

**DIFFERENCES IN DECLINE -
RELATIVE CHILD POVERTY IN
SCOTLAND AND ENGLAND 1998/99 TO
2008/09**

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TO 2008/09**

Eleanor Barham - ESRC Placement Student

Overseen by Tom Spencer and Anne MacDonald

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Executive Summary

Research Questions

- Which factors have been associated with poverty reduction between 1998/99 and 2008/09?
- Why did poverty reduce more in Scotland than England over this period?
- Can this reduction be attributed to UK or Scottish Government policies?

Context

1. The number of children living in relative poverty has declined over the last ten years across the UK. In Scotland, the number of children living below the relative poverty line (60% of median equivalised household income) has declined to a greater extent than in England.
2. The differences in child poverty rates in England and Scotland are not statistically significant in either 1998/99 or 2008/09. However, there has been a slight but noticeable difference in the rate of decline in the numbers of children in poverty:
 - Before housing costs: 26% of children in England and 28% of children in Scotland lived in relative poverty in 1998/99; a decade later the percentage of children living in relative poverty was 22% and 21% respectively.
 - After housing costs: 34% of children in England and 31% of children in Scotland lived in relative poverty in 1998/99; a decade later the percentage of children living in relative poverty was 30% and 26% respectively.
 - Relative child poverty fell to a greater extent in Scotland than any English region, excluding the North East where there was a comparable decrease (Joyce et al 2010).
3. Both the UK and Scottish governments are committed to reducing child poverty. The Child Poverty Act (2010) established a target to reduce the number of children living in relative poverty to 10% of the population by 2020. The Scottish Government is to publish a strategy to set out how this target is to be met.
4. The UK and Scottish governments have followed broadly similar strategies to reduce child poverty. Social security is a reserved matter so UK government policy applies to Scotland. Education is an historically devolved area with Scottish autonomy pre-dating devolution. These policies have focused on:
 - Making Work Pay – minimum wage, income tax reform, Working Tax Credits, adult education and in Scotland lifelong learning initiatives.
 - Support for Families – Child Tax Credit, Child Benefit, and in Scotland Achieving Our Potential and the Financial Inclusion Plan.
 - Help Into Work – New Deals, The Childcare Act 2006 and in Scotland the Fairer Scotland Fund (formerly Working For Families and community regeneration funds), National Childcare Strategy, Training For Work, Wider Role Fund.
 - Education and Early Years development – in England Sure Start, Excellence in Cities, Educational Maintenance Allowance, availability of pre-school education and in Scotland the Early Years Framework, Curriculum For Excellence, Education Maintenance Allowance (Scotland) and pre-school availability.

Literature Review

5. Out-of-work social security benefits are insufficient to assist families with children over the poverty line but combined with reforms to income tax and tax credits social security has been effective in reducing child poverty (Sefton 2005; Sefton and Sutherland 2005; Joyce et al 2010).
6. Unemployment and the number of children living in workless households has fallen over the past ten years. As work is a significant protection against poverty this may have been a key element in child poverty reduction (Hills et al 2010).
7. The fall in unemployment is due to economic amelioration but the New Deal programmes and reforms to tax credits have helped increase labour supply (Joyce et al 2010; Dolton et al 2006; Stone et al 1999; Mulheirn and Pisani 2006; Francesconi and van der Klaauw 2006; Blundell et al 2004).
8. Incentivising work as a means of obtaining household income as opposed to social security payments has been more successful for lone parent families than two parent families (Brewer 2007).
9. Strategies to make work pay have reduced inequalities in hourly pay but have not led to a reduction in total pay inequality which may reflect differences in the number of hours worked (Hills et al 2010). In-work poverty is still prevalent suggesting this strand of policy innovations has not protected all families in employment from the risk of poverty (Morelli and Seaman forthcoming; Palmer et al 2006; National Policy Institute forthcoming).
10. Differences in child poverty trends in Scotland and England may result from the 'economic dividend' of devolution facilitating faster economic amelioration in Scotland than England and the nature of the Barnett formula, which enables a higher per capita spend in Scotland than England (Rodríguez-Pose and Gill 2005; McLean et al 2008). However, the fall in unemployment seen in Scotland is comparable with that of the North East of England suggesting it may not relate to devolution (Bivand et al 2010).
11. The potential for policy divergence between England and Scotland is limited as social security is reserved (Burchardt and Holder 2009). Nonetheless, there may be administrative devolution with similar policies being delivered differently in the different countries (McCormick and Harrop 2010; Bivand et al 2010).
12. There are Scottish Government initiatives to assist families into work which have been judged successful (McQuaid et al 2009). Policy divergence in relation to education and lifelong learning may have been influential in poverty reduction, although effects relating to adult training are likely to be seen in the longer term (Hills et al 2010; West et al 2010; McCormick and Harrop 2010).
13. The difference in the 'character' of Scottish welfare, with a greater focus on universalism, a more muted emphasis on quasi-markets and greater support for redistribution may have worked to increase social inclusion, which could have

indirectly contributed to poverty reduction (Mooney and Johnstone 2000; Keating 2005; Burchardt and Holder 2009).

14. Differences in child poverty trends in Scotland and England may relate to variations in composition of the populations and to the prevalence of different industries rather than to government policy or devolution (James 2009; West et al 2010; Hills et al 2010).

Data and Methodology

15. The results follow an analysis of data from the Family Resources Survey, which collects information from households about income and income sources. It is used for official poverty measurements.
16. The analysis concentrates on two points in time: the pre and early stage devolution period 1998/99 to 2000/01 and the latter years of the decade 2006/07 to 2008/09. Three years are aggregated together to increase the sample size of smaller groups.
17. The focus of the analysis relates to periods more influenced by Labour-led administrations in England and Scotland and is unlikely to capture the effects of more recent reforms by the SNP administration.
18. Binary logistic regression analysis assesses which factors are associated with relative child poverty before and after housing costs at each period of interest. This is followed by an examination of descriptive statistics to assess differences in the population of households in England (excluding London) and Scotland.

Government Policy and Relative Child Poverty Reduction

19. The fall in child poverty in England and Scotland is likely to be due to households' increased access to work in conventional and self-employment and the corresponding fall in unemployment.
20. Social change is likely to have assisted this trend as the number of families caring for two or more children, who have a higher risk of poverty, has declined.
21. However, the increasing numbers of families from ethnic minority backgrounds, who are more likely to live in relative poverty than similar White families may have prevented a further reduction in child poverty.
22. UK Government policy is likely to have played a significant role in reducing child poverty. Reforms to tax credits have extended eligibility and increased the strength of the association between tax credit receipt and reduced poverty risk.
23. The UK and Scottish government strategies to increase access to education, (negatively associated with the odds of living in poverty) are likely to have contributed to the reduction in child poverty before housing costs. Higher levels of educational attainment are not associated with poverty risk after housing costs are deducted from families' incomes.

Government Policy and The Faster Fall in Scotland

24. Access to odd jobs as declined faster in Scotland than England. The proportion of families whose head of household works in a skilled trade and in agriculture has remained static in Scotland and fallen in England. These factors may have worked to slow the rate of decrease in child poverty in Scotland relative to England. However, they affect a very small proportion of families.
25. A number of factors have had the same impact on child poverty trends in Scotland and England, including important factors like wage and work intensity. These will not have hindered the faster fall of child poverty in Scotland.
26. The factors which are likely to have had the biggest impact in the faster reduction of relative child poverty in Scotland are the faster fall in unemployment, increased access to income from self-employment and the slower rate of increase in the proportion of families from ethnic minority backgrounds. These are shown to have a strong association with relative poverty for families with children both before and after housing costs.
27. The faster decline in those households where no adults have qualifications in Scotland compared to England may have assisted the faster decline in relative poverty before housing costs. This effect is likely to have been slight. Due to the association between educational levels and housing costs, this advantage is unlikely to have affected child poverty after housing costs are considered.
28. The greater proportion of families with low earnings who acquired mortgages (as opposed to renting) in Scotland compared to England may have helped the faster fall in relative child poverty after housing costs. This change is unlikely to have affected poverty before housing costs as choice of tenure is influenced by disposable income.
29. Some differences may reflect the impact of devolution and Scottish Government policy (faster fall in unemployment, increase in access to self employment, educational attainment). Some of the difference in trend is likely to relate to population variation (the proportion of ethnic minority families).

Policy Recommendations

30. The Scottish Government could continue to reduce child poverty and quicken the pace of decline by:
 - Continuing to assist families into work through targeted activities.
 - Working with Local Authorities to ensure funding is not diverted from work access initiatives due to budgetary pressures (Sinclair and McKendrick 2009).
 - Assisting those who want to move into self-employment.
 - Liaising with the private sector to maximise job opportunities and maintaining as many public sector jobs as possible.
 - Helping to reduce the risk of poverty faced by ethnic minority families, agricultural workers and large families.
 - Consider lobbying the UK government for changes to social security or for increased autonomy to set social security payments in Scotland.

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Report Layout

This report presents the results of statistical tests and the interpretations of these tests. The key messages are contained in the boxes, a list of which is given above. These boxes are designed to be stand-alone summaries of the key pieces of information. The additional detail supporting these key interpretations can be found in the text which follows each box.

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Context

Child poverty has been a key facet of the political and policy agenda since 1999, when Tony Blair announced the government's commitment to end child poverty within a generation. Since this announcement the target to eliminate child poverty by 2020 has been codified in legislation, binding the UK government to reduce relative child poverty to less than 10% and absolute child poverty to less than 5% (Child Poverty Act 2010). As part of the Act's requirements, the Scottish Government is required to publish a separate strategy setting out what measures will be taken in Scotland to comply with the these child poverty reduction targets.

In addition to the UK targets and legislation, The Scottish Government has set out its own objectives in relation to reducing poverty, with objectives specified to reduce both economic and health inequalities and with a Solidarity Target to increase the share of income held by individuals, including 370,000 children, in the lowest three decile income groups in the population by 2017 (Scottish Government 2008a).

In the 1998-99 financial year, child poverty in Scotland was slightly higher than in Great Britain as a whole¹ before housing costs (where family net income adjusted to reflect household size is less than 60% of the median). It is slightly lower in Scotland than in Great Britain after housing costs are deducted from families' incomes. The proportions of children living in relative poverty in England mirrored the pattern seen in the UK as a whole, whilst relative child poverty was higher in Wales both before and after housing costs are deducted from families' incomes.

Table 1 - Child Poverty in the Great Britain in 1998-99

Before Housing Costs					
	England	Scotland	Wales	Northern Ireland	Great Britain
Children not in relative poverty n (%)	8,150,000 (74%)	780,000 (72%)	460,000 (71%)	n/a	9,390,000 (74%)
Children in relative poverty n (%)	2,810,000 (26%)	300,000 (28%)	190,000 (29%)	n/a	3,300,000 (26%)
Total	10,960,000	1,080,000	650,000	n/a	12,690,000

Without weights, this association is not statistically significant (chi square = 3.46; $p > 0.1$)

After Housing Costs					
	England	Scotland	Wales	Northern Ireland	Great Britain
Children not in relative poverty n (%)	7,220,000 (66%)	740,000 (69%)	420,000 (65%)	n/a	8,390,000 (66%)
Children in relative poverty n (%)	3,740,000 (34%)	330,000 (31%)	230,000 (35%)	n/a	4,300,000 (34%)
Total	10,960,000	1,080,000	650,000	n/a	12,690,000

Without weights this association is statistically significant (chi square = 8.36; $p < 0.05$)

¹ The data used are from the Households Below Average Income survey, which is derived from the Family Resource Survey. This is an annual cross-sectional survey via which data have been collected for Great Britain since 1992-93. Northern Ireland was included in the survey from 2002-03 onwards.

Measures to Reduce Child Poverty in the UK and Scotland in 2008-09

Since 1998-99 the UK and Scottish governments have sought to reduce child poverty via a series of measures which have comprised four principal strands.

1. Making work pay

Cash transfers have been used to augment the incomes of working families with children, particularly but not only those on low incomes. The Working Families Tax Credit, introduced in 1999, and from 2003 its replacement the Working Tax Credit have channelled additional resources to families with at least one adult working 16 hours per week or more (Brewer and Gregg 2001; HMRC 2010a). Although Working Tax Credits are available to all lower-income households, support is more extensive for families with children. Claimants with children are eligible for the WTC if working more than 16 hours per week and aged 16 or above, compared to households without children where claimants must be aged 25 or above and be working 30 hours a week or more (HMRC 2010a).

As well as using cash transfers to augment the income of those in work, supply-side measures have been used to increase the wages of those in low-paid employment. The National Minimum Wage, fixed at £3 per hour for those aged 21 and below and £3.60 per hour for older adults, was introduced in 1999 ensuring a flow of additional resources to those working in lower paid, and lower status, occupations (Brewer and Gibbs 2001). The minimum wage is currently £5.80 per hour for workers aged 22 and above, and will rise to £5.93 in October 2010 (HMRC 2010b; Directgov 2010a).

Finally, changes to the tax rates enabled lower income families to keep more of their pay, with the income tax starting rate lowered to 10% from 20% (Brewer and Gregg 2001). This rate was abolished in 2008, with the starting rate being moved back to 20%.

The Scottish Government does have the power to change the basic rate of income tax by 3 pence in the pound, but this power has not yet been exercised. The Scottish Government does not have devolved powers to adjust benefit design or levels, and this has led to some concern that the current benefits package does not adequately meet the nation's needs (see for example Daily Record 2010).

However, in common with the UK government, The Scottish Government has viewed in-work training as a key way to reduce in-work poverty by enabling lower-paid employees to up-skill so that they can progress to better paid jobs. Although Individual Learning Accounts in Scotland are available to those with incomes below £22,000 per annum both in and out of work, with higher amounts available to those studying for a higher education qualification part time (Individual Learning Accounts Scotland 2010), they are clearly aimed at adults. Thus, increased human capital via workplace learning is viewed as being a key part of the Government's aim to reduce in-work poverty, as well as moving people from unemployment into the labour force (The Scottish Government 2008a).

2. Support for children regardless of work status

Support directed at families with children, regardless of their work status, falls into two categories. Child Benefit is a universal award available to all families, the value of which increases for each additional child in the household, providing additional resources to larger families (Directgov 2010b). This payment pre-dates the New Labour government of 1997; a flat-rate benefit for families with children established in the Family Allowances Act 1945 (Keele University 2010). However, since 1998 these benefits have become more generous, with the payments made to each family for the eldest child having risen at rates above inflation (Brewer and Gibbs 2001).

In addition, means tested support has been made available to families with children via the Children's Tax Credit, introduced in 1999 and from 2003 its replacement, the Child Tax Credit. These tax credits are available to lower-income families regardless of their work status ensuring a flow of resources to workless households which do not qualify for the WTC (HMRC 2010a).

In addition to child-centred benefits, evidence also suggests that out-of-work benefits available both to families and individuals without children also provide an important source of income to parents and carers. The Department for Work and Pensions suggests that take-up rates of Income Support, Employment and Support Allowance and Jobseeker's Allowance are higher amongst families with children than those without. For example, in 2008-09 estimated caseload take-up for Jobseeker's Allowance lay between 69% and 87% for families with children compared to 45% to 59% of single men and 44% to 58% of single women (Department for Work and Pensions 2010a). This could indicate that either families or officials are more proactive in seeking to augment the income of households via out of work benefits when children are present than when there are only adults in the household.

Finally, both the UK and Scottish governments have sought to ensure that families at risk of financial exclusion can gain access to financial services and affordable credit. The Growth Fund, established in the UK in 2004, enables individuals and families to obtain more secure and affordable credit from third-sector organisations (Department for Work and Pensions 2010b); in Scotland this was supported by the Financial Inclusion Fund from 2006-2008, and later by the Fairer Scotland Fund².

The Scottish Government has also stressed income maximisation for all as an important component of tackling poverty and inequality, and has thus sought to increase the take-up of all benefits to ensure that families receive the amounts they are entitled to (The Scottish Government 2008a).

3. Help into work

A key part of New Labour's welfare state reforms has been to promote individuals into work as a means of combating poverty and other areas of disadvantage. The Labour governments aimed to increase employment via policy initiatives to increase labour market opportunities for all, and in particular those from groups at risk of long-

² In 2010-11, the Fairer Scotland Fund was rolled into Local Authorities' general funding stream to further remove the ring-fenced element of the fund (The Scottish Government 2010a).

term unemployment via programmes to help stimulate short-term job creation and to help vulnerable groups prepare for the labour force by increasing their access to advice, training and stable employment opportunities. Of particular note in tackling child poverty are the New Deal for Lone Parents and the New Deal for Partners of the Unemployed (Brewer and Gibbs 2001).

In addition to helping parents equip themselves for employment and find suitable jobs, welfare reforms have aimed to facilitate entry to the labour market for parents by increasing their access to childcare. As part of the WTC, additional payments to cover the costs of childcare are available to lower-income families using registered and approved providers, with the intention that this would remove a barrier to entering the labour force for those with caring responsibilities (HMRC 2010a). In 1998, the UK Government published a National Childcare Strategy, which has since been superseded by the Childcare Act (2006) for England and Wales, with a separate strategy being published for Scotland in 1998, which has been accompanied by Childcare Partnerships. The provisions of these intend to put in place a structure for enabling parents to access high-quality childcare (Childcare Act 2006; The Scottish Office 1998; The Scottish Government 2010b).

Although there are no de jure policy differences between Scotland and England regarding benefit eligibility, there is evidence to suggest that there are some de facto differences in the way benefits are administered in England and Scotland which may encourage families into work at different rates. A comparison of JSA claimants suggests that following from a restatement of the eligibility rules in 2006, the claimant index count decreased faster in Scotland than in comparable regions, falling below that of the North East of England in contrast to the preceding years where the index had been higher in Scotland (Bivand et al 2010). This may indicate a difference in policy implementation between these two regions, which are argued to face similar economic conditions.

The Scottish Government has also used programmes to increase employment opportunities and access to childcare as a means for reducing poverty in Scotland. A series of funds such as the Working For Families programme and the Community Regeneration Fund, and from 2008 their replacement, the Fairer Scotland Fund, have sought to provide childcare in areas where there are high rates of parental unemployment and to increase labour market opportunities in areas of disadvantage via regeneration projects (The Scottish Government 2010c; The Scottish Government 2010d; The Scottish Government 2009). The projects which are supported by the Fund are delivered locally, with resources administered by local authorities with the goal of achieving agreed Single Outcome Agreements. The Wider Role Fund, established in 2000 to enable Registered Social Landlords to run locally-based projects, also works to improve employability and tackle disadvantage continues alongside the Fairer Scotland Fund (The Scottish Government 2010e).

Additionally, several initiatives in Scotland have sought to increase individuals' access to advice and skills training to facilitate labour market participation. Initiatives include Careers Scotland, from 2008 Skills Development Scotland, which focuses on access to careers advice, training and help with redundancy (Skills Development Scotland 2010a) and Training for Work for those unemployed for 13+ weeks (Skills Development Scotland 2010b).

Short and long-term job-focused training through Work-Based Learning for Adults was also available to benefit claimants in England via Jobcentre Plus (Speckesser and Bewley 2006). This was discontinued in 2006 (Biivand et al 2010).

4. Education and early years development

As a devolved policy area, there is a greater degree of variation in the approaches taken with regard to education and childhood development between Scotland and England than in areas relating to social security. However, some similar policies are pursued by both countries, with investment in the early years and education seen as being an important way of equalising the life chances of children and reducing the intergenerational transmission of poverty and disadvantage.

In terms of support for early years development, several initiatives have been pursued in England by the UK government. These include Sure Start, later Children's Centres, which intend to provide a one-stop-shop for parents seeking advice regarding their child's development, as well as delivering interventions to support that development, increased real-terms investment in education and extending entitlement to free pre-school education to children aged 3 and 4 years old (Waldfoegel 2010; Directgov 2010c). Similar initiatives have been pursued by The Scottish Government, with education spending increasing from 1998 to 2008 in real terms (The Scottish Government 2008b) and from 2002 entitlement to free pre-school education for all 3 and 4 year olds being instituted (Scottish Childcare 2010). Sure Start Scotland has been superseded by the Early Years Framework, which aims to improve child developmental outcomes (The Scottish Government 2008d).

