequent contact with the public employment service. At the same time, over the longer term, the integration of the Employment Service and the Benefit Agency, improvements to IT systems and the development of a less fragmented service for people of working age may have been associated with efficiency gains and economies of scope. These types of factors may normally be considered in terms of their effects on costs (for example, costs per job placement), but they may also improve the speed with which benefit clients are helped into work, increasing the rate of exit from benefit to work. However, these potential improvements in matching benefit clients to jobs could be off-set if the staff rationalisation results in a situation where the public employment service is not allocated enough resource to effectively perform its job brokering activities for a larger customer group (Carcillo and Grubb, 2006; Organisation for Economic Co-operation and Development, 2006).

The direct enhancements made to the job-brokering activities of the public employment service with changes in vacancy management may improve job-matching, raising exits from benefit to work. These types of improvements are most likely to benefit job-ready benefit claimants; primarily JSA claimants.

The introduction of performance targets that reward job outcomes for those furthest away from the labour market may help to increase the transition rate to work for Incapacity Benefit (IB) and Income Support (IS) claimants, and long-term unemployed JSA claimants. The introduction of mandatory Work-Focused Interviews (WFIs) for IB claimants should further help to raise the transition rate to work for this group. Initially this may result in increased caseloading to the voluntary New Deals, eventually resulting in job outcomes for these groups. Conversely, there is the risk that this detracts the attention of the employment service away from those who are already looking for work, reducing the job-finding rate for the unemployed.

Improved job-brokering and provision of job search assistance for IS and IB claimants may also move people from economic inactivity to unemployment and may inadvertently reduce the average search effectiveness of those looking for work, if individuals who move from inactivity are, on average, less effective jobseekers and face greater barriers to employment. This would reduce the exit rate from unemployment to work and may also increase the entry rate to JSA.

If Jobcentre Plus is successful in raising the effective labour supply, through increased participation in the labour market of disadvantaged groups or through improvements in the efficiency of job matching, it may be more difficult for those who are not helped by Jobcentre Plus to find work. If these effects arise they would be only short-term, as eventually the increase in the effective labour supply would put downward pressure on wages allowing the additional labour to be absorbed into employment.

By improving job-matching Jobcentre Plus may reduce the scarring effects on individuals of being out of work, ultimately enhancing productivity. More directly, average productivity is likely to be reduced by Jobcentre Plus, in so far as it brings into employment lower productivity individuals.

3.2 Potential impacts of Jobcentre Plus on the macroeconomy

Jobcentre Plus impacts on the macroeconomy first and foremost via its effect on the aggregate labour market. To summarise in a few words, the main effects of Jobcentre Plus are likely to be an increase in the effective labour supply that puts downward pressure on real wages and raises the number of people in work. However, the changes in the labour market brought about by the introduction of Jobcentre Plus will have impacts on other macroeconomic variables and vice versa these may have further repercussions in the labour market. Jobcentre Plus may also directly affect macroeconomic variables outside the labour market[19].

The downward pressure on wages and prices that results may allow nominal interest rates to be lower in the shorter term, the exact magnitude of which is influenced by monetary policy and the openness of the economy. The reduction in wage pressure with Jobcentre Plus should result in a reduction in the real exchange rate, which should boost competitiveness abroad.

The increase in employment that may result with Jobcentre Plus should stimulate investment and increase the capital stock, if firms desire to maintain their ratio of capital to labour.[20] However, Jobcentre Plus mainly improves the skills of the very low skilled, which in effect increases the supply of low-skilled labour providing comparatively little stimulus to investment and reducing average productivity.

By increasing the supply capacity of the economy Jobcentre Plus should increase Gross Domestic Product (GDP). In the long run the supply side of the economy determines macroeconomic outcomes, and thus any genuine changes to supply that are brought about by Jobcentre Plus should have sustainable effects on aggregate output. The effect of Jobcentre Plus on equilibrium employment and productivity are both important determinants of the longer-term effects of Jobcentre Plus on GDP. In the short term the effects of Jobcentre Plus are likely to be smaller than over the longer term if for no other reason than because the economy generally takes time to adjust to supply changes. The role of wage, consumer, and financial market expectations are all important

19 This approach does not measure the effect of the introduction of Jobcentre Plus on well-being. The recent Office for National Statistics consultation provides an introduction to such issues: http://www.ons.gov.uk/about/consultations/measuring-national-well-being/index.html

20 This long run equilibrium may be marginally changed by an increase in the labour supply, depending on how easily substitution can take place between the two factors.

determinants of the speed of adjustment to the economy's new equilibrium. To the extent that Jobcentre Plus increases real gross national income, it should also increase real consumer spending.

Jobcentre Plus should affect the public finances through several channels. The main savings to the taxpayer associated with having the Jobcentre Plus agency are likely to occur through the increased tax revenue that results from having more people in work (if this is achieved). Both direct and indirect tax revenues should be higher than they would be in the absence of Jobcentre Plus, as the additional employment increases aggregate incomes and spending[21]. Here it is important to remember that the additional people in work will typically be in the lower income groups, and hence should be taxed below the average tax rate. Further savings to the taxpayer should occur through lower expenditure on social benefits, the amount of which will depend on the net effect of Jobcentre Plus on the number of people claiming JSA, IS and IB. The main costs to the taxpayer of introducing Jobcentre Plus are its implementation costs and any change in operating costs brought about by the policy. Operating costs include costs of all the programmes, employment service staff, WFIs and other services provided through the public employment service. It is quite possible that the changes brought about by the introduction of Jobcentre Plus affect these costs, e.g. through fewer employment service staff or increased caseloading into the voluntary New Deals for inactive benefit claimants. In our analysis we only take into account those changes in operating costs that arise through changes in Jobcentre Plus staff.

The public purse should also be affected by any changes in the rate of interest that result from Jobcentre Plus, which change the cost of servicing government debt, and changes in the budgetary position, which influence the accumulation of government debt.

21 The increase in indirect taxes is based on the assumption that the proportion of consumption subject to indirect taxes remains constant as incomes rise.

4 Identifying the impacts of Jobcentre Plus

This chapter details the way in which the Jobcentre Plus policy was rolled out across the country, and how this shapes the evaluation of its impacts. We outline briefly the components and methodologies of this evaluation and set out what our impact estimates do and do not measure. The latter is important in making comparisons against the business case and for interpreting our results within the broader policy context.

4.1 Policy implementation

Jobcentre Plus was first introduced in 56 Pathfinder sites in 17 clusters across the UK in October 2001. The second stage of implementation, known as Day Two and covering 24 districts, began in October 2002 and was mostly completed in March 2003, with the remainder of this stage of the roll-out being completed over the year that followed.[22] The Pathfinder sites represent six per cent of the population claiming benefits and Day Two districts represent 23 per cent.[23] The remainder of the national roll out was scheduled in three successive waves between 2003/04 and 2005/06. As of September 2006, 33 out of 868 Jobcentre Plus offices were non-integrated. As of May 2008, only a handful of Jobcentre Plus offices remained non-integrated.

Figure 4.1 shows the share of Jobseeker's Allowance (JSA) claims in the UK in integrated offices in the seven years following the initial roll-out of Jobcentre Plus in the Pathfinder sites in October 2001.[24] This share rises rapidly with each successive roll-out wave. It took five and a half years before 95 per cent of claims were held in integrated offices. This pattern is very similar for Income Support (IS) and Incapacity Benefit (IB) claims.[25]

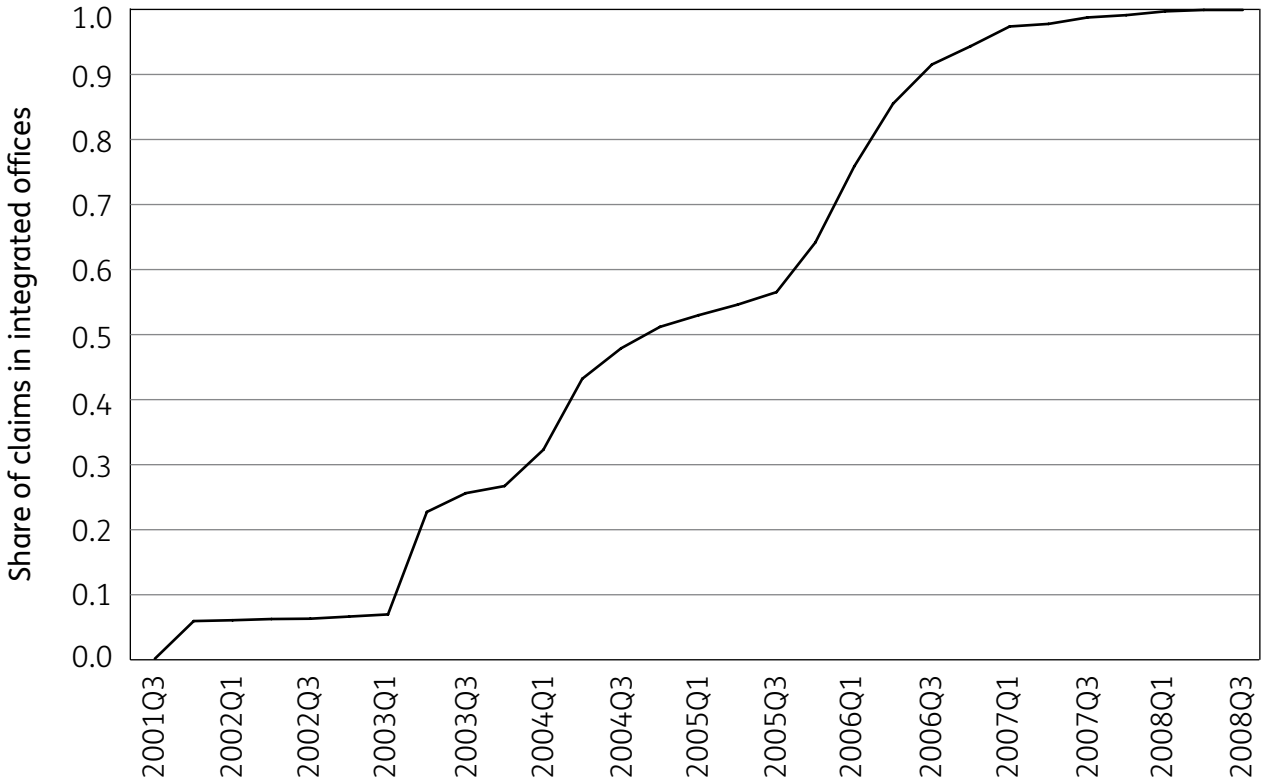
22 See Figure 1.1 in Corkett *et al.* (2005).

23 On average 2001-04, Table 1.1 in Corkett *et al.* (2005).

24 These data were constructed by matching the roll-out schedule to a post-code office look-up table, both made available by the Department for Work and Pensions (DWP). These were subsequently linked to the National Benefit Database via the postcode by DWP. Roll-out dates are not precise for all postcodes. For postcodes that are served by more than one office we have a time interval over which roll-out has taken place. We were unable to identify roll-out dates for approximately ten per cent of JSA claims.

25 We are unable to identify roll-out dates for around 35 per cent of IB and IS claims. For those claims where we do know roll-out dates the pattern is as shown here. Policy effects in this report are estimated using the distribution of 'treated' JSA claims (across Jobcentre Districts (JCDs)/time) to construct the treatment variable, regardless of the client group. Estimated impacts are robust to using treatment indicators based on the distribution of IS and IB claims with known roll-out dates.

Figure 4.1 National roll-out of Jobcentre Plus



Source: Office roll-out schedule, National Benefits Database (NBD) and authors' calculations

The staged roll-out facilitates the evaluation of the labour market impacts of Jobcentre Plus, as it allows us to compare benefit off-flows in areas where Jobcentre Plus has been rolled out to benefit off-flows in areas where it has not, and to compare between these areas the change in off-flows over a time period that spans the introduction of Jobcentre Plus. Essentially the staged roll-out provides us with a 'quasi-experiment' where the policy or 'treatment' intensity varies across local areas.[26] We exploit the differential timing of the introduction of Jobcentre Plus in different areas of the country in a panel of local area-level flow rates (other examples of this type of approach to policy impact identification include Stewart, 2002; Riley and Young, 2001; Hujer *et al.*, 2006; Dolton *et al.*, 2008). We also analyse individual claims data, using a difference-in-differences approach to compare claims in integrated offices to claims held elsewhere to estimate the effect of the policy on individuals' probability of being on or off benefit.[27]

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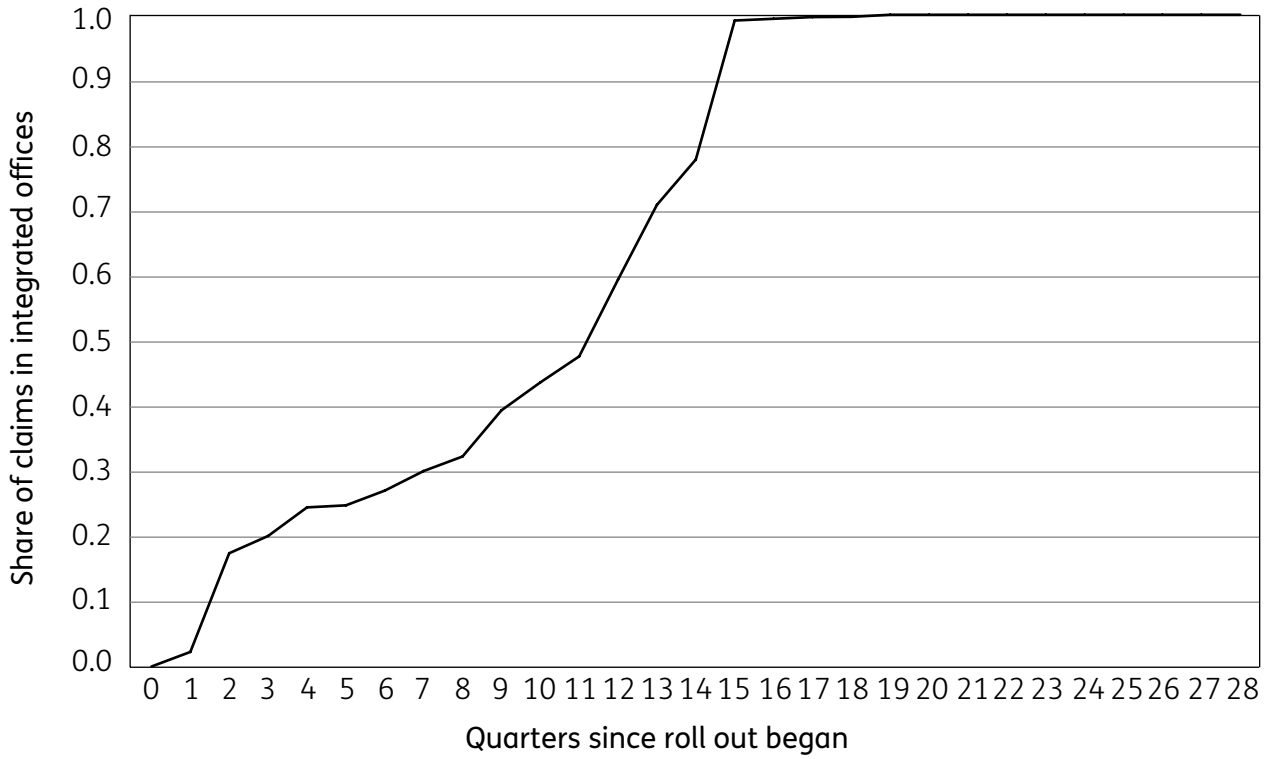
26 It is possible that the basis on which areas were ordered for roll-out was associated with specific factors that might be correlated with benefit off-flows (e.g. unobserved attributes like perceived quality of local management), although we are not aware that this was the case. Such an ordering of offices within JCDs would bias our estimates of the Jobcentre Plus implementation effect, but should have little consequence for our estimates of longer-term Jobcentre Plus effects. Our identification strategy is robust to an ordering of offices across JCDs based on JCD specific factors that are fixed over time.

27 It is difficult to use later roll-out phases when analysing individual claims data because, eventually, there are fewer and fewer areas against which to benchmark outcomes. In the local area analysis 'treatment' can vary between 0 and 1, allowing us to use the data towards the end of the roll-out period.

There are a number of considerations that influence the choice of geographical unit for analysis. Jobcentre Plus was rolled out at site (office) level, but offices were typically clustered in particular areas and operating in tandem so that a higher level of geographical aggregation is required to distinguish areas where Jobcentre Plus has been introduced at a particular time from areas where it is not. Delivery of Jobcentre Plus was in some ways organised at JCD level.

There is also the desire that the geographical unit of analysis approximates some concept of a local labour market, i.e. that people that live in an area work there and that people who work in an area live there. This is because across local labour markets the variation in labour market outcomes that relates to variation in a measure of the Jobcentre Plus policy is more likely to identify the effects of Jobcentre Plus on labour market equilibrium, rather than the effects of Jobcentre Plus that relate to movements along a labour supply or labour demand equation alone. Also, we need to ensure that there is some coherence between the typically residence-based measures of flows from benefit and the delivery of Jobcentre Plus. For example, if Jobcentre Plus is live in Central London, but not in other areas of London, Jobcentre Plus may be supporting benefit clients from areas all over London where Jobcentre Plus is not live. If we try to relate a measure of Jobcentre Plus in Central London to benefit off-flows in Central London alone we will miss its impacts throughout London. In other words we need to use a unit of geography that is at least as large as the catchment area for the policy. Given the way in which Jobcentre Plus was rolled out, JCDs are an obvious choice. We discuss these in further detail in Chapter 11.

Figure 4.2 Roll-out of Jobcentre Plus in a typical JCD



Source: Office roll-out schedule, NBD and authors' calculations

On average, Jobcentre Plus roll-out was considerably faster in a JCD than across the country, occurring over three and a half years. Figure 4.2 illustrates the time-profile of roll-out in a typical (average roll-out time) JCD. This profile varies considerably across JCDs (see Chapter 11), which is helpful in so far as we wish to identify both the implementation and longer-term effects of Jobcentre Plus.

4.2 Components of this evaluation

Identification of the impacts of the introduction of Jobcentre Plus on the labour market and the wider economy is achieved by a combined approach involving estimation of the policy effect on the labour market directly from the data and model simulation of the policy effect on the labour market and the wider economy. The key information we wish to obtain is the difference that Jobcentre Plus makes to the number of people moving off benefit, the number of people employed and the wider economy. In order to determine this we need to estimate what would have happened in the absence of the introduction of Jobcentre Plus (the 'counterfactual'), as it is impossible to observe the economy with and without the introduction of Jobcentre Plus at the same time. Ideally, any evaluation of the impacts of labour market policy should be discerned directly from the data. With many macroeconomic outcomes this is not possible. However, it is possible to estimate the effects of Jobcentre Plus on labour market flow rates between different benefit groups and employment. This is because Jobcentre Plus is designed to affect these flows directly and because flow data are available at a level of disaggregation where we are likely to observe exogenous variation in the strength of the policy. The effects of Jobcentre Plus on other outcomes are discerned by means of model simulation.

The analysis in this report can be divided into five components, as shown in Sections 4.2.1 to 4.2.5.

4.2.1 Econometric evaluation of the Jobcentre Plus effect on local area labour market flows

Estimation of the impact of Jobcentre Plus on labour market flows is conducted within a panel of local-level flow rates where the intensity of Jobcentre Plus 'treatment' varies across areas and time. The main outcome variable considered is the exit rate from benefit to work (the proportion of benefit claimants who leave benefit and find work within a three-month period). This methodology has much in common with the difference-in-differences approach typically used in estimating impacts from individual-level data. Substitution and displacement effects amongst the Jobcentre Plus customer group are automatically accounted for within this set-up[28], allowing us to capture the net change in labour market transitions amongst benefit claimants arising from the introduction of Jobcentre Plus. Implementation effects are also evaluated within this set-up and are distinct from the longer-term effects of Jobcentre Plus, thus we allow the policy effect to vary over time. Details are set out in Appendix A.

4.2.2 Econometric evaluation of the Jobcentre Plus effect using individual claims data

Estimates of the impact of Jobcentre Plus on individuals' probability of being on or off benefit using individual claims data provide another perspective on the labour market impacts of Jobcentre Plus and are useful as a robustness check on the estimates obtained using local area flow data. We estimate Jobcentre Plus effects on individuals who initiate a claim six to nine months after Jobcentre Plus roll-out; these are best compared to the longer-term effects of Jobcentre Plus (rather than the implementation effects) measured using local area flow data. Identification of the policy effect is achieved using difference-in-differences methods implemented using individual benefit spell data (for details see Appendix B). It is important to point out that the impact estimates obtained using individual claims data and those obtained using local area data do not measure the same thing. First, the individual-level analysis uses information from the Day Two areas only, whereas the local

[28] This is an advantage of using an aggregate impact analysis approach (Schmid *et al.*, 2001) over the estimation of partial effects using data at an individual level. Intra-country analysis of active labour market programmes typically exploits regional variation to determine impacts.

area analysis exploits the entire roll-out of Jobcentre Plus (although we comment on differences in local area treatment effects across roll-out phases, facilitating comparison). Second, the effects using individual claims data estimate the direct effect of the policy on individuals who come into contact with Jobcentre Plus. In contrast, the local area estimates are net of substitution and displacement.

4.2.3 Measurement of the Jobcentre Plus effect on labour market stocks

The impact of Jobcentre Plus on the number of people claiming different types of benefit at any one particular time is likely to be significantly smaller than its impact on benefit flows, at least initially, as Jobcentre Plus mostly affects new claimants. We do not estimate the Jobcentre Plus effect on stocks from the data. Instead we derive the implications of the estimated changes in local area flow rates for the number of benefit claimants and the level of employment.

4.2.4 Analysis of the relationship between Jobcentre Plus and wages

One of the key economic mechanisms through which Jobcentre Plus is likely to affect equilibrium employment is through its impact on the effective labour supply and hence wage pressure. The impacts of Jobcentre Plus on wages are estimated using a panel of local-level wages, exploiting the staged roll-out of Jobcentre Plus (see Appendix C for details). We also explore the relationship between aggregate wages and different economically inactive groups (IS and IB claimants will typically be classified as economically inactive), informing the simulations of the effect of Jobcentre Plus on the wider economy.

4.2.5 Measurement of the Jobcentre Plus effect on the wider economy

Macroeconomic variables affected by the introduction of Jobcentre Plus may include wages, employment, unemployment and inactivity rates, but also output, consumption, taxes and benefits. The full impacts of Jobcentre Plus on these entities can only be ascertained via model simulation. We use the National Institute of Economic and Social Research's (NIESR's) macro-modelling facilities (NiGEM) to measure the impacts of Jobcentre Plus on the wider economy (Appendix D). NiGEM provides a theoretically coherent up-to-date description of the UK and global economy. Key economic relationships, including the description of the labour market, are estimated from the data around a standard theoretical structure. Assumptions are informed by the local area flow analysis, including the calibration of implied wage effects from the estimated employment effects.

4.3 What we do and do not measure

The Jobcentre Plus agency delivers most DWP provision for people of working age, much of which was in place before the changes to and relaunching of the public employment service as Jobcentre Plus. For JSA claimants in particular, the benefit claim process was already work-focused, with people having to complete personal action plans and participate in Work-Focused Interviews (WFIs). The analysis here of the introduction of Jobcentre Plus does not capture the costs and benefits of having the Jobcentre Plus agency and all the services that it performs. Rather we capture the effects of the changes in the public employment service in Britain brought about by the introduction of Jobcentre Plus. We do not capture the effects of any changes brought about by Jobcentre Plus that were implemented differently from the roll-out schedule discussed above. For example, the introduction of Jobcentre Plus involved reductions in public employment and benefit service staff. We capture the impact of this element of Jobcentre Plus only to the extent that these reductions were correlated with the policy variable we use to identify treatment.

We estimate additional job outcomes for different client groups, where additional job outcomes refer to all job outcomes facilitated through Jobcentre Plus less deadweight (flows from benefit to jobs that would have occurred without the introduction of Jobcentre Plus) **less** substitution and displacement (flows from benefit to jobs that occur because of the introduction of Jobcentre Plus at the expense of other job outcomes). We do not estimate substitution, displacement and additionality separately. We do not take account of any substitution impacts on those not claiming social security benefits, although we would expect these to be small.

The policy effects we identify relate to the changes in the public employment service in Britain brought about by the introduction of Jobcentre Plus, conditional on the Welfare-to-Work programmes already in place, which include the various New Deals and the Lone Parent WFI regime. Complementarities between these and the introduction of Jobcentre Plus, e.g. through caseloading benefit clients who are not deemed job-ready to the voluntary New Deals or through more efficient delivery of the various elements of the mandatory New Deals for the unemployed, are captured by the policy impacts we identify. Our estimates of the impact of Jobcentre Plus do not include the impact of the Pathways-to-Work programme. Our estimates of Jobcentre Plus effects are robust to changes to Welfare-to-Work provision that were implemented nationally throughout the Jobcentre Plus roll-out period (for example, the extensions of mandatory WFIs for lone parents).

5 Impacts of Jobcentre Plus on jobseekers

In this chapter we discuss our main findings for jobseekers from the analysis of local area flows and the analysis of individual claims data. Both analyses suggest that the introduction of Jobcentre Plus has been associated with an increase in exits from Jobseeker's Allowance (JSA) and from benefit more generally for individuals claiming JSA. The local area analysis suggests these exits are likely to have been to jobs. Both analyses show substantial variation in the impacts of Jobcentre Plus across sub-groups. We find that Jobcentre Plus has been associated with an increase in inflows to JSA for some groups, but the evidence is mixed. The disruption caused by the implementation of Jobcentre Plus was associated with significant short-term reductions in flows to and from JSA. Full details of the analysis are presented in Appendix A and Appendix B.[29]

5.1 Evidence from Jobcentre District flows

We estimate a panel model of exit rates from JSA (the proportion of the claimant stock that leaves JSA within the quarter, possibly to a particular destination) using quarterly local area data. We include within this model an indicator of Jobcentre Plus 'treatment' intensity in order to assess the impact of the introduction of Jobcentre Plus on benefit exit rates. As discussed in Chapter 3 it is quite possible that the implementation of Jobcentre Plus was associated with some temporary disruption, which may have adversely impacted on benefit exit rates. In this situation the policy effect identified in a static model of benefit exit rates will capture a weighted average of the Jobcentre Plus implementation effect and its 'normal' or 'equilibrium' effect, i.e. the effect that arises once Jobcentre Plus is fully up and running. The weighting between the implementation and 'normal' effect will depend on the time period available after the policy is introduced. For example, if the sample period included for analysis includes only a short period after policy implementation, the simple static model will capture mostly the implementation effect. To be able to disentangle the implementation effect from the longer-term effect of Jobcentre Plus in a coherent manner we estimate a dynamic model of benefit exit rates incorporating contemporaneous and lagged policy effects. The methodology is detailed in Appendix A.

We estimate Jobcentre Plus effects for different gender, age, and duration groups of JSA claimants. We consider impacts on exit rates from JSA to work obtained from JSA40 clerical returns compiled by Jobcentre Plus offices. As detailed in Chapter 11, there are a number of concerns with regards to these data. Most importantly for our purposes, it is possible (although we do not know whether this is the case) that one of the consequences of Jobcentre Plus is to better record individuals'

[29] Note that the individual-level analysis measures Jobcentre Plus effects in Day Two offices (second roll-out wave). Varying the Jobcentre Plus policy effect by roll-out wave in the local-area analysis, we find that the impact of Jobcentre Plus on the exit rate from JSA to work is larger in districts dominated by offices that took part in the Day Two and third roll-out waves than in districts dominated by offices that took part in the Pathfinder roll-out.

destinations upon claim termination.[30] If so we may observe a spurious correlation between the recorded exit rate to jobs and Jobcentre Plus treatment. For this reason we also estimate the model for the combined category of exits to jobs and unknown destinations (the latter is mainly accounted for by claim ends where the individual 'failed to sign', but also includes destinations classified as 'ceased claiming' and 'not known'; in the tables and figures we use 'failed to sign' to refer to these three destination categories), from JSA40 returns. Finally, we evaluate the impact of Jobcentre Plus on the exit rate from JSA to jobs as recorded by matched tax and benefit records (Work and Pensions Longitudinal Study (WPLS)). Although these data are not without their faults (see Chapter 11; e.g. they do not include jobs below the Pay As You Earn (PAYE) threshold), they provide an additional check on the robustness of our results.

Detailed results for JSA claimants are shown and discussed in Appendix A, Tables A.1-A.3. Table 5.1 simply shows the estimated percentage impact of Jobcentre Plus on exit rates from JSA in the longer term. These are estimated directly from the data. We find positive and statistically significant policy effects for many of the sub-groups we consider. We also find statistically significant negative effects of the policy on start up (not shown here, see Appendix A).[31]

30 A simple regression of the share of JSA exits to unknown destinations and the extent of Jobcentre Plus coverage reveals a positive and statistically significant (at the one per cent level) correlation between the two (0.102). However, including time and Jobcentre Plus-specific fixed effects within this regression framework, we find a negative correlation between the share of exits to unknown destinations and Jobcentre Plus (-0.004). This is only statistically significant at the ten per cent level, but does raise some concern that indeed, one of the consequences of the performance targets implemented with Jobcentre Plus may have been to better record leavers' destinations. In April 2006 the Job Entry Target (JET) system of performance measurement was replaced by the Job Outcome Target (JOT), which meant there was less emphasis on district offices to track and monitor who was reaching employment. One might expect that this would have led to an increase in the share of JSA exit destinations recorded as unknown in integrated offices. But this does not obviously appear to be the case. Augmenting the regression framework outlined above with an interaction term between Jobcentre Plus and a dummy variable indicating whether JOT was in place, we find that the negative correlation between Jobcentre Plus and the share of exits to unknown destinations increases in magnitude and statistical significance once JOT is in place. The coefficient on the interaction between Jobcentre Plus and JOT is -.026 and is statistically significant at the five per cent level. This would suggest that JOT was associated with a reduction in the share of JSA exits recorded as unknown. In practice it is difficult to know whether the tendency for the negative correlation between Jobcentre Plus and unknown exits to increase in magnitude over time had anything to do with JOT. It may simply be that Jobcentre Plus improved recording processes over time through institutional learning.

31 Looking at implementation effects separately by roll-out stage, the evidence does not suggest that these diminished with later phases of roll-out. Also, when we allow implementation effects to differ between Jobcentre Districts (JCDs)/quarters where coverage is less than or equal to 75 per cent and JCDs/quarters where Jobcentre Plus coverage is at least 75 per cent, we find these differences are statistically insignificant.

Table 5.1 Long-run percentage change in JSA exit rates with Jobcentre Plus

Gender	Age	Duration	Off-flow rate from benefit into work (JSA40)		Off-flow rate from benefit into work or failed to sign (JSA40)		Off-flow rate from benefit into work (HMRC)	
Female	18-24	0-6 months	0.020	(0.013)	0.008	(0.010)	0.012	(0.008)
		>6 months	0.038**	(0.016)	0.038***	(0.011)	0.001	(0.017)
	25-49	0-6 months	0.030**	(0.012)	0.027***	(0.010)	0.036***	(0.007)
		>6 months	0.024*	(0.013)	-0.040***	(0.014)	0.032**	(0.014)
	50+	0-6 months	0.027**	(0.013)	0.019*	(0.011)	0.044***	(0.015)
		>6 months	0.022	(0.017)	-0.009	(0.016)	0.096***	(0.017)
Male	18-24	0-6 months	0.042***	(0.013)	-0.002	(0.010)	0.006	(0.008)
		>6 months	0.026	(0.017)	0.006	(0.018)	-0.028	(0.019)
	25-49	0-6 months	0.031***	(0.010)	0.017**	(0.008)	0.021***	(0.006)
		>6 months	0.040***	(0.011)	0.011	(0.013)	0.019*	(0.011)
	50+	0-6 months	0.025***	(0.010)	0.019**	(0.009)	0.004	(0.006)
		>6 months	-0.025	(0.017)	-0.013	(0.014)	-0.019	(0.015)

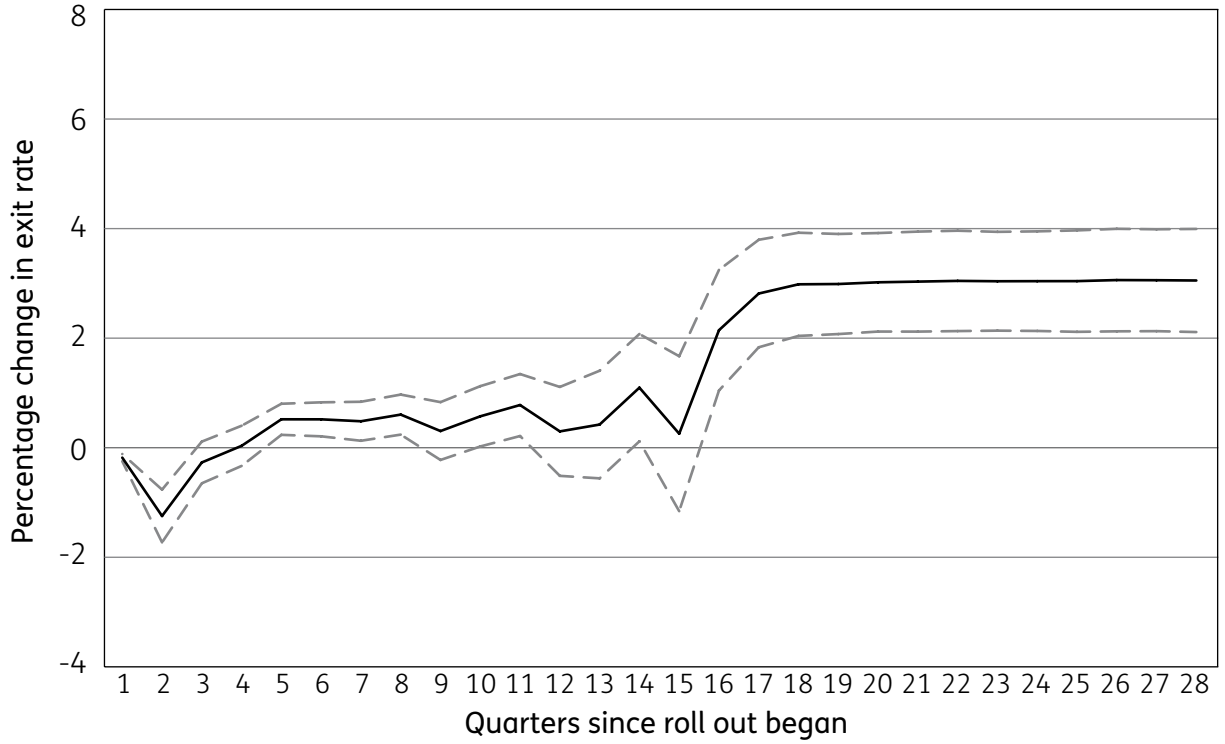
Notes:
- Jobseekers.
- Off-flow from benefit defined as sum of monthly JSA claim ends within the quarter.
- Destinations based on JSA40 returns (source: National Online Manpower Information System) or tax records linked to benefit records (source: WPLS).
- Statistical significance indicated as *10%, **5%, ***1%.
- Coefficient standard errors in brackets.

In Figures 5.1-5.3 we illustrate the percentage change in the quarterly exit rate from JSA to jobs (for each of our three definitions) implied by the estimates of longer-term impacts (shown in Table 5.1), the roll-out schedule for a typical JCD (shown in Figure 4.2), and the short-term impacts of the policy (see Appendix A). The policy effect is shown for each quarter since roll-out began. In the quarters following initial roll-out, the policy effect is muted. This is because the policy only affects a small share of offices in the JCD at this point, and because of negative start-up effects. The policy effect increases over time because Jobcentre Plus becomes more prevalent in the JCD, and because the weight on the positive longer-term effect rises. Once fully implemented the policy effect stabilises at its estimated long-term equilibrium level.[32] In constructing these aggregate figures we weight up the individual sub-group estimates (long runs shown in Table 5.1), which may variously be positive or negative and statistically significant or statistically insignificant. Weights on individual sub-group estimates are calculated as the sub-group share of aggregated counterfactual flows (and are therefore higher for sub-groups that account for larger proportions of benefit exits).

[32] In Figures 5.1-5.5, 6.1 and 7.1-7.2, the spike in policy impacts that occurs around quarters 15-17 is generated from the roll-out schedule used to illustrate policy effects over time (see the roll-out schedule in Figure 4.2). Jobcentre Plus roll-out for the 'typical' JCD in Figure 4.2 is completed by quarter 15, when all offices within the district are converted. The resulting spike in illustrated policy impacts occurs a bit later because the models of benefit exit rates are dynamic and adjustment to long-run equilibrium is not instantaneous. The spike is much larger for JSA clients because of large implementation effects for this group (implementation effects are only relevant when the slope of the roll-out schedule is non-zero).

As illustrated in Figure 5.1, our results based on JSA40 returns imply that by the time Jobcentre Plus was rolled out completely in a JCD, individuals were around three per cent more likely to leave JSA and enter work than they would have been without the policy change. This estimate is statistically significant, as indicated by the 95 per cent confidence bands.[33] Negative start-up effects are also apparent. The estimated counterfactual is an exit rate to jobs of around 27 per cent and hence the three per cent impact implies an increase in the exit rate to jobs of a little less than one percentage point (i.e. 0.03x27).

Figure 5.1 Percentage change in exit rate from JSA to jobs (JSA40) with Jobcentre Plus (typical JCD)



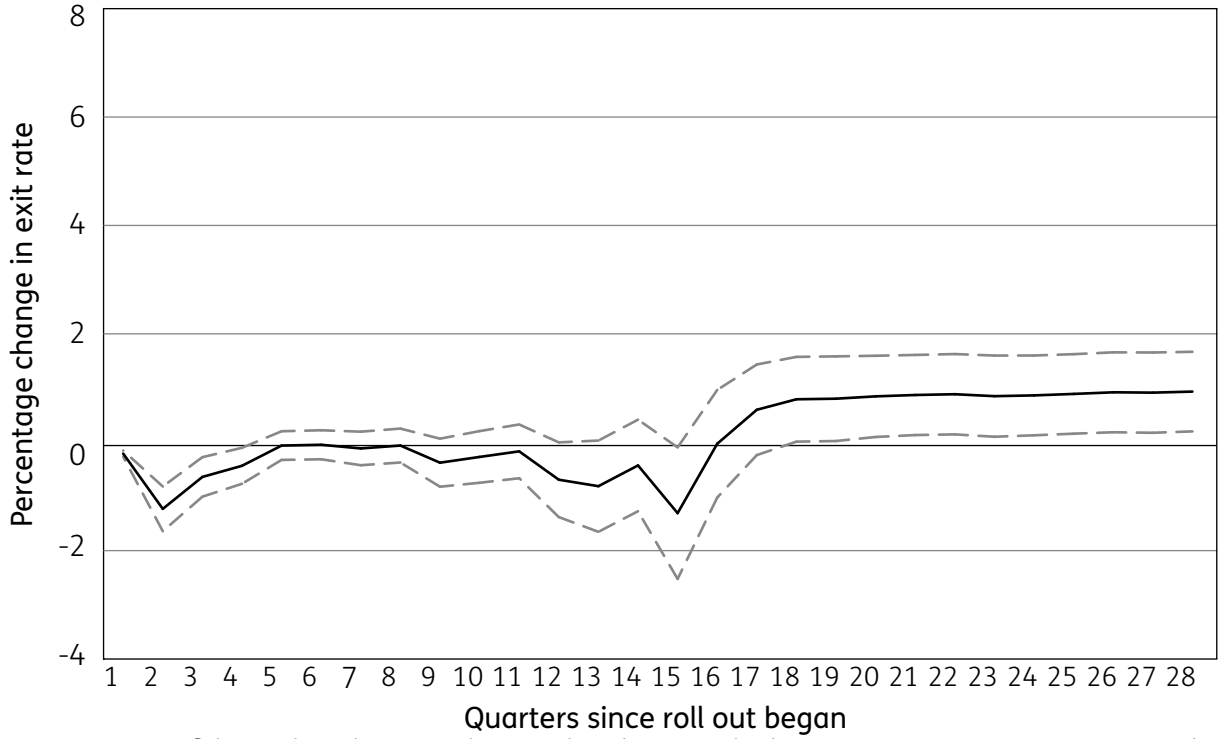
Notes: 95 confidence bands around central estimate take into account parameter uncertainty of the estimated policy coefficients.

As illustrated in Figure 5.2, when we consider exits from JSA to jobs or failed to sign (also based on JSA40 returns), the estimated longer-term policy effect remains positive and statistically significant, but is now much smaller, at around one rather than three per cent.

Similarly, when we consider exits from JSA to jobs as measured by matched tax and benefit records (Figure 5.3), we find a positive and statistically significant impact of Jobcentre Plus once the policy is fully rolled out. In the longer term these estimates imply that the exit rate to work increased by 1.6 per cent with Jobcentre Plus. Again this is smaller than the estimate obtained using JSA40 data (Figure 5.1). However, because the measured exit rate to jobs is larger using Her Majesty's Revenue and Customs (HMRC) data, the estimated percentage point impact on the exit rate from JSA using these data is little different than that estimated using JSA40 data. The estimated counterfactual with HMRC data is an exit rate to jobs of around 56 per cent. The implied increase in the exit rate to jobs is therefore a little less than one percentage point.

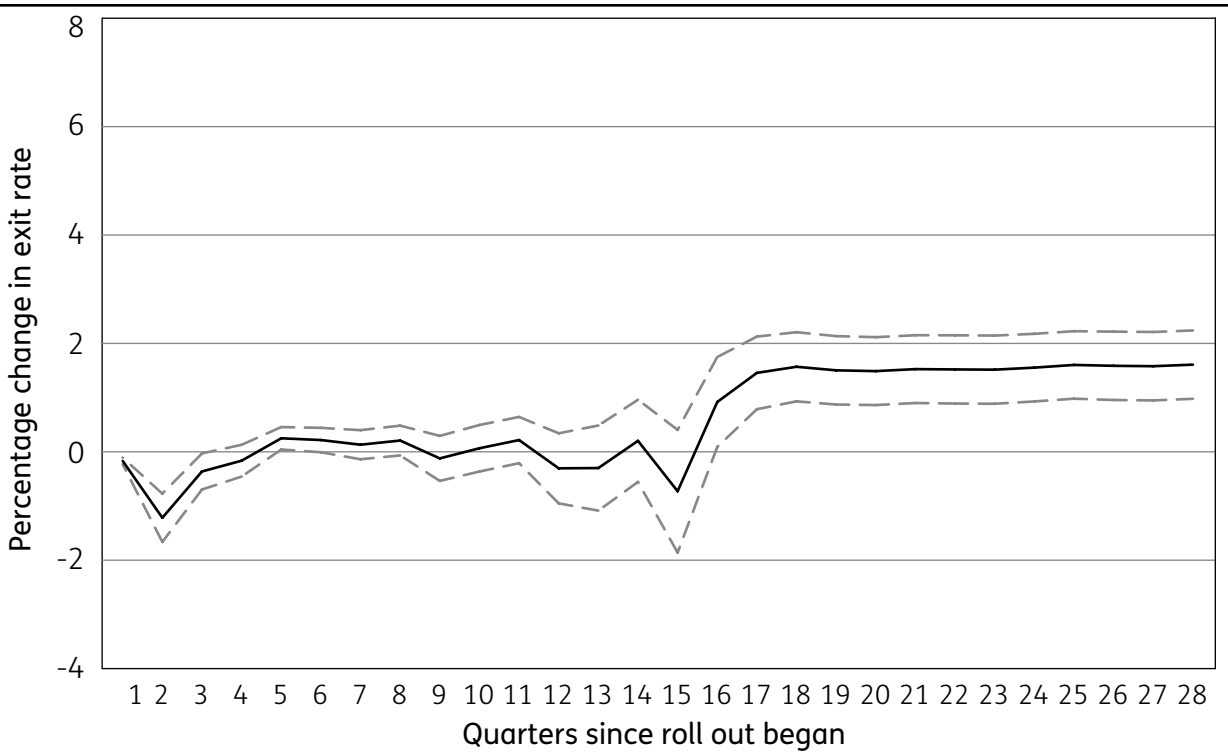
[33] Standard errors used to calculate confidence bands take into account the uncertainty of the estimated policy coefficients (dynamic and levels terms) for all gender, age, and duration groups. We do not take into account any covariance between the estimated policy effects across sub-groups, which are estimated separately.

Figure 5.2 Percentage change in exit rate from JSA to jobs or failed to sign (JSA40) with Jobcentre Plus (typical JCD)



Notes: 95 confidence bands around central estimate take into account parameter uncertainty of the estimated policy coefficients.

Figure 5.3 Percentage change in exit rate from JSA to jobs (HMRC) with Jobcentre Plus (typical JCD)



Notes: 95 confidence bands around central estimate take into account parameter uncertainty of the estimated policy coefficients.

The impacts reported in Table 5.1 and illustrated in Figures 5.1-5.3 are all shown as percentage impacts, although we have mentioned in the previous text some of the implied percentage point effects. In Tables 5.2 and 5.3 we aggregate up our estimates of longer-term policy impacts and report the implied percentage **point** change in the exit rate from JSA to jobs (as measured by JSA40 returns and HMRC data respectively) for men and women separately, for different age groups and for different claim durations. This is shown alongside actual exit rates and the counterfactual implied by our estimates of policy impacts. The percentage point change is generally smaller than the percentage change because exit rates are typically less than 100 per cent. Note that each of the estimates in Tables 5.2 and 5.3 is derived from a set of sub-group estimates, all of which are reported in Table 5.1. As noted above, individual sub-group estimates may differ substantially from the aggregate estimates to which they contribute. It is the percentage point estimates that should be used when comparing the local area results to those obtained using individual claims data, because the latter are measured in terms of percentage points.

Results in Table 5.2 indicate that exit rates from JSA to jobs (as measured by JSA40 returns) were positively affected by the introduction of Jobcentre Plus for all the breakdowns shown, although some impacts appear larger than others. When we look at impacts on exit rates from JSA to jobs as measured by HMRC data (Table 5.3), we also see that the policy effect is positive for all breakdowns shown. But, the estimated Jobcentre Plus effect for 18–24-year-olds is not statistically different from zero (the confidence interval includes zero). Interestingly, the under-recording of job exits is particularly severe for younger JSA claimants, and thus it is here we observe the largest discrepancies between the two (actual) job measures. The discrepancy between the estimated Jobcentre Plus impacts for 18–24-year-olds using the two different data sources may suggest that the positive effect found using JSA40 returns data is generated by a tendency to better record JSA exit destinations in Jobcentre Plus offices. Alternatively, it is possible that the HMRC data simply miss a particularly large share of jobs for this age group, because younger people are more likely to be paid below the PAYE threshold.[34]

Also, using the HMRC data, the estimated Jobcentre Plus effect on exits from claims that have lasted for more than six months is not statistically different from zero. The pattern of larger Jobcentre Plus percentage point impacts on short duration claims is evident in both Tables 5.2 and 5.3, and is to a large extent driven by differences in the size of the exit rate by claim duration, although the coefficients in Table 5.1 could give the impression that Jobcentre Plus may have a stronger percentage effect on shorter duration claims. It is not clear why these would be different, and statistically they are not necessarily different. Although individuals may have more contact with Jobcentre Plus at the start of a claim, JSA customers should be in contact with Jobcentre Plus on a regular basis throughout the duration of their claim.

Our analysis of inflows to JSA suggests that the implementation of Jobcentre Plus was associated with a temporary reduction in inflows to JSA. This may suggest that temporary office closures and office relocation delayed individuals' JSA claims. We also find some evidence to suggest that once fully up and running, Jobcentre Plus led to an increase in inflows to JSA for 25–49-year-olds and a decrease in inflows to JSA for 18–24-year-olds. In aggregate, inflows to JSA are unlikely to have been much affected by Jobcentre Plus. In some cases the positive (negative) impact on inflows to JSA tallies with our findings, discussed below and in Appendix A, of a positive (negative) impact on exits from IB and IS for lone parents to other benefits (including JSA). Alternatively, for example, a positive impact on inflows may indicate that the increase in exits from JSA to jobs with Jobcentre Plus is not associated with exits to jobs that are long lasting.

[34] This should lead to a bias in the estimated Jobcentre Plus effect only if Jobcentre Plus changes the distribution of (sub-group) employment across jobs above and below the PAYE threshold.

Table 5.2 Longer-term impacts on the probability of exit from JSA to work (JSA40)

	Average quarterly exit rate to work 2007Q4-2008Q3				
	Actual %	Counter-factual %	Additional	95% confidence range	
JSA to work (JSA40)	27.8	27.0	0.82	0.57	1.08
Females	31.1	30.3	0.80	0.38	1.21
Males	26.6	25.8	0.83	0.53	1.14
Age 18-24	28.0	27.1	0.91	0.43	1.38
Age 25-49	27.9	27.0	0.86	0.50	1.23
Age 50+	27.1	26.6	0.54	0.17	0.90
Claim duration 0-6 months	33.0	32.0	0.99	0.65	1.34
Claim duration >6 months	15.1	14.7	0.41	0.21	0.61

Table 5.3 Longer-term impacts on the probability of exit from JSA to work (HMRC)

	Average quarterly exit rate to work 2007Q4-2008Q3				
	Actual %	Counter-factual %	Additional	95% confidence range	
JSA to work (HMRC)	57.0	56.1	0.90	0.54	1.25
Females	62.5	60.9	1.63	1.08	2.19
Males	55.0	54.4	0.62	0.18	1.06
Age 18-24	70.6	70.2	0.35	-0.44	1.14
Age 25-49	52.9	51.6	1.27	0.81	1.73
Age 50+	44.3	43.7	0.69	0.22	1.17
Claim duration 0-6 months	67.8	66.6	1.16	0.69	1.63
Claim duration >6 months	30.5	30.3	0.24	-0.17	0.65

5.2 Evidence from individual claims data

The analysis of individual claims data looked at the impact of Jobcentre Plus on the likelihood that those making a new claim for JSA over the period six to nine months after the roll-out of Jobcentre Plus within the local office were claiming any out-of-work benefits (either JSA, incapacity benefits or Income Support (IS)) in each of the 15 months following the start of their claim.[35,36] By considering a 15-month period, it was possible to observe whether any impact that Jobcentre Plus had on exits in the early months after the start of the claim was sustained over successive months. All out-of-work benefits were considered to assess whether Jobcentre Plus shifted JSA customers to other out-of-

[35] The analysis focused on the impact of Jobcentre Plus for individuals making a claim for JSA six to nine months after the roll-out of Jobcentre Plus in the local office to avoid the period of implementation effects. The results using individual claims data are best compared to the estimated longer-term impacts using local area flows data.

[36] It would also be possible to look at the probability of being in work using the HMRC data, but this is beyond the scope of this report.

work benefits.[37] It would be possible to look at transitions between different benefit types, but since the main interest is in whether Jobcentre Plus induces customers to leave out-of-work benefits, it was decided to focus on this single outcome.

The impact of Jobcentre Plus was estimated using a random growth model (see Appendix B for further details). This was carried out within a regression framework and so controlled for differences in the probability of claiming benefits due to gender, age, ethnicity and the history of claiming out-of-work benefits over the year prior to the claim which qualified the customer for entry into the cohort. Alternative estimates produced using difference-in-differences (DiD) analysis and propensity score matching (PSM) in combination with the DiD approach, as well as a random growth model which relaxed the assumption that common trends in outcomes between those in the Day Two areas and their comparators remained constant over time, are also summarised here. Appendix B describes these methods, provides details of the assumptions underlying them and presents the results of analysis carried out to assess the likely robustness of the findings.

All of the analysis presented in this report focuses on the impact of Jobcentre Plus in those offices which rolled it out over the period from 28 October 2002 to 31 March 2003 (known as the Day Two areas). The reasons for focusing the analysis on this set of areas are explained in detail in Appendix B. Areas which rolled out Pathways-to-Work before April 2006 were excluded from the analysis to avoid wrongly attributing impacts from Pathways to the roll-out of Jobcentre Plus. The figures show 95 per cent confidence intervals (depicted as dashed lines). If both of the dashed lines appear on the same side of the X-axis, the estimated impact of Jobcentre Plus roll-out is statistically significant at the five per cent level.

Figure 5.4 shows that, according to the random growth model which assumed constant common time trends between the Day Two areas and the comparison areas, Jobcentre Plus reduced claims for out-of-work benefits in the Day Two areas over the whole 15-month period following the start of the claim for JSA. The size of this impact peaked at 4.3 percentage points in month six.

Figure 5.5 indicates that, without the roll-out of Jobcentre Plus, just under two-fifths (37 per cent) of JSA customers would be expected to be claiming at least one out-of-work benefit 15 months after the start of their claim for JSA, indicated by the dashed line. The solid line shows that, following the introduction of Jobcentre Plus, around one-third (34 per cent) of JSA customers were still claiming out-of-work benefits 15 months after the start of their claim.

A DiD analysis suggested that the roll-out of Jobcentre Plus did not affect the likelihood that those starting a claim for JSA claimed any out-of-work benefits over the 15 months following their initial claim. However, when the DiD method was applied to groups of customers who were first matched on the observed characteristics thought likely to affect their propensity to leave benefits, the analysis suggested that Jobcentre Plus reduced the likelihood of customers claiming benefits over the period from two to five months after the start of their claim for JSA. This reduction ranged from 1.0 to 1.1 percentage points. Returning to the random growth model, when the assumption that the trends observed for customers in Day Two areas and those in the comparison areas remained constant over time was relaxed, the impact of Jobcentre Plus was also found to be more limited and claims were only reduced in the first four months following the start of the claim. The size of this impact ranged from 2.2 to 3.8 percentage points. However, this model suggested that Jobcentre Plus actually had negative impacts for JSA customers in months 11 and months 14 and 15, when the likelihood that a customer was on out-of-work benefits increased by between 2.6 and 2.7 percentage points.

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[37] Note that JSA customers are not classed as claiming out-of-work benefits whilst on the New Deal options or Intensive Activity Period. The WPLS data used here do not allow us to observe whether customers are leaving out-of-work benefits or starting on these programmes.

Figure 5.4 Random growth model assuming constant common time trends – JSA customers

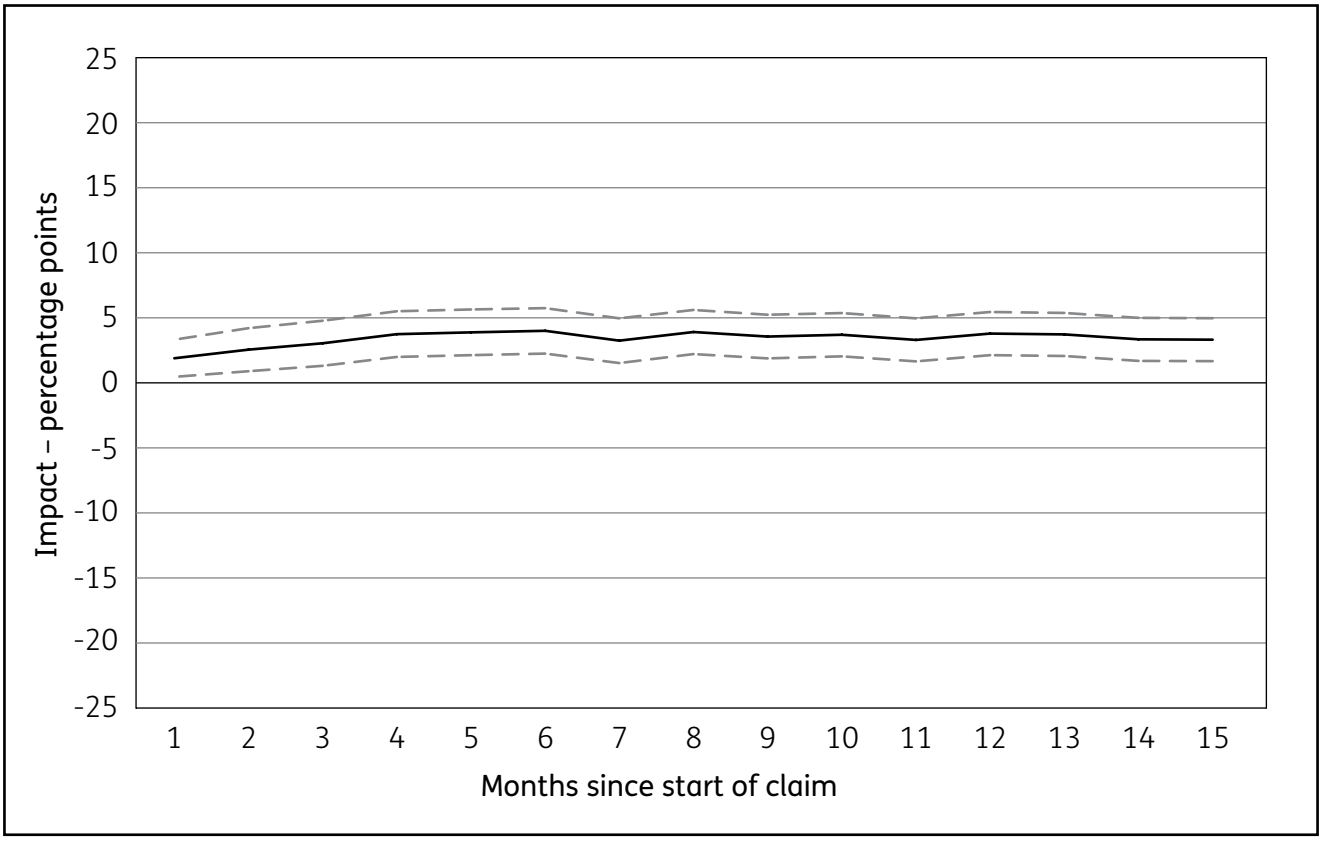
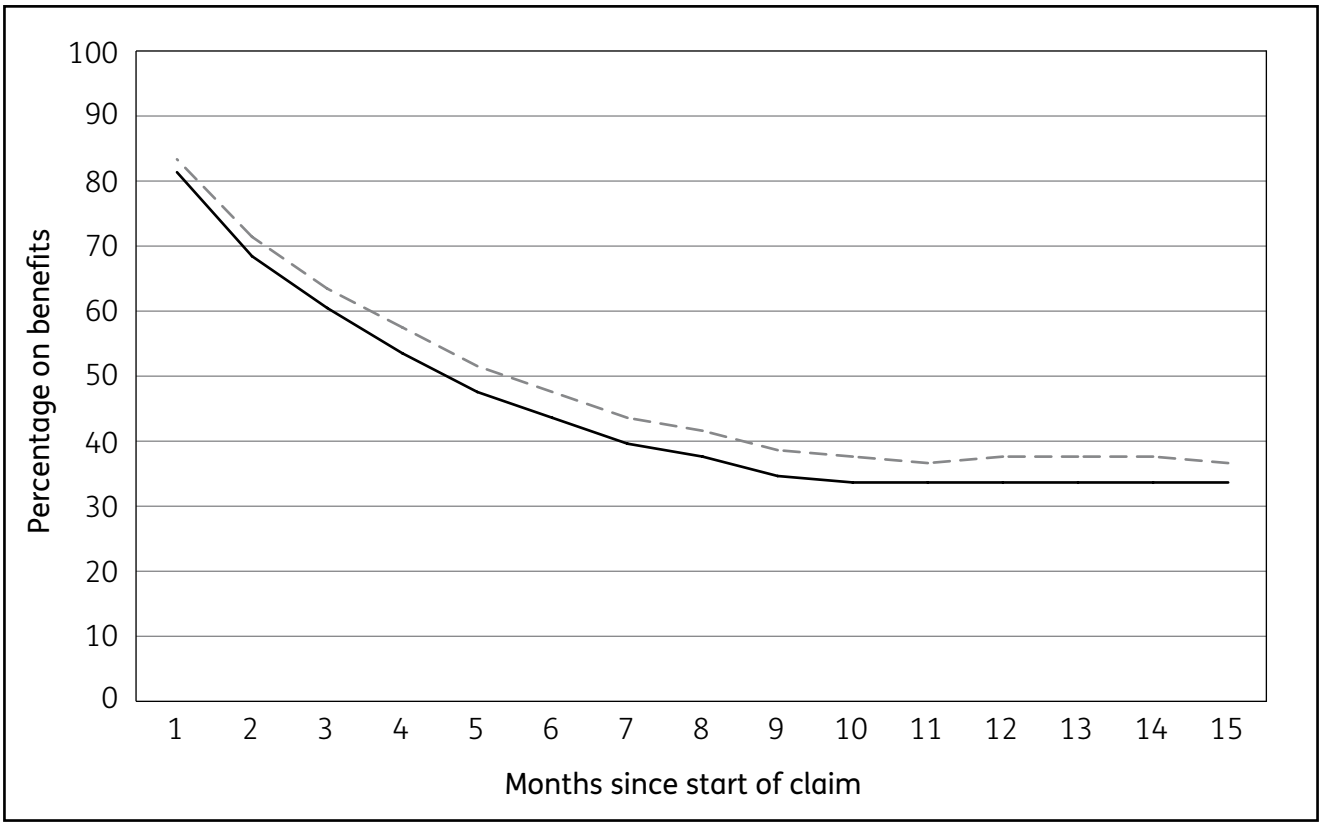


Figure 5.5 Estimated proportion of JSA customers on benefits in months following claim start



Tests of the robustness of the results indicated that there was possible bias in the impact estimates produced using both the DiD and the random growth model which assumed a constant common time trend for much of the 15-month period considered. Given the data available it was not possible to test whether the model which relaxed the assumption of constant common time trends was likely to offer a more reliable estimate of the impact of Jobcentre Plus. The findings of the robustness tests are discussed in detail in Appendix B. On balance, it seems likely that the introduction of Jobcentre Plus reduced the proportion of JSA customers claiming out-of-work benefits for at least some of the 15-month period considered. It is possible that there were negative impacts from Jobcentre Plus for this cohort in later months, but this is uncertain.

As well as estimating the impact of Jobcentre Plus on the likelihood that JSA customers were claiming out-of-work benefits in successive months following the start of the claim, the analysis looked at the impact of Jobcentre Plus on particular subgroups of customers. The intention was to assess whether there was an observable impact from Jobcentre Plus for JSA customers with differing characteristics. Appendix B provides full details of this analysis and figures showing the impact of Jobcentre Plus on claims for out-of-work benefits by gender, age and ethnicity. The subgroup analysis reported here is based on the random growth model which assumed constant common time trends.

