CMPO Working Paper Series No. 03/072

Welfare Reform and Lone Parents Employment in the UK

Paul Gregg
and
Susan Harkness

June 2003

Abstract

The last thirty years saw dramatic increases in the employment rates of married/co-habiting mothers in the UK. Yet the employment rates of lone mothers were lower in the early 1990s than in the late 1970s, at just under 40 percent; and 25 percentage points lower than those of married mothers. In 1997 the incoming Labour government initiated a series of policy reforms aimed at reducing child poverty. A key element of their strategy was a move towards increasing employment rates among families with children.

This paper evaluates how this package of policy reform impacted on lone parents employment. We use propensity score matching to construct a benchmark sample and then apply difference-in-difference estimation techniques to assess what would have happened to lone parents employment in the absence of policy reform. Our results show that, of the 11-percentage point rise in the rate of employment of lone parents between 1992 and 2002, 5-percentage points can be attribute to policy reform. This increase in employment occurred in-spite of significant rises in the level of support for non-working lone parents claiming Income Support. This is in sharp contrast to the experience of the USA, where welfare generosity did not increase and time limits and mandatory job search were employed alongside tax credits to get lone parents back to work. In the UK, further substantive policy changes are currently being phased in and so it is probable that there will be further employment gains for lone parents over the next few years. Even so, the pace of response to these reforms does not yet look sufficient to meet the Government's target of getting 70 percent of lone parents into work by 2010.

Keywords: welfare reform, lone parents, employment

JEL Classification: JEL H31, J22

Acknowledgements

We thank the Leverhulme Trust for funding this research and seminar participants at CASE and Bristol for comments and suggestions.

Address for Correspondence
Department of Economics
University of Bristol
12 Priory Road
Bristol
BS8 1TN
p.gregg@bristol.ac.uk

CMPO is funded by the Leverhulme Trust.

1. Introduction

Over the last thirty years the employment of married/co-habiting mothers in the UK rose dramatically, especially for those with young children (see Gregg et al. 2002, for a recent discussion). Yet the employment rate of lone mothers was lower in the early 1990s than it was in the late 1970s, at just under 40 percent; and 25 percentage point lower than the employment rates of married mothers[1]. The UK is almost alone among OECD countries in having employment rates for lone mothers so far below those of other mothers and in some countries, such as Spain, employment is substantially higher among single mothers than married mothers. These very low employment rates have contributed towards the UK having the highest proportion of children living in workless households in OECD countries in 1996, and one of the highest incidences of child poverty (see OECD, 1998, and Micklewright 2000).

The incoming Labour government in 1997 initiated a series of policy reforms aimed at reducing child poverty A key element of this was the move to increase employment rates among families with children, especially among lone parents. In N. America in the 1990s there had been a number of experimental welfare-to-work programmes aimed at raising employment among lone mothers. The Canadian Self-Sufficiency Project (CSSP), the Minnesota Family Investment Programme, the Milwaukee New Hope project and the California GAIN programme provided much of the inspiration behind the governments chosen strategy. The result was a twin track approach using the newly introduced Working Families Tax Credit to improve financial incentives and the New Deal for Lone Parents and Job Centre Plus to introduce active case management into the welfare system, in order to encourage and support single parents to move back to work. The reforms have two targets: to raise employment of lone parents to 70 percent by 2010 and to reduce child poverty (defined in terms of relative income) by a quarter by 2005. Although the package of reforms introduced was largely modelled on policy experiments that had taken place in the US and Canada, the design was radically different from the welfare reforms seen in the US after 1996. In the UK the generosity of in and out-of-work benefits were both increased substantially for families with children, there has been no use of time limits for welfare payments to lone parents and participation in job search, and training or other support programmes has remained voluntary. The only compulsion is to attend interviews at the Job Centre to discuss work options. Thus, unlike in the US

where in-work benefits were introduced with the primary objective of welfare caseload reduction, in Britain the dominant policy aim has been to raise incomes for lone parents both in and out of work, with an increased earnings contribution being an important component of the intended income gains. Improving the level of financial support for low-paid lone parents has also been politically popular: in 2000 70 percent of those interviewed in the 2000 British Social Attitudes Survey supported the government topping up the wages of low paid lone parents, while 74 percent thought lone parents should face sanctions if they did not go to the Job Centre.

The aim of this paper is to assess the impact of policy change on lone parents employment rates, earnings and hours of work. While we document changes in employment and in the policy environment from the late 1970s onwards, our main focus is on changes that have occurred since 1998 when the first stages of the new policy regime started to come into effect. We show that while lone parents' employment had begun to stage a recovery in the early 1990s, since 1998 the rate of recovery accelerated such that by Spring 2002 the employment rate stood 11 percentage points higher than in 1992, at 53%[2]. The second half of the 1990s were however a period of rapid employment growth among the population as a whole. In order to assess the impact of policy change on lone parents employment we therefore need to strip out the effects of changes in the composition of lone parents and of the economic cycle on employment. As we do not have a random assignment experiment, we use propensity score matching to build a counterfactual sample and then use difference-in-difference techniques to assess the policy impact. We find that policy changes that took place prior to 1997 had a minimal impact on lone parents employment. However, the more substantial package of support for working single parents introduced in 1998 has had a marked effect on employment, and this is in spite of increased support for those lone parents who choose to stay at home. Our results suggest that changes in policy have led to an increase in lone parents employment of around five percentage points (or 80,000). In addition hours of work have increased among those lone parents in work, with fewer lone parents working less than 16 hours (the critical value for eligibility for WFTC) and more at 16+ hours. So the share of all lone parents working 16 hours or more a week has risen by 7 percentage points.

---

[1] Source: OECD Economic Outlook 2001

The rest of this paper is structured as follows. In Section II we look at trends in lone parents employment over the last thirty years. Section III then reviews evidence from the US and Canada on the impact that welfare reform has had on lone parents employment, and describes recent policy changes in the UK. In Section IV we look at what has happened to lone parents welfare receipts and caseloads since the 1970s. In Section V we then describe our data and methodology while Section VI presents results for two periods, 1979-92 and 1992-2002. In VII we then go on to look at how hours of work, wages and poverty rates have responded to this growth in lone parents employment. Section VIII concludes.

II. Background

The low rates of employment among single mothers in the UK relative to other countries are well documented (see OECD 2001, Bradshaw 1996 or Millar 2001). Figure 1 reports lone parents' employment rates among OECD countries[3]. This clearly shows that only Ireland, Poland and Australia have lower rates of employment of single mothers than the UK. While the employment rate was around 40 percent in the UK in 1999, in countries including the US, Canada, Italy, Sweden, Finland and Portugal employment rates were at above 65 percent. Figure 2, contrasts the employment rates of single mothers with both those of married mothers and single childless women within each country. In both cases the gap in employment for lone parents and other women is greater than in any other OECD country. A comparison between single and married mothers employment rates shows that the UK has an employment gap of 24 percentage points. In contrast, in around half the countries for which data is available single parents are *more* likely to work than married women; in the US employment rates were around 8 percentage points higher for single mothers than married mothers, while in Italy and Spain employment rates are more than 20 percentage points higher.

This employment gap has not always existed: in the late 1970s employment rates of lone parents and married mothers were broadly similar. However over the last thirty years married mothers employment has increased rapidly, while over the same time those for lone parents have fallen. Figure 3 uses data from the General

[2] Source: Labour Force Survey.
[3] Source: OECD Economic Outlook 2001

Household Survey (GHS) and Household Labour Force Survey (HLFS) [4] to show how employment rates have changed for single and married mothers, and single childless women, between the late 1970s and 2002. Married mothers employment rates were only marginally higher that those of lone parents in the late 1970s. However, while employment rates of lone parents fell and then stagnated in the 1980s, for married mothers employment rates grew steadily from around 1984 so that by the mid-1990s employment rates of single childless women and married mothers were broadly similar. This divergence in the experiences of single and married mothers meant that by the early 1990s a gulf in the employment rates of single and married mothers had emerged, which has only recently begun to narrow. Since 1992, the employment rate of lone parents rose, from 42% to 53% in 2002 (see Figure 3 and Table 1). There are two clear phases to this change with the rate increase in employment being markedly faster after 1998 (6.6 percentage point rise over 4 years as opposed to 4.5 points over the preceding 6 years). An additional feature of the UK Tax Credit system is that to be eligible a lone parent has to work at least 16 hours a week, and the welfare reforms may therefore have encouraged those working few hours to increase their hours of labour supply. Table 1 also highlights how there has been an even more dramatic rise in lone parents employment among those working 16-hours a week plus since 1998. Here in just four years the employment rate for those working 16 or more hours per week has risen by 9.6 percentage points.

Over this period there was also a steady increase in the incidence of single parenthood. The proportion of women aged 16-44 who were lone parents doubled from 8 to 16 percent between 1977/79 and 1998/2000. According to the HLFS, in 2002 there are approximately 1.7 million lone parents, 350,000 (or 25%) more than in 1992. Just over 90% of lone parents are women and they make up almost 1 in 4 households with children. The rise in lone parenthood reflects first an increase in the rate of divorce and separation, and second a rise in the number of never married single mothers. Thus, while in 1977/79 fewer than one fifth on single parents had never been married, by 1998/2000 this figure stood at 40 percent. This change was associated with an increase in the number of single parents with a child aged under 5 in the 1980s: in 1977/79 just twenty-seven percent of lone parents had a child under 5

[4] The figure plots 3-year moving averages using data from the GHS from 1977/79 to 1991/93, and yearly averages using data from the HLFS from 1992-2002.Moving averages are used for the GHS data in order to overcome problems of small sample sizes.

compared to 42 percent in 1992. However, this proportion declined after 1992 to 32 percent in 2002[5]. These changes in the number of single parents with young children would lead us to expect employment rates to decline in the 1980s, and may also help explain the recent upturn in employment. In Figure 4, employment rates by age of youngest child are plotted for lone parents and married mothers, while rates of employment are recorded in Table 1. The figure illustrates that, while for married mothers there has been a sharp rise in the employment rates of married mothers with pre-school children since the mid 1980s, for lone parents this increase did not occur until the 1990s.

III. Historical Context and Recent Welfare Reforms

Evidence on the Impact of Welfare Reform in Canada and US

The incoming Labour government in 1997 initiated a series of policy reforms aimed at reducing child poverty and at raising employment in families with children. While international evidence has highlighted the low comparative employment rates of lone parents in the UK, evidence from North America has shown that lone parents employment rates are responsive to financial incentives and has highlighted the potential role of personal advisors in increasing their employment (Card and Robbins, 1996, Eissa and Leibmann, 1996 and the NEWWS evaluations).

In the US, the Earned Income Tax Credit (EITC) was introduced in 1975 as a minor programme. The generosity of the programme increased in 1986, 1990 and 1993, with substantial increases introduced between 1994-96. The EITC has been the subject of substantial academic scrutiny, with studies unanimously finding it to have increased single parents' employment (Eissa and Leibmann 1996, Meyer and Rosenbaum 2001, Blank, Card and Robbins 2000, Elwood 2000, Hotz, Mullin and Scholz 2001). These studies also noted that the EITC had a particularly large impact on the employment rates of lone parents with pre-school children, and for those who were less well educated. One of the earliest evaluations of the impact of the EITC on single parents employment was that of Eissa and Leibmann (1996). Eissa and Leibmann compared the employment rates of single women with and without children in order to assess the impact of the 1986 Tax Reform Act (TRA) (which included an expansion of the EITC). Using a simple "difference-in-difference" technique to look

[5] 1977/79 data is from the GHS, data for 1992 and 2002 is from the LFS.

at changes in relative employment rates they concluded that welfare reform led to a 2.8 percentage point increase in the *relative* employment rates of lone parents between 1984-86 and 1988-90. They also assessed the impact of the TRA on hours of work. While economic theory predicts that those in work may respond to increases in the EITC by reducing their hours of work, Eissa and Leibman find no evidence in support of this.

Meyer and Rosenbaum (1999) looked at the effect of later EITC increases, which occurred alongside other welfare reform initiatives, and attempted to identify the impact of the individual policies on lone parents employment rates. They document changes in welfare policies and single parents employment in the US between 1984-96. They then go on to develop a structural model of employment, identifying the impact of policies on employment by comparing single mothers with single childless women. They rely on state differences in the cost of living, taxes, earnings disregards and implicit tax rates to identify the policy effects. Meyer and Rosenbaum suggest that, of the 6 percentage point increase in single parents employment over the period 1984-96, around 60 percent can be attributed to increases in the EITC while a smaller portion of the change resulted from reductions in benefits, welfare waivers, training and childcare.