Promoting educational attainment has been seen as a means of combating the intergenerational transmission of poverty, as the level of educational qualification attained is associated with socio-economic status (Hills et al 2010). Both the UK and Scottish governments have sought to enable pupils from less advantaged backgrounds to engage with post-compulsory education via the Educational Maintenance Allowance. In England, this amounts to between £10 and £30 per week for children from low income families, with the higher payments going to those from lower income households (Directgov 2010d). In Scotland, EMA payments are £30 for all eligible pupils on a means tested basis, with the income threshold being placed at a higher level for families with two or more dependent children (EMA Scotland 2010).

In addition, the Early Years Framework in Scotland and its investment in improving early years outcomes has been linked with the goal to reduce intergenerational poverty. This Framework aims to enable families to gain consistent and coordinated access to services and advice to improve child health and development outcomes (The Scottish Government 2008d). This early intervention aimed to reduce the intergenerational transmission of poverty and disadvantage is to be supported by educational reforms through the Curriculum for Excellence, which aims to give pupils the ability to make more positive life choices by broadening the curriculum to encompass core skills as well as academic subjects (Kidner 2010).

Variation between England and Scotland lies in particular in school-based education. In England, the UK government has followed market-orientated policies aimed at increasing standards via school competition, with the additional intent of reducing

educational inequalities by allowing parents to express preferences for higher-performing schools without using economic capital to move to desired schools' catchment areas (West and Pennell 2003, Le Grand 2006). From 1997, reforms have aimed at increasing funding for schools in more disadvantaged areas, with the hope that additional resources would help reduce the attainment gap between children from different socio-economic backgrounds (West and Pennell 2003).

In Scotland, quasi-market school reforms have not been pursued, and school autonomy is lower than in England (West et al 2010); the difference in school autonomy is likely to increase following the introduction of Free Schools in England in the forthcoming Education Bill, which will have a strong degree of control over governance and areas of the curriculum, announced in June 2010 (Reuters 2010).

The Emergency Budget 2010

Following the General Election in 2010 the Coalition Government introduced adjustments to the UK benefits in the Emergency Budget (HM Treasury 2010), including the change in entitlement to Income Support for lone parents who become eligible for Jobseeker's Allowance when child is 5 years old, a 3 year freeze in Child Benefit, an increase in Child Tax Credit but with removals of some of the additional payments, for example those given to families with children under 1 year old.

In addition to changes in benefits, the government announced its intention to create a tax scheme to encourage private sector job creation in areas of the UK outside of London, the East of England and the South East, including Scotland and Wales which could affect families if, as planned, this increases job opportunities thus enabling more parents to enter employment.

In this budget, the government's forecast was that the adjustments would not increase child poverty in the future, with decreases in child-related cash transfers for all families being accompanied with increased payments for lower-income families. However, this assertion is not unchallenged, with some arguing that the changes may result in lower-income families with children losing out compared to higher-income working families without children (Institute for Fiscal Studies 2010).

Summary

The governments of both the UK and Scotland have been concerned with reducing child poverty and have used a wide range of policy initiatives to try and tackle the problem. From 2010, some of these initiatives have been adjusted in line with the priorities of the current UK government to reduce the nation's deficit and incentivise more individuals and families to participate in the labour market, which may influence child poverty trends in both Scotland and England in the future.

Although many of these policies are similar in Scotland there are some additional initiatives which intend to act to reduce child poverty above and beyond those of the UK. There are more striking differences between the two nations when comparing education and training policies. These may have longer-term impacts and result in increasing differences in child poverty rates between Scotland and England (Bivand et al 2010).

Figure 1 – Policies Associated with Child Poverty Reduction in Scotland and England

	Making Work Pay	Support for Families	Help into Work	Education and Early Years Development
UK Initiatives				
1998 onwards: obsolete initiatives	<p>Family Credit (refundable tax credit, replaced with more generous WFTC in 1999)</p> <p>Working Families' Tax Credit (available to low-income families with an adult working 16+ per week, replaced with WTC in 2003)</p> <p>Income Tax (a starting band of 10% was introduced to increase take-home pay for low-income families, removed in 2008 Budget)</p>	<p>Children's Tax Credit (replaced Married Couple's Allowance and Additional Person's Allowance in 1999, means-tested payment to families with children, replaced by Child Tax Credit in 2003)</p>	<p>Childcare Tax Credit (component of WFTC, replaced with WTC in 2003, additional funding to enable parents to access approved childcare)</p> <p>Individual Learning Accounts (England) (quasi-voucher for young people not in education, training or employment to access subsidised learning)</p> <p>Work-Based Learning for Adults (training for benefit claimants in England, discontinued from 2006)</p>	<p>Education Action Zones (clusters of schools received additional resources to help reduce the effects of disadvantage, supposed to be short-term 3 year programmes with some extended to 5 years, subsumed into Excellence in Cities)</p>
Initiatives in place in May 2010	<p>Minimum Wage (from October 2009 set at £5.80 for full-time employees, £4.83 for those aged 18-21 and £3.57 for those aged 16-17)</p> <p>Working Tax Credit (available to lower income families; families with children are eligible where the claimant is at least 16 years old and working 16+ hours per week)</p> <p>Income Tax (the basic rate of income tax was lowered from 22% to 20% in the 2008 Budget, intended to assist child poverty reduction)</p>	<p>Child Benefit (set at £20.30 per week for first child and £13.40 per week for each subsequent child aged up to 16 or up to 19 if in secondary or post-secondary education, disregarded from income for Housing and Council Tax Benefit calculation from 2009)</p> <p>Child Tax Credit (available to lower-income families with children aged up to 16 or up to 20 if education or training; eligible families may be in or out of work; higher rates paid for younger and additional children)</p> <p>Out-of-work benefits (higher take-up by families with children of Jobseekers Allowance, Income Support and Employment and Support Allowance)</p>	<p>New Deal for Lone Parents and New Deal for Partners of the Unemployed (access to personalised advice, training and employment opportunities to improve job prospects)</p> <p>Childcare element of WTC (families where parent(s) each work 16+ hours per week; claimants can receive up to £140 per week for 1 child and £240 per week for 2+ children)</p> <p>Childcare Act 2006 (places a requirement on local authorities in England and Wales to ensure adequate local provision of childcare, enable parents to access information to aid decision-making and sets up regulatory frameworks to monitor quality)</p>	<p>Sure Start (provides advice and services to parents with a view to improving child health and developmental outcomes)</p> <p>Fair Funding (modification of per capita formula to increase the amounts available to schools with more disadvantaged intakes)</p> <p>Excellence in Cities (additional resources aimed to increase attainment and social inclusion in disadvantaged areas)</p> <p>Educational Maintenance Allowance (£10-£30 per week paid to young people aged 16+ in education on means-tested basis)</p> <p>Pre-school availability (475 free hours per year for all 3-4 year olds)</p>

<p>Policies and initiatives from May 2010</p>	<p>Working Tax Credit (50+ element removed)</p> <p>Income Tax (personal allowance threshold raised from £6,475 to £7,475 from April 2011)</p>	<p>Child Benefit (remains a universal benefit, will be frozen for three years)</p> <p>Child Tax Credit (increase by £150 above CPI inflation, income eligibility lowered to £40,000, removal of one-off increased payments e.g. for new-born babies to be removed)</p>	<p>Income Support (a change in entitlements to move lone parents with children over the age of 5 on to Jobseekers Allowance to incentivise labour market entry)</p>	<p>Free Schools (aimed to increase school autonomy and enable new schools to be set up in accordance with parental demand; viewed as being a key factor in reducing the attainment gap between children from different income backgrounds)</p>
<p>Scottish Initiatives</p>				
<p>1998 onwards: obsolete initiatives</p>			<p>Working For Families (increases access to childcare for families, replaced with the Fairer Scotland Fund)</p> <p>Community Regeneration Fund (resources for areas of multiple deprivation to help people into education and employment, replaced with the Fairer Scotland Fund)</p> <p>New Futures Fund (support for people facing particular disadvantaged to access the labour market from 1998-2005)</p>	<p>Sure Start Scotland (similar to the programme in England, replaced with Early Years Framework)</p>
<p>Initiatives currently in place</p>	<p>Individual Learning Accounts Scotland (available to those whose who have an income of up to £22,000 or who are on benefits; amounts to £200 for education lower than HND level and £500 for those studying in higher education part-time).</p> <p>Scottish Union Learning (available to union members, access to lifelong learning opportunities from 2000)</p>	<p>Achieving Our Potential (maximising income for all eligible families via campaign to increase benefit take-up)</p> <p>Financial Inclusion Action Plan (help to give families access to financial resources, supported by Financial Inclusion Fund from 2006-2008 and then the Fairer Scotland Fund)</p>	<p>Fairer Scotland Fund (fund administered locally to remove barriers to work, increase job opportunities and tackle area deprivation, replaced previously ring-fenced and more prescriptive funds)</p> <p>Wider Role Fund (resources available to Registered Social Landlords to address disadvantage in communities)</p> <p>National Childcare Strategy (now includes Childcare Partnerships,)</p> <p>Training for Work (training for those who have been unemployed for 13+ weeks)</p>	<p>Early Years Framework (aims to coordinate families' access to services to improve health and developmental child outcomes)</p> <p>Pre-school availability (475 free hours per year for all 3-4 year olds from 2007 onwards).</p> <p>Curriculum for Excellence (broad-based curriculum to raise educational attainment and help young people make positive life choices)</p> <p>Educational Maintenance Allowance Scotland (means-tested £30 per week)</p>

Literature Review

Since 1997, child poverty has fallen across the UK, reversing the trend seen from the 1980s onwards during which child poverty doubled (Dickens and Ellwood 2003). According to Waldfogel (2010) since 1999 relative child poverty has decreased by 600,000 whilst absolute child poverty, measured as being below 60% of the 1998-99 median income up-rated for prices only, fell by more than 50%. In Scotland child poverty has also decreased, falling slightly further against both the relative and absolute measure before and after housing costs are accounted for in comparison to England, although the difference in trend after housing costs are accounted for is less stark when comparing the trends between England without Greater London, as Table 2 shows.

Table 2 – child poverty in England, Scotland and Great Britain, 1998-99 and 2008-09

	Before Housing Costs			After Housing Costs		
	Poverty	Relative Poverty	Absolute Poverty	Poverty	Relative Poverty	Absolute Poverty
	1998-99	2008-09	2008-09	1998-99	2008-09	2008-09
England	2,810,000 (26%)	2,350,000 (22%)	1,340,000 (12%)	3,740,000 (34%)	3,330,000 (31%)	2,070,000 (19%)
Greater London	420,000 (26%)	370,000 (23%)	220,000 (14%)	640,000 (40%)	650,000 (40%)	440,000 (27%)
Other England	2,390,000 (26%)	1,980,000 (22%)	1,110,000 (12%)	3,100,000 (33%)	2,680,000 (29%)	1,630,000 (18%)
Wales	190,000 (29%)	130,000 (21%)	60,000 (10%)	230,000 (35%)	170,000 (27%)	100,000 (16%)
Scotland	300,000 (28%)	210,000 (21%)	110,000 (11%)	330,000 (31%)	260,000 (26%)	150,000 (15%)
Great Britain	3,300,000 (26%)	2,690,000 (22%)	1,510,000 (12%)	4,300,000 (34%)	3,760,000 (30%)	2,320,000 (19%)

Data from the Households Below Average Income Survey

The causes of child poverty

Children living in poverty are of strong concern to policy-makers for two reasons which rest on both moral and instrumental reasoning (Turok 2008). First, a moral argument can be developed building on the premise that children are born into poverty through no agency of their own, meaning that for children the causes of poverty are entirely structural or a result of the agency of their parents (Alcock 2003). Turok (2008) argues that this reasoning is evident in Scottish Government policy documents in the language used relating to social justice, inclusion and opportunities, and this language can also be found in UK Government policy documents showing the moral argument to be an important consideration on both sides of the border, for example the think tank associated with the current UK Government's Cabinet Office is the Centre for Social Justice and social justice is mentioned in a number of publications of the previous New Labour governments, such as Department for Work and Pensions (2007a) and Department for Communities and Local Government (2007).

Second, as poverty can depress economic growth (Turok 2008) and because there is an association between poorer educational outcomes and parental disadvantage, it could be argued that tackling child poverty is an instrumental goal. Evidence suggests that childhood disadvantage is associated with poorer later life outcomes. For example, of the children born in 1970, 37% of sons born to parents whose income placed them in the lowest quartile had incomes in the lowest quartile themselves once adults, compared to 13% who had incomes in the highest quartile, with a similar pattern seen for daughters (Hills et al 2010: 326). These associations may result from a number of factors, including the association between financial investment and child development and the increased risk-aversion felt by families in more constrained circumstances, leading children from poorer backgrounds to terminate their education at an earlier stage than their wealthier peers (Esping-Andersen 2007).

Child poverty in the UK increased throughout the 1980s and early 1990s, with the rate of increase stalling during the recession of the early 1990s, so that by the middle of the 1990s approximately one third of children lived in poverty (Sefton 2005). According to Sutherland and Piachaud (2001) one of the reasons for this was societal change and the effect these have had on the composition of households with children, with increasing marital and relationship instability leading to a rise in mostly women-headed lone parent households. The proportion of lone parent families, who are more likely to be unemployed and command lower labour market returns, is higher in the UK than across most European countries, with 1 in 3 mothers spending at least some time as a lone parent before their child turns 18 (Brewer 2007). At the same time, more women were returning to work quickly after giving birth, but with labour market return being more prevalent amongst professional women rather than those in lower-skilled occupations, this contributed to an increasing inequality in female employment (Smeaton 2006).

The remaining causes both relate to labour-market participation, in particular rising unemployment levels and increasing economic inactivity. Esping-Andersen (2007) argues that the 1980s and 1990s saw a worsening position of young workers in terms of their labour-market returns which, in combination with increasing lone parenthood, led to a rise in child poverty. For these groups, increasing unemployment worsened their relative position whilst globalisation has simultaneously depressed the wages of unskilled workers, and resulted in a wage premium for those in skilled occupations. This has thus led to increased wage inequality and vulnerability for lower-skilled and less experienced workers. This is supported by Tomlinson and Walker (2010) who suggest that, amongst those in employment, those in low-skilled and manual occupations and those with lower levels of educational attainment are at greater risk of recurrent poverty, demonstrating the importance of the quality of employment, as well as the quantity. Thus, for certain groups, in-work poverty has also been an important factor associated with poverty, and by extension child poverty.

It thus follows that tackling child poverty should both promote labour-market participation and maximise income from work, particularly for lone parents.

The reduction in child poverty.

Research into child poverty has focused on identifying whether UK government policy resulted in the drop in child poverty seen from the late 1990s until the onset of the recent recession. According to Sefton (2005) minimum benefit levels alone fall short of enabling recipients to escape poverty for all those of working age, but the shortfall for families with children is much reduced compared to similar families without children where incapacity benefit is not claimed. For example, in 2003/04 the benefits received by a lone parent fell short of the relative poverty line (60% of equivalised median income) by 27% compared to a 36% shortfall for a single person household where there are no children and the adult is of working age (Sefton 2005). This would suggest that whilst benefits on their own do not lift children out of poverty, they bring families with children closer to the poverty line than their childless counterparts.

However, although benefits in isolation cannot explain the reduction in child poverty, evidence suggests that when combined with the restructuring of taxes they have played a role. According to Sefton and Sutherland (2005) an examination of tax-benefit reforms as a package shows that together they have played a significant role in reducing child poverty; compared to the tax and benefit regime of 1997. The incomes of all groups increased as a result of the reforms contained in New Labour's first 5 budgets but the percentage increase was greater for those in the lowest income decile groups and for families with children. This has had the effect of both raising incomes overall and reducing the rate of growth in income inequality across the country, prompting a fall in both absolute and relative poverty levels particularly for families with children. This finding is supported by Joyce et al (2010: 13) who show that government social security policy changes have had a significant impact on income, with tax credits and other benefits accounting for a 1.5% year on year real increase in incomes from 1996-97 to 2008-09.

In addition, throughout the period unemployment has fallen and more people have entered the labour force and gained access to wage income. The employment rate in Great Britain has increased slightly from 74.0% in 1999 to 74.9% in 2008, with the employment rising faster for women than for men (Bivand et al 2010: 22). This overall fall in unemployment has also seen a drop in the proportion of children living in workless households, which fell from 21% in 1996 to 17% in 2000 (Dickson and Ellwood 2003).

Although this rise is in part due to growth in the economy, as the sharp decline in the employment rate following the onset of the recession in 2008 demonstrates (Joyce et al 2010: 15), evaluations of the New Deal programmes have suggest that they have had a limited but positive effect in increasing labour market entry for their target groups. The New Deal for Lone Parents has had an estimated additional employment effect of 11% whilst a qualitative evaluation of the New Deal for Partners of the Unemployed has given more mixed results, with the suggestion that whilst participation helped the target group gain in confidence, it did not change work ambitions (Dolton et al 2006, Stone et al 1999). Similarly, evaluations of financial incentives to work such as the Working Families Tax Credit, the Working Tax Credit and the Child Tax Credit suggest that these have increased the labour supply by enabling more people to both remain in and enter the labour force, with this holding for both childless individuals, lone mothers, and couples with children for women where

their partner is unemployed and for men, though not for women living with an employed partner (Mulheirn and Pisani 2006; Francesconi and van der Klaauw 2006; Blundell et al 2004).

In terms of incentivising work, welfare restructuring has affected different family types in different ways. Comparing the 'replacement rate', or the rate at which out of work benefits are replaced by in-work income, in April 1997 and April 2004 suggests that changes to the tax and benefit system have increased the rewards from work for lone parents, but have had the opposite effect for two parent households (Brewer 2007).

This might explain why the employment rate of lone parents and of women whose partners are unemployed increased at a faster rate between 1997 and 2006 than for women whose partners are in employment and for men in couples (Brewer 2007). However, the change in employment take-up may also relate to economic imperatives, with labour market participation triggered for families in more precarious financial positions appearing to respond to the financial incentives to work because of a need to augment their household income.

As earnings account for two-thirds of household income, this rise in employment could be considered an important factor in the reduction in child poverty. However, although labour market participation has grown and returns from work increased between 1998 and 2008, particularly for women (Hills et al 2010: 29), this may not have led to a reduction in relative child poverty. Although wage inequality decreased slightly between the 1995-97 and 2006-08 when looking at hourly wages, inequality in weekly earnings failed to fall across this period, and when net incomes are considered, inequality increased slightly for both men and women (Hills et al 2010: 278). Thus, supply-side measures to make work pay, including the minimum wage, have brought about a reduction in wage inequality when considering hourly pay, but this has not been translated into a reduction in the inequality in overall earnings, possibly because of different patterns in the number of hours worked, job stability or income from other sources such as savings between lower and higher earners.

That increasing wages has not led to a reduction in in-work poverty is supported by Morelli and Seaman (forthcoming) who show that raising the minimum wage to a living wage of £7.00 per hour would raise the incomes of households in the first and fourth decile groups. This suggests that the ten percent of households with the lowest incomes are more likely to be in low-wage employment than those households in the second and third decile groups, who are more likely to be in receipt of out-of-work benefits. For the lowest decile group, wages are too low to push these households above the poverty line; this might be because the minimum wage is set at an insufficient level to prevent in-work poverty or because the lowest decile group are taking small returns from self-employment. However, the quality of data available for the lowest decile group is not as assured as for those higher up the income distribution, which may influence this finding.

However, overall this research would suggest that in-work poverty is an important factor in maintaining poverty levels, a conclusion supported by Palmer et al (2006) who show that two fifths of poor children in Scotland for example live in 'working households. This which might explain why the decline in poverty levels has slowed, as government policies to alleviate poverty are not reaching this group of households.

Thus, although increasing wages for the lowest earners may have led to a drop in child poverty against the absolute measure, the difference against the relative measure may have been much more modest. This would explain why absolute poverty has fallen by 10 percentage points more than relative poverty in both England and Scotland before housing costs are considered, as shown in Table 2.