Having controlled for differences in the characteristics of male and female JSA customers which could be related to their likelihood of leaving benefits, there was evidence that Jobcentre Plus was more effective in reducing benefit claims by male JSA customers compared to female JSA customers in nine of the 15 months considered. There was no evidence that the impact of Jobcentre Plus varied by the age of the customer once differences in the other characteristics of customers of different ages were taken into account. There was also little evidence that the introduction of Jobcentre Plus had a different impact on white and non-white JSA customers. Jobcentre Plus had a greater impact in reducing claims for out-of-work benefits by non-white JSA customers than for white customers in three of the 15 months after the start of the claim for JSA, but nevertheless had a positive impact in reducing claims by both groups.

6 Impacts of Jobcentre Plus on disabled customers

In this chapter we discuss our main findings for the disabled client group. We do not measure exits to jobs for this group, but estimate the policy impact on exits from benefit.[38,39] The local area analysis points to an increase in exits from Incapacity Benefit (IB) off benefit, although we find significant negative impacts for people over 50 with shorter duration claims. This group accounts for approximately five per cent of the disabled client group and 15 per cent of exits off benefit from the disabled client group. The analysis of individual claims points to a negative impact of Jobcentre Plus on exits from IB for shorter duration claims. Consistent with the local area analysis, these are concentrated amongst older benefit claimants.[40] The more positive picture coming from the local area analysis, in comparison to the individual claims analysis, of the impact of Jobcentre Plus on disabled customers, is likely to be associated with differences in measured policy effects across roll-out waves.[41] We find no evidence to suggest that flows onto disability benefit were affected by Jobcentre Plus in the longer term.

6.1 Evidence from Jobcentre District flows

Table 6.1 shows the estimated percentage impacts of Jobcentre Plus on exit rates from IB. These are estimated directly from the data in the analysis of the local area flow rates. Detailed results are presented in Appendix A, Table A.4. Looking at the effects on the off-flow rate from benefit we find positive and statistically significant policy impacts for many sub-groups. However, we find statistically significant negative policy effects for male and for female IB claimants aged 50+ with shorter duration claims. For all other sub-groups analysed, except for male 18–49-year-olds with shorter duration claims, the effects are positive and statistically significant.

38 We constructed measures of exits to jobs for the disabled client group based on an excerpt of the Work and Pensions Longitudinal Study (WPLS) data. However, we were unable to proxy other published data on overall exit rates and benefit stocks with the information available. Therefore we do not use these data.

39 Off benefit means Jobseeker's Allowance (JSA), IB and Income Support (IS).

40 The individual-level analysis was carried out for IB claims only as well as for the disabled client group (including IS claimants with a disability premium). Estimated policy effects did not differ substantially between the two samples. The local area analysis focuses on the disabled client group.

41 The individual-level analysis measures Jobcentre Plus effects in Day Two offices (second roll-out wave). Varying the Jobcentre Plus policy effects by roll-out wave in the local area analysis, we find that the positive impacts of Jobcentre Plus on the benefit exit rate for disabled customers is driven by the impacts of Jobcentre Plus in districts that took part in the first and third roll-out waves.

Table 6.1 Long-run percentage change in IB exit rates with Jobcentre Plus

Gender	Age	Duration	Off-flow rate from benefit		Duration	Off-flow rate to other benefit	
Female	18-49	0-12 months	0.080***	(0.010)	0-12 months	-0.052***	(0.017)
		>12 months	0.049***	(0.015)	>12 months	0.018	(0.030)
	50+	0-12 months	-0.050***	(0.016)	All	-0.038	(0.027)
		>12 months	0.032***	(0.012)			
Male	18-49	0-12 months	0.007	(0.014)	0-12 months	-0.044***	(0.013)
		>12 months	0.046***	(0.014)	>12 months	0.132***	(0.022)
	50+	0-12 months	-0.044***	(0.013)	All	-0.023	(0.024)
		>12 months	0.018**	(0.009)			

Notes:
- Disabled client group.
- Off-flow from benefit defined as IB/Severe Disablement Allowance (SDA) claim ends within the quarter where the individual does not make a new claim for any out-of-work benefit (JSA, IB, SDA, IS) within 90 days.
- Off-flow to other benefit defined as IB/SDA claim ends within the quarter where the individual makes a new claim for other out-of-work benefits (JSA, IS) within 90 days.
- Statistical significance indicated as *10%, **5%, ***1%.
- Coefficient standard errors in brackets.

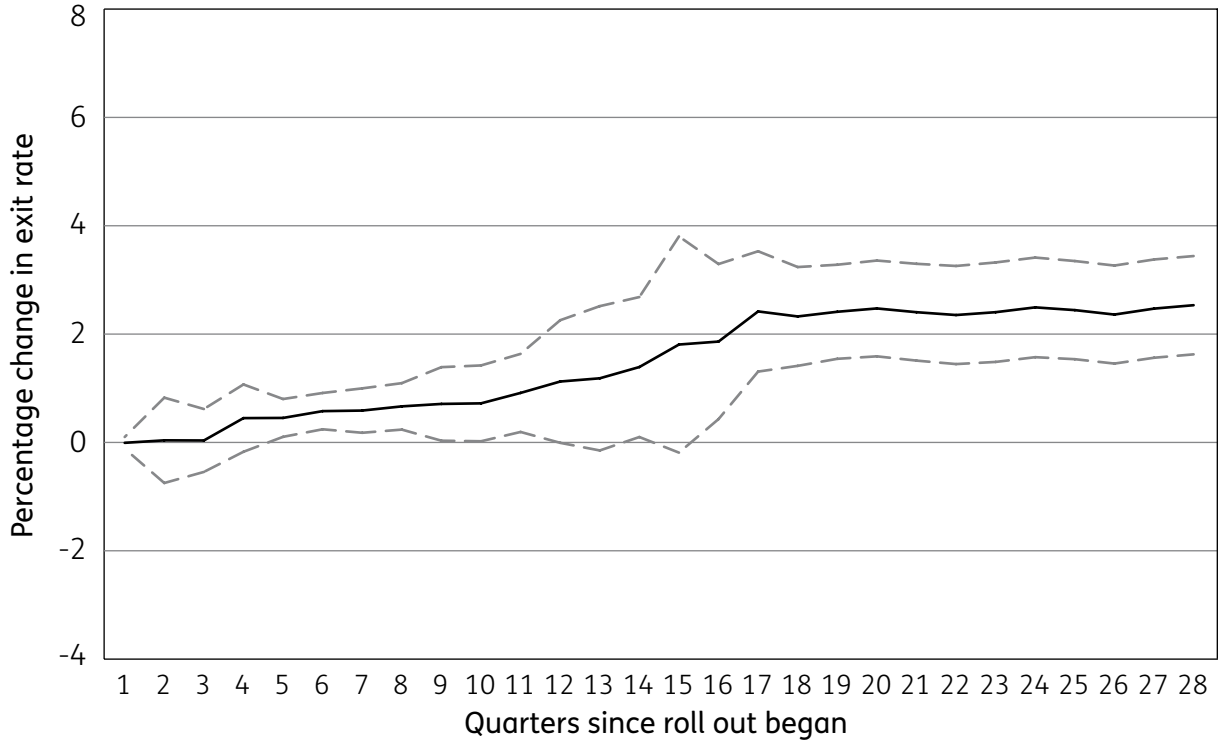
Looking at the impact of Jobcentre Plus on the off-flow rate to other benefits we find a mixed picture, with some negative and some positive effects. For shorter duration claims for disability customers aged 18-49 we find a negative Jobcentre Plus effect on the exit rate to other benefits, combined with a positive effect on the exit rate from benefit altogether. Thus for this group these results suggest Jobcentre Plus may have helped some disabled customers to exit benefit, who might otherwise have moved onto other benefits. For male disabled customers aged 18-49 with longer duration claims we find positive Jobcentre Plus effects on both the exit rate from IB off benefit altogether (this includes exits to jobs) and to other out-of-work benefits (including JSA and IS). For this group the findings are consistent with an interpretation where Jobcentre Plus has helped disabled customers move closer to the labour market, by moving them into work or onto JSA.

We can aggregate up the sub-group estimates in Table 6.1 to arrive at an aggregated policy effect for the exit rate from benefit for the disability client group (Figure 6.1). As in the section above, the time profile for this effect depends to a large extent on the roll-out schedule in a typical Jobcentre District (JCD) (as illustrated in Figure 4.2). In addition to our estimates of policy implementation and longer-term effects for sub-groups, this illustration also depends on the roll-out schedule. The local area flows analysis suggests that the introduction of Jobcentre Plus led to an increase in the exit rate from disability benefit off benefit of around 2.5 per cent. Implementation effects were generally not very significant. The gradual rise in the policy effect on exit rates shown in Figure 6.1 largely reflects the roll-out schedule rather than negative start-up effects. The widening then narrowing confidence bands reflect the fact that the estimated start-up effects have high standard errors, and these are more important where policy coverage is increasing quickly.

Table 6.2 reports the percentage point increase in the exit rate from disability benefit off benefit once policy roll-out is complete. Our estimates imply that the probability of exiting IB over a three-month period rose by 0.1 percentage points due to Jobcentre Plus. This appears small in comparison to the policy impact measured in percentage terms (2.5 per cent).[42] The reason for this is simply that the probability of exit from disability benefit off benefit over a given quarter is low, as illustrated by actual and counterfactual flow rates in Table 6.2.

[42] Note that for comparison to the results using individual claims data in Section 6.2, local area impacts should be measured in terms of percentage **points**.

Figure 6.1 Percentage change in exit rate from IB off benefit with Jobcentre Plus (typical JCD)



Notes: 95 confidence bands around central estimate take into account parameter uncertainty of the estimated policy coefficients.

Table 6.2 Longer-term impacts on the probability of exit from IB off benefit

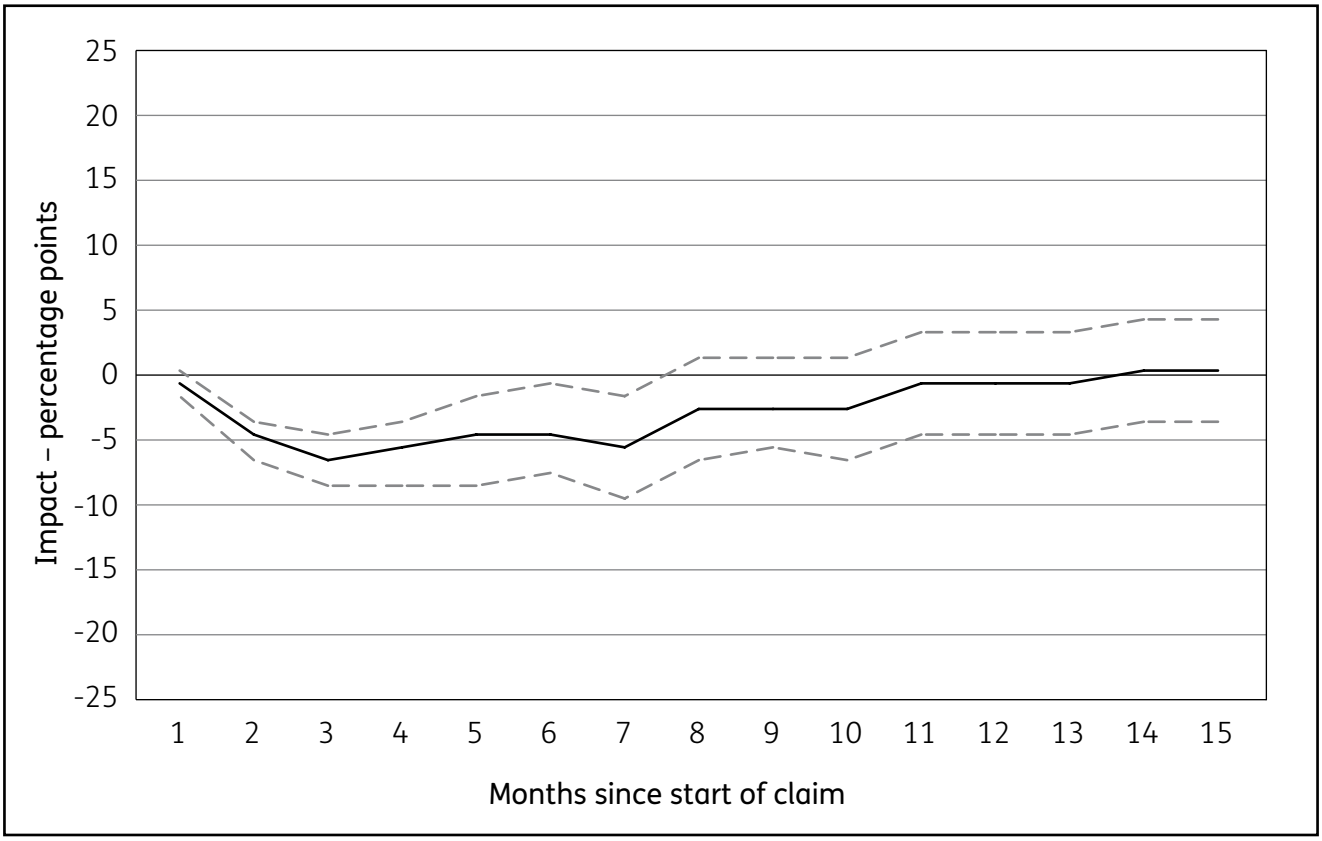
	Average quarterly exit rate to work 2007Q4-2008Q3				
	Actual %	Counter-factual %	Additional	95% confidence range	
IB off benefit	3.8	3.7	0.09	0.06	0.13
Females	4.0	3.9	0.17	0.12	0.22
Males	3.7	3.6	0.03	-0.01	0.08
Age 18-49	4.0	3.8	0.17	0.12	0.22
Age 50+	3.6	3.6	0.00	-0.05	0.04
Claim duration 0-12 months	14.0	13.7	0.21	0.02	0.39
Claim duration >12 months	2.3	2.2	0.07	0.05	0.10

We find some evidence of a reduction in on-flows to disability benefit due to the disruption caused by the implementation of Jobcentre Plus. These effects are temporary. Statistically the longer-term impact of Jobcentre Plus on flows to IB is no different from zero.

6.2 Evidence from individual claims data

The version of the random growth model which assumed constant common time trends suggested that Jobcentre Plus had a negative impact and actually increased the likelihood of incapacity benefits customers remaining on out-of-work benefits over the period from two to seven months following the start of their claim (Figure 6.2). These negative impacts peaked at 7.1 percentage points in month three.

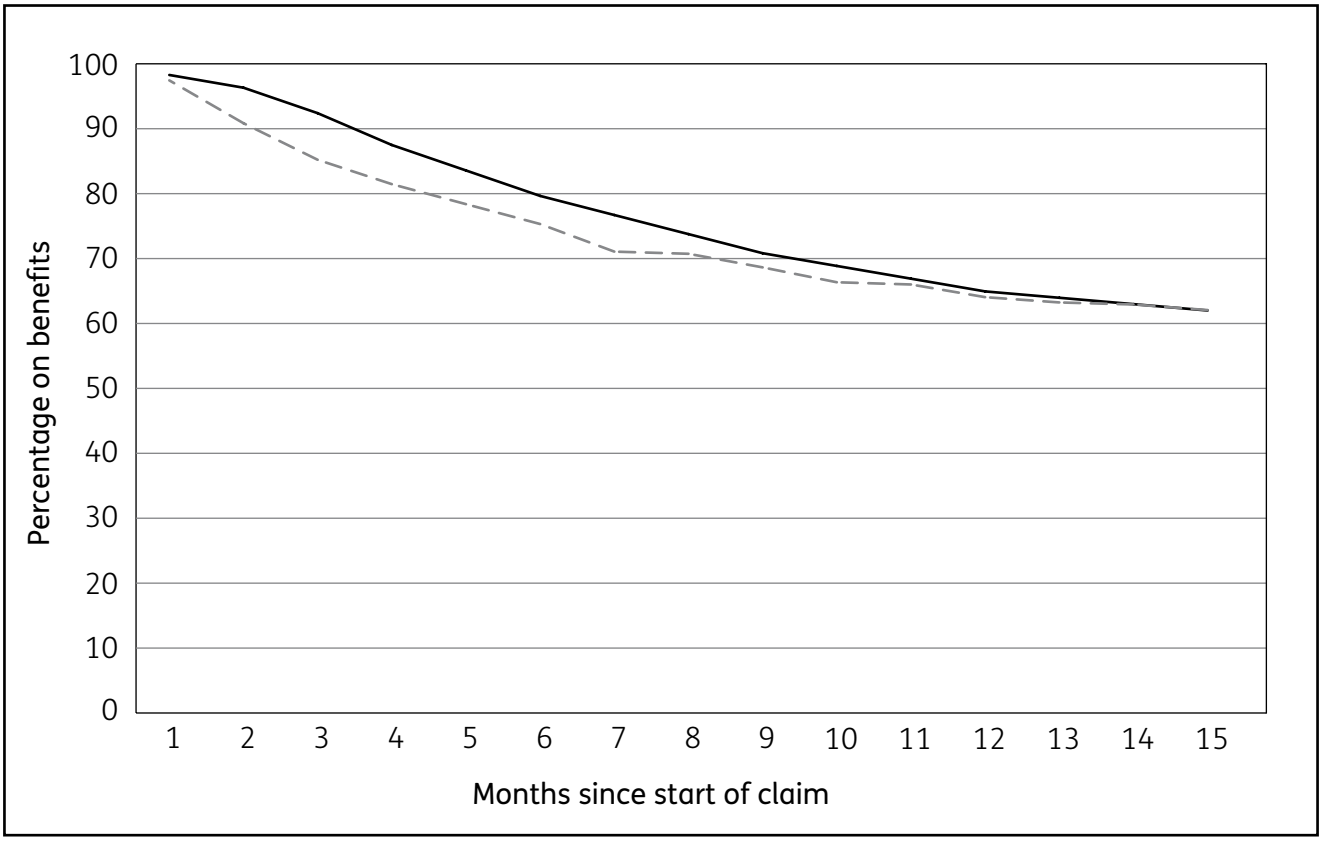
Figure 6.2 Random growth model assuming constant common time trends – incapacity benefits customers



The dashed line in Figure 6.3 shows that without the introduction of Jobcentre Plus, 62 per cent of incapacity benefits customers in Day Two areas could be expected to be claiming an out-of-work benefit 15 months after the start of their claim for incapacity benefits. The solid line shows the level of claims for out-of-work benefit resulting from the introduction of Jobcentre Plus.

A DiD analysis indicated that the introduction of Jobcentre Plus reduced claims for out-of-work benefits by incapacity benefits customers over the period 13-15 months after the start of their initial claim. The size of this reduction increased from 2.2 to 2.8 percentage points over this period. When propensity score matching (PSM) was used in combination with the difference-in-difference (DiD) approach, this also suggested that Jobcentre Plus reduced benefit claims for incapacity benefits customers towards the end of the 15-month period under consideration. Claims were reduced by 2.1 percentage points in month 14 and 2.2 percentage points in month 15.

Figure 6.3 Estimated proportion of incapacity benefits customers on benefits in months following claim start



The random growth model which relaxed the assumption that common (to individuals in the Day Two areas and their comparators) trends remained constant over time also found more limited evidence of negative effects from Jobcentre Plus compared to the model which assumed constant common time trends. The alternative model found negative effects ranging in size from 4.9 to 6.5 percentage points and these were only evident from two to four months after the start of the claim for incapacity benefits.

In interpreting these results, it is important to assess whether the assumptions which determine the likely robustness of the models are met. Pre-programme tests suggested that there was possible bias in the estimated impact of Jobcentre Plus on benefit claims made by incapacity benefits customers between months two and seven when using the DiD approach. For the random growth model assuming constant common time trends there was evidence that the impact estimates for month one could be biased, but there was no reason to believe that estimates for successive months would be unreliable. This implies that there are reasonable grounds for believing that Jobcentre Plus did have negative impacts on incapacity benefits customers in the early months following the start of their claim. However, we do not have sufficient pre-programme data to test the plausibility of the underlying assumption that differential trends in outcomes between individuals in the Day Two areas and their comparators remained constant over time. The positive impacts observed in months 13 to 15 using the DiD model are less likely to be open to question since there was no evidence of bias from the pre-programme tests from month eight onwards.

Using the random growth model assuming constant common time trends, there was no evidence that Jobcentre Plus had a different impact on either male or female incapacity benefits customers. However, there was evidence that Jobcentre Plus was less effective for older customers compared to younger claimants. The introduction of Jobcentre Plus increased the proportion of incapacity benefits customers aged 50 or more claiming out-of-work benefits compared to the proportion of younger customers claiming in six of the 15 months considered. By contrast, incapacity benefits customers aged 18-24 were less likely to be found claiming out-of-work benefits in 11 of the 15 months following the start of their claim for incapacity benefits compared to older customers. There was some evidence that the introduction of Jobcentre Plus was less effective in reducing claims for out-of-work benefits by those with physical health problems compared to those with mental health problems in the first three months following the start of the claim. It was not possible to establish whether the impact of Jobcentre Plus on incapacity benefits customers was similar for different ethnic groups due to the small numbers of non-white customers.

7 Impacts of Jobcentre Plus on lone parents

The local area flow analysis suggests that the introduction of Jobcentre Plus was associated with an increase in the exit rate from Income Support (IS) to jobs, from IS off benefit (this includes all destinations other than out-of-work benefits, including job exits and unknown destinations) and from IS to other out-of-work benefits (including Jobseeker's Allowance (JSA)) for lone parents. These impacts were typically observed for shorter duration claims. The analysis of individual claims data looks at exits from IS and finds a small reduction in the likelihood of being on benefits in the early months after the start of a claim only.[43] We find some evidence of negative policy implementation effects. We find no evidence that Jobcentre Plus changed inflows of lone parents to IS.

7.1 Evidence from Jobcentre District flows

Table 7.1 Long-run percentage change in female ISLP exit rates with Jobcentre Plus

Age	Duration	Off-flow rate from benefit into work (HMRC)		Off-flow rate benefit		Duration	Off-flow rate to other benefit	
18-24	0-12 months	0.077***	(0.023)	0.053***	(0.017)	all	0.087***	(0.032)
	>12 months	0.047**	(0.020)	0.027	(0.017)			
25-49	0-12 months	0.084***	(0.015)	0.045***	(0.011)	0-12 months	0.059*	(0.031)
	>12 months	0.012	(0.013)	0.002	(0.010)	>12 months	0.030	(0.033)

Notes:
- Female lone parents claiming IS.
- Off-flow from benefit defined as IS claim ends within the quarter where the individual does not make a new claim for any out-of-work benefit (JSA, IB, SDA, IS) within 90 days.
- Off-flow from benefit to work defined as IS claim ends within the quarter where the individual is in work within 90 days (according to WPLS tax records).
- Off-flow to other benefit defined as IS claim ends within the quarter where the individual makes a new claim for other out-of-work benefits (JSA, IB, SDA) within 90 days.
- Statistical significance indicated as *10%, **5%, ***1%.
- Coefficient standard errors in brackets.

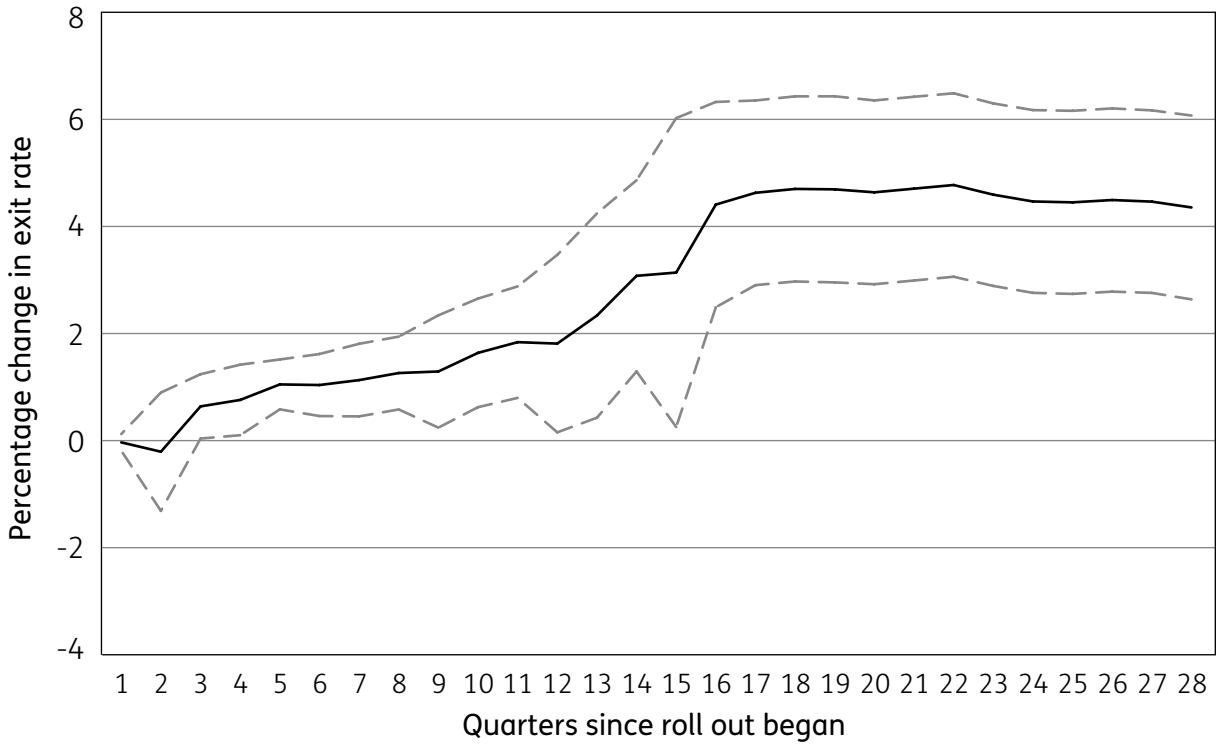
Table 7.1 shows the estimated long-run percentage change in female IS for lone parents (ISLP) exit rates associated with Jobcentre Plus. We find statistically significant positive effects for many sub-groups. These positive effects are particularly evident for shorter duration claims. One can speculate why impacts are observed at shorter rather than longer claim durations. Lone parents should have more contact with Jobcentre Plus towards the start of their claim, which may help to explain the pattern of impacts. The combination of increased exits to other benefits (JSA and Incapacity Benefit

[43] The individual-level analysis measures Jobcentre Plus effects in Day Two offices (second roll-out wave). Varying the Jobcentre Plus policy effect by roll-out wave in the local area analysis, we find that the impact of Jobcentre Plus on the exit rate from IS to work (or off benefit) for lone parents is largest in the Pathfinder areas. However, the impact in the Pathfinder areas is not statistically different from the impact of Jobcentre Plus in the Day Two areas.

(IB))[44] as well as to work could suggest that Jobcentre Plus has helped lone parents move closer to the labour market by helping them move onto JSA as well as into work. Detailed model results are shown in Table A.5 in Appendix A. We find some evidence of statistically significant reductions in female ISLP exit rates associated with Jobcentre Plus start-up.

Figure 7.1 illustrates the estimated percentage change in the exit rate from ISLP to jobs associated with the introduction of Jobcentre Plus. As in previous sections these results are generated from sub-group estimates of implementation and equilibrium effects, combined with the roll-out schedule for a typical JCD. Our results suggest that once the policy is fully up and running in the JCD, exits to jobs are 4.5 per cent higher than they would have been had the policy change not taken place.

Figure 7.1 Percentage change in exit rate from ISLP to jobs (HMRC) with Jobcentre Plus (typical JCD)



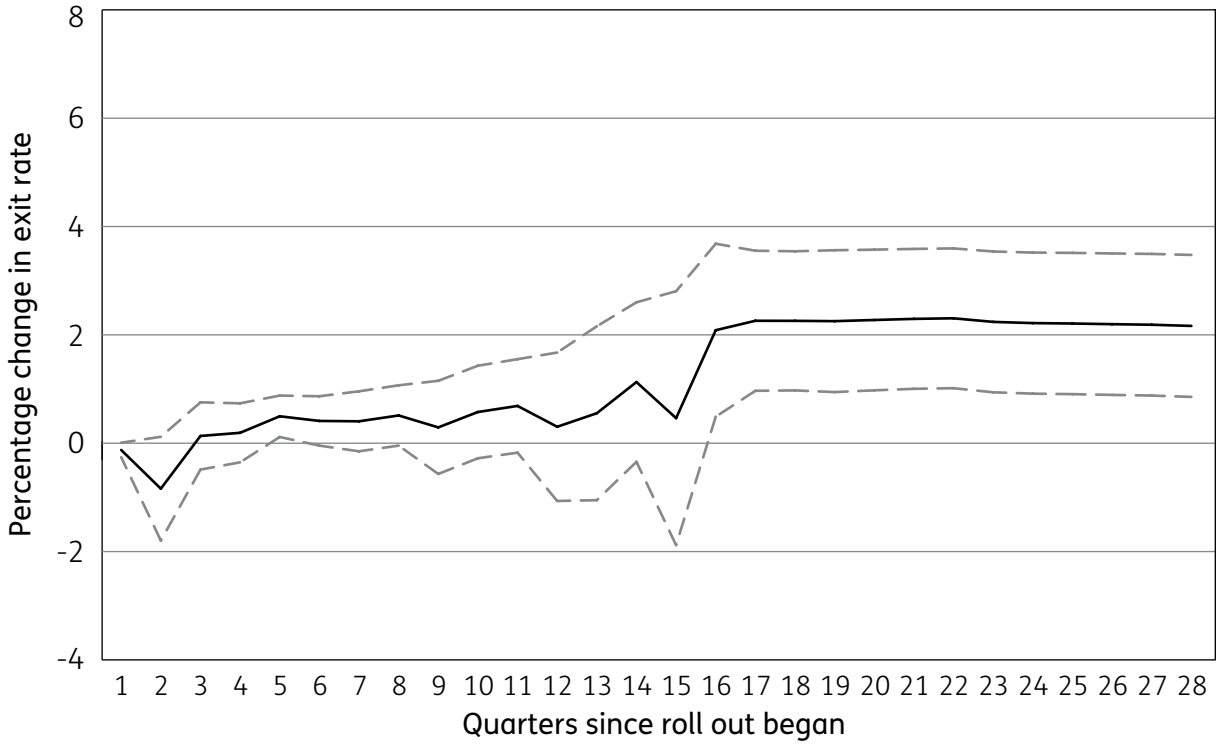
Notes: 95 confidence bands around central estimate take into account parameter uncertainty of the estimated policy coefficients.

Exits to jobs for lone parents are calculated from tax records. It seems unlikely that there should be measurement error in these data, correlated with Jobcentre Plus (as we might suspect with the JSA figures using JSA40 data).[45] For comparison with other groups we also illustrate the policy effect on the exit rate from ISLP off benefit (Figure 7.2). Again we find a statistically significant increase in the exit rate associated with Jobcentre Plus.

[44] The data we use does not allow us to distinguish between ISLP exits to IB and ISLP exits to JSA.

[45] The poor coverage of low pay jobs and self-employment in the Her Majesty's Revenue and Customs (HMRC) data could give rise to a correlation of the jobs data with the Jobcentre Plus policy if Jobcentre Plus changes the composition of employment between low paid jobs, self-employment, and employee jobs paid above the Pay As You Earn threshold.

Figure 7.2 Percentage change in exit rate from ISLP off benefit with Jobcentre Plus (typical JCD)



Notes: 95 confidence bands around central estimate take into account parameter uncertainty of the estimated policy coefficients.

Table 7.2 reports actual and counterfactual exit rates to jobs for lone parents claiming IS. The difference between the two is the estimated percentage point change for this group in the probability of exit from benefit to jobs over the course of three months. These are constructed from the same estimates as the impact illustration in Figure 7.1 above and in Table 7.1. The percentage point change in the exit rate shown in Table 7.2 is much smaller than the percentage change in the exit rate shown in Figure 7.1. This is because the exit rate to work is relatively small. The policy impact for longer-duration claims is statistically no different from zero at the five per cent level.

Table 7.2 Longer-term impacts on the probability of exit to jobs from ISLP

	Average quarterly exit rate to work 2007Q4-2008Q3				
	Actual %	Counter-factual %	Additional	95% confidence range	
ISLP to work (HMRC), females	4.0	3.8	0.17	0.10	0.23
Age 18-24	4.2	4.0	0.24	0.12	0.37
Age 25-49	3.9	3.7	0.15	0.07	0.22
Claim duration 0-12 months	7.9	7.3	0.60	0.40	0.80
Claim duration >12 months	2.9	2.9	0.06	-0.01	0.12

7.2 Evidence from individual claims data

The random growth model which assumed that there were constant common time trends between the Day Two areas and their comparators suggested that Jobcentre Plus reduced claims for out-of-work benefits in the Day Two areas in the first two months following the start of the lone parent's claim for IS (Figure 7.3). The peak impact was 2.5 percentage points in month two, but after this point there was no evidence of any impact from Jobcentre Plus.

Figure 7.3 Random growth model assuming constant common time trends – ISLP customers

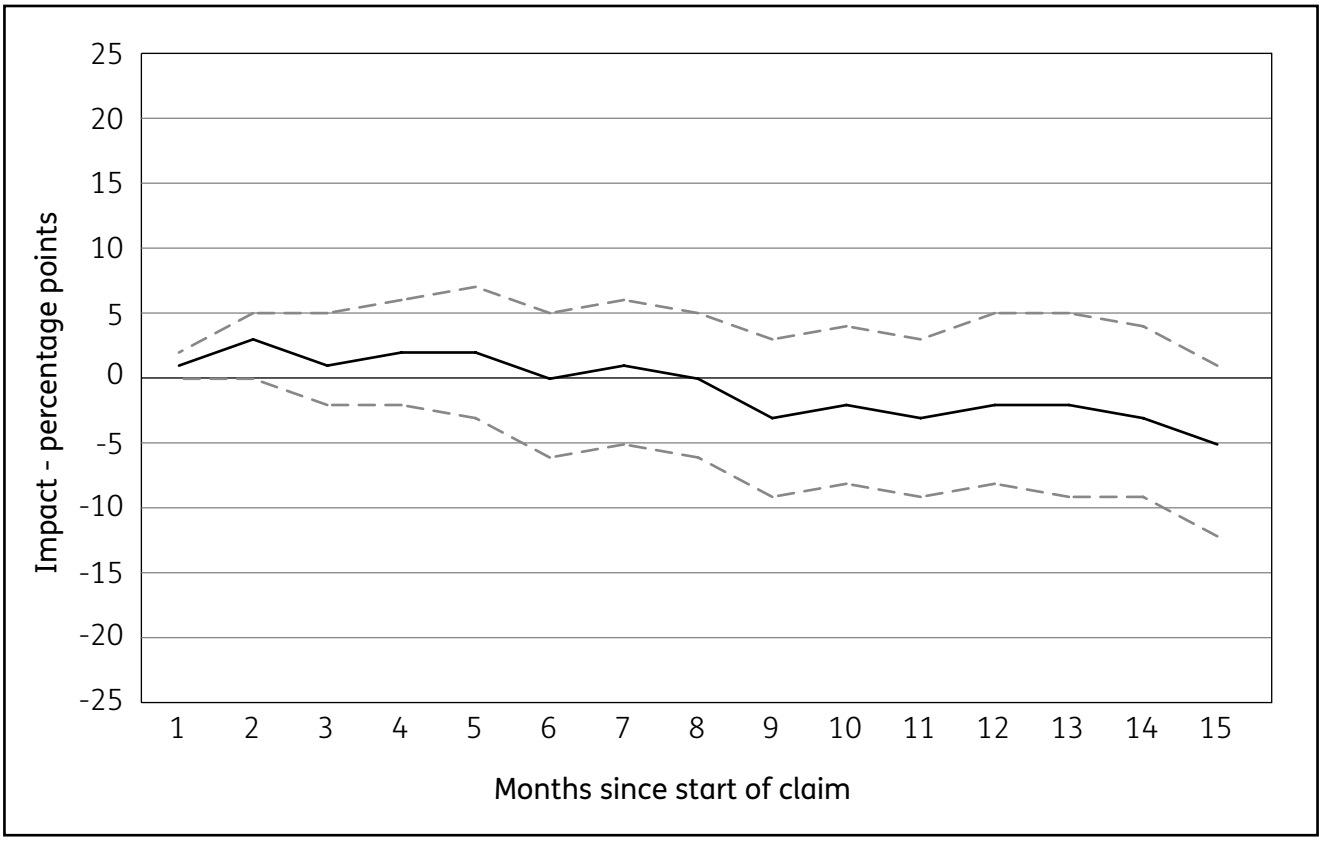
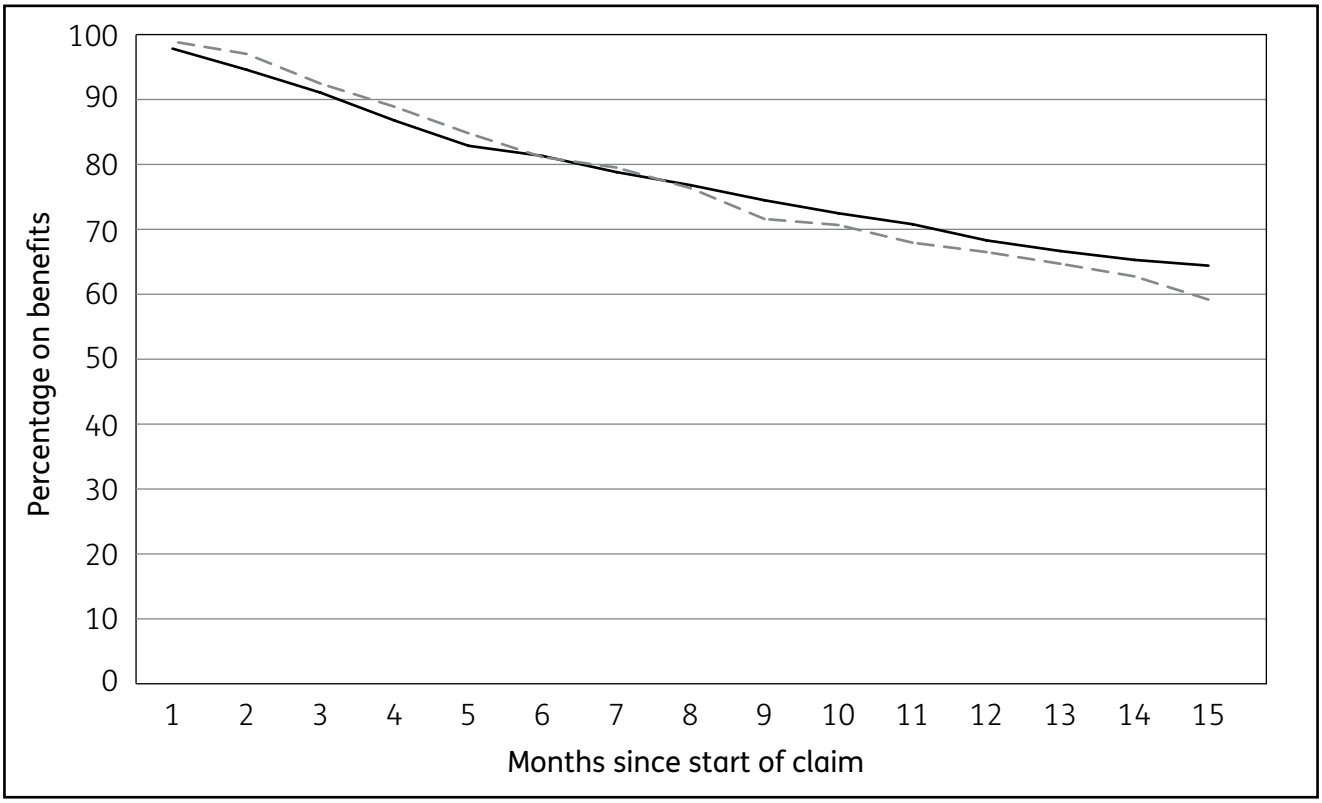


Figure 7.4 shows that 15 months after the start of the claim for IS, 59 per cent of lone parents could be expected to be claiming an out-of-work benefit without the introduction of Jobcentre Plus (the dashed line). The solid line indicates the level of claims for out-of-work benefit following the introduction of Jobcentre Plus, which stood at 65 per cent by month 15. The difference between these numbers is not statistically significant (as indicated in Figure 7.3).

A simple difference-in-difference (DiD) analysis suggested that the introduction of Jobcentre Plus reduced claims for out-of-work benefits by ISLP customers in each of the first four months following the start of the claim for IS. The peak impact was 3.2 percentage points in month three. When the impact of Jobcentre Plus was estimated using propensity score matching (PSM) combined with DiD analysis, it appeared that Jobcentre Plus reduced benefit claims for ISLP customers in the first five months following the start of their claim for IS, but this impact disappeared from month six onwards. The peak impact was again 3.2 percentage points in month three (the same as the impact observed using DiD analysis without first carrying out PSM).

Figure 7.4 Estimated proportion of ISLP customers on benefits in months following claim start



The random growth model which assumed that the common trends in outcomes between customers in the Day Two areas and those in the comparison areas observed prior to roll-out did not remain constant over time also found statistically significant positive impacts from Jobcentre Plus in months one and two, with a peak impact of 4.2 percentage points in month two. However, in months 14 and 15, this model suggested that the introduction of Jobcentre Plus actually increased claims for out-of-work benefits by ISLP customers (by 9.2 and 11.3 percentage points respectively).

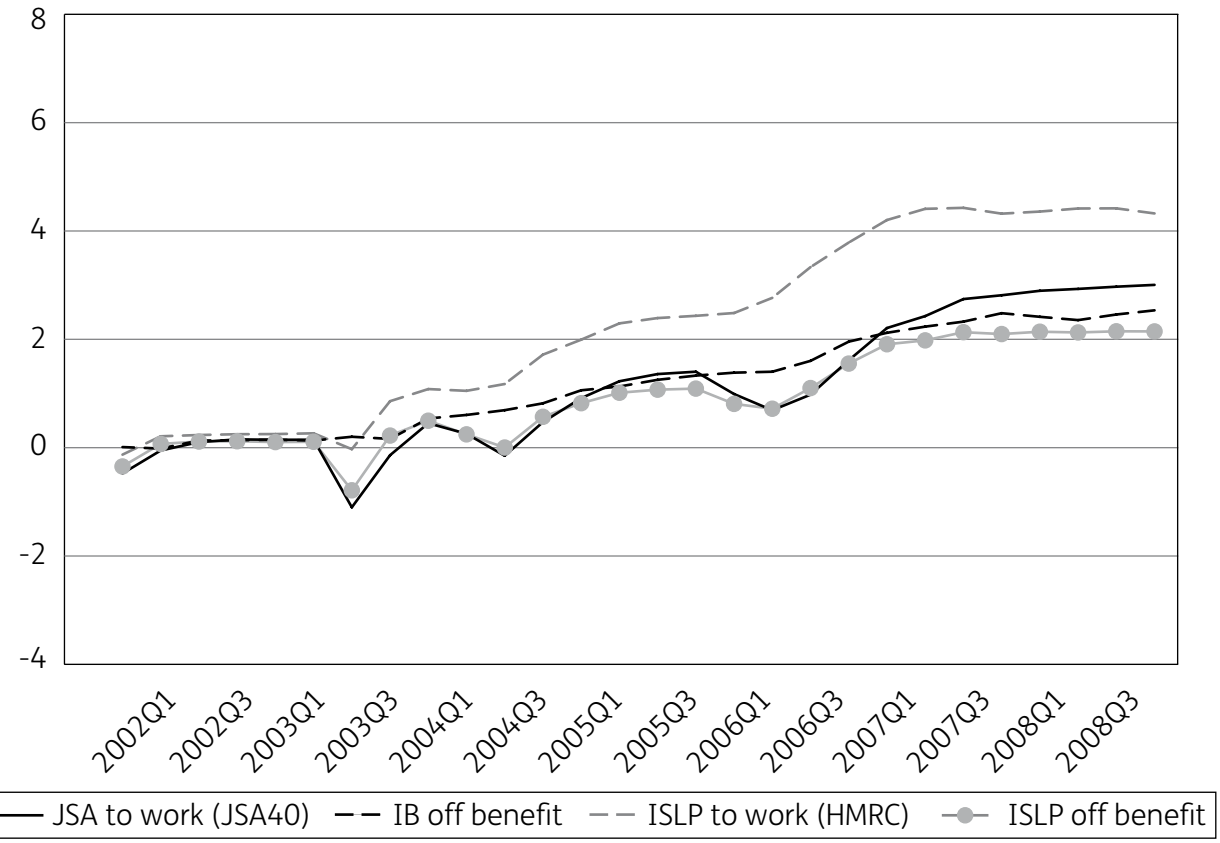
The finding that Jobcentre Plus had early impacts which disappeared over later months for ISLP customers has to be interpreted in the light of robustness checks which suggested that the DiD model was likely to be biased for months 10-15. Also, there was evidence that the random growth model assuming constant common time trends was less likely to provide a robust estimate of the impact of Jobcentre Plus in months 11, 14 and 15. This implies that the impact estimates produced by both models for these later months might be open to question. On the other hand, the robustness checks suggest it is likely that Jobcentre Plus did indeed reduce the proportion of ISLP customers claiming out-of-work benefits in the early months following the start of their claim. The numbers of lone parents claiming IS were too small for a robust subgroup analysis, so it was not possible to observe whether Jobcentre Plus had an impact for customers in particular age groups, or from different ethnic groups.

8 Impacts of Jobcentre Plus on the labour market

Here we illustrate what the estimated Jobcentre Plus effects from the local area flow analysis imply about the effect of Jobcentre Plus on the aggregate UK labour market. Central estimates suggest that by the time Jobcentre Plus was fully rolled out across the UK, flows from benefit to jobs were likely to be around 40,000 per annum higher than they would have been had the investment not taken place. This is mainly associated with a rise in exits from Jobseeker's Allowance (JSA) to jobs. The longer-term effects of these changes in exit rates, if sustained, are to reduce the benefit stock by around 65,000, matched by an equivalent rise in employment. The reduction in the benefit stock is mainly associated with a reduction in the number of Incapacity Benefit (IB) claimants. Analysing wages we find some evidence, albeit weak, that Jobcentre Plus has led to a reduction in wage pressure. Policy effects on wage pressure are typically more difficult to detect from the data than policy effects on flow rates.

8.1 Additional flows off benefit associated with the introduction of Jobcentre Plus

Figure 8.1 Percentage change in exit rates from benefit with Jobcentre Plus (national)



Notes: Conditional on the age, gender and claim duration structure of UK benefit claimants; Off benefit exits are claim ends for individuals not initiating a new claim for JSA, IB, Income Support (IS) or Severe Disablement Allowance (SDA) within the quarter.

Figure 8.1 illustrates the percentage change in UK benefit off-flow rates for the different client groups implied by the central estimates of the Jobcentre Plus effect on exit rates from the local area analysis (Appendix A, Tables A.1-A.5). This aggregated effect depends on the aggregate roll-out schedule (Figure 4.1) and the gender, age and duration structure of the working-age population claiming benefits. For all flow rates shown, the effect of Jobcentre Plus by the end of its roll-out is statistically greater than zero (confidence intervals not shown).

In Table 8.1 we use these changes in exit rates to derive estimates of additional flows from benefit associated with the roll-out of Jobcentre Plus. These additional flows depend on the number of UK benefit claimants at any one time (i.e. the more people claiming benefit, the more people leave benefit for a given exit rate). This additional flow figure is calculated as a partial equilibrium effect, as it does not take into account the reduction in the benefit stock implied by the increase in the exit rate with Jobcentre Plus. A fully dynamic equation would show a lower estimate of 'additional exits to jobs', because Jobcentre Plus reduces the number of benefit claimants. We also report 95 per cent confidence intervals around these estimates, which take into account estimated parameter uncertainty.[46]

Table 8.1 Additional annual flows from benefit with Jobcentre Plus

(Conditional on unchanged benefit counts; thousands)

	Estimate	2002Q3	2003Q3	2004Q3	2005Q3	2006Q3	2007Q3	2008Q3
JSA to jobs (JSA40)	central	-0.6	-2.9	2.8	11.6	9.9	23.0	26.2
	95% upper	0.1	-0.8	5.6	14.2	14.4	27.2	30.4
	95% lower	-1.3	-5.0	0.1	8.9	5.4	18.7	22.1
JSA to jobs or failed to sign (JSA40)	central	-3.0	-8.8	-7.3	2.7	-6.6	10.1	17.4
	95% upper	-1.9	-5.6	-2.9	7.0	1.6	18.1	24.7
	95% lower	-4.0	-12.0	-11.7	-1.7	-14.7	2.2	10.1
JSA to jobs (HMRC)	central	-1.6	-6.2	-1.8	8.4	2.4	21.5	28.2
	95% upper	-0.7	-3.4	1.6	11.6	8.7	27.4	34.1
	95% lower	-2.4	-9.0	-5.2	5.3	-3.9	15.5	22.3
IB off benefit	central	0.3	0.7	2.7	4.8	6.1	9.0	9.5
	95% upper	0.7	1.7	4.1	6.1	8.5	11.0	11.3
	95% lower	0.0	-0.4	1.2	3.5	3.6	6.9	7.7
ISLP to jobs (HMRC)	central	0.2	0.4	1.5	2.6	3.0	4.7	4.6
	95% upper	0.3	0.8	2.1	3.2	4.0	5.6	5.5
	95% lower	0.1	0.0	0.9	2.0	2.1	3.7	3.7
ISLP off benefit	central	0.0	-0.1	0.6	1.8	1.8	3.7	3.7
	95% upper	0.2	0.5	1.5	2.5	3.0	5.0	4.9
	95% lower	-0.1	-0.7	-0.2	1.1	0.5	2.5	2.6

Notes: Additional off flows (Britain) in the year to the date shown, implied by local area impact estimates; 2008Q3 is seven years since national roll out began; conditional on unchanged benefit stocks.

As shown in Table 8.1, the annual flow accumulates over time as the roll-out of the programme progresses. By the end of the roll-out phase (2008Q3 in Table 8.1) our estimates imply that an additional 26,200 people per annum moved from JSA to work as a result of Jobcentre Plus (using

[46] Note that we are unable to take into account the covariances of sub-group estimates underlying these figures.

JSA40 data). Similarly, an additional 4,600 lone parents per annum moved from IS to jobs. According to Work and Pensions Longitudinal Study (WPLS) data, 70 per cent of exits from disability benefit off benefit (i.e. off JSA, IS, IB and SDA) during the three years to 2008 were to jobs. If we assume that the estimated Jobcentre Plus effect on flows from IB off benefit is associated with equal increases in the exit rate to jobs and to other destinations, then the figures in Table 8.1 would imply that an additional 6,600 people per annum moved from disability benefit to jobs by the end of Jobcentre Plus roll-out (9.5x0.7). It seems equally plausible to assume that all additional exits from IB off benefit are to jobs[47], in which case our numbers suggest that an additional 9,500 people per annum moved from disability benefit to jobs by the end of Jobcentre Plus roll-out.

8.2 Jobcentre Plus, employment and working-age benefit claim counts

Figure 8.2 illustrates the change in benefit stocks associated with the increase in exit rates from benefit to jobs with the roll-out of Jobcentre Plus.[48] The full effect of the change in exit rates on stocks materialises by around 2015 (the stock reaches a new equilibrium), assuming that the estimated change in exit rates is sustained beyond the roll-out phase. Note that the stock effect stabilises in terms of the percentage difference from baseline and that the stock effect measured in thousands may continue to change due to changes in the baseline.

The largest reduction in the numbers of benefit clients occurs for the disabled client group. This is because the number of people claiming disability-related benefit at any one point in time is significantly larger than the number of lone parents claiming IS or the number of jobseekers, and because the percentage change in the benefit stock is proportional to the percentage change in exit rates.

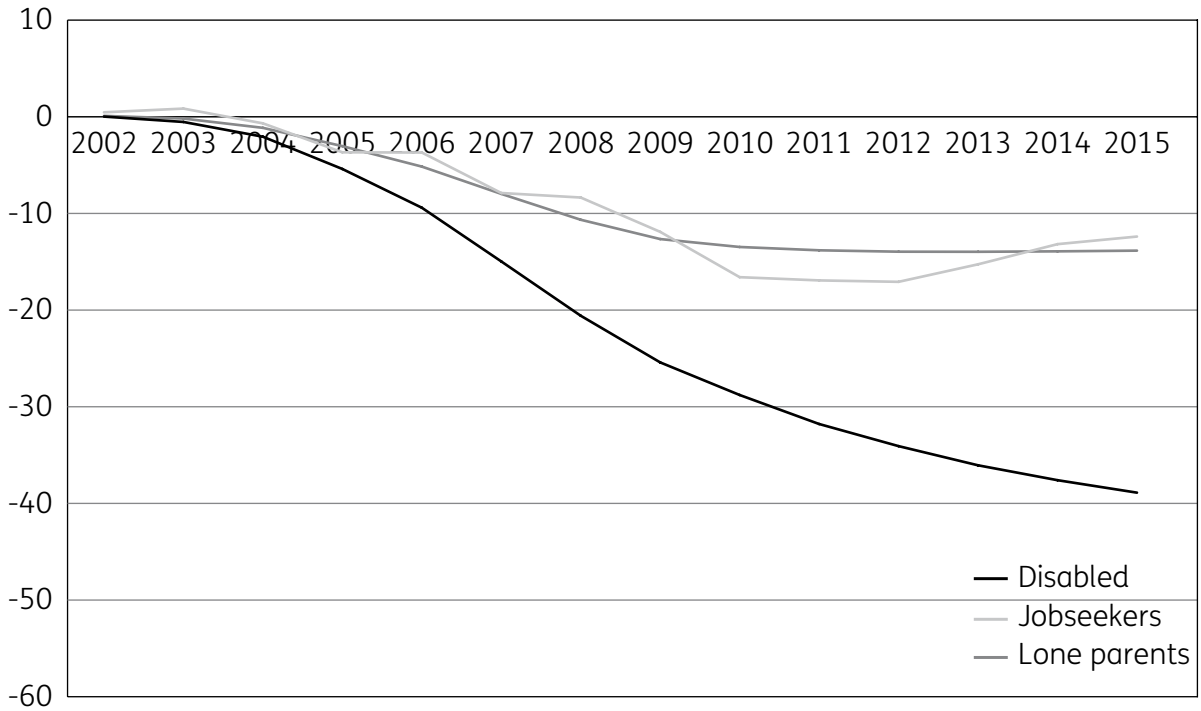
By 2015 our estimates imply that there are 39,000 fewer people claiming disability benefit than there would have been had Jobcentre Plus not been implemented. The policy change is also associated with a reduction in the number of lone parents claiming IS of around 14,000, and a reduction in the number of jobseekers of around 12,000. Taken together, these figures imply a reduction in the number of people claiming benefits of around 65,000 by 2015. These figures are matched by an equivalent increase in the number of people in work.

We also illustrate a lower bound on these stock estimates generated from the estimated lower bound on additional flows in Table 8.1 (see Figure 8.3). Figure 8.4 illustrates an upper bound. Together these figures imply a reduction in the number of people claiming benefits by 2015 of between 40,000 and 90,000.

47 The pattern for the Income Support for lone parents (ISLP) group suggests that additional exits off benefit were to jobs. For JSA claimants the findings suggest that additional exits to jobs/failed to sign destinations were to jobs.

48 In these calculations inflows to benefit are assumed unchanged with Jobcentre Plus.

Figure 8.2 Change in claimant stock with Jobcentre Plus (national, thousands): central case



Notes: Implied by the estimated changes in exit rates to jobs with Jobcentre Plus (from local area flow equations, Appendix A) and the national roll-out schedule.

Figure 8.3 Change in claimant stock with Jobcentre Plus (national, thousands): 95% lower bound

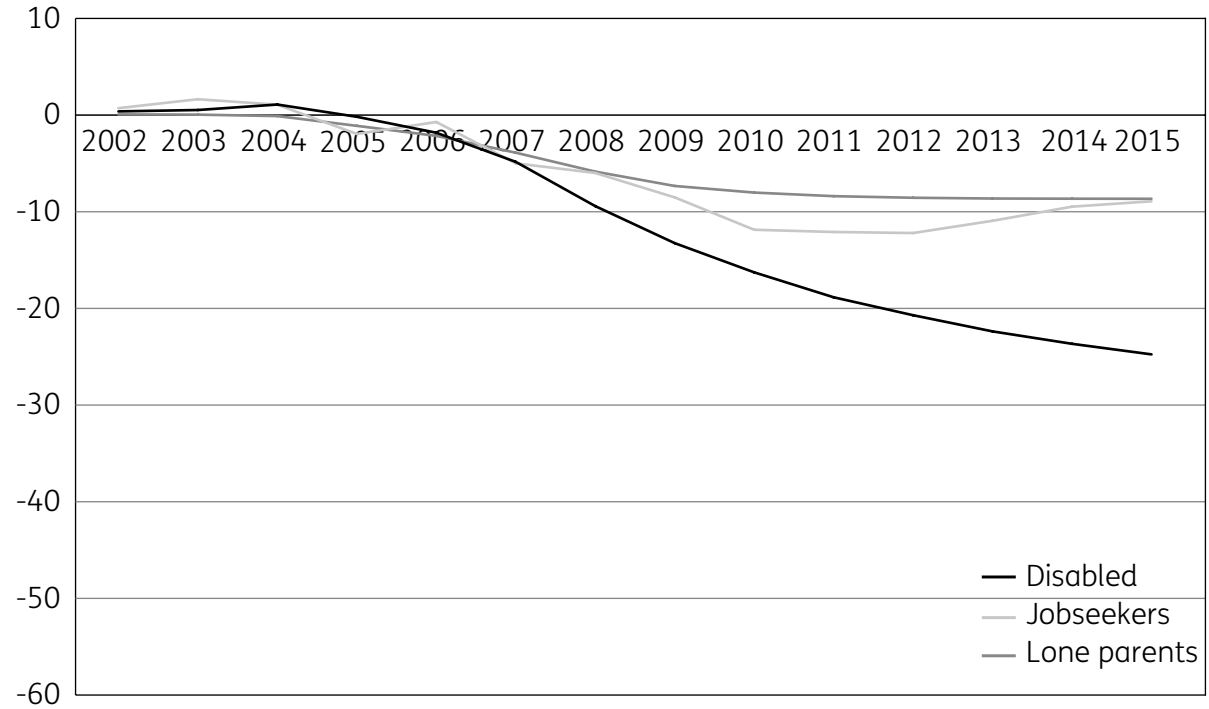
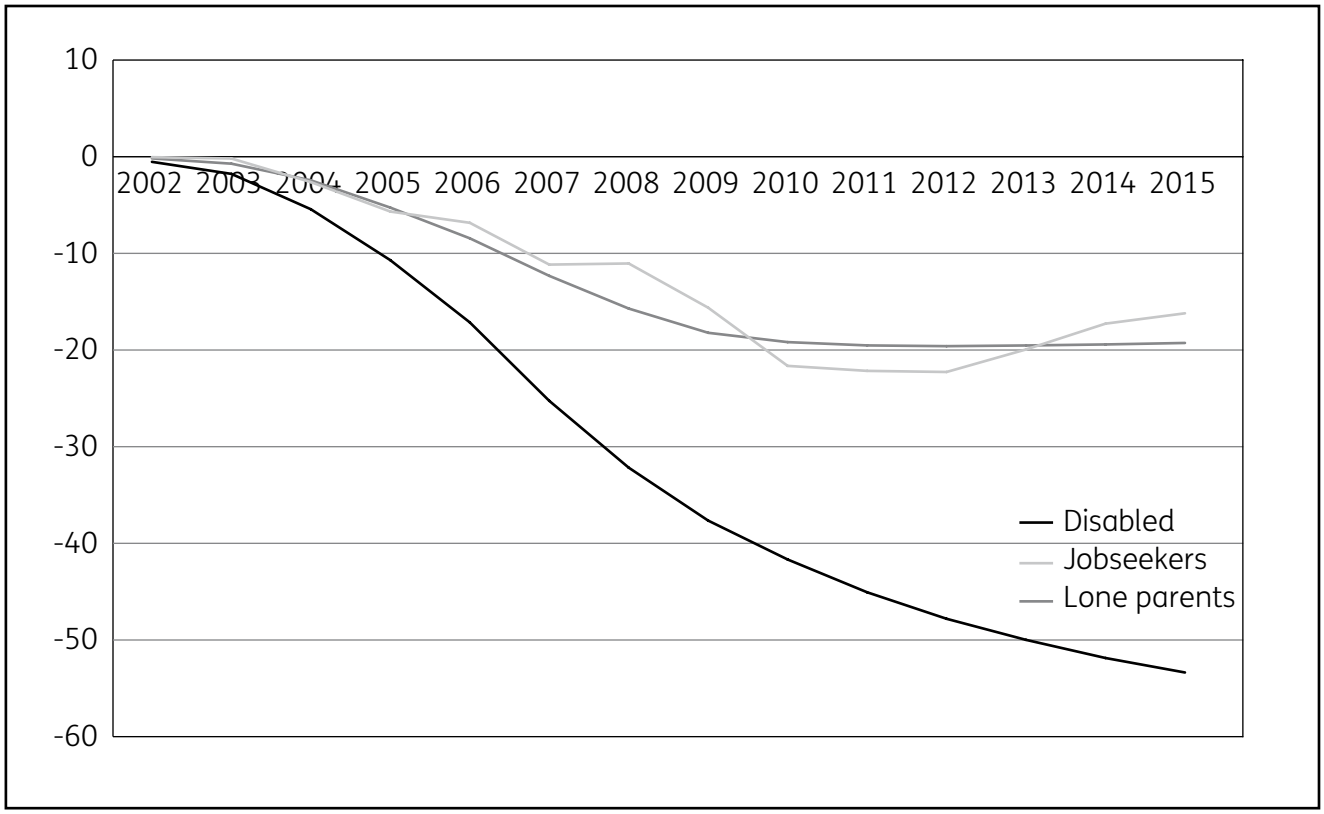


Figure 8.4 Change in claimant stock with Jobcentre Plus (national, thousands): 95% upper bound

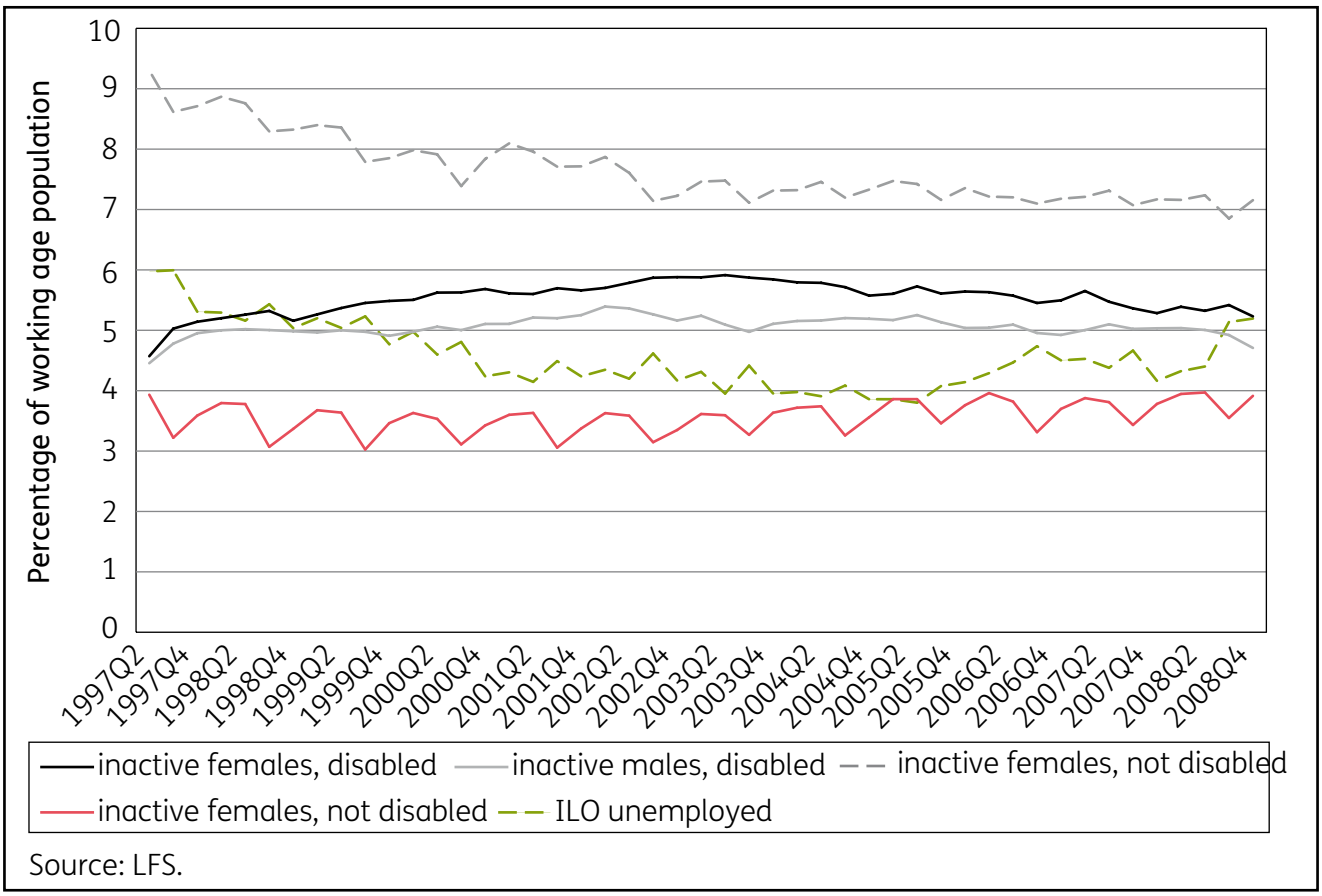


8.3 Jobcentre Plus, wages and productivity

One of the important relationships in assessing the macroeconomic impacts of the introduction of Jobcentre Plus on the labour market and the wider economy is the nature of wage determination. First, this helps us determine the nature of the jobs typically taken by Jobcentre Plus customers. Secondly, if we detect a change in exit rates, this should be reflected in changes in the parameters of the wage equation. We estimate the parameters of the wage bargain, in particular the sensitivity of wages with respect to different groups of non-employed people, using local area wage and labour market data (see Appendix C).