A more recent study by Elwood (2000) looks at the employment of lone parents across the predicted wage distribution. By comparing those least and most affected by welfare reform, and tracking their employment over time, Elwood argues he has a natural experiment. His study also depends on state variations in tax and welfare policy to enable identification of the impact of policy on employment. By defining states in terms of their "aggressiveness" of welfare reform, and by looking at the least and most aggressive regimes, he argues an upper bound can be found for the impact of the EITC on employment, while the difference in employment rates between the least and most aggressive states gives a lower bound for the impact of welfare reform. Of the increase in employment of low skilled single parents between 1986 and 1998, he attributes 35 to 40 percent to welfare reform, 20 to 30 percent to increases in the EITC and Medicaid, and 25 to 30 percent to the strong economy.

While policy reform in the US has been successful in getting single parents into work, it has been much less successful in raising the income of, or reducing poverty among, lone parents (see Blank 2002). Moreover, time limits on the receipt of tax credits, and fears that those in receipt of EITC may have limited potential for

wage growth, suggest that the main achievement of reforms may have been to reduce the welfare bill rather than to improve the welfare of lone parent families.

In addition to this evidence, evaluations of experimental policy trials in North America have also been important in informing UK policy design. Of these, the Canadian Self-Sufficiency Project (SSP), the Minnesota Family Investment Program (MFIP), Milwaukee New Hope Project and the California Gain programmes were perhaps the most influential. Results from the first two of these experiments led the UK to adopt of a twin track strategy of introducing financial incentives to "make work pay" alongside a system of case managed welfare, aimed at encouraging economic activity (including job search) and easing the problems faced by lone parents during the transition into work (in particular providing advice on benefit payments and childcare). Blank, Card and Robbins (1999) provide a summary of earlier findings suggesting that such a twin track approach can lead to more substantial employment gains than single policy reforms. The New Hope project in particular highlighted how the provision of quality childcare could help to improve child outcomes when lone mothers worked (Duncan and Chase-Lansdale, 1999), while results from the California GAIN project were influential in leading to the adoption of a work-first strategy in the UK, rather than focusing on training or education.

Welfare Reform in the UK

This evidence led the incoming government in 1997 to attempt two major policy reforms. The first was to raise the financial gains to working for families by means of the Working Family Tax Credit (WFTC), and the second to introduce a case managed welfare system for lone parents aimed at raising their economic activity by the use of the New Deal for Lone Parents (NDLP) and Job Centre Plus programmes. These packages of reform, however, dramatically differed from the policy reforms that had been ongoing in the US in several key regards: there were no time limits on welfare receipt, searching for work was entirely voluntary, and welfare payments to non-working lone parents increased sharply (by contrast, benefits to non-working lone parents were squeezed in America)[6]. So, unlike in the US where a key aim of policy reform was to reduce welfare payments, in the UK an explicit aim of policy reform has been to raise incomes and reduce deprivation among families with children. This

is typified by the government's commitment to reduce the numbers of children living in relatively low income households (with low income defined as being less than 60% of median household income equivalised for family size after housing costs) by a million by 2004/5 and a longer term commitment to end child poverty. The government has also set a specific target for the employment of lone parents, aiming to get 70% into work by 2010.

While the introduction of the NDLP in 1998, and the replacement of Family Credit (FC) with WFTC from October 1999, represented a period of rapid change in welfare policy toward lone parents, there has not been a sustained period without reform since 1988 when FC was first introduced[7]. Table 2 highlights the time line of major policy reforms since 1988, when FC was first introduced. Unlike welfare payments in general, the value of the credits available under FC and WFTC have typically increased significantly faster than prices over the last decade. Other changes include a reduction in the number of hours that lone parents were required to work in order to be eligible for in-work tax credits from 24 to 16 hours in 1992, and changes in the support available for childcare costs. In 1994 a childcare disregard was introduced, so that the applicable amount that lone parents could earn before the taper was applied was increased by up to £40 a week if childcare costs were incurred. A further change in 1995 introduced an additional credit for those working more than 30 hours per week. Duncan and Giles (1996) suggest that the extra 30-hour credit introduced in 1996 made little difference to the labour market participation behaviour of lone parents, although it may have had some influence on the choice of working hours at the margin, while further evidence suggests that the childcare disregard was never widely used.

April 1998 saw the introduction of a more substantial set of reforms. First the NDLP, which had been piloted in a few areas from the autumn of 1997, was rolled out nationally. Initially only new claimants were the youngest child was over 5 were invited by letter to voluntarily attend a meeting to discuss participation. From October this was extended to the existing stock of claimants with children aged over 5. Those with younger children could also volunteer unsolicited to join the programme. In April 2000 the age cut off was dropped to 3. More substantially in April 2001 Worked

[6] See Brewer and Gregg, 2002, for a comparison of UK and US welfare systems for families with children

Focused Interviews (WFI) began for lone parents under the Job Centre Plus programme. This made attendance to discuss work options with an advisor compulsory, although there was still no requirement to seek work. Once again this programme is being rolled out, with all new claims where there is a child over 5 and the existing stock of lone parents with older children (aged 13-15) in the vanguard. This rollout process is expected to be completed by 2004 when it will cover all lone parents.

The Working Families Tax Credit (WFTC), and Family Credit (FC) that it replaced in October 1999, both share a common structure that can be represented as:

$$\text{Credit} = C - \kappa(E - A) \mid hours > X$$

The credit is an amount C that is determined by the number and ages of children in the family, less a fraction (taper) κ of the difference between post-tax earnings E over a disregarded applicable amount A, and is subject to hours of work exceeding some minimum cut off X. In April 1998 the maximum credit available for a lone parent with two children aged 12 and 5 would have been £81:60 a week under FC, the applicable amount that lone parents could earn after tax before the credit began to be withdrawn was £80:65, and the taper rate was 70%. The introduction of WFTC in October 1999 saw the maximum credit available rise to £93:05 a week (a real increase of 11%), while the applicable amount rose to £90 and the taper rate was reduced to 55%. The minimum hours threshold remained at 16. The move to WFTC in October 1999 resulted in three major changes: first the credits became more generous, second variations in credits by age of children were progressively eliminated, and third the level of earnings at which credits could be retained increased substantially. These changes are illustrated in Figure 5. The increased generosity of the credits, the rise in the level of income which could be earned before credits began to be withdrawn, and the decrease in the rate at which withdrawal occurred, allowed more tax credits to be retained at higher levels of earnings. In the specimen household shown in Figure 5, a lone parent would stop receiving tax credits once her income reached £15,000 a year

[7] Family Credit replaced Family Income Support, which was a relatively minor benefit paid to low-

in 1997, whereas under the 2001 regime this point is not reached until her income reaches around £22,500. The last major change in tax credits relates to the way in which childcare costs are treated. Whereas under FC childcare costs were added to the applicable amount *A*, under WFTC a fraction of childcare costs (up to 70% of childcare costs of up to £120 a week) were added to the basic credits. This last change meant all part-time employed lone parent could now benefit from claiming for childcare costs, whereas before their earnings may well have been to low (below the applicable amount) to get any extra help.

From 2000 the generosity of IS payments to workless lone parents have also grown at a rate broadly in line with WFTC credits. Improved work incentives under the WFTC therefore appear to have resulted from the increase in the level of earnings that could be retained before tax credits were withdrawn and the improved support for childcare through the Childcare Tax Credits. In addition to the WFTC reforms there have also been changes in income tax and National Insurance rules that have affected low earning workers. In particular a 10 percent income tax band was introduced (now £1800 wide), the 2 percent NI entry fee was abolished, and the point at which NI payments were made was raised in alignment with the PAYE threshold. These changes were particularly valuable to part-time workers. Table 3 shows some hypothetical examples of how the financial returns to work changed from 1997 to 2001. The regimes are compared for two hours options, 16 and 35 hours a week, at earnings of £4:20 per hour, which was just above the National Minimum Wage in 2001. The comparisons have been adjusted for changes in prices, so no real wage rises are included in the table. A lone parent with two children aged under 11 would have gained only modestly from the reforms where she worked just 16 hours a week in a near minimum wage job. However, at longer hours (or by extension a higher wage) the additional returns are magnified. At 35 hours per week the reforms would have added £23 per week to net income. For those claiming housing benefit the gains are however reduced: a lone parent renting a property and therefore also eligible for Housing Benefit (HB) gained just £15 a week for full-time work and virtually nothing for part-time work as a result of the reforms, as any gains from additional tax credits were mitigated by lower HB entitlements. On the other hand the new Childcare Tax Credit introduced support for childcare costs even at low part-time wages, and so

---

waged working families.

those with childcare costs saw large additional financial gains to work relative to 1997. Moreover these childcare payments were exempt from income under HB entitlement calculations under WFTC (whereas under FC these payments counted as income), meaning that those on housing benefit *and* paying for childcare costs had significantly improved work incentives. Overall, the effect of work incentives was therefore a mixed bag with extra incomes from working being quite large for those with higher weekly earnings or for those with lower earnings who pay for formal childcare.

IV. Changes in Welfare Receipt and Participation in the New Deal

In 2002 there were around 1.7 million lone parents in the UK, of who approximately half (850,000) were on Income Support (IS). Figure 6 charts the number of lone parents claiming the main welfare payment for non-working lone parents, Income Support (or its pre 1988 equivalent, Supplementary Benefit), between 1971 and 2002. This shows that the decline in employment rates between 1971 and the early 1990s, combined with the increasing incidence of lone parenthood, has led to a fivefold rise in the number of claimants in receipt of income support. Since the mid 1990s, however, the number of lone parents dependent on income support has sharply declined. This is perhaps surprising given that from 1999 onwards there has been a substantial increase in the generosity of Income Support payments (see Figure 6) with the average value payments increasing by over 20 percent in real terms between 1998 and 2002.

As the numbers of lone parents dependent on income support have declined, the numbers receiving in-work benefits have grown rapidly. In May 2002, 706,000 lone parents were in receipt of WFTC. This is double the number in receipt of Family Credit in 1997, and nine times the numbers receiving FC in 1988 (Figure 7). This rapid rise in the number of lone parents claiming in work benefits has corresponded with a substantial increase in the generosity of the award, which increases in value from an average award of £35.13 in 1988 to £64.13 in 1998 and £88.34 in 2002 (all at 2002 prices). In 2002, over one-fifth of lone parents on WFTC (160,000) also received help with childcare costs with average value of £39.46. This was a fivefold increase in the numbers receiving assistance with childcare compare to 1998 (when 32 thousand received help of on average £22 per week in 2002 prices).

This is the first study to look at the actual impact of the reform package on employment since its introduction in 1997. Blundell, Duncan, McRae and Meghir (1999) have however attempted to forecast the likely impact of the Working Families Tax Credit on employment. They have developed a model of labour supply, which they then use to simulate the effect of the WFTC introduction. The impact of other reforms, including the New Deals and other supporting tax and benefit reforms, were not considered. Their model suggested that the WFTC would lead to a 2.2 percentage point increase in single parents employment, of which 1.9 percentage points were expected to be full-time. Other more recent work by Blundell and Hoynes (forthcoming) contrasts the experience of the WFTC in the UK and the EITC in the US. They suggest that while the WFTC, on first sight, appears to be a significantly more substantial benefit package than the EITC, with both a steeper rate of phase in and phase out, because of the ways in which WFTC interacts with other benefits, in particular housing benefit, they predict that the actual impact on employment will be small.

In 2002, approximately 10 percent (83,740) of lone parent on Income Support (IS) were also participating in the New Deal for Lone Parents. The government has claimed a significant success rate for the New Deal, with 52 percent of those leaving the NDLP taking up employment (although many may have in any case left welfare in the absence of the New Deal). In total, the Department for Work and Pensions report that since inception, 186,260 lone parents have left the New Deal to employment and 35,450 have started education or training. Evidence from studies of the impact of the piloted version of this scheme suggested that the NDLP has had a small positive impact on employment (see Elias et. al., 2000). Evidence from other countries also suggests that such personal advisor schemes can be effective. Similar advisory services have also been introduced in Canada alongside the SSP programme (in a programme known as SSP plus). This scheme offered job search and other employment services to lone parents, with a key aim of breaking down some of the barriers to work faced by lone parents. The evaluation evidence suggests that those offered SSP plus had employment rates 7.4 percentage points higher than those offered only the earnings supplement (see Blank et al. 1999). Finally, a study by Evans (2001), in his analysis of welfare to work policies in five countries, concludes that personal advisor schemes have worked well where backed by appropriate resources (such as childcare).

V. Data and Methodology

As many lone parents live with other adults, in order to identify lone parent families we need to look at family units within households and then examine the relationship between family members. The HLFS and GHS both contain full sets of family unit and household identifiers, allowing us to determine the relationship between individuals and the head of the family unit. The HLFS is constructed from the Spring Labour Force Surveys from 1992, and since 1996 also includes the Autumn LFS. It contains around 60,000 households, of which just over 5,000 contain lone parents in any year. As the HLFS only begins in 1992, we use the smaller General Household Survey (GHS) to backdate our data to the late 1970s. The GHS is a smaller data set, containing between 6,000 and 8,000 households per year, and between 500 and 700 family units headed by lone parents. Both data sets contain detailed information on employment status, hours of work and personal characteristics. However, the HLFS has wage information for only a sub-set of approximately 40 percent of respondents and is not well suited to constructing family income measures. The GHS on the other hand has fuller information on incomes and wages, but was not undertaken in 1997 and 1999 and is less up-to-date (the data for 2001-2002 has yet to be released). Hence income and poverty measures are best drawn from other sources.