Overall, the drop in child poverty has been associated with government reforms to the tax and benefit system which have augmented the incomes of families with children both in and out of employment. However, although the package of reforms is associated with a fall in child poverty, there are still a core of children living in households both in and out of work who remain in poverty, particularly when a relative measure is used. This is partly the result of increased inequality in earnings, as opposed to hourly wages, which has meant that labour market activation has not enabled children to be brought out of poverty.

Scotland and England: differences in child poverty trends

The differences in child poverty reduction between Scotland and England are slight rather than dramatic, but they are noticeable. Table 2 shows that Scotland was performing below the 1998-99 average in Great Britain in terms of the percentage of children living in both absolute and relative poverty before housing costs, yet performed favourably compared to Great Britain as a whole in 2008-09. These trends can be observed when Scotland is compared to England both with and without Greater London. Because there are relatively higher rates of child poverty in the capital region, including this region in England could push up child poverty rates above that seen in the rest of the country, meaning that differences between England and Scotland could be due entirely to 'the London effect'. However, before housing costs are considered, the proportions of children living in poverty in England are similar both when Greater London is included and excluded, indicating that 'the London effect' is not responsible for the difference in child poverty trends.

Furthermore, there is also evidence to suggest that Scotland has outperformed not only England as a whole but all other regions of Great Britain, aside from the North East of England. This conclusion holds after adjusting for regional prices which, for example, reduces the drop in relative child poverty before housing costs in Wales to an estimated 4.3 percentage change between 1997-99 and 2007-09 compared to a 8.6 percentage change in Scotland (Joyce et al 2010: 58).

When housing expenditure is accounted for, Scotland has historically had lower rates of poverty than Great Britain. As Table 2 demonstrates, in 1998-99 31% of children were living in poverty after housing costs were deducted compared to 34% in Great Britain as a whole. This is possibly because of the relatively lower house prices in Scotland where the average dwelling cost was £69,961 compared to £106,998 in England and £72,285 in Wales in 2000 (Office of National Statistics 2002): where housing is more expensive, it accounts for a higher proportion of potential expenditure and thus reduces income by a greater amount.

Child poverty has also declined slightly more quickly in Scotland than in the country as a whole after housing costs are deducted. Between 1998-99 and 2008-09, the proportion of children living in poverty fell by 5 percentage points against the relative

measure and 16 percentage points against the absolute measure in Scotland, compared to 4 and 15 percentage points in Great Britain as a whole respectively. The difference with England, as opposed to Great Britain appears to be more stark with relative child poverty declining by 3 percentage points in England. However, this apparent difference disappears when the child poverty rates in England without Greater London are considered. Thus, 'the London effect' does make a difference after housing costs are considered, which demonstrates that child poverty is a much more persistent problem in the capital than in England as a whole, with the proportion of children living in child poverty not falling over the course of the last 10 years.

Devolution has been increasingly justified in terms of the economic benefits it can bring, with an 'economic dividend' of devolution arising from an increased potential to adapt welfare provision to the preferences of the population, an incentive to experiment with innovative policy interventions to increase revenue and increased institutional accountability (Rodríguez-Pose and Gill 2005). In Scotland for example, the Community Regeneration Fund and its replacement, the Fairer Scotland Fund³ have provided resources to stimulate regeneration of deprived areas with a view to boosting jobs creation (The Scottish Government 2009, 2010d). Thus, Scotland's divergence in trend from England may relate to initiatives to increase job opportunities

Conversely although the loose application of the Barnett formula, where non-formula driven expenditure has formed an important component of Scotland's income from the late 1960s onwards, has worked to Scotland's advantage giving more resources per capita than a strict adherence to the formula would have entailed (Ferguson et al 2003), the presence of discretionary decision-making in allocating resources could compromise the ability of devolved administrations to pursue their own paths. This is because discretionary payments can be withheld, thus restricting the build-up of spare resources needed to provide a cushion against risk for innovative policy initiatives to stimulate economic growth (Rodríguez-Pose and Gill 2005). The existence of a formula militates against this scenario, with the current allocation enabling a per capita spending £1,153 higher Scotland than England in 2007-08 (McLean et al 2008: 5). Although the possibility of a 'Barnett squeeze' which would see the difference in the percentage increase in expenditure falling in comparison with the percentage increase in England could continually reduce the advantage to the Scottish economy conveyed by the formula, there is little evidence to suggest it has had a sustained negative impact on the Scottish economy to date (McLean et al 2008).

Thus, the impact of devolution in conveying an economic dividend and the operation of the Barnett formula could have contributed to a faster rate of economic growth in Scotland compared to England. McCormick and Harrop (2010) show that, in comparison with English regions, significant improvements across a number of indicators have been seen in Scotland. From the mid-1980s, Scotland has had consistently lower overall employment rates than the UK as a whole but this pattern started to shift in 1999, where the growth in Scotland's employment rates began to

³ Early evaluations suggest that local authorities have welcomed the introduction of the Fairer Scotland Fund, finding that it has facilitated joint working between different parts of the councils and the agencies who deliver initiatives. Local authorities feel it has been particularly beneficial in tightening up the objectives relating to regeneration in comparison to the Community Regeneration Fund (The Scottish Government 2010d, 2010e, 2010f, 2010g).

rise at a faster rate than in the UK, with Scotland having a higher employment rate than the UK by 2005 (Department for Work and Pensions 2007b).

However, according to Bivand et al (2010), who compare Scotland's employment rates with that of a 'comparator' region, the North East of England, economic amelioration is similar on both sides of the border, suggesting that factors other than devolution are responsible for the faster than average economic improvement and subsequent reduction in poverty. For example, in North East England, the poverty rate declined by 8.9 percentage points, compared to 8.6 percentage points in Scotland (Joyce et al: 58). It could be argued that North East England is not a valid comparator region against which to assess Scotland's economy or poverty rates. For example, although the overall employment rate has increased by 4.5 percentage points in the North East of England and by 5 percentage points in Scotland, the North East started from a much lower base, with an employment rate of 65.7% in 1999 compared to 71.5% in Scotland (Bivand et al 2010: 18). As employment has risen faster in UK regions where unemployment has been lower⁴ this would suggest that it is not valid to compare the trend in employment rates between two regions which have very different starting positions.

A second strand of arguments focuses on the impact of divergent government policy, which seeks to assess whether the individual policies pursued by the Scottish Government, either as a replacement for or over and above those of the UK government, had led to the faster reduction in poverty. Although it has been suggested that the potential for policy divergence is limited in practice, particular in areas of welfare which is not a devolved area of responsibility (Burchardt and Holder 2009) it has been suggested that the faster rate of reduction in child poverty in Scotland may be due to de facto policy differences or 'administrative devolution' (McCormick and Harrop 2010). Bivand et al (2010) show that flows from Jobseekers Allowance were faster in Scotland, particularly after 2006 when the rules regarding JSA eligibility were tightened, which may result from increased flows into work or a tighter JSA enforcement in Scotland than in the comparator North of England region. In addition, the Scottish Government in *Achieving Our Potential* have sought to ensure that an increasing number of households access the benefits to which they are entitled. Thus, although de jure welfare policies do not differ between the two nations, there is evidence to suggest that both Government initiatives and frontline action are being used to make the UK government's welfare policies work in Scotland's interest, potentially contributing to the difference in child poverty trends.

In terms of de jure policy divergence between Scotland and England, one of the areas where different policies have been pursued is in access to effective childcare. Whilst income to facilitate access to childcare has been entrenched in the Working Tax Credit, and nursery school provision has been extended to 3-4 year olds by both the UK and Scottish governments, the Scottish Government has additional policy initiatives to help parents get access to sustainable childcare such as Working For Families/Fairer Scotland Fund. As childcare is shown to be a key factor in determining whether or not parents can make the transition into work (Hayton 2009), these additional initiatives may account for the differences between child poverty trends in

⁴ For example, the employment rate in the North West of England, which at 71.3% was similar to that of Scotland in 1999, only increased by 0.9 percentage points by 2008 (Bivand et al 2010: 18)

Scotland and England. The evaluation of the Working For Families Fund suggested that it had helped parents into work (McQuaid et al 2009). These initiatives are now resourced via the Fairer Scotland Fund, which is allocated to a range of initiatives to tackle poverty and disadvantage by local authorities, who are also responsible for the evaluation of the Fund (The Scottish Government 2009).

It has also been suggested that the 'character' of Scottish welfare may be different to that in England, which may account for the differences in child poverty trends. Policy preferences vary between the two countries, with higher proportions of people in Scotland indicating that they are in favour of wealth and income redistribution compared both to England and Great Britain as a whole (Mooney and Johnstone 2000: 163). This, alongside the consensual policy-making process in Scotland, has led to divergence with England, particularly in relation to the use of targets to control public service delivery and the use of internal markets (Keating 2005). Thus, there has been a divergence in the character of welfare since devolution and this may have had an indirect impact on child poverty reduction. For example a number of universalist 'benefits in kind' have been introduced such as free fruit in schools, and whilst these will not lead to a reduction in income inequality they may have facilitated access and participation, creating a more inclusive society (Burchardt and Holder 2009).

Policy divergence may also have a direct impact on poverty reduction, and this may be particularly so in the historically decentralised areas of education and skills. This is because of the links between educational attainment and socio-economic status, which is in turn associated with income (West and Pennell 2003, Hills et al 2010). For example, data from the Programme for International Student Assessment (PISA) suggest that attainment in reading, maths and science is more equal in Scotland, with the difference between the 5th and 95th percentile being larger in England (West et al 2010). This may equalise the distribution of skills and thus facilitate a more equal access to employment opportunities. In addition, adult skills policies introduced post-devolution such as Training for Work may have assisted the reduction in child poverty, although the effects of these are likely to be longer-term rather than immediately apparent (McCormick and Harrop 2010).

Finally, arguments looking to explain why child poverty has fallen faster in Scotland than in England have focused on compositional effects, where the difference in trend results from population differences rather than a variation in poverty risk. One such argument contends that the divergence between the two countries is due to the importance of public sector employment in Scotland. Bell et al (2007) have found that private sector wages show much more differentiation across regions than do public sector wages, which in turn means that there is the prospect of higher intra-national wage inequality where the private sector is more important. The incidence of low pay in Scotland is much lower for the public sector than for other sectors, and this is particularly true for women (Palmer et al 2006). Thus, as a higher proportion of workers in Scotland than England are employed in the public sector, with public sector employment accounting for 23% of total employment in Scotland compared to 18.9% in England in the last quarter of 2008 (James 2009: 39) it follows that wage inequality will also be lower. Thus, the higher rate of public sector employment in Scotland compared to England could have contributed to the slightly faster fall in child poverty in the country.

Similarly, the difference in child poverty trends may relate to the composition of Scotland's population across demographic dimensions, either at a fixed point in time or in terms of change over the course of the decade. For example ethnic minority groups make up a larger proportion of England's population, and have access to lower incomes (with the exception of those from Indian backgrounds) and wealth than their white counterparts (West et al 2010, Hills et al 2010). Another example of where population differences might play a role is if there are different proportions of large families with two or more children in Scotland and England: as the additional income received via benefits is lower for a second and each additional child (Bradshaw et al 2006), but each child receives the same weighting when calculating equivalised household income, families receive more income from child-related benefits and tax credits if they have one child than if they have multiple children.

Child poverty: a dynamic process

In this discussion of child poverty trends, child poverty has been conceptualised as a static state, with households with children either falling above or below the poverty line. However, evidence suggests that this may be a false assumption. First, household income can fluctuate dramatically with parental labour market participation, which may not stay static during their period they are caring for dependent children. Life-cycle events such as relationship formation and children leaving home and relationship breakdown and giving birth to children can cause income to rise and fall respectively (Rigg and Sefton 2004; McQuaid et al 2010). Second, families' incomes can show high degrees of variation, even over a 13 week period, with a core of low and middle income families displaying 'erratic' incomes which could occur without any lifestyle or labour market changes, reflecting instability in wages (Hills et al 2006).

Consequently looking at child poverty rates through a static lens can give a misleading picture of children's experience of poverty, which is important where interest is in evaluating improvements to child wellbeing. However, although a cross-sectional snapshot may not help assess the 'incidence' of children's experience of poverty, it is a helpful way of assessing more general trends. Although a number of households with children may be classified as being out of poverty when in fact they have experienced a high degree of disadvantage at some point during the life of the child, and another group of children may be classified as being in poverty when they have access to higher incomes on a regular or irregular basis does not change the importance of the falling trends as seen through an examination of cross-sectional data. The proportion of children living in poverty at a given moment conveys information about the risk of being in poverty, and is thus a valuable indicator of whether society is becoming fairer and less disadvantaged or otherwise.

Summary

Child poverty may have fallen across the UK as a result of economic amelioration, government policies and social change. The faster fall in Scotland may reflect that one or more of these factors is having a different impact in Scotland than in England.

Thus, the differences between England and Scotland may stem from the impact of devolution and the functioning of the Barnett formula, to policy divergence or to differences in the demographic composition of households on both sides of the border.

Methodology and Data

In order to assess what factors are associated with child poverty in the UK and whether there is a distinct effect of being in Scotland as opposed to other parts of the country, multivariate analyses of data from the Family Resources Survey were carried out. More details about the methodology and the data used can be found in Appendix A.

The Family Resources Survey (FRS) collects information from a different random sample of private households in the UK each year. This sample is stratified by region, so that a large enough number of households are included from all parts of the UK to facilitate analysis. A booster sample is taken from Scotland to augment the number of households from this lower-populated area in particular (DWP 2010c).

The FRS collects information about adults, children and families within selected households relating to household composition and resources. Specific questions are asked to determine the income sources of all household members, and where possible this information is verified via an examination of paperwork such as payslips. Although this increases the reliability of the data to some extent, not all households give consent for their information to be verified; some refuse to allow consultation of paperwork and others do not have such paperwork to consult (DWP 2010c).

Not all eligible households participate in the FRS and there is some evidence to suggest that there are systematic differences between households which do and do not agree to take part. For example, households with at least one dependent child are more likely to participate than childless households (DWP 2010c). When calculating population estimates, this problem can to some extent be corrected as weights can be applied to account for differences between the FRS sample and the population. However, this cannot occur where differences between the sample and the population are not known, because for example there are some unmeasured characteristics which vary between households which do and do not participate.

However, the FRS is a valid data source for investigating child poverty. It collects data from a large and representative sample of households, enabling generalisable results to be generated from analyses. It is the source used by the UK government in assessing whether it is on track to meet the child poverty targets set via legislation and is used by the Scottish Government to measure the Solidarity target to increase the equality of the income distribution. It is considered to be of sufficient quality to support robust analyses.

The multivariate analysis undertaken takes the form of binary logistic regressions to assess what factors are associated with child poverty. The results of these analyses are presented in the tables below.

Interpreting the models

Regression enables us to discover what explanatory variables are associated with the response variable, controlling for the other variables included in the model. Binary logistic regression models are useful when the response variable has two categories. In this case the response variable is poverty and we treat this as a binary variable where a household is in poverty, or is not in poverty.

When interpreting regression models, we look to see whether the association between an explanatory variable and the response variable is *statistically significant* and at the *strength and direction* of the association.

For association direction, we look at the β coefficient. If the coefficient is negative it means that this variable is negatively associated with child poverty. For continuous explanatory variables where values are meaningful and equally spaced, as they are with the head of household's age, this means your probability of being in child poverty is lower as age increases controlling for the other variables in the model.

For categorical variables associations with the response variable are examined in comparison to a reference category. If 'male head of household' is chosen as the reference category, the β coefficient for 'female head of household' shows the relationship between being female as opposed to male with the response variable. Therefore if the coefficient is negative it means households headed by women are less likely to be in relative poverty line than households headed by men which share all the other characteristics included in the model.

To assess the strength of the association, we look at the exponentials of this coefficient, given in the $\text{Exp}(\beta)$ column. If there is no association between the explanatory variable and the response variable then the value of $\text{Exp}(\beta)$ equals 1, so the further away from 1 this value is, the larger the association.

Statistical significance tells us whether the association we have found in the sample is likely to also be present in the population we are interested in. Convention suggests that an association is statistically significant if we can be 95% confident that the association we have found in the sample is also to be found in the population as a whole. The more statistically significant an association is, the more confident we can be that this association is to be found in the population as a whole.

The variables included in the full models all show statistically significant associations with child poverty either in 1998-2001 or in 2006-2009. However, some are not significant in both years: they are included in the models to facilitate comparison over the time period of interest.

The statistical significance of a variable is calculated from the Wald statistic: the larger the Wald statistic the more statistically significant the association. The level of statistical significance is indicated for each variable in each year using stars. If there is one * next to the variable then the association is statistically significant and we can be 95% confident that this association is to be found in the population, with a larger number of stars indicating increased statistical significance. If there are no stars by the variable then it is unlikely that this association is to be found in the population as a whole.

The Scotland Effect: Factors Associated with Relative Child Poverty

The region alone

In comparison to England, Scotland has seen a reduction in the odds of being in child poverty both before and after housing costs are considered over the past decade. This suggests a faster rate of improvement in Scotland compared to England, excluding London, in reducing the risk of child poverty.

It is important to consider the risk of child poverty both before and after deducting housing costs from family income. There is a clear difference between the models before and after housing costs. Scotland performs more favourably in comparison to England after housing costs have been accounted for than when housing expenditure is not considered.

The models below show the associations between location of household and the odds of falling below the relative poverty line, before and after housing costs, for families with children.

Binary Logistic Regression: Household With Child In Relative Income Poverty Before Housing Costs						
	1998/9 to 2000/1			2006/7 to 2008/9		
Parameter	β	Wald	Exp(β)	β	Wald	Exp(β)
Intercept	-1.2802***	4759.1952		-1.3720***	4402.9281	
Location (ref. England ex. London)						
Scotland	0.1519**	7.0627	1.164	0.0243	0.2667	1.025
Wales	0.2588***	15.0863	1.295	0.2361**	9.9036	1.266
Greater London	0.1665***	11.3974	1.181	0.1396*	6.2753	1.150
Northern Ireland	Not Available			0.2086***	13.0916	1.232

Significance: $p < 0.001$ (***) $p < 0.01$ (**) $p < 0.05$ (*)

Binary Logistic Regression: Household With Child In Relative Income Poverty After Housing Costs						
	1998/9 to 2000/1			2006/7 to 2008/9		
Parameter	β	Wald	Exp(β)	β	Wald	Exp(β)
Intercept	-0.8930***	2804.2290		-0.9133***	2470.4363	
Location (ref. England ex. London)						
Scotland	-0.0218	0.1618	0.978	-0.1950***	20.0304	0.823
Wales	0.1927**	9.5654	1.213	0.1044	2.2601	1.110
Greater London	0.4776***	119.6039	1.612	0.5430***	129.5611	1.721
Northern Ireland	Not Available			-0.1212*	4.8078	0.886

Significance: $p < 0.001$ (***) $p < 0.01$ (**) $p < 0.05$ (*)

Location and Relative Poverty: Results

The logistic regression models above suggest that over the past decade, the odds of being in child poverty have shrunk in Scotland in comparison to households in England, excluding London.

When looking at child poverty before housing costs, the positive association between being in Scotland as opposed to England has not only shrunk in size over the past decade but has become non-significant. This means that the log odds of a household containing at least one dependent child being in relative poverty has fallen. There is now no statistically significant difference between Scotland and England, whereas a decade ago households in Scotland had a slightly higher probability of being in relative poverty than those in England.

When looking at child poverty after housing costs, Scotland has historically performed more favourably than England. In 1998-2001 there was no statistically significant difference between the two countries whilst in 2006-2009 households in Scotland had significantly lower odds of being in poverty than those in England.

These results suggest that during the past decade, the risk of falling into relative poverty for households in Scotland compared to England has declined, reflecting the difference in child poverty trends. The models also show the importance of considering poverty both before and after accounting for expenditure on housing, as the association between household location and relative poverty varies depending on which measure is used. Which measure is most appropriate will depend on the context: it may be of interest to determine which families fall into relative poverty as a result of low income; on the other hand, as housing costs are at least for some families related to choice, it may be of interest to identify the risks of falling below the poverty line once this essential area of expenditure has been taken into account.