The non-employed groups that we focus on are the International Labour Organisation (ILO) unemployed, economically inactive females that are not disabled, inactive males that are not disabled, inactive female disabled people and inactive male disabled people. IS lone parents are likely to be situated in the 'inactive females, not disabled' group. Jobcentre Plus customers claiming disability-related benefits are likely to be situated in the 'inactive females, disabled' and 'inactive males, disabled' groups. Figure 8.5 shows the evolution of these groups over our sample period, measured relative to the population of working age. The trends in ILO unemployment are not dissimilar to the trends in the claimant count. The number of inactive women, not disabled, is declining over time relative to the working-age population. The number of lone parents claiming IS has also been declining over this period. In contrast, the numbers of people in the disabled groups are relatively stable over time, much as the number of people claiming disability benefit.

Figure 8.5 Groups of non-employed (mean across 48 Jobcentre Districts)



Source: LFS.

We find a negative relationship between unemployment and wages, much as we would expect from theory. We find that inactive women are more likely to influence wages at the lower end of the wage distribution (10th percentile). This suggests that IS lone parents compete for relatively low-skilled and low-productivity jobs. We find that inactive men tend to compete for better jobs than inactive women, but these are still relatively low paid.

We find a negative relationship between the Jobcentre Plus policy and local area wages. This relationship is not always statistically significant, but is in some models. We note that policy effects on wage pressure are more difficult to detect than policy effects on flows. This is because we expect, for a given impact on flows, a much smaller impact on wages, and because the wage data are less accurate. It is possible for Jobcentre Plus to influence wages through its effect on the distribution of the non-employed across the different types, as well as directly through the policy variable. In other words, Jobcentre Plus may raise the search intensity of the non-employed by shifting people from a position where they have relatively little impact on wages to one where they have a stronger influence on wages (for example, from disability benefit to JSA).

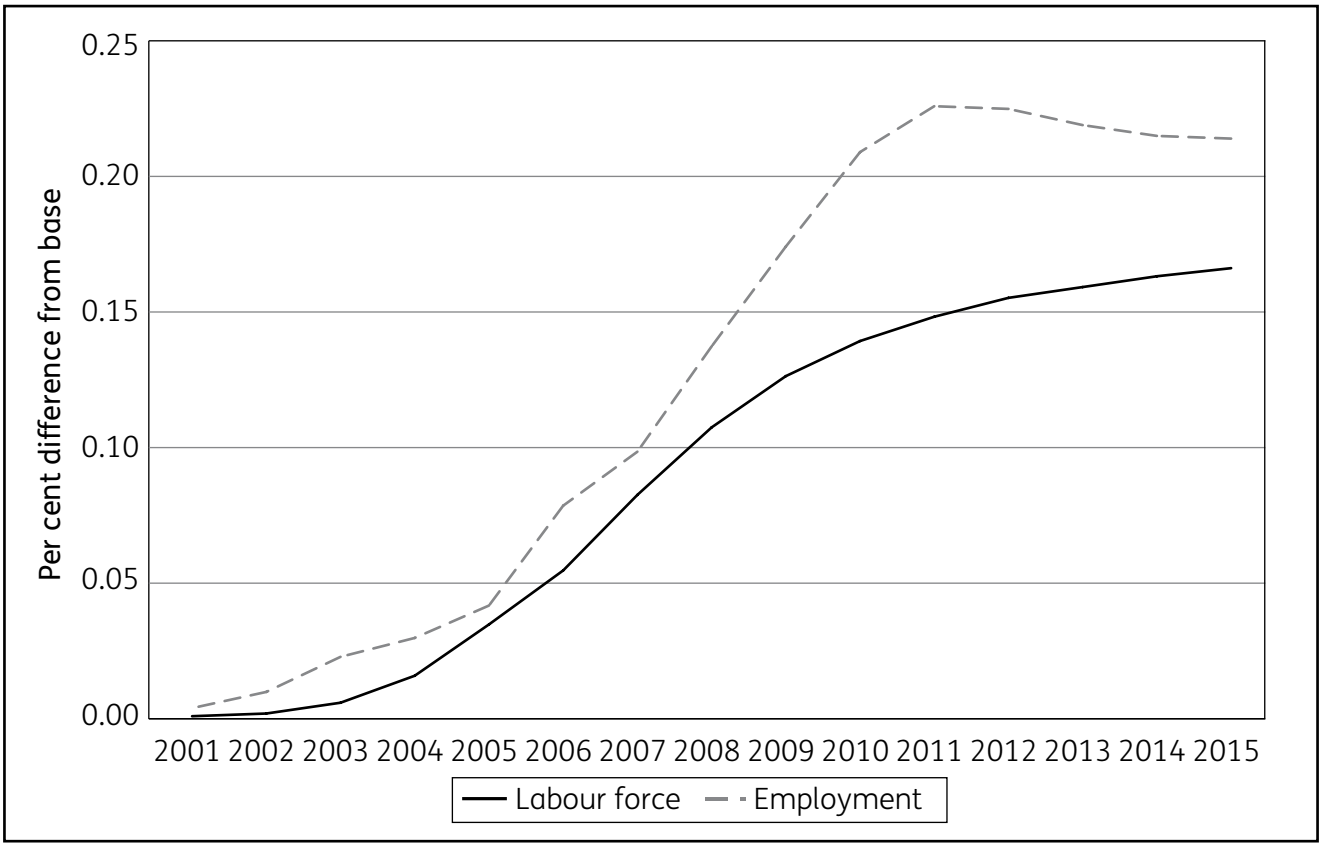
9 Impacts of Jobcentre Plus on the wider economy

Here we discuss our key findings regarding the effect of Jobcentre Plus on the wider economy. These are based on simulating the effect of the estimated changes in exit rates implied by the local area flow analysis, discussed in Chapters 5-8, and the effect of changes in average wages, calibrated from the estimated employment effects. Details of the National Institute Global Econometric Model (NiGEM) and the assumptions underlying these simulations are detailed in Appendix D. We find that the Jobcentre Plus investment is likely to have paid for itself.

9.1 Wider economic impacts

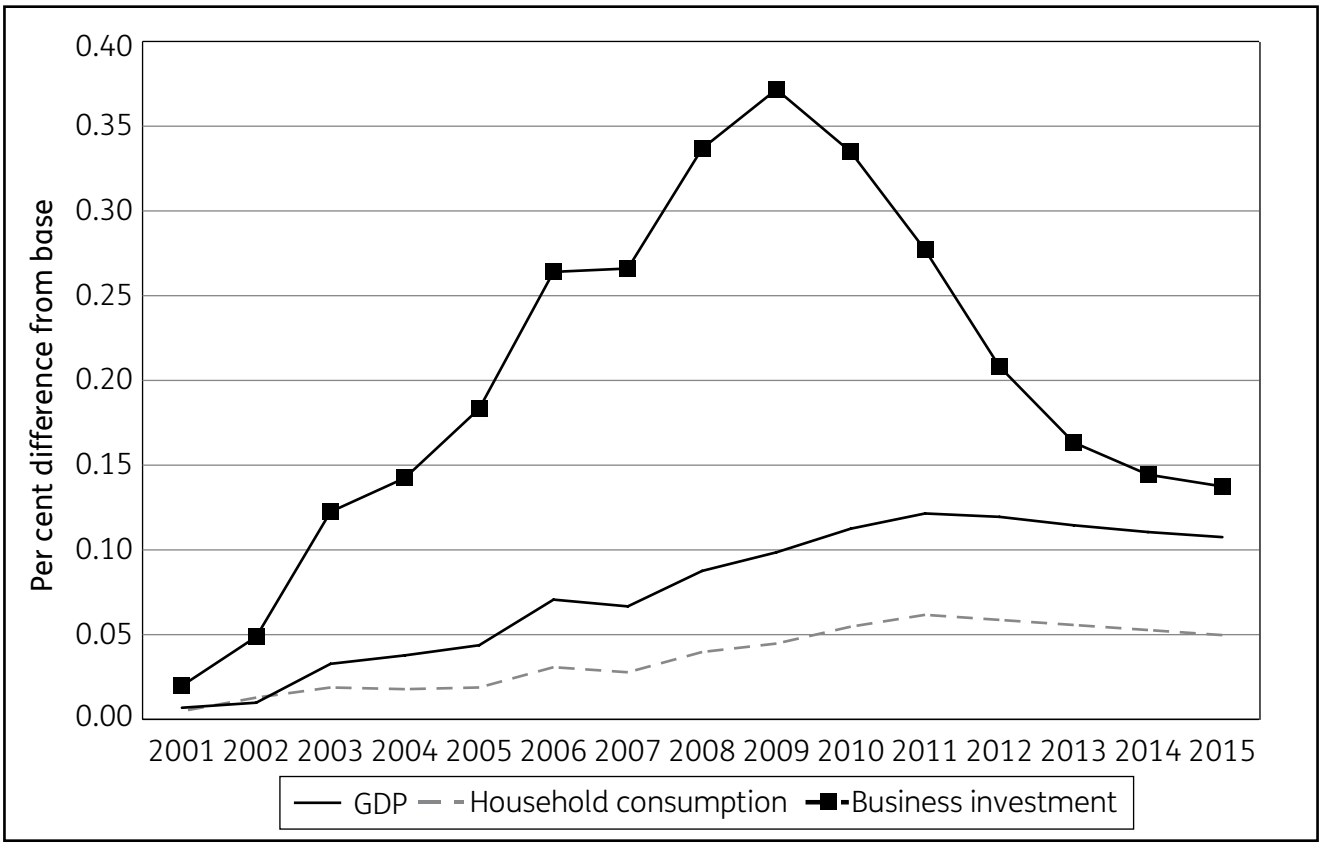
In this section we discuss the effects on the wider economy derived using NiGEM. These results are conditional upon the estimated results from the local area flow analysis. The effect of increasing the exit rate from benefit is to expand the effective labour force and employment. The increase in the effective labour supply puts downward pressure on wages raising employment demand. The expansion of the labour force and employment is presented in Figure 9.1. Note this shows the per cent deviation in the stock of both the labour force and employment from baseline. The employment effect is in excess of the labour force because Jobseeker's Allowance (JSA) claimants are already members of the labour force.

Figure 9.1 The impact on the labour force and employment



Key to the effect on the wider economy is the response of the business sector. In the simulations firms are forward looking and so anticipate the increase in the labour force and employment[49]. Given that we assume firms have a desire to maintain the ratio of capital they employ per unit of labour, the expansion of the labour force and employment due to Jobcentre Plus will increase business investment. Figure 9.2 plots the per cent difference from the baseline in the volume of business investment. This rises gradually to around 0.4 per cent in 2009, before falling back somewhat as the effects of Jobcentre Plus stabilise. This process of adjustment to a new equilibrium is a gradual one. Sticky prices and other adjustment costs mean that the volume of investment increases only gradually. The effect of this gradual adjustment is to reduce average hourly productivity in the economy temporarily. A longer-term effect comes from the assumption that those exiting Incapacity Benefit and Income Support to jobs, move into jobs with below average productivity. As Figure 9.3 shows, average output per hour is reduced by 0.1 per cent in the longer term.

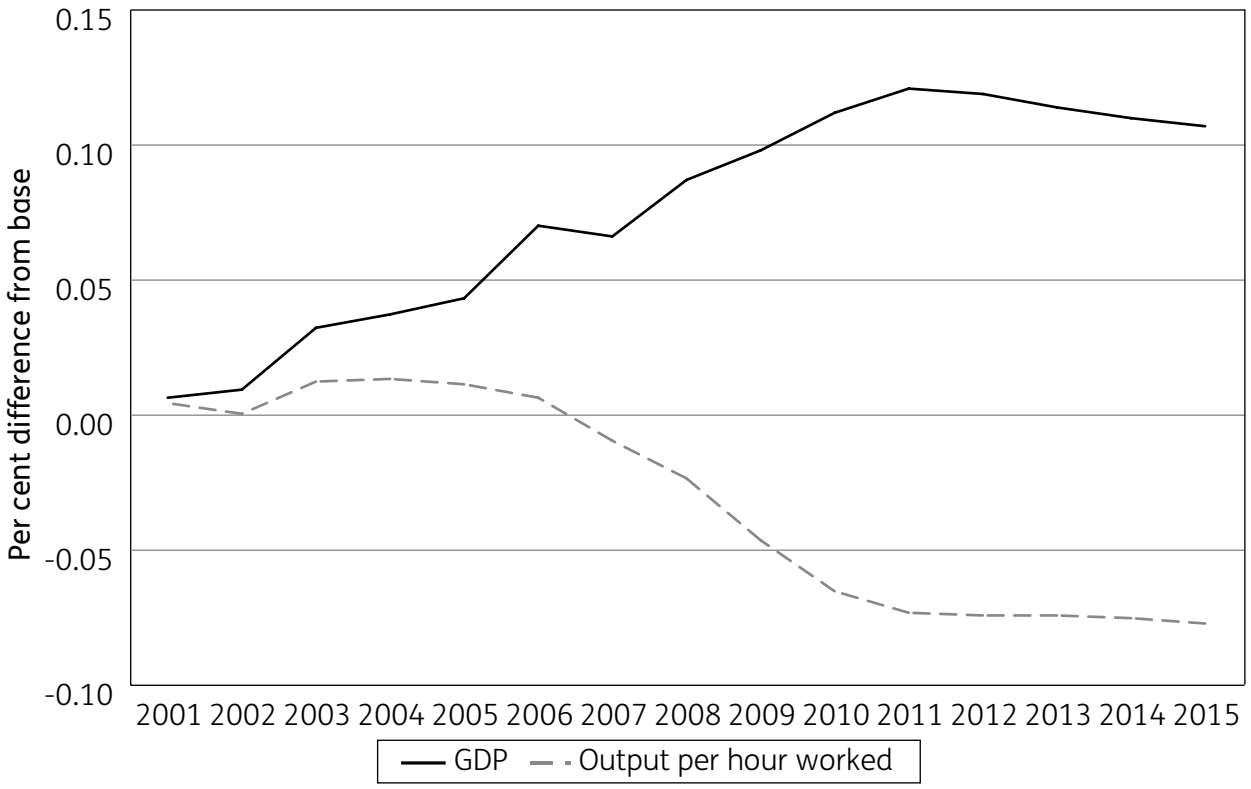
Figure 9.2 The effect on GDP, consumer spending and business investment



By increasing the supply capacity of the economy Jobcentre Plus should increase Gross Domestic Product (GDP). In the long run the supply side of the economy determines macroeconomic outcomes, and thus any genuine changes to supply that are brought about by Jobcentre Plus should have sustainable effects on aggregate output. In the short term the effects of Jobcentre Plus are likely to be smaller than over the longer term if for no other reason than because the economy generally takes time to adjust to supply changes. Figure 9.3 shows that the likely effect on GDP is gradual, even after Jobcentre Plus has been fully rolled-out. The increase in GDP rises gradually to just under 0.1 per cent in 2008 and then to just over 0.1 per cent above baseline for the period 2010-15.

[49] If firms had been myopic with respect to the positive labour market effects of Jobcentre Plus then the increase in business investment would have been delayed. However, as the positive labour market effects become entrenched firms would be expected to raise their investment.

Figure 9.3 The effect on GDP and average productivity



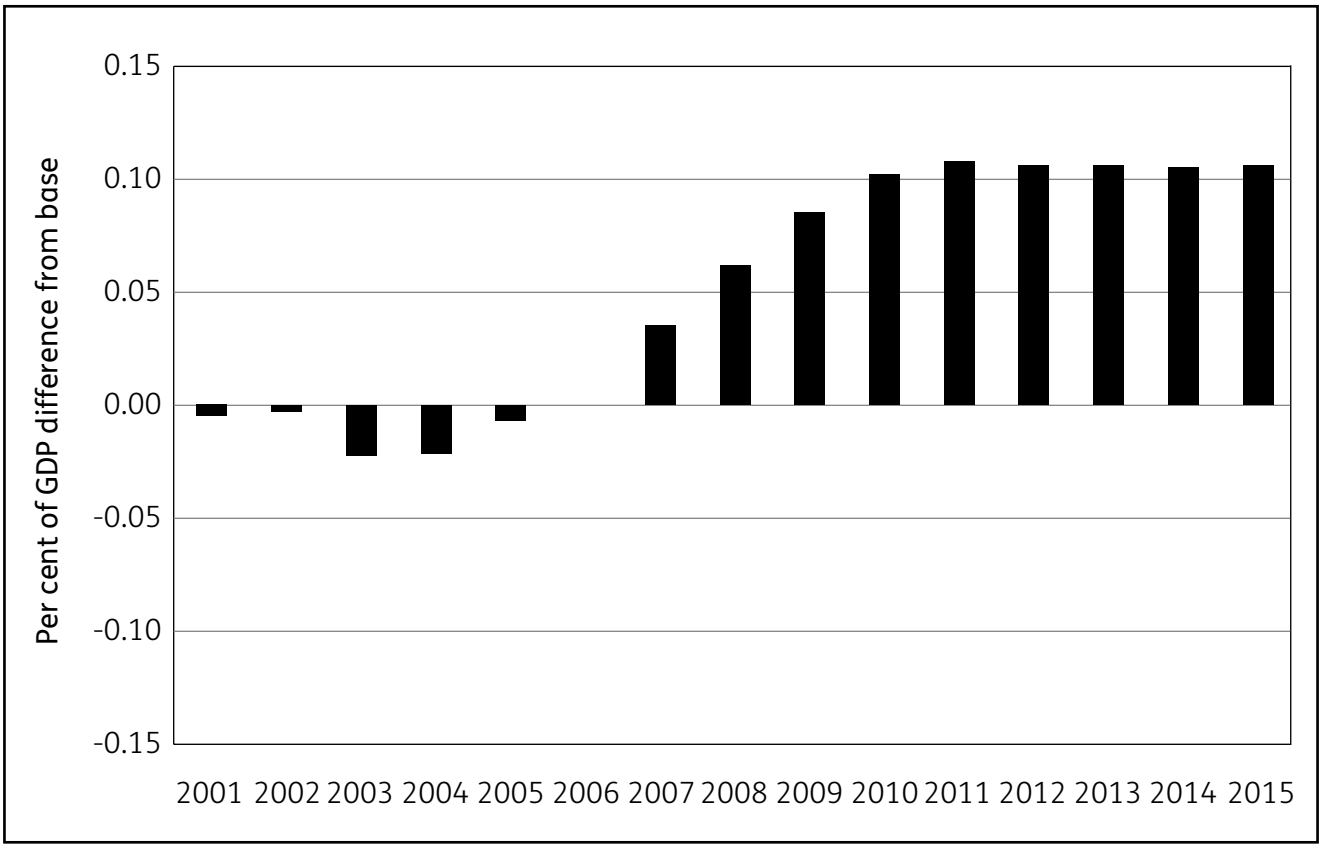
Note: Productivity is defined as output per person hour.

9.2 The public finances

Given that the expected effect on GDP is small, the impact on the public finances is also likely to be relatively modest. Figure 9.4 presents the impact on the government's current budget balance over the period 2001 to 2015. In the short term there are likely to have been negative effects on the government's budget balance, associated with the costs of roll-out as well as the negative start-up effects identified in the empirical work presented in previous chapters. With rising employment and GDP, and a reduction in the stock of benefit claimants, the budget balance should eventually improve. By 2015 this annual improvement is likely to be around 0.1 per cent of GDP. The net present value (to the Exchequer) over this period is about £5.5 billion. This is calculated as the sum of discounted annual Jobcentre Plus impacts on government current receipts less expenditure less government investment.[50]

[50] In this calculation we assume a real discount rate of 3.5 per cent as used in *The Green Book: Appraisal and Evaluation in Central Government*, HM Treasury (2003). The nominal discount rate takes into account inflation in the GDP deflator. The net present value to the Exchequer is calculated for the period 2001-15 and measured at 2001.

Figure 9.4 The impact on the general government budget position



The savings from the benefit system are clearly important, but it is other factors that drive any improvement in the public finances. The reduction in government interest payments should partly be due to the direct effect from a reduction in the interest rate on the stock of new government debt issuance. Government interest payments should also be reduced through the reduction in the additional flow (smaller government deficit) onto the government debt stock. In 2015 the saving on government interest payments, alone, rises to almost £800 million per annum in our simulations (see Table 9.1). Indeed around two fifths of the reduction in government current expenditure by 2015 is due to the reduction in government interest payments. In contrast, the direct benefit effect (that is the saving in transfer payments due to the reduction in the stock of the three main benefit groups) accounts for around 16 per cent of the total reduction in government current expenditure in 2015. The indirect benefit effect (the saving in transfer payments that occurs via the downward pressure on wages and prices associated with Jobcentre Plus)[51] accounts for around 30 per cent of the reduction in government expenditure in 2015.

[51] State pensions and working-age benefits are uprated in line with wages and prices, respectively.

Table 9.1 The effect on public sector expenditure from Jobcentre Plus, £ million, current prices

	Direct benefit effect	Indirect benefit effect	General government consumption	Government interest payments	Total government current expenditure
2001	-2	0	53	-1	52
2002	-7	6	3	-3	4
2003	-16	16	203	-8	204
2004	-21	34	306	-10	325
2005	-36	12	207	-27	180
2006	-71	-18	363	-51	264
2007	-95	-88	113	-85	-101
2008	-145	-186	-13	-147	-423
2009	-192	-332	-94	-253	-782
2010	-245	-473	-231	-358	-1,201
2011	-281	-529	-329	-450	-1,481
2012	-289	-536	-342	-537	-1,596
2013	-293	-545	-343	-622	-1,693
2014	-298	-552	-334	-706	-1,778
2015	-304	-577	-320	-791	-1,875

Note: A negative sign is a positive contribution to the Exchequer. Not all components of current expenditure are reported. General government consumption effects include roll-out costs.

Tax receipts increase through two main sources: the increase in taxes paid through an expansion of employment and the increase in indirect taxes paid through the higher level of consumer spending associated with the boost to household incomes. Tax receipts increase by an average of just over £100 million per annum over the period 2001-15. They are equivalent to around a fifth of savings in current expenditure. The likely positive cumulative effect on the public finances from the introduction of Jobcentre Plus over the period 2001 to 2015 is just over £10 billion. The direct savings from the introduction of Jobcentre Plus, i.e. from a reduction in benefit claimants and departmental expenditure on the delivery of benefits (a measure broadly consistent with that used by the Department for Work and Pensions in their business case), amount to £4 billion (an average of around £250 million per annum)[52].

[52] Given the roll out cost of £1.9 billion this implies a cumulative net saving of around £2 billion by 2015 (an average of just over £100 million per annum).

10 The performance of Jobcentre Plus

Starting in 2002, the public employment service in Great Britain underwent a major modernisation process intended to bring a work-focus to benefit delivery for all people of working age seeking to claim social security benefits. This report has assessed the likely impact of these changes on the labour market. It has also illustrated the implications of these labour market changes for the wider economy and the public finances. Key to the analysis is the staged roll-out of the introduction of Jobcentre Plus, which provides us with a quasi-experiment.

Analysis of local labour market data spanning the entire roll-out phase suggests that, following an initial period of disruption to benefit and Welfare-to-Work delivery, the introduction of Jobcentre Plus raised the exit rate off benefit for the three main client groups. For Jobseeker's Allowance (JSA) claimants and lone parents on Income Support (IS) this increase in exits was associated with an increase in exits to work. We find mixed results in terms of the impact of Jobcentre Plus on exits to other benefits from Incapacity Benefit (IB), but find that Jobcentre Plus has increased female lone parent exits from IS to other out-of-work benefits (JSA and IB). On average, the policy appears to have had only negligible impacts on inflows to benefit. There is some evidence to suggest that Jobcentre Plus was associated with a rise in the inflow rate to JSA for 25–49-year-olds and a decrease in inflows to JSA for 18–24-year-olds.

The analysis of individual claims data focuses on the impact of Jobcentre Plus in Day Two offices. Here we find further evidence to suggest that Jobcentre Plus has had a positive impact on exits from JSA off benefit. The evidence for lone parents claiming IS and for IB customers is less sanguine. In particular, the analysis of individual claims in the Day Two districts suggests that, on average, Jobcentre Plus reduced the rate of exit from benefit for IB customers. This is in contrast to the positive impact, on average, suggested by the local area analysis. These differences are likely to be associated with differences in measured policy effects across roll-out waves. Negative effects on IB customers were concentrated amongst older claimants with shorter claim durations, echoing findings from the local area analysis. For lone parents claiming IS, the analysis of individual claims data suggests Jobcentre Plus was associated with a small increase in the exit rate from benefit for very short duration claims only.

Looking at local area wages we find some evidence to suggest that Jobcentre Plus has led to a reduction in wage pressure, or a rise in search effectiveness of the non-employed. Although the evidence is not very strong, in part because these types of policy effects are relatively difficult to detect from the data, the results help to corroborate the findings from the analysis of benefit flows. The wage analysis also suggests that Jobcentre Plus customers moving into work from IB and IS are likely to move into relatively low paid work.

While we find some discrepancies between the estimated Jobcentre Plus effects obtained using different data sources and outcome measures, different levels of data aggregation and estimation methods, and different sample periods, the overall picture that emerges from the data analysis is reasonably coherent and suggests that the introduction of Jobcentre Plus is likely to have been associated with a sustained rise in employment. All in all, the data analysis presented in this report suggests it is likely that Jobcentre Plus has gone some of the way in achieving its key objectives to:

- increase the effective supply of labour by promoting work as the best form of welfare and helping unemployed and economically inactive people move into employment;

- help people facing the greatest barriers to employment to compete effectively in the labour market and move into work.

In a modelling context we explore the wider economy effects of these labour market changes. We find that the implied increases in the effective labour supply are likely to have led to small increases in Gross Domestic Product. Taking into account the indirect effects of Jobcentre Plus on transfer payments, tax receipts and government interest payments, we find that Jobcentre Plus is likely to have financed itself.

11 Data

11.1 Unit of analysis for local area panel regressions

We use data at the Jobcentre District (JCD) level to evaluate the impact of Jobcentre Plus on the labour market. The number of JCDs changed over time. We use 48 distinct JCDs, some of which are aggregates of more than one JCD, to be able to match data items consistently across datasets.[53] The 408 local authorities in Great Britain were also considered, but were ruled out because Jobcentre Plus offices may service individuals in adjacent local authorities and a concern that is supported by evidence that local authorities bear little resemblance to local labour markets (see Dickens *et al*., 2008).

The smallest geographical unit used to proxy local labour markets is typically the Travel-to-Work-Area (TTWA). The main defining characteristics of these are that at least 75 per cent of working residents work in the area and that at least 75 per cent of workers are resident in the area. We can use this definition to explore the 'local labour market' properties of JCDs. Table 11.1 illustrates the TTWA properties of JCDs, based on analysis of Labour Force Survey (LFS) respondents 2002-07. We find that only 33 of 48 JCDs are such that both 75 per cent of workers in the area also live there and 75 per cent of working residents are employed in the area. The low paid/low skilled tend to commute less so if we look at these workers alone more JCDs fulfil the TTWA criterion. For example, looking at workers with no qualifications, 39 of 48 JCDs fulfil the TTWA criterion (i.e. 75 per cent of workers without qualifications live in the area and 75 per cent of employed residents without qualifications work in the area). Concentrating on the 25 per cent of workers who are paid the least, 42 of 48 JCDs have TTWA properties (using LFS variable HRRATE to define pay). Because those JCDs that appear as local labour markets tend to be bigger than those that do not, this corresponds to 94 per cent of workers.

The TTWA definition is of course somewhat arbitrary; however, it is useful in checking potential discrepancies between 'JCDs of work' and 'JCDs of residence'. Looking at JCDs where at least two-thirds of low paid workers are resident and at least two-thirds of low paid residents work, we find that 98 per cent of low paid workers live in these JCDs. These figures are reassuring for the reasons outlined in Section 4.1. The JCDs where low pay workers and residents are less likely to be the same people are the London JCDs and Glasgow.

[53] We group Cumbria with Lancashire and Liverpool & Wirral with Greater Mersey.

Table 11.1 Residence/workplace properties of Jobcentre Districts

	Worker groups			
All workers	Workers with NVQ1/O-level qualifications or less (including no qualifications)	Workers with no qualifications	Workers in the lowest quartile of the pay distribution (HOURPAY)	Workers in the lowest quartile of the pay distribution (HRRATE)
Number of districts where at least three-quarters of workers are residents and at least three-quarters of employed residents work locally				
33	37	39	40	42
Number of districts where at least two-thirds of workers are residents and at least two-thirds of employed residents work locally				
39	40	43	43	45
Percentage of workers in districts where at least three-quarters of workers are residents and at least three-quarters of employed residents work locally				
73	80	85	87	94
Percentage of workers in districts where at least two-thirds of workers are residents and at least two-thirds of employed residents work locally				
84	86	91	93	98

Source: Labour Force Survey 2002-07, authors' calculations.

11.2 Policy roll-out

We construct policy indicators using administrative sources. We use the Department for Work and Pensions' (DWP) National Benefits Database (NBD) (described in Section 11.4), to develop different policy indicators to capture the 'treatment' effects of Jobcentre Plus. First, we aggregate individual data up to JCD level and construct a policy indicator based on the share of Jobseeker's Allowance (JSA) claims in rolled-out areas (by year/quarter/JCD area). We use the share of JSA claims that are registered at offices where Jobcentre Plus is live as an indicator of the Jobcentre Plus 'treatment' effect at any point in time in any particular JCD. This is equivalent to taking the unemployment weighted mean across sites within the JCD of a simple dummy variable equal to one if the site is integrated and zero if not, retaining some of the variation in the data resulting from site-level roll-out. If all sites within the JCD are integrated, this policy indicator equals one. If none of the sites within the JCD have been integrated, this policy indicator equals zero.[54]

[54] These data are constructed using site-level roll-out dates provided by DWP. These were linked to a look-up table, provided by DWP, between current offices and postcodes. These were then linked to the NBD via postcodes by DWP. Earlier work made use of a policy variable that was constructed by linking the roll-out schedule to site-level Office for National Statistics (ONS) claimant count data. There is some discrepancy between offices in the ONS data and offices listed in the Jobcentre Plus roll-out schedule. Most of these differences were resolved by conversation with Jobcentre Plus staff in JCDs: Birmingham & Solihull; Central London; Cheshire, Halton & Warrington; Coventry & Warwickshire; Cumbria & Lancashire; Devon & Cornwall; Gloucestershire, Wiltshire & Swindon; Greater Manchester Central; Hampshire; Leicestershire & Northamptonshire; Lincolnshire & Rutland; London West; Merseyside; North & Mid Wales; North & North East London; Northumbria; Nottinghamshire; South East Wales; South London; Tees Valley; West of England; West Yorkshire. The two variables are very similar, and our results are robust to the use of either policy variable.

Figure 11.1 Jobcentre Plus coverage of JSA claims by district and time

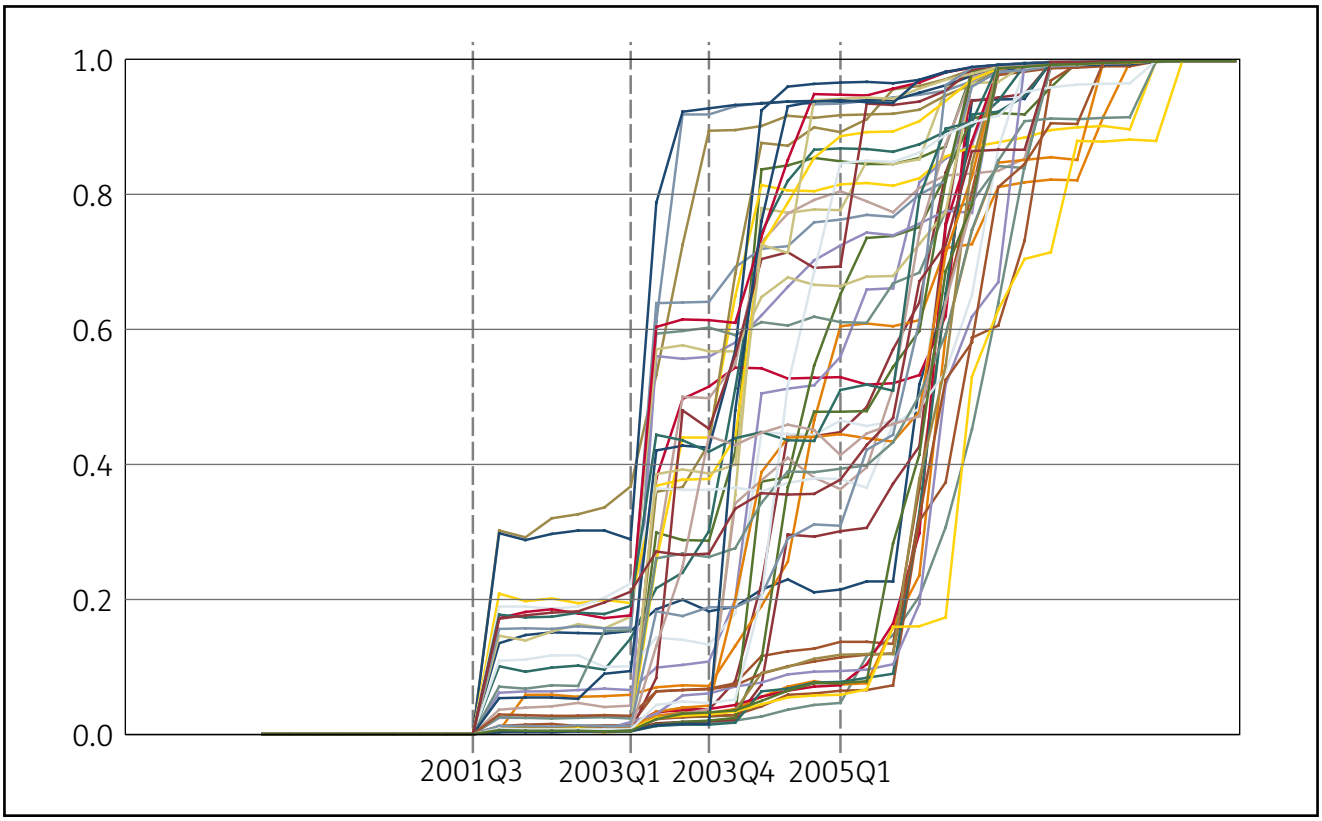


Figure 11.1 shows the time profile of this policy indicator by JCD for each quarter. The value taken by the policy indicator represents the share of JSA claims that are registered at offices where Jobcentre Plus is live. This is an indicator of the Jobcentre Plus 'treatment' effect at any point in time in any particular JCD, constructed using the individual claims Work and Pensions Longitudinal Study (WPLS) data. In all JCDs the policy variable is zero up until and including 2001Q3. The policy indicator is different from zero in JCDs where the Pathfinder sites are located from 2001Q4. Subsequent roll-out stages are also evident. This is the policy variable we use in estimation.

Using the NBD data we developed a similar measure of Jobcentre Plus 'treatment' for the Incapacity Benefit (IB) and Income Support (IS) groups using IB and IS claims data. We thus developed JCD-level policy indicators that were IB and IS-weighted. In order to do this we use the share of IB claims and IS claims in rolled-out areas, by year, quarter and JCD. However we did not use these policy indicators in our local area panel regressions, because the NBD postcode link was unavailable for a substantial share of claims. Instead, we used the policy indicator based on JSA claims (illustrated in Figure 11.1 above). This may be reasonable if we consider the strong geographical correlation between benefit client groups. For example, the correlation of the distribution across local authorities of IB and JSA claims is 0.898. The correlation of the distribution across local authorities of IS and JSA claims is 0.971. It is possible that there is some variation in how different benefit groups were covered by Jobcentre Plus during roll-out. However, when evaluating the impact of the policy on IS and IB benefit off-flows we found that the results did not differ substantially whether we used the IS-weighted and IB-weighted policy indicators or the JSA-weighted indicators.

11.3 Data sources for local area panel regressions

The benefit exit rates described here measure the number of claim terminations (for particular reasons) that occur in the three months between two consecutive benefit claim count dates over the number of benefit claims that were live at the initial count date. Thus, these exit rates measure gross benefit off-flows, rather than benefit off-flows net of on-flows. Therefore it is possible that the exit rate exceeds unity. These are the outcome measures used in the local area exit rate analysis, detailed in Appendix A.

Published stock count dates for IS and IB clients occur in February, May, August, and November. The JSA count occurs on a monthly basis, but we aggregate to the same count dates as the IB and IS data. The IS and IB benefit data are available from August 1999 onwards. The JSA data are available further back, but we do not use these because of the dramatic changes in the Welfare-to-Work regime for JSA claimants before then.

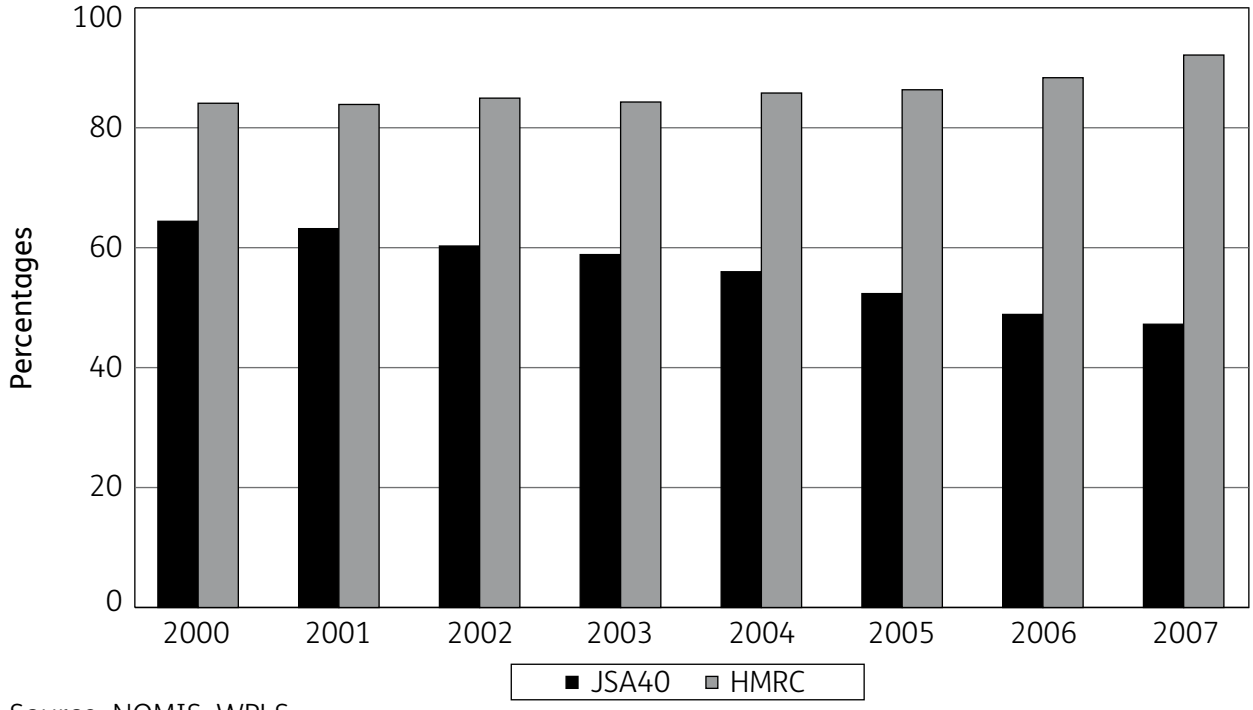
The benefit exit rates from JSA were calculated using National Online Manpower Information System (NOMIS) flows data which provide information on the reason for leaving benefits. These data are constructed from JSA40 administrative returns, collected clerically once a claimant leaves benefit. A large proportion of JSA claims end because claimants fail to sign (on average over our sample period, failed to sign exits, including ceased claiming and unknown destinations, are a little less than equal in magnitude to recorded job exits), and many of those who fail to sign are likely to have found work. Therefore, it is thought that the job exits recorded by JSA40 understate the actual number of job exits. This is particularly important for younger claimants. Moreover, it is possible that recorded job exits in JSA40 administrative returns are correlated with the roll-out of Jobcentre Plus, because of the performance targets it introduced (although these were subsequently changed).

For these reasons we use three separate measures of the exit rate from JSA to work: exits to jobs as recorded by JSA40; jobs and 'failed to sign' exits as recorded by JSA40; exits to jobs as measured by matched tax and benefit records (WPLS). For the latter measure we derive the exit rate to jobs by scaling the exit rate from JSA to all destinations in each quarter/JCD/age/gender/duration category (source: NOMIS) with the share of exits that is to work for that category according to WPLS.[55] We check that WPLS exit rates to all destinations correspond to NOMIS exit rates. Figure 11.2 illustrates the different time series properties of the exit to jobs measures from JSA40 returns and Her Majesty's Revenue and Customs (HMRC) data. These are shown as a share of job and failed to sign exits in JSA40 returns. Exit rates were calculated by JCD, calendar quarter, gender, age group, and claim duration (see Appendix A for details). These were selected on the basis of DWP interests, differences in labour market behaviour and differences in Welfare-to-Work provision for different age and claim duration groups. Disaggregation is limited by small cell sizes.[56]

[55] Problems in measuring job exits in WPLS are discussed below. Importantly, many lower paid jobs will not be recorded in WPLS and there are known discontinuities, e.g. because of changes in processing.

[56] For JSA claimants we look at claim durations 0-6 months and >6 months. In many instances further disaggregation by claim duration leads to loss of observations due to small cell sizes, particularly for 18–24-year-olds and for females. In an earlier version of this work we provided results for claim durations 6-12 months and >12 months for male JSA claimants aged 25-49 and aged 50 to State Pension age.

Figure 11.2 Exits from JSA to work



Source: NOMIS, WPLS.
Notes: Exits from JSA to work measured as a share of clerical returns on exits from JSA to work or failed to sign; Quarterly averages.

Exit rates for the disability and IS for lone parents (ISLP) client groups were constructed from local authority level stock and flow data made available by DWP. In these data, off-flows can be distinguished by whether they are to unknown destinations, in-work benefits (e.g. Disability Living Allowance) or out-of-work benefits (JSA, IB, IS). Exits to jobs are included in the unknown and in-work benefit exits, but cannot be distinguished separately. For the ISLP group we constructed additional information from the WPLS on the share of female ISLP exits to jobs by age group (18-24, 25-49), claim duration (<12 months, >12 months), year/quarter and JCD.[57]

The benefit entry rates for each gender/age group measure the number of claims starting in the three months prior to the claim count date (February, May, August and November) over an estimate of the area's population of the same age/gender group. As in the construction of the benefit exit rate, the JSA count occurs on a monthly basis, but we aggregate to the same count dates as the IB and IS data. The population data was only available on an annual basis as the source is the ONS mid-year population estimates (available at NOMIS). The estimated resident population of an area includes all people who usually live there, whatever their nationality. Those people arriving into an area from outside the UK are only included in the population estimates if their total stay in the UK is 12 months or more. Visitors and short-term migrants (those who enter the UK for three to 12 months for certain purposes) are not included. Similarly, people who leave the UK are only excluded from the population estimates if they remain outside the UK for 12 months or more. We obtained the number of estimated residents at a local authority level and aggregated them up to a JCD level in order to match the geographical unit of the inflow data.

[57] We constructed similar measures for IB claimants from WPLS. These were not used as we were unable to replicate published stock data.

The vacancy series available (NOMIS) are subject to significant breaks over time. In part this is due to changes in the Jobcentre Plus share of total economy vacancies. Breaks are also caused by changes in the handling of vacancies.[58] We use notified vacancies, which are less prone to breaks that arise for the latter reason (e.g. stock estimates are sensitive to the way in which vacancies are deleted from the system). Monthly data is available to April 2001 and then from May 2002. The series before April 2001 and after May 2002 display rather different characteristics. A further break occurs in May 2006 when the process for handling vacancies changed. The missing data May 2001-April 2002 is interpolated by forecasting these data points (not monthly data, but the data aggregated to quarters) using a fourth order auto-regressive process including quarterly dummies. We are left with three series covering the following periods: up to 2002Q1; 2002Q2-2006Q1; 2006Q2 onwards. In order to reflect the two main breaks in the vacancy series we introduced in our panel regressions dummies for the quarters 2002Q2 and 2006Q1, as well as two additional dummies covering the period up to 2002Q2 and the period from 2006Q2 onwards. These are included separately for each JCD, allowing us to take into account major changes in the level of notified vacancies over time and across geographies.[59] Ideally we would measure vacancies in low-skilled occupations, as these are more likely to be relevant to benefit claimants than other types of vacancies. We do not pursue this because of changes in the occupational classification over the sample period.

Gilpin *et al.* (2006) provide a banded estimate of Worker Registration Scheme registrations (processed May 2004 – September 2005) in per cent of the working-age population by JCD. We use this as a measure of the size of the local area change in migration following European Union (EU) enlargement, and control for migration in areas where this exceeds 1.5 per cent of the working-age population (maximum value available).

The Pathways indicator is constructed from the distribution of IB claims (across local authorities). It is constructed in a similar manner to the Jobcentre Plus indicator, measuring the share of IB claims in the JCD that are held by offices where Pathways has been introduced. Since Pathways was only ever introduced in JCDs where Jobcentre Plus had already been introduced, there should be some consistency between our Jobcentre Plus policy variable and the measure of Pathways. In general there is. Where the Jobcentre Plus policy indicator is zero, so is the Pathways indicator. Also, only in 8.7 per cent of cases is the difference between the Jobcentre Plus and Pathways indicators negative (i.e. Pathways rolled out more strongly than Jobcentre Plus). Only in 2.9 per cent of cases is the magnitude of this difference (where it is incorrectly signed) greater than 0.01. In 1.4 per cent of cases the magnitude of this difference is greater than .1 (equivalent to ten per cent). On visual inspection the Pathways and Jobcentre Plus policy indicators look as they should, even where Pathways at times is rolled out more strongly than Jobcentre Plus, with the exception of Staffordshire. Here, a large Jobcentre was not converted to Jobcentre Plus until recently and so it seems plausible that most IB claims occurred in Jobcentre Plus offices (since IB claims would have been processed at former Social Security Offices rather than Jobcentres), even though a substantial proportion of JSA claims did not.

From the WPLS data we also were able to extract the share of IS claimants that were of ethnic minority that we included as a control in our panel regression analysis. Using the WPLS we were also able to extract information on this variable and the mental health share of IB claimants. We did not use these additional data for IB claimants because we were unable to replicate trends in IB stocks across time available from published data sources.

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58 ONS (2005), '*Publication of Jobcentre Plus vacancy statistics*', Labour Market Trends – June 2005 <http://www.statistics.gov.uk/articles/labour_market_trends/jobcentreplus.pdf

59 The vacancy statistics are less reliable for smaller geographies, particularly where these fail to capture local labour markets. We describe the local labour market properties of JCDs above.

Additional data used to estimate local area wages (see Appendix C) are constructed from the Labour Force Survey (government files; access provided by Micro-data Analysis and User Support, ONS). Quarterly data are constructed for 48 JCDs. Variables include shares of the working-age population not employed but International Labour Organisation (ILO) unemployed or economically inactive (split by gender and disability). Wages are constructed from the hourly pay variable.[60] Local area skill indices are constructed from the highest educational qualification variables.

11.4 National Benefits Database and Work and Pensions Longitudinal Study

The NBD is constructed from scans of live benefits data. The focus in this report is on claims for JSA, incapacity benefits (IB, Employment and Support Allowance (ESA) and Severe Disablement Allowance (SDA)) and IS. For each type of claim, the NBD provides the date that each spell started. In the case of JSA, the actual date of the end of the spell is recorded (source: DWP). However, for incapacity benefits and IS, it is assumed that individuals who are observed at one scan, but not at the next, left benefits between the two dates. Therefore, the end date is set at random to some point between the two scans. IB records have been scanned every six weeks since 1999, so the actual end date may occur up to six weeks before or after the imputed date. In the case of IS, the scans take place every fortnight.

As scans of the live data are used to construct the NBD, it is possible for those claiming for a very short period to be omitted. This is because the individual would not appear on the scan as the start and end of their claim would fall between two concurrent scans. Given the less frequent scans of IB records, the likelihood that shorter claims are omitted from the NBD is greater for these customers than for other groups. It is possible that there is variation between benefit types in the average length of the claim, meaning that the proportion of short claims missed may actually be similar between different benefits, despite the variation in the frequency of scans. However, the fact that all JSA claims should be recorded, regardless of length, and the greater frequency of scans for IS, compared to claims for IB, suggest that the likelihood of claims not being observed is greatest in the case of IB. However, in other respects, the NBD provides a comprehensive record of everyone claiming benefits and so it is possible to build up a complete picture of benefits history and outcomes for individuals claiming some type of benefit over the period from 1999. We focus on benefit histories in the year before claim start. Longer benefit histories are not considered, because this limits the ability to carry out pre-programme tests to assess the likelihood that the assumptions on which the estimation procedures are based are met.

The NBD also contains the gender of the customer and details of where they were living, based on the most recent information supplied before the end of their claim. The postcode was used to identify the local Jobcentre Plus office. The age of the customer at the start of the claim was derived from their date of birth. Data on the ethnicity of customers is missing in many cases, so a series of dummy variables were constructed to indicate whether the customer was white, non-white, or whether this information was missing. Lone parents on IS were identified by using a variable which recorded whether the customer was in the lone parent client group, in combination with the benefit type claimed. The age of the youngest child is also available for lone parents, but was not used here. For those on incapacity benefits, the NBD provides detailed information on the nature of the customer's main health problem or disability, based on information supplied by the General Practitioner to Jobcentre Plus during the claims process. This was used to construct a variable which indicated whether the respondent suffered from a mental or physical health problem.

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60 The wage data are generally less reliable than the other statistics constructed from the LFS. This is because wage information is collected for only 40 per cent of the sample (in waves 1 and 5 of the survey). Dickens *et al.* (2008) discuss issues with the LFS hourly pay variable.

The construction of the NBD from live benefits data and requirements on staff to collect data systematically, meant that key fields identifying individuals and recording benefit type, claim start dates, location, gender and age at the start of the claim, were complete for all records. In addition, the information on the nature of the health problem was available for all claims for incapacity benefits. Information on the destination of customers following the end of their claim is not consistently recorded, so that this type of information is missing for a proportion of customers.

The WPLS is derived from data collected by HMRC. Information from the P45 or P46, which records the start and end dates of periods of employment, is linked to information from the NBD on spells on benefits. Individuals found on each dataset are matched on their National Insurance number and other personal details. Records were excluded where some of the personal details suggested that the person found on the benefits and HMRC datasets was the same, but the National Insurance number did not match. Also, records which were flagged as old, indicating that they had been superseded by more recent records, were dropped from the analysis.

The WPLS data only consistently covers employees earning above the Pay As You Earn (PAYE) threshold, so does not provide information on benefits customers exiting to self-employment, or all those earning less than the threshold. In a large proportion of cases, the start or end dates of the employment spell is recorded as falling at the beginning or end of the tax year. HMRC set the start date to 6 April when the spell is known to start within a particular tax year but when the actual start date is unknown, whilst the end date is set to 5 April when the spell concluded within a known tax year. To avoid excluding a large proportion of records or their inclusion resulting in an upward bias in the length of spells, it was decided to allocate the start or end date of the spell to a random date within the tax year for these cases. The data was also cleaned to remove duplicate records, cases where the start or end date of the spell was missing, the end date was on or before the start date, or the start date was set to 31 December 9999.

Table 11.2 The introduction of Jobcentre Plus: an evaluation of the labour market impacts

Variable	Description	Source	Other details
JSA stocks (by age, sex, duration, JCD, calendar quarter)	Number of live JSA claimants	Claimant count (NOMIS)	JSA data available on a monthly basis, aggregated up to quarters to match published counts for IB and IS (Feb, May, Aug, Nov)
JSA exit rate to jobs (clerical returns) (by age, sex, duration, JCD, calendar quarter)	Number of JSA claim terminations that occur between two consecutive benefit count dates (off-flows: found work) over the number of benefit claims (JSA stocks) that were live at the initial count date	Claimant count (NOMIS)	Problematic if Jobcentre Plus brings about a better record of individuals' destinations upon claim termination; JSA data available on a monthly basis, aggregated up to quarters to match published counts for IB and IS (Feb, May, Aug, Nov)

Continued

Table 11.2 Continued

Variable	Description	Source	Other details
JSA exit rate to jobs and failed to sign (clerical returns)	Number of JSA claim terminations that occur between two consecutive benefit count dates (off flows: found work and failed to sign) over the number of benefit claims (JSA stocks) that were live at the initial count date	Claimant count (NOMIS)	Minimises recording issues with exits to jobs; off-flow destination 'failed to sign' represents the majority of the off-flows to 'unknown' destinations; JSA data available on a monthly basis, aggregated up to quarters to match published counts for IB and IS (Feb, May, Aug, Nov)
JSA exit rate to jobs (administrative records)	Number of JSA claim terminations that occur between two consecutive benefit count dates over the number of benefit claims (JSA stocks) that were live at the initial count date scaled by the share of quarterly exits from JSA linked to a live employment record in WPLS at the end of the quarter	Administrative records DWP and NOMIS	WPLS does not capture employment below the PAYE threshold; inaccurate employment start and end dates
ISLP exit rate to jobs (by age, sex, duration, JCD, calendar quarter)	Number of exits from ISLP that were to jobs over the number of benefit claims (IS stocks) at the initial count date	DWP Newcastle flows data; the share of female ISLP exits to jobs by age, duration, time and JCD from the WPLS individual claims data	WPLS does not capture employment below the PAYE threshold; inaccurate employment start and end dates
ISLP stocks (by age, sex, duration, JCD, calendar quarter)	Number of ISLP claimants	DWP Newcastle	Available from August 1999, stock count dates: Feb, May, Aug, Nov
ISLP exit rate off benefits (by age, sex, duration, JCD, calendar quarter)	Number of all exits from ISLP that were not to other out-of-work benefits over the number of benefit claims (IB stocks) at the initial count date	DWP Newcastle	Unable to capture flows to other benefits such as to JSA
IS exit rate to other benefits (by age, sex, duration, JCD, calendar quarter)	Number of all exits from ISLP to other out-of-work benefits over the number of benefit claims (IB stocks) at the initial count date	DWP Newcastle	Available from August 1999 onwards
IB/SDA stocks (by age, sex, duration, JCD, calendar quarter)	Number of IB/SDA claimants	DWP Newcastle	Available from August 1999, stock count dates: Feb, May, Aug, Nov

Continued

Table 11.2 Continued

Variable	Description	Source	Other details
IB exit rate off benefit (by age, sex, duration, JCD, calendar quarter)	Number of all exits from IB/SDA that were not to other out-of-work benefits over the number of benefit claims (IB/SDA stocks) at the initial count date	DWP Newcastle	Available from 1999 onwards; exits to Disability Living Allowance included; estimates of exits to jobs using WPLS were constructed but not included in the analysis, as inconsistencies with published sources were found; unable to capture flows to other benefits such as JSA
IB exit rate to other benefits (by age, sex, duration, JCD, calendar quarter)	Number of all exits from IB/SDA to other out-of-work benefits over the number of benefit claims (IB stocks) at the initial count date	DWP Newcastle	Available from August 1999 onwards
JSA inflow rate	JSA claims started within the three months prior to claimant count date (0-3 month duration stocks) over the area's population of each gender/age group	Claimant count (NOMIS) and ONS mid-year population estimates (NOMIS)	Count of JSA claimants available monthly at NOMIS are aggregated up to quarters to match published counts for IB and IS (Feb, May, Aug, Nov); population estimates, available at local authority level, and aggregated up to JCD level
IS inflow rate	IS claims started within the three months prior to claimant count date (0-3 month duration stocks) over the area's population of each gender/age group	DWP benefits (NOMIS) and ONS mid-year population estimates (NOMIS)	Data on number of claimants, which are available at local authority level are aggregated up to JCD level
IB inflow rate	IB/SDA claims started within the three months prior to claimant count date (0-3 duration stocks) over the area's population of each gender/age group	DWP benefits (NOMIS) and ONS mid-year population estimates (NOMIS)	Data on number of claimants, which are available at local authority level in NOMIS, are aggregated up to JCD level

Continued

Table 11.2 Continued

Variable	Description	Source	Other details
Jobcentre Plus (indicator of Jobcentre Plus treatment intensity)	Percentage of the stock of JSA claims that are registered in offices where Jobcentre Plus is live	NBD, roll-out schedule (DWP), Jobcentre Plus office to postcode look-up table (DWP)	In all JCDs the Jobcentre Plus indicator is 0 up until 2001Q3; it is different from 0 in all JCDs where Pathfinder sites are located from 2001Q4; potential endogeneity, although likelihood small; similar JCD-level IS-weighted and IB-weighted versions were developed, but coverage is less adequate
Ratio of vacancies to unemployment	Number of notified vacancies and numbers unemployed by JCD	NOMIS	Vacancies series are subject to breaks over time; issues with the number of vacancies held by Employer Direct
A8 migration	Dummy variable (1,0). It takes a value of 1 if the number of migrants from the A8 countries registered within the WRS scheme exceeds 1.5% of working-age population (by JCD area)	Number of registrations under the Workers Registration Scheme (May 2004-September 2005) from Gilpin *et al.* (2006)	Accounts for the large influx of migrants from the A8 countries following enlargement of the EU in 2004
Pathways	Percentage of IB claims in offices where Pathways has been introduced	From the distribution of claims across local authorities, DWP	Construction similar to the Jobcentre Plus indicator, but built up from local authority data
Ethnic minority share	Ethnic minority share of the claimant stock (IB and IS)	Individual claims WPLS data	Additional information on mental health share of IB claimants was also available from the WPLS but not included in analysis
Wages	Hourly wage by JCD and calendar quarter	Labour Force Survey (government files, access provided by MAUS, ONS)	Four different measures of wages (average, lower percentiles of wage distribution); hourly pay variable is available for a smaller sample than other LFS variables; known inaccuracies (Dickens *et al.*, 2008)
Inactivity measures	Percentage of the economically inactive population by gender and disability	Labour Force Survey (government files, access provided by MAUS, ONS)	

Continued

Table 11.2 Continued

Variable	Description	Source	Other details
Skills measures	Local area skill indices (share of hours worked by workers with qualifications higher than O-levels/GCSEs)	Labour Force Survey (government files, access provided by MAUS, ONS)	Constructed from the variable indicating the highest educational qualification achieved; proxy for productivity
ILO unemployment	Percentage of working-age population who want to work, are available to work, and are actively seeking employment	Labour Force Survey (government files, access provided by MAUS, ONS)	Not possible to disaggregate by gender due to small cell sizes

Appendix A Econometric evaluation of the Jobcentre Plus effect on local labour market flows

Here we set out the models we estimate to identify the impacts of Jobcentre Plus on benefit exit and entry rates. The exit rate from benefit to jobs or off benefit is modelled as a 'matching' function, typically used to describe the production of matches made between jobs and people looking for work. We include within this model an indicator of Jobcentre Plus 'treatment' intensity in order to assess the impact of the introduction of Jobcentre Plus on benefit exit rates. The model is specified in dynamic form to allow us to distinguish between the implementation effects of Jobcentre Plus and its longer-term effects. The entry rate to benefit is modelled in a similar way. We outline our approach to estimation and report the key properties of the resulting empirical models. We find that the introduction of Jobcentre Plus was associated with a temporary reduction in the exit rate from benefit (Jobseeker's Allowance (JSA) in particular) to work. Over the longer term we find that the introduction of Jobcentre Plus was associated with an improvement in the match rate between working-age benefit claimants and jobs.