The primary objective of this paper is to assess the impact of the package of policy reforms introduced in 1998 on lone parent employment. The methodology we use is similar to that of Eissa and Leibman (1996), who take a "difference-in-difference" approach to assessing the impact of policy on employment. While this methodology cannot precisely disentangle individual policy effects, Elwood (2000) concludes that it "presents powerful and straightforward evidence" on behavioural impacts. In order to take account of differences in observed characteristics between lone parents and our comparison group we use propensity score matching. This allows us a construct a counterfactual of what would have happened to lone parents employment in the absence of policy changes, and allows the impact of the economic cycle on employment to differ across the population by gender, age, education, region and so on. This methodology is outlined in further detail below.

As our objective is to estimate the impact of policy reform on lone parents employment, if we denote employment by Y then the impact of policy change on

employment is the difference between the post policy outcome, Y_1, and the outcome that would have occurred in the absence of policy changes, Y_0. Letting L=1 for those effected by the policy change (the treated group of lone parents), the impact of policy reform is therefore given by:

$$E(Y_1 - Y_0|L=1) = E(Y_1|L=1) - E(Y_0|L=1)$$

As we do not have experimental data, and as no group of lone parents are unaffected by the reforms, we cannot observe $E(Y_0|L=1)$, the average employment rate of lone parents that would have existed in the absence of policy reform. We must therefore estimate this counterfactual from our sample of non-lone parents. The ideal counterfactual group *should not* have experienced any policy shocks effecting their employment, but *should* have the same set of observed and unobserved employment attributes, have experienced the same local labour market shocks, and reacted in an identical way to them. The benchmark group therefore should share as many common characteristics as possible with the focus group; the only difference between them should be their experience of policy.

Lone parents have two defining characteristics, having children and not having a resident partner. Hence there are two natural comparator groups: couples with children and singles without children. However, while comparisons with couples are interesting, this group is not entirely unaffected by policy change. The WFTC is open to all families with children, and research suggests that the design of the WFTC may induce second earners within couples to reduce their labour supply (see Blundell et al 1999, Eissa and Hoynes, 1998). Singles without children are on the other hand unaffected by the WFTC but may have been affected by the NI reforms which reduced taxes on part-time jobs, although part-time work is relatively scarce among this group. Two further "New Deal" programmes may also have affected the employment of single childless people: the New Deal for Young People and the New Deal for 25 plus. However these programmes cover only a tiny fraction of this group. As singles without children are relatively unaffected by policy change, we therefore use them as our main control group. However to the extent that these policies may have affected the employment of singles without children, they will tend to bias downwards our estimates of the impact of policy reform on lone parents employment.

While single childless people fulfil our criteria of being, to a first approximation, unaffected by policy change, they differ from lone parents in terms of both observed and unobserved characteristics. In order to account for differences in observed characteristics, X, we undertake propensity score matching. While one-to-one matching on observable characteristics offers one-way of improving the alignment of the focus and control groups, where a large number of controls are used finding an individual with identical characteristics becomes hard. This may lead to problems of lack of "common support" and lead to biases in estimation. Rosenbaum and Rubin (1983) derive the important result that matching can instead be done on the predicted propensity that an individual is a member of the treatment group. Using a dummy variable *L* to denote lone parenthood, the propensity score is defined as the probability that L=1 given X so that:

$$P(X)=Pr(L=1,X)$$

The propensity score is then estimated from a combined sample of lone parents and singles without children using a logit model. In this case instead of matching on many variables we are now conditioning on just one variable, the propensity score. The explanatory variables in the logit model include those characteristics that are thought to influence employment, as the aim is to net out any differences in the sensitivity of our samples to employment shocks across different segments of the population. The variables included in the logit model are gender, age and education (both interacted with gender), ethnicity, region of residence, and housing tenure type.

Propensity score matching can be undertaken using a number of different rules. Here we use a local linear matching estimator, which has shown to be computationally efficient by Fan (1992). This averages employment propensities across all benchmark observations that fall within a window around an observation of interest, with the weighting attached to each observation derived from its closeness to the outcome of interest. We use a bandwidth (window) of .08[8]. This method of matching allows us to find individuals who are not single parents, but have otherwise comparable characteristics that influence employment propensities, and hence may be thought to have the same sensitivity to aggregate employment shocks.

In propensity score matching a common failure of the model occurs where there is no "common support". This means that for a significant portion of the sample

no individuals with similar propensity scores can be found. Matching is in this case problematic, as using observations which are not close matches leads to biases in estimation while dropping those observations for which a match cannot be found also leads to bias or non-identification of the model. For our sample of lone parents we are able to find a large number of good matches in the much larger population of singles without children and so the problem of lack of common support does not arise.

Matching aligns the observed characteristics of the benchmark population and our sample of lone parent so that the distribution of observable characteristics, X, are the same for the two populations, thereby mimicking this feature of randomised experiments. As we find matched samples in every year, shifts in the composition of observable characteristics of lone parents are captured. However, while under random assignment it can be assumed that differences in unobservable characteristics are also accounted for, and finding the impact of policy is therefore straightforward[9], this is not the case here as lone parents are bound to differ in unobservable ways from any other control group that can be generated from the non-lone parent population. Heckman, Ichimura and Todd (1997) argue that in non-randomised matched samples a conditional difference-in-difference estimator mimics the desirable features of random assignment experiments. Unlike Heckman et al., we do not have panel data for both samples, but rather samples drawn from the two populations before and after policy reform. Our approach is therefore to assume that any difference in employment rates between the focus group and the matched sample is generated by differences in unobserved characteristics. Assuming that this gap is constant, and denoting non-lone parents by NL, then:

$$E(Y_0 \mid X, \mathrm{L}=1) = E(Y_0 \mid X, NL=1) + K$$

Here it is assumed that differences in employment rates for the focus group and the matched sample are fixed by a magnitude equal to the observed employment gap prior to policy change. In this simple before and after model this gap is assumed not to vary over time. This assumption can be relaxed by introducing a time trend.

$$E(Y_0 \mid X, \mathrm{L}=1) = E(Y_0 \mid X, NL=1) + K + b*(Time)$$

---

[8] We use the Stata supplement package developed by Barabara Sianesi which is downloadable via the Stata website.

[9] The policy impact is just the difference in the employment rate of those who are and who are not effected by the experiment, conditioning on observed characteristics.

Here, the time trend is estimated by assuming that the two samples employment rates are converging or diverging at a constant rate, and this rate of convergence/divergence, *b*, is assumed to be equal to that which was occurring in the pre-policy change environment.

In summary, therefore, the expected employment outcome for lone parents in the absence of policy change is estimated as the current employment outcome of the benchmark group, conditioned on observable characteristics, which is then adjusted for fixed pre-policy differences in employment and for the pre-policy rate of convergence or divergence in the rates of employment of lone parents and the benchmark sample. Once we have estimated this counterfactual, we are then able to compare the predicted and actual employment rates of lone parents after policy change. The resulting difference can be interpreted as the impact of policy on employment.

Using standard difference-in-difference techniques for an affected and an unaffected benchmark sample, where the benchmark population is drawn from singles without children using propensity-matching techniques, we can assess the impact of policy on lone parents employment. Note that the length of the initial comparison period is relatively arbitrary. Moreover, the impact of policy on lone parents employment prior to 1998 was non-neutral although the likely positive impact of the 1992 reforms to Family Credit will if anything tend to push our estimates downwards. We report results using 1992-1998 as our pre-period[10]. Using alternative years give results that are similar, though generally slightly larger, than those reported here. Hence we err on the side of caution, if anything underestimating the impact of policy, in our main reported results. Strictly speaking our estimates of the impact of policy reform in 1998 show how lone parents employment has reacted to *changes* in policy. However we believe that the effect of policy on lone parents employment rates prior to 1998 was small, although it may have had a larger impact on the choice of working hours. Likewise, the impact of NI reforms and of the New Deal programmes on employment rates of single people without children after 1998 tend to push our estimates of the impact of policy downwards. Again though the conclusions of Van Reenan (2001) or Riley and Young (2000) would imply that these effects are likely to be small.

VI. Changes in Lone Parents Employment

While we are most concerned with what has happened to employment since 1998, when a major package of policy reforms were introduced with the aim of getting lone parents into work, it is also useful to consider employment rates in the two decades prior to these policy reforms, particularly in light of the large drop in lone parents employment in the early 1980s. Using data from the GHS we assess changes in lone parents employment over the periods 1979-86 and 1986-92 before going on to look at subsequent changes.

Changes in Employment from 1979-1992

From 1979 to 1987 working lone parents were entitled to claim Family Income Supplement. This was a relatively minor benefit, and take up was low. In 1988 Family Credit was introduced, which increased the level of support for working lone parents. More details of these policies were reported in Table 2 and were discussed earlier. Table 4 reports employment rates of lone parents and matched samples of single childless people and married couples with children. It is perhaps surprising that the large dip in lone parents employment is fully mirrored in the matched samples over the period 1979-86, implying that changes in lone parents characteristics and the economic downturn can fully explain the drop in lone parents employment over this period. Between 1986 and 1992 lone parents employment continued to decline, though at a slower rate than in the early 1980s. Comparing lone parents with the matched samples, we find that lone parents employment rates did fall behind those of with similar characteristics who were in couples with children, although the difference-in-difference estimates are small. However, when compared with single childless people the result is neutral both before and after 1988, suggesting that reforms introduced around this period had little impact on lone parents employment. It also suggests that our preferred benchmark group of single childless adults act as a good benchmark for tracking lone parents employment once matching is used. This change is primarily driven by the decline in employment rates among those living in rented housing.

[10] 1992 is the first year for which data is available from the HLFS.

Changes in Employment from 1992-2002

According to the Household Labour Force Survey, between 1992 and 2002 employment rates of lone parents rose from 42 to 53 percent. This rise began before the new policy regime came into effect in 1998, but sped up thereafter with the annual rate of increase more than doubling from 0.75 percentage points a year between 1992 and 1998 to 1.65 points a year afterwards. Table 1 showed two other key developments over the period. First there has been a compositional shift among lone parents away from those with very young children (single never married women with children aged 0 to 2). However, this change has occurred throughout the decade at a broadly constant rate, of just under one percentage point per year, so the impact on the difference-in-difference estimates in our matched samples should be small. Second there was a decade long sustained rise in employment among the population as a whole from 1992 onwards. Row 6 of Table 1 shows the employment time path for the total non-lone parent population aged 16-59. This indicates that while employment rates rose throughout the period for the population as a whole, there was a marked slow down after 1998. This allows us to perform a simple difference in difference calculation of the change in the labour market performance of lone parents relative to the rest of the population (see Table 5). The numbers reported here are not conditional on characteristics and serve only as an indicator of the changing relative labour market performance of lone parents. Lone parents saw a rise in employment nearly six points higher than the rest of the population after 1998. However, lone parents had been making relative gains prior to 1998, which may have continued in the absence of policy reform. A simple difference-in-difference calculation suggests that policy reform since 1998 has raised lone parents employment rates relative to the population average by around 4.6 percentage points. The lower panel of Table 5 tells the same story, but this time compares lone parents to women in couples with children. Again this is just an unconditional comparison of the relative performance of the two groups. Lone parents had seen slower employment growth than other mothers prior to 1998 but have posted a 5-percentage point relative gain since 1998. However, as previously discussed, couples with children may have been affected by policy reform as second earners in couples were the main earner is on a relatively low wage now have reduced incentives to work. Using couples as a benchmark group may therefore upwardly bias our estimates of the impact of policy reform on lone parents employment. From now on we therefore concentrate on comparisons with singles without children as this

group is least affected by the tax and benefit reforms, and have been shown earlier to provide a good historical benchmark.

Table 6 (upper panel) shows how lone parents have fared when compared to all single women without children. This shows a somewhat smaller raw difference-in-difference estimate than when the whole population or just couples with children are used as a comparison. Using the propensity matching technique described earlier, we construct a matched sample from our sample of singles without children. This conditional estimate thus includes some men, as around 8 percent of lone parents are men. This method of estimation predicts that since 1998 lone parents employment has risen by 6-percentage points more than would have been expected from a population of singles without children with the same characteristics, ignoring any pre-1998 trend.