Although the above results can give us an idea of the association between country and child poverty, they do not enable us to determine whether the difference between Scotland and England is due to an independent 'Scotland effect' or to systematic differences between the two countries in terms of demographic and financial household characteristics which have not been controlled for. For this, additional control variables need to be added to the models. The results of this analysis are presented in the tables below⁵.

Diagnostic tests to ascertain how well the models below 'fit' the data are presented in Appendix B. The majority of the tests suggest that the models fit the data well and this provides a good base for continuing with the interpretation of the results. However, one of the tests suggests that some caution may be prudent. The analysis and interpretation below takes this need for caution into account.

⁵ The models presented below show the β coefficient, the Wald statistic and the exponentials of the β coefficient to enable the strength and significance of the associations to be evaluated, although it should be born in mind that positive coefficients are able to appear stronger than negative coefficients when exponentials are taken, meaning that this is not a perfect method for evaluating association strength. Fuller versions of the models including the confidence intervals of the coefficient exponentials and model diagnostics are given in Appendix B.

The Scotland Effect Before Housing Costs: controlling for other factors

Binary Logistic Regression: Household With Child In Relative Income Poverty Before Housing Costs						
Parameter	1998/9 to 2000/1			2006/7 to 2008/9		
	β	Wald	Exp (β)	β	Wald	Exp (β)
Intercept	0.0722	0.2090		0.1891	1.4630	
Location of household (ref. GB in 1998 or UK in 2008)						
Greater London	-0.1325	3.2841	0.876	-0.2906***	13.7281	0.748
Household has two or more adults (ref. lone parent)	0.1492	2.6261	1.161	0.2805***	15.9510	1.324
Household has two or more children (ref. only one dependent child)	0.6304***	194.0345	1.878	0.4033***	85.0603	1.497
There are one or more pensioners in the household	-1.0480***	44.2202	0.351	-1.1175***	60.6874	0.327
One or more disabled adults in household	-0.3426***	44.0791	0.710	-0.2527***	20.8696	0.777
Age of head of household	-0.00709**	7.0148	0.993	-0.00432	2.8506	0.996
Head of household is female	-0.2811***	11.4294	0.755	-0.0606	1.0355	0.941
Ethnicity of head of household (ref. White)						
Indian	0.5696***	13.9015	1.768	0.6096***	17.4643	1.840
Pakistani/Bangladeshi	1.1334***	76.8166	3.106	0.7595***	45.8434	2.137
Black or Black British	0.3783**	9.4934	1.460	0.5270***	22.3271	1.694
Other Ethnicity (including Mixed Race)	0.3737*	6.3394	1.453	0.3803***	11.7295	1.463
Tenure (ref. mortgage)						
Own home outright	0.2711**	9.3105	1.311	0.3061***	15.2310	1.358
Living rent free/squatting	0.3566	2.9552	1.428	0.5810*	6.5270	1.788
Renting	0.4040***	45.5701	1.498	0.1467*	6.3685	1.158
Qualifications (ref. households without degree holders where no adults have qualifications)						
One or more household members have degrees	-0.4563***	29.5983	0.634	-0.2830***	11.7343	0.754
All have qualifications below degree level	-0.2634***	24.2480	0.768	-0.1889**	9.4285	0.828
Some have qualifications below degree level	-0.2246**	10.4944	0.799	-0.0717	0.7102	0.931
One or more self-employed adults in the household	-0.1463	3.0797	0.864	-0.3672***	21.3409	0.693
One or more economically inactive adults in the household	0.9013***	228.4847	2.463	0.9183***	254.2121	2.505

One or more adults in the household are unemployed	1.2465***	293.5037	3.478	1.5820***	399.6877	4.865
One or more household members has two or more jobs	-0.2633*	4.7887	0.769	-0.5371***	14.5279	0.584
One plus household members have at least one odd job	-0.1053	0.6322	0.900	-0.5441**	7.5573	0.580
Household earnings per hour (ref. no earnings including missing and lowest quintile)						
Second quintile	-1.1109***	247.9654	0.329	-1.1239***	277.6760	0.325
Third quintile	-2.2635***	546.7656	0.104	-1.9998***	517.2587	0.135
Fourth quintile	-3.3677***	589.8410	0.034	-2.9847***	597.3815	0.051
Fifth quintile	-4.9362***	442.7362	0.007	-4.5468***	525.7755	0.011
Hours worked per week by the household (ref. no hours and lowest quintile)						
Second quintile	-0.5655***	51.8484	0.568	-0.6071***	64.9542	0.545
Third quintile	-1.3471***	231.8353	0.260	-1.2273***	216.8553	0.293
Fourth quintile	-2.0261***	329.4198	0.132	-1.8399***	306.2497	0.159
Fifth quintile	-2.2613***	367.7042	0.104	-2.0637***	351.9358	0.127
Social Class (ref. associate professional, managerial, service, sales, operative)						
Social Class: Skilled	0.0517***	0.3825	1.053	0.2515**	8.9009	1.286
Social Class: Elementary	0.2840	11.1670	1.328	0.2415***	11.4259	1.273
Industry (ref. finance, mining, transport/communication, manufacturing, other service, missing)						
Agricultural	0.7014***	18.8502	2.017	0.7169***	18.7836	2.048
Construction	-0.1572	2.1812	0.855	-0.3612***	12.2744	0.697
Distribution and Catering	0.1800	7.5110	1.197	0.1542*	5.7591	1.167
Public Administration	0.0401	0.2737	1.041	-0.1778**	6.7676	0.837
Household receives at least one tax credit	-0.3181***	25.5388	0.728	-0.6240***	175.2324	0.536
Council Tax Rebate Amount (ref. not received, is in the first, fourth or fifth quintile)						
Second or Third Quintile	0.1645**	6.6405	1.179	0.2145**	9.6429	1.239
Housing Benefit Amount (ref. zero to third quintile)						
Fourth or Fifth Quintile	-1.3163***	418.7612	0.268	-1.1454***	315.7135	0.318
London by Multiple Jobs (interaction term)	-1.1234	2.8936	0.325	0.9766*	4.6844	2.655

Significance: p<0.001(***) p<0.01 (**) p<0.05 (*)

Poverty Before Housing Costs: Results

This section discusses the results presented in the table above to consider which factors are associated with child poverty⁶. As can be seen, the explanatory variables which show statistically significant associations with being in relative child poverty before housing costs relate to region, characteristics of household composition, employment and benefit receipt.

Region and the Scotland Effect

Families in Scotland and England which are similar in terms of household composition, employment and benefit receipt have identical odds of falling below the relative poverty line before housing costs are considered.

This holds for both 1998-2001 and 2006-2009, suggesting that the change in child poverty trends between the two countries can be attributed to one of other factors considered. This is also the case for Wales.

Families living in London have a slightly lower risk of falling below the poverty line compared to similar households in England. This is independent of wages and benefit levels, suggesting that other factors explain the difference.

Parameter	1998/9 to 2000/1			2006/7 to 2008/9		
	β	Wald	Exp(β)	β	Wald	Exp(β)
London (as opposed to the rest of England)	-0.1325	3.2841	0.876	-0.2906***	13.7281	0.748
London by Multiple Jobs (interaction term)	-1.1234	2.8936	0.325	0.9766*	4.6844	2.655

Once other factors associated with relative child poverty before housing costs are controlled for, there is no statistically significant association between being in Scotland, Wales or Northern Ireland as opposed to England, excluding London either in 1998-2001 or 2006-2009 controlling for the other variables in the model. Therefore, these country variables were removed from the models above. This suggests that the statistically significant 'Scotland effect' seen in model without controls for 1998-2001 can be accounted for by one or more of the explanatory variables included here.

However, there is a statistically significant association between being in London as opposed to the rest of England, with families living in London having a lower risk of falling below the poverty line than their counterparts in England, although this association is not significant at the beginning of the decade⁷. This controls for the other factors in the model, suggesting that the 'London effect' is independent of the higher

⁶ The relevant parts of the table are presented with these interpretations for ease of reference.

⁷ Appendix B contains a fuller version of the models presented, including 95% confidence intervals for the exponentials of the coefficients. These give a bandwidth around the Exp (β) based on the standard error. If the value of Exp (β) in 1998-2001 is contained within the value of Exp (β) in 2006-2009 we cannot be 95% confident that there has been a statistically significant change in the size of the association for this variable over the course of the decade.

wage levels and prices found in the capital which could augment family income. Therefore, the 'London effect' relates to a factor which has not been included in the model; for example it could result from income-maximisation behaviours by families facing high living costs in the capital increasing their income from non-wage sources.

For those families living in the capital, households where at least one adult works in two or more jobs have a significantly higher risk of falling below the poverty line than those who do not, with these interaction terms for other regions of the UK not being statistically significant. As this association is independent of wage, this could suggest that families who take on additional work in London are forced to do so by their low income, and that the additional monetary incomings are insufficient to lift them from poverty. In the rest of the UK, families where at least one adult holds two or more jobs have lower odds of falling below the poverty line, as is discussed more fully below.

The change in the strength and direction of this association just fails to reach statistical significance. However, the relationship changes both in direction and significance over the course of the decade, suggesting that London households with dependent children where at least one adult engages in multiple jobs facing increased 'risk' of relative poverty at the end of the decade in comparison to the earlier years.

Household Composition

Larger families containing two or more adults and several children have a higher risk of falling into relative poverty than smaller households. This effect is independent of earning power, and thus reflects the additional need larger families have for income to achieve the same living standards as smaller families.

The characteristics associated with a lower risk of poverty are having a female head of household, an older head of household, one or more pensioners and one or more disabled people in the household controlling for the other variables in the model. This may reflect access to additional non-wage income for these families. It does not mean that these families have a lower risk of poverty when wage is not held controlled or that they have higher standards of living. This is especially the case for households with disabled adults who need additional resources to achieve comparable living standards.

Families which have heads of household from a minority ethnic background have a higher risk of falling below the poverty line than similar White families. This may potentially reflect the age of all adults in the household, increased investment income or a greater degree of income maximisation from social security sources by White families in comparison to those from ethnic minority backgrounds.

Families who rent, own their own homes or live rent free have higher odds of living below the poverty line than those buying their homes with a mortgage. This association may relate to the financial checks on those seeking a mortgage or show that less well-off families do not apply for mortgages.

Education is negatively associated with the risk of poverty, but this relationship is stronger in 1998-2001 than at the end of the decade. That educational qualifications no longer provide the same level of protection from poverty may result from increasing educational attainment reducing the value of qualifications.

Household composition affects a family's risk of falling below the poverty line before housing costs are considered. Firstly, family size is positively associated with relative child poverty controlling for all the other variables in the model.

Parameter	1998/9 to 2000/1			2006/7 to 2008/9		
	β	Wald	Exp(β)	β	Wald	Exp(β)
Household has two or more adults	0.1492	2.6261	1.161	0.2805***	15.9510	1.324
Household has two or more children	0.6304***	194.0345	1.878	0.4033***	85.0603	1.497

This could stem from the way income is calculated for the purpose of monitoring relative poverty in the UK, where household income is equivalised according to family size to capture the additional income needed for each additional adult and child to achieve the same living standards as a smaller family. Thus, of two differently-sized households with identical *unequivalised* income from wages and benefits, the smaller unit will have a larger *equivalised* income, meaning that their odds of being in poverty are subsequently lowered: the model captures this dynamic.

In addition, it is possible that households with two or more children could have higher odds of being in relative poverty than households with one dependent child because of the differential weighting given to second and additional children in social security benefit calculations. For example, child benefit which is paid to all families with children is lower for the second and each additional child than it is for the first, meaning that this benefit is reduced in amount per child for larger families (Bradshaw et al 2006).

Over time, the 'risk' of being in relative poverty associated with having two or more adults in the household has not changed significantly. However, the risk associated with having larger numbers of children has fallen over time as the difference in the exponentials of the β coefficient suggests. This could be due to social security reforms aimed at tackling child poverty introduced during the decade which have seen additional resources flow to families with children, such as child tax credits (Waldfogel 2010).

Second, demographic characteristics of household members are associated with the risk of falling below the poverty line.

Parameter	1998/9 to 2000/1			2006/7 to 2008/9		
	β	Wald	Exp(β)	β	Wald	Exp(β)
Household contains pensioner(s)	-1.0480***	44.2202	0.351	-1.1175***	60.6874	0.327
Household contains disabled adult(s)	-0.3426***	44.0791	0.710	-0.2527***	20.8696	0.777
Age of head of household	-0.00709**	7.0148	0.993	-0.00432	2.8506	0.996
Head of household is female	-0.2811***	11.4294	0.755	-0.0606	1.0355	0.941

Having one or more adults of pension age or disabled members in the household are associated with a lower risk of falling below the poverty line than households with able-

bodied and working age adults, controlling for the other variables in the model. In the case of disability, this relationship is not the same when the control variables are not included, with a higher proportion of adults containing one or more disabled people living below the poverty line than households in which no adults are disabled.

However, that the independent effects of living in a household with one or more disabled adults or adults of pensioner age are negative suggests that the additional income made available to pensioners and disabled people, in comparison with other adults out of work, could lower the odds of the household being in poverty. This does not suggest that the living standards of these households are higher. For example, it could be argued that households containing one or more disabled occupants need a higher income to achieve the same standard of living as a household in which all members are able-bodied (Burchardt and Zaidi 2003). The changes in association between 1998-2001 and 2006-2009 were not statistically significant, suggesting relative stability across the decade.

The age of the head of household is weakly and negatively associated with the likelihood of the family falling below the poverty line controlling for other variables in the model, with this association failing to reach statistical significance in 2006-2009. This finding may reflect the slight advantage that additional experience older household members have in income maximisation, as this effect is independent of any association between wage income and age resulting from career progression.

Families where the head of household is female have a lower risk of being in poverty in comparison with families where the head of household is male, although this association is not significant by 2006-2009⁸. Again, female-headed households only have lower odds of living below the poverty line after controlling for the other factors in the model: if the direct association is examined, a higher proportion of female-headed households fall below the poverty line than male-headed households.

The fact that the independent association between the having a female head of household and the odds of living in relative poverty before housing costs is negative after controlling for other factors might arise from additional amounts of non-wage income being directed to female headed households with children in comparison with their male counterparts, for example through child maintenance. Comparing the amounts of income received from 'miscellaneous' sources suggests that this is the case, with female heads of household having on average significantly higher income from this source than their male counterparts⁹.

Families with a head of household who identifies themselves as coming from a minority ethnic background have a higher risk of being in relative poverty than similar families where the head of household is White.

⁸ The definition of head of household changed in the FRS in 2002/03, to make it less biased towards males, and this has had a particular impact on the indicator for 'female headed household' which is discussed more fully in the following chapter.

⁹ The mean income received from miscellaneous sources in for male-headed households was £3.87 in 1998-2001 and £4.82 in 2006-2009 compared to £7.29 in 1998-2001 and £8.54 in 2006-2009 for female-headed households. The Median One-Way Analysis test and Kruskal-Wallis test, appropriate where the dependent variable is not normally distributed, suggest that these associations are statistically significant.

Parameter	1998/9 to 2000/1			2006/7 to 2008/9		
	β	Wald	Exp(β)	β	Wald	Exp(β)
Ethnicity of household head (reference White)						
Indian	0.5696***	13.9015	1.768	0.6096***	17.4643	1.840
Pakistani or Bangladeshi	1.1334***	76.8166	3.106	0.7595***	45.8434	2.137
Black or Black British	0.3783**	9.4934	1.460	0.5270***	22.3271	1.694
Other Ethnicity (including Mixed Race)	0.3737*	6.3394	1.453	0.3803***	11.7295	1.463

The association between ethnicity and poverty risk is particularly strong for families where the head of household is Indian, Bangladeshi or Pakistani, where the odds of being in relative poverty are around double in comparison to those of families where the head of household is White. According to Hills et al (2010: 208), the median total wealth of families where the head of household is from an ethnic minority background is lower than for those where the head of household is White, which partly reflects the younger ages of adults living in minority ethnic households. Thus, as assets (which may potentially facilitate access to investment income) and the age of all adults are not included as explanatory variables in the model, these factors may help explain why households with dependent children are more likely to live below the poverty line if the head of household is from an ethnic minority background as opposed to White. Alternatively, it may relate to a greater degree of income maximisation from state sources by White families compared to those from ethnic minority backgrounds.

The association between ethnicity and poverty decreased in size for the 'other ethnic' group and for families headed by Pakistani and Bangladeshi adults across the decade, and grew in size for households headed by Indian and Black or Black British adults. Although these are not statistically significant changes, they are large in size particularly for Pakistani and Bangladeshi heads of household. The apparent lack of change may therefore stem from the small sample size of minority ethnic households leading to more conservative estimates as to the strength of the association.

Living rent free, either as a result of owning a home outright or not being charged rent for another reason, and renting accommodation are positively associated with being in relative poverty before housing costs, for households with dependent children in comparison to those families buying their home with a mortgage. This may result from the financial checks associated with obtaining a mortgage, meaning that families living below the poverty line find obtaining a mortgage more difficult. Alternatively it could result from self-selection where families on lower incomes are less likely to seek to obtain a mortgage than their more affluent peers.

Parameter	1998/9 to 2000/1			2006/7 to 2008/9		
	β	Wald	Exp(β)	β	Wald	Exp(β)
Tenure (ref. mortgage)						
Own home outright	0.2711**	9.3105	1.311	0.3061***	15.2310	1.358
Living rent free or squatting	0.3566	2.9552	1.428	0.5810*	6.5270	1.788
Renting	0.4040***	45.5701	1.498	0.1467*	6.3685	1.158

The risk of being in relative poverty before housing costs has not changed over time for those owning their own homes, but has become stronger for those living rent free and weaker for those renting. These changes however are not statistically significant, suggesting overall stability in the relationship between tenure and poverty risk.

Having educational qualifications and particularly those at degree level is negatively associated with the risk of falling below the poverty line for households with children, controlling for the other variables in the model. The changes in the size of these associations across the decade, although not statistically significant, do vary in such a way as to suggest that the importance of qualifications has declined.

Parameter	1998/9 to 2000/1			2006/7 to 2008/9		
	β	Wald	Exp(β)	β	Wald	Exp(β)
Qualifications (ref. no qualifications)						
One or more household members have degrees	-0.4563***	29.5983	0.634	-0.2830***	11.7343	0.754
All have qualifications below degree level	-0.2634***	24.2480	0.768	-0.1889**	9.4285	0.828
Some have non-degree qualification	-0.2246**	10.4944	0.799	-0.0717	0.7102	0.931

Households where some of the adults have qualifications had statistically significant lower odds of falling into poverty from 1998-2001 compared to households where none of the adults received any qualifications but this was not the case in 2006-2009. This may result from the increasing numbers of individuals achieving qualifications; as qualifications become an increasingly less rare commodity, the protection they offer against relative poverty is reduced. For example, 23% of households with children contained at least one degree-holder in 1998-2001 compared to 31% in 2006-2009.

Household Employment

Households containing one or more self-employed adults are less likely to fall below the poverty line suggesting that, holding income from employment constant, self-employment does make a positive contribution to family finances on average.

Where adults are economically inactive or unemployed, households have a higher risk of falling below the poverty line. This demonstrates the importance of work in poverty protection. This association is particularly strong, and has increased over time, for households with at least one unemployed adult. This may reflect the impact of increased rigor in distributing out-of-work benefits.

Taking on additional and odd jobs is negatively associated with the risk of poverty. As this is independent of wages, this suggests that the characteristics or circumstances of families taking on additional work offer some protection against the risk of poverty.

Longer working hours and increased earnings from employment are negatively associated with the risk of poverty. This shows the importance of employment and in particular well-paid employment in reducing the risk of relative poverty.

The associations between the class and industry in which the head of household is employed and the risk of poverty are independent of wages, and indicate something else about adults employed in these areas. This could relate to working conditions, such as access to secure loans, or to the amount of assets owned.

Parameter	1998/9 to 2000/1			2006/7 to 2008/9		
	β	Wald	Exp(β)	β	Wald	Exp(β)
One or more self-employed adults in the household	-0.1463	3.0797	0.864	-0.3672***	21.3409	0.693
One or more economically inactive adults in the household	0.9013***	228.4847	2.463	0.9183***	254.2121	2.505
One or more adults in the household are unemployed	1.2465***	293.5037	3.478	1.5820***	399.6877	4.865

The economic status of adults in the household is associated with the likelihood of falling below the poverty line for families with children.