A.1 A model of benefit flows and Jobcentre Plus

We model benefit exit rates following the literature on the 'matching' function.[61] In this literature, the average exit rate from unemployment to employment (the ratio of outflows from unemployment to jobs to the stock of unemployment) is usually modelled as a log-linear function increasing in the number of available jobs (vacancies) and decreasing in the number of people competing for those jobs (typically the unemployed). Other characteristics that influence the search intensity of the unemployed may also be included in the model. We use a similar specification for Incapacity Benefit (IB) and Income Support (IS) claimants.

We specify the model in error correction form to capture the short and long-term effects of Jobcentre Plus on benefit exit rates. Within this approach the levels terms in the Jobcentre Plus policy capture its long-run effect on benefit exit rates, and the change terms in the Jobcentre Plus policy capture temporary policy effects on benefit exit rates. The dynamic modelling approach, proposed by Pesaran (1997) and Pesaran and Shin (1999) has several attractive properties. In particular, it can be used to examine long-run or levels relationships regardless of the time series properties of the individual regressors. In addition, although not of major concern in our case, as long as a sufficient number of lags of the regressors are included in the model, coefficient estimates remain consistent in the presence of endogeneity (see Pesaran, 1997). But this does not necessarily mean that the statistical significance of a particular variable, or its lag, on the benefit exit rate indicates a (direct) causal effect, but may reflect endogenous feedback. For example, a statistically significant relationship between A8 migration and benefit exit rates may indicate that migration influences the average probability of leaving benefit, or instead, that labour market circumstances

61 The theoretical and empirical foundations of the matching function are surveyed in Petrongolo and Pissarides (2001).

influence migration. Note that, as discussed below, we do not have a strong reason to believe that our indicator of Jobcentre Plus is endogenous.

Our model is designed to accommodate heterogeneity in the factors that determine benefit exit rates across Jobcentre Districts (JCDs). When there are heterogeneities across regions (and we generally find that there are) this strategy is preferable to pooled models, which are likely to yield biased parameter estimates (Pesaran and Smith, 1995). At the same time, we wish to exploit as much as possible the cross-sectional variation in the data, in order to identify the effects of Jobcentre Plus. Therefore the mean group estimator, proposed by Pesaran and Smith (1995), is less appropriate for our purposes. Instead we use the pooled mean group estimator, proposed by Pesaran *et al.* (1999), which captures short-term heterogeneities across JCDs, but which assumes the determinants of benefit exit rates are common across JCDs in the longer term. When the longer-term determinants of benefit exit rates are common across JCDs (statistical tests support this assumption; see Hausman tests in the tables in this appendix), this estimator is unbiased and more efficient than the mean group estimator.

We identify the effect of Jobcentre Plus on exit rates based on the differential roll-out of the programme across JCDs. In particular, we identify the 'treatment' effect off the policy variation across both time and local areas (similar to the difference-in-differences (DiD) approach). Therefore, we need to control for JCD-specific fixed effects (determinants of exit rates that vary across regions, but not across the sample time period; for example, urban/metropolitan characteristics, or demographic/industrial characteristics that change very slowly over time) and time-specific fixed effects (determinants of exit rates that vary over the sample period, but that may affect all regions; for example, the economic cycle and other social security reform that is implemented nationally). JCD fixed effects are automatically accounted for in our approach, because it allows the intercept to vary across JCDs. We control for common time-specific effects by including in the model the cross-sectional mean of the exit rate. We also include the cross-sectional mean of the change in the exit rate, and allow for the coefficient on this variable to vary across JCDs. This essentially takes into account differential growth rates in exit probabilities across JCDs.[62]

Our measure of Jobcentre Plus 'treatment' is the proportion of the stock of benefit clients claiming in integrated offices. One criticism of this measure is that it is potentially endogenous. For example, if Jobcentre Plus resulted in a reduction of the benefit stock at live sites, then the JCD level policy indicator would fall as a result of the success of the policy, all else being equal. However, these effects are not likely to be very significant. It seems unlikely that the policy would result in major changes in unemployment stocks over the short-term horizon where the policy indicator is different from zero and different from one. In any case, as mentioned above, our estimation approach delivers consistent estimates in the absence or presence of endogeneity.

Given data on time periods $t=1,...,T$ and JCDs $j=1,...,N$, a general error correction model of the benefit exit rate in JCD j, as outlined above, can be expressed as:

$$\Delta \ln\left(F/S\right)_{jt} = \varphi_j\left(\ln\left(F/S\right)_{jt-1} - \beta x_{jt} - \gamma\frac{1}{N}\sum_j \ln\left(F/S\right)_{jt-1}\right)$$

$$+\sum_{l=1}^{p-1}\theta_{jl}\,\Delta\ln\left(F/S\right)_{jt-l} + \sum_{l=0}^{q-1}\delta_{jl}\,\Delta x_{jt-l} + \alpha_j\frac{1}{N}\sum_j \Delta\ln\left(F/S\right)_{jt} + \mu_j + \varepsilon_{jt}$$

62 This is not dissimilar to the identification strategy used in the analysis of individual claims data (see Appendix B).

where F_{jt} denotes the flow off benefit (or off benefit to jobs) in JCD j at time t, S_{jt} is the benefit stock (i.e. the number of benefit claimants at a particular point in time), and x_{jt} is a vector of explanatory variables including our measure of Jobcentre Plus treatment (see Chapter 11) and other influences on benefit exit rates that vary across JCDs and the sample period. The term μ_j denotes JCD specific effects. Common time effects are accounted for by the term in the average flow rate across JCDs. By allowing the coefficient on the cross-sectional average change in the flow rate to vary across JCDs we account for sample average differences in growth rates (in benefit flow rates) across JCDs. The ε_{jt} is an error term with mean zero and JCD-specific variance. The long-run relationship between the level of the benefit exit rate and its determinants is given by an error correction component (the term in brackets) and φ_j indicates the speed of adjustment to this long-run (equilibrium) relationship.[63]

We also need to control for other factors that determine benefit exit rates and that vary across both time and local areas, in so far as these correlate with our measure of Jobcentre Plus (the explanatory variables in x_{jt} other than our policy indicator). Note that the exit rate refers to a particular age, gender, duration, and statistical group, and hence we implicitly take into account these compositional effects. As is standard, we also include a measure of 'labour market tightness', capturing differences in the economic cycle across areas.[64,65] We include additional controls in the benefit exit rate models to account for other factors that vary across time and JCDs over our sample period, and which may therefore influence the estimated policy effect. These include the large influx of A8 migrants in some districts following the enlargement of the European Union (EU) in spring 2004 and the introduction of Pathways-to-Work. It is conceivable that the sharp rise in the labour force in some areas, resulting from EU enlargement, may have affected the job-finding rate for some benefit clients. Pathways-to-Work should mainly affect flows off IB. Dorsett (2007) suggests Pathways has had a positive effect on the exit rate from IB for relatively short-lived claims, although more recent evidence is less clear on this (Department for Work and Pensions (DWP)). For lone parents we also include an estimate of the ethnic minority share of the claimant stock, which may affect the likelihood of exiting benefit.[66] Although not included here, it seems likely that age of youngest child would influence lone parent exits from benefit to work.

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63 We model the inflow rate to benefit in much the same way. In the equation we replace the terms in the benefit exit rate, *F/S*, with terms in the benefit inflow rate, *I/P*, where *I* denotes the flow onto benefit and *P* is the population.

64 The vacancy series available (National Online Manpower Information System (NOMIS)) are subject to significant breaks over time. We include a series of dummy variables for each JCD to account for these breaks (see Chapter 11).

65 There is some concern about the geographical distribution of vacancies (across JCDs) because some vacancies are held by Employer Direct, which will cut across JCDs. However, the NOMIS data suggest that very few Jobcentre Plus vacancies (notified or unfilled) are held by Employer Direct.

66 We created additional control variables from the Labour Force Survey records with geographical indicators. However, these are only available from 2000Q2, and therefore their inclusion shortens the period at the start of the sample. These include the low skill share of unemployment (International Labour Organisation definition), of female economic inactivity and of male economic inactivity, and the manufacturing share of employment. Experimentation suggests the inclusion of these controls do not significantly affect estimated Jobcentre Plus treatment effects.

A.2 Results

We estimate this model on data from August 1999–November 2008 using maximum likelihood methods. Specifically, we use STATA's xtpmg command (see Blackburne and Frank, 2007). The model is estimated separately for different age, gender, and claim duration groups for each of the three main client groups. Age, gender and claim duration categories are dictated by the interests of the DWP, differences in labour market behaviour and differences in Welfare-to-Work provision for different age and claim duration groups.[67]

For jobseekers we estimate the model for exits to jobs. It is possible (although we do not know whether this is the case) that one of the consequences of Jobcentre Plus is to better record individuals' destinations upon claim termination. If so, we may observe a spurious correlation between the recorded (in JSA40 forms) exit rate to jobs and Jobcentre Plus treatment. For this reason we also estimate the model for the combined category of exits to jobs and unknown destinations (the latter is mainly accounted for by claim ends where the individual failed to sign), and for an estimate of exits to jobs based on matched tax and benefit records. For the disabled client group we estimate the model for exits off benefit. These include all exits from IB/Severe Disablement Allowance that were not to other out-of-work benefits.[68] For the lone parent client group we estimate the model for exits to jobs. These data are unlikely to suffer the same problem as exits to jobs for jobseekers as recorded by JSA40. This is because exits to jobs for lone parents are only derived using matched benefit and tax records. We also estimate the model for exits off benefit, the variable which is also available for the disabled client group. For both the lone parent and disabled client groups we also estimate models of the exit rate to other benefits (IS and JSA for the disabled client group; IB and JSA for the lone parent group).[69]

We estimate a series of models for each client group/gender/age/duration category. These models are distinguished by the number of lags in the dependent variable, the change terms in the cross-sectional means, and the change terms in the policy indicator. For each category we report one

67 We also estimate models excluding London districts (not shown). This is because it is typically the London JCDs that do not represent local labour markets, and so there is a discrepancy between the policy effect and the outcome variable. In addition there is evidence that the relative performance of the New Deal and other Welfare-to-Work initiatives appears lower in London, which may reflect specific characteristics of the client group in London or indeed higher Jobcentre Plus staff turnover (Her Majesty's Treasury, 2006), and that our policy measure is less accurate for London districts. We find that the estimated longer-term impacts of Jobcentre Plus on benefit exits (as shown in this report) are robust to the exclusion of London districts (although a few sub-group estimates change).

68 Exits to Disability Living Allowance are included. We constructed estimates of quarterly exits to jobs by JCD using the Work and Pensions Longitudinal Study (WPLS). We do not use these because of discrepancies with published sources.

69 We do not estimate models of the exit rate from JSA to IS and IB. If Jobcentre Plus makes it less attractive for JSA claimants to switch to other working-age benefits we might expect to see a drop in the entry rate to other working-age benefits. We do not detect a permanent change in the on-flow to other benefits (IB and IS), which might suggest little impact of Jobcentre Plus on exits from JSA to other benefits. If Jobcentre Plus makes it less attractive for JSA claimants to switch to other working-age benefits we may also expect those that remain on JSA (rather than going to other benefits) to be less effective at finding work than other JSA claimants, which should lead to a reduction in the average exit rate to work. This will be picked up in our estimates of exits to jobs, which suggest that on average Jobcentre Plus made JSA claimants better at finding work.

of these models. The model we report is chosen according to the following criteria (in this order): model specification (we ignore models that appear misspecified on the basis of diagnostic tests for autocorrelation and parameter heterogeneity); parameters on key controls should be in line with theory; the coefficient on the policy indicator is representative of the estimated policy coefficients from the set of models; parsimony. In most cases we are able to distinguish a representative (across models) estimate of the policy effect. However, the treatment effect is sensitive to model specification, and in some cases the data appears to support different policy conclusions. We point this out in the cases where this is a particular issue.

Results are reported below in Tables A.1-A.5. Each table shows the results of estimating the error correction model for each of the gender/age/duration categories. The dependent variable of our model is always given by the change in the off-flow rate from benefit (difference in logs). The estimation of the model in error correction form enables us to capture the short and longer-term effects of Jobcentre Plus on benefit exit rates. The long-run impact of the policy is given by the coefficient on the level of the Jobcentre Plus coverage variable. The short-run impact is given by the coefficient on the change in Jobcentre Plus coverage. Other variables that could potentially have an effect on the benefit exit rate, such as the ratio of vacancies to unemployment are also reported in the tables. The coefficient on the error correction term always appears negative and significant, and close to one, in all specifications; this indicates the existence of a long-run relationship and a reasonably quick speed of convergence to equilibrium. The tables also report the coefficient on the off-flow rate cross sectional mean that accounts for the common time-specific effects (e.g. macroeconomic conditions, national policy change). This shows the percentage change in JCD-specific exit rates with respect to a one per cent change in average (across JCDs) exit rates. This is always significant and close to one as we would expect. The average estimate of the coefficient on the cross-sectional mean of the change in the exit rate is also statistically significant and close to one as we would expect (note coefficients vary by JCD, allowing for differential trends). In each table we also provide the results of two diagnostics tests (an F-test for serial correlation and a Hausman test for heterogeneity). In the majority of cases the p-values for the diagnostic tests indicate that the models are well-specified.

In Table A.1 we present detailed results of estimating the model for exits from benefit into work (JSA40) for jobseekers. The coefficients on the variable indicating the level of Jobcentre Plus coverage are in many groups positive and statistically significant, which suggests the existence of a positive long-run relationship between the proportion of the stock of benefit clients claiming in integrated offices and the exit rate from benefit into work. Our estimates suggest that in the longer term, Jobcentre Plus led to an increase in the exit rate of approximately two to four per cent. Additionally, we observe that the coefficients on the variable representing the change in Jobcentre Plus coverage are mostly negative and significant. These findings support the existence of adverse implementation effects of the policy, as in the short-run an increase in the level of coverage of Jobcentre Plus is associated with a decrease in the exit rate.

The coefficients on the log ratio of notified vacancies to the number of jobseekers in the JCD are positive and statistically significant as expected. In other words, the more vacancies notified per jobseeker, the easier it is to find a job. However, the coefficients on these vacancy terms show some variation across gender and age groups.

The coefficients on the indicator of large A8 migration flows post EU enlargement in 2004 is always negative, suggesting that large migration flows may have been associated with a small drop in the exit rate from unemployment for some groups. These coefficients are statistically significant in the models of exits from JSA to work for men aged 50-State Pension age and women aged 25-49 with claims lasting zero to six months.[70]

Table A.2 provides the results of estimating our model for jobseekers when the dependent variable is the exit rate to work and to other unknown destinations (mainly those who 'failed to sign', but also including 'ceased to claim' and 'not known' destinations), derived from JSA40 forms. In this case the coefficient on the level of the Jobcentre Plus policy indicator is positive and statistically significant in a few cases but to a lesser extent than shown in the previous table. This demonstrates that the Jobcentre Plus policy effect is stronger when we include exits to jobs only. In line with expectations, the coefficients on the vacancies to unemployment ratio are generally lower when we include other unknown destinations. In Table A.3 we use matched tax and benefit records to measure exits to jobs. Unlike the results in Table A.1, generated using clerical forms data, the results in Table A.3 show no evidence of a positive Jobcentre Plus effect on the exit rate to work for 18–24-year-olds. In Table A.3 the long run effect of Jobcentre Plus on female (male) JSA clients in other age groups appears somewhat larger (smaller) than in Table A.1. Overall, using linked administrative data, the impression remains that Jobcentre Plus was associated with an increase in the exit rate from JSA to work in the longer term, and a temporary reduction in the exit rate from JSA to work upon start-up.

Table A.4 provides estimates of Jobcentre Plus policy impacts on the benefit exit rate for IB claimants (which includes exits to work) and the off-flow rate from IB to other (out-of-work) benefits. Looking at policy impacts on the benefit exit rate, in the first part of Table A.4, we see the coefficient on the level of the Jobcentre Plus coverage variable is positive and statistically significant in several of the categories. In particular, we see that the policy has had a larger impact on the exit rate in the younger group (18–49-year-olds) than in the older one (50+ year-olds), where we find some evidence of negative impacts. We do not find much evidence of implementation effects, in contrast to the case of JSA exits, as the coefficients on the variables indicating change in Jobcentre Plus coverage are mostly insignificant. Only for the female 18-49 age group do we find some evidence of negative temporary implementation effect. Looking at the impact of Jobcentre Plus on the off-flow rate to other benefits we find a mixed picture, with some negative and some positive effects.

Table A.4 also shows the coefficients on the controls variables. The coefficients on the vacancies terms are positive and statistically significant in a few cases, mainly in the 18-49 age groups, although lower in magnitude than in the case of the jobseekers. We also see, as we would expect, that labour market tightness appears more important in explaining the exit rate off benefit (including to jobs) than the exit rate to other benefits. As an additional control variable we include a variable reflecting the introduction of the Pathways-to-Work programme which should mainly affect flows off IB. The Pathways coverage variable has been calculated from the distribution of IB claims in a similar way to the Jobcentre Plus treatment variable. For IB claimants the introduction of Pathways appears to have been associated with an increase in the exit rate from benefit for IB clients with shorter duration claims, consistent with the findings from the evaluation of Pathways reported in Dorsett (2007). We also find some evidence of a positive Pathways effect on the exit rate from IB to other benefits.

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70 At first glance this appears to contradict the findings of earlier DWP studies (Gilpin *et al.*, 2006; Lemos and Portes, 2008) that find no relationship between A8 migration and local area unemployment. However, the dependent variable here is different than in these previous studies (we model gross exit rates for specific groups rather than the level or change in unemployment). Also, we are simply including the migration variable as a control. It is not our objective to study the relationship between migration and benefit flow rates.

In Table A.5 we report the results of estimating the model described in the previous section for female lone parent claimants. We assess Jobcentre Plus impacts on three different outcome measures: the exit rate to work, off benefit, and to other benefits. The results suggest that the introduction of Jobcentre Plus has had a positive and significant impact on the exit rate from IS for lone parents with shorter duration claims (zero to 12 months). Our estimates imply that, eventually, Jobcentre Plus led to an increase in the exit rate of around four to five per cent for this group. If we consider exits to work only, we find that the coefficient on the Jobcentre Plus policy variable is considerable higher, implying an increase in the exit rate to work of around eight per cent for the shorter duration groups. In this case we also find that the coefficient on the Jobcentre Plus variable for the 18–24-year-olds on benefits for over 12 months is positive and statistically significant, which provides evidence that the policy has helped younger claimants of longer durations to find work. The results indicate that the disruption caused by the introduction of Jobcentre Plus was associated with a temporary reduction in the overall exit rate for female lone parent IS claimants, although the job-finding rate was only affected to a minor extent. We also find evidence of a positive effect of Jobcentre Plus on the lone parent exit rate to other benefits, which includes JSA. This may suggest that Jobcentre Plus has helped some lone parents move closer to the labour market, rather than helping them move directly into work.

The coefficients on the ratio of vacancies to unemployment were found to be positive and significant in all specifications for all age and duration categories. In line with expectations, these long-run elasticities appear larger in magnitude in the exit to work models than in the exit off benefit models. We also find a positive relationship between labour market tightness and the exit rate from IS to other (out-of-work) benefits. This seems counter-intuitive. However, if this exit rate is a proxy for exits to JSA, then this finding is perhaps less surprising.

Tables A.6-A.8 show the results of estimating the inflow rate for the three different benefit groups where our dependent variable is given by total inflows into benefit divided by the total population in each area of each gender/age group. As in the case of the off-flow rate, we estimate the models separately for each benefit and gender group and include a similar set of control variables.

Table A.6 shows the results for jobseekers. The coefficients on the level of the Jobcentre Plus variable are positive and statistically significant in two of the groups, male and female aged 25-49. For the 18–24-year-old female group, instead, the coefficient is negative and significant. For 18–24-year-old males we report a positive coefficient on the level of Jobcentre Plus coverage, but this effect is not robust. Other models point to a statistically significant negative coefficient. For the rest of the groups, the Jobcentre Plus policy variable appears irrelevant. This gives us a somewhat mixed picture of the impact of Jobcentre Plus on inflows to JSA. In some cases the positive (negative) impact on inflows to JSA tallies with our findings (above) of a positive (negative) impact on exits from IB and IS for lone parents to other benefits. Alternatively, for example, a positive impact on inflows may indicate that the increase in exits from JSA to jobs with Jobcentre Plus is not associated with exits to jobs that are long lasting. Additionally, we find evidence of a temporary decrease in the inflow rate associated with the implementation of the policy as the coefficients on the change of the Jobcentre Plus variable appear negative and statistically significant for most groups. With regard to the role played by other variables, the coefficient on the ratio of vacancies to unemployment is negative and statistically significant for all groups, as we would expect.

Table A.7 presents the results of estimating the inflows model for the IB claimants. These suggest that the introduction of Jobcentre Plus has had no longer-term effect on inflows to disability benefit. We see some negative short-run effects, which indicate a temporary decrease in the inflow rate into benefit. The influence of the vacancy terms is again negative and significant, but only in the case of males; in the case of females the state of the labour market appears less relevant in determining

inflow rates to disability benefit. In any case, its influence on the inflow rate is, as expected, considerably lower than in the case of the jobseekers.

Finally, Table A.8 reports estimates of the inflows model for the IS for lone parents group. In this case we do not find any evidence that Jobcentre Plus has had an effect on the inflow rate into benefit, neither in the long nor the short run. The role played by the vacancies to unemployment ratio is minor in this case compared to the jobseekers. Only for the 25–49-year-olds do we find a negative and significant relationship between labour market tightness and entry to IS for lone parents.

Table A.1 Jobcentre Plus and the exit rate from JSA to work (JSA40)

Dependent variable:	Off-flow rate from benefit into work (JSA40)											
Gender	**Female**						**Male**					
Age	**18-24**	**18-24**	**25-49**	**25-49**	**50+**	**50+**	**18-24**	**18-24**	**25-49**	**25-49**	**50+**	**50+**
Durations	**0-6 months**	**>6 months**	**0-6 months**	**>6 months**	**0-6 months**	**>6 months**	**0-6 months**	**>6 months**	**0-6 months**	**>6 months**	**0-6 months**	**>6 months**
Change in Jobcentre Plus coverage	-0.093***	-0.118*	-0.110***	-0.060	-0.064	-0.083	-0.122***	-0.228***	-0.097***	-0.073**	-0.110***	-0.103
	(0.035)	(0.070)	(0.025)	(0.071)	(0.042)	(0.120)	(0.028)	(0.059)	(0.024)	(0.031)	(0.037)	(0.064)
Lagged change in Jobcentre Plus coverage				-0.148*						-0.055		
				(0.082)						(0.044)		
Second lagged change in Jobcentre Plus coverage				(0.021)								
				(0.068)								
Change in off-flow rate cross-sectional mean	1.033***	1.081***	1.011***	0.978***	1.000***	1.157***	1.017***	1.019***	1.002***	0.980***	1.007***	0.980***
	(0.027)	(0.063)	(0.026)	(0.057)	(0.030)	(0.092)	(0.022)	(0.039)	(0.018)	(0.033)	(0.032)	(0.050)
Error correction term	-0.852***	-1.077***	-0.822***	-1.142***	-0.911***	-1.153***	-0.669***	-0.680***	-0.682***	-0.725***	-0.881***	-0.877***
	(0.035)	(0.074)	(0.040)	(0.078)	(0.039)	(0.076)	(0.038)	(0.056)	(0.035)	(0.049)	(0.042)	(0.063)
Long-run elasticities												
Jobcentre Plus coverage	0.020	0.038**	0.030**	0.024*	0.027**	0.022	0.042***	0.026	0.031***	0.040***	0.025***	-0.025
	(0.013)	(0.016)	(0.012)	(0.013)	(0.013)	(0.017)	(0.013)	(0.017)	(0.010)	(0.011)	(0.010)	(0.017)
Ratio of vacancies to unemployment	0.194***	0.213***	0.167***	0.185***	0.210***	0.094**	0.233***	0.159***	0.158***	0.188***	0.188***	0.136***
	(0.021)	(0.042)	(0.017)	(0.027)	(0.025)	(0.042)	(0.023)	(0.046)	(0.015)	(0.029)	(0.019)	(0.031)

Continued

Table A.1 Continued

Dependent variable:	Off-flow rate from benefit into work (JSA40)											
Gender	Female						Male					
Age	18-24	18-24	25-49	25-49	50+	50+	18-24	18-24	25-49	25-49	50+	50+
Durations	0-6 months	>6 months	0-6 months	>6 months	0-6 months	>6 months	0-6 months	>6 months	0-6 months	>6 months	0-6 months	>6 months
A8 migration	0.001	-0.001	-0.006**	-0.002	-0.004	-0.019	-0.005	-0.015	-0.002	-0.003	-0.008**	0.001
	(0.003)	(0.004)	(0.003)	(0.004)	(0.003)	(0.015)	(0.004)	(0.013)	(0.005)	(0.005)	(0.004)	(0.009)
Off-flow rate cross-sectional mean	1.039***	1.179***	1.028***	1.009***	0.915***	1.119***	1.021***	0.819***	0.946***	0.878***	0.994***	0.924***
	(0.029)	(0.042)	(0.041)	(0.042)	(0.041)	(0.043)	(0.026)	(0.032)	(0.029)	(0.036)	(0.038)	(0.034)
Observations	1,680	1,584	1,680	1,632	1,680	1,632	1,680	1,680	1,680	1,632	1,680	1,632
R-squared	0.935	0.861	0.909	0.877	0.857	0.841	0.925	0.796	0.918	0.955	0.843	0.891
F-test for serial correlation	0.97	2.34	0.28	1.30	0.07	0.23	0.92	2.06	2.16	1.67	1.14	0.81
	(0.326)	(0.126)	(0.599)	(0.254)	(0.790)	(0.635)	(0.338)	(0.152)	(0.142)	(0.197)	(0.285)	(0.368)
Hausman test for heterogeneity	4.75	3.29	4.71	4.11	0.36	0.80	2.77	2.33	2.07	0.85	3.21	4.45
	(0.191)	(0.349)	(0.195)	(0.250)	(0.948)	(0.849)	(0.429)	(0.506)	(0.558)	(0.837)	(0.361)	(0.217)

Notes:

- Jobseekers.
- Off-flow from benefit into work defined as sum of monthly JSA claim ends within the quarter where the reason for claim end is 'found work' (source: NOMIS).
- Statistical significance indicated as *10%, **5%, ***1%.
- Coefficient standard errors in brackets.
- P-values for diagnostic tests in brackets (small p-values suggest model misspecification).
- Models estimated across 48 JCDs.
- Sample period 1999Q3-2007Q3 (some initial observations lost due to lagged variables).
- Pooled mean group estimation (Pesaran, Shin and Smith, 1999).
- Long-run elasticities pooled, except wrt A8 migration.
- Mean group estimates shown for other terms.
- Models include fixed effects for JCDs, seasonal dummies, dummies for breaks in the vacancy series, and dynamic terms in the ratio of vacancies to unemployment, the dependent variable and cross-sectional mean of the dependent variable.
- Coefficients on the dynamic and error-correction terms, seasonals, vacancy shift dummies and A8 migration dummy allowed to vary across JCDs.

Table A.2 Jobcentre Plus and the exit rate from JSA to work or failed to sign (JSA40)

Dependent variable:	Off-flow rate from benefit into work or failed to sign (JSA40)											
Gender	**Female**						**Male**					
Age	**18-24**	**18-24**	**25-49**	**25-49**	**50+**	**50+**	**18-24**	**18-24**	**25-49**	**25-49**	**50+**	**50+**
Durations	**0-6 months**	**>6 months**	**0-6 months**	**>6 months**	**0-6 months**	**>6 months**	**0-6 months**	**>6 months**	**0-6 months**	**>6 months**	**0-6 months**	**>6 months**
Change in Jobcentre Plus coverage	-0.102***	-0.112**	-0.109***	0.011	-0.064*	0.017	-0.104***	-0.098**	-0.095***	-0.003	-0.099***	0.000
	(0.030)	(0.057)	(0.025)	(0.047)	(0.033)	(0.063)	(0.022)	(0.041)	(0.025)	(0.029)	(0.033)	(0.057)
Lagged change in Jobcentre Plus coverage										-0.073*		
										(0.038)		
Change in off-flow rate cross-sectional mean	1.031***	0.954***	1.003***	0.985***	1.007***	0.980***	1.008***	0.999***	0.997***	1.038***	1.009***	0.977***
	(0.026)	(0.045)	(0.028)	(0.048)	(0.030)	(0.061)	(0.019)	(0.031)	(0.020)	(0.038)	(0.032)	(0.038)
Error correction term	-0.796***	-0.835***	-0.795***	-0.667***	-0.899***	-0.904***	-0.621***	-0.520***	-0.655***	-0.544***	-0.851***	-0.706***
	(0.043)	(0.072)	(0.036)	(0.042)	(0.036)	(0.044)	(0.038)	(0.040)	(0.036)	(0.050)	(0.035)	(0.064)
Long-run elasticities												
Jobcentre Plus coverage	0.008	0.038***	0.027***	-0.040***	0.019*	-0.009	-0.002	0.006	0.017**	0.011	0.019**	-0.013
	(0.010)	(0.011)	(0.010)	(0.014)	(0.011)	(0.016)	(0.010)	(0.018)	(0.008)	(0.013)	(0.009)	(0.014)
Ratio of vacancies to unemployment	0.165***	0.233***	0.124***	0.156***	0.158***	0.150***	0.154***	0.121***	0.110***	0.095***	0.158***	0.109***
	(0.019)	(0.024)	(0.017)	(0.031)	(0.024)	(0.037)	(0.021)	(0.044)	(0.015)	(0.027)	(0.019)	(0.028)
A8 migration	0.004	-0.012**	0.000	0.007*	0.001	-0.016	-0.003	-0.009	-0.002	0.004	-0.005*	0.006
	(0.004)	(0.006)	(0.004)	(0.004)	(0.003)	(0.010)	(0.005)	(0.008)	(0.006)	(0.005)	(0.003)	(0.006)
Off-flow rate cross-sectional mean	0.995***	0.958***	0.986***	1.018***	0.955***	0.923***	0.924***	0.946***	0.917***	0.925***	0.953***	0.859***
	(0.031)	(0.030)	(0.043)	(0.049)	(0.040)	(0.041)	(0.027)	(0.029)	(0.030)	(0.036)	(0.037)	(0.036)
Observations	1,680	1,584	1,680	1,680	1,680	1,680	1,680	1,680	1,680	1,632	1,680	1,632

Continued

Table A.2 Continued

Dependent variable:	Off-flow rate from benefit into work or failed to sign (JSA40)											
Gender	Female						Male					
Age	18-24	18-24	25-49	25-49	50+	50+	18-24	18-24	25-49	25-49	50+	50+
Durations	0-6 months	>6 months	0-6 months	>6 months	0-6 months	>6 months	0-6 months	>6 months	0-6 months	>6 months	0-6 months	>6 months
R-squared	0.929	0.832	0.901	0.786	0.832	0.776	0.923	0.768	0.906	0.915	0.841	0.896
F-test for serial correlation	0.69	0.61	0.61	1.51	0.00	0.41	0.13	2.97	0.08	3.02	0.01	2.45
	(0.407)	(0.436)	(0.434)	(0.786)	(0.999)	(0.521)	(0.717)	(0.085)	(0.777)	(0.083)	(0.907)	(0.112)
Hausman test for heterogeneity	2.69	3.22	1.37	3.07	1.21	3.56	2.05	1.67	0.67	0.55	2.80	5.68
	(0.442)	(0.359)	(0.713)	(0.381)	(0.751)	(0.313)	(0.563)	(0.643)	(0.880)	(0.907)	(0.423)	(0.128)

Notes:
- Jobseekers.
- Off-flow from benefit into work or failed to sign defined as sum of monthly JSA claim ends within the quarter where the reason for claim end is 'found work', 'ceased claiming', 'failed to sign', or 'unknown' (source: NOMIS).
- Statistical significance indicated as *10%, **5%, ***1%.
- Coefficient standard errors in brackets.
- P-values for diagnostic tests in brackets (small p-values suggest model misspecification).
- Models estimated across 48 JCDs.
- Sample period 1999Q3-2007Q3 (some initial observations lost due to lagged variables).
- Pooled mean group estimation (Pesaran, Shin and Smith, 1999).
- Long-run elasticities pooled, except wrt A8 migration.
- Mean group estimates shown for other terms.
- Models include fixed effects for JCDs, seasonal dummies, dummies for breaks in the vacancy series, and dynamic terms in the ratio of vacancies to unemployment, the dependent variable and cross-sectional mean of the dependent variable.
- Coefficients on the dynamic and error-correction terms, seasonals, vacancy shift dummies and A8 migration dummy allowed to vary across JCDs.

Table A.3 Jobcentre Plus and the exit rate from JSA to work (HMRC)

Dependent variable:	Off-flow rate from benefit into work (HMRC)											
Gender	**Female**						**Male**					
Age	**18-24**	**18-24**	**25-49**	**25-49**	**50+**	**50+**	**18-24**	**18-24**	**25-49**	**25-49**	**50+**	**50+**
Durations	**0-6 months**	**>6 months**	**0-6 months**	**>6 months**	**0-6 months**	**>6 months**	**0-6 months**	**>6 months**	**0-6 months**	**>6 months**	**0-6 months**	**>6 months**
Change in Jobcentre Plus coverage	-0.069**	-0.120	-0.137***	-0.043	-0.142***	-0.248**	-0.088***	-0.057	-0.087***	-0.067*	-0.150***	0.003
	(0.028)	(0.077)	(0.035)	(0.051)	(0.035)	(0.099)	(0.024)	(0.046)	(0.025)	(0.039)	(0.052)	(0.049)
Lagged change in Jobcentre Plus coverage		-0.008	-0.046									
		(0.081)	(0.037)									
Change in off-flow rate cross-sectional mean	1.014***	0.989***	0.972***	0.994***	1.007***	1.005***	1.005***	1.018***	1.004***	1.001***	0.983***	1.019***
	(0.025)	(0.045)	(0.033)	(0.033)	(0.045)	(0.091)	(0.021)	(0.036)	(0.019)	(0.018)	(0.039)	(0.035)
Error correction term	-0.840***	-0.935***	-0.958***	-0.842***	-0.924***	-1.150***	-0.660***	-0.653***	-0.695***	-0.663***	-1.219***	-0.833***
	(0.037)	(0.056)	(0.064)	(0.033)	(0.038)	(0.067)	(0.035)	(0.045)	(0.032)	(0.032)	(0.071)	(0.041)
Long-run elasticities												
Jobcentre Plus coverage	0.012	0.001	0.036***	0.032**	0.044***	0.096***	0.006	-0.028	0.021***	0.019*	0.004	-0.019
	(0.008)	(0.017)	(0.007)	(0.014)	(0.015)	(0.017)	(0.008)	(0.019)	(0.006)	(0.011)	(0.006)	(0.015)
Ratio of vacancies to unemployment	0.144***	0.215***	0.147***	0.134***	0.070**	0.069*	0.122***	0.148***	0.120***	0.132***	0.115***	0.079**
	(0.017)	(0.035)	(0.014)	(0.030)	(0.031)	(0.039)	(0.021)	(0.039)	(0.015)	(0.026)	(0.014)	(0.033)
A8 migration	-0.001	0.006	-0.002	0.003	0.003	-0.005	-0.002	0.008	-0.001	0.003	0.003	0.010**
	(0.003)	(0.008)	(0.004)	(0.004)	(0.003)	(0.008)	(0.003)	(0.007)	(0.005)	(0.007)	(0.003)	(0.005)

Continued

Table A.3 Continued

Dependent variable:	Off-flow rate from benefit into work (HMRC)											
Gender	Female						Male					
Age	18-24	18-24	25-49	25-49	50+	50+	18-24	18-24	25-49	25-49	50+	50+
Durations	0-6 months	>6 months	0-6 months	>6 months	0-6 months	>6 months	0-6 months	>6 months	0-6 months	>6 months	0-6 months	>6 months
Off-flow rate cross-sectional mean	0.995***	0.933***	0.897***	0.964***	0.942***	0.956***	0.939***	0.987***	0.953***	1.001***	0.933***	1.040***
	(0.031)	(0.034)	(0.028)	(0.035)	(0.030)	(0.030)	(0.029)	(0.036)	(0.024)	(0.020)	(0.021)	(0.025)
Observations	1,680	1,632	1,632	1,680	1,680	1,632	1,680	1,680	1,680	1,728	1,584	1,680
R-squared	0.952	0.803	0.935	0.853	0.851	0.807	0.942	0.812	0.937	0.915	0.923	0.840
F-test for serial correlation	2.36	0.57	2.35	2.47	0.30	1.47	1.43	1.04	0.57	0.60	0.57	0.87
	(0.125)	(0.451)	(0.125)	(0.116)	(0.586)	(0.225)	(0.232)	(0.309)	(0.452)	(0.439)	(0.451)	(0.351)
Hausman test for heterogeneity	1.51	5.24	3.21	0.96	5.58	2.67	1.18	2.40	0.96	2.30	1.28	2.25
	(0.679)	(0.155)	(0.360)	(0.810)	(0.134)	(0.445)	(0.757)	(0.493)	(0.810)	(0.513)	(0.734)	(0.522)

Notes:
- Jobseekers.
- Off-flow from benefit into work defined as sum of monthly JSA claim ends within the quarter (source: NOMIS) scaled by the fraction of JSA claim ends within the quarter where individuals have a live employment record at the end of the quarter (source: WPLS).
- Statistical significance indicated as *10%, **5%, ***1%.
- Coefficient standard errors in brackets.
- P-values for diagnostic tests in brackets (small p-values suggest model misspecification).
- Models estimated across 48 JCDs.
- Sample period 1999Q3-2007Q3 (some initial observations lost due to lagged variables).
- Pooled mean group estimation (Pesaran, Shin and Smith, 1999).
- Long-run elasticities pooled, except wrt A8 migration.
- Mean group estimates shown for other terms.
- Models include fixed effects for JCDs, seasonal dummies, dummies for breaks in the vacancy series, and dynamic terms in the ratio of vacancies to unemployment, the dependent variable and cross-sectional mean of the dependent variable.
- Coefficients on the dynamic and error-correction terms, seasonals, vacancy shift dummies and A8 migration dummy allowed to vary across JCDs.

Table A.4a Jobcentre Plus and the exit rate from IB

Dependent variable:	Off-flow rate from benefit							
Gender	Female				Male			
Age	18-49	18-49	50+	50+	18-49	18-49	50+	50+
Durations	0-12 months	>12 months	0-12 months	>12 months	0-12 months	>12 months	0-12 months	>12 months
Change in Jobcentre Plus coverage	-0.107*	0.087	0.061	-0.004	-0.020	-0.038	0.018	-0.016
	(0.058)	(0.074)	(0.057)	(0.072)	(0.057)	(0.049)	(0.056)	(0.038)
Lagged change in Jobcentre Plus coverage		-0.154*		-0.077				
		(0.092)		(0.060)				
Second lagged change in Jobcentre Plus coverage		0.045						
		(0.076)						
Change in off-flow rate cross-sectional mean	1.002***	0.944***	0.966***	0.943***	1.057***	0.953***	1.026***	0.988***
	(0.043)	(0.053)	(0.051)	(0.042)	(0.038)	(0.041)	(0.040)	(0.021)
Error correction term	-0.858***	-0.958***	-1.009***	-0.984***	-0.898***	-0.914***	-0.975***	-0.942***
	(0.064)	(0.056)	(0.044)	(0.054)	(0.063)	(0.052)	(0.046)	(0.038)
Long run elasticities								
Jobcentre Plus coverage	0.080***	0.049***	-0.050***	0.032***	0.007	0.046***	-0.044***	0.018**
	(0.010)	(0.015)	(0.016)	(0.012)	(0.014)	(0.014)	(0.013)	(0.009)
Ratio of vacancies to unemployment	0.055**	0.121***	0.052	0.094***	0.165***	0.057**	0.049*	-0.013
	(0.023)	(0.038)	(0.034)	(0.031)	(0.023)	(0.030)	(0.027)	(0.018)
Pathways coverage	0.078***	0.031***	0.053***	-0.011	0.059***	-0.010	0.027***	-0.011*
	(0.008)	(0.011)	(0.011)	(0.009)	(0.009)	(0.010)	(0.009)	(0.006)

Continued

Table A.4a Continued

Dependent variable:	Off-flow rate from benefit							
Gender	Female				Male			
Age	18-49	18-49	50+	50+	18-49	18-49	50+	50+
Durations	0-12 months	>12 months	0-12 months	>12 months	0-12 months	>12 months	0-12 months	>12 months
A8 migration	-0.002	0.007	0.008	0.012**	0.000	0.003	0.007	0.001
	(0.009)	(0.005)	(0.010)	(0.006)	(0.005)	(0.004)	(0.011)	(0.004)
Off-flow rate cross-sectional mean	0.721***	0.671***	0.886***	0.878***	1.170***	0.861***	1.050***	0.932***
	(0.091)	(0.073)	(0.049)	(0.065)	(0.089)	(0.050)	(0.050)	(0.033)
Observations	1,584	1,632	1,680	1,632	1,584	1,680	1,680	1,680
R-squared	0.833	0.797	0.750	0.832	0.813	0.743	0.762	0.834
F-test for serial correlation	1.44	0.97	2.55	0.85	3.50	0.03	0.75	0.48
	(0.230)	(0.324)	(0.110)	(0.357)	(0.062)	(0.864)	(0.387)	(0.490)
Hausman test for heterogeneity	7.75	2.45	2.52	3.67	7.60	4.67	5.01	1.12
	(0.101)	(0.654)	(0.641)	(0.453)	(0.107)	(0.323)	(0.286)	(0.890)

Notes:
- Disabled client group.
- Off-flow from benefit defined as IB/SDA claim ends within the quarter where the individual does not make a new claim for any out-of-work benefit (JSA, IB, SDA, IS) within 90 days.
- Off-flow to other benefit defined as IB/SDA claim ends within the quarter where the individual makes a new claim for other out-of-work benefits (JSA, IS) within 90 days.
- Statistical significance indicated as *10%, **5%, ***1%.
- Coefficient standard errors in brackets.
- P-values for diagnostic tests in brackets (small p-values suggest model misspecification).
- Models estimated across 48 JCDs.
- Sample period 1999Q3-2007Q3 (some initial observations lost due to lagged variables).
- Pooled mean group estimation (Pesaran, Shin and Smith, 1999).
- Long-run elasticities pooled, except wrt A8 migration.
- Mean group estimates shown for other terms.
- Models include fixed effects for JCDs, seasonal dummies, dummies for breaks in the vacancy series, and dynamic terms in the ratio of vacancies to unemployment, the dependent variable and cross-sectional mean of the dependent variable.
- Coefficients on the dynamic and error-correction terms, seasonals, vacancy shift dummies and A8 migration dummy allowed to vary across JCDs.

Table A.4b Jobcentre Plus and the exit rate from IB – off-flow rate to other benefit

Dependent variable:	**Off-flow rate to other benefit**					
Gender		**Female**			**Male**	
Age	**18-49**	**18-49**	**50+**	**18-49**	**18-49**	**50+**
Durations	**0-12 months**	**>12 months**	**All**	**0-12 months**	**>0-12 months**	**All**
Change in Jobcentre Plus coverage	-0.011	-0.061	-0.030	-0.051	-0.087	-0.044
	(0.057)	(0.158)	(0.115)	(0.041)	(0.071)	(0.072)
Lagged change in Jobcentre Plus coverage			0.158	-0.011		
			(0.107)	(0.041)		
Second lagged change in Jobcentre Plus coverage						
Change in off-flow rate cross-sectional mean	0.968***	0.941***	1.023***	0.960***	1.062***	1.012***
	(0.066)	(0.103)	(0.089)	(0.040)	(0.068)	(0.057)
Error correction term	-0.842***	-1.011***	-0.979***	-0.759***	-0.806***	-0.872***
	(0.040)	(0.050)	(0.059)	(0.060)	(0.038)	(0.036)
Long run elasticities						
Jobcentre Plus coverage	-0.052***	0.018	-0.038	-0.044***	0.132***	-0.023
	(0.017)	(0.030)	(0.027)	(0.013)	(0.022)	(0.024)
Ratio of vacancies to unemployment	0.067**	-0.023	-0.012	0.078***	0.035	0.083*
	(0.034)	(0.065)	(0.058)	(0.024)	(0.053)	(0.048)
Pathways coverage	0.063***	0.023	0.050***	0.062***	-0.034*	0.052***
	(0.014)	(0.026)	(0.019)	(0.011)	(0.019)	(0.019)

Continued

Table A.4b Continued

Dependent variable:	Off-flow rate to other benefit					
Gender		Female			Male	
Age	18-49	18-49	50+	18-49	18-49	50+
Durations	0-12 months	>12 months	All	0-12 months	>0-12 months	All
A8 migration	0.005	0.020	0.007	0.010**	0.002	0.021*
	(0.005)	(0.014)	(0.011)	(0.005)	(0.007)	(0.011)
Off-flow rate cross-sectional mean	0.882***	0.823***	1.065***	1.009***	1.124***	0.980***
	(0.070)	(0.093)	(0.081)	(0.064)	(0.075)	(0.064)
Observations	1,680	1,664	1,628	1,632	1,680	1,680
R-squared	0.690	0.698	0.779	0.788	0.672	0.662
F-test for serial correlation	1.46	0.82	0.30	0.39	3.33	0.26
	(0.227)	(0.364)	(0.587)	(0.533)	(0.068)	(0.608)
Hausman test for heterogeneity	3.96	2.60	1.06	1.21	6.87	2.53
	(0.411)	(0.626)	(0.901)	(0.876)	(0.143)	(0.640)

Notes:
- Disabled client group.
- Off-flow from benefit defined as IB/SDA claim ends within the quarter where the individual does not make a new claim for any out-of-work benefit (JSA, IB, SDA, IS) within 90 days.
- Off-flow to other benefit defined as IB/SDA claim ends within the quarter where the individual makes a new claim for other out-of-work benefits (JSA, IS) within 90 days.
- Statistical significance indicated as *10%, **5%, ***1%.
- Coefficient standard errors in brackets.
- P-values for diagnostic tests in brackets (small p-values suggest model misspecification).
- Models estimated across 48 JCDs.
- Sample period 1999Q3-2007Q3 (some initial observations lost due to lagged variables).
- Pooled mean group estimation (Pesaran, Shin and Smith, 1999).
- Long-run elasticities pooled, except wrt A8 migration.
- Mean group estimates shown for other terms.
- Models include fixed effects for JCDs, seasonal dummies, dummies for breaks in the vacancy series, and dynamic terms in the ratio of vacancies to unemployment, the dependent variable and cross-sectional mean of the dependent variable.
- Coefficients on the dynamic and error-correction terms, seasonals, vacancy shift dummies and A8 migration dummy allowed to vary across JCDs.

Table A.5 Jobcentre Plus and the exit rate from IS lone parents

Dependent variable:	Off-flow rate from benefit into work (HMRC)				Off-flow rate from benefit				Off-flow rate to other benefit		
Age	**18-24**	**18-24**	**25-49**	**25-49**	**18-24**	**18-24**	**25-49**	**25-49**	**18-24**	**25-49**	**25-49**
Durations	**0-12 months**	**>12 months**	**0-12 months**	**>12 months**	**0-12 months**	**>12 months**	**0-12 months**	**>12 months**	**All**	**0-12 months**	**>12 months**
Change in Jobcentre Plus coverage	-0.006	-0.100	-0.133***	-0.022	-0.116*	-0.126*	-0.104**	-0.049	-0.037	-0.237*	-0.181
	(0.084)	(0.071)	(0.047)	(0.043)	(0.071)	(0.065)	(0.045)	(0.036)	(0.214)	(0.122)	(0.136)
Lagged change in Jobcentre Plus coverage	-0.009					0.004					0.168
	(0.073)					(0.069)					(0.128)
Change in off-flow rate cross-sectional mean	1.072***	1.024***	1.012***	0.998***	0.957***	0.993***	0.980***	0.969***	0.946***	0.983***	0.880***
	(0.058)	(0.058)	(0.045)	(0.037)	(0.076)	(0.077)	(0.036)	(0.034)	(0.079)	(0.041)	(0.073)
Error correction term	-0.997***	-1.081***	-0.943***	-0.900***	-1.057***	-1.004***	-0.938***	-0.879***	-1.121***	-1.052***	-1.027***
	(0.067)	(0.040)	(0.042)	(0.040)	(0.063)	(0.062)	(0.048)	(0.034)	(0.043)	(0.038)	(0.055)
Long-run elasticities											
Jobcentre Plus coverage	0.077***	0.047**	0.084***	0.012	0.053***	0.027	0.045***	0.002	0.087***	0.059*	0.030
	(0.023)	(0.020)	(0.015)	(0.013)	(0.017)	(0.017)	(0.011)	(0.010)	(0.032)	(0.031)	(0.033)
Ratio of vacancies to unemployment	0.227***	0.198***	0.203***	0.185***	0.157***	0.175***	0.138***	0.100***	0.243***	0.318***	0.273***
	(0.041)	(0.040)	(0.027)	(0.027)	(0.033)	(0.032)	(0.021)	(0.022)	(0.066)	(0.057)	(0.051)
Ethnic minority share	-0.583	-0.346	-0.643***	0.322	0.889***	1.129**	-0.608***	0.562*	0.851	-0.376	0.550
	(0.392)	(0.550)	(0.198)	(0.331)	(0.327)	(0.525)	(0.169)	(0.304)	(0.901)	(0.432)	(0.664)
A8 migration	-0.016*	0.000	-0.006	-0.003	0.000	0.002	-0.007	-0.002	-0.043*	-0.010	0.023**
	(0.010)	(0.006)	(0.004)	(0.006)	(0.010)	(0.006)	(0.006)	(0.005)	(0.024)	(0.016)	(0.012)
Off-flow rate cross-sectional mean	1.132***	1.030***	1.013***	1.004***	0.827***	1.301***	0.930***	0.897***	0.901***	0.988***	0.737***
	(0.049)	(0.044)	(0.037)	(0.029)	(0.067)	(0.087)	(0.046)	(0.039)	(0.062)	(0.044)	(0.050)

Continued

Table A.5 Continued

Dependent variable:	Off-flow rate from benefit into work (HMRC)				Off-flow rate from benefit				Off-flow rate to other benefit		
Age	**18-24**	**18-24**	**25-49**	**25-49**	**18-24**	**18-24**	**25-49**	**25-49**	**18-24**	**25-49**	**25-49**
Durations	**0-12 months**	**>12 months**	**0-12 months**	**>12 months**	**0-12 months**	**>12 months**	**0-12 months**	**>12 months**	**All**	**0-12 months**	**>12 months**
Observations	1,632	1,680	1,680	1,680	1,632	1,632	1,680	1,680	1,621	1,645	1,598
R-squared	0.861	0.844	0.901	0.930	0.853	0.871	0.931	0.950	0.751	0.730	0.802
F-test for serial correlation	0.87	1.61	0.11	1.22	0.05	1.40	1.41	0.75	1.46	0.22	0.78
	(0.351)	(0.205)	(0.742)	(0.269)	(0.832)	(0.237)	(0.235)	(0.386)	(0.227)	(0.640)	(0.377)
Hausman test for heterogeneity	2.90	2.01	1.83	1.14	1.09	1.94	0.51	3.47	2.96	4.01	2.39
	(0.574)	(0.734)	(0.768)	(0.888)	(0.895)	(0.746)	(0.972)	(0.482)	(0.565)	(0.405)	(0.664)

Notes:
- Female lone parents claiming IS.
- Off-flow from benefit defined as IS claim ends within the quarter where the individual does not make a new claim for any out-of-work benefit (JSA, IB, SDA, IS) within 90 days.
- Off-flow from benefit to work defined as IS claim ends within the quarter where the individual is in work within 90 days (according to WPLS tax records).
- Off-flow to other benefit defined as IS claim ends within the quarter where the individual makes a new claim for other out-of-work benefits (JSA, IB, SDA) within 90 days.
- Statistical significance indicated as *10%, **5%, ***1%.
- Coefficient standard errors in brackets; P-values for diagnostic tests in brackets (small p-values suggest model misspecification).
- Models estimated across 48 JCDs.
- Sample period 1999Q3-2007Q3 (some initial observations lost due to lagged variables).
- Pooled mean group estimation (Pesaran, Shin and Smith, 1999).
- Long-run elasticities pooled, except wrt A8 migration.
- Mean group estimates shown for other terms.
- Models include fixed effects for JCDs, seasonal dummies, dummies for breaks in the vacancy series, and dynamic terms in the ratio of vacancies to unemployment, the dependent variable and cross-sectional mean of the dependent variable.
- Coefficients on the dynamic and error-correction terms, seasonals, vacancy shift dummies and A8 migration dummy allowed to vary across JCDs.

Table A.6 Jobcentre Plus and JSA entry rates

Dependent variable:	In-flow rate to benefit					
Gender	Female			Male		
Age	18-24	25-49	50+	18-24	25-49	50+
Change in Jobcentre Plus coverage	-0.052	-0.052**	-0.066*	-0.093***	-0.051***	-0.038
	(0.023)	(0.023)	(0.034)	(0.023)	(0.019)	(0.028)
Lagged change in Jobcentre Plus coverage				-0.030	-0.065**	
				(0.034)	(0.022)	
Second lagged change in Jobcentre Plus coverage				-0.062**		
				(0.030)		
Change in in-flow rate cross-sectional mean	0.972***	0.969***	0.950***	0.978***	0.972***	0.950***
	(0.035)	(0.036)	(0.047)	(0.038)	(0.040)	(0.038)
Error correction term	-0.675***	-0.626***	-0.840***	-0.452***	-0.552***	-0.700***
	(0.042)	(0.043)	(0.040)	(0.047)	(0.057)	(0.050)
Long-run elasticities						
Jobcentre Plus coverage	-0.054***	0.038***	0.007	0.061***	0.046***	0.007
	(0.010)	(0.011)	(0.011)	(0.012)	(0.009)	(0.012)
Ratio of vacancies to unemployment	-0.193***	-0.127***	-0.203***	-0.256***	-0.216***	-0.241***
	(0.022)	(0.022)	(0.028)	(0.025)	(0.019)	(0.021)
A8 migration	0.006**	0.002	0.002	0.001	0.002	0.004
	(0.003)	(0.002)	(0.003)	(0.001)	(0.001)	(0.007)
In-flow rate cross-sectional mean	0.972***	1.009***	1.004***	1.126***	1.087***	1.075***
	(0.035)	(0.032)	(0.036)	(0.045)	(0.026)	(0.024)
Observations	1,728	1,728	1,728	1,680	1,680	1,728
R-squared	0.970	0.910	0.792	0.967	0.946	0.923
F-test for serial correlation	0.660	1.77	0.99	2.15	1.12	2.14
	(0.410)	(0.184)	(0.310)	(0.143)	(0.291)	(0.143)
Hausman test for heterogeneity	1.49	2.59	1.26	1.69	5.20	12.72
	(0.685)	(0.459)	(0.730)	(0.638)	(0.157)	(0.005)

Notes:
- Jobseekers.
- In-flow to benefit defined as JSA claim started within the last quarter (normalised by the area's population of each gender/age group (source: NOMIS claim count and Office for National Statistics (ONS) mid-year population estimates)).
- Statistical significance indicated as *10%, **5%, ***1%.
- Coefficient standard errors in brackets.
- P-values for diagnostic tests in brackets (small p-values suggest model misspecification).
- Models estimated across 48 JCDs.
- Sample period 1999Q3-2008Q4 (some initial observations lost due to lagged variables).
- Pooled mean group estimation (Pesaran, Shin and Smith, 1999).
- Long-run elasticities pooled, except wrt A8 migration.
- Mean group estimates shown for other terms.
- Models include fixed effects for JCDs, seasonal dummies, dummies for breaks in the vacancy series, and dynamic terms in the ratio of vacancies to unemployment, the dependent variable and cross-sectional mean of the dependent variable.
- Coefficients on the dynamic and error-correction terms, seasonals, vacancy shift dummies and A8 migration dummy allowed to vary across JCDs.

Table A.7 Jobcentre Plus and entry rates to disability benefit

Dependent variable:	In-flow rate to benefit			
Gender	Female		Male	
Age	18-49	50+	18-49	50+
Change in Jobcentre Plus coverage	-0.110**	-0.023	-0.069*	0.002
	(0.047)	(0.038)	(0.041)	(0.018)
Lagged change in Jobcentre Plus coverage	0.045		0.037	
	(0.065)		(0.048)	
Second lagged change in Jobcentre Plus coverage	0.110*		-0.065	
	(0.062)		(0.045)	
Change in in-flow rate cross-sectional mean	0.965***	1.020***	1.034***	0.991***
	(0.044)	(0.038)	(0.029)	(0.031)
Error correction term	-1.072***	-1.022***	-0.876***	-0.957***
	(0.064)	(0.044)	(0.066)	(0.057)
Long run elasticities				
Jobcentre Plus coverage	0.004	0.009	-0.002	-0.016
	(0.016)	(0.010)	(0.016)	(0.011)
Ratio of vacancies to unemployment	-0.001	0.004	-0.061***	-0.072***
	(0.020)	(0.018)	(0.022)	(0.015)
A8 migration	0.001	-0.003**	0.014	0.004
	(0.009)	(0.001)	(0.010)	(0.003)
In-flow rate cross-sectional mean	1.026***	1.012***	1.105***	1.027***
	(0.037)	(0.038)	(0.029)	(0.034)
Observations	1,680	1,728	1,680	1,680
R-squared	0.880	0.759	0.920	0.848
F-test for serial correlation	1.49	3.00	0.36	0.93
	(0.222)	(0.083)	(0.546)	(0.333)
Hausman test for heterogeneity	0.94	1.21	3.61	7.63
	(0.919)	(0.877)	(0.460)	(0.106)

Notes:
- Disabled client group.
- In-flow to benefit defined as IB/IS/SDA claim started within the last quarter (normalised by the area's population of each gender/age group (source: NOMIS claim count and ONS mid-year population estimates)).
- Statistical significance indicated as *10%, **5%, ***1%.
- Coefficient standard errors in brackets.
- P-values for diagnostic tests in brackets (small p-values suggest model misspecification).
- Models estimated across 48 JCDs.
- Sample period 1999Q3-2008Q4 (some initial observations lost due to lagged variables).
- Pooled mean group estimation (Pesaran, Shin and Smith, 1999).
- Long-run elasticities pooled, except wrt A8 migration.
- Mean group estimates shown for other terms.
- Models include fixed effects for JCDs, seasonal dummies, dummies for breaks in the vacancy series, and dynamic terms in the ratio of vacancies to unemployment, the dependent variable and cross-sectional mean of the dependent variable.
- Coefficients on the dynamic and error-correction terms, seasonals, vacancy shift dummies and A8 migration dummy allowed to vary across JCDs.

Table A.8 Jobcentre Plus and entry rates to IS for lone parents

Dependent variable:	In-flow rate into benefit	
Age	**18-24**	**25-49**
Change in Jobcentre Plus coverage	0.019	-0.043
	(0.039)	(0.027)
Change in in-flow rate cross-sectional mean	0.994***	1.012***
	(0.036)	(0.027)
Error correction term	-1.030***	-0.933***
	(0.043)	(0.038)
Long run elasticities		
Jobcentre Plus coverage	-0.012	-0.006
	(0.010)	(0.007)
Ratio of vacancies to unemployment	0.003	-0.070***
	(0.019)	(0.014)
Ethnic minority share	0.109	0.154
	(0.192)	(0.108)
A8 migration	-0.005	0.002
	(0.005)	(0.003)
In-flow rate cross-sectional mean	0.953***	0.962***
	(0.040)	(0.024)
Observations	1,728	1,728
R-squared	0.830	0.920
F-test for serial correlation	0.160	2.55
	(0.690)	(0.110)
Hausman test for heterogeneity	2.15	2.57
	(0.707)	(0.632)

Notes:
- Female lone parents claiming IS.
- In-flow from benefit defined as IS claim started within the last quarter (normalised by the area's population of each gender/age group (source: NOMIS claim count and ONS mid-year population estimates).
- Statistical significance indicated as *10%, **5%, ***1%.
- Coefficient standard errors in brackets.
- P-values for diagnostic tests in brackets (small p-values suggest model misspecification).
- Models estimated across 48 JCDs.
- Sample period 1999Q3-2008Q4 (some initial observations lost due to lagged variables).
- Pooled mean group estimation (Pesaran, Shin and Smith, 1999).
- Long-run elasticities pooled, except wrt A8 migration.
- Mean group estimates shown for other terms.
- Models include fixed effects for JCDs, seasonal dummies, dummies for breaks in the vacancy series, and dynamic terms in the ratio of vacancies to unemployment, the dependent variable and cross-sectional mean of the dependent variable.
- Coefficients on the dynamic and error-correction terms, seasonals, vacancy shift dummies and A8 migration dummy allowed to vary across JCDs.

Appendix B Econometric evaluation of the Jobcentre Plus effect using individual claims data

B.1 Data

All of the analysis presented in this appendix focuses on the impact of Jobcentre Plus in those offices which rolled it out between 28 October 2002 and 31 March 2003 (known as the Day Two areas), but did not roll-out Pathways-to-Work until April 2006 or later. The need to observe outcomes over successive months following the start of the claim meant that it was only possible to estimate the impact of Jobcentre Plus for areas which rolled it out at an early stage. As the comparison areas could only be selected from those that did not introduce Jobcentre Plus during the 15-month period over which outcomes were considered, there was a limited choice of potential comparators for the later roll-out areas.