If we believe that the relative employment gains made by lone parents were entirely due to policy reforms between 1992 and 1998, then this simple difference model provides an estimate of the impact of post-98 policy reform. This estimate might be considered an upper bound however as we have not yet accounted for the fact that lone parents employment rates were increasing relative to the population as a whole prior to 1998. We therefore also estimate the gains in employment attributable to policy change taking into account trend changes in the relative employment of lone parents that were occurring prior to 1992, the trend being estimated from the annualised change in relative employment rates between 1992 and 1998. These estimates suggest that policy changes have led to a 5-percentage point gain in employment. As any increases in employment, which resulted from improvements in incentives to work prior to 1998, are now deducted from our estimates, our estimates of the impact of the post-1998 policy reforms on employment are now likely to be biased downwards. This then is a lower bound estimate of the impact of policy reform on lone parents employment. Using 1995 as an alternative base year from which to calculate the trend produces a slightly higher estimate of the impact of policy reform on employment, with an estimated impact of 5.2 percentage points. While this may be a cleaner estimate, as there was little further policy reform between 1995 and 1998, using 1995-98 to calculate the time trend is not entirely satisfactory because it is such a short window of time. These estimates, however, seem to offer a reasonably tight plausible range of the likely impact of the post-1998 policy reform on the employment of lone parents, suggesting that policy change has lead to an increase in lone parents

employment of around 5-percentage points. This translates into getting an additional 80,000 lone parents into work.

One potential criticism of the matching techniques used here is that if employment rates of the comparator group are sufficiently high there may be an asymmetry in the way that lone parents and the comparator group respond to changes in the economic environment. Thus any difference in employment growth between the two populations may be due to this asymmetry rather than a response to policy change. Meyer and Rosenbaum (1999) have argued that for the US this is not a compelling argument as employment rates among the matched sample are also low. Our matched samples of single non lone-parents also have relatively low employment rates compared to the population as a whole (with employment rates of 63 percent in 1992, with similar estimates from the GHS and HLFS data). An alternative would be to test the impact of policy on a comparator group with similarly low employment rates (although this group should also be unaffected by policy changes). In the following section we look at variations in employment by education for a matched sample of lone parents and single childless people, and observe similar gains in relative employment. These results suggest that this criticism is not a strong one.

Differences by Age of Youngest Child and Education

Research in the US and Canada has suggested that policy reform in these countries has had a particularly strong effect for those with younger children and for the less well educated. Also we noted earlier there has been a decline in the share of lone parents with very young children. This compositional shift may affect our estimates of the impact of policy on employment, as age of children cannot be contained in the matching function. As this compositional shift was continuous throughout the decade we expect the effect to be largely netted out by the difference-in-difference estimator. However to test that this is the case, we repeat the matching analysis for different groups of lone parents according to the age of the youngest child. Furthermore there may be important variations in the impact of policy according to the age of the youngest child. For example, the Childcare Credit element of the WFTC meets up to 70% of childcare costs up to a limit of £100 per week. These payments are only available for formal childcare arrangements and are therefore likely to be of most value to parents with pre-school children. On the other hand, IS payments for those not working have increased most for those with younger children. From 1998-2002

the payment value for a child under 11 rose by £16:15 (£17:35 to £33:50) while for children aged 11 to 15 the rate rose by just £8:15 (£20:35 to 33:50) as the pre-existing age differences in support rates were removed. While these changes were also mimicked in the WFTC, there may still be a wealth effect that is larger for those with young children. Table 7 outlines the difference-in-difference estimates for lone parents by the age of the youngest child. These suggest that the effect of policy has been greatest among those with pre-school age children: for those with children under 5 the policy the effect on employment is predicted to be just under 6 percentage points. For those whose youngest child was aged 5 to 10 the gain in employment since 1998 is similar to that for those with younger children, but this group had been making stronger relative gains prior to 1998. On the other hand those with older children have made little relative gain in employment since 1998, although they had been losing ground prior to 1998. So net of prior trends, these two latter groups of lone parents have made similar progress in terms of their relative employment since 1998 according to the difference-in-difference estimate. The average of these three estimates, using 1998 sample shares, produces a mean estimated difference-in-difference estimate of 5.03 percentage points. This is just a fraction higher than when the groups are not separated, and reflects the declining share of lone parents with very young children since 1998.

We may also expect to see variations in the employment rates of lone parents according to the level of education they have attained. This is because the incentives to work have improved most for the less well educated, as they tend to have relatively poor earnings potential. In Table 8 we split our sample into those whose highest qualification is "O" levels or below and those with "A" levels or degrees. We find that the employment effect has been marginally greater for the relatively well educated. This probably reflects the weak gains to work that remain at relatively low wages, and the generosity of the WFTC, which extends relatively far up the earnings distribution (indeed around 90 percent of working lone parents are in receipt of WFTC).

VI. Hours of Work, Earnings and Poverty

Hours

The WFTC and its predecessor FC have a relatively unusual feature for tax and welfare systems in that they are conditional on working a minimum number of

hours.[11] Lone parents must work a minimum of 16 hours in order to claim the tax credit, and there is a supplementary credit if they work in excess of 30 hours. These thresholds are designed to reduce the effect of high marginal effective tax rates leading people to choose shorter hours of work. As a result the move to the WFTC is likely to have had a mixed impact on hours of work. The increased generosity of the scheme would be expected to encourage those who had been working fewer than 16 hours a week to increase their hours of work, while those working more than 16 hours may decide to reduce their hours as a result of the "windfall effect" of increased welfare payments. New rules meaning that the childcare tax credit was now available for those working part-time may have further reinforced this effect. However, the reduction of the withdrawal rate of the tax credits from 70 percent of after tax earnings to 55 percent would have the opposite effect on hours of work for those already in receipt of tax credits. Finally, the extension of coverage to lone parents who would have previously been ineligible for help because their earnings were too high earnings would now have an incentive to reduce hours of work.

Figure 8 shows the evolution of the distribution of hours of work among lone parents over the decade. Between 1992 and 1998 the number of lone parents working fewer than 16 hours a week fell, while there was an increase in the number working between 16 and 23 hours. This probably reflects changes in the FC hours rules in 1992, when the minimum hours threshold was cut from 24 to 16. The creation of a spike at 16-23 hours appears to have occurred because lone parents working fewer than 16 hours and more than 24 hours a week were drawn into this threshold between 1992 and 1998. The transition to WFTC after 1998 saw a further decline in short working hours, and an increase in the share of lone parents working 24 to 30 hours. There was no clear change in hours of work for those previously employed full-time. Table 9 shows how average hours of work have changed. For all lone parents (including those out of work, with zero hours) rose by 2.5 hours a week, or just over 20 percent, between 1998 and 2002. Obviously this change includes the effect of increased participation; among working lone parents however average weekly hours of work also increased from an average of 27.3 to 28.5 hours a week (a 5 percent rise).

[11] The Canadian SSP required full-time working for lone parents to be eligible and had the effect of reducing numbers working part-time.

There are three further issues we may wish to consider when thinking about the impact of welfare reform on the choice of hours of work among lone parents. First did the reforms induce people working less than 16 hours a week to increase their hours of work in order to get WFTC? Second, did the large numbers entering employment after the reforms do so at significantly different hours than those who were already working? And third what was the net effect on hours of work among those already working more than 16 hours? The first question is relatively easy to assess. We simply repeat the earlier analysis to look at changes in the proportion employed for more than16 hours a week. Looking at Figure 8, we might expect the predicted impact of policy on the 16-hours plus employment rate employment to be larger than that on total employment. Difference-in-difference estimates of the effect of policy reform on the 16-hour plus employment rate are reported in Table 10. These suggest that policy has raised this employment rate by 7.2 percentage points, implying that an additional 120,000 lone parents work more than 16 hours a week. As hours of work may also have responded to the 1992 policy changes, we may also wish to use 1995 to compute our difference-in-difference estimates. When 1995 is chosen as the base year, the estimated rise in employment increases further to 9 percentage points. This move from hours of work below 16 hours a week is not focused on those with younger children.

The question of whether those entering employment did so at different hours of work than the incumbents, and whether those already in employment reduced their hours of work, is addressed here by matching the 1998 and 2002 samples of lone parents. The matching estimator used here uses simple one-on-one matching on the propensity score of being a lone parent in 1998. By matching lone parents in the 1998 data to those in the 2002 data we are able to find those lone parents who look like incumbents (i.e. those who would have worked in the absence of policy reform), while those working lone parents in 2002 data who do not have a close match in the 1998 sample can be considered to be the labour market entrants who have entered into employment as a consequence of the policy reforms. As the samples considered here working 16+ hours a week, we are able also to match them on a large range of industry, occupation and job tenure variables, as well as on the characteristics of the lone parents and the age and number of their children. When we do this we find that employment of lone parents has grown notably fast in two sectors: “retail and catering” and “other private services”.

Table 10 shows that the average hours of work among those working more than 16 hours fell by just over an hour between 1998 and 2002. Our matched estimates suggest those who have entered work as a result of the reforms (the "entrants") work fewer hours than those matched to the 1998 population of lone parents (the "incumbents") using employment and personal characteristics. We predict that the incumbents have reduced their average hours of work marginally, by around half an hour a week, in response to the windfall effect of increased welfare income. This fall is not however statistically significant and any failure in the matching process would tend to bias downwards the 2002 estimate of hours of work. We conclude that there is no significant reduction in hours worked among lone parents who would have worked in the absence of the policy reform, which is in line with the findings of Eissa and Leibman (1997) for the US. As expected, the entrants into the labour force have less "taste for work" than the incumbents, and therefore we predict that their average hours of work should be lower by around 2 hours a week.

Earnings

In order to get some indication of how policy reform has affected lone parents welfare, we look at what has happened to their earnings[12]. The LFS only contains information on earnings for a subset of around 40 percent of all respondents in each quarter[13]. This reduces our sample sizes considerably, particularly as the number of employed lone parents is also small. These small sample sizes mean that the standard errors on our earnings data are relatively large, although the numbers reported can be thought of as indicative. The second panel of Table 9 reports median weekly earnings for lone parents in 1998 and 2002. For all working lone parents, median weekly earnings jumped by 36 percent in real terms between 1998 and 2002. This was an increase substantially above that for our benchmark group of single childless women, who saw earnings rise by just 13 percent over the same period. This difference was partly a result of the fact that the 16-hour rule under the WFTC led to a significant increase in hours of work among those previously working short hours. Looking only

[12] Unfortunately the HLFS does not have data on household income.

[13] All respondents are interviewed over five quarters, with information being recorded on earnings in the first and fifth quarters only.

at those working over 16 hours a week, we find that changes in weekly earnings have increased by a more modest 11 percent.

As labour supply increases we might expect average earnings of lone parents to fall if the new entrants have poor labour market characteristics relative to those already in work. We therefore split the 2002 sample into "incumbents" and "entrants". Again we define the incumbent sample by matching our sample of 2002 lone parents on the characteristics of lone parents in employment in 1998, while the "entrants" are those employed in 2002 but with no close match in the 1998 data. The median earnings of the matched sample of incumbents were relatively high compared to the entrants in 2002, being 9 percent higher than those of the new entrants. Moreover, the rate at which pay has grown among the incumbents is almost exactly the same as that of single women without children. As over the same time period in-work benefits increased by an average of approximately £30 per week, this suggests a large improvement in the incomes of working lone parents. This, and the fact that those lone parents who are not in work have also seen large increases in their incomes, means that the UK's experience of policy reform contrasts radically with the experience of policy reform in the US.

Our data is not well placed to analyse total income, so we turn instead to other authors' estimates of changes in lone parent's poverty rates in order to illustrate how these changes in employment may have affected poverty. Pichaud and Sutherland (2002) summarize recent patterns of relative poverty in the UK using standard poverty definitions (60% of median household income, equivalised using the McClements scales). They show that in the four years between the fiscal years of 96/7 and 2000/01 the overall rate of child poverty fell by around 4.5 percentage points (this measure being similar using both the before and after housing costs measures of poverty), while among lone parent families the poverty rate fell by 8.2 percentage points, from 62.0 to 53.8. Poverty rates have also fallen among couples with children, but to a much smaller extent. Dickens and Ellwood (2003), using a modified poverty measure to make comparisons with the US, find similar reductions in poverty. They show that in the first four years of office the Blair government made relative and absolute poverty gains which were of almost exactly the same magnitude as the gains made in the US since Clinton was elected in 1992. For lone parents, using an absolute measure of poverty, they find that poverty rates fell by 16 percentage points in the UK between 1997 and 2000 and the same amount in US between 1992 and 2001. Moreover, as the

latest UK data covered only the 2000/01 fiscal year the effect of the October 2000 welfare increases may not have been fully captured, while none of the impact of the changes applied in October 2001are included. So the dramatic reductions in poverty among lone parents in the UK may well continue for several more years yet. Dickens and Elwood also decompose the poverty reductions into contributory factors such as demographics, wage inequality, work patterns and welfare. Their findings suggest that improvements in the hours of work of lone parents underlie around 40 percent of the decline in relative poverty

VII. Conclusion

Lone parents are bringing up one-in-four children in the UK. Until recently these families have suffered from extremely high rates of poverty and worklessness. From 1998 the Labour government has introduced a wave of reforms aimed at reducing worklessness and poverty in lone parent families, increasing welfare payments to those in and out of work, improving the financial gains to work, and introducing a more pro-active welfare system in the form of the New Deal for Lone Parents. Using a combination of propensity score matching and difference-in-difference estimation techniques we find that these policies have raised employment of lone rates by around 5 percentage points while increasing hours of work among those already in employment. The increase in the number of hours worked has been a consequence of lone parents shifting from short hours to over 16-hours a week in order to become eligible for tax credits. We estimate that the proportion of lone parents working at least 16 hours a week has risen by 7 percentage points over the last four years as a result of the policy changes, meaning that an additional 120,000 lone parents are now working 16+ hours a week as a result of the reforms. Hours of work among those already working more than 16 hours a week appear to be broadly constant; there is no evidence that the windfall effect, which has resulted from increased benefits being given to those already in work, has led to a reduction in their working hours. These employment gains appear not to have come at the expense of lower earnings, and it appears that the least educated have not been more responsive to the reforms than better educated lone parents. Those lone parents who remain outside employment are increasingly less well skilled and concentrated in rented housing, and are a group for whom work incentives remain weak.