Households in which one or more adults are self-employed have lower odds of falling into relative poverty than similar families who are not self-employed. This suggests that, on average, income from self-employment makes a positive contribution to families' finances: holding earnings from employment constant families who have access to revenue from this different income stream have a lower risk of poverty than those who do not.

In contrast, households in which one or more adults are unemployed, and to a lesser extent a household member who is economically inactive, have much higher odds of being in relative poverty than households in which all adults are working. This risk has increased significantly for households containing one or more unemployed adults during the last decade, as the increased size of the β coefficient in 2006-2009 compared to 1998-2001 suggests. This may result to changes to social security which have aimed to increase household employment via work activation, and has seen assessment for eligibility of out-of-work benefits such as Jobseekers Allowance become increasingly rigorous (Bivand et al 2010).

Taking on additional work is negatively associated with the risk of poverty, with families where adults have two or more jobs or take on odd jobs being less likely to be in poverty than those who do not.

Parameter	1998/9 to 2000/1			2006/7 to 2008/9		
	β	Wald	Exp(β)	β	Wald	Exp(β)
One or more household members has two or more jobs	-0.2633*	4.7887	0.769	-0.5371***	14.5279	0.584
One plus household members have at least one odd job	-0.1053	0.6322	0.900	-0.5441**	7.5573	0.580

As these associations are independent of wage levels, they may indicate that a flexibility of approach to employment, a strong work ethic or increased employment opportunities for the household offer some protection against the risk of poverty.

As would be expected, wage levels and work intensity are both negatively associated with the odds of households with children falling below the poverty line.

Parameter	1998/9 to 2000/1			2006/7 to 2008/9		
	β	Wald	Exp(β)	β	Wald	Exp(β)
Earnings per hour (ref. lowest quintile)						
Second quintile	-1.1109***	247.9654	0.329	-1.1239***	277.6760	0.325
Third quintile	-2.2635***	546.7656	0.104	-1.9998***	517.2587	0.135
Fourth quintile	-3.3677***	589.8410	0.034	-2.9847***	597.3815	0.051
Fifth quintile	-4.9362***	442.7362	0.007	-4.5468***	525.7755	0.011
Hours worked per week (ref. lowest quintile)						
Second quintile	-0.5655***	51.8484	0.568	-0.6071***	64.9542	0.545
Third quintile	-1.3471***	231.8353	0.260	-1.2273***	216.8553	0.293
Fourth quintile	-2.0261***	329.4198	0.132	-1.8399***	306.2497	0.159
Fifth quintile	-2.2613***	367.7042	0.104	-2.0637***	351.9358	0.127

The risk of falling into poverty decreases as household earnings per hour and the number of hours worked by family members increases, with those earning the highest wages and working the longest hours having a very small likelihood of experiencing poverty. The odds of being in relative poverty are the lowest for those in the highest quintile group compared to those in the lowest quintile group or earning no wage. Similarly, families where the intensity of work places them in the highest quintile group have much lower odds of being in relative poverty than families whose work intensity places them in the lowest quintile group or who do not work at all. This shows the importance not only of income from employment but more specifically wage levels and work intensity in protecting families from the risk of relative poverty.

The occupational class of the head of household is also associated with the odds of a family with children falling below the relative poverty line. Controlling for the other variables in the model, in 2006-2009 families headed by an adult working in skilled or elementary jobs were more likely to be in relative poverty than those headed by a manager. There was no statistically significant association between the other occupational groups and relative poverty in comparison with the managerial group. This finding is perhaps not surprising as higher social groups have been shown to not only have access to higher wage levels and to have greater work intensity, which are controlled for, but also to have increased access to assets in comparison to lower social groups which may increase income from investment for these families (Hills et al 2010: 244).

Parameter	1998/9 to 2000/1			2006/7 to 2008/9		
	β	Wald	Exp(β)	β	Wald	Exp(β)
Social Class (ref. managerial)						
Skilled	0.0517***	0.3825	1.053	0.2515**	8.9009	1.286
Elementary	0.2840	11.1670	1.328	0.2415***	11.4259	1.273

None of the changes in association strength are statistically significant, although the fact that the association between the head of household being from a elementary as opposed to a managerial class was not significant in 1998-2001 suggests that there may have been a divergence between the risk for the two groups across the decade.

In terms of occupation sector, in 2006-2009 families where the head of household works in agriculture or catering were more likely to live in relative poverty than those where the head of household works in finance, whilst those working in construction and public administration were less likely to fall below the poverty line, controlling for the other variables in the model.

Parameter	1998/9 to 2000/1			2006/7 to 2008/9		
	β	Wald	Exp(β)	β	Wald	Exp(β)
Industry (ref. finance)						
Agriculture	0.7014***	18.8502	2.017	0.7169***	18.7836	2.048
Construction	-0.1572	2.1812	0.855	-0.3612***	12.2744	0.697
Distribution/Catering	0.1800	7.5110	1.197	0.1542*	5.7591	1.167
Public Administration	0.0401	0.2737	1.041	-0.1778**	6.7676	0.837

Over the decade the associations between industrial classification and the risk of poverty have become statistically significant for those working in construction, distribution/catering and public administration, in comparison with those households where the head works in finance suggesting increased divergence between the risk of poverty experience by these groups over time.

As these associations are independent of wage levels and work intensity, this indicates something else about these sectors of employment aside from wage levels which contribute to the risk of child poverty. With agricultural and catering work, the positive association may relate to reduced employment stability in comparison to other sectors, due to the importance of seasonal work for example. For the sectors which show a negative association with relative child poverty compared to similar households where the head works in finance, this may indicate increased flexibility in accessing non-wage resources, for example through favourable loans provided by employers or to increased knowledge about the social security entitlements of the family enabling income maximisation.

Household Benefit Receipt

Families receiving Tax Credits and higher levels of Housing Benefit are less likely to live in poverty than those not receiving these benefits, or receiving different amounts. This suggests that these benefits are working to reduce the risk of poverty, particularly for Tax Credits where the protection against poverty risk associated with receiving these payments has grown over time.

Receiving out-of-work benefits such as Income Support is not associated with the risk of living below the poverty line. This could suggest that different types of social security work differently in reducing the risk of poverty or reflect the association between receiving IS and the CTC.

The apparent 'Scotland effect' seen in the region-only models can be attributed to differences in the amounts of housing-related benefits given to similar families on different sides of the border.

A cluster of variables related to social security payments are associated with the odds of a household with children falling into poverty which suggests that families receiving social security payments are less likely to live below the poverty line than similar households which do not.

Parameter	1998/9 to 2000/1			2006/7 to 2008/9		
	β	Wald	Exp(β)	β	Wald	Exp(β)
Tax Credits	-0.3181***	25.5388	0.728	-0.6240***	175.2324	0.536
2 nd /3 rd quintile Council Tax Rebate	0.1645**	6.6405	1.179	0.2145**	9.6429	1.239
4 th /5 th quintile Housing Benefit	-1.3163***	418.7612	0.268	-1.1454***	315.7135	0.318

Families receiving tax credits and higher amounts of housing benefit are less likely to live below the poverty line than similar families receiving different levels of HB and those not receiving tax credits. This finding suggests that these means and needs-based benefits are helping families in need to augment their income to a sufficient level to push them above the poverty line.

The fact that there is a positive association between receiving medium amounts of Council Tax Rebate and relative poverty may indicate that some of the families receiving these levels of the benefit are either living too far below the poverty line for the additional income to change their circumstances, whilst others are living above the poverty line regardless of the payment.

There is no statistically significant association between receiving an out of work benefit such as Income Support, Pension Credit and income-based Jobseekers Allowance, which suggests that only certain types of social security payment are working to push families out of relative poverty before housing costs are taken into account. Alternatively, this could indicate that families with children receiving income support automatically receive the Child Tax Credit (Bradshaw et al 2006), meaning that the association between Income Support and relative poverty is being crowded out.

If housing-related benefit amounts are excluded from the model, there is a statistically significant and positive association between relative poverty and living in Scotland as opposed to England. Thus, the 'Scotland effect' seen in the region-only models can be attributed to the association between region and housing-related benefit levels: as house prices are lower in Scotland, the amounts of housing benefit given to families in this nation are also lower than for similar families in England. This demonstrates the importance of identifying and controlling for potentially systematic differences between families in England and Scotland in attempting to identify a regional effect.

Most of these associations show stability over time, but the strength of the association between tax credits and the risk of poverty increased over the course of the decade. Households receiving Family Credit or Working Families Tax Credit in 1998-2001 had lower odds of falling below the poverty line than households not receiving these benefits, but these odds were reduced even further for those receiving Working Tax Credit or Child Tax Credit in 2006-2009, with this change just failing to reach statistical significance. This could suggest that reforms to tax credits have played a role in alleviating child poverty, in line with Waldfogel's (2010) findings. The change in odds

associated with receiving the highest amounts of Housing Benefit, where the association has weakened over the course of the decade, also just fails to reach statistical significance.

Conclusion

Overall the above results suggest that there is no independent 'Scotland effect': families with similar demographic characteristics, levels of employment and access to income from benefits have the same risk of falling below the poverty line whether they are in Scotland or England. Thus, differences between the two countries need to be explained with reference to one of the other factors which show an association with relative poverty before housing costs.

In terms of devolution and quasi-devolution, the evidence suggests that only households in London have statistically significant differences in their risk of poverty compared to similar families in England, with London families being slightly less likely to live below the poverty line.

Factors associated with being in relative child poverty relate to employment, benefit receipt and household composition, and there is a strong degree of stability over time with most of these factors showing similar directions and strength of association with relative child poverty between 1998-2001 and 2006-2009.

There are two changes in association strength across the decade which are statistically significant. The first is the risk of relative poverty associated with having several children as opposed to one child; families with more children are still more likely to be in relative poverty but the risk is not as great as it was a decade ago. The second relates to unemployment in the household: families containing an unemployed person are now much more likely to live below the poverty line than those with no unemployment compared to a decade ago. Although just failing to reach statistical significance, the negative association between tax credit receipt and relative poverty becomes stronger over time.

This suggests that tax credits in particular have played a role in alleviating child poverty, reducing the risk of poverty for larger families and those receiving tax credits. However, in terms of alleviating child poverty via 'security for those who cannot work' the evidence suggests that policy interventions may be less successful, with an increased risk of poverty for households with children containing at least one unemployed or economically inactive adult, but no association between receiving an out-of-work benefit and falling below the poverty line. However, this is not an indication of whether there is a difference in support being allocated to households which contains people who cannot work and those who chose not to. In fact, that the odds of households containing economically inactive individuals and to an even greater degree disabled adults are less likely to be in relative poverty than those families where at least one adult is unemployed suggests that there may be a difference in the way resources are allocated between these households.

Thus, work remains the best protection against poverty for families with children, but wage income and the number of hours worked need to be sufficient for work to be an effective form of protection against relative poverty before housing costs.

The Scotland Effect After Housing Costs: controlling for other factors

Binary Logistic Regression: Household With Child In Relative Income Poverty After Housing Costs						
Parameter	1998/9 to 2000/1			2006/7 to 2008/9		
	β	Wald	Exp (β)	β	Wald	Exp (β)
Intercept	0.7150***	26.0475		0.9408***	47.3957	
Location of household (ref. England excluding London)						
Scotland	-0.2585**	10.4518	0.772	-0.2833***	22.8811	0.753
Wales	-0.1006	1.2252	0.904	-0.0526	0.3079	0.949
Northern Ireland	n/a	n/a	n/a	-0.4508***	37.7318	0.637
Greater London	0.1330	2.8362	1.142	0.1345	1.6262	1.144
Household has two or more children (ref. only one dependent child)	0.5056***	127.7944	1.658	0.2878***	49.3419	1.333
There are one or more pensioners in the household	-1.0467***	45.9333	0.351	-0.9192***	46.6300	0.399
One or more disabled adults in household	-0.4290***	66.3799	0.651	-0.3243***	32.9427	0.723
Age of head of household	-0.00712**	7.3361	0.993	-0.00564*	5.3461	0.994
Head of household is female	-0.1822**	7.4796	0.833	-0.1583**	8.4949	0.854
Ethnicity of head of household (ref. White)						
Indian	0.5894***	15.8103	1.803	0.6684***	24.9513	1.951
Pakistani/Bangladeshi	0.9260***	44.3022	2.524	0.7522***	41.1150	2.122
Black or Black British	0.3456*	6.5471	1.413	0.3385**	9.1018	1.403
Other Ethnicity (including Mixed Race)	0.6867***	18.4677	1.987	0.5627***	26.5374	1.755
Tenure (ref. mortgage)						
Own home outright	-0.5466***	37.6403	0.579	-0.6024***	59.7902	0.548
Living rent free/squatting	-0.8256***	13.1386	0.438	-0.2494	1.2566	0.779
Renting	0.4473***	67.5974	1.564	0.4065***	63.4323	1.502
One or more adults in the household are self-employed	-0.1923*	4.9859	0.825	-0.3633***	20.6635	0.695
One or more adults in the household are economically inactive	0.9720***	258.5598	2.643	0.9389***	296.9284	2.557
One or more adults in the household are unemployed	1.3787***	309.5133	3.970	1.6837***	416.1412	5.385
One or more household members has two or more jobs	-0.1328	1.5908	0.876	-0.6192***	26.0021	0.538
One plus household members have at least one odd job	-0.1938	2.3612	0.824	-0.6203***	11.6055	0.538

Household earnings per hour (ref. no earnings/ lowest quintile)						
Missing earnings	-0.2740**	9.2952	0.760	-0.1305	2.4473	0.878
Second quintile	-1.1013***	270.8862	0.332	-1.0124***	271.8317	0.363
Third quintile	-2.1024***	644.5513	0.122	-1.8576***	625.7394	0.156
Fourth quintile	-3.0364***	856.4020	0.048	-2.6976***	854.7433	0.067
Fifth quintile	-4.8065***	861.9995	0.008	-4.2073***	988.5885	0.015
Hours worked per week by the household (ref. no hours including missing and lowest quintile)						
Second quintile	-0.4170***	31.6652	0.659	-0.4351***	41.3357	0.647
Third quintile	-1.2936***	259.8339	0.274	-1.0792***	236.4496	0.340
Fourth quintile	-2.0077***	418.7739	0.134	-1.5181***	334.5973	0.219
Fifth quintile	-2.2369***	462.1776	0.107	-1.9211***	447.8147	0.146
Social Class (ref. managerial, skilled, operative, elementary, unknown)						
Social Class: Professional	-0.2931**	6.9436	0.746	-0.0666	0.5374	0.936
Social Class: Administrative	-0.1970*	4.5085	0.821	-0.0873	0.9305	0.916
Social Class: Service	0.0219	0.0585	1.022	-0.2123*	5.1744	0.809
Social Class: Elementary	0.2165*	6.3662	1.242	0.1317	3.5848	1.141
Industry (ref. finance, mining, transport and communication, manufacturing, other service)						
Agricultural	0.5374***	11.2366	1.712	0.7385***	23.1661	2.093
Construction	-0.2180*	6.4186	0.804	-0.1432	3.2554	0.867
Public Administration	-0.1333	3.0440	0.875	-0.1685**	6.6839	0.845
Missing	-0.6244***	56.2956	0.536	-0.2581***	11.2547	0.772
Household receives at least one tax credit (either FC or WFTC in 1998 or CTC or WTC in 2008)	-0.3363***	25.2069	0.714	-0.5506***	132.6355	0.577
Household receives out-of-work benefit: Income Support, Pension Credit or from 2006-2009 Jobseekers' Allowance (Income Based)	0.3503***	19.2265	1.419	-0.0911	1.6247	0.913
Council Tax Rebate Amount (ref. not received or first quintile)						
Fourth or Fifth Quintile	0.0132	0.0338	1.013	-0.1668*	5.2751	0.846
London by Tax Credit (interaction term)	0.5745**	6.8185	1.776	0.2970*	4.7000	1.346
Wales by Multiple Job (interaction term)	0.3673	0.8256	1.444	1.4262**	8.4453	4.163
London by Multiple Job (interaction term)	-1.2018*	5.8390	0.301	0.5011	1.6632	1.651

Significance: p<0.001(***) p<0.01 (**) p<0.05 (*)

Poverty After Housing Costs: Results

The above table shows which factors are associated with relative poverty for households with at least one dependent child after housing costs have been taken into account. There are many similarities between these results and those discussed earlier when considering relative poverty before housing costs, though there are some differences. The factors associated with relative child poverty after housing costs once again fall into four areas: region, household demographic characteristics, employment indicators and benefit receipt.

Region and the Scotland Effect

Families in Scotland are less likely to live in relative poverty than similar families in England once housing costs are taken into account. As this difference is only statistically significant once housing costs have been deducted from income, this suggests that the variation relates to housing-related expenditure rather than income. This could reflect lower house prices in Scotland or show that families in the different nations behave differently, with those in Scotland spending less of their income on housing.

The lower risk of poverty for families living in Scotland compared to England has stayed constant in size over time. This suggests that the differences between the two nations in child poverty trends relate to one or more of the other factors included in the analysis.

There are no statistically significant differences in poverty risk for similar families in Wales, London and the rest of England. Conversely, families living in Northern Ireland are less likely to live below the poverty line than similar families in England after housing costs.

The results suggest that the apparent 'Scotland effect' seen in the model with no controls is statistically significant both in 1998-2001 and 2006-2009 once control variables are included. The association is negative, suggesting that families living in Scotland are less likely to live below the poverty line than similar families in England after housing costs are considered.

Parameter	1998/9 to 2000/1			2006/7 to 2008/9		
	β	Wald	Exp(β)	β	Wald	Exp(β)
Location (ref. England excluding London)						
Scotland	-0.2585**	10.4518	0.772	-0.2833***	22.8811	0.753
Wales	-0.1006	1.2252	0.904	-0.0526	0.3079	0.949
Northern Ireland	n/a	n/a	n/a	-0.4508***	37.7318	0.637
Greater London	0.1330	2.8362	1.142	0.1345	1.6262	1.144
Interaction Terms						
London by Tax Credit	0.5745**	6.8185	1.776	0.2970*	4.7000	1.346
Wales by Multiple Job	0.3673	0.8256	1.444	1.4262**	8.4453	4.163
London by Multiple Job	-1.2018*	5.8390	0.301	0.5011	1.6632	1.651

As this association is not present before housing costs are deducted from income, this suggests that the direct association between being in Scotland and the risk of relative poverty relates to systematic differences between Scotland and England in relation to the housing costs incurred by families. In other words the differences between poverty risks in Scotland and England relate to expenditure on housing rather than to income. This may reflect that house prices are lower in Scotland (ONS 2003). Alternatively, it may reflect different behaviours by similar families on opposite sides of the border: for example, families in Scotland may choose to spend a smaller proportion of their income on housing or have the ability to reduce expenditure, for example by cooperating with other families to share housing costs.

However, this relationship has not changed over time, as the similar sizes of the coefficients in 1998-2001 and 2006-2009 show. This suggests that the difference in *trend* between poverty rates in Scotland and England, after housing costs, can be attributed to one of the variables which are included in the model.

Households in Northern Ireland are also less likely to live in relative poverty than similar households in England, which may also suggest a difference in house prices or families' behaviour. It is not possible to test whether this association has changed over time as data were not collected from households in Northern Ireland, but these results suggest that there are some systematic differences between this area and the mainland which may benefit from further investigation.

The non-significant associations between Wales, London and relative child poverty after housing costs have been included because of the statistically significant interaction effects between country/region and benefit and employment related variables which are included at the end of the model¹⁰.

In 1998-2001, there was a positive association between relative poverty and an interaction effect for households with children in London and in receipt of tax credits. The association is strong, effectively cancelling out the average reduction in odds associated with receiving tax credits for households across the country. This may relate to the means-tested nature of tax credits: the degree of concentration of tax-credit eligibility may appear greater in London than elsewhere after housing costs because of the impact of higher house prices in the capital on family expenditure, meaning that tax credits are better targeting families who live in poverty after housing costs in London than elsewhere.