High-performing offices were chosen to participate in the Pathfinder stage of Jobcentre Plus roll-out, but after this point the order in which offices introduced Jobcentre Plus was reported to be random, so the estimated impact of Jobcentre Plus in the Day Two areas was likely to be representative of the impact across the remaining areas (but, of course, excluding those that were thought to be high-performing). It was necessary to exclude areas which rolled out Pathways-to-Work from both the Day Two areas considered and their comparators, to avoid any impact from Pathways being wrongly attributed to Jobcentre Plus roll-out.

The impact of Jobcentre Plus was established by comparing benefit claims during a period prior to roll-out against claims after roll-out. This difference in outcomes between the two periods was assessed for a set of comparison areas as well as the Day Two areas, to explore whether any change over time was due to the introduction of Jobcentre Plus, or due to changes that would have occurred anyway. The methods of analysis are explained in detail in Section B.2.

Individuals starting a claim between six and nine months after the roll-out of Jobcentre Plus in each of the Day Two areas (and a set of comparison areas which did not roll-out Jobcentre Plus until later) were tracked for 15 months to see whether they were claiming Jobseeker's Allowance (JSA), incapacity benefits or Income Support (IS) at monthly intervals[71]. The first claim for the benefit of interest by an individual within each date range is referred to as the qualifying claim, as it qualifies them for inclusion in the analysis. In addition to this post-intervention cohort, outcomes were observed for a cohort of individuals starting a claim for any of these benefits 15 to 18 months before the roll-out of Jobcentre Plus in the Day Two areas (known as the pre-intervention cohort).

The comparison areas were chosen from those which did not roll-out Jobcentre Plus until after 1 January 2006, to ensure that they did not introduce Jobcentre Plus during the period over which outcomes were observed. Also, pre-programme tests (described later) were used to exclude offices where there were differences in outcomes compared to the Day Two offices prior to roll-out which were statistically significant at the ten per cent level or greater.

[71] The precise dates used to select the cohorts varied from area to area, depending on when the roll-out of Jobcentre Plus occurred.

B.2 Methods

B.2.1 Introduction

The overall impact of the roll-out of Jobcentre Plus can be thought of as the difference between what happened to individuals claiming benefits in Jobcentre Plus offices after its introduction (the 'actual' outcome) and what could have been expected to happen had Jobcentre Plus not been rolled out (the 'counterfactual'). As the counterfactual cannot be observed, it is necessary to estimate it.

The first possible approach is to use observed outcomes for customers outside of the areas where Jobcentre Plus had been rolled out by a particular date to estimate the counterfactual. However, the danger is that there are systematic differences between individuals in the Jobcentre Plus areas and those in areas which rolled it out later which affect the outcomes that either group would be expected to achieve without the introduction of Jobcentre Plus. An alternative approach would be to base the estimate of the counterfactual on observed outcomes for individuals in the Jobcentre Plus areas at a point in time before Jobcentre Plus was rolled out. However, this approach suffers from the problem that outcomes in the Jobcentre Plus areas may have changed over time, even if Jobcentre Plus had not been introduced. Using the pre-intervention outcome as the estimate of the counterfactual would then result in these changes over time being wrongly attributed to Jobcentre Plus.

A difference-in-differences (DiD) methodology combines these two approaches and thus avoids the problems which arise from using only one of them. The following sections explain how the DiD methodology works and the assumptions which must be satisfied for it to provide a correct estimate of the impact of Jobcentre Plus. The validity of these assumptions are explored using historical data, and alternative methods of estimating impacts are considered.

B.2.2 The difference-in-differences methodology

The DiD methodology compares the change in the outcome of interest for individuals in areas where Jobcentre Plus had been rolled out, before and after the introduction of Jobcentre Plus, with the change for individuals in a set of comparison areas. The difference between these two before and after differences provides an estimate of the impact of Jobcentre Plus.

Table B.1 illustrates how the DiD estimator works using the observed percentages of JSA customers claiming out-of-work benefits in the Day Two areas and in the associated comparison areas. Such percentages are reported for the two groups of areas both before and after the introduction of Jobcentre Plus. The 'before' column indicates that, before Jobcentre Plus was introduced, 61 per cent of individuals in the Day Two areas were claiming out-of-work benefits three months after the start of their claim for JSA. After Jobcentre Plus was rolled-out this proportion remained at 61 per cent in the Day Two areas (the 'actual' outcome). Therefore, there was no change in claims for out-of-work benefits by JSA customers in the Day Two areas after the intervention.

Within the comparison areas, there was an increase of one percentage point in the proportion of JSA customers claiming out-of-work benefits between these two points in time. In the absence of Jobcentre Plus, it is assumed that there would have been the same change in the Day Two areas. Under this 'common trends' assumption and assuming that the composition of the treatment and comparison groups remains unchanged, the DiD methodology can provide an unbiased estimate of the impact of Jobcentre Plus.

Having made these assumptions, the counterfactual is simply the observed proportion of JSA customers in the Day Two areas on out-of-work benefits before the roll-out of Jobcentre Plus (61 per cent) plus the change in the proportion of claims in the comparison areas after the intervention (+one per cent). This produces an estimated counterfactual of 62 per cent, meaning that had

Jobcentre Plus not been introduced in the Day Two areas, 62 per cent of JSA customers would have been expected to be found claiming out-of-work benefits three months after the start of their claim in the post-intervention period. The estimated impact of Jobcentre Plus is then the difference between the actual outcome (i.e. that 61 per cent of JSA customers were claiming out-of-work benefits three months after the start of their claim after the introduction of Jobcentre Plus) and the estimated counterfactual (62 per cent). Therefore, in the example shown in Table B.1, Jobcentre Plus produced a reduction of one percentage point in claims for out-of-work benefits by JSA customers.

Table B.1 An illustration of the DiD estimator

	(B) Percentage on JSA 3 months after start of pre-intervention claim	(A) Percentage on JSA 3 months after start of post-intervention claim	Percentage point difference (A-B)
Jobcentre Plus areas	0.61	0.61	0
Comparison areas	0.60	0.61	1
DiD estimate			-1

Notes: Table reports the actual proportion of customers still on JSA three months after the start of their claim within the Day Two areas. This example does not control for differences in customer characteristics.

In practice, this double differencing is performed within a regression framework to control for the effect on outcomes of the following observed characteristics of customers:

- gender (except for IS for lone parents (ISLP) customers, where the analysis was restricted to women only, given the small numbers of men in this group);
- age (whether aged 18-24, 25-49, or 50 or more at the time of the qualifying claim);
- ethnicity (whether the customer was white or non-white);
- whether they claimed an out-of-work benefit in each of the four quarters before the start of the qualifying claim;
- for those claiming incapacity benefits – whether the individual's main health condition was a mental or behavioural disorder, or a physical health problem.

This means that the DiD estimator indicates the impact of the introduction of Jobcentre Plus on the likelihood of being on benefits over a period of 15 months following the start of the claim under consideration, having taken out differences due to observed individual characteristics. The DiD methodology also makes it possible to control for the effect of unobserved characteristics, so long as these affect the Day Two and comparison areas in a similar way and do not change over time. For example, unobserved differences in the industrial structure may exist between Day Two and comparison areas, resulting in differences in employment opportunities. This may in turn lead to differences in the proportion claiming benefits between areas. However, if the industrial structure in each area affects the proportion of people claiming benefits in the same way over time, the impact estimated by the DiD approach will be unaffected by these sustained differences.

Another possibility is that a general macroeconomic shock (e.g. an economic downturn reducing the availability of jobs nationwide) may affect the proportion of customers in the Day Two and comparison areas between the two points in time. Nevertheless, as long as this effect is common across both sets of areas, the DiD estimator removes its impact.

Differencing simultaneously through time and across groups removes the estimation bias caused by the two types of unobserved characteristics described. However, the DiD methodology is not able

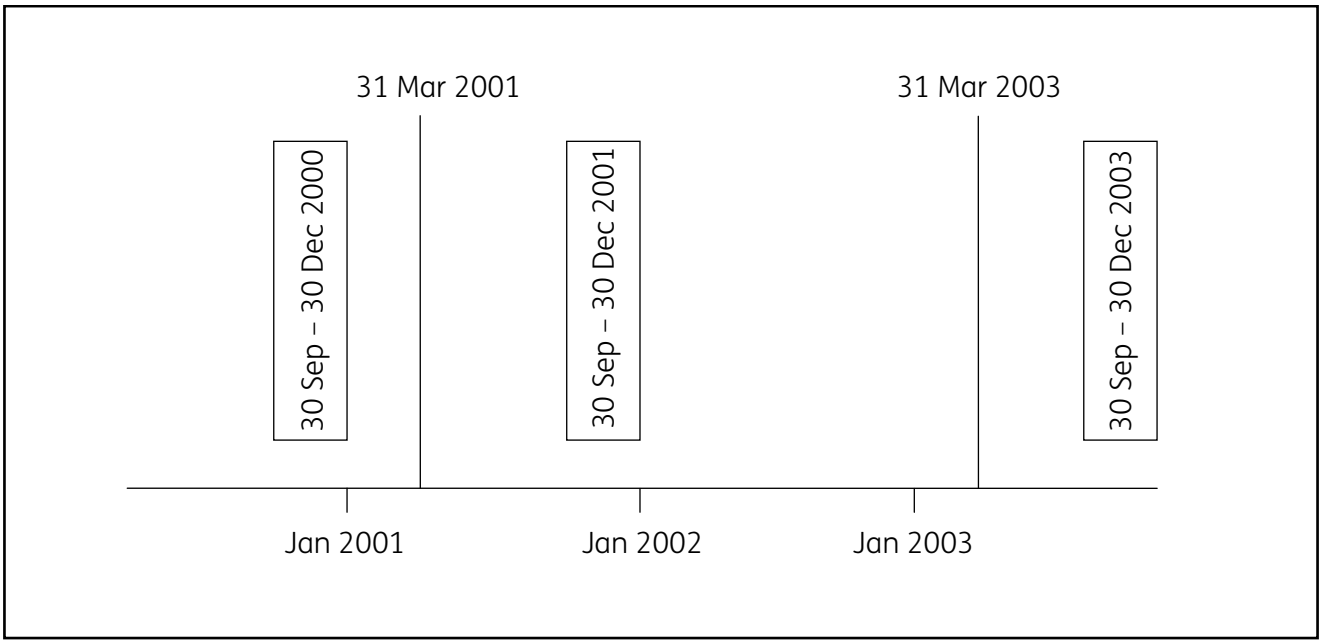
to control for those unobserved factors that affect the outcome and vary simultaneously across individuals and over time.

B.2.3 The plausibility of the assumptions underlying the DiD analysis

The assumption that the composition of the Day Two and comparison areas remains the same over time could be violated if individuals in the Day Two areas either avoided making a claim for out-of-work benefits after the introduction of Jobcentre Plus, were more likely to make a claim, or deliberately made their claim earlier or later, i.e. before or after the roll-out of Jobcentre Plus. As the cohort chosen started their claim six to nine months after the roll-out of Jobcentre Plus, it seems unlikely that the findings would be affected by customers adjusting the timing of their claim at such a late point after roll-out. It also seems unlikely that the roll-out of Jobcentre Plus would affect the composition of customers by increasing or decreasing the likelihood that those in the Day Two areas made a claim once Jobcentre Plus had been introduced.

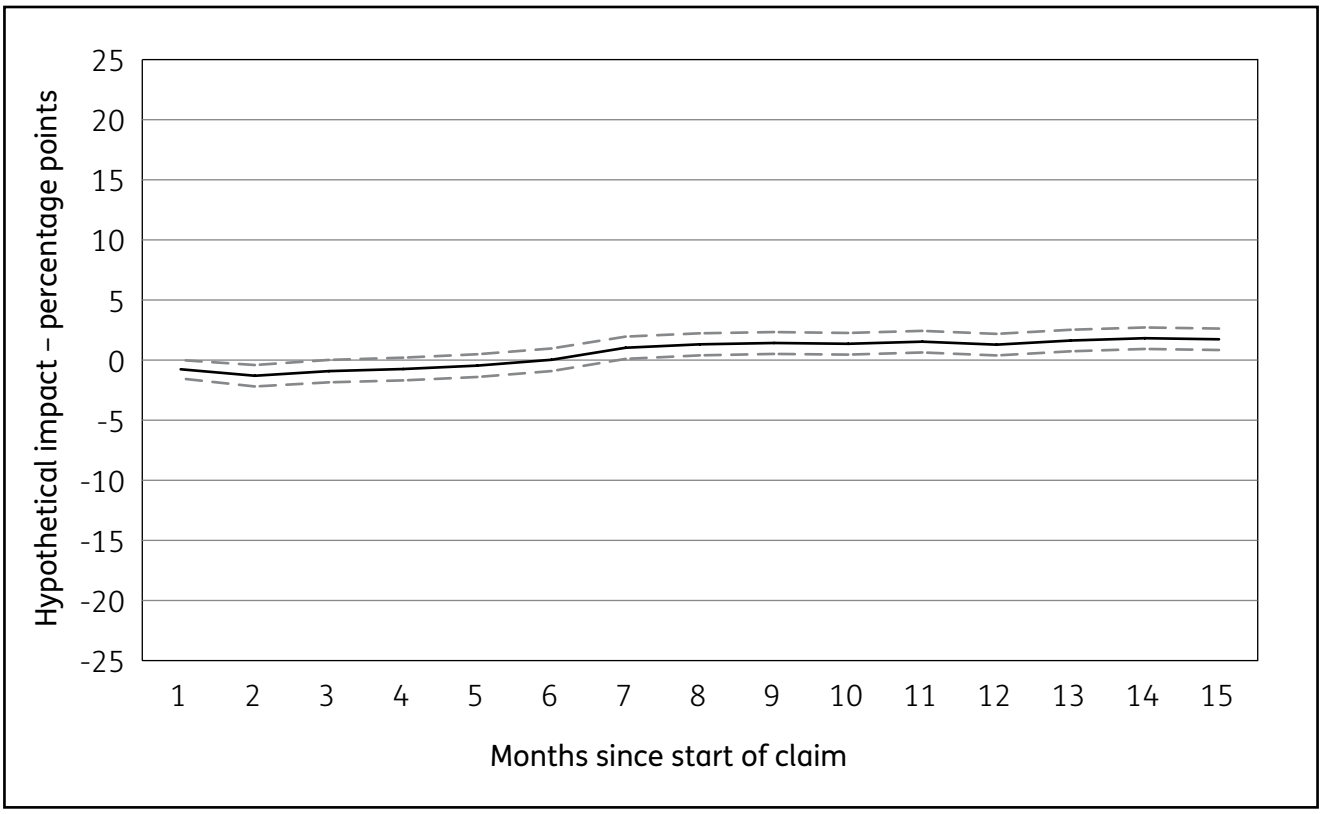
Whether the common trends assumption holds can be explored by conducting a pre-programme test (Heckman and Hotz, 1989). This involves using the DiD estimator to check whether any statistically significant differences in trends between the Day Two and comparison areas occurred between two points in time prior to the roll-out of Jobcentre Plus. If significant differences are apparent before Jobcentre Plus was rolled-out, this suggests that a difference in trends might exist after the introduction of Jobcentre Plus. In essence, the approach amounts to testing the effect of an imaginary intervention taking place some time prior to Jobcentre Plus roll-out. Should a significant effect of this imaginary intervention be found, this suggests the common trends assumption is unlikely to hold. Figure B.1 illustrates the cohorts chosen to observe the impact of Jobcentre Plus and to carry out pre-programme tests for an office rolling out Jobcentre Plus on 31 March 2003. The pre-programme cohort consists of those starting a claim one year before the pre-intervention cohort.

Figure B.1 Example of timing of the start of the claim for the pre-programme, pre-intervention and post-intervention cohorts in an office rolling out Jobcentre Plus on 31 March 2003



The pre-programme tests for JSA customers indicated statistically significant differences between the Day Two areas and their comparators in the change in the likelihood of claiming out-of-work benefits in month two and then from month seven through to the 15th month following the start of the claim (Figure B.2). The peak difference, at month 14, was 1.9 percentage points, showing that even without the introduction of Jobcentre Plus, over time, those in the Day Two areas were increasingly less likely to be found claiming benefits in the months following the start of their claim for JSA compared to those in the comparison areas.

Figure B.2 Pre-programme tests – JSA customers



For incapacity benefits customers, statistically significant differences in the likelihood of claiming incapacity benefits were observed in months two to seven, peaking at 3.3 percentage points in month four (Figure B.3). Again, this indicated that even without the introduction of Jobcentre Plus, those in the Day Two areas were increasingly less likely to be found claiming out-of-work benefits in the months following the start of their claim for incapacity benefits compared to those in the comparison areas.

In the case of ISLP customers (Figure B.4), statistical significant differences between the Day Two areas and their comparators were apparent from month ten to month 15, peaking at -5.5 percentage points in month 15. Once again, this demonstrated that, even without the introduction of Jobcentre Plus, those in the Day Two areas were increasingly less likely to be claiming out-of-work benefits relative to those in the comparison areas.

Figure B.3 Pre-programme tests – incapacity benefits customers

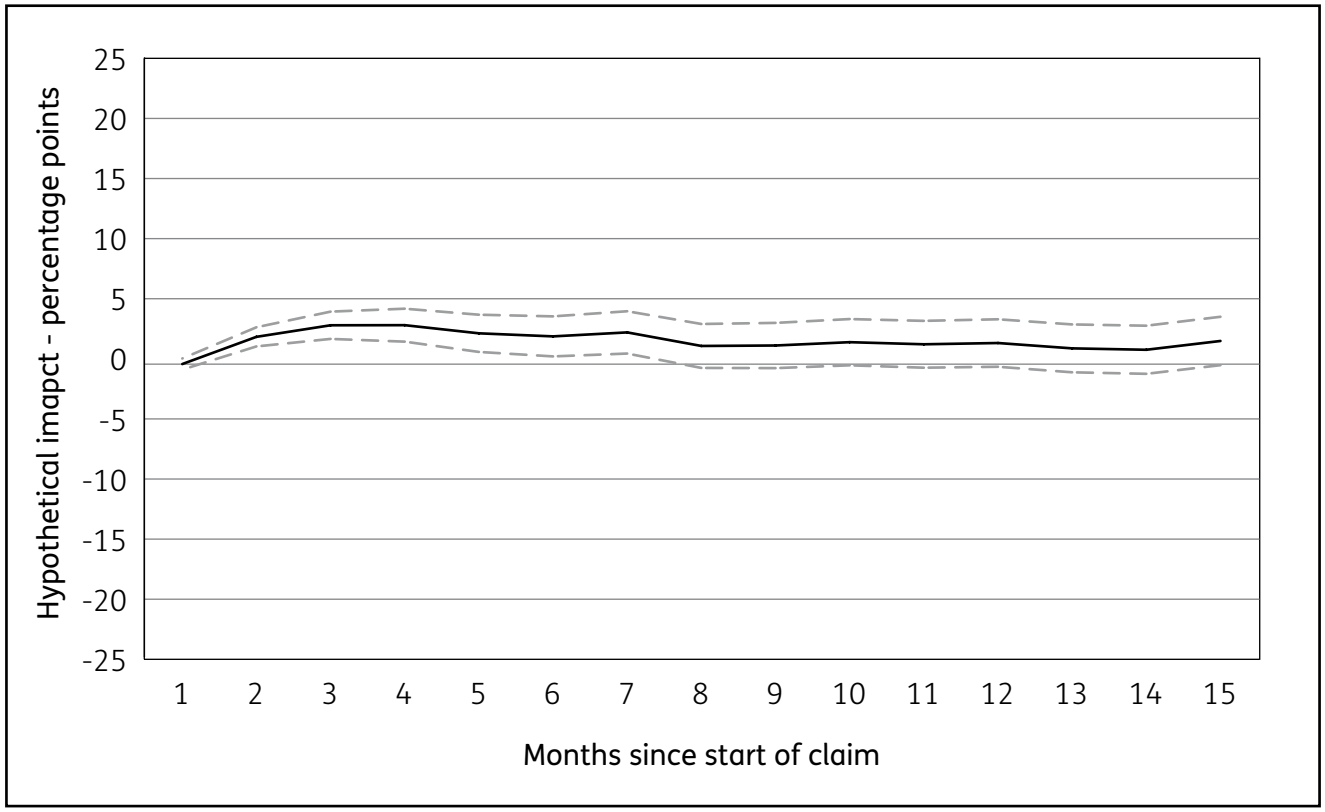
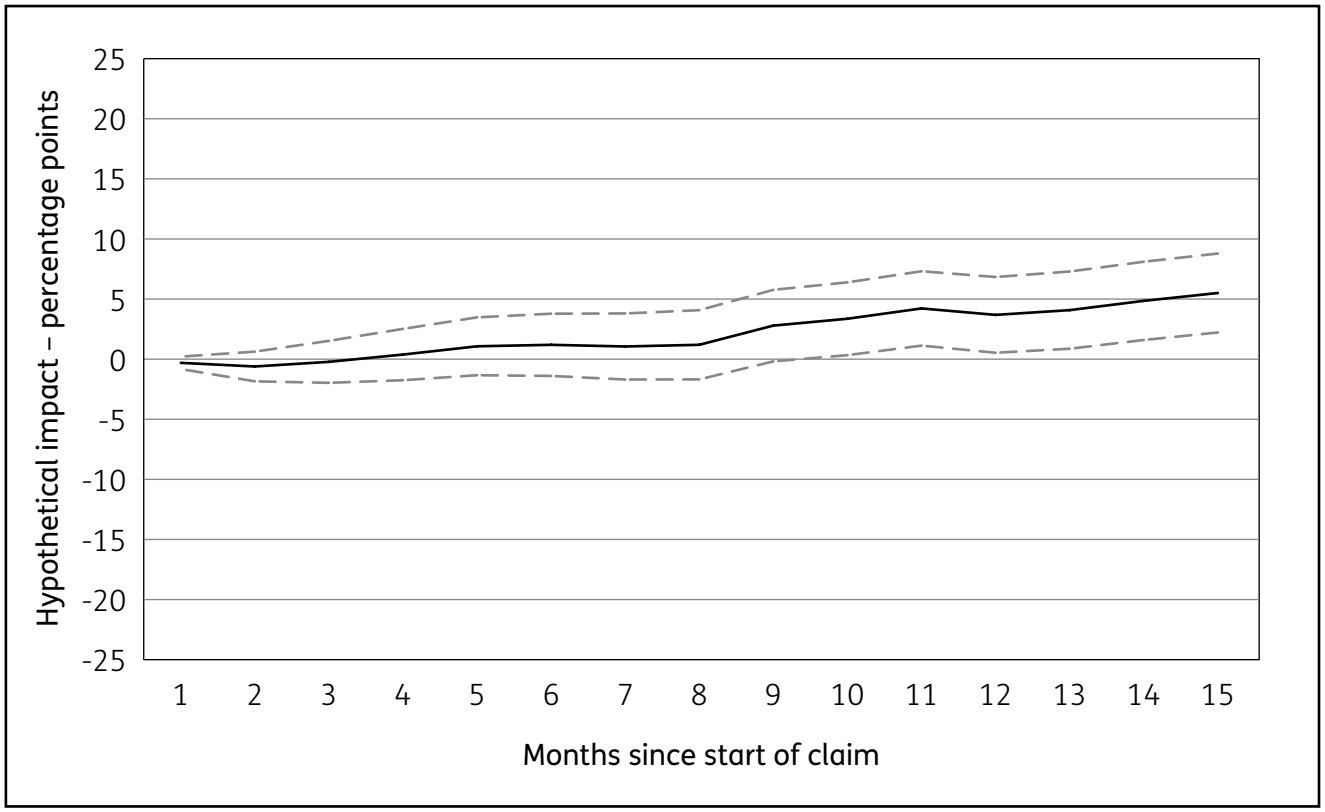


Figure B.4 Pre-programme tests – ISLP customers



Although the pre-programme differences observed for JSA, ISLP and incapacity benefits customers appeared at different times after the start of the qualifying claim, they were consistent in suggesting that there were changes over time in the proportion of customers in the Day Two areas who were found on out-of-work benefits compared to the changes which were observed for customers in the comparison areas. If the impact estimates did not take account of these pre-programme differences, this would be likely to lead to a downward bias in the estimated impact of the introduction of Jobcentre Plus, meaning that this would be underestimated. The following section describes the approaches taken to adjust the impact estimates for the pre-programme differences observed.

B.2.4 The random growth model

Various approaches to identifying the comparison group were tried to overcome the divergence in outcomes between customers in the Day Two areas and those in the comparison areas prior to the introduction of Jobcentre Plus. These included using all potential comparison areas in constructing the estimate of the counterfactual, as well as selecting subgroups from those which were the best match for individual Day Two areas on the basis of pre-programme tests. However, as these alternative approaches were unsuccessful, it was decided to adjust the impact estimates for the observed pre-programme differences, using a random growth model. This allows for the Day Two areas following a different trend in the absence of the treatment compared to the comparison areas. The random growth model is specified as follows:

$$Y_i = \beta_o + \beta_t(D_{t'}+2D_t)+ \beta_D D_i+\beta_1(D_{t'}D_i + 2D_tD_i) + \beta_2 D_tD_i + \varepsilon_i,$$

where:

Y_i = outcome for individual i

D_i = 1 for treatment group members and $D_i = 0$ for comparison group members

D_s = 1 for observations in period s and $D_s = 0$ for observations not in period s.

and there are three periods, so that $s \in \{t,t',t''\}$, where $t'' < t' < t$ and where the treatment starts in period k, with $t' < k < t$. The coefficient of interest is β_2, which gives the difference between the two underlying difference-in-differences estimates (Dorsett 2005: 19). The random growth model assumes that the differences in trend outcomes between the Day Two areas and their comparators observed over the pre-programme period (captured by the coefficient β_1) would, in the absence of Jobcentre Plus, also have been observed for this later period, making it possible to adjust the DiD estimates for this apparent bias. The coefficient β_t measures the common time trend between the Day Two areas and their comparators.

For completeness, a further model was estimated which relaxed the assumption of a constant common time trend between the Day Two areas and their comparators. The random growth model assuming non-constant common time trends is specified as follows:

$$Y_i = \beta_o + \beta_D D_i + \beta_{t'}(D_{t'}+ D_t) + \beta_t D_t + \beta_1(D_{t'}D_i + 2D_tD_i) + \beta_2 D_tD_i + \varepsilon_i$$

where:

$\beta_{t'}$ = common time trend between period t'' and t'

β_t = common time trend between period t' and t

β_1 = differential time trend for individuals in Day Two areas in the absence of Jobcentre Plus

β_2 = impact of Jobcentre Plus (the difference between the two DiD estimates).

Using this model, it is possible to test whether the assumption that the time trends that are common to individuals in the Day Two areas and their comparators are constant over time and therefore whether the estimates obtained from the random growth model assuming constant common time trends are likely to be reliable. This is done by testing whether the difference between $\beta_{t'}$ and β_t is statistically significant. If both the pre-programme tests indicate that a DiD estimate is likely to be biased and the test of the random growth model with constant common time trends suggest that this may also be flawed, the random growth model which relaxes the assumption of constant common time trends provides an alternative estimate of the impact of Jobcentre Plus.

Both random growth models discussed here correct the DiD estimates for any pre-programme divergence in trends between the Day Two and comparison areas by assuming that in the absence of Jobcentre Plus this divergence would have continued in much the same way. One way of testing the plausibility of this assumption is to test whether, before Jobcentre Plus, the divergence in trends between the Day Two and comparison groups was stable over time. However, without a longer run of data prior to Jobcentre Plus roll-out, it was not possible to carry out any further tests of the likely validity of this model. Both of the random growth models estimated were adapted to adjust for the unequal spacing of the time periods considered in this application (as shown in Figure B.1).

Finally, it was decided to also produce impact estimates by using propensity score matching (PSM) to identify a comparison group which was well-matched on the observable characteristics thought likely to be related to outcomes. This was combined with DiD analysis to seek to corroborate the results from the other methods of analysis. The combined PSM-DiD approach is described in further detail in the following section.

B.2.5 PSM-DiD

This involved matching individuals within the Day Two areas to individuals in areas which rolled-out Jobcentre Plus later who had a similar propensity to obtain a given outcome, taking into account their age, ethnicity and benefit history over the year prior to the start of the qualifying claim. Customers whose qualifying claim was for JSA or incapacity benefits were also matched on gender, whilst those claiming incapacity benefits were additionally matched based on whether their main health problem was mental or physical.

For PSM to be credible, it is necessary to be able to match individuals on all observable and unobservable characteristics which affect outcomes. If this is not the case, there is a risk that any observed impact that is attributed to the roll-out of Jobcentre Plus is actually due to differences between those in the Day Two areas and those in the comparison areas in their likelihood of leaving benefits. Given the limited amount of information on the characteristics of customers available on the National Benefits Database, this is a concern in relation to the results presented here. Combining PSM with DiD we are able to remove the bias that arises from unobservable characteristics that remain constant over time.

When combining PSM with DiD, it is necessary to match those in the Day Two areas post-intervention with those in the three comparison groups, i.e. those in the Day Two areas prior to the roll-out of Jobcentre Plus and those in the comparison areas both before and after Jobcentre Plus was introduced in the Day Two areas. It is relatively data-intensive to find good matches for the treatment group within each of the comparison groups and so it was not feasible to repeat this process for the pre-intervention period in order to carry out pre-programme tests. However, since the use of PSM should improve the quality of the match between those in the Day Two areas and their comparators, the expectation was that this would minimise differences between the groups and reduce the likelihood that the impact estimates produced by a DiD analysis would be biased.

Having estimated the propensity score of individuals within each of the groups and used this to match those in the Day Two areas with suitable comparators, individuals are given a weight which is applied in the DiD analysis. It is not always possible to find suitable matches for every individual and so those outside what is known as the region of common support are dropped from the analysis. If a high proportion of individuals were found to be outside the region of common support, this would suggest that the results were only representative of impacts for a subset of individuals.

A number of different types of matching (kernel, radius and local linear regression) were tried to assess whether the results were sensitive to the choice of method. The success of the matching process did vary and the results presented here use local linear regression matching as fewer statistically significant differences between individuals in the Day Two areas and their comparators remained after matching using this method compared to kernel or radius matching. Nonetheless, the impact estimates produced after each type of matching were similar.

Table B.2 considers the success of the matching process for JSA customers (using local linear regression matching). It indicates the proportion of the control group with each of the characteristics listed before and after matching and the proportion of the treatment group with these same characteristics after matching. It also shows how the bias (or standardised difference) between individuals in the Day Two areas and their comparators changes after matching. This is the mean difference in each of the observable characteristics as a percentage of the average deviation between the groups:

$$Bias = 100 \text{ x } \frac{(\bar{x}_v^{jcp} - \bar{x}_v^{comp})}{\sqrt{\frac{\sigma_v^{jcp} - \sigma_v^{comp}}{2}}}$$

where $\bar{x}_v^{jcp}$ and $\bar{x}_v^{comp}$ are the sample means of each covariate v for individuals in the Day Two areas and their matched comparators and σ_v^{jcp} and σ_v^{comp} denote the sample variance for each group.

The final two columns indicate whether the difference between the proportion of those in the Day Two areas and their comparators was statistically significant after matching, with a p-value of 0.05 or less indicating characteristics which were not balanced between the two groups after matching.

Table B.2 demonstrates that matching worked well in balancing the characteristics of those in the comparison and Day Two areas before the roll-out of Jobcentre Plus against those in the Day Two areas after Jobcentre Plus was introduced. However, statistically significant differences remained between individuals in the comparison areas after Jobcentre Plus was rolled-out in the Day Two areas and individuals in the Day Two areas at this point. Although this was the case, it is important to note that given the large number of JSA customers in the sample, in some instances, fairly small differences between the Day Two and comparison areas after matching were statistically significant, partly because small differences are more likely to be found statistically significant with a larger sample. In terms of the likely generalisability of the results to all JSA customers in the Day Two areas, less than two per cent of individuals were outside the region of common support, suggesting that the results were not specific to a limited subset of individuals.

For incapacity benefits customers, the matching process worked well for all but those in the comparison areas before the roll-out of Jobcentre Plus in the Day Two areas (Table B.3). Again, only a small proportion of individuals were outside the region of common support, indicating that the results were representative of most incapacity benefits customers in the Day Two areas.

Table B.4 shows the quality of the match between individuals in the Day Two areas and their comparators for ISLP customers. The proportion of individuals outside of the region of common support was slightly higher than for JSA and incapacity benefits customers, but there were few statistically significant differences between individuals in the Day Two areas after the roll-out of Jobcentre Plus and those in each of the comparison groups after matching.

Table B.2 Quality of matched samples – JSA

	Unmatched control	Matched treated	Control	% bias	t-test	p-value
	Treated post-intervention matched to control pre-intervention					
Matching variables						
Female	0.288	0.267	0.275	-1.658	-2.11	0.035
Aged 18-24	0.345	0.346	0.344	0.457	0.58	0.564
Aged 50 or more	0.136	0.145	0.147	-0.687	-0.85	0.393
Non-white	0.119	0.121	0.119	0.415	0.52	0.601
Ethnicity missing	0.101	0.113	0.118	-1.815	-2.21	0.027
On benefits –1 quarter	0.347	0.338	0.339	-0.340	-0.43	0.667
On benefits –2 quarters	0.413	0.404	0.405	-0.210	-0.27	0.790
On benefits –3 quarters	0.409	0.399	0.400	-0.266	-0.34	0.736
On benefits – 4 quarters	0.387	0.381	0.382	-0.122	-0.15	0.878
Observations	79,329					
% off support	1.81					
	Treated post-intervention matched to treated pre-intervention					
Matching variables						
Female	0.271	0.267	0.268	-0.107	-0.14	0.893
Aged 18-24	0.335	0.346	0.344	0.582	0.73	0.463
Aged 50 or more	0.145	0.145	0.143	0.430	0.54	0.586
Non-white	0.109	0.121	0.124	-1.102	-1.35	0.176
Ethnicity missing	0.114	0.113	0.112	0.122	0.15	0.877
On benefits –1 quarter	0.325	0.338	0.335	0.583	0.73	0.463
On benefits –2 quarters	0.392	0.404	0.401	0.569	0.72	0.474
On benefits –3 quarters	0.387	0.399	0.396	0.512	0.64	0.519
On benefits – 4 quarters	0.371	0.381	0.379	0.367	0.46	0.644
Observations	66,728					
% off support	1.79					
	Treated post-intervention matched to comparison post-intervention					
Matching variables						
Female	0.308	0.267	0.310	-9.538	-12.06	0.000
Aged 18-24	0.366	0.346	0.357	-2.204	-2.79	0.005
Aged 50 or more	0.132	0.145	0.143	0.504	0.63	0.531
Non-white	0.136	0.121	0.129	-2.395	-3.06	0.002
Ethnicity missing	0.077	0.113	0.140	-9.304	-10.36	0.000
On benefits –1 quarter	0.353	0.338	0.347	-1.898	-2.40	0.016
On benefits –2 quarters	0.406	0.404	0.405	-0.179	-0.23	0.821
On benefits –3 quarters	0.391	0.399	0.394	1.011	1.28	0.202
On benefits – 4 quarters	0.367	0.381	0.372	1.792	2.26	0.024
Observations	78,514					
% off support	1.78					

Table B.3 Quality of matched samples – incapacity benefits

	Unmatched control	Matched treated	Control	% bias	t-test	p-value
	Treated post-intervention matched to control pre-intervention					
Matching variables						
Mental health problem	0.392	0.367	0.357	2.129	1.35	0.177
Female	0.389	0.389	0.391	-0.343	-0.22	0.830
Aged 18-24	0.173	0.179	0.180	-0.086	-0.05	0.957
Aged 50 or more	0.249	0.263	0.270	-1.569	-0.97	0.331
Non-white	0.074	0.082	0.081	0.202	0.12	0.901
Ethnicity missing	0.226	0.182	0.203	-5.128	-3.29	0.001
On benefits –1 quarter	0.439	0.427	0.411	3.302	2.08	0.037
On benefits –2 quarters	0.433	0.408	0.383	5.004	3.17	0.002
On benefits –3 quarters	0.422	0.396	0.370	5.356	3.40	0.001
On benefits – 4 quarters	0.407	0.381	0.357	4.901	3.11	0.002
Observations	18,708					
% off support	1.32					
	Treated post-intervention matched to treated pre-intervention					
Matching variables						
Mental health problem	0.349	0.367	0.370	-0.516	-0.32	0.747
Female	0.362	0.389	0.397	-1.571	-0.98	0.328
Aged 18-24	0.187	0.179	0.180	-0.028	-0.02	0.986
Aged 50 or more	0.258	0.263	0.260	0.715	0.45	0.654
Non-white	0.071	0.082	0.082	-0.006	0.00	0.997
Ethnicity missing	0.215	0.182	0.197	-3.697	-2.36	0.018
On benefits –1 quarter	0.472	0.427	0.414	2.534	1.60	0.109
On benefits –2 quarters	0.441	0.408	0.398	2.033	1.29	0.199
On benefits –3 quarters	0.423	0.396	0.388	1.525	0.96	0.335
On benefits – 4 quarters	0.399	0.381	0.376	1.123	0.71	0.479
Observations	14,922					
% off support	1.62					
	Treated post-intervention matched to comparison post-intervention					
Matching variables						
Mental health problem	0.366	0.368	0.364	0.662	0.42	0.677
Female	0.420	0.389	0.383	1.328	0.84	0.400
Aged 18-24	0.148	0.179	0.202	-6.098	-3.61	0.000
Aged 50 or more	0.298	0.263	0.259	1.001	0.64	0.520
Non-white	0.078	0.082	0.077	1.737	1.09	0.274
Ethnicity missing	0.229	0.182	0.208	-6.537	-4.18	0.000
On benefits –1 quarter	0.400	0.427	0.431	-0.751	-0.47	0.639
On benefits –2 quarters	0.391	0.408	0.407	0.229	0.14	0.886
On benefits –3 quarters	0.375	0.396	0.396	-0.006	0.00	0.997
On benefits – 4 quarters	0.357	0.381	0.384	-0.557	-0.35	0.729
Observations	20,218					
% off support	0.92					

Table B.4 Quality of matched samples – ISLP

	Treated post-intervention matched to control pre-intervention					
	Unmatched control	**Matched treated**	**Control**	**% bias**	**t-test**	**p-value**
	Treated post-intervention matched to control pre-intervention					
Matching variables						
Aged 18-24	0.318	0.350	0.377	-5.570	-1.90	0.058
Aged 50 or more	0.012	0.012	0.011	0.372	0.13	0.896
Non-white	0.124	0.118	0.108	2.922	1.04	0.296
Ethnicity missing	0.126	0.101	0.116	-4.750	-1.68	0.093
On benefits –1 quarter	0.237	0.266	0.278	-2.657	-0.90	0.368
On benefits –2 quarters	0.320	0.319	0.341	-4.791	-1.65	0.099
On benefits –3 quarters	0.344	0.321	0.331	-2.192	-0.76	0.445
On benefits – 4 quarters	0.360	0.330	0.335	-0.977	-0.34	0.733
Observations	6,246					
% off support	3.46					
	Treated post-intervention matched to treated pre-intervention					
Matching variables						
Aged 18-24	0.324	0.350	0.366	-3.315	-1.14	0.256
Aged 50 or more	0.009	0.012	0.012	-0.367	-0.12	0.905
Non-white	0.093	0.118	0.121	-0.988	-0.32	0.746
Ethnicity missing	0.162	0.101	0.126	-7.456	-2.75	0.006
On benefits –1 quarter	0.202	0.266	0.300	-8.164	-2.66	0.008
On benefits –2 quarters	0.302	0.319	0.349	-6.419	-2.19	0.029
On benefits –3 quarters	0.311	0.321	0.342	-4.659	-1.60	0.111
On benefits – 4 quarters	0.338	0.330	0.339	-1.881	-0.65	0.515
Observations	4,809					
% off support	4.08					
	Treated post-intervention matched to comparison post-intervention					
Matching variables						
Aged 18-24	0.327	0.350	0.353	-0.713	-0.25	0.806
Aged 50 or more	0.011	0.012	0.011	0.219	0.08	0.939
Non-white	0.141	0.118	0.142	-7.225	-2.50	0.012
Ethnicity missing	0.083	0.101	0.119	-6.197	-1.99	0.046
On benefits –1 quarter	0.250	0.266	0.271	-1.246	-0.43	0.669
On benefits –2 quarters	0.309	0.319	0.325	-1.422	-0.49	0.624
On benefits –3 quarters	0.329	0.321	0.324	-0.776	-0.27	0.788
On benefits – 4 quarters	0.333	0.330	0.335	-0.966	-0.33	0.738
Observations	6,170					
% off support	3.29					

B.3 Results

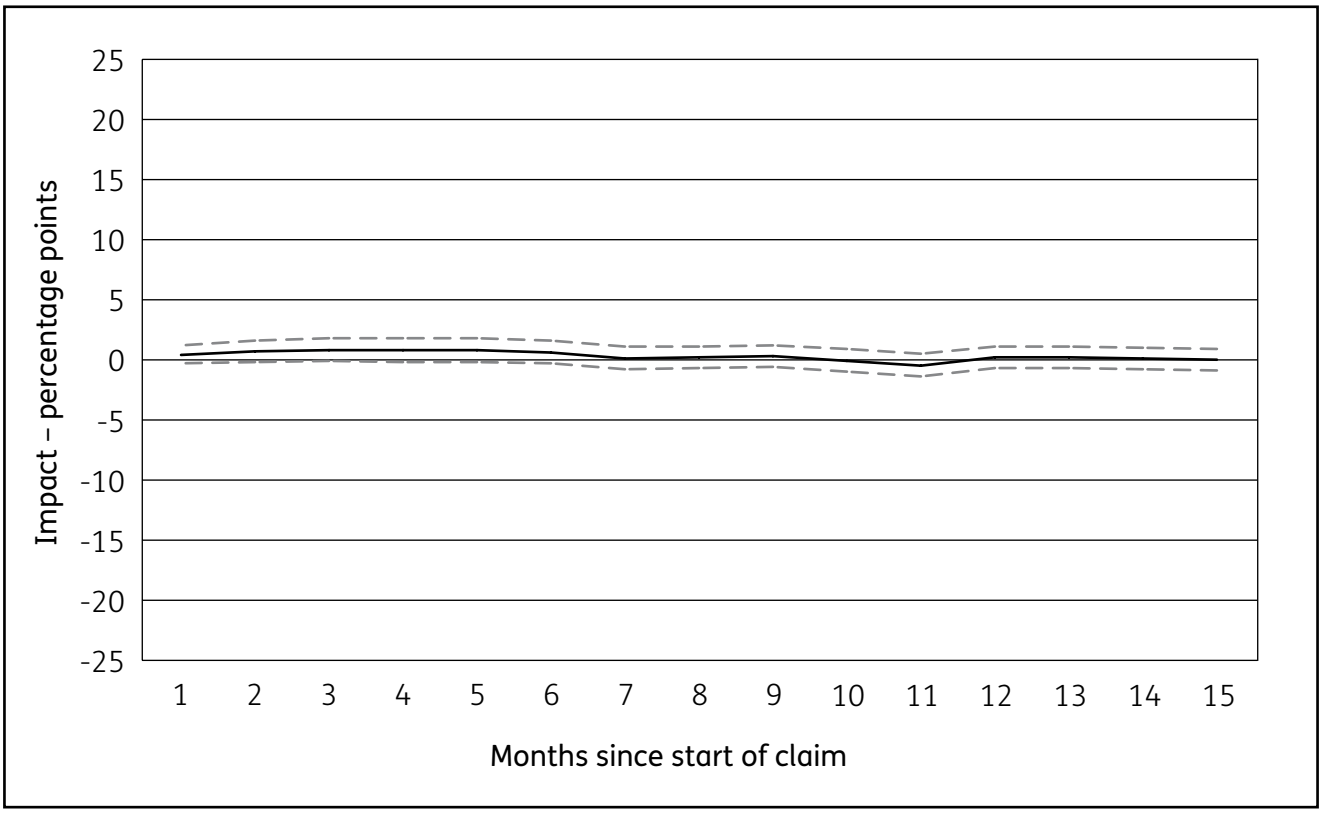
The main body of the report discussed the results of the analysis based on the version of the random growth model which assumed constant common time trends and showed the associated impact estimates. Therefore the following sub-sections focus on reporting the results obtained using the alternative methods of analysis, which were only summarised in the main body of the report. The figures include 95 per cent confidence intervals (depicted as dashed lines) and where both of the dashed lines appear on the same side of the X-axis, the estimated impact of Jobcentre Plus roll-out was statistically significant.

B.3.1 DiD analysis

JSA cohort

Figure B.5 shows that, using a DiD analysis, the roll-out of Jobcentre Plus did not appear to affect the likelihood that those starting a claim for JSA claimed any out-of-work benefits over the 15 months following their initial claim. This analysis controlled for differences in the probability of claiming benefits due to gender, age, ethnicity and the history of claiming benefits in the year before the start of the qualifying claim.

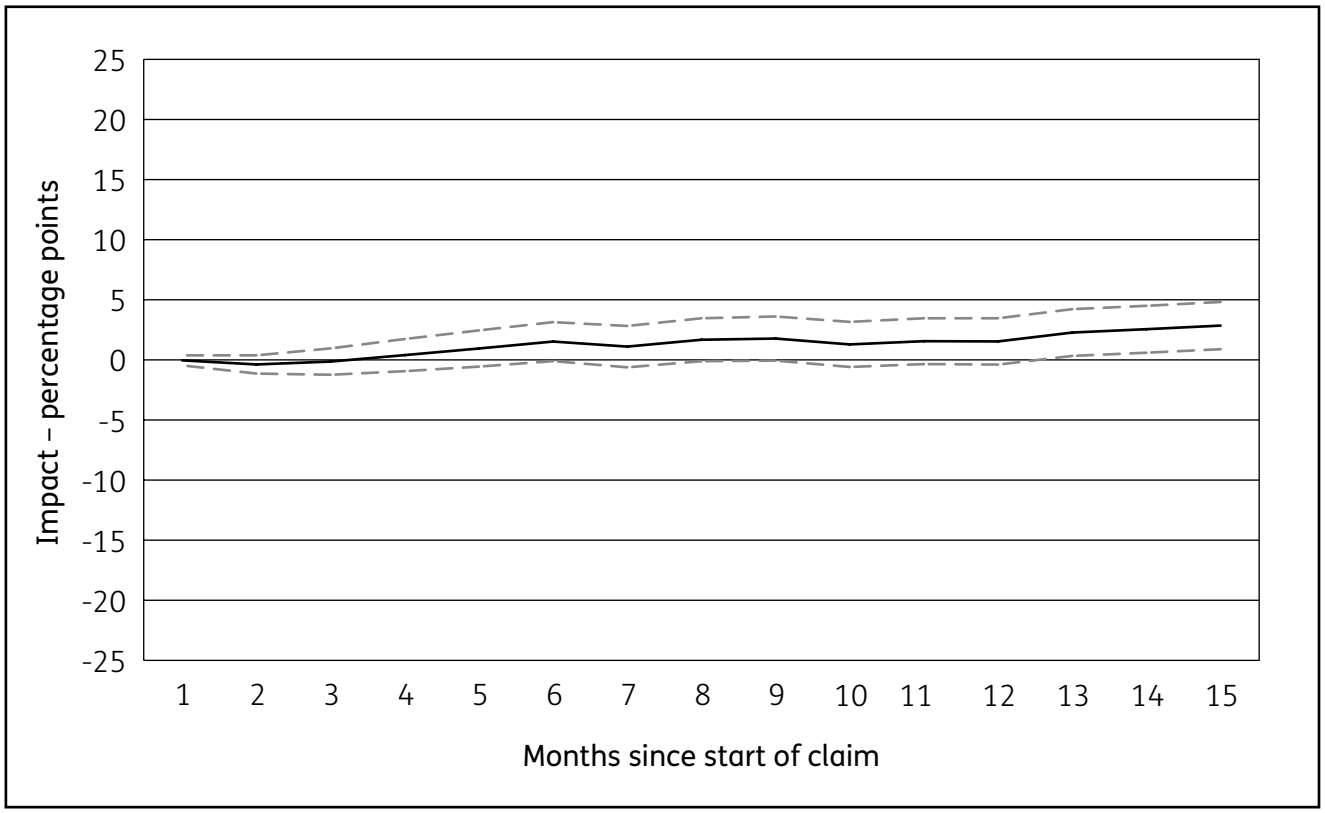
Figure B.5 Impact of Jobcentre Plus on the likelihood of not claiming benefits, by month since start of claim – JSA customers



IB cohort

The roll-out of Jobcentre Plus reduced the likelihood that individuals starting a claim for incapacity benefits claimed out-of-work benefits in the period 13 to 15 months after the start of their qualifying claim (Figure B.6). This analysis controlled for the range of characteristics listed in Section B.2.2 as well as whether the customer had a mental or physical health problem. The impact of Jobcentre Plus on incapacity benefits customers appeared to be on an upward trajectory over the final three months of the period considered, peaking at 2.8 percentage points in month 15.

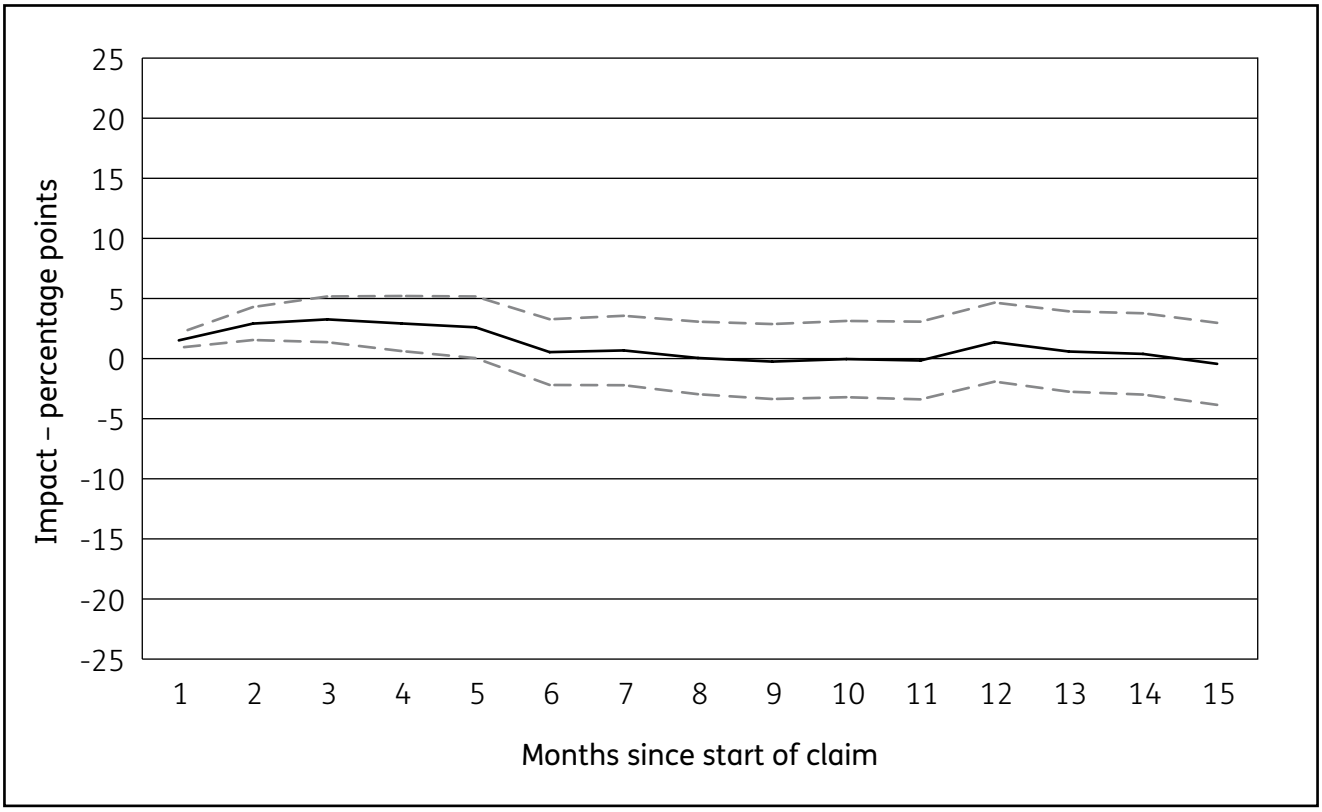
Figure B.6 Impact of Jobcentre Plus on not claiming benefits by months since start of claim – incapacity benefits customers



ISLP cohort

There was evidence that Jobcentre Plus had an impact on the likelihood that those starting a new claim for ISLP claimed out-of-work benefits in at least some of the 15 months following the start of their claim[72]. Figure B.7 shows that, according to the DiD model, ISLP customers were less likely to be found claiming out-of-work benefits in the first four months following the start of their claim after the roll-out of Jobcentre Plus, with a peak impact of 3.2 percentage points in month three. However, after month four, Jobcentre Plus appeared to have no impact on claims for out-of-work benefits by this group. This analysis controlled for differences in the probability of claiming benefits due to age, ethnicity and the history of claiming out-of-work benefits over the year prior to the start of the claim.

Figure B.7 Impact of Jobcentre Plus on not claiming benefits by months since start of claim – ISLP customers



[72] Unfortunately it was not possible to control for the age of the youngest child in the analysis of the impact of Jobcentre Plus on ISLP customers.

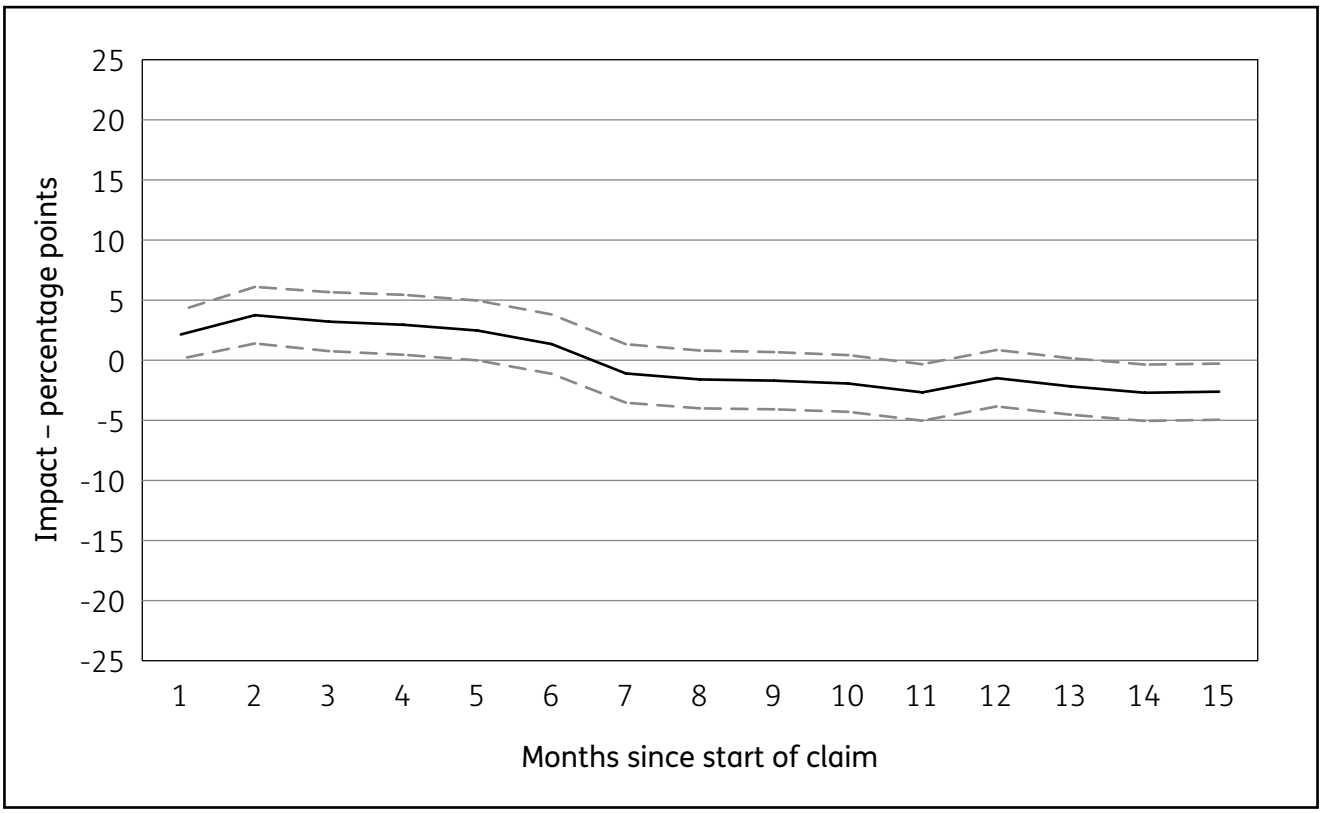
B.3.2 Random growth model assuming non-constant common growth over time

This section presents the estimated impact of Jobcentre Plus obtained using the more flexible version of the random growth model which relaxed the assumption that the common time trends between individuals in the Day Two areas and those in the comparison areas remained constant over time. This model also tested the likely validity of the assumption that the time trends between Day Two areas and their comparators remained constant over time, making it possible to explore whether the simple random growth model assuming constant common time trends is too restrictive.

JSA cohort

The model which allowed for time-varying common time trends was typically preferred to the simple random growth model, which assumes that the common trend between the Day Two areas and their comparators remained constant over time for JSA customers. The impact estimates obtained when assuming that the common time trends were not fixed suggested that Jobcentre Plus only had a positive impact in the first four months following the start of the claim for JSA (Figure B.8). This positive impact peaked at 3.8 percentage points in month two. This model also suggested that the introduction of Jobcentre Plus increased claims for out-of-work benefits in months 11 and 14 and 15, by between 2.6 and 2.7 percentage points.

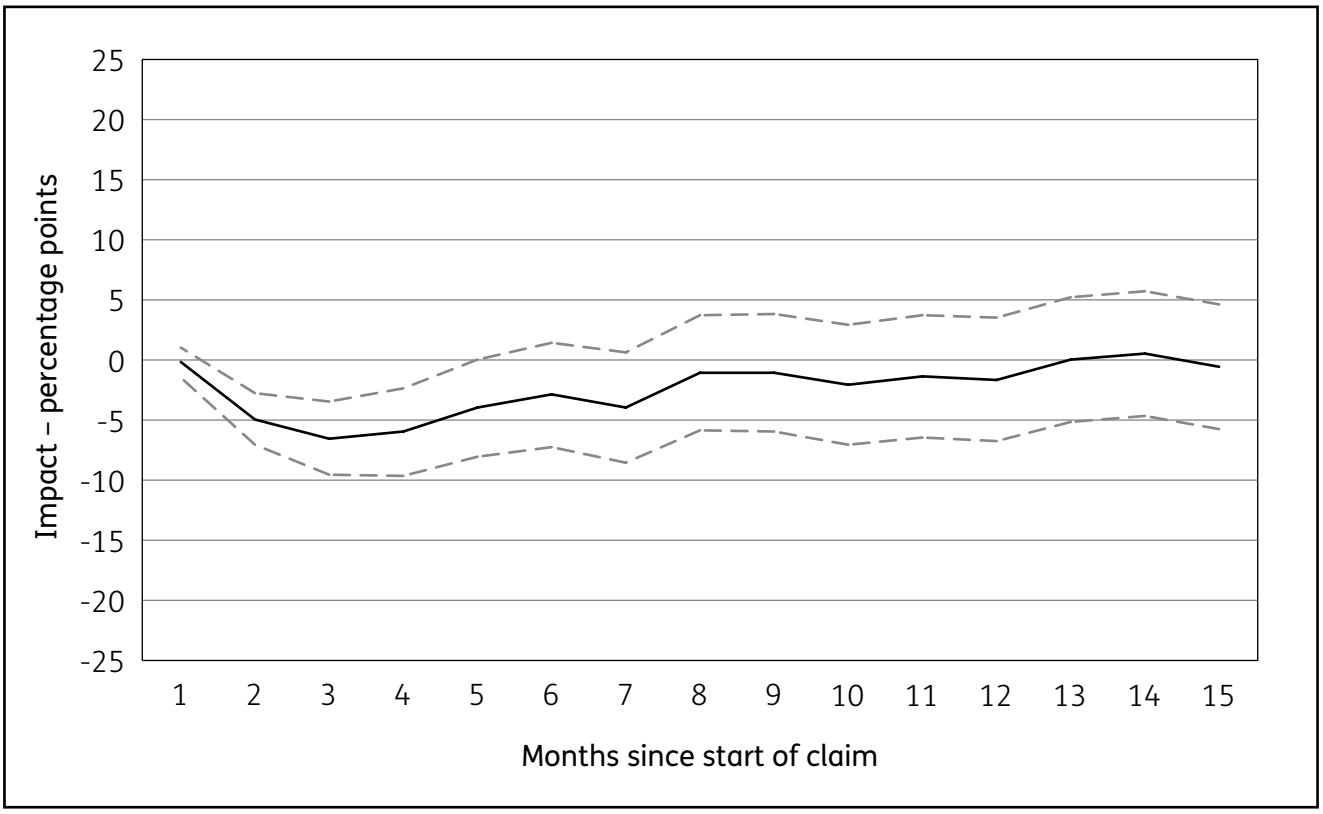
Figure B.8 Random growth model assuming non-constant common time trends – JSA customers



Incapacity benefits cohort

The model which assumed non-constant common time trends between incapacity benefits customers in the Day Two areas and their comparators found that the assumption of constant common time trends was unlikely to be valid in the first month following the start of the claim for incapacity benefits, but appeared reasonable throughout the rest of the 15-month period considered. The model, which assumed that common trends in benefit claims by customers in the Day Two and comparison areas were not constant over time, only found evidence of a negative impact from Jobcentre Plus in the period from two to four months after the start of the claim (Figure B.9). The peak impact was in month three, when Jobcentre Plus appeared to increase the likelihood that incapacity benefits were claiming out-of-work benefits by 6.5 percentage points.