The gains in earnings and employment that have occurred since 1998 have resulted from a package of welfare reforms that have not required mandatory job search by lone parents, nor relied on time limited welfare programmes. Moreover the employment gains have been achieved despite generous increases in welfare payments for lone parents who do not work. Given the scale of the employment gains found, these results are hugely important for the US debate on welfare reform. Increases in earnings combined with more generous welfare payments are making rapid progress in reducing child poverty rates among lone parent families when measured on an absolute basis, and have also lead to substantial gains in reducing relative poverty. These gains have matched what has been achieved in the US since 1992, but at a much faster pace. As the generosity of welfare payments continue to increase, and as reforms aimed at improving work incentives in the UK welfare system are not yet complete[14], further gains are likely over the next few years. However, while substantial progress has already been made, it is not yet on a sufficient scale for it to be likely that the government's target of getting 70 percent of lone parents into employment by 2010 will be reached.

[14] A revised system of tax credits come into force in April 2003.

References

Blank, R (2002), "Evaluating Welfare Reform in the US" NBER Working Paper No.8983, NBER, Harvard.

Blundell, R, A.Duncan, J.McRae and C.Meghir (2000), "The Labour Market Impact of the Working Families' Tax Credit", Fiscal Studies, 21. pp.75-100.

Blundell, R and H. Hoynes (forthcoming) "Has 'In-Work' Benefit Reform Helped the Labour Market" in R.Blundell, D.Card and R.Freeman, Creating a Premier League Economy, University of Chicago Press.

Bradshaw, J, S Kennedy, M Kilkey, S Hutton, A Corden, T Eardley, H Holmes, and J Neale (1996) The employment of lone parents - a comparison of policy in 20 countries, Family Policy Studies Centre in association with the Joseph Rowntree Foundation.

Brewer, M. and Gregg, P. (2002) "Eradicating Child Poverty in Britain: Welfare Reform and Children since 1997", in Walker and Wiseman (eds) The Welfare We Want, Policy Press forthcoming.

Dickens and Elwood

Duncan, A and C. Giles (1996), "Labour Supply Incentives and Recent Family Credit Reforms", Economic Journal, 106, pp.142-155.

Eissa, N. and Liebman, J. (1996) Labour Supply Response to the Earned Income Tax Credit, Quaterly Journal of Economics, May, pp 605-637

Eissa, N and H.Hoynes (1998) "The Earned Income Tax Credit and Labor Supply of Married Couples", NBER Working Paper 6856.

Elias, P, M.Hasluck and A.Mcknight (2000) 'Transitions off Income Support: estimating the impact of New Deal for Lone Parents' in Early Lessons from the Phase One Prototype - cost benefit and econometric analysis, Research Report No.110, Department of Social Security, 2000

Ellwood, D (1999) "The Impact of the Earned Income Tax Credit and Social Policy Reforms on Work, Marriage, and Living Arrangements" JCPR Working Paper No.124, University of Chicago.

Evans, M (2001), "Welfare to Work and the Organisation of Opportunity: Lessons from Abroad", CASE Report 15, LSE.

Fan, J. (1992) "Design Adaptive Nonparametric Regression", Journal of the American Statistical Association, 87, 998-1004

Gregg, P. Harkness, S. And Machin S. (1999) Poor Kids: Trends in Child Poverty in Britain 1968-96 Fiscal Studies Vol. 20 no. 2

Heckman, J. Ichimura, H. and Todd, P. (1997) Matching as an Econometric Evaluation Estimator: Evidence from Evaluating a Job Training Programme, Review of Economic Studies, 64, 605-654

Micklewright, J (ed. 2000) "A League Table of Child Poverty in Rich Nations", Report Card 1, UNICEF Innocenti Research Centre, Florence, 2000

Millar, J and K.Rowlingson (2001) Lone Parents Employment and Social Policy: Cross-national Comparisons, The Policy Press, Bristol.

OECD (1998), OECD Employment Outlook 1998, OECD, Paris

OECD (2001), OECD Employment Outlook 2001, OECD, Paris

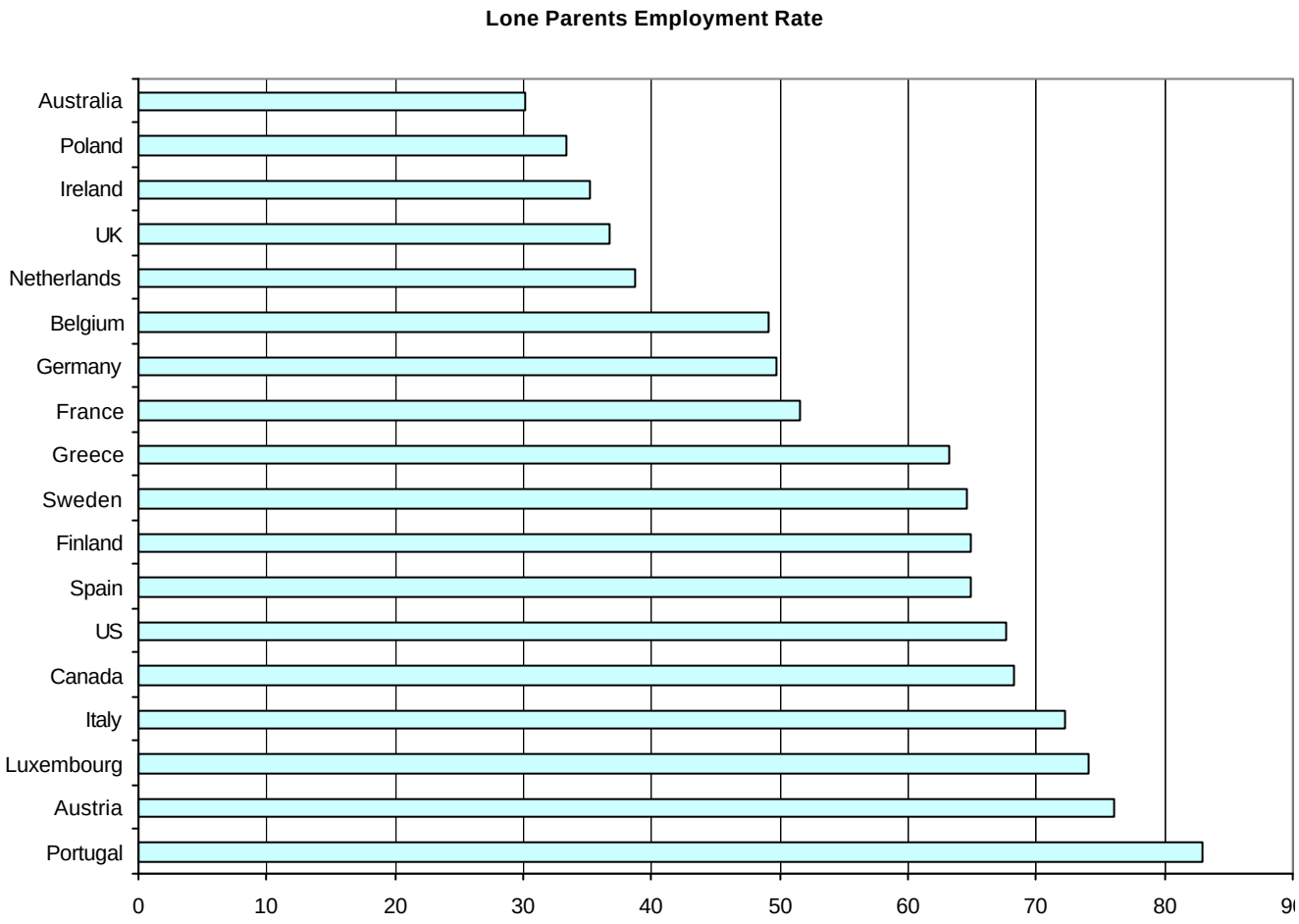
Piachaud and sutherland

Riley, R. and Young, G. (2000). 'New Deal for Young People: Implications for Employment and the Public Finances', Employment Service Research and Development Report, ESR62, December

Rosenbaum, P. And Rubin, D. (1983) The Central Role of the Propensity Score in Observational Studies for Causal Effects, Biometrika, 70, 41-55.

Van Reenan, J. (2001)

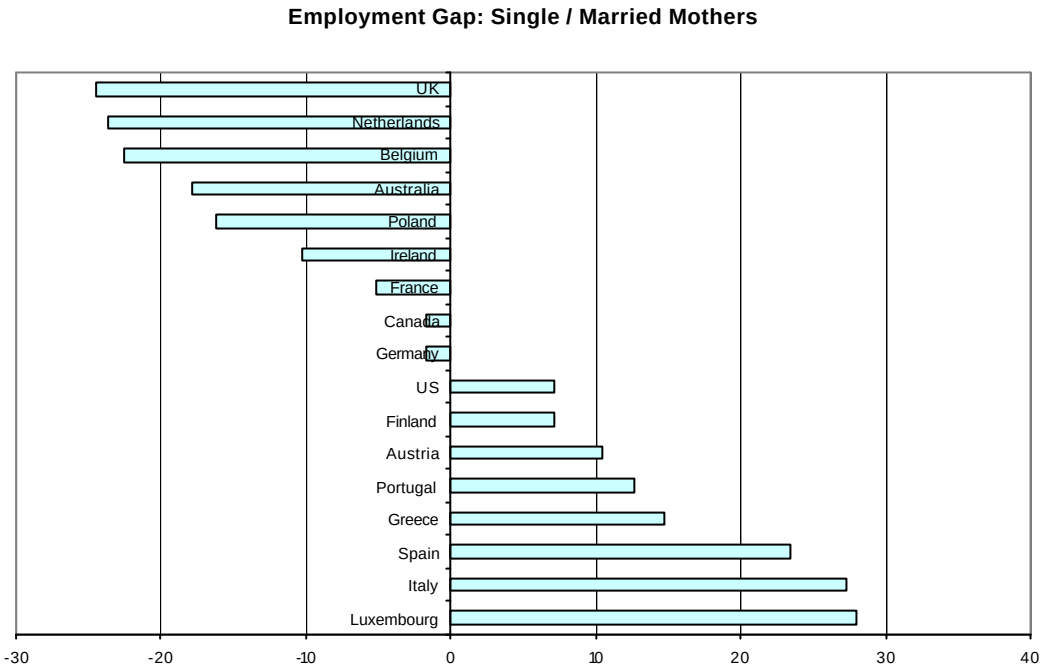
Figure 1: International Comparisons of Lone Parents Employment Rates



Source: OECD Economic Outlook 2001

Figure 2: Employment Gaps

a)



b)