There is a positive association between the interaction effect of being in Wales and at least one household member holding two or more jobs, although this association is not significant in 1998-2001. This suggests that, in Wales, those taking on additional jobs now have a higher risk of relative poverty than those who do not, and that as this association is not significant before deducting housing costs, this is likely to relate to the behaviours of these families in relation to their exposure to housing costs.

¹⁰ The 'parent' terms of interaction effects have to be included in the model as well as the interaction effect itself. Thus, if the association between the dependent variable and an interaction effect between London and tax credits is statistically significant, then the London tax credit receipt variables have to be included alongside the interaction term.

The reverse was true in London. In 1998-2001 there was a statistically significant negative association between the interaction term of London by multiple jobs and relative child poverty after housing costs, with this association weakening and becoming non-significant by the end of the decade. As this interaction term shows a positive association with relative poverty before housing costs are deducted from income, this again suggests that families who have multiple jobs are different to those who do not in terms of their exposure to housing costs.

Household Composition

Most of the factors related to family demographic characteristics remain associated with relative poverty after housing costs are deducted from income.

Families with heads of household from ethnic minority backgrounds are more likely to live in relative poverty after housing costs than their White counterparts. Families with female and older heads of household and containing adults of pensioner age or who have a disability are less likely to live in relative poverty, controlling for the other factors. However the associations between these variables and poverty without controls may be different.

Families with several children are more likely to live in relative poverty after housing costs than those who have one child, although the risk of poverty faced by larger families has fallen over time. This mirrors the pattern seen before deducting housing costs.

However, lone parent families no longer have a lower risk of living in relative poverty. This suggests that larger families are able to make economies of scale in relation to housing costs, reducing the need to gain additional income to achieve the same living standards as smaller families.

Living rent free or in accommodation which is owned outright is associated with a lower risk of living in poverty once housing costs are considered, showing an expected link between tenure and housing-related expenditure.

There is no association between education and the risk of relative poverty once housing costs are taken into account. As families with higher levels of qualification are less likely to fall below the poverty line before housing costs, this suggests that those with higher levels of qualification are incurring higher housing costs.

The associations between household compositional factors and child poverty after housing costs are similar to those discussed when examining poverty before housing costs. Households with one or more adults of pensioner age, one or more disabled adults, older and female heads of household have lower odds of being in relative poverty controlling for the other variables in the model. Those with several children and household heads from ethnic minority backgrounds are more likely to live below the poverty line than families with one child and those with White heads of household.

Some of these relationships are different if the association between them and relative poverty after housing costs is examined without controlling for other factors. As would

be expected, without controlling for other factors including wage, a higher proportion of female-headed households live below the poverty line after housing costs, and the same is true of households in which one or more of the adults is disabled.

Parameter	1998/9 to 2000/1			2006/7 to 2008/9		
	β	Wald	Exp(β)	β	Wald	Exp(β)
Household has two or more children	0.5056***	127.7944	1.658	0.2878***	49.3419	1.333
Household contains pensioner(s)	-1.0467***	45.9333	0.351	-0.9192***	46.6300	0.399
Household contains disabled adult(s)	-0.4290***	66.3799	0.651	-0.3243***	32.9427	0.723
Age of head of household	-0.00712**	7.3361	0.993	-0.00564*	5.3461	0.994
Head of household is female	-0.1822**	7.4796	0.833	-0.1583**	8.4949	0.854
Ethnicity of head of household (ref. White)						
Indian	0.5894***	15.8103	1.803	0.6684***	24.9513	1.951
Pakistani/Bangladeshi	0.9260***	44.3022	2.524	0.7522***	41.1150	2.122
Black or Black British	0.3456*	6.5471	1.413	0.3385**	9.1018	1.403
Other Ethnicity	0.6867***	18.4677	1.987	0.5627***	26.5374	1.755

However, once housing costs are taken into account, there is no difference in the risk of relative poverty for lone parent/carer families and those with two or more adults. This contrasts with the relationship between the number of adults and the risk of poverty before housing costs, where larger families had a higher risk of living in poverty. This may reflect the fact that, although the nature of equivalised income means larger families have to earn more to achieve the same living standards, housing is a good where it is possible to make economies of scale. Thus, larger families are able to reduce the housing costs incurred by each adult.

Unsurprisingly, there are differences when examining the relationship between tenure and poverty before and after housing costs are considered.

Parameter	1998/9 to 2000/1			2006/7 to 2008/9		
	β	Wald	Exp(β)	β	Wald	Exp(β)
Tenure (ref. mortgage)						
Own home outright	-0.5466***	37.6403	0.579	-0.6024***	59.7902	0.548
Living rent free or squatting	-0.8256***	13.1386	0.438	-0.2494	1.2566	0.779
Renting	0.4473***	67.5974	1.564	0.4065***	63.4323	1.502

These relationships show stability over time, although the negative association between living rent free and falling below the poverty line in comparison to those buying their homes with a mortgage is not significant in 2006-2009, suggesting that reducing housing costs by living in rent free accommodation has become less of a protection against the risk of falling into relative poverty for households with children in more recent years.

Also, in contrast to the model for before housing costs there are no statistically significant associations between education level and the risk of relative poverty after housing costs are considered. This may capture the association between education levels and housing costs: those families who have higher levels of education, and in particular degree-level qualifications incur much higher housing costs than those with lower levels of education. For example, in 1998-2001 the average housing costs for families with a degree-holder were £90.96 compared to £55.15 for those with no qualifications, with this rising to £122.36 for degree-holders and £76.57 for those with no qualifications by 2006-2009¹¹.

Household Employment

Most of the family employment characteristics which are associated with relative poverty before housing costs show similar relationships with relative poverty after housing costs are deducted from income.

Families taking on additional and odd jobs and those who are self-employed have lower odds of living below the poverty line, whilst those who have members who are economically inactive or unemployed have a higher risk.

Earnings per hour and work intensity are negatively associated with the risk of poverty, although families with the highest earnings and work intensity have seen that protection reduced over time. This may reflect a trend for those with higher earnings to increase their expenditure on housing.

These are some differences in the associations between occupational class, with households headed by intermediary workers being less likely to live in relative poverty than those headed by managerial workers after housing costs are deducted from income. This may reflect differences in the amounts of housing expenditure relative to income which different occupational classes wish to incur.

Parameter	1998/9 to 2000/1			2006/7 to 2008/9		
	β	Wald	Exp(β)	β	Wald	Exp(β)
One or more self-employed adults in the household	-0.1923*	4.9859	0.825	-0.3633***	20.6635	0.695
One or more economically inactive adults in the household	0.9720***	258.5598	2.643	0.9389***	296.9284	2.557
One or more adults in the household are unemployed	1.3787***	309.5133	3.970	1.6837***	416.1412	5.385

¹¹ These associations are statistically significant according to the Median One-Way Analysis test and Kruskal-Wallis test.

The associations between economic status and poverty are consistent with those seen before housing costs are deducted. Those families containing an adult who is self-employed are less likely to live below the poverty line than similar families who are not self-employed. Conversely, economic inactivity and unemployment are positively associated with the odds of living in poverty, with the association between unemployment and poverty growing stronger over time, although this just fails to reach statistical significance.

Parameter	1998/9 to 2000/1			2006/7 to 2008/9		
	β	Wald	Exp(β)	β	Wald	Exp(β)
One or more household members has two or more jobs	-0.1328	1.5908	0.876	-0.6192***	26.0021	0.538
One plus household members have at least one odd job	-0.1938	2.3612	0.824	-0.6203***	11.6055	0.538

Taking on additional and odd jobs is also negatively associated with the odds of being in relative poverty after housing costs, although these associations are only significant for 2006-2009. This suggests that towards the end of the decade the non-wage characteristics or circumstances separating families prepared to take additional and odds jobs provided some protecting against the risk of relative poverty after housing costs. The strength of the association between one or more adults in the household having multiple jobs as opposed to no adults having two or more jobs is stronger in the model concentrating on the later years, which may suggest that the protection these characteristics provide has increased over time.

Work itself is also associated with the risk of poverty once housing costs are deducted from income. Employment and particularly well-paid and intensive employment are still shown to be negatively associated with the risk of relative poverty after housing costs.

Parameter	1998/9 to 2000/1			2006/7 to 2008/9		
	β	Wald	Exp(β)	β	Wald	Exp(β)
Earnings per hour (ref. lowest quintile)						
Missing earnings	-0.2740**	9.2952	0.760	-0.1305	2.4473	0.878
Second quintile	-1.1013***	270.8862	0.332	-1.0124***	271.8317	0.363
Third quintile	-2.1024***	644.5513	0.122	-1.8576***	625.7394	0.156
Fourth quintile	-3.0364***	856.4020	0.048	-2.6976***	854.7433	0.067
Fifth quintile	-4.8065***	861.9995	0.008	-4.2073***	988.5885	0.015
Hours worked per week (ref. lowest quintile)						
Second quintile	-0.4170***	31.6652	0.659	-0.4351***	41.3357	0.647
Third quintile	-1.2936***	259.8339	0.274	-1.0792***	236.4496	0.340
Fourth quintile	-2.0077***	418.7739	0.134	-1.5181***	334.5973	0.219
Fifth quintile	-2.2369***	462.1776	0.107	-1.9211***	447.8147	0.146

The principal difference between the models before and after housing costs in relation to earnings per hour is that, once housing costs are removed, a difference between

those with missing earnings information and those with the lowest earnings per hour becomes statistically significant. As the association is negative, this suggests that this group of households are able to spend a lower proportion of their income on housing than those with the lowest earnings per hour. More information about why the income information for these families is missing is needed to make inferences about the factors behind this association.

The other difference between the risk of poverty before and after housing costs in relation to work is that the protection provided by the highest levels of wage and work intensity is reduced over time after housing costs are deducted. Although this change is slight, it only just fails to reach statistical significance. This suggests that families with access to the highest incomes from employment have been spending an increasing proportion of their income on housing as the decade progressed.

There are differences in the relationships seen between the occupation of the head of household and the risk of living in poverty after housing costs.

Parameter	1998/9 to 2000/1			2006/7 to 2008/9		
	β	Wald	Exp(β)	β	Wald	Exp(β)
Social Class (ref. managerial)						
Professional	-0.2931**	6.9436	0.746	-0.0666	0.5374	0.936
Administrative	-0.1970*	4.5085	0.821	-0.0873	0.9305	0.916
Service	0.0219	0.0585	1.022	-0.2123*	5.1744	0.809
Elementary	0.2165*	6.3662	1.242	0.1317	3.5848	1.141

In 1998-2001, families with heads of household working in professional and administrative occupations had lower odds of being in relative poverty than those working in a managerial capacity, whilst those headed by an adult working in an elementary occupation were more likely to be living in poverty. In 2006-2009, these associations were not significant, although families headed by an adult working in a service occupation were less likely to live in poverty than similar families headed by managerial workers.

This suggests that professional workers and some intermediary occupational classes have had an increased protection against poverty, whilst those working in the lowest occupational group had an increased risk of being in relative poverty after housing costs. These findings broadly support the results found when considering poverty before housing costs. However, that the associations are no longer statistically significant suggests that the risks faced by different occupational groups have converged over time, which may relate to changes in housing-related behaviour over the last 10 years, so that these groups have become more similar in their exposure to housing costs.

However, it is perhaps families headed by workers in intermediary occupations have reduced odds of living in relative poverty in comparison to those from the higher managerial class. As these associations become statistically significant once housing costs are accounted for, this suggests that there is an interaction between occupational class and housing-related expenditure, which may indicate that the higher social classes are incurring additional housing costs in comparison to those from lower occupational groups.

Parameter	1998/9 to 2000/1			2006/7 to 2008/9		
	β	Wald	Exp(β)	β	Wald	Exp(β)
Industry (ref. finance)						
Agriculture	0.5374***	11.2366	1.712	0.7385***	23.1661	2.093
Construction	-0.2180*	6.4186	0.804	-0.1432	3.2554	0.867
Public Administration	-0.1333	3.0440	0.875	-0.1685**	6.6839	0.845
Missing	-0.6244***	56.2956	0.536	-0.2581***	11.2547	0.772

In terms of the industry in which the head of house is employed, the odds of being in relative poverty are higher for those headed by adults working in the agricultural sector and lower for those working in the construction industry and public administration compared to those working in business and finance. This mirrors the results seen in the model for before housing costs.

The negative association between families for whom the industrial classification of the head of household has not been recorded and the odds of being in relative poverty after housing costs is difficult to interpret without additional research (although this group of individuals may have no industrial classification because they have never worked). However as this association becomes significant once housing costs are taken into account, this suggests that the association relates to differences in housing expenditure compared to the reference group rather than to difference in non-wage income.

None of these associations show statistically significant changes in strength over time.

Household Benefit Receipt

There are similarities between the relationship seen between benefits and the risk of relative poverty before and after housing costs. Families receiving Tax Credits are less likely to live in poverty than similar families who do not, and this relationship has grown stronger over time. This suggests that the reforms to Tax Credits have helped to reduce the risk of child poverty.

Receiving an out of work benefit is negatively associated with the risk of poverty after housing costs for families with children. This is in contrast to the results for poverty before housing costs where there was no relationship between receiving out of work benefits and the risk of poverty. This may indicate a difference in exposure to housing costs between similar families who do and do not qualify for an out-of-work benefit.

The strength of this association has changed, and there is no significant difference between families who do and do not receive an out of work benefit in 2006-2009. This may relate to a change in the way this variable is recorded to include income-based Jobseekers' Allowance in 2006-2009.

The associations between benefit receipt and relative poverty after housing costs mirror the associations seen in the models before housing costs are taken into account. Those receiving tax credits are less likely to live below the poverty line than those who do not, whilst those receiving the highest amounts of Council Tax Rebate also have lower odds of living in poverty than those receiving lower levels of this benefit.

Parameter	1998/9 to 2000/1			2006/7 to 2008/9		
	β	Wald	Exp(β)	β	Wald	Exp(β)
Tax Credits	-0.3363***	25.2069	0.714	-0.5506***	132.6355	0.577
4 th /5 th quintile Council Tax Rebate	0.0132	0.0338	1.013	-0.1668*	5.2751	0.846

As seen before housing costs are taken into account, the strength of the negative association between tax credit receipt and relative poverty becoming stronger over time, supporting the conclusion that the reforms to Tax Credits have been successful in alleviating child poverty. The association between receiving the highest amounts of Council Tax Rebate was positive and not significant in 1998-2001; this may indicate better targeting of this housing-costs related benefit over the course of the decade.

Unsurprisingly, once housing costs are taken into account, housing benefit amounts are not statistically significantly associated with relative poverty. As housing benefit is determined by housing costs, once housing costs are controlled for housing benefit should show no independent association with relative poverty.

The principal difference between the models for relative poverty before and after housing costs is the positive association between receiving an out-of-work benefit and being in relative poverty once housing costs are taken into account, although this association is not significant in 2006-2009.

Parameter	1998/9 to 2000/1			2006/7 to 2008/9		
	β	Wald	Exp(β)	β	Wald	Exp(β)
Out-of-work benefit received	0.3503***	19.2265	1.419	-0.0911	1.6247	0.913

The relationship between receiving an out of work benefit and the risk of poverty has weakened over time, and this change is statistically significant. This could suggest that the targeting of the more generous out-of-work benefits (Income Support, Pension Credit and in 2006-2009 income-based Jobseekers Allowance) has become less focused on families in poverty since 1998-2001. Alternatively it could reflect the changes in the benefits included in the variable, with receipt of income-based Jobseekers Allowance only being recorded in 2006-2009.

Conclusion

The results suggest that, once other variables associated with relative poverty for families with dependent children are controlled for, there is an independent 'Scotland effect'. Families living in Scotland having lower odds of living below the poverty line than their English counterparts after housing costs are considered. That this association becomes statistically significant only once housing costs are deducted from income suggests that this independent effect relates to housing expenditure rather than to income. This may reflect differences in housing markets or to differences in family behaviour in the different countries.

However, although this association may explain why poverty rates after housing costs have been lower in Scotland than in England, it cannot explain why poverty rates have

fallen faster in Scotland than in England, as the strength of the association does not change over time.

The non-regional factors associated with relative poverty after housing costs are broadly similar to those which are associated with relative poverty before housing costs. However, there are some differences in particular the absence of statistically significant associations between education levels and relative poverty once housing costs are taken into consideration. This indicates the importance of examining relative poverty both before and after housing costs, as the same families do not face identical risks of falling below the different poverty lines.

Is there a Scottish effect?

The evidence suggests that there is no increased or decreased risk of falling below the poverty line before housing costs are considered for similar families living in England, excluding London, and Scotland. Rather, a number of other factors related to household composition, employment and benefit receipt capture the systematic differences in poverty risk between the two nations.

The picture is different when housing costs are considered. Families living in Scotland are less likely to live below the poverty line than similar families in England. This suggests that there are some systematic differences between England and Scotland which relate to expenditure on housing and which have not been controlled for.

However, the evidence suggests that differences in the trends of child poverty rates cannot be attributed to a 'Scottish effect' either before or after housing costs are considered. Where there is a 'Scottish effect' the strength of that effect does not change over time. Therefore, it can be hypothesised that differences in trend relate to one or more of the factors relating to household composition, employment and benefit receipt which are associated with relative poverty before and after housing costs.

Explaining the Trend: Why Child Poverty has Fallen Faster in Scotland

The previous chapter showed there is some evidence of a 'Scotland effect' associated with the risk of relative poverty after housing costs (though not before). However, this cannot account for the faster *decline* of child poverty rates in Scotland compared to England. Once housing costs are accounted for, the lower risk of poverty for families living in Scotland compared to similar families in England remains constant over time.

Therefore, the differences in trend cannot be attributed to a 'Scotland effect' but rather may stem from a variation in the populations of Scotland and England (excluding London) in relation to the other factors which have been shown to be associated with poverty risk.

The following sections explore how differences between these populations might account for the differences in child poverty trends using descriptive statistics¹². A table summarising the results is given in the conclusion to this chapter.

Household composition

Several factors relating to household composition were shown to be associated with relative poverty both before and after housing costs.

Family Size

Without controlling for other factors associated with relative poverty, multiple adult households are less likely to live below the poverty line. This can be attributed to household earnings: multiple adult households having greater earning power than single-parent families.

Controlling for earnings, single-parent households are less likely than multiple adult households to live in relative poverty before housing costs. The proportion of single parent households in Scotland has increased relative to England, controlling for earnings. This could have contributed to a slight decrease in child poverty rates in Scotland in comparison to England before housing costs.

For both Scotland and England (excluding London) the proportion of only-child households has grown which is likely to have helped relative child poverty fall in both countries. However, the rate of change has been similar in both countries so this is unlikely to have affected the differential rates of decline in relative poverty.

The results presented in Table 1 suggest that the difference between Scotland and England excluding London in the proportion of multiple adult families has increased over time.

¹² All of the results compare Scotland and England excluding London only. The results presented use a weight to arrive at population estimates given the numbers in the sample. Percentages are rounded to the nearest whole percent. Numbers may not sum due to rounding. To enable a more detailed examination of the data the unweighted tables, together with tests for significance and association, are presented in Appendix C. Only interpretations supported by the tests for statistical significance have been included in this chapter.

The proportion of lone parent families has increased in Scotland whilst remaining static in England (excluding London) increasing the degree of divergence between the two nations. As we saw in the previous chapter, families with two or more adults were more likely to live in relative poverty before housing costs, controlling for other factors associated with poverty risk such as earnings in 2006-2009, with this association not significant in 1998-2001 or once housing costs have been deducted from income. Therefore, the increasing proportion of lone parent families in Scotland relative to England should lead to a faster decrease in relative poverty before housing costs in Scotland.

Table 1: Households with one adult and several adults by country

N(%)	1998/9 to 2000/1		2006/7 to 2008/9	
	Household has one adult	Household has several adults	Household has one adult	Household has several adults
England ex. London	20%	80%	20%	80%
Scotland	21%	79%	23%	77%
Total	20%	80%	20%	80%

However, it is important to bear in mind that the association between living in a multiple adult household and relative poverty before housing costs is only positive when controlling for earnings¹³. The direct relationship between living in a multiple adult household rather than a lone parent household and relative poverty before housing costs is negative as shown in Table 2 below. This would be expected given the increased earnings power of multiple adult households.