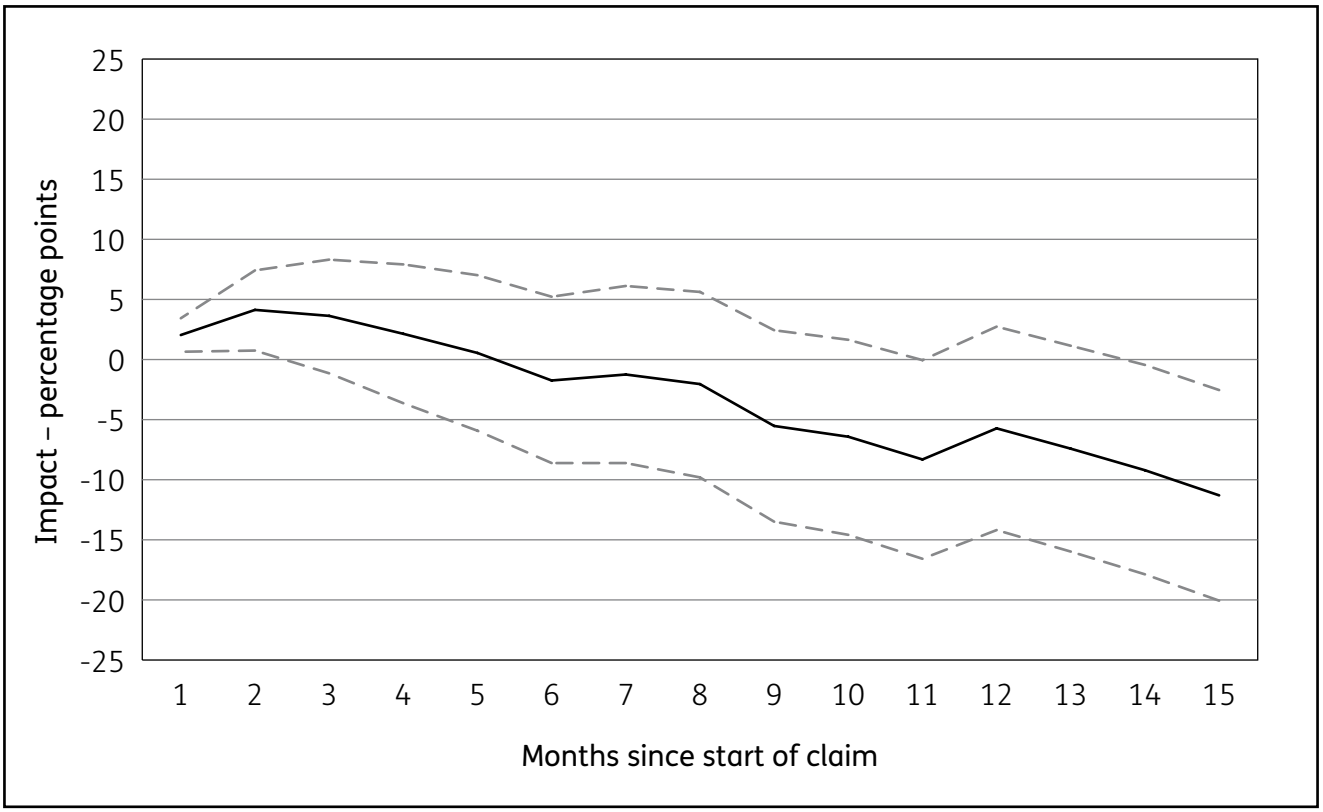
Figure B.9 Random growth model assuming non-constant growth – incapacity benefits customers



ISLP cohort

There was evidence of constant common time trends in outcomes for ISLP customers over most of the 15-month period considered. The exceptions were months 11 and 14 and 15. Impact estimates produced after relaxing this assumption supported the finding that Jobcentre Plus did reduce claims for out-of-work benefits by ISLP customers in the early months following the start of the claim. These positive effects were not sustained beyond month three and the peak impact (in month two) was to reduce claims for out-of-work benefits by 4.2 percentage points (Figure B.10). However, the model which assumed that common time trends were not constant, suggested that the introduction of Jobcentre Plus actually increased claims for out-of-work benefits by ISLP customers 14 and 15 months after the start of their claim (by 9.2 and 11.3 percentage points respectively).

Figure B.10 Random growth model assuming non-constant growth over time – ISLP customers



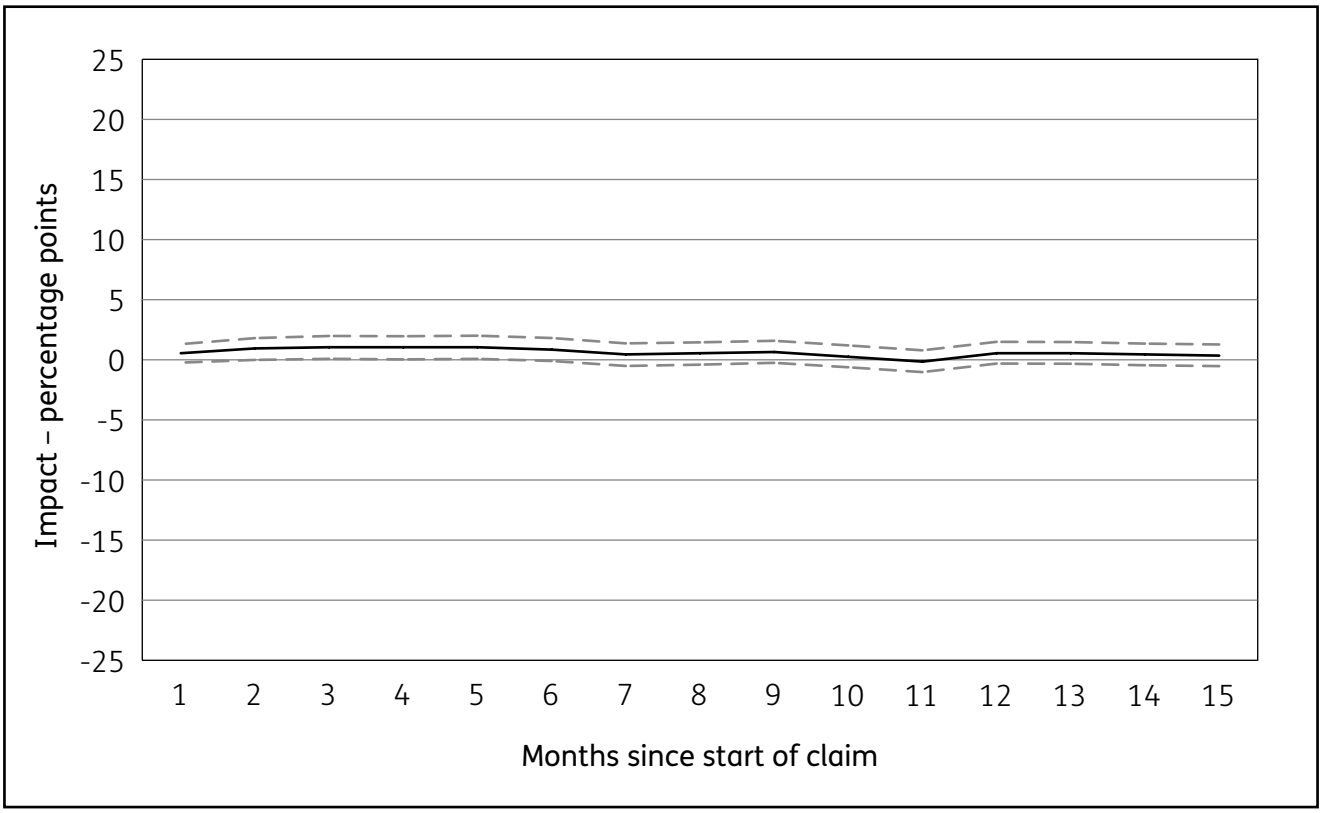
B.3.3 PSM-DiD

This section presents the results of the analysis which used the combined PSM-DiD approach. This makes it possible to assess the degree of correspondence between the apparent impact of Jobcentre Plus when using this method compared to its estimated impact when using the simple DiD or random growth models.

JSA cohort

The estimated impact of Jobcentre Plus using the combined PSM-DiD approach is shown in Figure B.11. The figure shows that JSA customers were less likely to be claiming out-of-work benefits over the period from two to five months after the start of their claim for JSA. The peak impact was 1.1 percentage points, five months after the start of the claim.

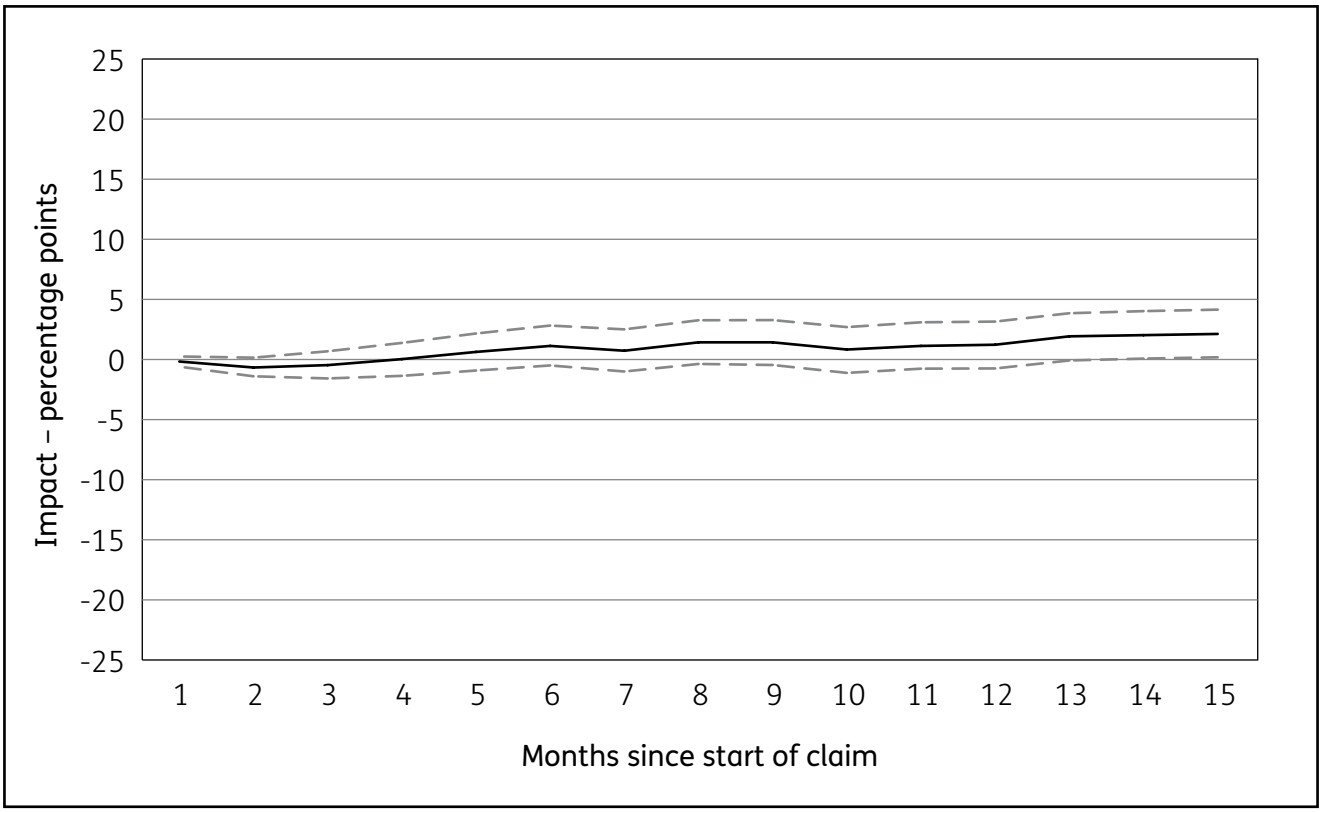
Figure B.11 Impact of Jobcentre Plus on not claiming benefits by month since start of claim using PSM combined with DiD analysis – JSA customers



IB cohort

For incapacity benefits customers, the estimated impact of Jobcentre Plus which emerged from the combined PSM and DiD analysis approach suggested that the roll-out of Jobcentre Plus had a positive impact, reducing the likelihood of customers claiming out-of-work benefits 14 and 15 months after the start of their claim for incapacity benefits and reaching 2.2 percentage points in month 15 (Figure B.12).

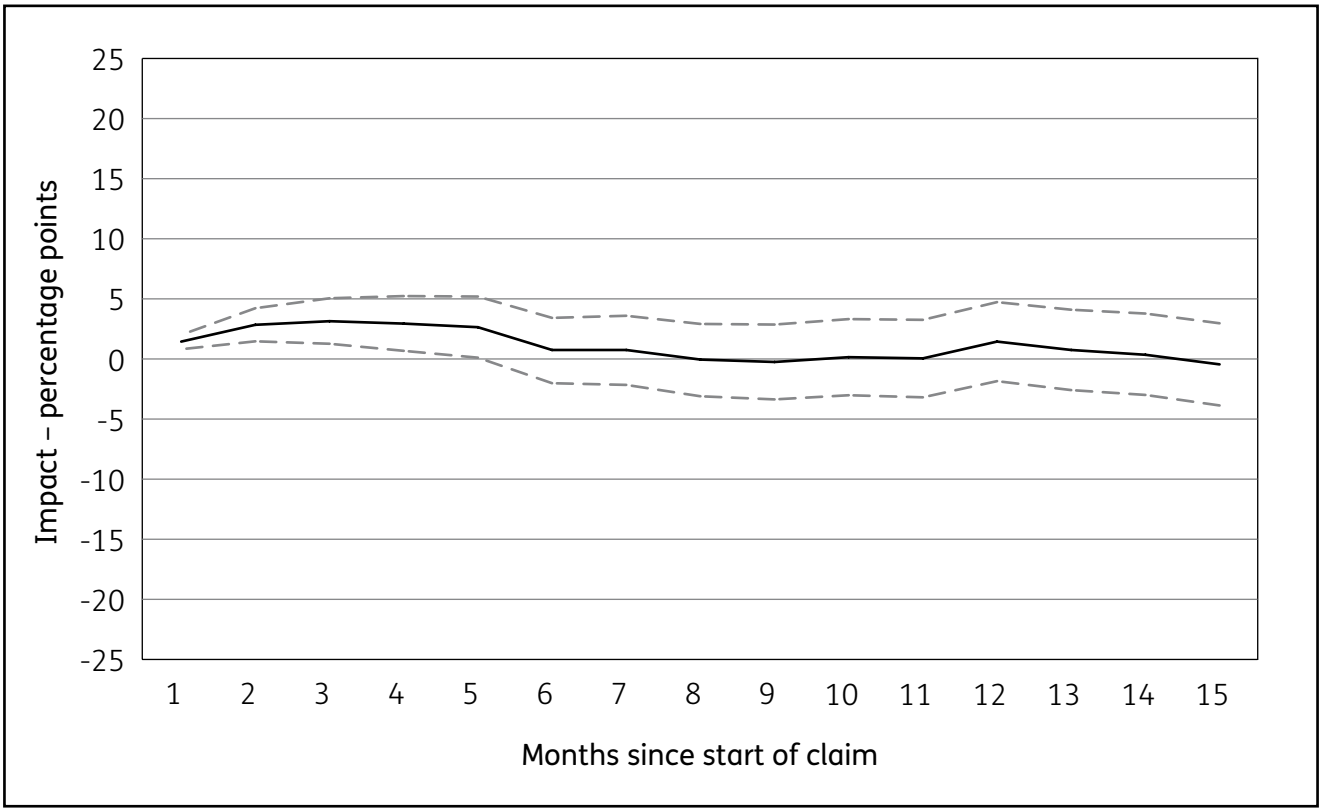
Figure B.12 Impact of Jobcentre Plus on not claiming benefits by month since start of claim using PSM combined with DiD analysis – incapacity benefits customers



ISLP cohort

Finally, Figure B.13 shows the impact of the roll-out of Jobcentre Plus in the Day Two areas on claims for out-of-work benefits made by ISLP customers, using combined PSM-DiD methods. This shows a positive impact from Jobcentre Plus on reducing claims in the first five months after the start of the claim for IS, peaking at a reduction of 3.2 percentage points in month three. However, from six months after the start of the claim onwards, Jobcentre Plus had no impact on the proportion of ISLP customers claiming out-of-work benefits.

Figure B.13 Impact of Jobcentre Plus on not claiming benefits by month since start of claim using PSM combined with DiD analysis – ISLP customers



B.3.4 Subgroup analysis

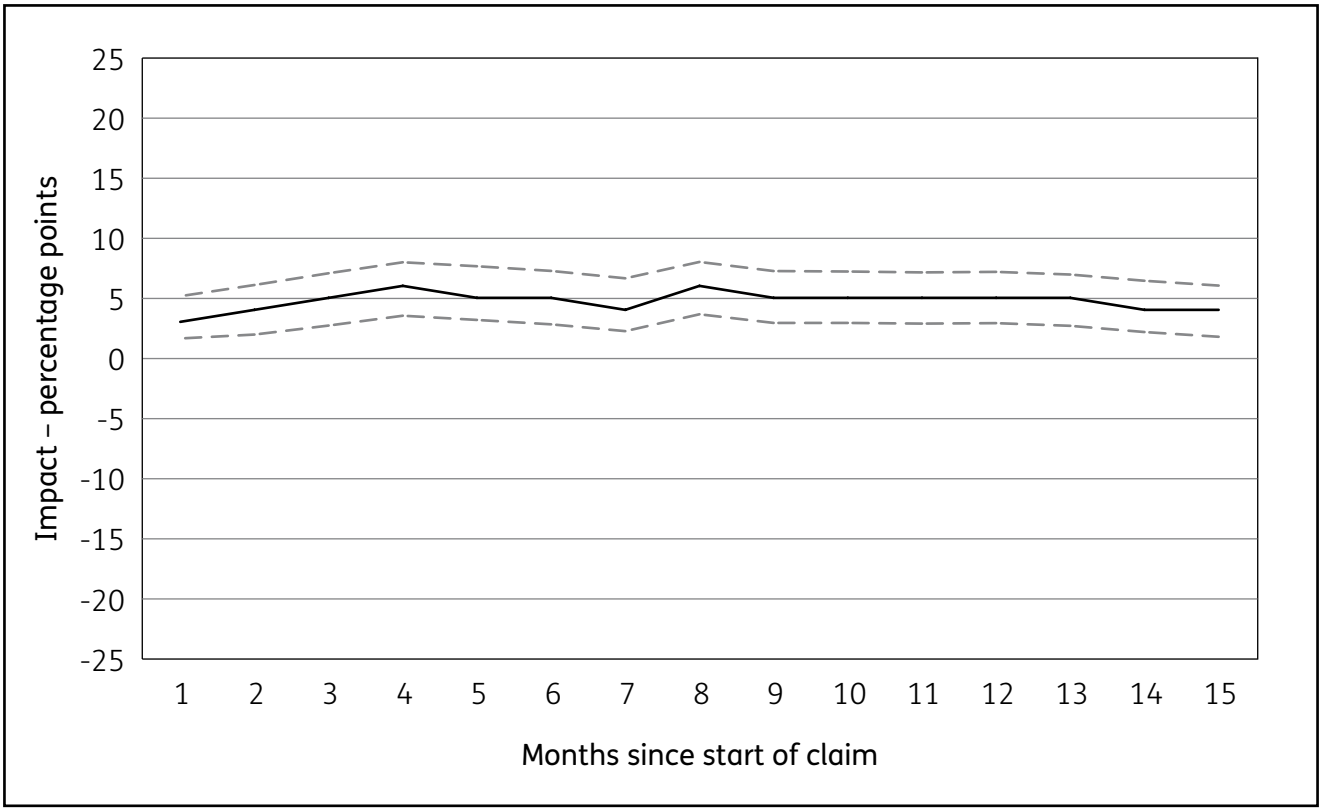
This section discusses the impact of Jobcentre Plus on particular subgroups of customers to assess whether Jobcentre Plus had similar impacts for customers with different characteristics in each of the three claimant groups considered. This is important, because average impacts for a customer group, e.g. those claiming JSA, might mask the fact that actual impacts could be positive for one subgroup of customers and negative for another. Also, it is possible that Jobcentre Plus is relatively more effective for particular subgroups. The analysis presented in this section considers both whether Jobcentre Plus had a statistically significant impact on particular groups of customers and whether any apparent differences in impact on each subgroup were themselves statistically significant, controlling for differences in the composition of particular subgroups, e.g. if those who had claimed out-of-work benefits over the year prior to the start of the qualifying claim tended to be older than those who had not.

Carrying out a meaningful analysis of the impact of Jobcentre Plus for subgroups of customers is only possible if the number of individuals in each of the subgroups in Day Two and comparison areas are sufficiently large to be able to detect statistically significant impacts. Therefore, it was not possible to look at all subgroups for all customer groups. There was not scope within this report to examine subgroup estimates using all the different methods discussed previously. The analysis of subgroups is based on the version of the random growth model which assumes constant common time trends, since there was evidence to suggest that this would generally provide a more reliable estimate of the impact of the introduction of Jobcentre Plus than the other approaches (particularly for incapacity benefits and ISLP customers).

JSA cohort

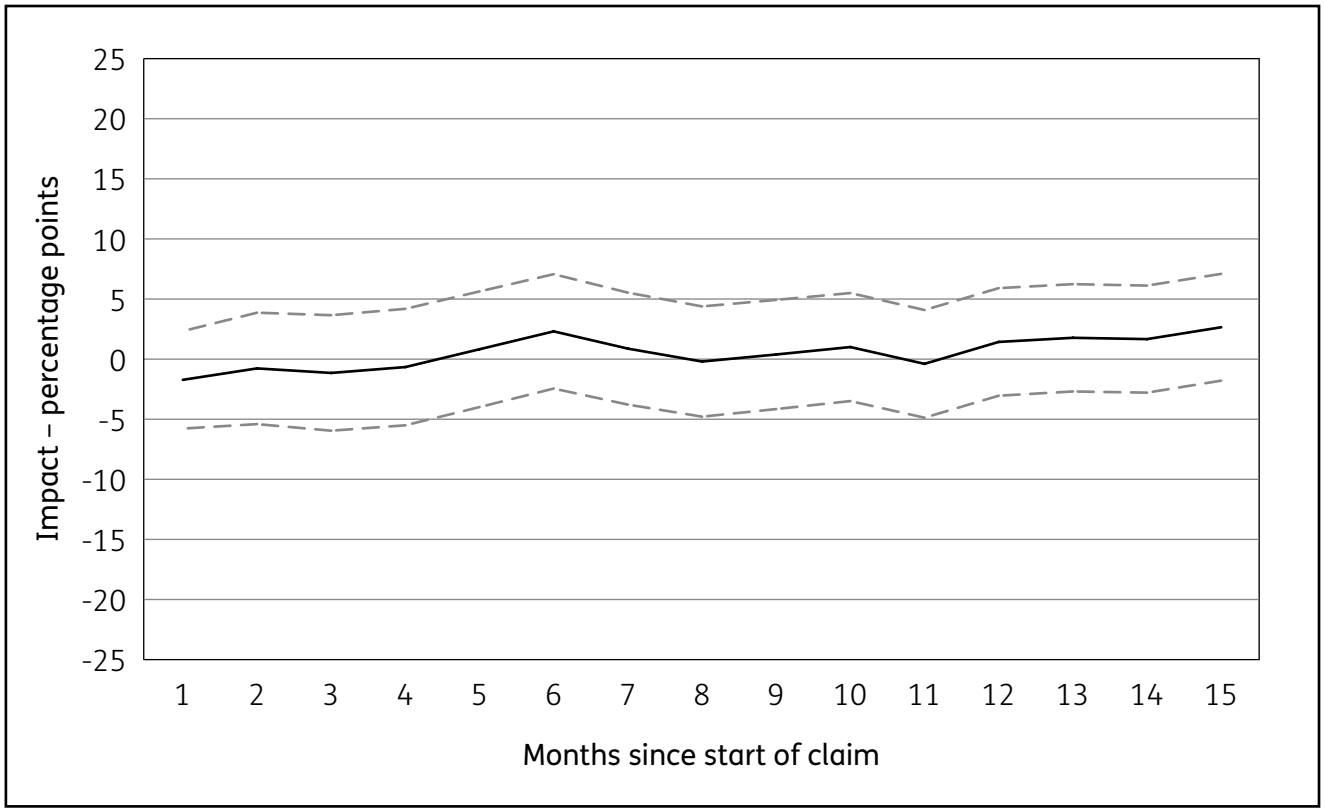
Figure B.14 shows that Jobcentre Plus increased the likelihood of men leaving out-of-work benefits throughout the 15-month period following the start of their claim for JSA, with the impact peaking at 5.8 percentage points in month eight.

Figure B.14 Impact of Jobcentre Plus on not claiming benefits by months since start of claim – male JSA customers



By contrast, Jobcentre Plus did not have a statistically significant impact on whether women were claiming out-of-work benefits in any of the 15 months following the start of their claim for JSA (Figure B.15). Overall, there were statistically significant differences in the impact of Jobcentre Plus on the likelihood that men and women were claiming out-of-work benefits for nine of the 15 months considered and Jobcentre Plus appeared to be more effective in reducing claims by men than women.

Figure B.15 Impact of Jobcentre Plus on not claiming benefits by months since start of claim – female JSA customers



The introduction of Jobcentre Plus did not appear to have a differential impact on JSA customers of different ages. Jobcentre Plus only reduced the likelihood of those aged 18-24 claiming out-of-work benefits in a single month (month 12, when claims were reduced by 4.7 percentage points, shown in Figure B.16). There was also fairly limited evidence of Jobcentre Plus having any impact on JSA customers aged 25-49 (Figure B.17), with claims for out-of-work benefits reduced in months 10, 13 and 14, by between 4.5 and 4.9 percentage points. However, the introduction of Jobcentre Plus did reduce the likelihood of those aged 50 or more claiming out-of-work benefits over the first nine months following the start of the qualifying claim, with a peak impact of 8.3 percentage points in month four (Figure B.18). Despite this, the differences in the impact of Jobcentre Plus for those aged 50 or more compared to younger JSA customers were not statistically significant, suggesting that the impact of the introduction of Jobcentre Plus on JSA customers did not vary markedly by age.

Figure B.16 Impact of Jobcentre Plus on not claiming benefits by months since start of claim – 18–24-year-old JSA customers

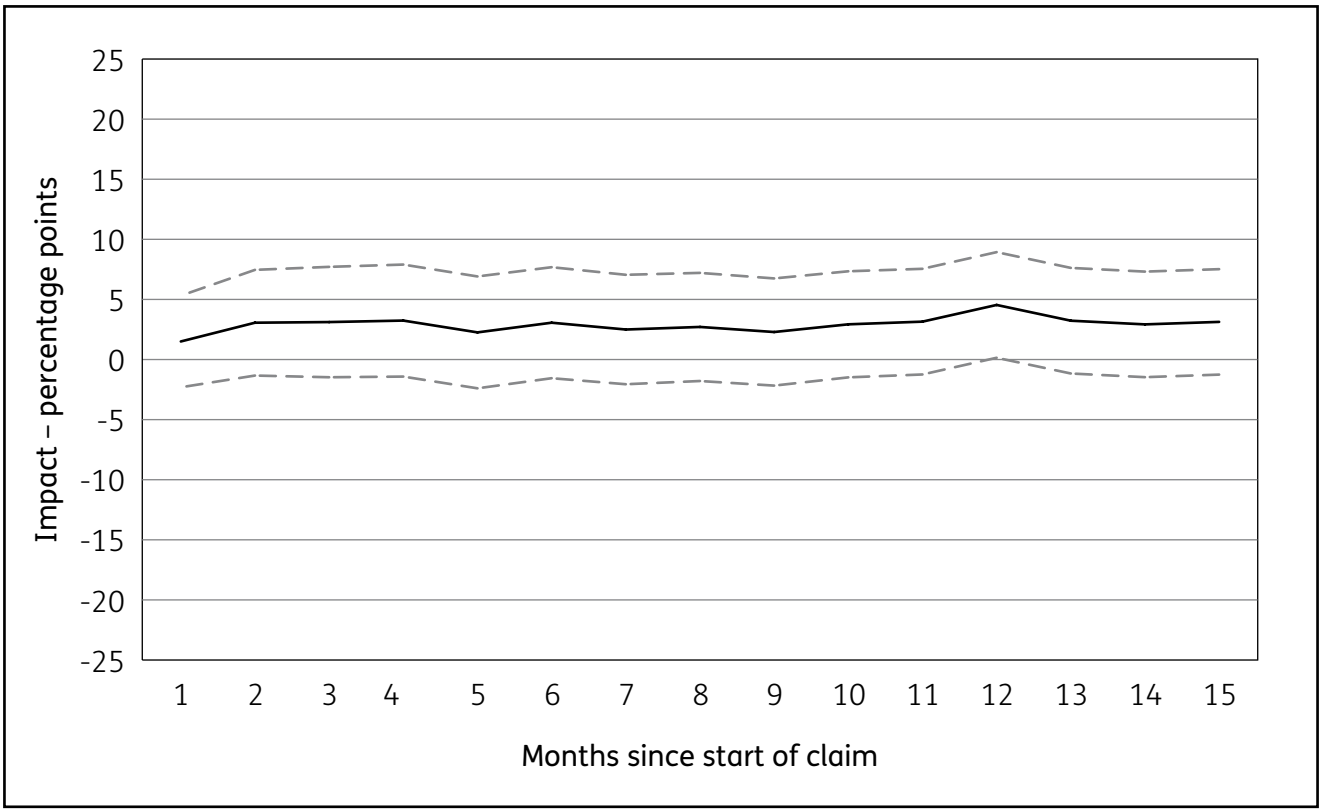


Figure B.17 Impact of Jobcentre Plus on not claiming benefits by months since start of claim – 25-49 year old JSA customers

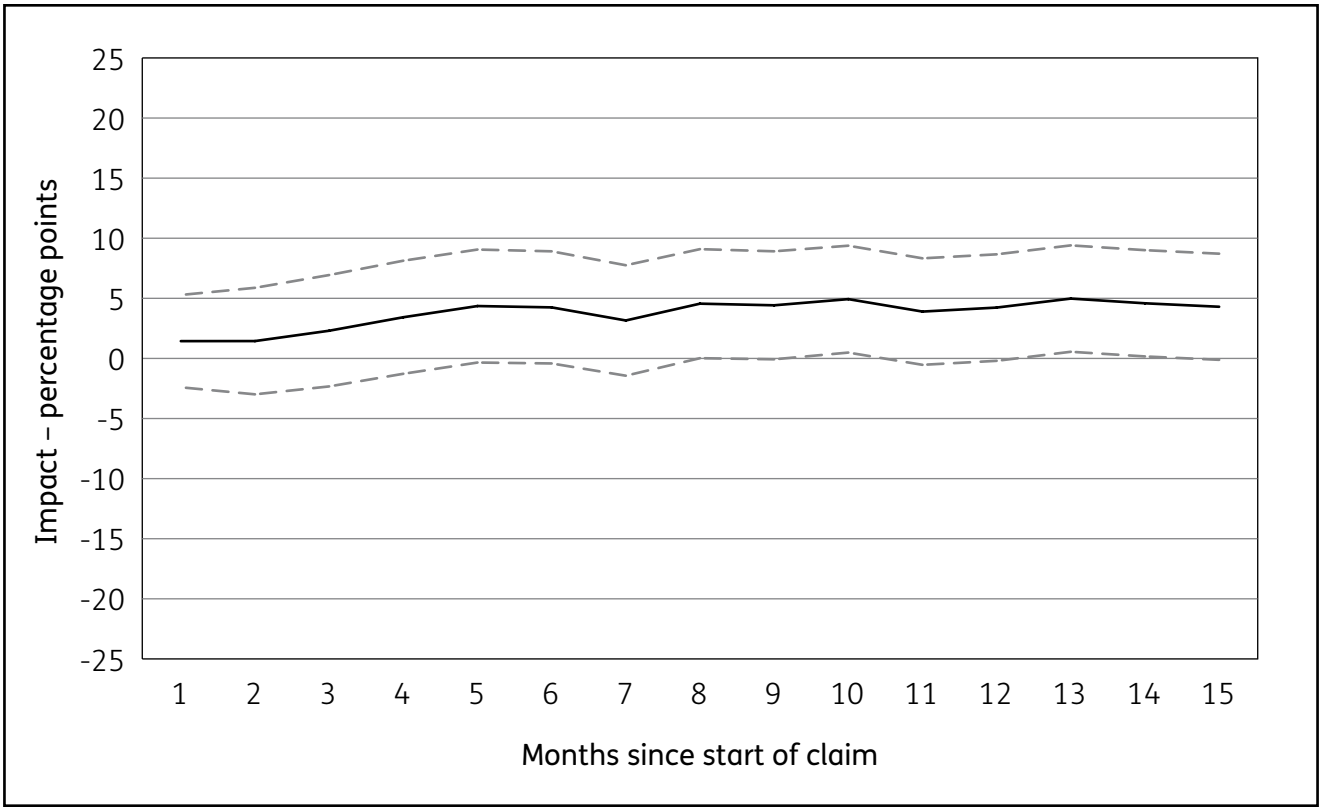
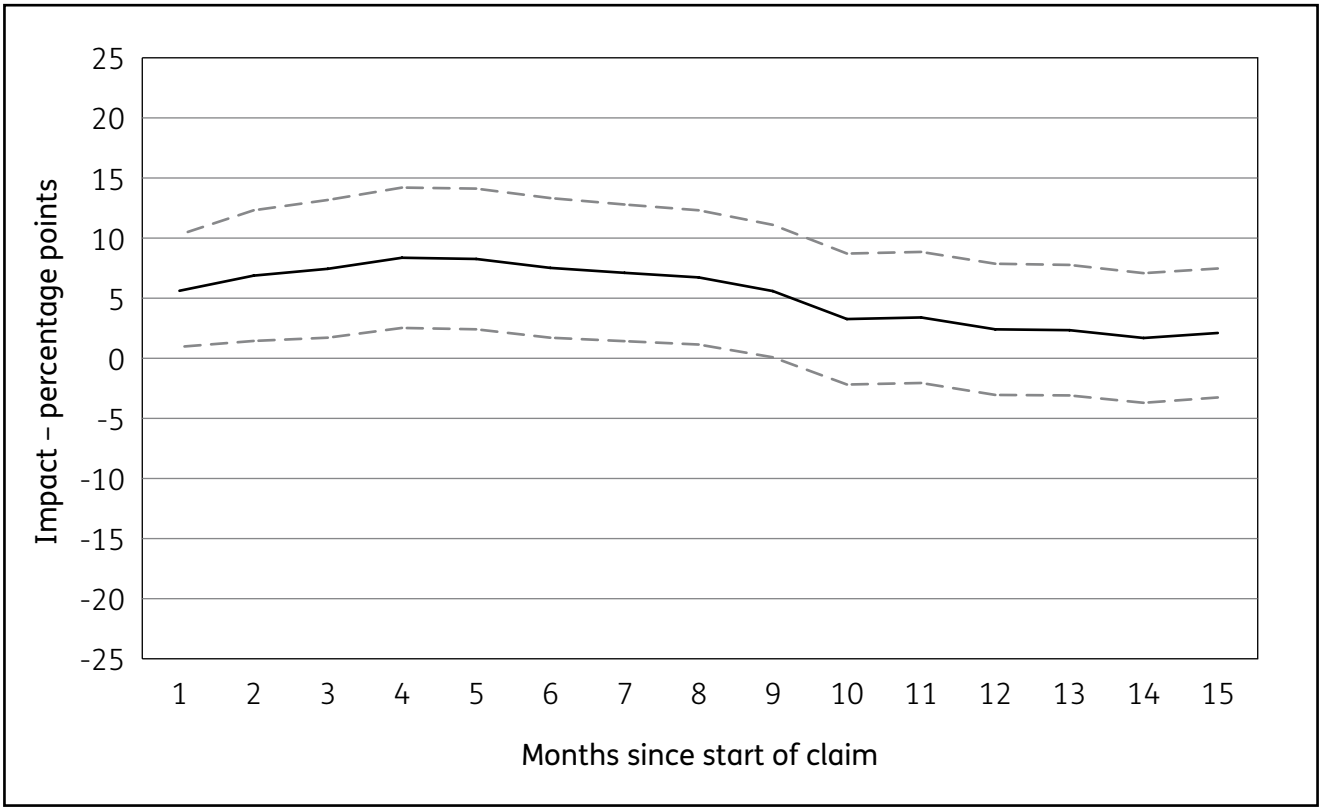


Figure B.18 Impact of Jobcentre Plus on not claiming benefits by months since start of claim – JSA customers aged 50 or more



There was little evidence that the introduction of Jobcentre Plus had a different impact on white and non-white JSA customers, although it did appear to result in a reduced likelihood of non-white customers claiming out-of-work benefits in months 1, 12, and 14 compared to white customers. As Figure B.19 shows, following the introduction of Jobcentre Plus, white JSA customers were less likely to be found claiming out-of-work benefits in all but the first month following the start of their claim, with a peak impact for this group of 4.1 percentage points in month six. However, Jobcentre Plus also reduced claims for out-of-work benefits by non-white JSA customers in nine of the 15-month period considered (Figure B.20), with a peak impact for this group of 11.6 percentage points 12 months after the start of the claim.

Figure B.19 Impact of Jobcentre Plus on not claiming benefits by months since start of claim – white JSA customers

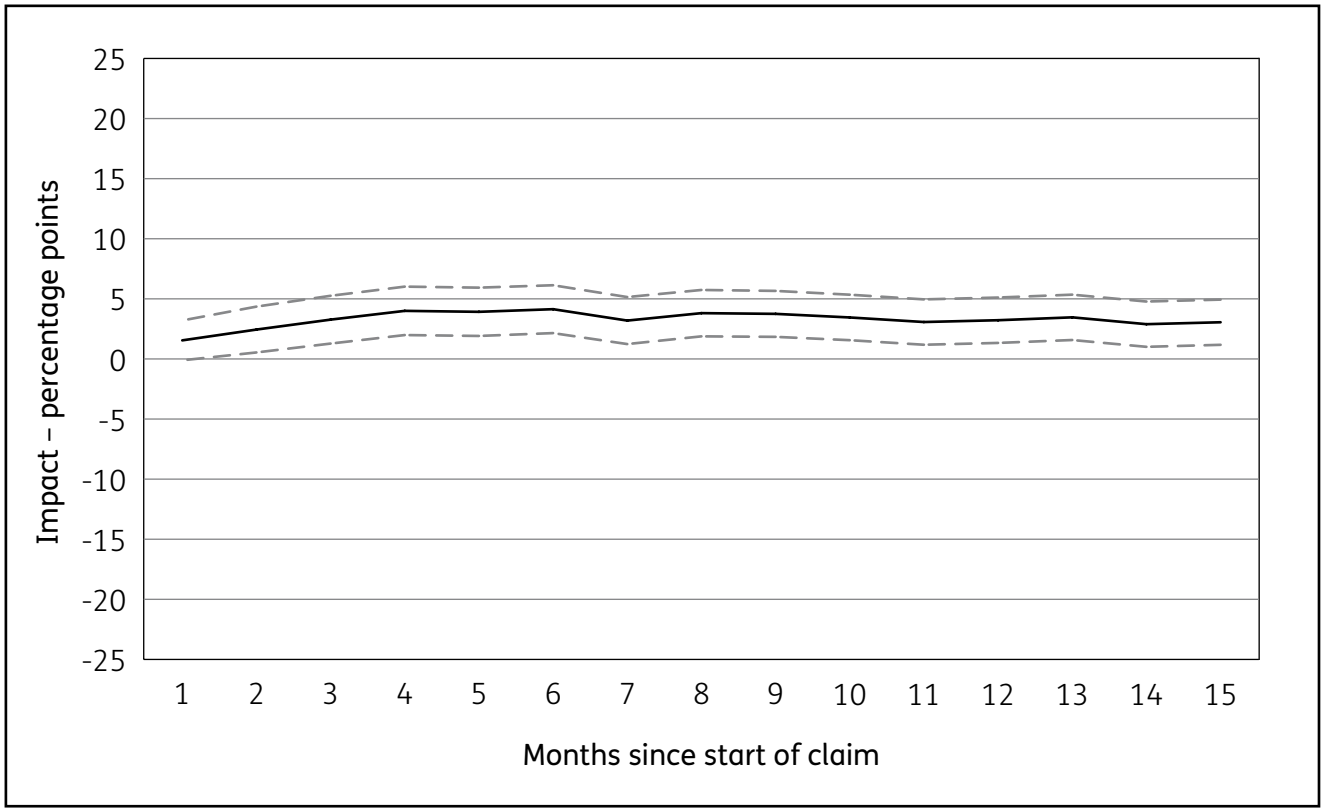
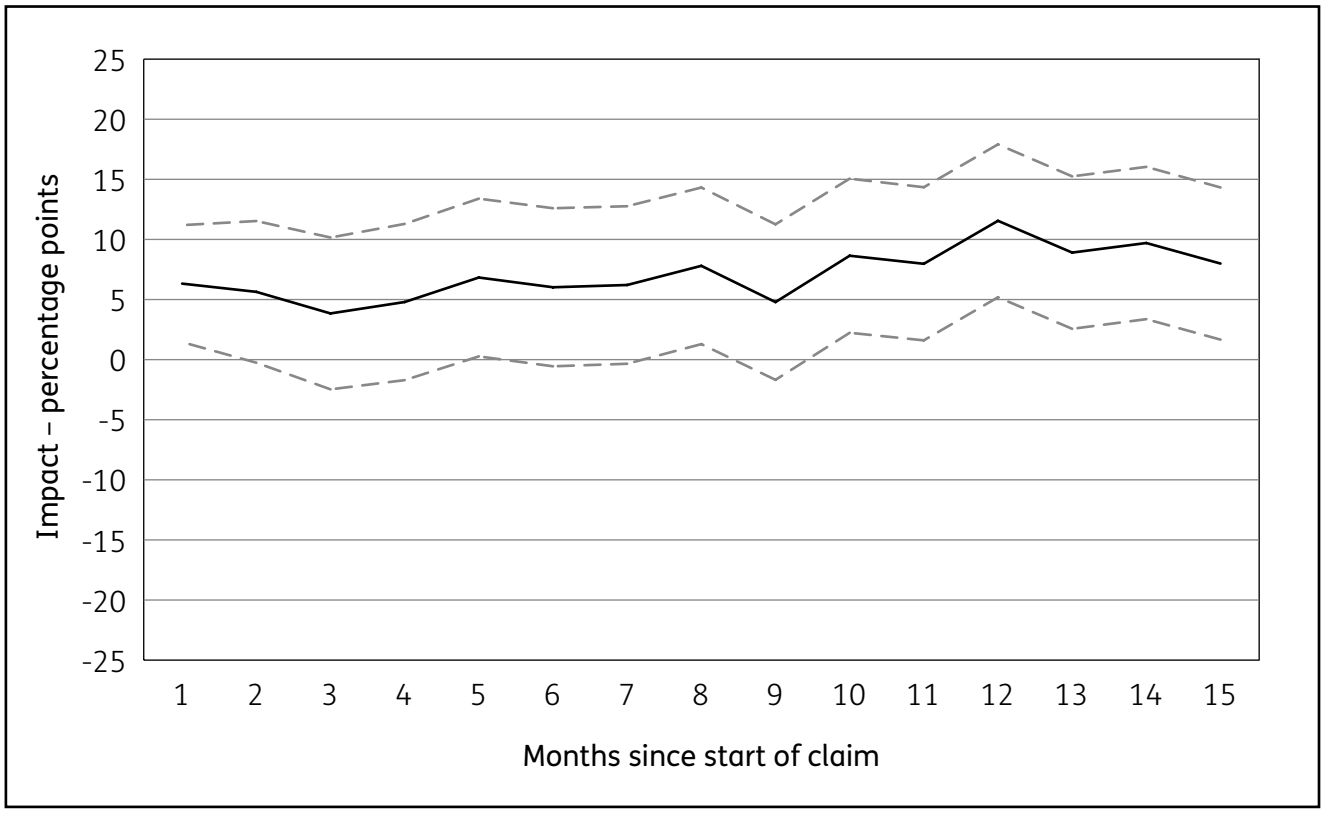


Figure B.20 Impact of Jobcentre Plus on not claiming benefits by months since start of claim – non-white JSA customers



Incapacity benefits cohort

There was no evidence that the impact of Jobcentre Plus on incapacity benefits customers varied markedly by gender. However, whilst the introduction of Jobcentre Plus appeared to increase the likelihood of men claiming out-of-work benefits over the period from two to seven months after the start of their claim for incapacity benefits (Figure B.21), it only increased claims by women in month two (Figure B.22). The peak impact for men from the introduction of Jobcentre Plus was to increase claims for out-of-work benefits by 8.0 percentage points three months after the start of the claim. For women, the peak impact (in month two) was 4.9 percentage points.

Figure B.21 Impact of Jobcentre Plus on not claiming benefits by months since start of claim – male incapacity benefits customers

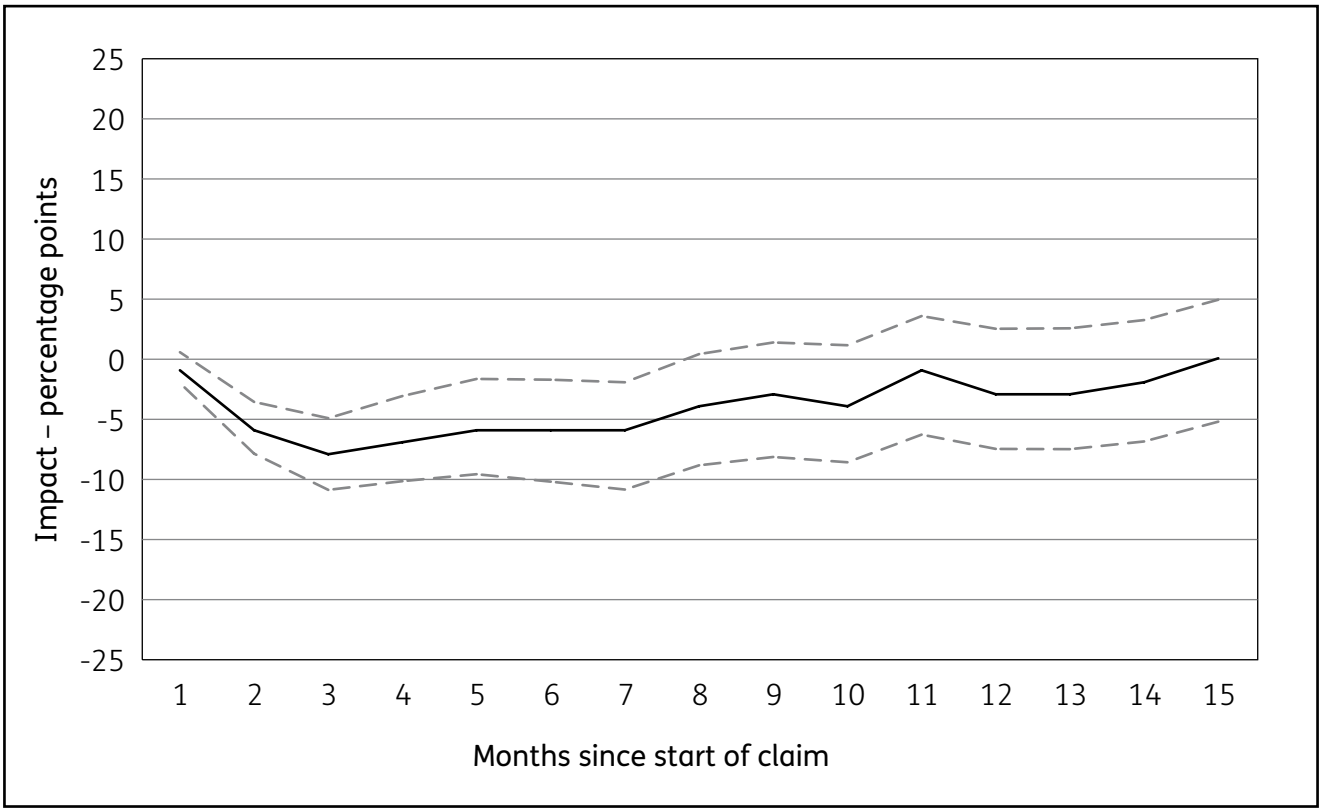
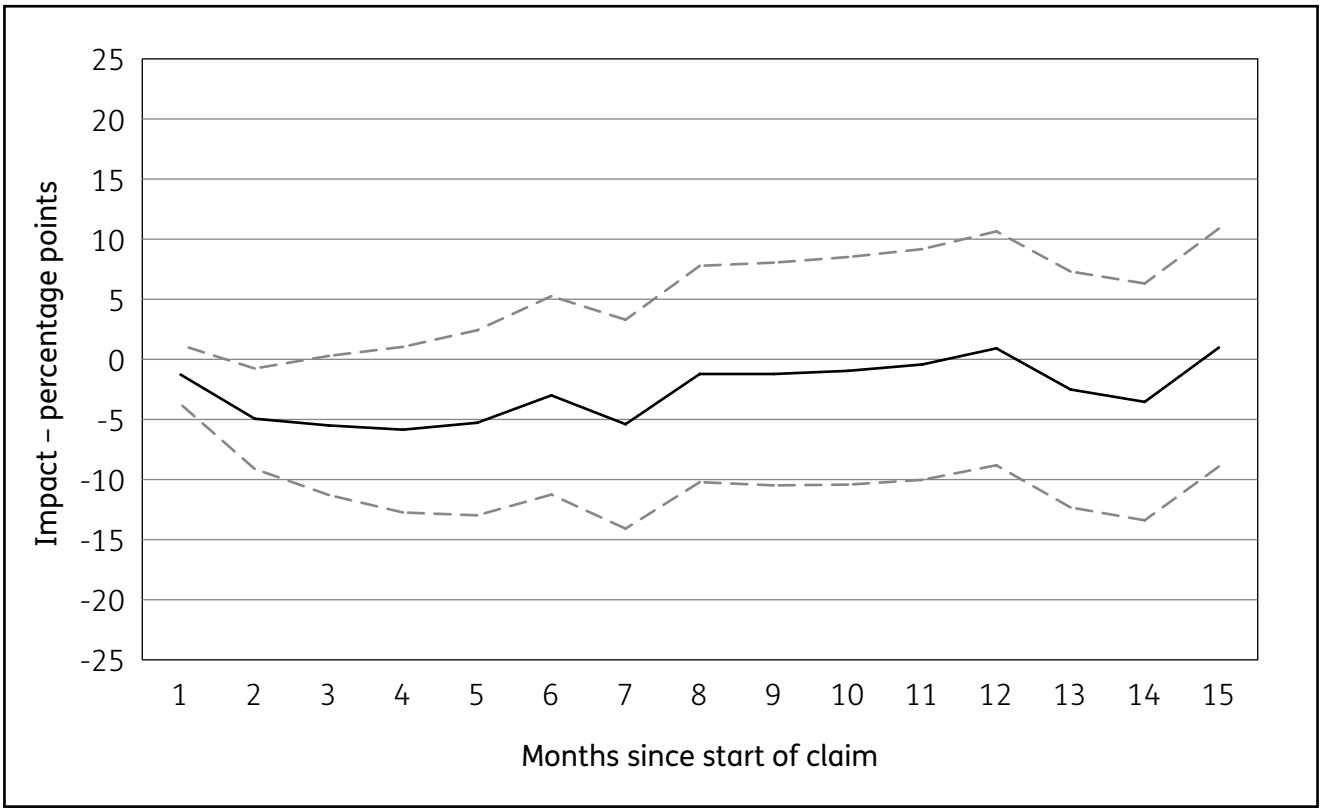


Figure B.22 Impact of Jobcentre Plus on not claiming benefits by months since start of claim – female incapacity benefits customers



The negative impact of Jobcentre Plus in increasing the proportion of incapacity benefits customers claiming out-of-work benefits over the early months following the start of their claim was concentrated amongst older customers and particularly those aged 50 or more (Figure B.23 to Figure B.25). There was no evidence of any negative effects from Jobcentre Plus on incapacity benefits customers aged 18-24 and in fact, Jobcentre Plus had a positive impact for this group in months 11 and 15 when claims for out-of-work benefits were reduced by 11.1 and 12.7 percentage points respectively. The introduction of Jobcentre Plus only increased claims for out-of-work benefits by incapacity benefits customers aged 25-49 in months two and three (by 5.9 and 8.1 percentage points respectively). By contrast, those aged 50 or more were more likely to be found on out-of-work benefits over the period from two to eight months after the start of their claim for incapacity benefits following the introduction of Jobcentre Plus. The peak impact was 13.2 percentage points in month six. As a result, there was clear evidence that those aged 50 or more were more likely to claim out-of-work benefits in six of the 15 months considered, compared to younger incapacity benefits customers.

Figure B.23 Impact of Jobcentre Plus on not claiming benefits by months since start of claim – 18–24-year-old incapacity benefits customers

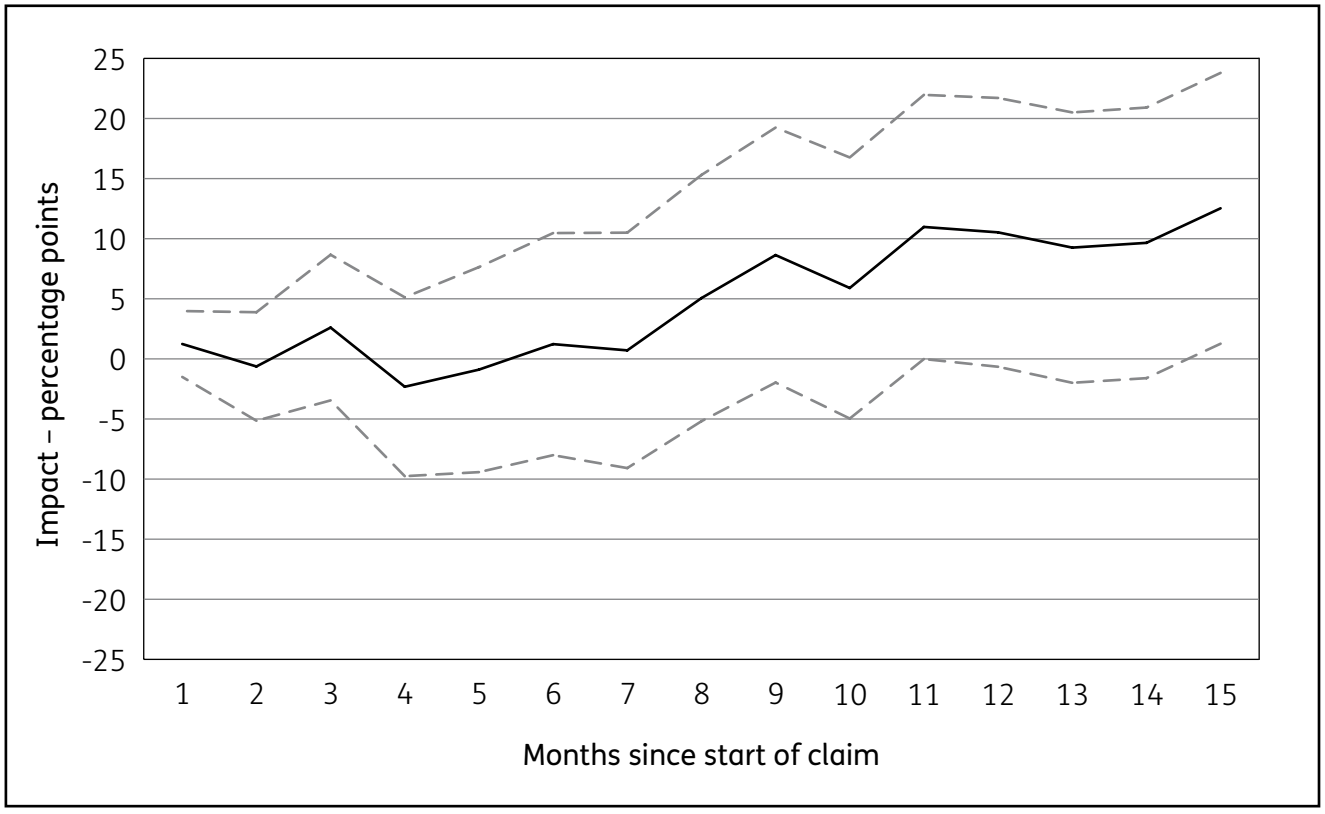


Figure B.24 Impact of Jobcentre Plus on not claiming benefits by months since start of claim – 25-49 year old incapacity benefits customers

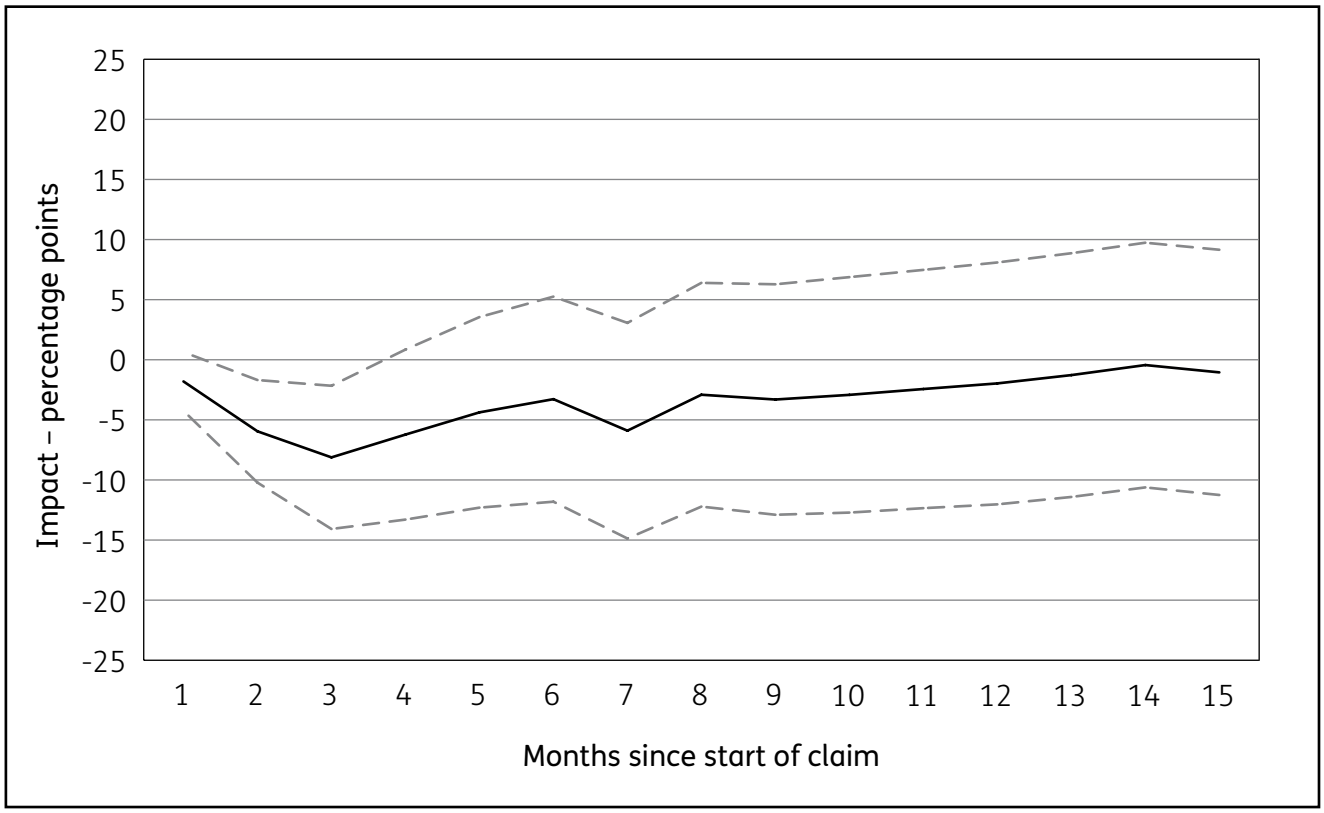
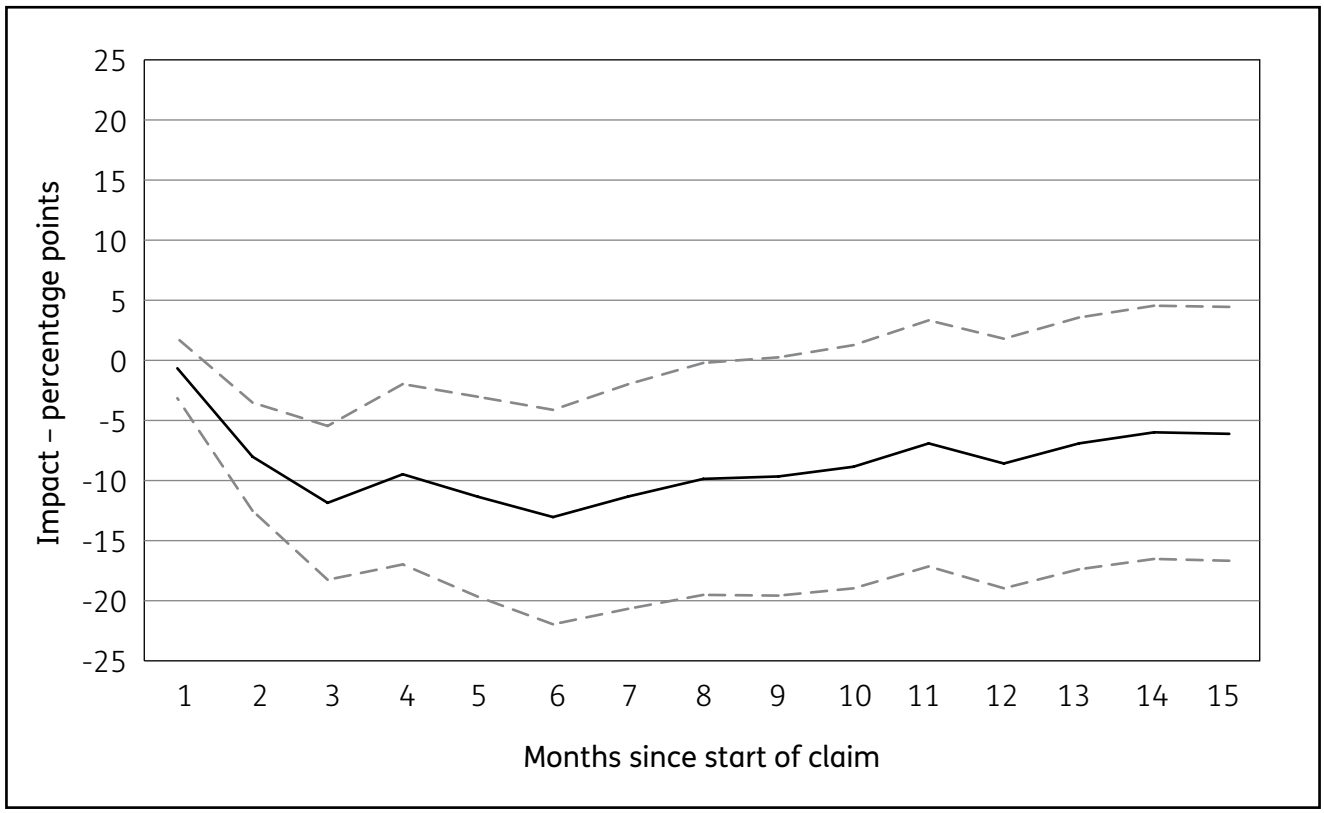


Figure B.25 Impact of Jobcentre Plus on not claiming benefits by months since start of claim – incapacity benefits customers aged 50 or more



There was no evidence that the introduction of Jobcentre Plus had any impact on the likelihood of those with mental health problems claiming out-of-work benefits over the 15-month period following the start of their qualifying claim (Figure B.26). However, it did result in an increased proportion of those with physical health problems claiming out-of-work benefits over the first seven months of the period considered (Figure B.27). When taking into account differences in the other characteristics of those with mental and physical health problems there was evidence that the introduction of Jobcentre Plus did have a differential impact depending on the nature of the customer's health condition over the first three months following the start of the claim for incapacity benefits.