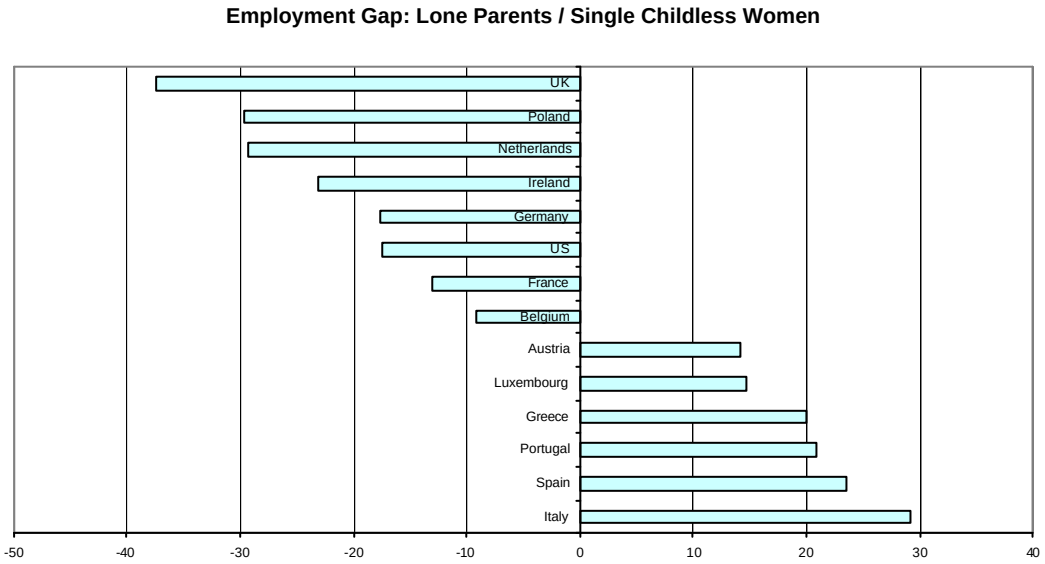
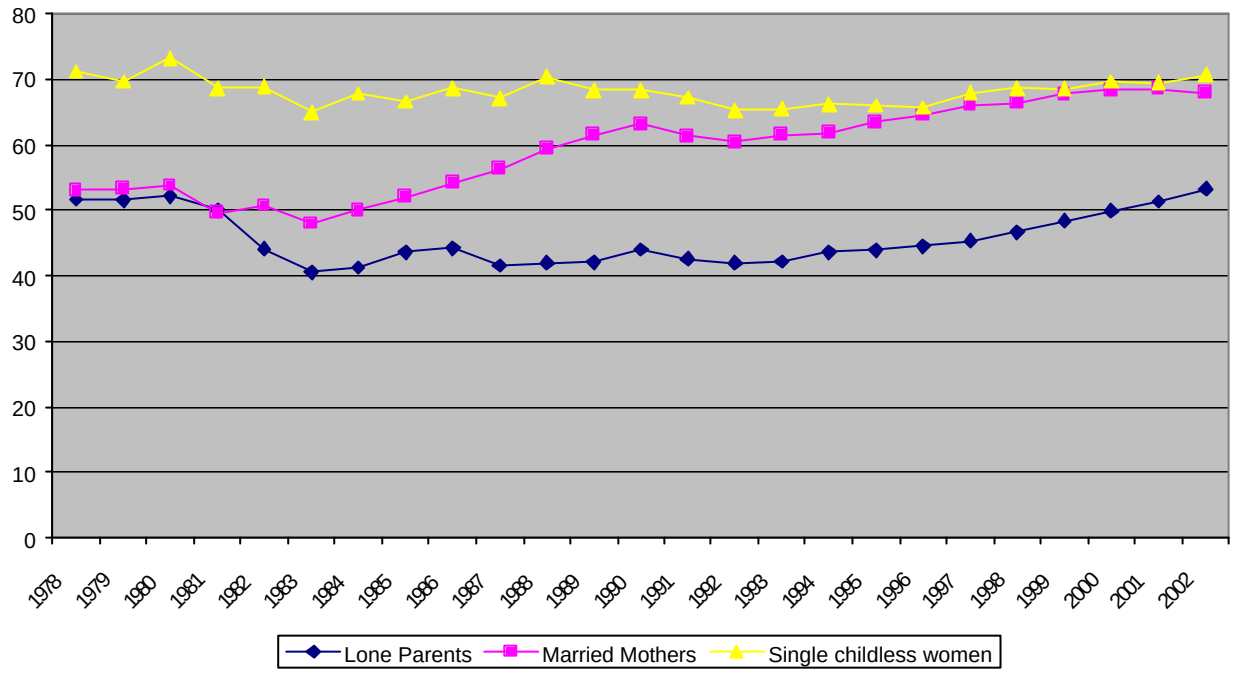
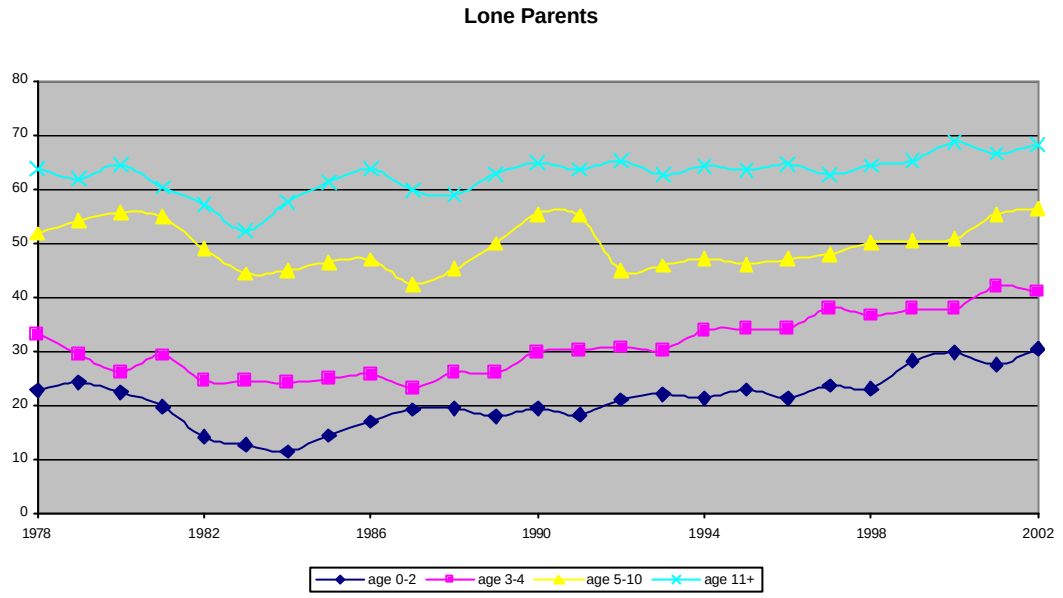


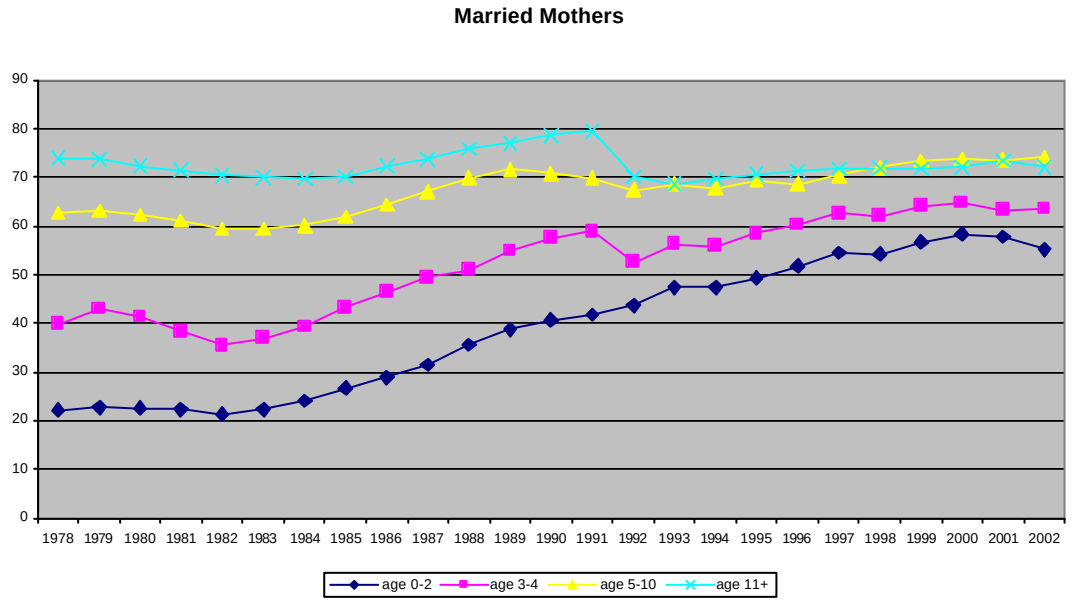
Figure 3
Employment Rates of Single Mothers, Married Mothers, 1978 to 2002



Note: Data from 1978-1991 is taken from the General Household Survey. In order to overcome the problem of small sample sizes among lone parents, three-year moving averages are used. Data from 1992 to 2002 comes from the Labour Force Survey.

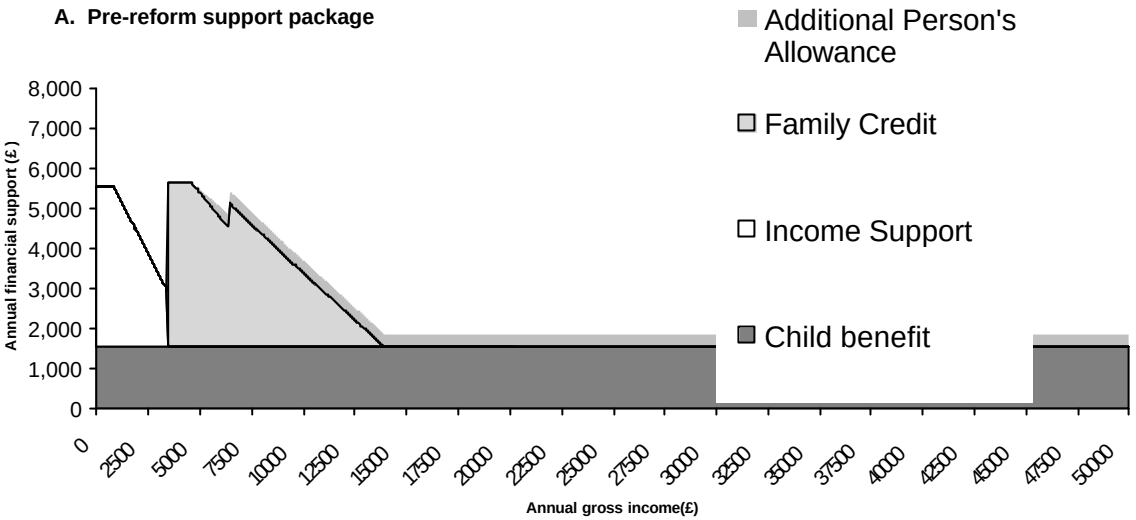
Figure 4:
Employment Rates by Age of Youngest Child



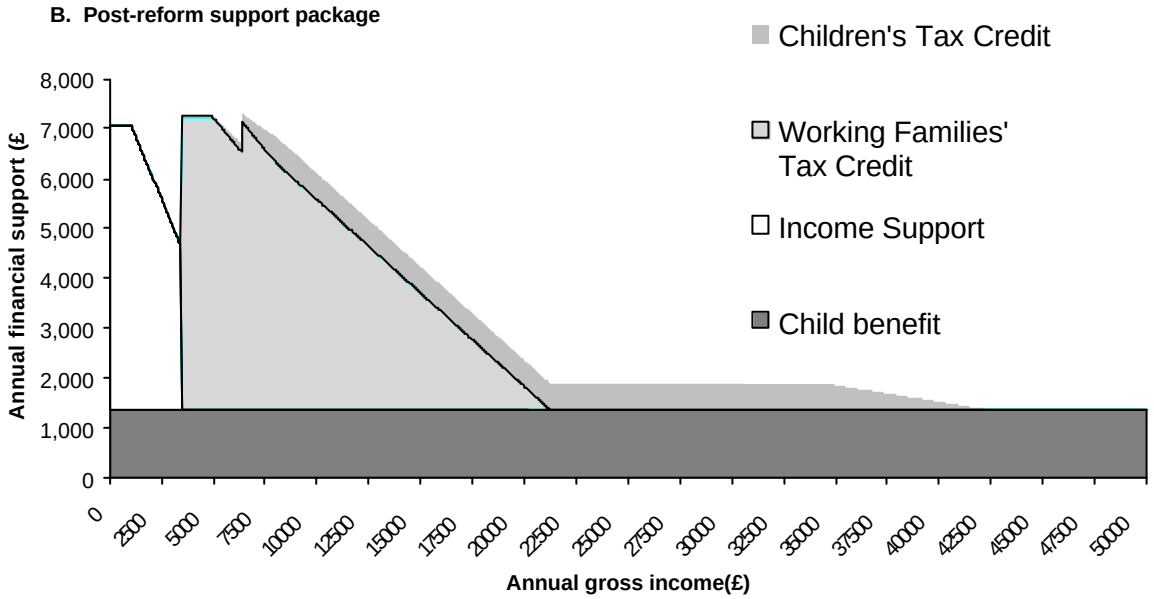


Note: Data from 1978-1991 is taken from the General Household Survey. In order to overcome the problem of small sample sizes among lone parents, three-year moving averages are used. Data from 1992 to 2002 comes from the Labour Force Survey.