Nonetheless, the independent effect of living in a multiple rather than single adult household is to lower the odds of relative poverty before housing costs, which could relate to the way in which income is equalised for the purposes of poverty measurement.

As Table 2 shows, the differences between the proportion of lone parents and multiple parent families has not changed significantly over time when looking at the higher income earners. The differences between Scotland and England are negligible (and not statistically significant).

The divergence between the two countries is shown when examining the lowest earnings group, including those with no reported income from employment. In England, the proportion of lone parent families in the lowest quintile group remains constant at 45% whilst in Scotland the proportion increases from 50% in 1998-2001 to 52% in 2006-2009.

¹³ Binary logistic regressions with relative poverty before and after housing were run with multiple adults controlling for earnings (which is earnings per hour times work hours) in quintile groups. The association between living in a multiple adult as opposed to a single parent household is negative without controls for earnings but positive once earnings are held constant.

Table 2: Households with one adult and several adults, controlling for earnings

	N(%)	1998/9 to 2000/1		2006/7 to 2008/9	
		Household has one adult	Household has several adults	Household has one adult	Household has several adults
No Earnings and First Quintile	England ex. London	45%	55%	45%	55%
	Scotland	50%	50%	52%	48%
Second Quintile	England ex. London	15%	85%	18%	82%
	Scotland	12%	88%	20%	80%
Third Quintile	England ex. London	5%	95%	7%	93%
	Scotland	4%	96%	9%	91%
Fourth Quintile	England ex. London	2%	98%	3%	97%
	Scotland	1%	99%	2%	98%
Fifth Quintile	England ex. London	1%	99%	1%	99%
	Scotland	1%	99%	1%	99%

Therefore, controlling for wages this difference in household composition would tend to reduce child poverty before housing costs in Scotland to a greater degree than in England.

Table 3: Households with one child and several children by country

N(%)	1998/9 to 2000/1		2006/7 to 2008/9	
	Household has one child	Household has several children	Household has one child	Household has several children
England ex. London	41%	59%	46%	54%
Scotland	44%	56%	49%	51%
Total	41%	59%	46%	54%

As with the number of adults, larger families with several children are more likely to live in relative poverty compared to similar only-child families, although the size of this risk has declined in more recent years.

As Table 3 shows, there is a relationship between country and family size. At the beginning and end of the decade, the relative population of only-child families was larger in Scotland than in England.

However, the evidence suggests that this has *not contributed* to different trends in child poverty. At both the beginning and end of the period of interest, 3% fewer households in Scotland had several children than in England, so any advantage felt by Scotland as a result of having smaller families as not changed over the past 10 years.

Household adults: disability and pension age

Similar proportions of households in England and Scotland contain one or more disabled or sick adults and one or more adults of pension age. Therefore, these factors are not likely to explain differences in child poverty trends between the two countries.

Although households with one or more disabled adults have lower odds of living below the poverty line controlling for other factors, the direct relationship between disability and poverty is different. Disabled households are over-represented below the poverty line.

Therefore, although the decline in the population of disabled households might have been expected to lead to an decrease in child poverty, in combination with other factors the effect may have been softened or even reversed.

Households with children where one or more adult is of pension age are less likely to live in poverty, but the relative size of the population has remained stable over time. This is therefore unlikely to have contributed to the reduction in child poverty overall.

Although the multivariate analysis presented previously suggests that there is a negative association between the risk of poverty and having one or more disabled adults living in the household, this association is only negative once the other factors in the model are held constant.

Table 4: one or more disabled adults in the household and relative poverty

1998/9 to 2000/1				
N(%)	Relative poverty Before Housing Costs		Relative poverty After Housing Costs	
	Not in poverty	In poverty	Not in poverty	In poverty
No disabled adults	81%	19%	75%	25%
One or more disabled adults	70%	30%	62%	38%
Total	79%	21%	72%	28%
2006/7 to 2008/9				
	Relative poverty Before Housing Costs		Relative poverty After Housing Costs	
	Not in poverty	In poverty	Not in poverty	In poverty
No disabled adults	83%	17%	76%	24%
One or more disabled adults	64%	36%	54%	46%
Total	80%	20%	73%	27%

The direct association between disability and relative poverty is positive, with disabled households being over-represented below the poverty line as Table 4 (above) demonstrates. Although the proportion of households of which at least one adult members is disabled living in poverty has declined over the course of the decade, this group are over-represented below the poverty line both before and after housing costs are considered, with these associations all statistically significant.

However, once factors relating to household composition, employment and benefit receipt are controlled for, households with one or more disabled adults are less likely to live in poverty than *similar* households. However, which of the control variables interacts with disability so as to change the nature of the relationship is unclear¹⁴.

Thus, the impact of the increasing proportion of households containing at least one disabled adult over time shown in Table 5 on child poverty rates is difficult to interpret. As disabled households are more likely to be in poverty, it would be expected that this decline in the number of disabled households would lead to a decrease in child poverty. However, in combination with changes to a number other factors, this impact may have been softened or even reversed. However, the increase in wellbeing associated with the decline in self-reported disability is of merit in and of itself regardless of the impact this may have on child poverty trends.

Table 5: one or more disabled adults in the household by country

N(%)	1998/9 to 2000/1		2006/7 to 2008/9	
	No disabled adults	One or more disabled adults	No disabled adults	One or more disabled adults
England ex. London	77%	23%	87%	13%
Scotland	79%	21%	86%	14%
Total	77%	23%	87%	13%

In terms of the impact disability may have had on the difference in child poverty trends between Scotland and England however, the interpretation is more straightforward. There is no statistically significant difference between the proportions of disabled adults in England compared to Scotland in 1998-2001 nor 2006-2009 meaning that disability is unlikely to have contributed to the faster fall in child poverty in Scotland.

Households containing at least one adult of pensioner age are less likely to live below the poverty line than those without, either controlling or not controlling for other factors.

As Table 6 shows, the proportion of households with children where at least one adult is of pension age is small (2%) and is the same in both Scotland and England. The static nature of the population sizes and the similarities between England and

¹⁴ Controlling for no single variable results in a negative association between poverty and household disability. This was tested by running the regression models including disability as an explanatory variable and controlling for each other explanatory variable present in the models in turn.

Scotland suggest that this has not played a role in the decrease in child poverty either overall or in Scotland in particular.

Table 6: one or more adults of pension age in the household by country

N(%)	1998/9 to 2000/1		2006/7 to 2008/9	
	No adults of pension age	One+ adults of pension age	No adults of pension age	One+ adults of pension age
England ex. London	98%	2%	98%	2%
Scotland	98%	2%	98%	2%
Total	98%	2%	98%	2%

Head of Household: ethnicity, gender and age

The definition of head of household used for the FRS has changed between the two periods of interest to make it less biased towards men. This change in definition may have contributed to observed change in household composition more than genuine social change.

However, the multivariate analysis suggests that the ‘effect’ of demographic factors related to the head of household (age, gender and ethnicity) has not changed over time. Therefore, differences in populations over time and the way in which these changes might have influenced child poverty trends can be validly interpreted.

Overall, differences in the populations of Scotland and England in relation to the demographic characteristics of the head of household could have contributed to the faster fall in relative child poverty in Scotland compared to England.

The proportion of households headed by an adult from an ethnic minority background has grown in both countries, but at a faster rate in England. Because of the strength of the associations between ethnicity and relative poverty, these small differences in population could have contributed to the slightly faster decrease of child poverty in Scotland before and after housing costs.

Examining the association between the gender of the head of household and relative poverty without controlling for other factors, female-headed households are more likely to live below the poverty line than their male counterparts. However, controlling for the other factors, the relationship is different with female-headed households having lower odds of living below the poverty line than similar male-headed households. Controlling for earnings, Scotland has a higher proportion of female-headed households than England which could have facilitated the faster fall in child poverty rates both before and after housing costs.

In 1998-2001, the average age of heads of households was slightly higher in England than in Scotland, with there being no difference between the two countries by the end of the decade. The slight advantage English households had of avoiding relative poverty thus disappeared by 2006-2009. Although this could have led to a faster child poverty decrease in Scotland than England, the effect and the differences are small and are unlikely to have made a strong contribution.

Differences between the proportions of ethnic minority households in Scotland and England, excluding London, are slight, but may have contributed to the faster fall of child poverty in Scotland relative to England.

The associations between the gender/ethnicity of the head of household and the risk of poverty, controlling for other factors, remained relatively consistent over the course of the decade. However, the way in which the head of household was defined changed between 1998-2001 and 2006-2009. In the earlier years, the head of household was male by default if the family lived as a couple, whereas in later years, the head of household was the highest earner regardless of gender (DWP 2010d, 2010e). For example, the increase in the proportion of female-headed households in the sample shown in Table 8 may be independent of actual population change. Care should therefore be taken when comparing the results across years presented below.

Having a head of household from an ethnic minority background as opposed to being White was shown to have a strong association with the odds of living in relative poverty both before and after housing costs. The risk of living below the poverty line is particularly strong for families headed by an adult from an Indian, Pakistani or Bangladeshi background.

The results in Table 7 suggest that this association between ethnicity and relative poverty may have influenced the divergent child poverty trends in England and Scotland. Although the proportion of non-White households has increased in both countries, the increase in families where the head of household is from an ethnic minority background has been faster in England than Scotland. Given the increased risk of poverty faced by ethnic minority families, this would tend to counter the reduction in child poverty rates to a greater degree in England than in Scotland.

Table 7: Ethnicity of head of household by country

1998/9 to 2000/1					
N(%)	White	Black	Indian	Pakistani/ Bangladeshi	Other
England ex. London	94%	1%	2%	2%	1%
Scotland	99%	<1%	<1%	1%	<1%
Total	95%	1%	2%	2%	1%
2006/7 to 2008/9					
	White	Black	Indian	Pakistani/ Bangladeshi	Other
England ex. London	90%	2%	2%	3%	3%
Scotland	96%	1%	<1%	1%	2%
Total	91%	2%	2%	3%	3%

Given the strength of the associations between ethnicity and the risk of relative poverty, both before and after housing costs, even though the divergence between the populations of England and Scotland is slight, the impact is likely to have been significant both before and after housing costs.

The dramatic increase in the proportion of female headed households seen in Table 8 will be partially attributed to the change to the definition of 'head of household' to make it less biased towards men where the household contains adults living as a couple. For example, in 1998-2001 only 15% of female-headed households contained two or more adults compared to 51% in 2006-2009. However, the multivariate analysis suggests that the *effect* of having a female rather than a male head of household remains similar across the decade, controlling for other factors. Therefore, it is possible to interpret differences seen in the population change between Scotland and England as contributing to a divergence in child poverty trends.

Table 8: Gender of head of household by country with controls for levels of earnings

	N(%)	1998/9 to 2000/1		2006/7 to 2008/9	
		Male Head of Household	Female Head of Household	Male Head of Household	Female Head of Household
Overall	England ex. London	78%	22%	63%	37%
	Scotland	77%	23%	59%	41%
No Earnings and First Quintile	England ex. London	52%	48%	40%	60%
	Scotland	46%	54%	33%	67%
Second Quintile	England ex. London	81%	19%	60%	40%
	Scotland	83%	17%	59%	41%
Third Quintile	England ex. London	93%	7%	74%	26%
	Scotland	94%	6%	72%	28%
Fourth Quintile	England ex. London	97%	3%	81%	19%
	Scotland	98%	2%	76%	24%
Fifth Quintile	England ex. London	99%	1%	83%	17%
	Scotland	99%	1%	80%	20%
Total		78%	22%	62%	38%

Although the multivariate analysis presented in the previous chapter suggests that there is a negative association between a head of household being female (as opposed to male) and relative poverty, this association is only negative after

controlling for the other factors in the model. The relationship between gender and poverty is different, with a higher proportion of female-headed households living below the poverty line than those headed by men. For example, in 1998-2001 the proportion of households with children headed by women in Scotland and England living in relative poverty before housing costs was 41% compared to 16% of male-headed households, with the percentages in 2006-2009 being 28% and 15% respectively¹⁵.

As Table 8 suggests, part of the reason the association between gender and poverty changes once wages are controlled for is that there is a relationship between the gender of the head of household and earnings from employment. Female-headed households are over-represented in lower earnings quintiles with male heads of household dominating higher earning groups. This association has weakened over the course of the decade, but is still evident in 2006-2009.

Nonetheless, female-headed households are less likely to live below the relative poverty line both before and after housing costs compared to *similar* male-headed households. Scotland has a greater proportion of female-headed households than England *controlling for earnings*, which could have contributed to a faster decrease in child poverty trends in Scotland than in England.

In terms of the age of the head of household, in 1998-2001 there was a difference between the populations of Scotland and England with the heads of households in England being slightly older than their counterparts in Scotland¹⁶. However, the variations in the mean age between the two countries had decreased by 2006-2009, with there being no difference according to tests for statistical significance.

Table 9: Mean ages of heads of household in Scotland and England

	1998-2001	2006-2009
England	38.9	39.6
Scotland	38.1	39.3
England and Scotland	38.9	39.7

As a year increase in the age of the head of household is associated with lower odds of living in poverty, this convergence between Scotland and England will have lessened the very slight advantage which English households had in relation to their Scottish counterparts. This could have resulted in a slightly faster fall in child poverty in Scotland than in England. However, the difference in mean ages is extremely slight and the association between age and poverty in the models is very weak. Therefore, this change is unlikely to have made a strong contribution to the divergence in child poverty trends in Scotland and England.

¹⁵ A similar pattern is seen after housing costs are deducted from income.

¹⁶ This result follows an analysis of the age of the head of household using a 2 independent sample t test and the Pooled (1998-2001) and Satterthwaite (2006-2009) method for analysing whether the means of the age of household head are significantly different in Scotland and England. The full results of this are presented in Appendix C. Mean ages are rounded to one decimal place.

Tenure

The proportion of mortgage holders has declined over time, whilst the proportion of those who own their own home and those who rent has increased.

Before Housing Costs

As mortgage holders have lower odds of living in poverty than both home owners and renters, it would be expected that this would be associated with an increase in child poverty. That child poverty has not increased may be an indication of the declining strength of the association between renting and relative poverty, or more likely reflect the fact that tenure is related to income rather than the other way around.

There has been a convergence between England and Scotland in terms of tenure, with the difference between the proportion of mortgage holders declining. This could be associated with the faster fall in relative child poverty in Scotland, or could *reflect* that poverty has fallen at a faster rate for families with children in Scotland.

After Housing Costs

There is a relationship between earnings and tenure choice, with lower-income families more likely to rent and higher-families more likely to have a mortgage.

Looking at lower earnings groups, the proportion of those holding mortgages has increased in Scotland and decreased in England compared to a decade ago. This difference is likely to be associated with the faster fall in child poverty in Scotland after housing costs.

The way in which tenure is associated with relative poverty differs depending on whether or not housing costs are deducted from income. Controlling for other factors of interest, those buying their homes with a mortgage are less likely to live in relative poverty than households with other types of tenure before housing costs, but once housing costs are taken into account, those who live rent free or who own their own home are less likely to live below the poverty line than mortgage holders.

The association seen between tenure-type and relative poverty is the same with and without the other control variables before housing costs are taken into account. Therefore the differences between England and Scotland in terms of tenure-type shown in Table 10 can help suggest how tenure may be associated with the differences in child poverty trends between the two countries.

Overall, comparing 1998-2001 with the end of the decade, Table 10 suggests that changes in tenure have not been associated with a reduction in child poverty before housing costs. The relative size of the group with the least risk of poverty, those buying their home with a mortgage, has declined over time. However, although the change is not statistically significant, the increase in the odds of living in relative poverty associated with renting in comparison to those buying their home with a mortgage has declined in strength over the course of the decade, and this may be associated with the declining levels of child poverty.

Table 10: Tenure-type by country

1998/9 to 2000/1				
N(%)	Owns Home Outright	Mortgage/ Part Rent	Renting	Lives Rent Free/ Squatting
England ex. London	7%	63%	29%	1%
Scotland	6%	57%	35%	1%
Total	7%	63%	29%	1%
2006/7 to 2008/9				
	Owns Home Outright	Mortgage/ Part Rent	Renting	Lives Rent Free/ Squatting
England ex. London	10%	60%	30%	<1%
Scotland	9%	58%	32%	1%
Total	10%	60%	30%	1%

Alternatively, the fall in child poverty despite the decline in mortgage take-up may reflect the lack of a *causal* relationship between tenure and relative poverty before housing costs. This latter explanation is the more likely, as a family's choice and the availability of tenure is likely to relate to household income.

The differences between Scotland and England in terms of tenure type are significant both in 1998-2001 and 2006-2009, but the strength of the association is weak and declines over the course of the decade¹⁷. This suggests increased convergence between the two nations in tenure over time. For example, between 1998-2001 and 2006-2009, the difference between Scotland and England in the proportion of families with mortgages declined from 6 percentage points to 2 percentage points.

In 1998-2001 a greater proportion of families in Scotland rented their homes and a smaller proportion held mortgages compared to English households. Therefore, this convergence in tenure would contribute to a faster fall in child poverty in Scotland relative to England: the proportion of mortgage holders, at least risk of poverty, has declined in England but risen slightly in Scotland.

However, as previously discussed, although these differences in tenure are likely to be *associated* with the faster reduction in child poverty before housing costs in Scotland, it is unlikely to have caused it.

¹⁷ The strength of the association when two categorical variables are compared where at least one is nominal (the categories cannot be ranked in hierarchical order) is given via the Cramer's V statistic which can vary from 0, showing no association, to 1, showing a perfect association. The Cramer's V statistic for country by tenure (both nominal variables) is 0.0560 in 1998-2001 and 0.0373 in 2006-2009. This shows that the association between country and tenure, although statistically significant, is weak but that it is weaker in 2006-2009.

Table 11: Tenure-type by country controlling for earnings

1998/9 to 2000/1					
N(%)		Own outright	Mortgage	Renting	Rent Free
No*** Earnings and First Quintile	England ex. London	9%	34%	56%	1%
	Scotland	6%	20%	73%	1%
Second Quintile***	England ex. London	9%	63%	27%	1%
	Scotland	6%	53%	38%	3%
Third Quintile	England ex. London	6%	79%	14%	1%
	Scotland	5%	79%	15%	1%
Fourth Quintile	England ex. London	5%	87%	8%	1%
	Scotland	5%	86%	7%	2%
Fifth Quintile	England ex. London	6%	89%	5%	<1%
	Scotland	5%	90%	3%	1%
Total		7%	63%	29%	1%
2006/7 to 2008/9					
N(%)		Own outright	Mortgage	Renting	Rent Free
No*** Earnings and First Quintile	England ex. London	10%	34%	56%	1%
	Scotland	9%	26%	64%	1%
Second Quintile*	England ex. London	11%	55%	33%	1%
	Scotland	9%	55%	34%	2%
Third Quintile	England ex. London	10%	70%	19%	1%
	Scotland	7%	71%	20%	1%
Fourth Quintile***	England ex. London	10%	80%	10%	<1%
	Scotland	8%	83%	7%	2%
Fifth Quintile+	England ex. London	10%	84%	5%	<1%
	Scotland	10%	86%	3%	<1%
Total		10%	60%	30%	1%

Significance: *** = p<0.001; ** = p<0.01; * = p<0.05;

+ = Chi Square test invalid due to insufficient numbers of households in each cell.

Although not proven by the statistical analyses presented here, tenure is more likely to have a causal relationship with relative poverty after housing costs, as tenure type does influence how much households have to pay for their accommodation. Those renting their home or buying it with a mortgage have expenditure associated with their occupation of the building they live in, whereas those living rent free or who own their own home do not (although there are still costs associated with making the building inhabitable).

That tenure is associated with available resources is shown through an examination of the direct relationship between tenure type and poverty after housing costs, and again after controlling for earnings. When earnings are not controlled for, the results appear to be similar for before housing costs, with those holding a mortgage having the least risk of living in poverty. However, once earnings are controlled for, families living rent free and those who own their own home have lower odds of living in poverty than those holding a mortgage, mirroring the results seen in the full models presented in the previous chapter¹⁸.