Figure B.26 Impact of Jobcentre Plus on not claiming benefits by months since start of claim –incapacity benefits customers with a mental health condition

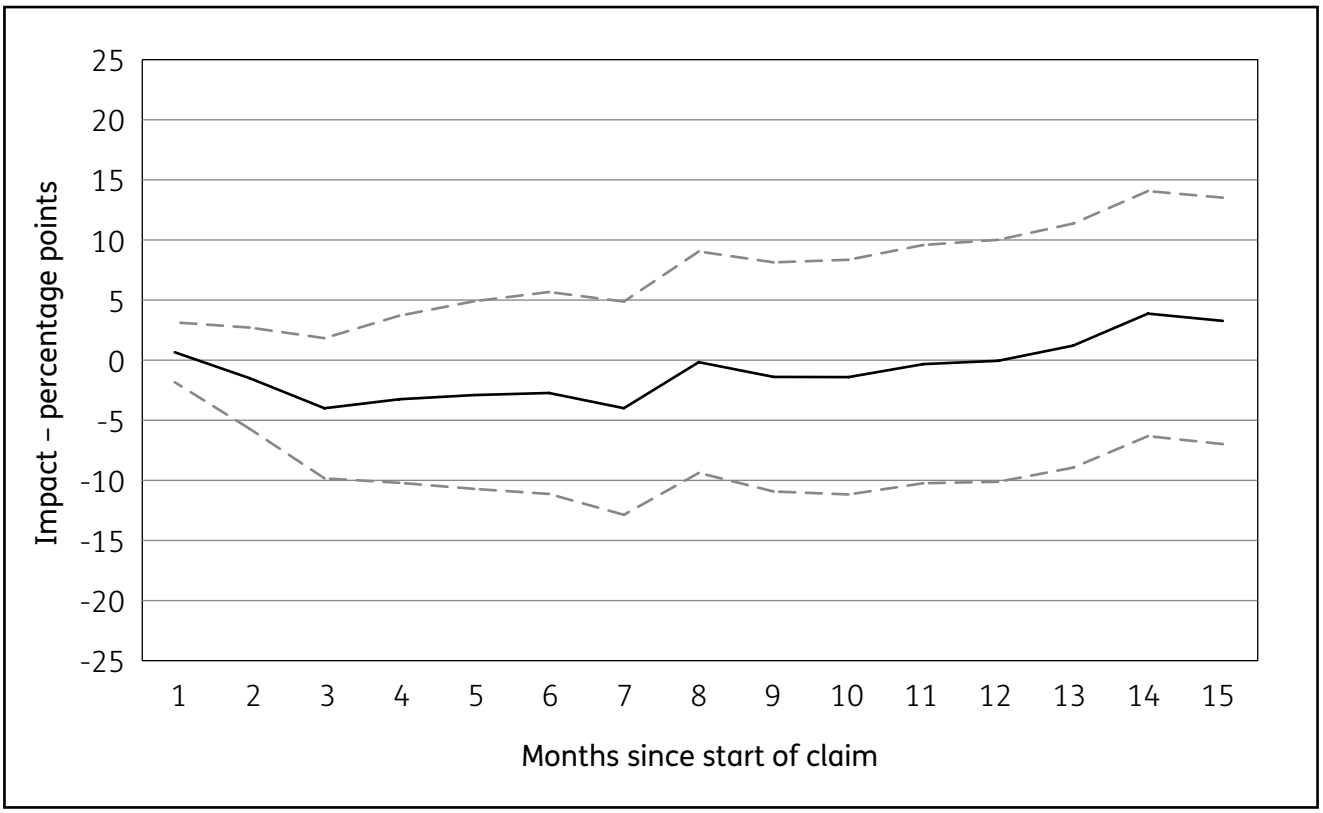
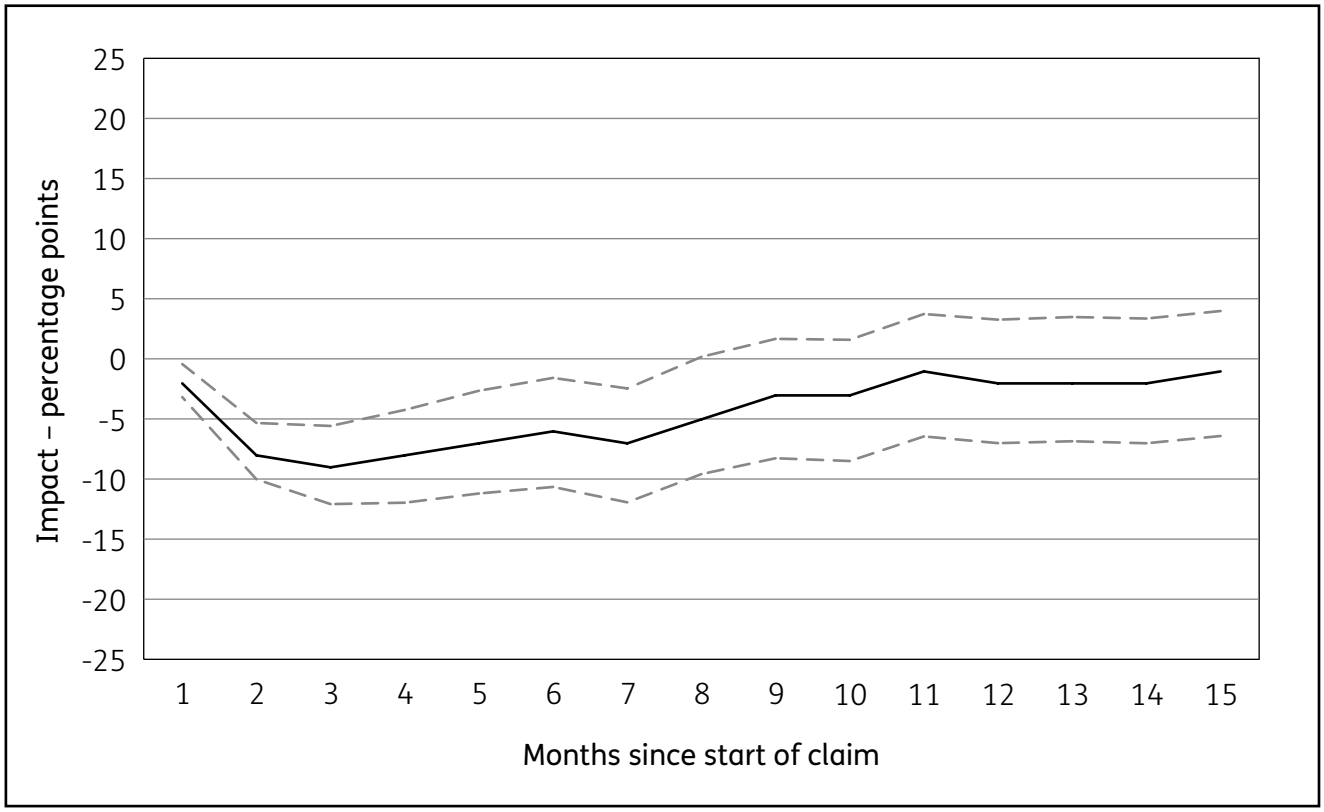


Figure B.27 Impact of Jobcentre Plus on not claiming benefits by months since start of claim –incapacity benefits customers with a physical health problem



It was not possible to establish whether the impact of Jobcentre Plus on incapacity benefits customers was similar for different ethnic groups due to the small numbers of non-white customers.

ISLP cohort

The numbers of lone parents claiming ISLP were too small for a robust subgroup analysis, so it was not possible to observe whether Jobcentre Plus had an impact for customers in particular age groups, or from different ethnic groups.

Appendix C
Analysis of Jobcentre Plus and local area wages

We explore the impact of different non-employed groups on wage-setting using local area data. We find that the majority of benefit claimants of working age are unlikely to influence average wages very strongly. Instead, our findings suggest that Jobcentre Plus customers influence wages further down the wage distribution. Our analysis finds some evidence to suggest that Jobcentre Plus has put downward pressure on wages. Here we report details of this analysis.

C.1 A model of wage-setting using local area data

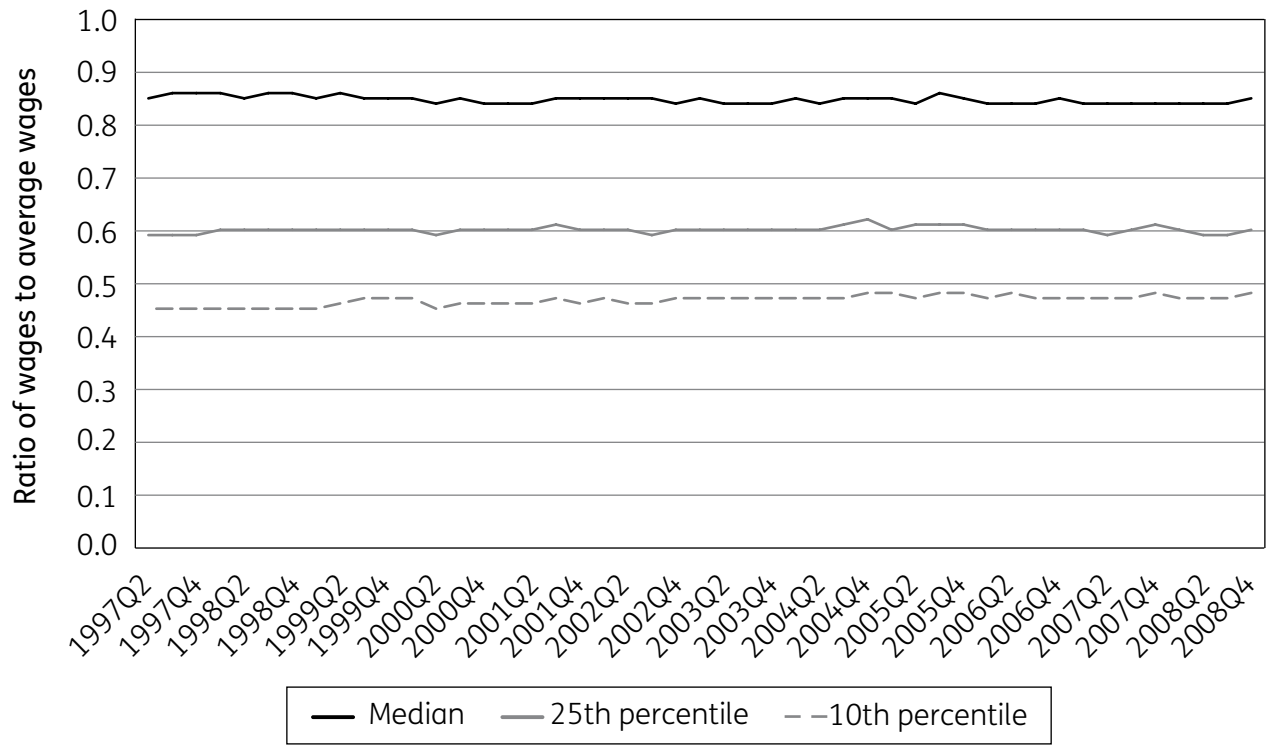
We model local area wages as functions of local area labour market characteristics, including the share of the population in different non-employed categories and local area productivity (proxied by labour force skills). The formulation of productivity-corrected wages as a function of labour market slack (and other institutional variables) is relatively standard and is often described as the wage-setting or wage-supply curve. A similar relationship is formulated at the aggregate level in the National Institute Global Econometric Model (NiGEM), and is a key determinant of long-run unemployment. Estimates of these types of equations using variation in regional pay and unemployment in Britain include Riley and Young (2001), Bell *et al.* (2002), and Schweitzer (2007). Blanchflower and Oswald (2005) review the evidence of the relationship between wages and local area unemployment rates for a number of countries, and suggest that the evidence points to a statistically significant negative relationship. To our knowledge there is little evidence of the relationship between aggregate wages and different economically inactive groups (Income Support (IS) and Incapacity Benefit (IB) claimants will typically be classified as economically inactive).

We estimate a simple pooled dynamic fixed effects model of local area wages using Labour Force Survey (LFS) data 1997Q2-2008Q4. The effects of the introduction of Jobcentre Plus are identified in a similar way to that described in Annex 1, where we look at Jobcentre Plus and local labour market flows. We also estimate pooled mean group models, following the specific modelling strategy in Appendix A more closely. Again our measure of Jobcentre Plus 'treatment' is the proportion of the stock of benefit clients claiming in integrated offices.[73] In the pooled model we include time-fixed effects to account for common trends in wages across Jobcentre Districts (JCDs). In the pooled mean group model we account for common trends across areas by including the cross-sectional mean of log wages.

We look at three separate measures of wages. First, the average hourly wage, as is standard. Next, we look at wages in the lower percentiles of the wage distribution. If Jobcentre Plus customers are relatively low skilled, then they may be more likely to influence wages at the lower end of the wage distribution. The ratio of median, 25th and 10th percentile wages to average wages are shown in Figure C.1. We illustrate the mean across JCDs. If wages are a guide to worker productivity these data suggest that workers in the 10th percentile of the wage distribution are less than half as productive as the average worker and about 60 per cent (=0.48/0.85) as productive as the median worker.

[73] We have also extended this by allowing the coefficients on the different labour market slack variables to vary with the strength of the policy in order to assess the extent to which particular structural parameters have changed with the introduction of Jobcentre Plus. However, this leads to identification problems arising from multicollinearity.

Figure C.1 Wages relative to average wages (Mean across 48 JCDs)



Source: LFS.

Given data on time periods $t=1,...,T$ and JCDs $j=1,...,N$, our pooled model of wages in JCD j can be expressed as:[74]

$$\Delta \ln(W)_{jt} = \varphi \ln(W)_{jt-1} + \beta x_{jt} + \sum_{l=1}^{p-1} \Theta_l \Delta \ln(W)_{jt-l} + \sum_{l=0}^{q-1} \delta_l \Delta x_{jt-l} + \delta_t + \mu_j + \varepsilon_{jt}$$

where W_{jt} denotes the average (or a particular percentile) wage in JCD j at time t, and x_{jt} is a vector of explanatory variables including our measure of Jobcentre Plus treatment (see Chapter 11), various measures of inactivity and unemployment (measured relative to the population of working age), and skills (a proxy for average productivity). The term μ_j denotes JCD specific fixed effects, and δ_t denote time-specific fixed effects. The ε_{jt} is an error term with mean zero and JCD specific variance. In this set up φ indicates the speed of adjustment to the long-run (equilibrium) relationship. Long-run elasticities of wages with respect to its determinants are given by $\propto = -\frac{\beta}{\varphi}$. The coefficients on the different non-employed categories (i.e. the different measures of labour market slack) indicate the search intensity of these different groups. We estimate models where we disaggregate the non-employed into different groups, and models where we include all the non-employed as one group. The coefficient on the policy variable captures the shift in the wage bargain that occurs as a result of the introduction of Jobcentre Plus. If Jobcentre Plus is working as we would expect on the basis of theory (i.e. to raise the search intensity of the non-employed), then we should find that

74 The pooled mean group model is essentially as set out in Appendix A, but replacing flow rates with wages.

this coefficient is negative. Alternatively, Jobcentre Plus may raise the search intensity of the non-employed by shifting people from a position where they have relatively little impact on wages to one where they have a stronger influence on wages (e.g. from disability benefit to Jobseeker's Allowance (JSA)). These types of effects of Jobcentre Plus are captured by the slack terms in the equation, when these include several distinct groups, and not by the policy variable.

Table C.1 reports our estimate of this equation for the four different measures of wages. Note that IS lone parents (ISLP) are likely to be situated in the 'inactive females, not disabled' group. Jobcentre Plus disabled customers are likely to be situated in the 'inactive females, disabled' and 'inactive males, disabled' groups.[75] The equations show a negative and statistically significant long-run relationship between the rate of International Labour Organisation (ILO) unemployment and wages. There is no statistically significant relationship between wages and any of the other non-employed groups (the economically inactive). There is one exception to this. We find a negative and statistically significant long-run relationship between the rate of 'inactive females, not disabled' and wages. In other words, it appears that this group exerts downward pressure on wages at the lower end of the wage distribution (10th percentile). In terms of Jobcentre Plus customer groups, these findings suggest that, on average, ISLPs are less productive than JSA clients (they compete for lower paid jobs). The magnitude of the wage elasticity for inactive men (disabled or not disabled) is largest in the 25th percentile regression, but is never statistically significant. These patterns in wage elasticities appear consistent with our results in Appendix 1. There we find statistically significant relationships between labour market tightness and exits from both JSA and ISLP, but not between labour market tightness and exits from IB.

The coefficient on the policy indicator is negative as we would expect if Jobcentre Plus was operating as it should, but is not statistically significant. As discussed above, within this set up it is possible for Jobcentre Plus to influence wages both through its effect on the distribution of the non-employed across the different types, as well as directly through the policy variable. The fact that the policy dummy is not statistically significant does not necessarily imply that the policy has failed to reduce wage pressure. When we classify the non-employed in one group in the second part of Table C.1, we find that the negative effect on average wages becomes statistically significant at the 10 per cent level. We note that policy effects on wage pressure are more difficult to detect than policy effects on flows. This is because we expect, for a given impact on flows, a much smaller impact on wages, and because the wage data are less accurate.

The pooled model is restrictive in the sense that it imposes homogeneity in wage elasticities across JCDs. Standard statistical tests reject this assumption. Thus, in Table C.2 we show pooled mean group models of local area wages. The long-run elasticities of wages with respect to ILO unemployment are not very different to those shown in Table C.1 (note that in Table C.1 these are derived by multiplying the coefficient on the levels term in ILO unemployment with the coefficient on the lagged log wage). In the pooled mean group model in Table C.2 the negative association between 10th percentile wages and inactive females is with the disabled group, rather than the not disabled group. Again we find that the magnitude of the negative association between inactive males and wages is largest at the 25th percentile. In the pooled mean group model these associations are very significant and sometimes very large. It is likely that these instabilities are partially due to collinearity between the different labour market slack variables.

The models in Table C.2 show a negative association between average and 25th percentile wages and Jobcentre Plus coverage. This relationship is statistically significant in the models of 25th percentile wages, and, at the ten per cent level, in the model of average wages including the disaggregated slack terms.

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75 Models including benefit claimants as separate groups were not well determined.

Table C.1 Local area wage regressions (pooled OLS)

Labour market slack	Disaggregated			Not employed		
Dependent variable	Average	25th percentile	10th percentile	Average	25th percentile	10th percentile
Jobcentre Plus coverage	-0.011	-0.006	0.001	-0.012*	-0.007	0.001
	(0.007)	(0.008)	(0.008)	(0.007)	(0.008)	(0.008)
Change in Jobcentre Plus coverage	-0.016	0.015	0.026	-0.018	0.013	0.024
	(0.015)	(0.018)	(0.019)	(0.015)	(0.017)	(0.019)
Lagged dependent variable (1 lag)	-0.153***	-0.098*	0.027	-0.171***	-0.102*	0.017
	(0.055)	(0.056)	(0.063)	(0.055)	(0.056)	(0.062)
Lagged dependent variable (2 lag)	-0.170***	-0.080*	0.059	-0.182***	-0.083*	0.052
	(0.049)	(0.046)	(0.052)	(0.048)	(0.046)	(0.051)
Lagged dependent variable (3 lag)	-0.186***	-0.075*	0.047	-0.191***	-0.077**	0.043
	(0.040)	(0.039)	(0.043)	(0.040)	(0.039)	(0.043)
Lagged dependent variable (4 lag)	0.010	0.006	0.024	0.009	0.004	0.023
	(0.029)	(0.027)	(0.030)	(0.028)	(0.027)	(0.030)
Log wage (lagged)	-0.825***	-0.869***	-0.982***	-0.802***	-0.862***	-0.971***
	(0.061)	(0.064)	(0.072)	(0.060)	(0.063)	(0.071)
Levels terms						
Not employed				-0.078	-0.181**	-0.255***
				(0.069)	(0.078)	(0.081)
ILO unemployment	-0.376**	-0.398**	-0.501**			
	(0.154)	(0.183)	(0.201)			
Inactive females, disabled	0.064	0.118	0.032			
	(0.182)	(0.206)	(0.214)			
Inactive males, disabled	-0.247	-0.290	-0.144			
	(0.182)	(0.216)	(0.226)			
Inactive females, not disabled	0.177	-0.013	-0.375**			
	(0.142)	(0.177)	(0.181)			
Inactive males, not disabled	-0.019	-0.335	-0.108			
	(0.222)	(0.247)	(0.275)			
Skills	0.233***	0.236***	0.254***	0.216***	0.226***	0.254***
	(0.056)	(0.065)	(0.063)	(0.055)	(0.065)	(0.063)
Manufacturing share	0.068	0.072	0.005	0.080	0.096	0.024
	(0.071)	(0.081)	(0.091)	(0.071)	(0.081)	(0.091)
Change terms						
Not employed				0.129	0.040	-0.161
				(0.089)	(0.109)	(0.108)
ILO unemployment	-0.043	-0.051	-0.370*			
	(0.173)	(0.200)	(0.208)			
Inactive females, disabled	0.290	0.313	0.037			
	(0.204)	(0.250)	(0.259)			

Continued

Table C.1 Continued

Labour market slack	Disaggregated			Not employed		
Dependent variable	Average	25th percentile	10th percentile	Average	25th percentile	10th percentile
Inactive males, disabled	-0.216	-0.333	-0.352			
	(0.221)	(0.244)	(0.260)			
Inactive females, not disabled	0.397**	0.255	-0.026			
	(0.156)	(0.201)	(0.192)			
Inactive males, not disabled	0.127	-0.041	-0.097			
	(0.202)	(0.254)	(0.240)			
Skills	0.237***	0.163**	0.235***	0.226***	0.156**	0.227***
	(0.058)	(0.068)	(0.073)	(0.058)	(0.068)	(0.073)
Manufacturing share	0.124	0.169	-0.036	0.128	0.183	-0.021
	(0.106)	(0.128)	(0.138)	(0.107)	(0.128)	(0.138)
Observations	2,016	2,016	2,016	2,016	2,016	2,016
R-squared	0.529	0.500	0.496	0.526	0.497	0.494

Source: LFS.

Notes:
- Dependent variable specified as change in the log level.
- Statistical significance indicated as *10%, **5%, ***1%.
- Coefficient standard errors in brackets.
- Robust standard errors; Models estimated across 48 JCDs.
- Sample period 1997Q2-2008Q4 (some initial observations lost due to lagged variables).
- Dynamic fixed effects models.
- Models include fixed effects for JCDs, time-fixed effects, and seasonal dummies.
- Skills measure the share of hours worked by workers with qualifications higher than O-levels/GCSEs.
- Measures of non-employment all specified as share of working-age population.
- All levels terms included with a lag.

Table C.2 Local area wage regressions (pooled mean group estimates)

Labour market slack	Disaggregated			Not employed		
Dependent variable	Average	25th percentile	10th percentile	Average	25th percentile	10th percentile
Error correction term	-0.889***	-0.826***	-0.945***	-0.894***	-0.868***	-0.979***
	(0.049)	(0.051)	(0.065)	(0.047)	(0.050)	(0.066)
Long run elasticities						
JCP coverage	-0.007*	-0.014***	0.003	-0.004	-0.013***	0.001
	(0.004)	(0.005)	(0.004)	(0.004)	(0.005)	(0.004)
Not employed				-0.068	-0.304***	-0.145***
				(0.055)	(0.065)	(0.055)
ILO unemployment	-0.203*	-0.242*	-0.272**			
	(0.109)	(0.135)	(0.124)			
Inactive females, disabled	-0.047	-0.002	-0.375**			
	(0.148)	(0.171)	(0.151)			
Inactive females, not disabled	0.211*	-0.180	-0.118			
	(0.116)	(0.139)	(0.129)			
Inactive males, not disabled	-0.069	-0.172	0.047			
	(0.164)	(0.187)	(0.172)			
Skills	0.286***	0.259***	0.239***	0.272***	0.193***	0.207***
	(0.043)	(0.051)	(0.047)	(0.044)	(0.052)	(0.048)
Manufacturing share	0.023	-0.194***	0.161**	-0.020	-0.144**	0.080
	(0.058)	(0.068)	(0.065)	(0.061)	(0.072)	(0.066)
Log wage (lagged) cross-sectional mean	0.965***	0.942***	0.983***	0.945***	0.951***	0.974***
	(0.017)	(0.021)	(0.018)	(0.017)	(0.020)	(0.017)
Dependent variable cross-sectional mean	0.850***	1.128***	0.856***	0.832***	0.977***	0.810***
	(0.092)	(0.130)	(0.095)	(0.090)	(0.124)	(0.089)
Dynamic terms						
JCP coverage	0.001	0.002	0.016	0.006	0.002	0.019
	(0.017)	(0.021)	(0.018)	(0.013)	(0.019)	(0.017)
Not employed				0.165**	0.044	-0.066
				(0.076)	(0.091)	(0.094)
ILO unemployment	0.211	0.195	-0.124			
	(0.168)	(0.192)	(0.213)			
Inactive females, disabled	0.075	0.293	-0.032			
	(0.219)	(0.249)	(0.269)			
Inactive males, disabled	0.031	-0.125	-0.063			
	(0.178)	(0.243)	(0.212)			
Inactive females, not disabled	0.336***	0.139	0.007			
	(0.126)	(0.191)	(0.160)			

Continued

Table C.2 Continued

Labour market slack	Disaggregated			Not employed		
Dependent variable	Average	25th percentile	10th percentile	Average	25th percentile	10th percentile
Inactive males, not disabled	0.469**	-0.003	0.087			
	(0.184)	(0.212)	(0.208)			
Skills	0.263***	0.220***	0.290***	0.240***	0.187***	0.268***
	(0.057)	(0.059)	(0.093)	(0.056)	(0.057)	(0.086)
Manufacturing share	0.268**	0.178	0.173	0.165	0.081	0.095
	(0.111)	(0.137)	(0.126)	(0.106)	(0.127)	(0.121)
Observations	2,016	2,016	2,016	2,016	2,016	2,016
R-squared	0.895	0.852	0.771	0.879	0.832	0.747
F-test for serial correlation	0.03	0.13	0.12	0.00	0.02	0.11
	(0.852)	(0.720)	(0.727)	(0.948)	(0.875)	(0.740)
Hausman test for heterogeneity	12.7	11.5	8.63	32.5	9.08	5.93
	(0.243)	(0.323)	(0.568)	(0.000)	(0.169)	(0.431)

Source: LFS.

Notes:
- Dependent variable specified as change in the log level.
- Statistical significance indicated as *10%, **5%, ***1%.
- Coefficient standard errors in brackets.
- P-values for diagnostic tests in brackets (small p-values suggest model misspecification).
- Models estimated across 48 JCDs.
- Sample period 1997Q2-2008Q4 (some initial observations lost due to lagged variables).
- Pooled mean group estimation (Pesaran, Shin and Smith, 1999).
- Long-run elasticities pooled.
- Mean group estimates shown for other terms, i.e. the coefficients on the dynamic and error-correction terms are allowed to vary across JCDs.
- Models include fixed effects for JCDs and four lags in the dependent variable.
- Skills measure the share of hours worked by workers with qualifications higher than O-levels/GCSEs.
- Measures of non-employment all specified as share of working-age population; All levels terms included with a lag.

Appendix D
Modelling the effect of Jobcentre Plus on the wider economy

This appendix presents the approach to modelling the wider economic effects of Jobcentre Plus. We extend the National Institute Global Econometric Model (NiGEM) to include details of the three main benefit groups of interest as well as the wider benefit system. This strand of the evaluation of Jobcentre Plus is not intended to estimate the effect of the policy reform. Rather, the results from the first four strands are introduced into a macroeconomic model of the UK economy in order to simulate the effects of policy change on the wider economy. In addition we are able to include the costs of introduction and the long-run savings implied by the reduction in Jobcentre Plus headcount. We include a detailed discussion of the properties of NiGEM and the extension to allow this evaluation. Key results are then reported together with some important sensitivity analysis. These results should be interpreted as an illustration of the potential macroeconomic effects due to the introduction of Jobcentre Plus. Our simulations suggest that the introduction of Jobcentre Plus has increased the level of GDP. However, there are negative productivity effects associated with the tendency for people moving from Income Support (IS) and Incapacity Benefit (IB) into work to take jobs of below average pay. The overall effect on the public finances is greater than the Department for Work and Pensions' (DWP's) Business Case costings. In a dynamic model such as NiGEM we are able to capture the impact of Jobcentre Plus on aggregate tax revenues and the implied effects on government interest payments, as well as the reduction in the up-rating in benefit payments. None of these factors were included in the original Business Case.

D.1 The simulation framework

In order to undertake a macroeconomic evaluation of the impact of Jobcentre Plus this study utilises NiGEM. This is the workhorse of the National Institute's work on macroeconomic evaluations and policy-relevant macroeconomic analysis. The model properties of NiGEM have been published on a number of occasions. For a comparison with the model properties of the Bank of England's macro model the Bank of England Quarterly Model (BEQM), see Barrell and Kirby (2007). The standard NiGEM model does not capture the details of the benefit system. In order to simulate the impact of the introduction of Jobcentre Plus, NiGEM has been extended to include details of the main linkages between the three main benefit groups and the economy. This allows us to evaluate the direct effects and feedbacks in the economy consequent from the policy change. But, we must bear in mind that in any such analysis, the final results are to some extent determined by the specific model properties as well as the assumptions embedded into the simulations.

D.1.1 The National Institute Global Econometric Model

NiGEM is a large estimated quarterly model of the UK and the world economies. The model is intended to capture the key features of the major world economies. It is theoretically coherent and quantified by means of empirical estimation over recent historical experience. It provides a plausible benchmark for estimating the effects on the economy of different policy decisions as well as other types of shocks. Recent examples of such work includes the simulated effect of changes to bank regulation on the wider UK economy (Barrell *et al*., 2009) and the likely impact of the recent rise

in oil prices (Barrell *et al*., 2011). In contrast to many small theoretical models of the economy, its complete specification ensures that important features of the economy are not omitted from the analysis.

It is set in what is essentially a New-Keynesian framework where agents are forward looking, but nominal rigidities, namely sticky prices and adjustment costs, slow down the adjustment to the long-run equilibrium. It includes complete demand and supply sides, as well as extensive monetary and financial sectors. Domestic demand, aggregate supply, and the external sector are linked through the wage-price system, income and wealth, the financial sector, the government sector, and competitiveness. The external sector links the domestic economy to the rest of the world. The theoretical structure and the relevant simulation properties of NiGEM are described in detail in Barrell *et al*. (2001, 2004).

For each country we have an underlying constant elasticity of substitution (CES) production function which constitutes the theoretical background for the specification of the factor demand equations and provides a measure of capacity utilisation which then feeds into the price system. A CES production function that embodies labour augmenting technological progress (denoted λ) with constant returns to scale, can be written as:

$$Y = \gamma[s(K)^{-\rho} + (1 - s)(Le^{\lambda t})^{-\rho}]^{-1/\rho} \quad (1)$$

The γ and s are production function scale parameters, and the elasticity of substitution, σ, is given by $1/(1+\rho)$. If $\sigma = 1$ ($\rho=0$), the production function is Cobb Douglas. Variables K and L denote the net capital stock and labour input measured in terms of hours worked by the employed. The parameters of the production function vary across countries. Given a point estimate of the elasticity of substitution it is possible to recover the rate of labour-augmenting technical progress, λ.

Barrell and Pain (1997) show that the elasticity of substitution is estimated from the labour demand equation, and in general it is around 0.5. Demand for labour and capital are determined by profit maximisation of firms, implying that the long-run labour-output ratio depends on real wage costs and technical progress, while the long-run capital-output ratio depends on the real user cost of capital:

$$\ln(L) = a + \ln(Y) - (1 - \sigma)\lambda t - \sigma\ln(w / \rho) \quad (2)$$

$$\ln(K) = \delta + \ln(Y) - \sigma\ln(c / \rho) \quad (3)$$

where α and δ are constant terms related to the other parameters in the model, w/p is the real wage and c/p is the real user cost of capital. The user cost of capital is influenced by corporate taxes, depreciation (consumption of fixed capital) and risk premia and is a weighted average of the cost of equity and debt finance. The weights vary with the size of equity markets as compared to the private sector capital stock. Business investment is determined by the error-correction-based relationship between actual and equilibrium capital stocks. It is the response of firms that is one of the main drivers of any boost to aggregate demand. Firms anticipate the expansion of the labour force and aggregate incomes and hence invest to raise the level of capital stock to a new equilibrium in order to maintain their desired capital-output ratio. This shift raises demand through an increase in investment: the accelerator effect. This is not an immediate response but rather a gradual shift to a new equilibrium, due to such factors such as adjustment costs for implementing additional investment. Government investment depends upon trend output in the long run. Prices are determined as a constant mark-up over marginal costs in the long term.

Within NiGEM core prices are determined as the solution to a cost minimisation problem, which assumes that firms choose factor inputs to minimise the cost of producing the desired level of output. Core prices are driven by import prices and by the total cost of production, where the latter is

constructed from the wage per person hour and the nominal user cost of capital per unit of capital. We incorporate an endogenous markup, which we model as a function of the output gap. This core price variable is used in the determination of consumer prices and hence of the rate of inflation. The price equations, and the wage equations that they depend upon, are dynamically and statically homogenous.

Capacity utilisation also affects price setting and depends on actual as compared to potential output. If output is above capacity prices rise more rapidly than their determinants (foreign prices, costs, expectations) would suggest, and the reverse is the case if the economy is below capacity. If prices fall relative to baseline because the economy is below capacity then real financial wealth rises, and competitiveness improves, and both help raise capacity utilisation through higher domestic demand and exports. These effects stabilise the economy slowly.

D.1.2 Labour market

The labour market is important in the context of analysing Jobcentre Plus. In NiGEM we have a labour demand curve, and we assume that employers have a right to manage, and hence the bargain in the labour market is over the real wage. In the long run, wages rise in line with productivity all else equal. Other factors matter, for instance if unions become stronger real wages rise and employment falls. Given the determinants of the trajectory for real wages, if unemployment rises then real wages fall relative to trend, and conversely.

There is continual structural change in labour markets and sustainable unemployment changes when policies change. We regularly update our model so that it reflects the economies we are studying, rather than being just a simple description of past data. Both the determinants of equilibrium and the dynamics of adjustment change, and adjustment, especially in Europe, is slow.

We assume that labour markets embody rational expectations, at least where we have evidence that bargainers use forward expectations of future inflation (Anderton and Barrell, 1995). In certain circumstances we assume that wage bargainers do not use model-consistent expectations, but rather look at a simple time series predictor for next period's inflation.

A long-run labour demand schedule conditioned on real wages, technical progress and output (Barrell and Pain, 1997) can be derived from the production function (1). We first set the mark-up adjusted real wage equal to the marginal product of labour[76], which is the derivative of (1) with respect to L. We then solve for L and apply a log-linear transformation:

$$Ln(L) = [\sigma \ln\{\beta(1-s)\} - (1-\sigma)\ln(\gamma)] + \ln(Y) - (1-\sigma)\lambda t - \sigma \ln(w/p) \qquad (4)$$

where w and p denote, respectively, labour costs per head and the price of value added (at factor cost). β denotes the mark-up. Denoting the expression in brackets by α gives equation (2). We estimate the demands for factors as error corrections around the long run.

We estimate the natural rate of unemployment within a stylised version of the bargaining framework of Layard *et al.* (1991, Chapter 2). Firms determine employment according to their labour demand curves and therefore bargaining only takes place over wages, the outcome reflecting the relative strength of unions versus employers. The non-accelerating inflation rate of unemployment is an equilibrium concept corresponding to the rate of unemployment that would prevail were the endogenous wage and price variables at their equilibrium levels (Barrell *et al.*, 1993). Our analysis uses a labour demand equation (as described above) and a wage equation.

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[76] Demand for capital is given by $Ln(K) = [\sigma \ln\{\beta s) - (1-\sigma)\ln(\gamma)] + \ln(Y) - \sigma \ln(c/p)$, where c is the nominal user cost of capital. Denoting the bracket of the equation as δ gives equation (3).

The wage equation models in a stylised way the determinants of the bargaining outcome by making wages dependent on the prevailing ILO unemployment rate (*U*), as well as on average labour productivity. Clearly, many other factors such as replacement ratios, the degree of unionisation or the existence and level of minimum wages influence the bargain. In this analysis they are encapsulated in the intercept, α , and we can analyse them by shifting the intercept. It then holds that:

$$\ln(W/P) = a + \ln(Y/L) - bU \tag{5}$$

An estimate of the Non-Accelerating-Inflation Rate of Unemployment (NAIRU) can now be obtained by solving the labour demand equation (2) for the (log) real wage, inserting the result into the equation for the real wage (5) and solving the latter for the unemployment rate:

$$NAIRU_t = \frac{1}{b}\left(\frac{\sigma-1}{\sigma}\left[\ln\left(\frac{Y_t}{L_t}\right) - \lambda t\right] - a - \alpha/\sigma\right) \tag{6}$$

If σ =1 then the parameters and intercepts in the equations determine the NAIRU. These equations express long-run equilibrium relationships, and appear as cointegrating vectors in NiGEM's error correction formulation for the labour demand and wage equations, respectively. Layard *et al.* (1991) state that *'in the long run, unemployment is determined entirely by long-run supply factors and equals the NAIRU. But in the short run, unemployment is determined by the interaction of aggregate demand and short-run aggregate supply*' (p.16). One of the key properties of NiGEM is that in the long run, employment and output are determined by supply-side factors only. Long-run economic growth is determined by the growth in the labour force and by technical progress. Nevertheless, demand shocks are an important determinant of economic activity in the short and longer term.

D.1.3 Consumption, personal income and wealth

Consumption decisions are presumed to depend on real disposable income and real wealth in the long run, and follow the pattern discussed in Barrell and Davis (2007). Total wealth is composed of both financial wealth and tangible (housing) wealth where the latter data is available.

$$\ln(C) = \alpha + \beta \ln(RPDI) + (1-\beta)\ln(RFN + RTW) \tag{7}$$

where C is real consumption, $RPDI$ is real personal disposable income, RFN is real net financial wealth and RTW is real tangible wealth. The dynamics of adjustment to the long run are largely data based, and differ between countries to take account of differences in the relative importance of types of wealth and of liquidity constraints.

D.1.4 Financial markets

We generally assume that exchange rates are forward looking, and 'jump' when there is news. The size of the jump depends on the expected future path of interest rates and exchange rate risk premia, solving an uncovered interest parity condition, so that the expected change in the exchange rate is given by the difference in the interest earned on assets held in local and foreign currencies.

$$e_t = e_{t+1}\left(\frac{1+r_t^*}{1+r_t}\right)(1+rp_t) + w_t \tag{8}$$

where e_t is the bilateral exchange rate at time t (defined as domestic currency per unit of foreign currency), r_t is the short-term nominal interest rate at home set in line with a policy rule, r_t* is the interest rate abroad and rp_t is the exchange rate risk premium.

Interest rates are determined by policy rules adopted by monetary authorities as discussed in Barrell, Hall and Hurst (2006). Nominal short-term interest rates are set in relation to a standard forward-looking feedback rule[77]. Forward-looking long-term interest rates (LR) are a forward convolution of expected short-term interest rates:

$$(1 + LR_t) = \prod_{j=1}^{T} (1 + r_{t+j})^{1/T} \quad (9)$$

We assume that equity markets are also forward looking, with equity prices determined by the discounted present value of expected profits, adjusted by an equity risk premium.

D.1.5 Public sector

We model corporate (*CTAX*) and personal (*TAX*) direct taxes and indirect taxes (*MTAX*) on spending, along with government spending on investment and on current consumption, and separately identify transfers and government interest payments. Each source of taxes has an equation applying a tax rate to a tax base (profits, personal incomes or consumption). As a default we have government spending on investment *(GI)* and consumption *(GC)* rising in line with trend output in the long run, with delayed adjustment to changes in the trend. They are re-valued in line with the consumers' expenditure deflator *(CED)*. Government interest payments *(GIP)* are driven by a perpetual inventory of accumulated debts. Transfers to households *(TRAN)* are determined by the composition of benefit claimants, and are discussed in Section D.1.9. The adjusted spending minus receipts give us the budget deficit *(BUD)*:

$$BUD = CED*(GC+GI)+TRAN+GIP-TAX-CTAX-MTAX \quad (10)$$

We have to consider how the government deficit (*BUD*) is financed. We allow either money (*M*) or bond finance (*DEBT*), so that the debt stock is related to historical deficits:

$$BUD = \Delta M + \Delta DEBT \quad (11)$$

rearranging gives:

$$DEBT = DEBT_{t-1} - BUD - \Delta M \quad (12)$$

In all policy analyses we use a tax rule to ensure that Governments remain solvent in the long run (Barrell and Sefton, 1997). This ensures that the deficit and debt stock return to sustainable levels after any shock. A debt stock target can also be implemented. The tax rate equation is of the form:

$$TAXR = f(\text{target deficit ratio} - \text{actual deficit ratio}) \quad (13)$$

If the government budget deficit ratio is greater than the target(e.g. -3 per cent of GDP and target is -1 per cent of GDP), then the effective income tax rate is increased.

D.1.6 External trade

International linkages come from patterns of trade, the influence of trade prices on domestic prices, the impacts of exchange rates and patterns of asset holding and associated income flows. The structure of the trade block ensures overall global consistency of trade volumes by imposing that the growth of import volumes is equal to the growth of export volumes at the global level. Trade volumes and prices are linked by Armington matrices, based on 2005 trade patterns. The volumes

[77] Our default rule follows a 'two-pillar' strategy, targeting a combination of inflation and a nominal aggregate. In this analysis we use price-level targeting as discussed in Section D.2.

of exports and imports of goods and services are determined by foreign or domestic demand, respectively, and by competitiveness as measured by relative prices or relative costs. The export demand variable is constructed as a weighted sum of other countries' imports, which ensures approximate balance, and any discrepancy is allocated to exports in proportion to the country's share of world trade. Import prices depend on a weighted average of global export prices, and this ensures that the ratio of the value of exports to the value of imports remains at around its historical level. It is assumed that exporters compete against others who export to the same market as well as domestic producers via relative prices. Imports depend upon import prices relative to domestic prices and on domestic total final expenditure. The overall current balance depends upon the trade balance and net property income from abroad, which comprises flows of income onto gross foreign assets and outgoings on gross foreign liabilities. World flows of property income balance because all assets are matched by liabilities, while revaluations of liabilities match those of assets and income flows match payment flows.

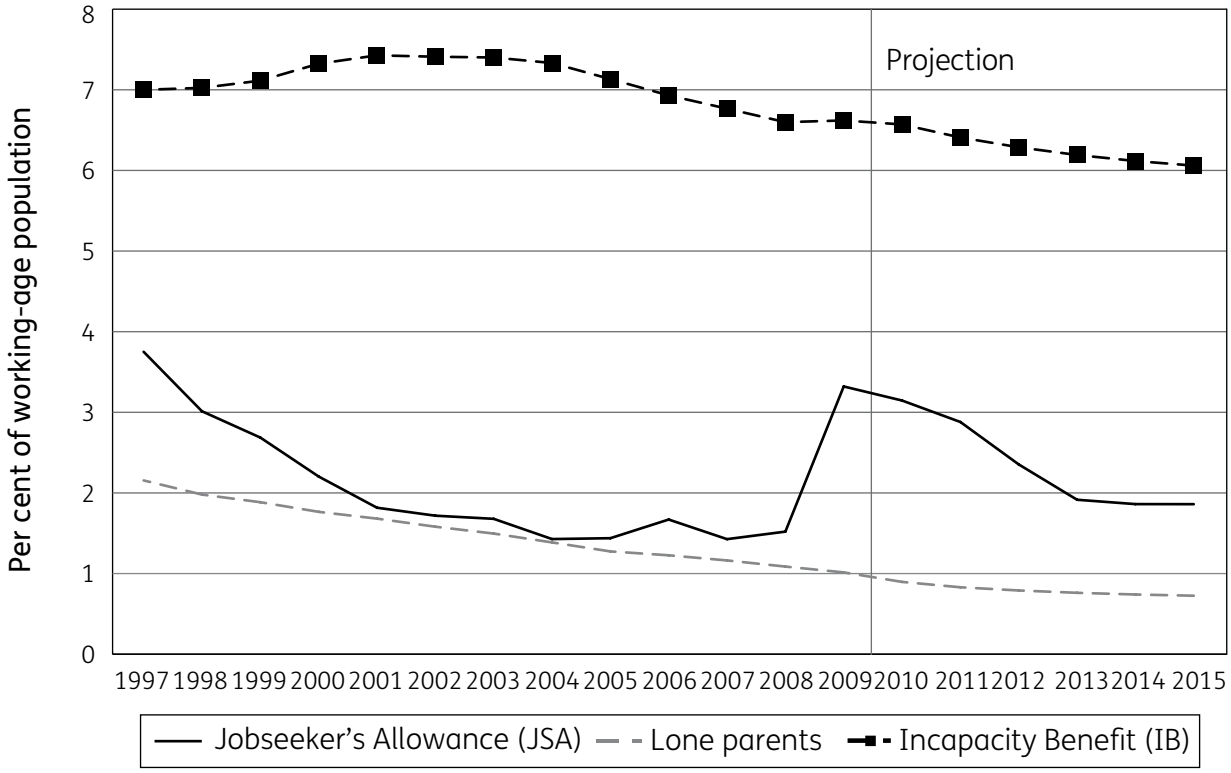
D.2 Extensions to the core model

The baseline use in this evaluation is the historical data for the period 2001-2010Q2. For the period 2010Q3 to 2015Q4 the National Institute's October 2010 forecast (see Kirby *et al*., (2010) for details) is used as the baseline. The deficit target used on this baseline is general government borrowing for the period from 2001Q3 onwards. This is then a combination of the UK's historical borrowing record (up to 2010Q2) and then borrowing figures as projected by the National Institute. The shape of this borrowing forecast, the profile of debt and the corresponding interest payments, are to a large extent irrelevant for the purposes of the simulation results presented here. The simulations are intended to illustrate the potential effects on the public finances from the introduction of Jobcentre Plus. As such they are reported as the divergence from our baseline, rather than some implicit government target for the public finances.

D.2.1 Including the benefit groups

Appendix A presents the empirical work on the effect of Jobcentre Plus on the exits to jobs from the three benefit groups. Because this is where the effect of Jobcentre Plus is realised, modelling exits from a particular benefit group is core to the evaluation exercise. We model the shift in the exit rate from the three different benefit groups, associated with Jobcentre Plus, as an exogenous shock based on the empirical work presented in Appendix A.

Figure D.1 The evolution of benefit stocks



Source: Five per cent and WPLS from NOMISWEB, NIESR calculations and baseline.

We are not just interested in the flows of benefit claimants. The stock of benefit claimants is important if we are to determine the effect of the introduction of Jobcentre Plus on the public finances. In order to model the evolution of the stock of the three benefit claimants we include an estimate of the rate of inflows to the stock. Steady-state benefit claim numbers are determined by the respective inflow and exit rates. We assume that the inflow rates to the three different benefit states are exogenous. Over the course of the baseline projection we assume that inflow rates are non-varying by time. While such an assumption might be questioned with respect to the Jobseeker's Allowance (JSA), it is, perhaps, more plausible for IS and IB claimants.[78] The stock and flow identities for the different benefit groups are defined as:

$$S_{i,t} = S_{i,t-1} + IN_{i,t} - OUT_{i,t} \quad (14)$$

Where $S_{i,t}$ is the stock of benefit group i in quarter t, $IN_{i,t}$ is the inflow of benefit group i between t and t-1, and $OUT_{i,t}$ is exits of benefit group i between t and t-1. The evolution of the benefit stocks since 1997 together with the baseline projections, as a share of the population of working age, is plotted in Figure D.1. The increase in JSA claimants, relative to the working-age population, over the period 2008-09 is due to the recent recession.

The inflow of benefit group i is defined with respect to the working-age population ($POPWA$) and an inflow rate ($INR_{i,t}$) derived from the data:

$$IN_{i,t} = INR_{i,t} * POPWA_{t\text{-}1} \quad (15)$$

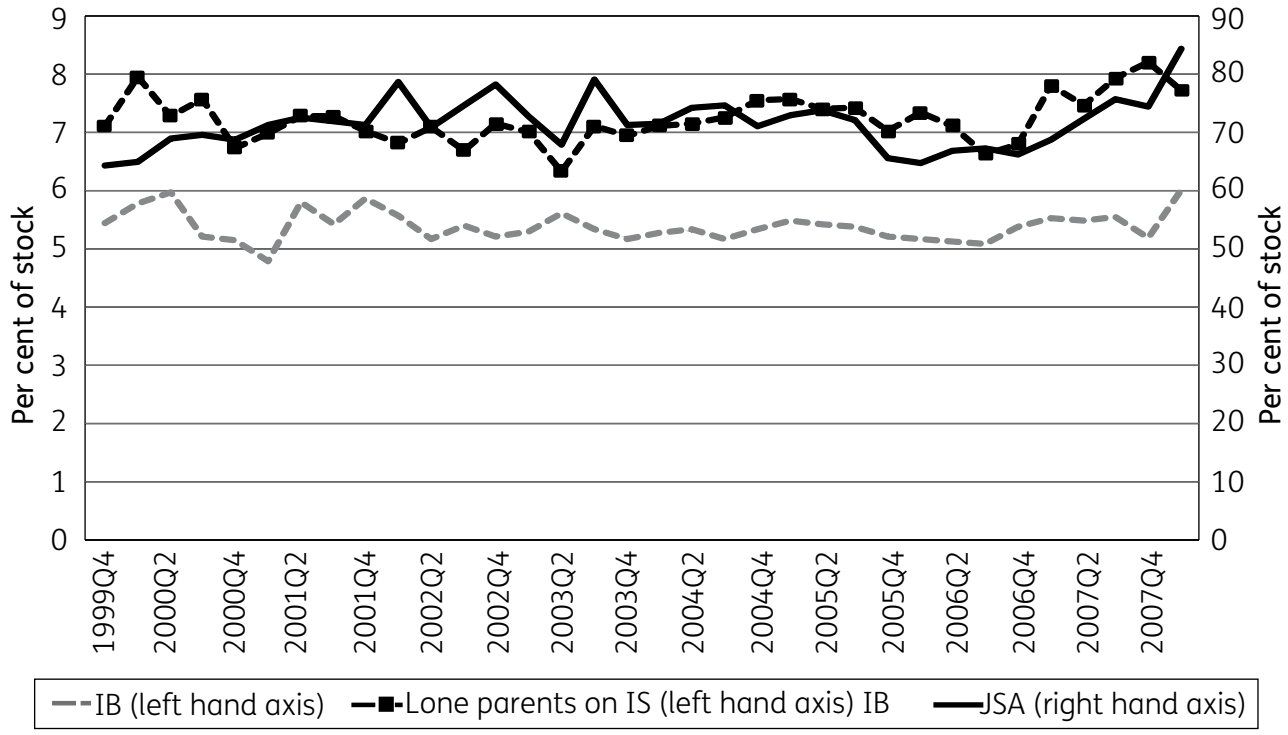
78 Tables A.6-A.8 in Appendix A suggest that inflow rates to JSA depend on the cycle to a larger extent than inflow rates to IS or IB.

In a similar fashion, exits from a benefit stock ($OUT_{i,t}$) is defined as the exit rate ($OUTR_{i,t}$) with respect to the stock:

$$OUT_{i,t} = OUTR_{i,t} * S_{i,t-1} \quad (16)$$

Figure D.2 reports the exit rates to all destinations for the three benefit groups. These exit rates includes exits to other benefit states. The exit rates for the IS and IB claimants are derived from the exit data available from DWP tabulation tool. The exit rate for the JSA claimants is defined as the sum of the monthly exits from JSA over the period between period *t* and period *t-1*. To define gross exits and gross inflows as the average for this period, would be to considerably under-estimate the churn of JSA claimants. Of course, exits to jobs are a subset of these aggregate flows. The exit rate to jobs is reported in Figure D.3[79].

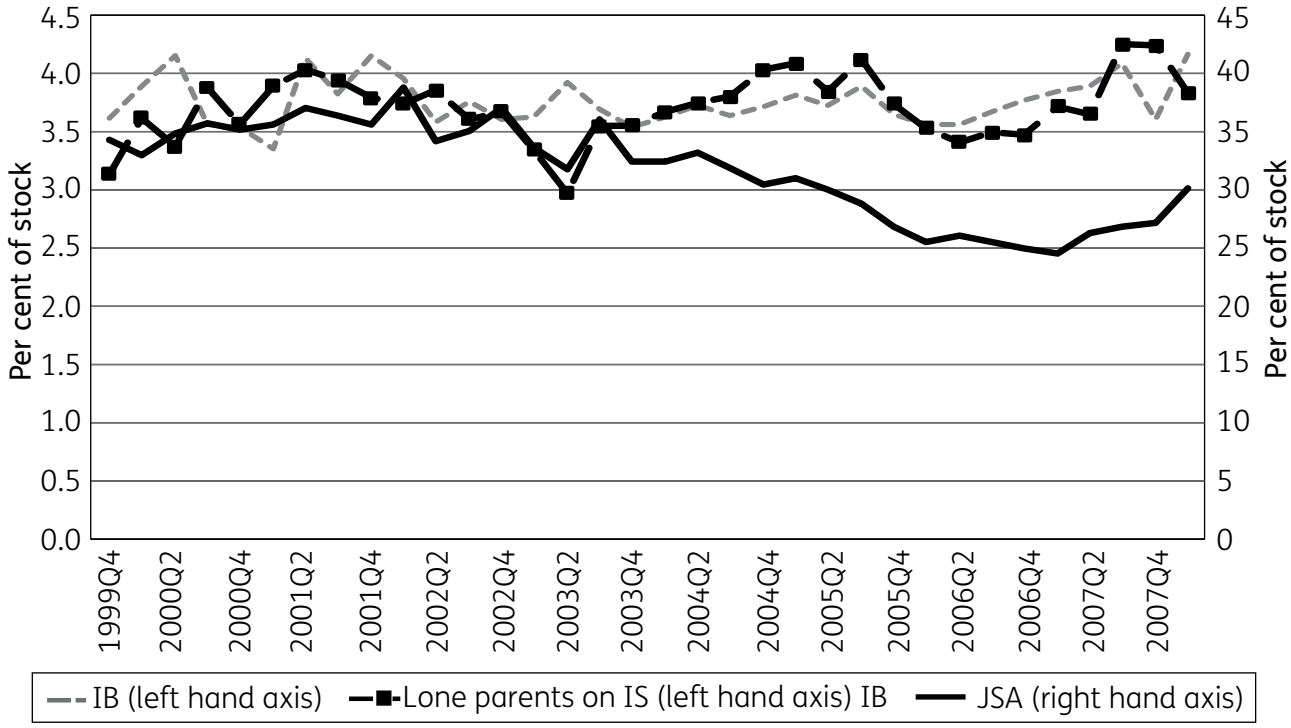
Figure D.2 Benefit group exit rates



Source: JSA from NOMISWEB (JSA40); IB and lone parents from DWP tabulation tool; authors' calculations. Note: Exit rates are to all destinations.

[79] The exit rate for IB claimants here is defined as exits to unknown/in-work benefit destinations. In the simulations we assume that 70 per cent of these are to jobs.

Figure D.3 Benefit group exit to jobs rates



Source: JSA from NOMISWEB (JSA40); IB and lone parents from DWP tabulation tool; authors' calculations. Note: Exit rates are to jobs, except for IB claimants which are exits to unknown/in-work benefits.

JSA claimants are treated differently to other benefit groups in the model. Unlike other benefit claimants, they should, by definition, be contained within the broader International Labour Organisation (ILO) measure of unemployment, which is imbedded in the wage equation. A change in the exit rate from JSA to jobs does not translate into a change in the labour force as it does for the other benefit groups, who we assume enter jobs from inactivity. Similar to other benefit groups, we need to model the stock-flow relationship for JSA claimants (separately from the ILO unemployed), since the stock of benefit claimants is what drives the evolution of transfer payments to households.

In modelling the impact of Jobcentre Plus on the wider economy we assume exit rates from JSA, IB and IS to jobs, which feature in equation (16), change as estimated in the local area flow analysis (Appendix A). We calculate the change in aggregate search effectiveness needed to sustain the implied change in employment from these changes in exit rates, and adjust the search effectiveness term in the wage equation (the b parameter in equation 5).

The labour force of working age, $LFWA$, is modelled as the participation share, PRT, of the population of working age, $POPWA$, as in equation (17). In modelling the effect of Jobcentre Plus we change the participation rate to account for the changes in the stock of IB and IS claimants implied by the effect of Jobcentre Plus on exit rates to jobs.

$$LFWA = PRT \bullet POPWA \quad (17)$$

This leaves a residual category for the working-age population. This group is defined as those of working age who are not employed or in one of the three benefit groups of interest:

$$LMR = POPWA - E - JSA - LP - IB \quad (18)$$

$$LF \equiv LFWA + LFR \quad (19)$$

In this analysis we assume that the labour supply of the retired *(LFR)* is exogenous and therefore fixed on baseline.

D.2.2 Modelling benefit payments

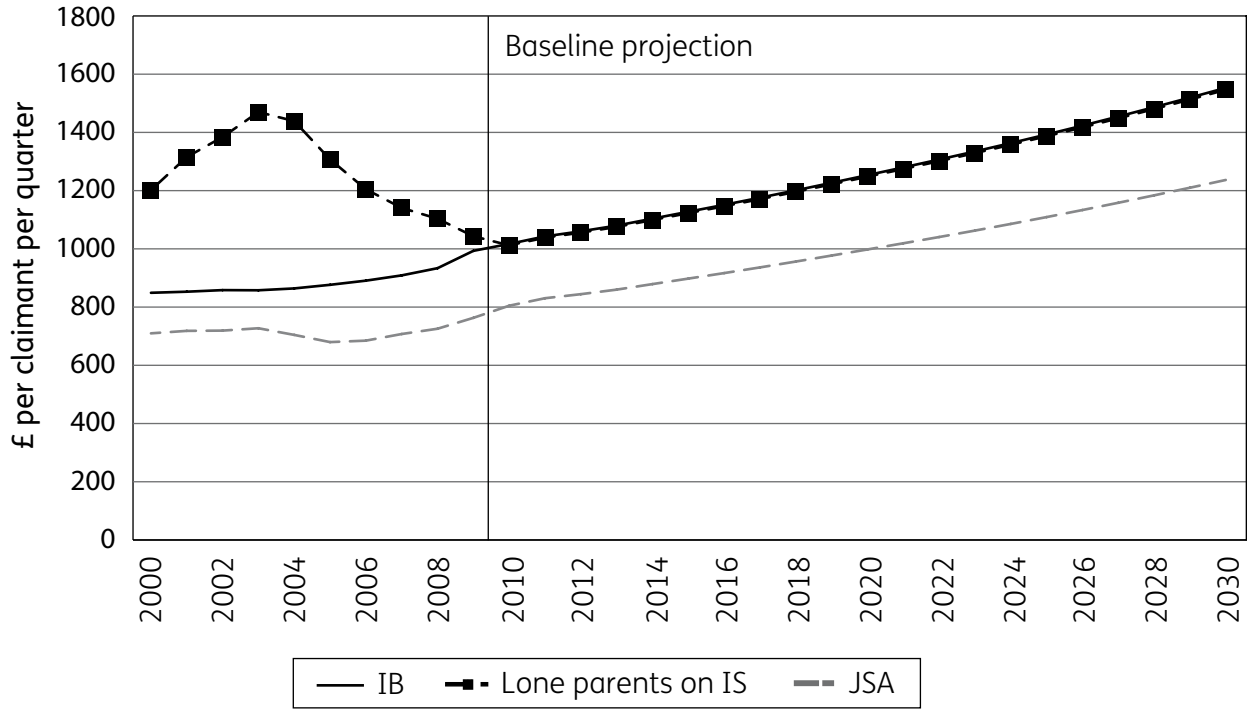
Transfers to households *(TRAN)* are determined by the size of benefit receipt groups and up-rating of these benefits. Recipient groups can be disaggregated into three broad categories: transfers to the State Pension age population, transfers for children (for example, Child Benefit) and transfers to the working-age population. For the purposes of this evaluation, transfers to children can be viewed as exogenous. Given that population demographics are treated as exogenous in NiGEM, the retired population will remain fixed. Transfers from the government to individuals of State Pension age (predominately in the form of the state pension) are assumed to grow in line with average wages. Clearly, any direct or indirect effects on wages due to policy will feedback onto benefits received by those of State Pension age. Benefit receipt by those of working age are the groups of interest for the purposes of this analysis.

$$TRAN = \alpha + \beta_R POPR + POPB_i * BEN_i \quad (20)$$

Where α is an intercept term, β_R is the pension replacement ratio multiplied by the nominal wage, $POPR$ is the population of State Pension age, $POPB_i$ is the stock of benefit recipients for benefit i and BEN_i is the time-varying benefit received per claimant per quarter for benefit type i. Defining the three distinct benefit groups is important given the variation in average benefits received per quarter. Figure D.4 reports the average benefit received in each of the three main client groups per quarter. These benefit calculations are seasonally adjusted versions of the mean benefit received by members of the respective benefit group. The baseline projection assumes that benefits are uprated in line with consumer prices.