Figure 5: Pre and Post Welfare Reform Support Packages



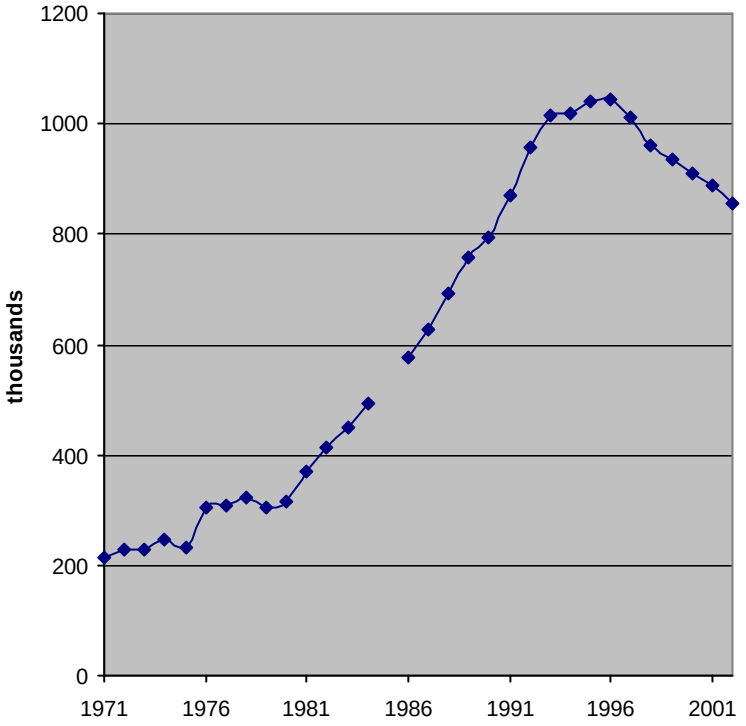
Note: Assumes live-alone lone parent, 2 children under 11, no housing costs or childcare costs. Entitlement for WFTC reached at £3,400, or 16 hours work/week at the minimum wage. Values uprated to April 2002 prices.



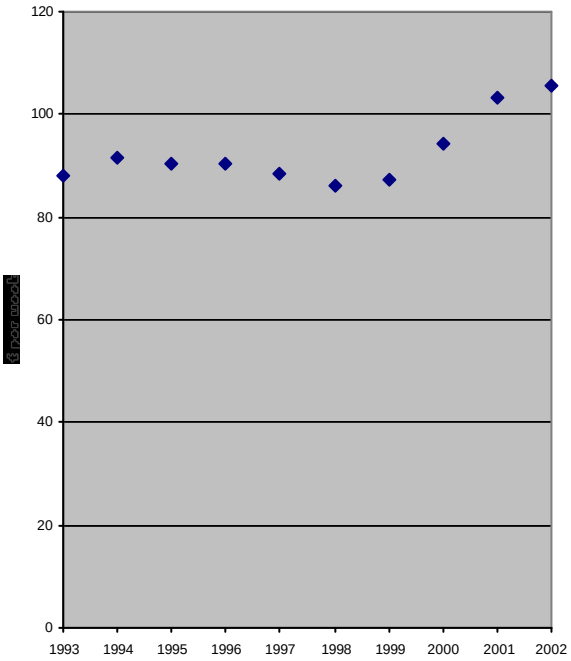
Note: Assumes live-alone lone parent, 2 children under 11, no housing costs or childcare costs. Entitlement for WFTC reached at £3,400, or 16 hours work/week at the minimum wage. Values uprated to April 2002 prices.

Source: Brewer and Gregg 2002

Figure 6: Lone Parents Claiming Income Support and Average Weekly Benefit Claimants

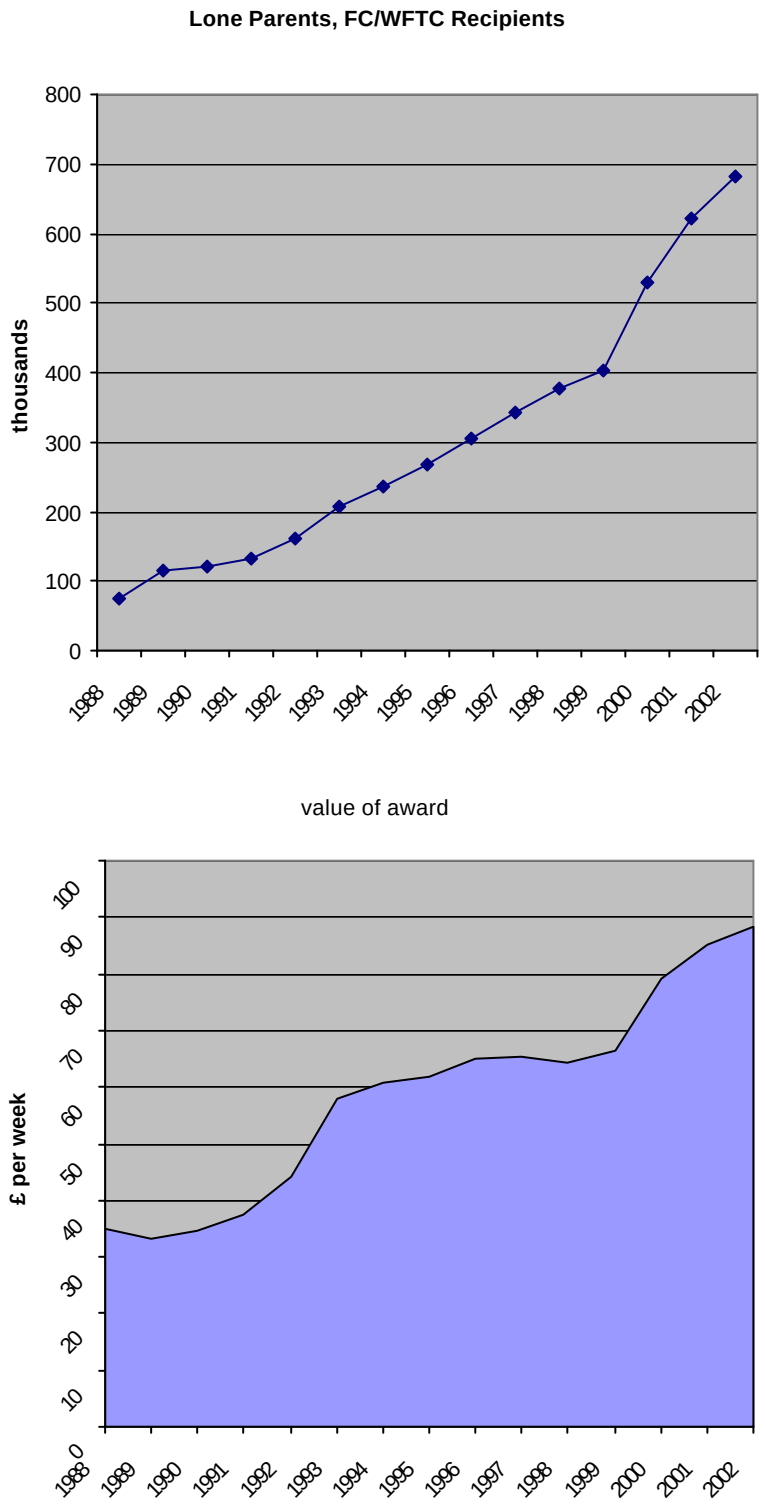


Pounds / week



Notes: 1. Great Britain (excludes NI), figures for May.
2. Source Working Families Tax Credit Statistics Quarterly Enquiry May 2002, 2002 prices.

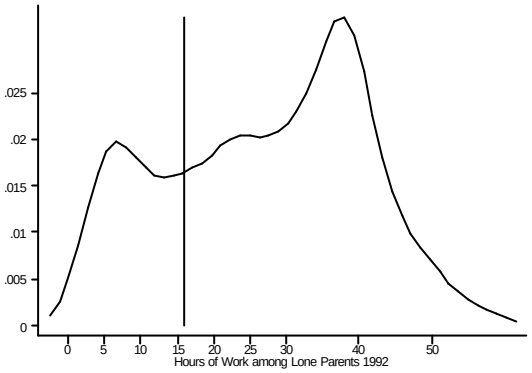
Figure 7



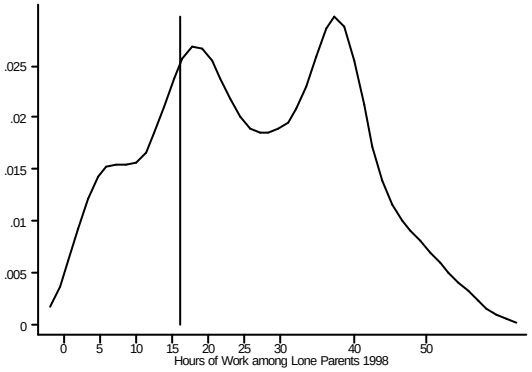
Notes: 1. Great Britain (excludes NI), figures for May. 2002 prices.
2. Source Working Families Tax Credit Statistics Quarterly Enquiry May 2002,

Figure 8: Kernel Density Distribution of Hours of Work of Lone Parents in 1992, 1998 and 2002

1992



1998



2002

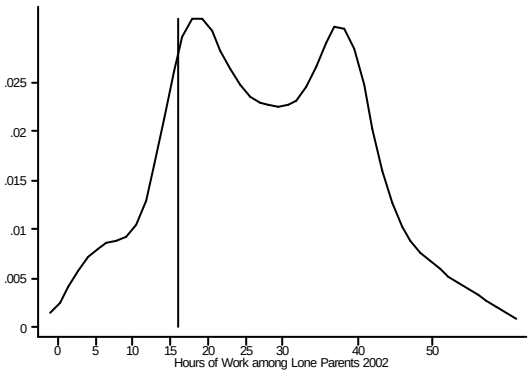


Table 1: Lone Parent Employment Rates

Group/Year	1978-80	1985-87	1991-93	1992	1995	1998	2000	2002	1998-1993	2002-1998
Lone Parent Employment Rate	51.5	44.3	41.8	42.1	43.9	46.6	49.9	53.2	4.5	6.6
Emp. Rate : Youngest Child 0-2	24.5	17.5	21.2	21.0	22.8	23.0	29.7	30.4	2.0	7.4
Emp. Rate : Youngest Child 3-4	31.2	26.0	29.0	30.6	34.1	36.5	37.8	41.0	5.9	4.5
Emp. Rate : Youngest Child 5-10	56.6	48.4	49.9	44.8	46.0	50.1	50.7	56.4	5.3	6.3
Emp. Rate : Youngest Child 11+	65.4	65.2	63.0	65.1	63.4	64.3	68.6	68.1	-0.8	3.8
Share with Youngest Child Aged 0-2	16.9	23.2	28.4	27.7	23.6	21.9	21.2	18.9	-5.8	-3.0
Employment Rate working > 16 hours	39.4	33.7	30.5	34.1	37.1	38.9	43.0	48.5	4.8	9.6
Non-Lone Parent Emp. Rate (ages 16-59)	77.1	74.2	74.5	73.3	74.1	76.2	76.7	77.1	2.9	0.9

Data from 1978-80 to 1991-93 is from the General Household Survey, from 1992 onwards data is from the Labour Force Survey.

Table 2: Reform of Welfare Systems affecting Lone Parents 1988- 2002

1988

- **Family credit** introduced to replace Family Income Supplement (FIS). Basic adult credit plus per child element variable across age of child, £6:05 (0-11) £11:40 (12-15) £14:70 (16-17) £21:35 (18). Must be employed 24+ hours and taper 70%.

1992

- July: Minimum hours reduced to 16.

1994

- October: Childcare charges could be offset against earnings up to £40

1995

- July: 30 hours extra credit introduced

1997

- **NDLP Phase 1:** July 1997 to October 1998. Launched in 8 pilot areas.
- Lone Parent Supplementary rates abolished for new claims – worth CHB £6:30 IS £5:20
- **IS rates** £16:90 (0-10), £24:75 (11-15), £29.60 (16-18)
- **FC Rates** £12:05 (0-10) £19:95 (11-15) £24.80 (16-17) 34.70 (18)

1998

- **NDLP Phase 2:** April 1998 to October 1998. National roll-out. All lone parents making new claims for IS (flow claimants) whose youngest child was aged over five years and three months were invited to participate in NDLP. Lone parents with children under the age of five years and three months did not receive an invitation letter but were able to participate if they wished.
- **Phase 3:** October 1998 onwards. The full national roll-out of NDLP commenced as Phase 3. Invitation letters were sent to all those lone parents whose youngest child is aged over five years and three months, who had made a claim for IS prior to April 1998 (stock claimants), as well as those making new IS claims (flow claimants). Phase 3 of NDLP was originally actively marketed to all lone parents on IS whose youngest child was five years and three months or over (i.e, in full time education).
- **IS rates** £17:35 (0-10), £25:35 (11-15), £30:30 (16-18)
- **FC rates** Basic Rate £48:80, April £12:35 raised to £14:85 in November (0-10) £20.45 (11-15) £25.40 (16-18) Applicable amount £80.65, taper 70% net

1999

- **Working Families Tax Credit** Basic rate: 52.30 Child rate: £19.85/20.9/25.95 (0-10, 11-15 and 16-18 years old) Applicable amount £90.00, taper 55% net
- **IS rates** £20:20 (0-10), £25:90 (11-15), £30:95 (16-18)

2000

- **NDLP** From May 2000, the target group was expanded to include all lone parents with a youngest child aged 3 years and over. Lone parents on IS with younger children who asked to join the programme were welcome to do so.
- **WFTC** Basic rate:£53.15 Child rate:£25.6(0-15) £26.35(16-18) Applicable amount £91:45
- **IS rates** £26:60 (0-15), £31.75 (16-18)

2001

- **WFTC**: Basic rate: 59 Child rate: £26 (0-15) £26.75 (16-18) Applicable amount 92:90
- **IS rates** £32:95 (0-15) £33.75 (16-18)

April:

- **Roll-out of Work Focused Interviews WFI**: stock lone parents whose youngest child is aged 13-15. New claimants whose youngest child is aged 5 years 3 months or above
- **Adviser Discretion Fund** introduced in July 2001 discretionary award of up to £300, for use on anything which will help a lone parent in finding a job or, if successful, accept a job offer

November:

- **NDLP** widened to all LPs on low incomes

2002

- **WFI**: April 2002: stock lone parents whose youngest child is aged 9-12: new claimants whose youngest child is 3 years or above
- **WFTC**: Basic rate: 62.5 Child rate: £26.45 (0-15) £27.20 (16-18) Applicable amount 94:50
- **IS rates** £33:50 (0-15) £34:50 (16-18)

Table 3. The effect of the reforms on the financial gain to work for parents with children

	Gain to work (£)			
	16 hours		35 hours	
	1997	2001	1997	2001
Not on HB:				
Lone parent	63	71	107	130
Primary earner in a couple with children	26	50	79	99
Single person, no children	13	13	72	79
Second earner in a couple with children: no childcare costs, first earner on £300 a week	67	30	127	93
Lone parent with childcare of £50/week when in work:	13	56	92	115
On HB:				
Lone parent with HB	43	43	65	80

Notes: Table measures difference between zero-income benefit income and income after taxes and benefits in work. Assumes 2 children under 11 and full take-up of all entitled benefits, hourly wage of £4.20, rent of £50 a week where indicates, in-work childcare costs of £50 a week where indicated (slightly more than the average of those lone parents currently claiming the Childcare Tax Credit). All values expressed in 2002 prices.
Source: Authors' calculations based on TAXBEN model.

Table 4: Employment Rates of Lone Parents and Matched Samples and Difference-in-Difference Estimates, 1978/80, 1985-87 and 1991/3

	1978-80	1985-87	1991-93	Change 1979-86	Difference	Change 1986-92	Difference	Difference in difference
Lone parents	.513	.443	.418	-.075 (-.011)	-	-.025 (-.004)	-	-
Matched sample (all)	.669	.592	.595	-.077 (-.011)	.002 (.000)	.003 (.000)	-.028 (-.005)	-.0.030 (-.005)
Matched single no kids	.738	.663	.642	-.075 (-.011)	.000 (.000)	-.021 (-.004)	-.004 (-.001)	-.006 (-.001)
Matched couples with kids	.616	.537	.544	-.079 (-.011)	.004 (.001)	.007 (.001)	-.032 (-.005)	-.036 (-.006)

Table 5 Unconditional Difference in Difference Estimates of Impact of Welfare Reform on Lone Parent Employment Rates

	1992	1995	1998	2002	1998-1992		2002-1998		Difference in Difference	
Lone Parents	42.05	43.89	46.59	53.19	4.540		6.600		3.573	
					(0.757)		(1.650)		(0.893)	
						1.640		5.700		4.607
						(0.273)		(1.425)		(1.152)
All non-lone parents aged 16-59	73.3	74.1	76.2	77.1	2.900	P value = 0	0.900	P value = 0	-1.033	P value = 0
					(0.483)	0.078	(0.225)	0.000	-(0.258)	0.000
Lone Parents	42.05	43.89	46.59	53.19	4.540		6.600		3.573	
					(0.757)		(1.650)		(0.893)	
						-1.500		5.150		6.150
						-(0.250)		(1.288)		(1.538)
Women in Couples with Children	60.35	63.47	66.39	67.84	6.040	P value = 0	1.450	P value = 0	-2.577	P value = 0
					(1.007)	0.252	(0.363)	0.010	-(0.644)	0.000

N.b. Brackets denote annualised figures

Table 6 Difference in Difference Estimates of Impact of Welfare Reform on Lone Parent Employment Rates

Comparison with Single Adults without children

	1992	1995	1998	2002	1998-1992		2002-1998		Difference in Difference	
Lone Parents	42.05	43.89	46.59	53.19	4.540		6.600		3.573	
					(0.757)		(1.650)		(0.893)	
						1.080		5.050		4.330
						(0.180)		(1.263)		(1.083)
Single Women	65.16	66.04	68.62	70.17	3.460	P value = 0	1.550	P Value = 0	-0.757	P value = 0
without Children					(0.577)	0.208	(0.387)	0.000	-(0.189)	0.010
Lone Parents	42.05	43.89	46.59	53.19	4.540		6.600		3.573	
					(0.757)		(1.650)		(0.893)	
						1.660		5.960		4.853
						(0.277)		(1.490)		(1.213)
Single Without Children	63.25	64	66.13	66.77	2.880	P value = 0	0.640	P value = 0	-1.280	P value = 0
Matched on Lone Parents					(0.480)	0.102	(0.160)	0.000	-(0.320)	0.000

N.b. Brackets denote annualised figures

Table 7 Difference in Difference Estimates of Impact of Welfare Reform on Lone Parent Employment Rates by Age of Youngest Child

	1992	1995	1998	2002	1998-1992		2002-1998		Difference in Difference	
Ages 0-4										
Lone Parents	24.18	27.17	28.2	34.87	4.020		6.670		3.990	
					(0.670)		(1.668)		(0.998)	
						0.550		6.190		5.823
						(0.092)		(1.548)		(1.456)
Singles without Children	63.07	63.79	66.54	67.02	3.470	P value =0	0.480	P value =0	-1.833	P value =0
Matched on Lone Parents					(0.578)	0.323	(0.120)	0.001	-(0.458)	0.000
Ages 5-10										
Lone Parents	44.82	46	50.09	56.39	5.270		6.300		2.787	
					(0.878)		(1.575)		(0.697)	
						2.080		5.750		4.363
						(0.347)		(1.438)		(1.091)
Singles without Children	62.22	63.47	*65.41*	65.96	3.190	P value =0	0.550	P value =0	-1.577	P value =0
Matched on Lone Parents					(0.532)	0.198	(0.137)	0.004	-(0.394)	0.046
Ages 11+										
Lone Parents	65.14	63.38	64.32	68.05	-0.820		3.730		4.277	
					-(0.137)		(0.933)		(1.069)	
						-2.650		2.790		4.557
						-(0.442)		(0.698)		(1.139)
Singles without Children	64.6	64.84	66.43	67.37	1.830	P value =0	0.940	P value =0	-0.280	P value =0
Matched on Lone Parents					(0.305)	0.273	(0.235)	0.088	-(0.070)	0.012
N.b. Brackets denote annualised figures										

Table 8 Difference in Difference Estimates of Impact of Welfare Reform on Lone Parent Employment Rates by Education

	1992	1995	1998	2002	1998-1992		2002-1998		Difference in Difference	
O level or Lower										
Lone Parents	35.3	36.38	38.98	43.39	3.680		4.410		1.957	
					(0.613)		(1.103)		(0.489)	
						1.450		6.160		5.193
						(0.242)		(1.540)		(1.298)
Single Women without Children	56.4	56.21	58.63	56.88	2.230	P value =0	-1.750	P value =0	-3.237	P value =0
Matched on Lone Parents					(0.372)	0.018	-(0.438)	0.000	-(0.809)	0.000
A Level and Higher										
Lone Parents	61.44	64	64.01	69.73	2.570		5.720		4.007	
					(0.428)		(1.430)		(1.002)	
						-1.470		5.410		6.390
						-(0.245)		(1.353)		(1.598)
Single Without Children	74.4	77.42	78.44	78.75	4.040	P value =0	0.310	P value = 0	-2.383	P value = 0
Matched on Lone Parents					(0.673)	0.077	(0.078)	0.000	-(0.596)	0.010
N.b. Brackets denote annualised figures										

Table 10 Difference in Difference Estimates of Impact of Welfare Reform on Lone Parent Employment Rates 16+ hours

	1992	1995	1998	2002	1998-1992		2002-1998		Difference in Difference	
Lone Parents	34.07	37.11	38.86	48.47	4.790		9.610		6.417	
					(0.798)		(2.403)		(1.604)	
						2.620		7.740		5.993
						(0.437)		(1.935)		(1.498)
Singles Women without Children	63.57	62.92	65.74	67.61	2.170	P value =0	1.870	P value =0	0.423	P value =0
					(0.362)	0.323	(0.468)	0.001	(0.106)	0.000
Lone Parents	34.07	37.11	38.86	48.47	4.790		9.610		6.417	
					(0.798)		(2.403)		(1.604)	
						1.700		8.330		7.197
						(0.283)		(2.083)		(1.799)
Singles without Children	60.18	60.84	*63.27*	64.55	3.090	P value =0	1.280	P value =0	-0.780	P value =0
Matched on Lone Parents					(0.515)	0.198	(0.320)	0.004	-(0.195)	0.046
Youngest Child Ages Under 5										
Lone Parents	17.74	21.99	22.64	31.07	4.900		8.430		5.163	
					(0.817)		(2.108)		(1.291)	
						1.220		7.310		6.497
						(0.203)		(1.828)		(1.624)
Singles without Children	60	60.2	63.68	64.8	3.680	P value =0	1.120	P value =0	-1.333	P value =0
Matched on Lone Parents					(0.613)	0.273	(0.280)	0.088	-(0.333)	0.012
N.b. Brackets denote annualised figures										

Table 9 Average Hours of Work and Median Weekly Earnings among Lone Parents (2002 prices)

Average Hours of Work			
	1998	2002	Change
All Lone Parents	11.7	14.2	2.5
Working Lone Parents	27.3	28.5	1.2
Working Lone Parents 16+ hours	32.1	30.9	-1.2
Matched Lone Parents 1998-2002	32.0	31.5	-0.5
Predicted Entrants	-	29.5	-
Median Weekly Earnings among Lone Parents			
	1998	2002	% Change
Working Lone Parents	149	203	36.2
Working Single Women without Children	274	311	13.5
Working Lone Parents 16+ hours	197	219	11.2
Matched Lone Parents 1998-2002	197	224	13.7
Predicted Entrants	-	206	-

Table A1 Difference in Difference Estimates of Impact of Welfare Reform on Lone Parent Employment Rates by Rental Status

	1992	1995	1998	2002	1998-1992		2002-1998		Difference in Difference	
Owners										
Lone Parents	65.5	68.9	72.9	80.7	7.400		7.800		2.867	
					(1.233)		(1.950)		(0.717)	
						4.700		6.600		3.467
						(0.783)		(1.650)		(0.867)
Single without Children	83.2	84.9	85.9	87.1	2.700	P value =0	1.200	P value =0	-0.600	P value =0
Matched on Lone Parents					(0.450)	0.018	(0.300)	0.000	-(0.150)	0.000
Renters										
Lone Parents	29.2	29.4	32.8	37.9	3.600		5.100		2.700	
					(0.600)		(1.275)		(0.675)	
						2.600		7.000		5.267
						(0.433)		(1.750)		(1.317)
Single Without Children	49.1	46.9	50.1	48.2	1.000	P value =0	-1.900	P value = 0	-2.567	P value = 0
Matched on Lone Parents					(0.167)	0.077	-(0.475)	0.000	-(0.642)	0.010
N.b. Brackets denote annualised figures										

Table A2: Characteristics of Lone Parents and Other Comparator Groups in 2002

Share of Group	Lone Parents	Non-Lone Parents	Women in Couples with Children	Single Women without Dependent Children	Matched Single Women without Dependent Children
Education					
Degree	7.3	16.7	13.0	24.3	5.3
A Level or Equiv.	30.2	37.1	32.5	34.9	29.5
O Level or Lower	39.1	31.6	40.5	25.8	43.5
None	23.3	14.7	14.0	15.1	21.4
Age Group					
16-24	12.5	17.0	17.4	20.5	9.8
25-35	31.5	23.4	26.3	24.9	29.6
35-49	50.2	37.2	51.1	26.1	56.3
50+	5.8	22.4	5.2	28.5	5.3
Age of Youngest Child					
0-2	18.9	-	22.8	-	-
3-4	13.8	-	11.8	-	-
5-10	34.6	-	27.9	-	-
11+	32.8	-	37.5	-	-
Housing Tenure					
Owner	35.3	75.8	80.4	51.7	45.6
Social Sector	50.4	13.2	13.5	19.1	42.8
Private Renter	13.9	10.6	5.8	28.6	10.8
Ethnicity					
Black	5.8	1.4	1.1	2.9	5.7
Asian	2.2	3.1	3.1	1.9	2.2
Mixed + Other	2.1	2.1	1.5	2.3	2.3

Table A3: Industry Mix of Lone Parents Working 16+ Hours

	1998	2002
Production and Construction	30.5	29.4
Retail and Catering	17.1	20.1
Other Private Services	15.9	18.8
Public Administration and Education	16.6	17.0
Health and other Public Services	29.5	27.5