We assume the residual category of the working-age population also has an average benefit rate. This is equal to the total benefit expenditure on those of working age other than the three benefit groups analysed here. Much of this is in the form of IS to claimants who are not a member of the three benefit groups we analyse. This total is divided by the residual labour market category. This implicitly assumes that for those leaving the three main benefit groups, but not into employment, there is an equal probability of moving into one of the alternative inactive labour market states, some of which receive other benefits. Ignoring this could suggest a larger effect on aggregate transfers to households than would otherwise have been the case.

Figure D.4 Average benefits received per claimant per quarter in each of the main benefit groups



Source: Estimated using data from the DWP tabulation tool, NIESR baseline projection.

D.3 Assumptions used in the evaluation

There are a number of additional economic assumptions used in NiGEM that underpin this analysis. In this section we highlight each of these in turn.

We assume exchange rates and financial markets are forward looking and respond to expected changes in interest rates. If interest rates are expected to be lower in the future as a result of a policy change then bond and equity prices will rise and the exchange rate will decline immediately, bringing some of the effects forward.

The current remit for the Bank of England provides a target for the rate of consumer price inflation. However, using this target can lead to permanent changes in the price level, as Barrell, Hall and Hurst (2006) show. Ignoring this fact can lead to misinterpretations of nominal magnitudes. It is for this reason that the scenarios have been undertaken using price-level targeting[80].

Labour market bargainers take account of both past and future inflation in setting wages, and the unemployment rate returns to the new equilibrium after a shock, although this takes some time.

We assume that the UK is a small open economy. This implies that an increased workforce leads to a lower real exchange rate in equilibrium in order to ensure that extra output can be sold.

80 We simulated our main case, discussed later in this appendix, with inflation targeting in place. The results were broadly similar. For example, by 2015 real GDP was 0.04 per cent higher under inflation targeting. In other words, the differences are minimal.

Output is determined in the long run by the supply of labour and the level of technical progress, and the capital stock adjusts to maintain the capital output ratio at its equilibrium level. The implications of changing the speed of adjustment of the capital stock are investigated.

We assume that productivity levels of those who remain in the workforce are on average the same as the rest of the population, independent of their age. For lone parents and disabled benefit claimants, we assume they move into below average productivity employment as informed by the estimates from the work presented in Appendix C. We use the estimates of hourly wages from the Annual Survey of Hours and Earnings (ASHE) to determine the ratio of different points on the wage distribution to the mean hourly wage. Based on the estimates in Appendix C we assume that the lone parents on IS have an effect on wages in the 10th percentile of the wage distribution, while IB claimants have an effect on the 25th percentile of the wage distribution. Table D.1 presents the wages at these different points in the wage distribution. The 25th percentile is equivalent to just over half the mean gross hourly wage. The 10th percentile is equivalent to just over 2/5 of the average gross hourly wage. These ratios appear relatively stable over the period of the existence of Jobcentre Plus (2001-10). In our main simulation we include these negative productivity effects. As a sensitivity check, we report a scenario where all exits are assumed to be equivalent to average productivity in the economy. Even in this instance productivity falls as business responds to an expansion of labour supply with a lag. That is, we see an increase in the labour intensity of production.

Table D1 Gross hourly pay

	Gross pay, £ per hour			Ratio to mean	
Year	Mean	25th percentile	10th percentile	25th percentile	10th percentile
1998	9.4	5.1	4.0	0.55	0.43
1999	9.8	5.4	4.2	0.55	0.43
2000	10.3	5.6	4.4	0.54	0.43
2001	10.8	5.8	4.5	0.54	0.42
2002	11.4	6.0	4.8	0.53	0.42
2003	11.8	6.3	5.0	0.54	0.43
2004	12.0	6.5	5.2	0.54	0.43
2005	12.5	6.7	5.4	0.54	0.43
2006	13.0	7.0	5.6	0.54	0.43
2007	13.4	7.3	5.8	0.54	0.43
2008	14.0	7.5	6.0	0.54	0.43
2009	14.5	7.8	6.2	0.54	0.43
2010	14.7	7.9	6.3	0.54	0.43

Source: ASHE.

Notes: Gross hourly pay for all workers in Great Britain.

We assume that the policy effect on exits from benefits to jobs, as estimated in Appendix A, can be modelled as an exogenous shock and that the estimated employment effect provides an estimate with which to calibrate the implied wage effect. We assume that additional exits from IB to unknown/in-work-benefit destinations are to jobs.[81] We assume that in-flows to benefit states are unaffected by the introduction of Jobcentre Plus. We use the estimated impacts on exits from JSA

81 We assume that 70 per cent of exits from IB to unknown/in-work-benefit destinations are to jobs, but the estimated additional off-flow from benefit due to Jobcentre Plus is assumed to be to jobs.

to work from the JSA40 data. These are very similar to those estimated on Her Majesty's Revenue and Customs' data. Increases in the inflow rate to JSA from other benefit states would increase the magnitude of the impact of introducing Jobcentre Plus on the public finances.

Gregg *et al.*'s (2009) estimate of the hours worked by lone parents is below the national average. The main simulation results presented here assume that the additional lone parents that flow into employment work the hours which are equivalent to this estimate.

In simulating the wider economy effects of Jobcentre Plus we switch off the tax solvency rule described in Section D.1.5. This allows us to estimate the impact of Jobcentre Plus on the public finances. Without this adjustment a reduction in benefit expenditure would be offset by a reduction in income taxes, underestimating the effect of Jobcentre Plus on the budget balance. Similarly we assume that government investment and consumption plans do not change from baseline apart from the direct effect of the introduction of Jobcentre Plus. DWP (2007, 2009) provide information on the extent of capital expenditure attributable to the introduction of Jobcentre Plus[82]. Unsurprisingly, the boost to capital expenditure is only temporary, largely ending by around fiscal year 2007-08. From this approach the implied cumulative figure for nominal gross investment over the period 2001-02 to 2007-08 is £900 million. National Audit Office (NAO) (2008: 12) suggests that the roll-out cost was a cumulative £1.9 billion, implying £1 billion cumulative expenditure on goods and services. Both investment and consumption costs of the roll-out are assumed to occur in-line with the roll-out of Jobcentre Plus. In addition we have assumed that the 15,000 headcount reduction occurred in-line with the roll-out[83]. We assume compensation per employee saved from this reduction to be equivalent to the mean wage cost implied by accounts published in Jobcentre Plus (2009: 77). This implies a saving of £408 million in 2008-09. The average wage cost per head of Jobcentre Plus staff over the period 2001-08 is assumed to have grown in-line with average total pay for the public sector (excluding the nationalised banks) in the Average Weekly Earnings data from the Office for National Statistics. By 2006-07 NAO (2008: 15) estimate net efficiency savings on the running of Jobcentre Plus were £135 million. We have included these additional government consumption effects in our simulations. In all cases the exogenous paths for government investment and consumption are deflated by their respective National Accounts deflators and introduced in volume terms[84].

D.4 Simulated effects on the wider economy

In this section we discuss the effects on the wider economy derived by simulation using NiGEM. The effect of increasing the exit rate of IB claimants and lone parents on IS, as estimated in Appendix A, is to expand the labour force and employment. The increase in the exit rate of JSA claimants implies a further increase in employment. As noted above, the implied increase in the search intensity of the ILO unemployed puts downward pressure on wages, raising employment demand. The expansion of the labour force and employment is presented in Figure D.5. Note this shows the per cent deviation in the stock of both the labour force and employment from baseline. The employment effect is in excess of the labour force because JSA claimants are already members of labour force.

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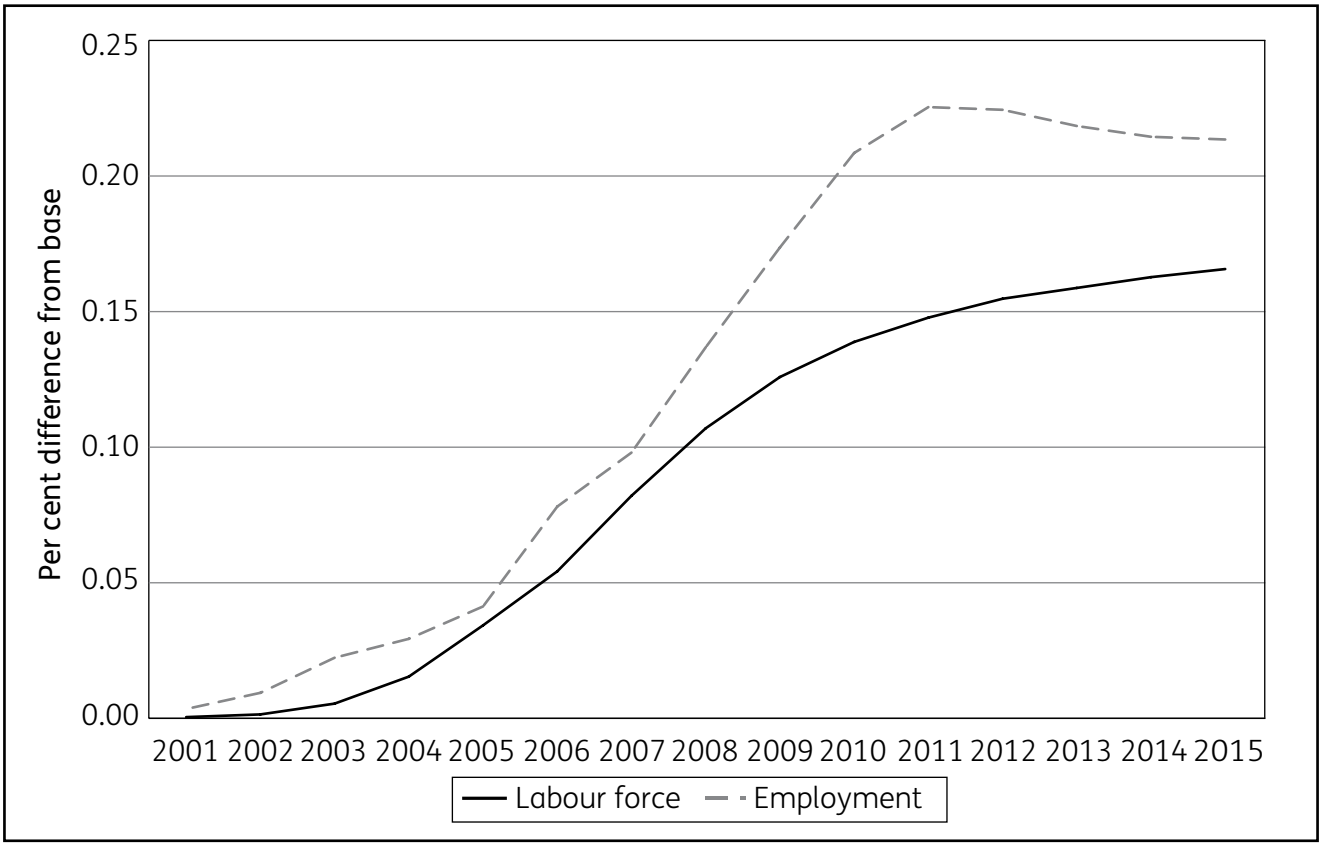
82 See Table 1, page 105 in DWP (2007) and Table 1, page 90, in DWP (2009).

83 The House of Commons Committee of Public Accounts report that Jobcentre Plus staffing was reduced by 15,000 (see HC (2008: 7)).

84 It is noticeable that, in all the business cases and their audit, no account was taken of both the effects of inflation and the increasing size of the economy. Any net cost/saving that is fixed in monetary terms after roll-out would, by definition, imply a reduction in the volume effect due to the impact of inflation.

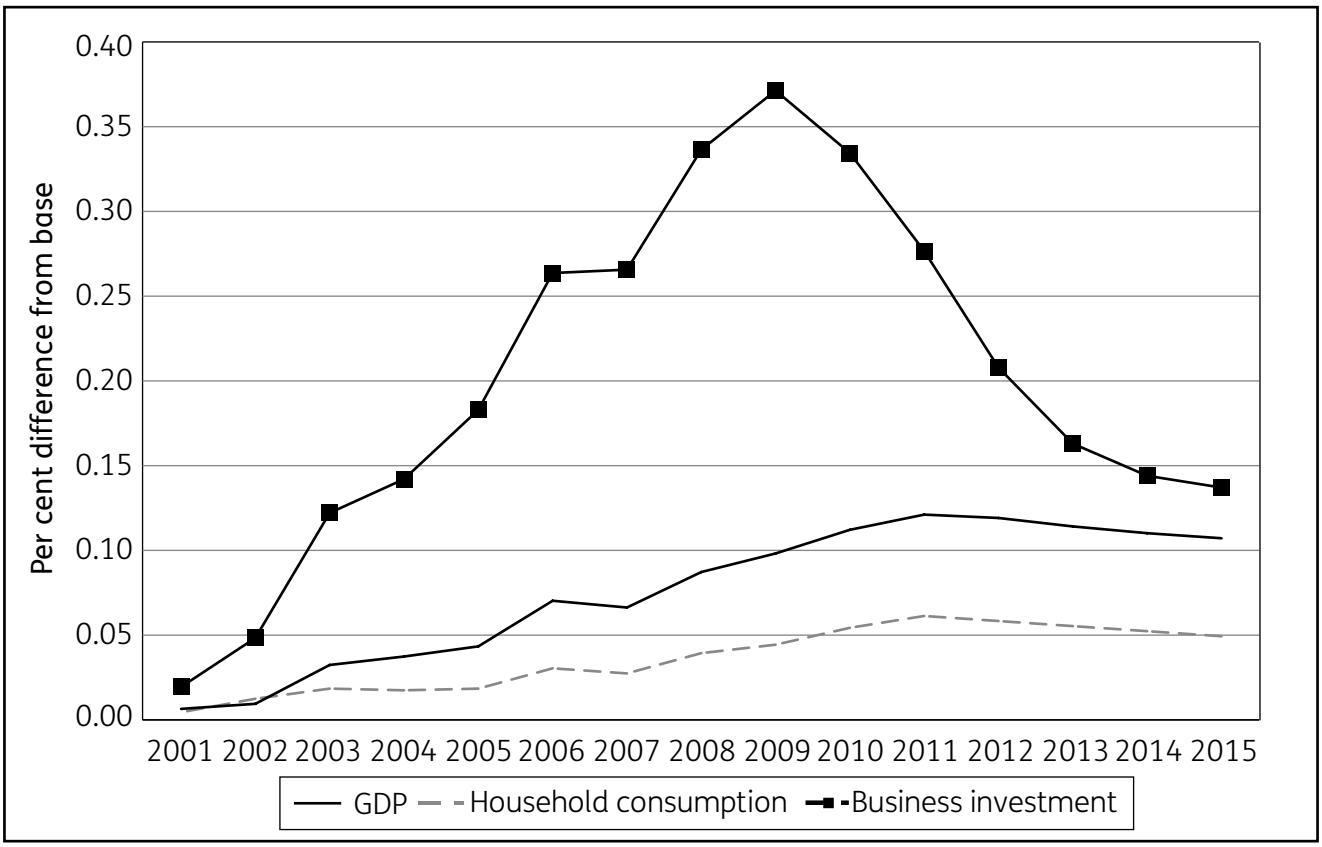
Figure D.5 The impact on the labour force and employment



The impact on average hours worked is insignificant. The increase in exits of lone parents claiming IS to jobs implies a reduction in the average hours worked, but this figure is modest. In terms of the per cent change in hours worked, the difference is minimal.

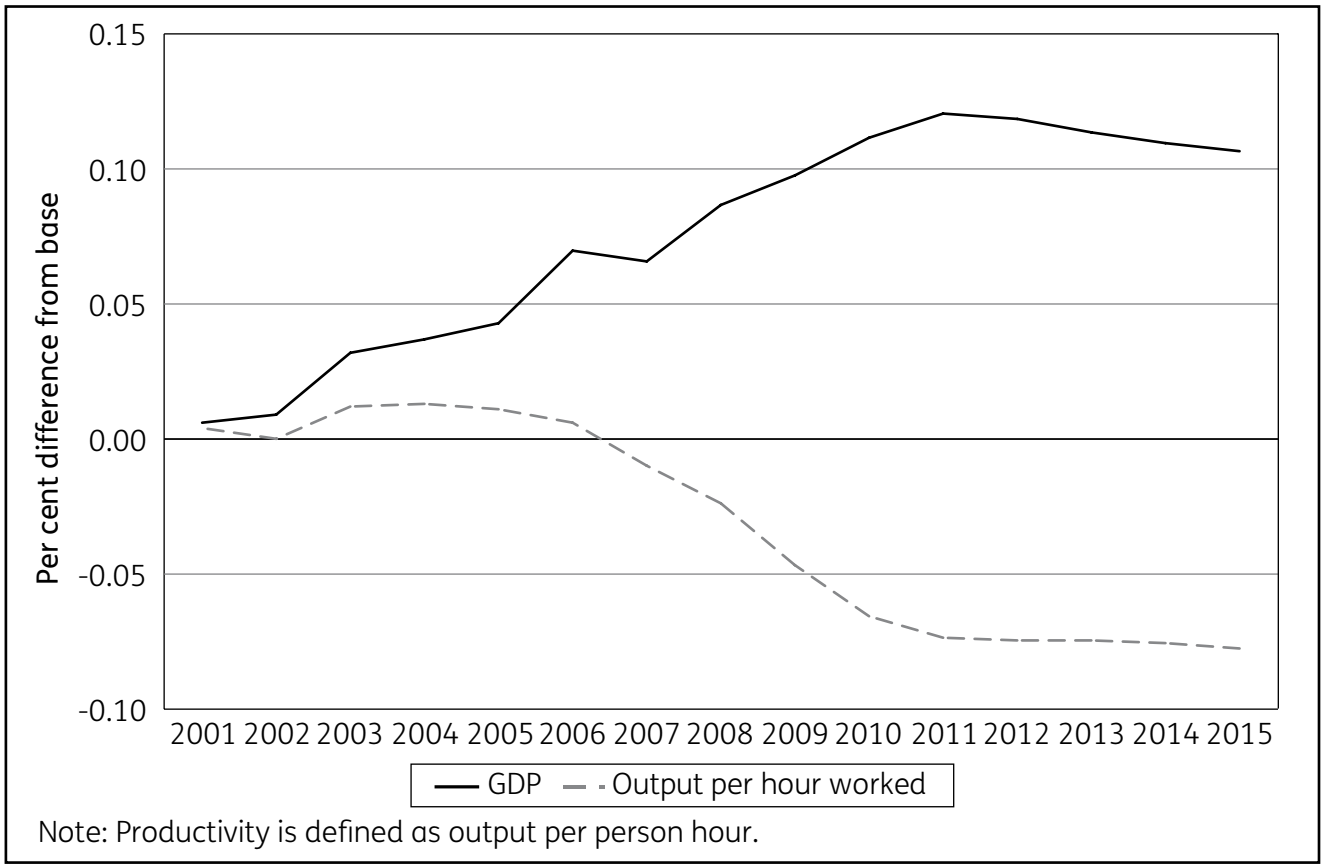
Key to the simulated effect on the wider economy is the response of the business sector. In the simulations firms are forward looking and so anticipate the increase in the effective labour force and employment. Given that we assume firms have a desire to maintain the ratio of the capital they employ to labour, the expansion of the labour force and employment due to Jobcentre Plus will induce an expansion of business investment. Figure D.6 plots the likely per cent difference from the baseline in the volume of business investment. This rises gradually to around 0.4 per cent in 2009, before falling back somewhat as the effects of Jobcentre Plus stabilise. This process of adjustment to a new equilibrium is a gradual one. Sticky prices and other adjustment costs mean that the volume of investment increases only gradually. Because capital adjustment is gradual there is a temporary reduction in average hourly productivity. There is also a longer-term effect arising from the assumption that those exiting IB and IS to jobs move into jobs with below average productivity. As Figure D.7 shows, average output per hour is reduced by 0.1 per cent in the longer term.

Figure D.6 The effect on GDP, consumer spending and business investment



By increasing the supply capacity of the economy, Jobcentre Plus increases GDP. In the long run the supply side of the economy determines macroeconomic outcomes, and thus any genuine changes to supply that are brought about by Jobcentre Plus should have sustainable effects on aggregate output. In the short term the effects of Jobcentre Plus are likely to be smaller than over the longer term if for no other reason then because the economy generally takes time to adjust to supply changes. As Figure D.6 shows, the likely effect on GDP is gradual, even after Jobcentre Plus has been fully rolled-out. The increase in GDP rises gradually to just under 0.1 per cent in 2008 and then to just over 0.1 per cent above baseline for the period 2010-15.

Figure D.7 The effect on GDP and average productivity

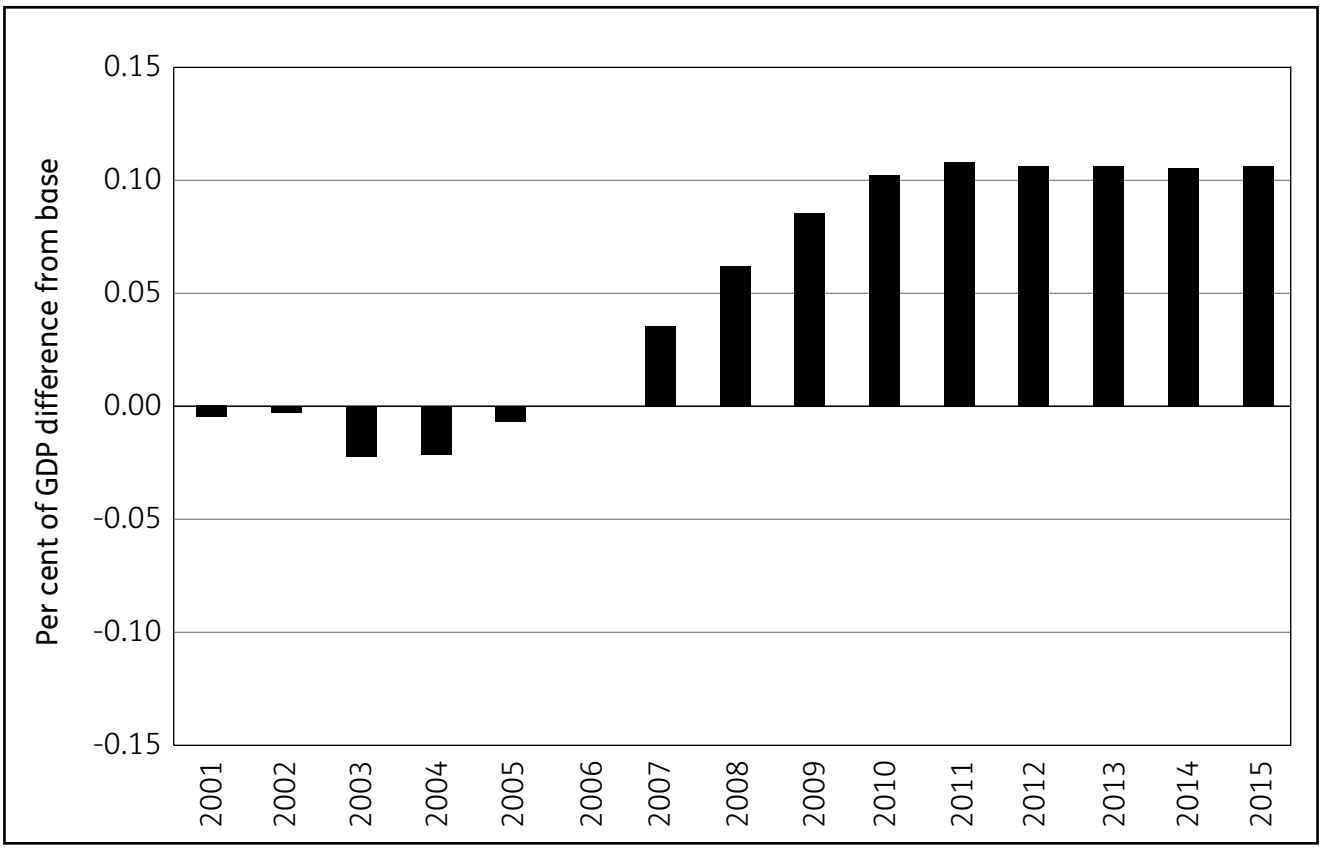


Note: Productivity is defined as output per person hour.

Figure D.8 presents the impact on the government's current budget balance over the period 2001 to 2015. The impact on the public finances is likely to be relatively modest. However, the effect on the public finances in aggregate over the simulation period is positive. In the short term there are negative effects on the government's budget balance, associated with the costs of roll-out as well as the negative start-up effects identified in the empirical work presented in Appendix A. With rising employment and GDP, and a reduction in the stock of benefit claimants, the budget balance should eventually improve. By 2015 this would suggest an annual improvement of around 0.1 per cent of GDP. We note that assuming the effective household income tax rate is exogenous is crucial to these simulated effects[85]. If the solvency rule in NiGEM was operating then the effective income tax rate would adjust to ensure the government budget balance returned to the baseline. In this instance we would see a reduction in the tax rate, implying a further increase in household real disposable income and an increase in consumer spending above that reported in Figure D.6.

[85] As noted above, we assume that government consumption is reduced permanently in the longer term and that government investment is fixed on baseline beyond 2008. In the absence of these assumptions the improvement in the budget position would be less.

Figure D.8 The impact on the general government budget position



The estimated savings from the benefit system are clearly of importance, but it is other factors that drive the improvement in the public finances. Government interest payments should be lower due to the direct effect from a reduction in the interest rate on the stock of new government debt issuance. Government interest payments are also reduced through smaller additional flows (deficits) onto the government debt stock. Such effects accumulate to the point (in 2015) where the saving on government interest payments reach around £800 million per annum (see Table D.2). Indeed, by 2015 around two-fifths of the reduction in government current expenditure from Jobcentre Plus is due to the reduction in government interest payments. In contrast, the direct benefit effect (that is the saving in transfer payments due to the reduction in the stock of the three main benefit groups) accounts for approximately 16 per cent of the total reduction in government current expenditure in 2015. The indirect benefit effect comes about because the downward pressure on wages and prices with Jobcentre Plus reduces expenditure on pensions and benefits. This is because these increase in line with wages and prices.

Table D.2 The effect on public sector expenditure from Jobcentre Plus, £ million, current prices

	Direct Benefit effect	Indirect benefit effect	General government consumption	Government interest payments	Total government current expenditure
2001	-2	0	53	-1	52
2002	-7	6	3	-3	4
2003	-16	16	203	-8	204
2004	-21	34	306	-10	325
2005	-36	12	207	-27	180
2006	-71	-18	363	-51	264
2007	-95	-88	113	-85	-101
2008	-145	-186	-13	-147	-423
2009	-192	-332	-94	-253	-782
2010	-245	-473	-231	-358	-1,201
2011	-281	-529	-329	-450	-1,481
2012	-289	-536	-342	-537	-1,596
2013	-293	-545	-343	-622	-1,693
2014	-298	-552	-334	-706	-1,778
2015	-304	-577	-320	-791	-1,875

Note: A negative sign is a positive contribution to the Exchequer. Not all components of current expenditure are reported.

Taxes also play a role. The increase in tax receipts is through two main sources: the increase in taxes paid through an expansion of employment and the increase in indirect taxes paid through the higher level of consumer spending associated with the boost to household incomes. The two main sources of tax revenue do not sum to the total presented in Table D.3. This is because corporation tax receipts also increase. As noted above, the lags in the response of business investment to the increase in the effective labour force mean that the labour intensity of production increases. This implies an increase in the rate of return on capital employed resulting in an increase in corporate profitability. Tax receipts increase to just over £100 million per annum over the period 2006-15. Tax receipts fall below baseline in the period 2011-15. This is due to the reduction in the price level as a consequence of Jobcentre Plus. If we look at inflation-adjusted tax receipts, then the effect is stable and positive over this period. While cumulatively the increase in tax receipts is around a fifth of savings in current expenditure, tax receipts are of a similar magnitude to the direct benefit savings from Jobcentre Plus.

The cumulative effect on the public finances over the period 2001 to 2015 is a positive contribution of just over £10 billion. Around £4 billion of this is due to the reduction in net interest payments. Tax receipts contribute around £1.9 billion. The direct contribution from a reduction in benefit claimants and departmental expenditure on the delivery of benefits (a measure broadly consistent with that used in the DWP's business case for the introduction of Jobcentre Plus) is around £4 billion, or an average of £250 million per annum, over the 15-year period[86].

[86] Given the roll-out cost of £1.9 billion, this implies a cumulative net saving of around £2 billion by 2015 (an average of just over £100 million per annum).

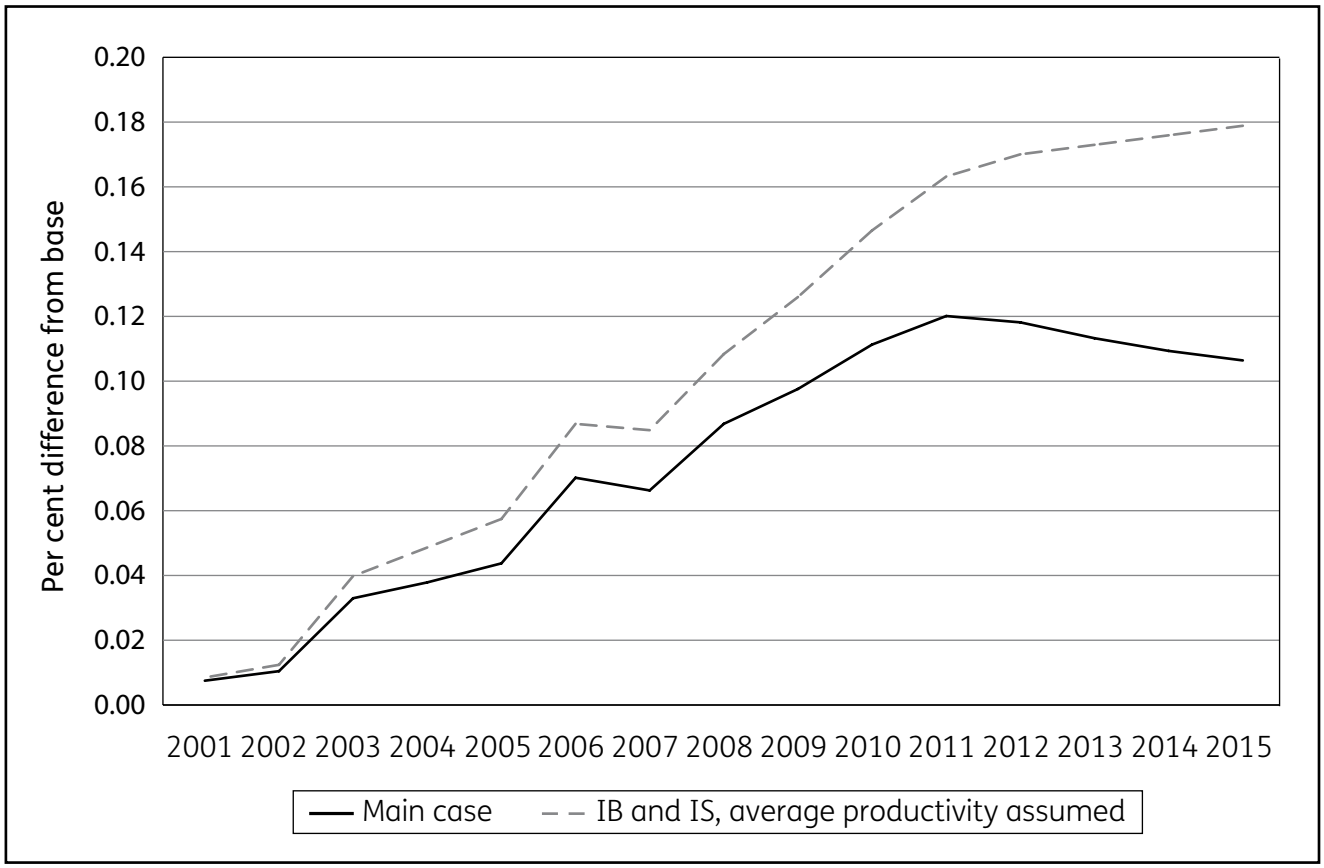
Table D.3 The effect on tax receipts from Jobcentre Plus, £ million, current prices

	Direct taxes on households	Indirect taxes	Total government receipts
2001	13	1	15
2002	25	15	44
2003	77	31	113
2004	116	75	204
2005	154	94	281
2006	207	124	387
2007	187	138	392
2008	195	112	391
2009	121	77	258
2010	47	33	138
2011	-15	-6	13
2012	-52	-20	-56
2013	-69	-28	-85
2014	-77	-31	-98
2015	-80	-32	-101

D.5 Sensitivity analysis: loosening the productivity assumption

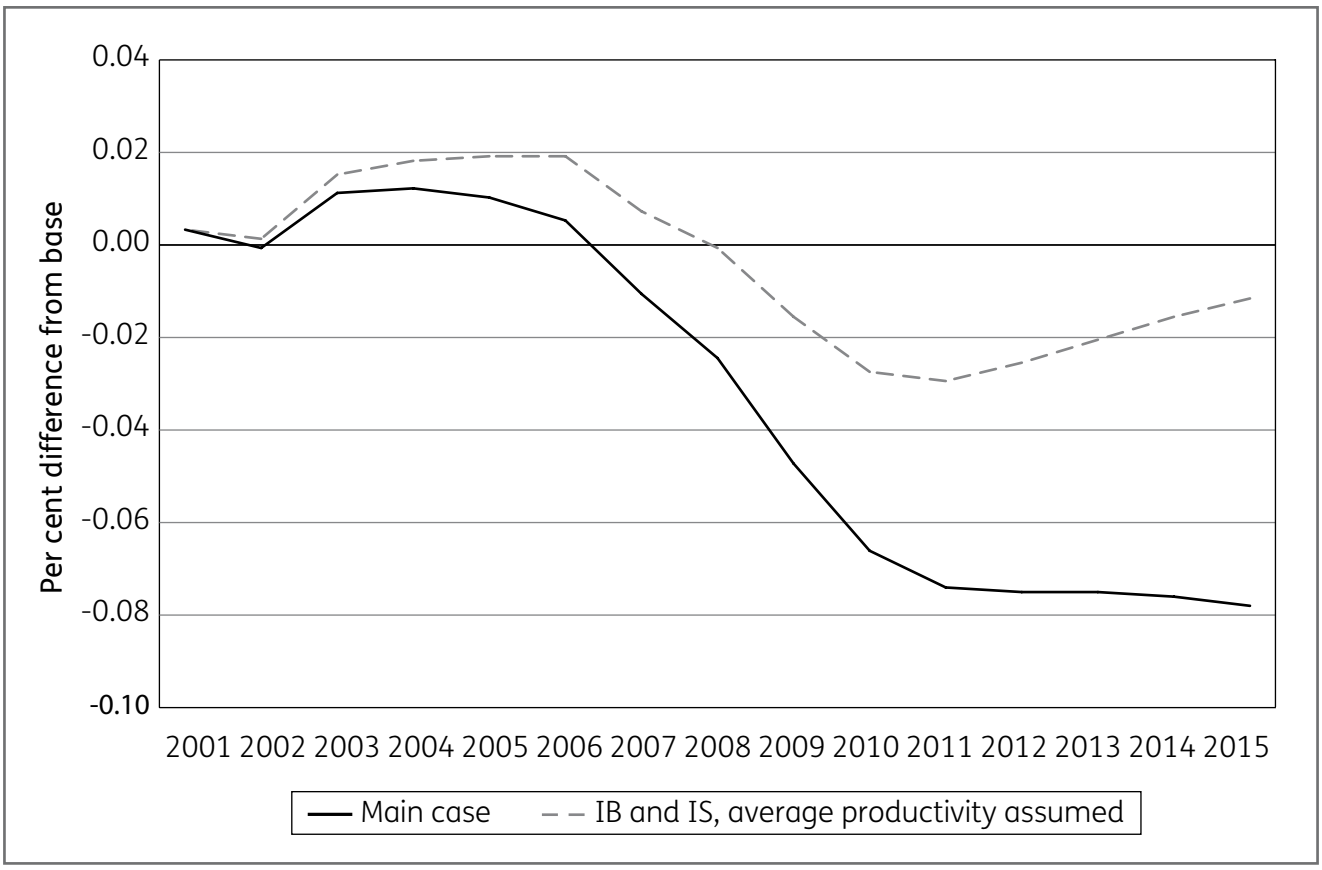
Given that the relative productivity of the benefit claimants is unobserved it is reasonable to test the sensitivity of our main results to the assumption of exits from IB and IS into lower productivity jobs. If we assume that the productivity of an individual is equal to their wage, then we can use information from the distribution of wages to guide our assumptions about relative productivity. The evidence from the estimated wage equations reported in Appendix C suggests that the unemployed may exit to average productivity jobs, while those claiming for a disability are more likely to go to lower productivity jobs (we assume productivity equivalent to the 25th wage percentile). For female lone parents on IS the evidence suggests they go into even lower productivity jobs (we use the 10th wage percentile as a proxy for their level of productivity). Table D.1 reports the three points from the distribution of gross hourly wages in each year over the period 1998 to 2010. It also includes columns that derive the ratio of these two percentiles to the mean wage over time. These two ratios are relatively stable. Over the period 2001-10 the 25th percentile wage is, on average, 54 per cent of the mean gross hourly wage. The respective figure for the 10th percentile gross hourly wage is 43 per cent. In the main simulation these two figures are the assumed levels of productivity, relative to the mean level of productivity, for IB and IS claimants going into work, respectively.

Figure D.9 The effect on GDP under different productivity assumptions



If we assume that the IB and IS claimants move into jobs with average productivity then the effect on GDP from the roll-out of Jobcentre Plus is larger than in our core scenario. By 2015 the difference between the two scenarios is equivalent to 0.07 per cent of GDP. However, as we noted above, even under the assumption that IB and IS claimants go to average productivity jobs, output per hour in the UK still falls, albeit only slightly, due to the gradual adjustment of the UK's capital stock to the expansion of the labour input (Figure D.10).

Figure D.10 The effect on average productivity under different productivity assumptions



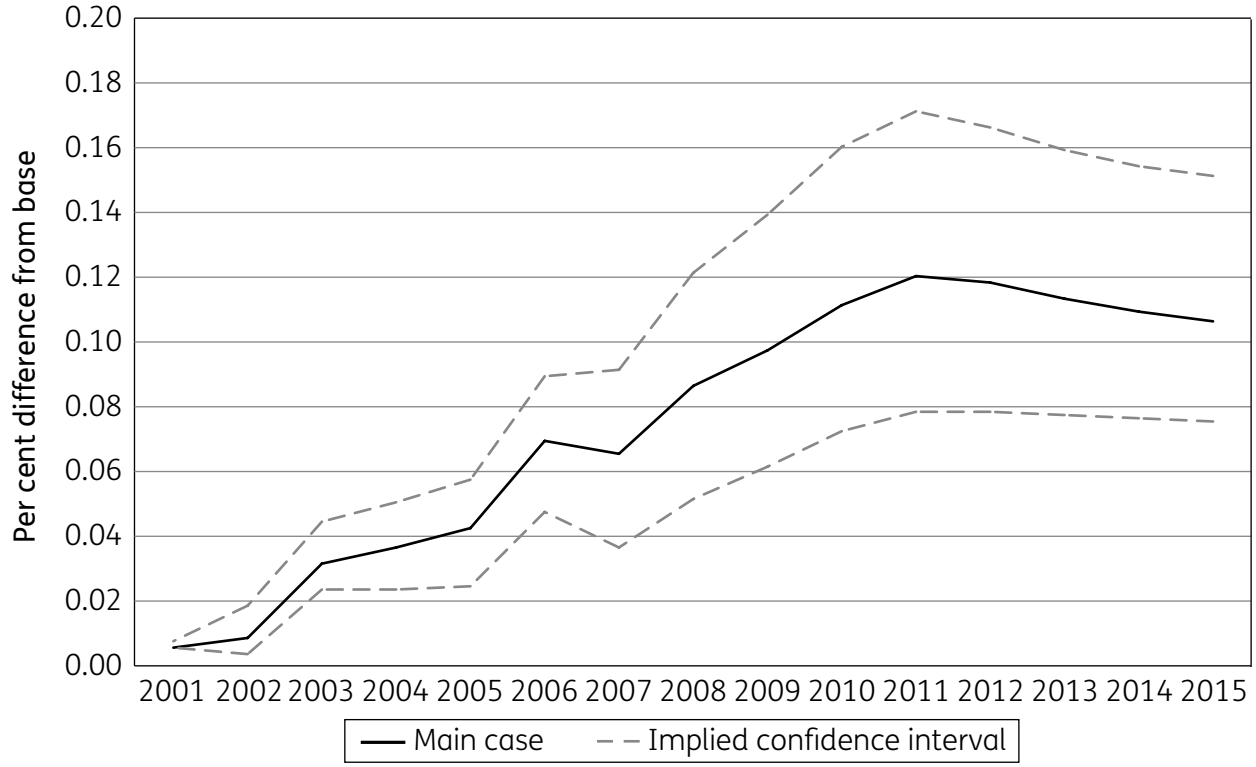
D.6 Sensitivity analysis: using the confidence intervals from the estimation phase

The results presented in Appendix A highlight the 95 per cent confidence intervals for the estimated Jobcentre Plus effects on labour market flows. We utilise the upper and lower bounds of these 95 per cent confidence intervals to produce a further set of simulations to highlight the sensitivity of the analysis to the scale of the estimated policy effect. Although not strictly 95 per cent confidence intervals for the simulated results, they can be viewed as plausible upper and lower bounds for the potential macroeconomic effects of the introduction of Jobcentre Plus[87]. The simulated effect on real GDP remains relatively small (Figure D.11), with the estimated impact ranging from 0.05 to 0.12 per cent by 2008. By 2015 the simulations suggest a cumulative impact of between 0.08 and 0.15 per cent of GDP. In terms of the impact on economic growth these estimates imply that the introduction of Jobcentre Plus should have raised GDP growth in the UK by less than 0.1 per cent per annum, on average, over the period 2001-15[88].

87 Confidence intervals around simulations are sometimes derived by running stochastic simulations.

88 The mean absolute revision to GDP growth in five of the *Blue Books* published by the Office for National Statistics over the period 1996 to 2007 was greater than 0.1 percentage points (see Meader, 2007).

Figure D.11 The effect of the introduction of Jobcentre Plus on the level of real GDP using the confidence intervals from the estimation phase

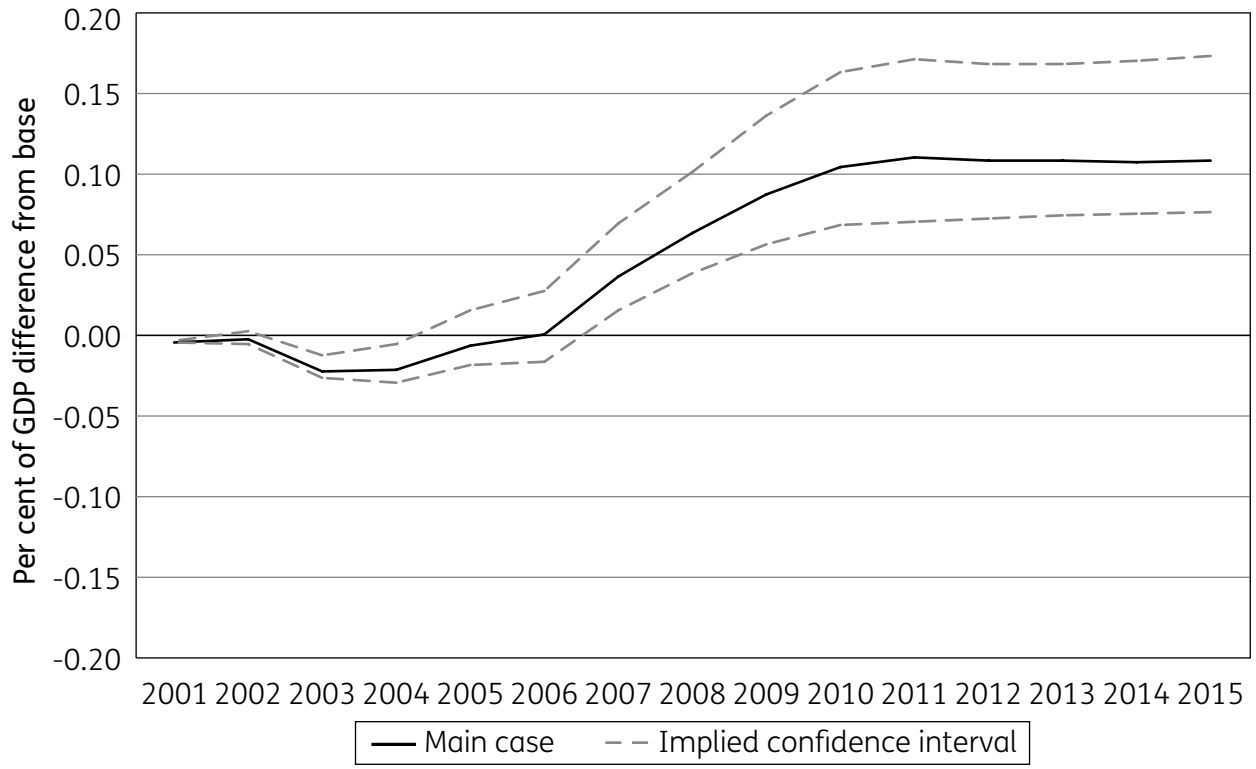


Note: The implied confidence interval is produced from simulations using the 95% confidence intervals from the estimates in Appendix A.

Figure D.12 reports the effect on the government's current budget balance. Under all three scenarios the illustrated cumulative impact on the public finances is positive. However, under the lower bound scenario the effect on the government budget balance is negative until 2006. Overall, by 2015 the simulated effect on the budget balance is expected to be between 0.08 and 0.17 per cent of GDP[89]. As in the main case, it is not the direct savings on government expenditures that drives the likely improvement in the public finances. Rather it is the indirect effects, through the lower uprating of benefits than otherwise would have been the case, from increased tax revenues and from lower government interest payments.

[89] To put this into context: the May 2011 vintage of the public finances suggests that public sector net borrowing was equal to 9.6 per cent of GDP in fiscal year 2010-11. This is a 0.1 percentage point upward revision from the April 2011 estimate.

Figure D.12 The effect of the introduction of Jobcentre Plus on the government's budget balance using the confidence intervals from the estimation phase

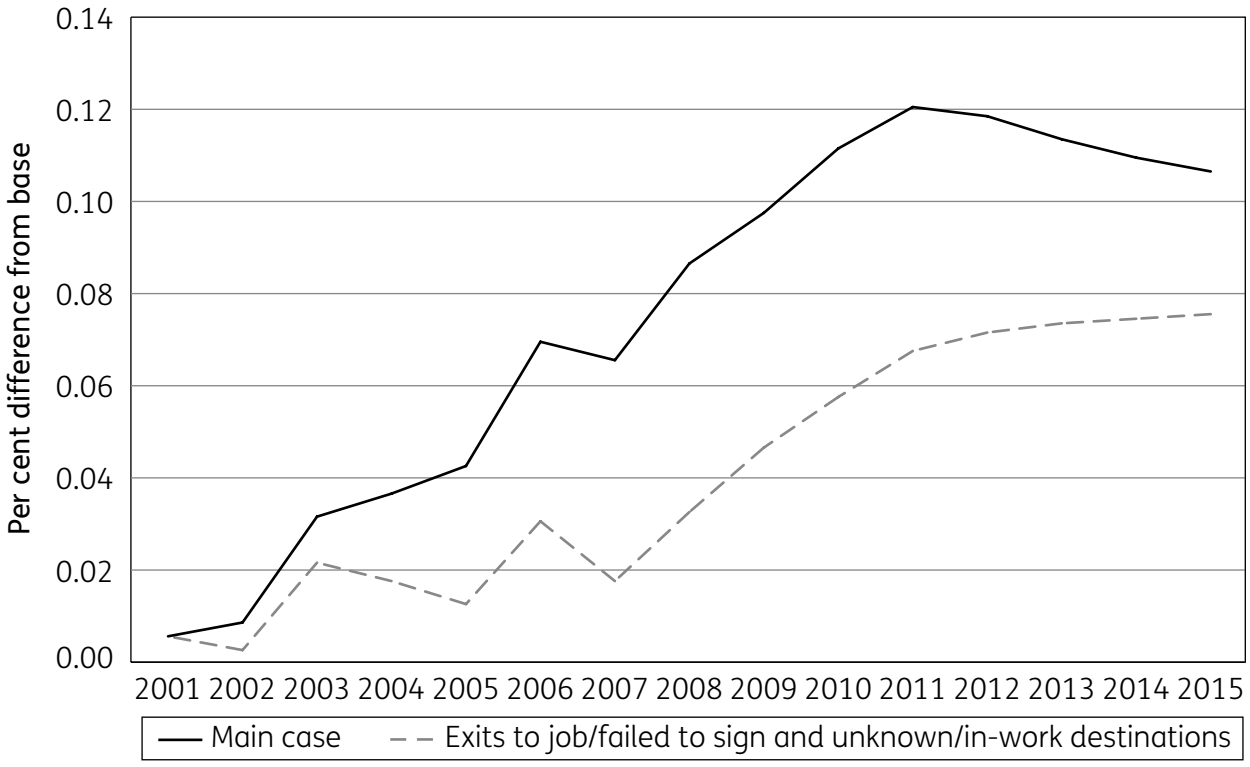


Note: The implied confidence interval is produced from simulations using the 95% confidence intervals from the estimates in Appendix A.

D.7 Sensitivity analysis: different exit rates

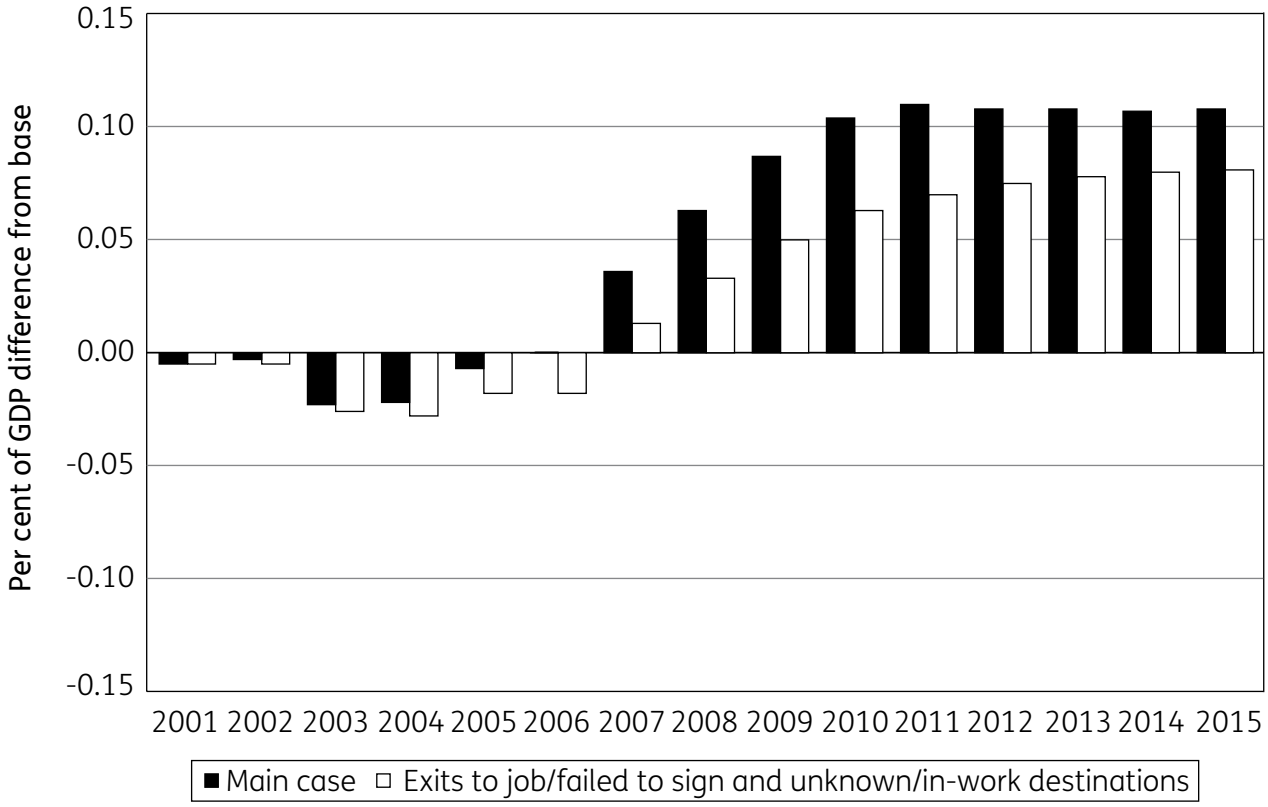
As highlighted in Appendix A and Chapter 11, there are alternative definitions of exits from JSA and IS benefits that could plausibly be to jobs as well. We use this to undertake an additional sensitivity analysis. These are defined as exits to jobs and unknown destinations for JSA claimants (unknowns include 'failed to sign', 'ceased to claim', and 'not known') and to unknown/in-work benefits for lone parents on IS. The results in Appendix A and discussed in the main text show the estimated effect on these exit rates are lower (in terms of numbers of benefit claimants flowing off benefit) than in the main case. As one would expect, simulations using these exit rates suggest a smaller impact on GDP than in our main scenario (see Figure D.13). Given that there are a smaller number of lone parents flowing from benefit to jobs, the impact on average productivity is less than in our main case. By 2015, the simulated effect on the public finances is less than that seen in the main case. However, even in this case the illustrated cumulative effect on the public finances is positive (see Figure D.14).

Figure D.13 The effect of the introduction of Jobcentre Plus on the level of GDP



Note: Exit rate from JSA is to job/failed to sign destinations. Exit rate from lone parents claiming IS to unknown/in-work destinations.

Figure D.14 The effect of the introduction of Jobcentre Plus on the government's budget balance



Notes: Exit rate from JSA is to job failed to sign destinations. Exit rate from lone parents claiming IS to unknown/in-work destinations.

References

Anderton, R. and Barrell, R. (1995). 'The ERM and Structural Change in European Labour Markets: A study of 10 countries', *Weltwirtschaftliches Archiv*, Band 131, Heft 1.

Barrell, R., Becker, B., Byrne, J., Gottschalk, S., Hurst, A.I. and van Welsum, D. (2004). 'Macroeconomic Policy in Europe: Experiments with Monetary Responses and Fiscal Impulses', *Economic Modelling*, Vol. 21, pp. 877-931.

Barrell, R., Caporale, G.M., and Sefton J. (1993). 'Prospects for European Unemployment', in *Unemployment in Europe: Policies for Growth* (ed. Grieve-Smith, J. and Michie, J.), Cambridge, Cambridge Academic Press.

Barrell, R., Delannoy, D. and Holland, D. (2011). 'Monetary Policy, Output Growth and Oil Prices', *National Institute Economic Review*, No. 215, pp. F37-F43.

Barrell, R. and Davis, E. (2007). Financial Liberalisation, Consumption and Wealth Effects in 7 OECD countries', *Scottish Journal of Political Economy*.

Barrell, R., Davis, E., Fic, T., Holland, D., Kirby, S. and Liadze, I. (2009). *Optimal regulation of bank capital and liquidity: how to calibrate new international standards*, Financial Services Authority Occasional Paper No. OP38.

Barrell, R., Dury, K., Hurst, A.I. and Pain, N. (2001). *Modelling the World Economy: The NIESR Model NiGEM*, presented at an ENEPRI workshop, Paris: July 2001.

Barrell, R., Hall, S. and Hurst, I. (2006). Evaluating Policy Feedback Rules using the joint density function of a stochastic model, *Economics Letters*, Vol. 93, pp. 1-5.

Barrell, R. and Kirby, S. (2007). 'Interest rates and the UK economy', *National Institute Economic Review*, No. 202, pp. 61-4.

Barrell, R. and Pain, N. (1997). 'Foreign direct investment, technological change and economic growth within Europe', *Economic Journal*, 107, pp. 1770-6.

Barrell, R. and Sefton, J. (1997). 'Fiscal Policy and the Maastricht Solvency Criteria', *Manchester School*, June.

Blackburne, E. and Frank, M. (2007). 'Estimation of nonstationary heterogeneous panels', *Stata Journal*, 7, No. 2, pp. 197-208.

Carcillo, S. and Grubb, D. (2006). *From Inactivity to Work: The Role of Active Labour Market Policies*, Organisation for Economic Co-operation and Development (OECD) Social Employment and Migration Working Papers No. 36.

Corkett, J., Bennett, S., Stafford, J., Frogner, M. and Shrapnell, K. (2005). *Jobcentre Plus evaluation: summary of evidence*, Research Report No. 252, Department for Work and Pensions (DWP).

DWP (2007) *Departmental Report 2007*.

DWP (2009) *Departmental Report 2009*.

Dickens, R., Riley, R. and Wilkinson, D. (2008). *The employment and hours of work effects of the changing National Minimum Wage*, Report to the Low Pay Commission

Dolton, P., Rosazza-Bondibene, C. and Wadsworth, J. (2008). *The Geography of the National Minimum Wage*, presentation to the Low Pay Commission

Dorsett, R. (2005). Joint Claims for JSA extension: A technical report on the quantitative evaluation of labour market effects. DWP Working Paper No. 22. Norwich: HMSO.

Dorsett, R. (2007). 'The effect of Pathways to Work on labour market outcomes', *National Institute Economic Review*, vol. 202, 79-89.

Gilpin, N., Henty, M., Lemos, S., Portes, J. and Bullen, C. (2006). *The impact of free movement of workers from Central and Eastern Europe on the UK labour market*, DWP Working Paper No. 29.

Gregg, P., Harkness, S. and Smith, S. (2009). 'Welfare reform and lone parents in the UK', *Economic Journal*, No. 119, pp. F38-65.

Layard, R., Nickell, S. and Jackman, R. (1991). *Unemployment*, Oxford University Press.

Heckman, J. and Hotz, V. (1989). 'Choosing Among Alternative Nonexperimental Methods for Estimating the Impact of Social Programs: The Case of Manpower Training', *Journal of the American Statistical Association*, 84(408): 862-874.

HC (2008). *The roll-out of the Jobcentre Plus Office network*, report by the House of Commons Committee of Public Accounts, 44th Report of Session 2007-8, HC 532.

HMT (2006). *Employment opportunity for all: Analysing labour market trends in London*, March, HM Treasury.

Hujer, R., Blien, U., Caliendo, M. and Zeiss, C. (2006). 'Macroeconometric Evaluation of Active Labour Market Policies in Germany - A Dynamic Panel Approach Using Regional Data', in Carloeo, F.E. and Destefanis, S. (eds.), *The European Labour Market - Regional Dimensions*, Physica Verlag, 287-310.

Kirby, S., Barrell, R. and Whitworth, R. (2010). 'Prospects for the UK economy', *National Institute Economic Review*, No. 214, pp. F41-60.

Kirby, S. and Riley, R. (2004). 'Compulsory work-focused interviews for inactive benefit claimants: An evaluation of the British ONE pilots', *Labour Economics*, vol. 11, 415-429.

Knight, G., Speckesser, S., Smith, J., Dolton, P. and Pedro Azevedo, J. (2006). *Lone Parents Work Focused Interviews/New Deal for Lone Parents: combined evaluation and further net impacts*, DWP Research Report No. 368.

Meader, R. (2007). 'Revisions to quarterly GDP growth and its components', *Economic and Labour Market Review*, Vol. 1, No. 11, pp. 28-35.

National Audit Office (2008). *The roll-out of the Jobcentre Plus Office network*, report by the Comptroller and Auditor General, HC 346 Session 2007-8.

OECD (2006). *Activation Strategies and Performance of Employment Services in the Netherlands, Germany and the United Kingdom*, OECD report for joint SZW/OECD seminar on activation strategies and performance of employment services, 29 March, The Hague, Netherlands.

Pesaran, H. (1997). 'The role of economic theory in modelling the long-run', *Economic Journal*, 107(440), 178-191.

Pesaran, H. and Shin, Y. (1999). 'An autoregressive distributed lag modelling approach to cointegration analysis', in Strom, S. (ed.) *Econometrics and Economic Theory in the 20th Century: The Ragnar Frisch Centennial Symposium*, Cambridge University Press.

Pesaran, H., Shin, Y. and Smith, R. (1999). 'Pooled Mean Group Estimation of Dynamic Heterogeneous Panels', *Journal of the American Statistical Association*, vol. 94, 621-634.

Pesaran, H. and Smith, R. (1995). 'Estimating long-run relationships from dynamic heterogeneous panels', *Journal of Econometrics*, 68, 79-113.

Petrongolo, B. and Pissarides, C. (2001). 'Looking into the Black Box: A Survey of the Matching Function', *Journal of Economic Literature*, vol 39, no. 2, 390-431.

Riley, R., Kirby, S., Meadows, P., van de Ven, J. and Barrell, R. (2007). *Evaluation of the Macroeconomic Impact of Jobcentre Plus and New Deal: a Feasibility Study*, DWP Research Report No. 433.

Riley, R. and Young, G. (2001). *Does welfare-to-work policy increase employment?: Evidence from the UK New Deal for Young People*, Discussion Paper No. 183, NIESR.

Schmid, G., Speckesser, S. and Hilbert, C. (2001). 'Does active labour market policy matter? An aggregate impact analysis for Germany?', in de Koning, J. and Mosley, H. (eds) *Labour market policy and unemployment: impact and process evaluations in selected European countries*, Edward Elgar Publishing.

Smith, A., Youngs, R., Ashworth, K., McKay, S., Walker, R., Elias, P. and McKnight, A. (2000). *Understanding the Impact of Jobseeker's Allowance*, Department of Social Security Research Report No. 111.

Stewart, M. (2002). 'Estimating the Impact of the Minimum Wage using Geographical Wage Variation', *Oxford Bulletin of Economics and Statistics*, 64, 583-605.

The introduction of Jobcentre Plus represented a major change in the delivery of public employment services and social security benefits in Britain. It was designed to bring benefit payments and the labour market closer together, while creating efficiencies by introducing new IT systems and rationalising the service network.

This report presents findings from an evaluation of the labour market and macroeconomic impacts of the introduction of Jobcentre Plus.

The National Institute of Economic and Social Research (NIESR) used secondary data sources to assess Jobcentre Plus's impact on local area benefit stocks and flows, as well as its impact on wages. These estimated effects are used in conjunction with the National Institute's macroeconomic model (NiGEM) to simulate the wider economic impacts of introducing Jobcentre Plus.

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