Table 11 (above) shows that there is a relationship between earnings and tenure, as those with higher incomes from employment are far more likely to be buying their home with a mortgage and less likely to be renting than those from lower income groups. This is true in both Scotland and England, and may either be due to self-selection on the part of households, regulating behaviour in relation to housing costs, or the policy of mortgage lenders.

Looking at the lowest earnings group, the proportion of families renting their home in Scotland is higher than in England, whilst those buying their home with a mortgage is lower. However, the degree of difference between families earning this level of income from employment in terms of their tenure behaviour is reduced over the course of the decade: the proportion of the lowest income families buying their home declines in England and grows in Scotland, with the reverse pattern seen for renting. This is also seen for the second quintile group of the distribution of earnings.

The only other statistically significant difference between tenure type in Scotland and England is seen when examining the fourth quintile group. In both England and Scotland there has been a reduction in the proportion of this group buying their home with a mortgage, but in Scotland this has led to a higher proportion of this group living accommodation which they have purchased in full, whereas in England there has also been a slight increase in the proportion of families renting their accommodation.

Thus Scottish families have historically tended to rent rather than purchase their home with a mortgage at lower income levels, but there has been a shift over the course of the decade to bring about a greater degree of convergence between England and Scotland. Families in Scotland have been increasingly buying their home with a mortgage, associated with a lower risk of poverty after housing costs than renting, whilst families in England have been increasingly renting their homes rather than take out a mortgage. This is likely to have led to a faster reduction in relative child poverty after housing costs in Scotland compared to England.

¹⁸ This applies to both 1998-2001 and 2006-2009 data.

Why there has been this difference in tenure choice between Scotland and England is not clear, although it could relate to a difference in the increase in house prices, making property more affordable for those with low earnings in Scotland compared to England. Alternatively, it could reflect a difference in decision-making between financial institutions in England and Scotland, with those in Scotland being more inclined to allow mortgage uptake by those on lower incomes, although the historically lower uptake of mortgages in Scotland does not support this latter conclusion.

Educational Qualifications

The proportion of households with qualifications and degree-level awards has increased over the course of the decade. This may have contributed to the reduction in child poverty before housing costs (with qualifications not associated with the risk of poverty after housing costs controlling for other factors of interest).

Qualification levels in Scotland and England have converged over time, with the proportion of households where all adults have qualifications increasing at a faster rate in Scotland than in England. However, the proportion of households where one or more adults have degrees has also converged, robbing Scotland of a comparative advantage.

However, the gap between England and Scotland in the proportion of households with the lowest risk of poverty (all adults have non-degree qualifications or at least one adult has a degree) has closed. At the same time, the strength of the association between qualification levels and relative poverty has declined. This suggests that the net effect of population change in relation to educational qualifications is likely to have led to a faster reduction in relative child poverty before housing costs in Scotland compared to England, but that the effect is likely to have been very slight.

Table 12: adults' educational qualifications by country

1998/9 to 2000/1				
	No adults have qualifications	Some adults have qualifications	All adults have qualifications	One or more adults have degrees
England ex. London	17%	20%	41%	22%
Scotland	19%	20%	37%	24%
Total	17%	20%	40%	22%
2006/7 to 2008/9				
	No adults have qualifications	Some adults have qualifications	All adults have qualifications	One or more adults have degrees
England ex. London	8%	11%	52%	29%
Scotland	9%	12%	51%	29%
Total	8%	11%	52%	29%

Households where more adults have qualifications and those who have degrees are less likely to live below the poverty line before housing costs, with this association not significant after housing costs. Therefore this section will consider poverty before housing costs only.

As Table 12 shows, the proportion of households where all adults have qualifications below degree level or at least one adult has a degree has increased over time, rising from 62% to 88% of households between 1998-2001 and 2006-2009. As these families are less likely to live below the poverty line than those where no or only some adults have qualifications, this could help explain the declining child poverty rates before housing costs are considered in both England and Scotland.

However, the increasing numbers of qualified households may have lessened the protection that educational qualifications give to families: the models presented in the previous chapter show the strength and significance of the association between qualifications and relative poverty declines over time. This reduction in protection associated with qualifications will have softened the impact that increasing qualification levels may have had on reducing child poverty before housing costs.

In terms of variation between the two countries, in 1998-2001, there was a slightly smaller proportion of households where all adults had non-degree qualifications and a slightly higher proportion of households where no adults had qualifications in Scotland. This difference was not statistically significant by 2006-2009, indicating a reduction in England's relative advantage.

Thus, changing patterns of educational attainment are likely to have supported a faster reduction of child poverty before housing costs in Scotland relative to England due to the faster decline in the size of the most at risk group.

Household employment

This section will examine how changes in employment patterns may have contributed to the reduction in child poverty overall and in Scotland in particular.

Economic Status: unemployment, economic inactivity and self-employment

There proportion of households with one or more unemployed adults has declined in the last 10 years. This is likely to have helped reduce relative child poverty. Economic inactivity has increased slightly which may have hindered the decline.

Unemployment has fallen in Scotland at a faster rate than in England so that the countries look similar by the end of the decade. Given the extremely strong association between unemployment and relative poverty, this may have led to a faster reduction in child poverty in Scotland relative to England, both before and after housing costs.

There has been a slight divergence in the countries' household populations with regard to economic inactivity, although the difference between the two countries in 2006-2009 just fails to reach statistical significance. There is insufficient evidence to conclude that economic inactivity has risen in England relative to Scotland.

Access to self-employment has increased in Scotland, relative to England, at lower levels of the wage distribution and decreased for families with higher earnings from employment. The overall effect is likely to have supported the faster fall of child poverty in Scotland compared to England before and after housing costs.

Table 13: household member unemployment and economic inactivity by country

1998/9 to 2000/1				
N(%)	No household adults unemployed	One or more adults unemployed	No adults economically inactive	One or more adults economically inactive
England ex. London	92%	8%	66%	34%
Scotland	88%	12%	67%	33%
Total	91%	9%	66%	34%
2006/7 to 2008/9				
	No household adults unemployed	One or more adults unemployed	No adults economically inactive	One or more adults economically inactive
England ex. London	93%	7%	65%	35%
Scotland	93%	7%	67%	33%
Total	93%	7%	65%	35%

As shown in Table 13 above, unemployment has fallen over the course of the decade, with an overall reduction of 2 percentage points in the proportion of households with an unemployed adult. Although this change may appear slight, given the strong association between unemployment and the odds of living in relative poverty, both before and after housing costs, this change is likely to have contributed significantly to the reduction in child poverty seen over the course of the last 10 years.

In terms of differences between the two countries, unemployment has fallen to a greater extent in Scotland than in England, where the proportion of households containing one or more unemployed adults has fallen from 12% to 7%. This is likely to have contributed to the faster decline in relative child poverty in Scotland compared to England, both before and after housing costs are deducted from household income.

Scotland and England had similar proportions of households with one or more economically inactive adults at both ends of the decade. Although economic inactivity appears to have increased in England and remained static in Scotland the difference between the populations of Scotland and England in 2006-2009 just fails to reach statistical significance¹⁹. Therefore, it is unlikely that this change will have influenced child poverty trends in Scotland compared to England, although the direction of travel would tend to promote a faster fall in Scotland.

In terms of self-employment, the negative association between self-employment and relative poverty before and after housing costs seen in the models only arises once earnings from employment are held constant.

¹⁹ The value of the Chi Square statistic is 3.8343 ($p=0.0502$). Statistical significance is achieved if the p value is less than 0.05.

Therefore, in order to examine the relationship between self-employment and child poverty trends, the association between self-employment and nation has been presented with and without controlling for earnings (Table 14 below).

Table 14: household member self-employment by country controlling for earnings

		1998/9 to 2000/1		2006/7 to 2008/9	
		No self-employed adults	One or more self-employed adults	No self-employed adults	One or more self-employed adults
Overall	England ex. London	88%	12%	88%	12%
	Scotland	90%	10%	90%	10%
No Earnings and First Quintile	England ex. London	77%	23%	78%	22%
	Scotland	85%	15%	81%	19%
Second Quintile	England ex. London	86%	14%	88%	12%
	Scotland	86%	14%	88%	12%
Third Quintile	England ex. London	94%	6%	92%	8%
	Scotland	90%	10%	92%	8%
Fourth Quintile	England ex. London	97%	3%	96%	4%
	Scotland	98%	2%	97%	3%
Fifth Quintile	England ex. London	99%	1%	98%	2%
	Scotland	97%	3%	99%	1%
Total		89%	11%	88%	12%

Table 14 shows that, overall self-employment has increased slightly in the last 10 years, with 12% of households containing one or more self-employed adults in 2006-2009 compared to 11% in 1998-2001. Furthermore, self-employment has increased in Scotland and fallen in England over the course of the decade. Although the proportions look the same at both ends of the decade, there was a statistically significant difference between the two countries in 1998-2001 but not in 2006-2009, suggesting convergence. Thus, the direction of travel is consistent with a slightly faster fall in child poverty rates in Scotland compared to England.

After controlling for earnings, the differences between Scotland and England's populations of households with regard to self-employment are not significant in 2006-2009 at any wage levels, meaning that there has been convergence over the course of the last 10 years. However, the nature of this convergence between Scotland and England varies at different wage levels.

For those with the lowest earnings and no income from employment, Scotland had significantly lower levels of self-employment 10 years ago, with 23% of households with this level of earnings having access to self-employment income in England compared to 15% in Scotland in 1998-2001. For this group, there has been a rise of self-employment in Scotland and a slight fall in England. This is likely to have contributed to a faster decline in child poverty rates in Scotland compared to England, as more low-wage families in Scotland now have access to an alternative income stream.

However, higher up the earnings distribution, the reverse of this trend is seen. There are statistically significant differences between the populations of Scotland and England for those in the third and fifth quintile groups according to earnings in 1998-2001²⁰, with Scotland having a higher proportion of families having access to income from self-employment in both cases. Thus, convergence in the populations of England and Scotland at these wage levels will have tended to mark a slower fall in child poverty in Scotland.

However, given where the change is occurring, it is likely that the overall effect of change in access to self-employment will have led to a faster fall in child poverty rates in Scotland compared to England as it is the lowest wage groups where the difference is most needed to reduce child poverty and changes here are in Scotland's favour.

Additional Work: multiple and odd jobs

The proportion of families where one or more adults has an odd job has fallen over the course of the decade. However, the negative association between having an odd job and relative poverty, both before and after housing costs, was not significant in 1998-2001 controlling for other influential factors. Therefore, this decline is unlikely to have hindered the reduction in relative child poverty.

Similarly, the reduction in the proportion of households where adults have several jobs is small and unlikely to have hindered the overall drop in child poverty rates.

A reduction in access to odd jobs could have acted to slow the decrease in relative child poverty in Scotland relative to England before and after housing costs, but the small numbers involved mean this effect is likely to have been negligible.

The proportion of families where at least one adult holds several jobs has declined in England and stayed static in Scotland, bringing about convergence between the nations. This may have contributed to the faster fall in child poverty in Scotland, but the effect is likely to have been negligible.

There is a negative association between a household having at least one adult who has an odd job and living below the poverty line either with or without controlling for other factors of interest, with the same being true for households with at least one adult holds several jobs. Therefore the relationship between country and access to

²⁰ The differences between the populations of Scotland and England in terms of self-employment are not significant for the second and fourth quintile groups according to earnings from employment.

additional work can help unpack changes in relative poverty trends, both before and after housing costs. The results are presented in Table 15 below.

Table 15: household member additional work by country

1998/9 to 2000/1				
N(%)	No adults have an odd job	One or more adults has an odd job	No adults have several jobs	One or more adults has several jobs
England ex. London	97%	3%	93%	7%
Scotland	97%	3%	94%	6%
Total	97%	3%	93%	7%
2006/7 to 2008/9				
	No adults have an odd job	One or more adults has an odd job	No adults have several jobs	One or more adults has several jobs
England ex. London	98%	2%	94%	6%
Scotland	99%	1%	94%	6%
Total	98%	2%	94%	6%

Table 15 shows that there has been a decrease in the proportion of households with an odd job. However, the previous chapter showed that the association between a household having an odd job and relative poverty before and after housing costs is only significant in 2006-2009 controlling for other factors. Taken in conjunction with the small numbers involved therefore, the decline in odd jobs is unlikely to have hindered the reduction in relative child poverty seen in England and Scotland.

However, looking at the differences between Scotland and England, the changes to the populations of households with odd jobs in each country could be expected to militate against the faster fall in child poverty rates in Scotland, both before and after housing costs are considered. There is no statistically significant difference between Scotland and England in terms of odd jobs in 1998-2001. However, in 2006-2009, there is a statistically significant difference, with a slightly smaller proportion of households in Scotland having odd jobs than those in England (1 percentage point difference). Therefore, at the point in time where having an odd job is associated with a reduction in the likelihood of living in poverty for families with children, Scotland has a smaller percentage of households with odd jobs.

This would be expected to slow the reduction in child poverty in Scotland relative to England, although the small numbers involved will have softened any impact access to odd jobs might have had on child poverty trends.

The proportion of households where at least one adult has several jobs has declined slightly over the course of the decade. Given the negative association between a household member having several jobs and relative poverty before and after housing costs, it might be expected that this would work to increase relative child poverty. That

there has not been an increase may indicate that, because of the very small numbers involved, this has had little impact.

In 2006-2009, there was no statistically significant difference in the proportion of households which contained at least one adult holding several jobs in England and Scotland. However, in 1998-2001, England had a slightly higher proportion of households where an adult held several jobs: 7% of households compared to 6% in Scotland, with this difference being statistically significant. Therefore, because of the decrease in the proportion of multiple-job households in England over the course of the decade, there has been a convergence in the multiple-job household populations of England and Scotland, removing a relative advantage for reducing relative poverty in England.

Thus, the change in adults taking several jobs may have contributed to the slightly faster fall in child poverty in Scotland compared to England, both before and after housing costs are considered. However, as the numbers are extremely small, any effect this may have had is likely to be at the margins.

Income from employment: earnings per hour and work intensity

The ways in which wage patterns in both Scotland and England relate to Great Britain in 1998-2001 and the UK as a whole in 2006-2009 has not changed over time, with similar proportions of families being placed in each quintile group.

The values of the 20th percentiles of earnings per hour have increased over the course of the decade, reflecting rises in wages. The Scottish living wage is not sufficient for a single-worker family to be placed in the second quintile group, though a family with two workers both earning the Scottish living wage would be placed in the fourth quintile group.

There is no statistically significant difference between Scotland and England in terms of earnings per hour in 1998-2001 or 2006-2009. Therefore earnings per hour are unlikely to have contributed to the faster fall in child poverty in Scotland either before or after housing costs.

The hours worked per week by all households, with and without children, have declined slightly over the course of the decade. The work intensity of families with children has increased slightly relative to the population as a whole, which will have supported the reduction in child poverty rates in England and Scotland.

In Scotland there is a slightly greater proportion of families in the lowest and highest groups according to work intensity, whilst in England there is a higher proportion of families in the middle groups. This is likely to mean work intensity does not result in an overall difference in child poverty rates in Scotland compared to England.

Although there are differences between Scotland and England in terms of family work intensity, these differences have remained fairly similar over time, and so are unlikely to have contributed to a faster reduction of child poverty in Scotland either before or after housing costs are taken into account.

Both household earnings per hour and the number of hours worked per week are negatively associated with the risk of child poverty both before and after housing costs. This association is present when other influential factors are held constant, as the previous chapter shows, but is also seen when no control variables are included. Therefore the direct relationship between earnings per hour, work intensity and nation can illuminate the differences in child poverty trends in Scotland and England.

Table 16: household earnings per hour by country

Household Earnings Per Hour – Quintile Groups						
1998/9 to 2000/1						
N(%)	None Reported	1 st quintile (<=£4.39)	2 nd quintile (<=£6.06)	3 rd quintile (<=£7.83)	4 th quintile (<=£10.57)	5 th quintile (>£10.57)
England ex. London	20%	17%	15%	15%	16%	16%
Scotland	22%	16%	15%	14%	16%	17%
Total	21%	17%	15%	15%	16%	16%
2006/7 to 2008/9						
	None Reported	1 st quintile (<=6.08)	2 nd quintile (<=£8.23)	3 rd quintile (<=10.70)	4 th quintile (<=£14.87)	5 th quintile (>£14.87)
England ex. London	19%	18%	15%	15%	16%	17%
Scotland	19%	17%	15%	15%	16%	18%
Total	19%	18%	15%	15%	16%	17%

The way earnings per hour has been divided for the purposes of analysis means that the proportions in each group with income from employment would be expected to stay static over time, unless wage patterns in either England or Scotland have deviated from those of the UK as a whole. Therefore, as Table 16 shows, the way in which both England and Scotland differ from the rest of the UK has not changed.

The size of each of the quintile groups differs. This is because the values for dividing the sample into quintiles according to earnings per hour were derived from the sample as a whole, including households without children. Table 16 suggests that families with children are slightly over-represented at the extremes of the distribution, with a higher proportion of families being found in the lowest and highest wage groups.

Those reporting no earnings were not including in the calculation of the 20th percentile values, and therefore the proportion of families in this group could be expected to differ over the course of the decade. In line with the findings presented earlier relating to unemployment, Table 16 suggests that there has been a decrease in the percentage of families reporting no earnings from employment.

The values of the boundaries of the quintile groups have increased over the course of the last 10 years, reflecting rises in wages. This means that families now need to earn more than they did a decade ago in order to stay in the same quintile group. The

hourly rate of the living wage in Scotland at £7 per hour lies between the first and second quintile group cut-off points meaning that a family with a single worker earning the living wage would be placed in the lowest quintile group. A family with two workers earning the living wage could expect to be placed in the fourth quintile group.

Although there are some small differences in the percentages of families in each quintile group between Scotland and England, these differences are not statistically significant either in 1998-2001 or 2006-2009. This suggests that household earnings per hour are similar in Scotland and England (excluding London) and that this has not changed over time. Therefore, earnings per hour are unlikely to have contributed to a difference in child poverty trends in Scotland and England.

In terms of work intensity, the difference in the proportion of households within each quintile group, which should be equally sized, shown in Table 17 suggests that more families with children are working 'medium' hours than the population as a whole. Families with children in both Scotland and England are over-represented in the third quintile group at both the start and end of the decade, and under-represented at the extremes of the distribution. In particular, families with children are under-represented in the lowest two quintile groups according to work intensity. This may suggest that having children prompts families to increase their work intensity to a degree, but that they are not willing or able to work for as many hours as those without children.

Table 17: household work intensity by country

Household Hours Worked Per Week – Quintile Groups						
1998/9 to 2000/1						
N(%)	None Reported	1 st quintile (<=39)	2 nd quintile (<=50)	3 rd quintile (<=70)	4 th quintile (<=88)	5 th quintile (>88)
England ex. London	16%	14%	14%	22%	19%	16%
Scotland	19%	14%	11%	21%	18%	18%
Total	16%	14%	13%	22%	19%	16%
2006/7 to 2008/9						
	None Reported	1 st quintile (<=37)	2 nd quintile (<=47)	3 rd quintile (<=67)	4 th quintile (<=82)	5 th quintile (>82)
England ex. London	14%	14%	13%	23%	19%	17%
Scotland	16%	14%	11%	22%	21%	17%
Total	14%	14%	13%	23%	19%	17%

The population as a whole now works fewer hours per week, as shown by the lower boundaries of the quintile groups in 2006-2009 compared to 1998-2001. Reflecting the increase in employment, a smaller proportion of families now work no hours per week compared to a decade earlier, with the proportion of families in the middle and highest quintile groups increasing. Given the strong and negative association between work intensity and relative poverty both before and after housing costs, this trend will have supported the reduction in child poverty rates in both England and Scotland.

As Table 17 suggests, families in Scotland and England do vary slightly in terms of their work intensity, with these differences being statistically significant in both 1998-2001 and 2006-2009. However, the association is weak in both years, and is weaker in 2006-2009 indicating that the differences between Scotland and England are small and declining²¹. This may also reflect that a larger proportion of families in Scotland work no hours, and a larger proportion are found in the highest groups according to work intensity, whilst families in England are slightly more concentrated in the middle groups according to work intensity. Thus, the differences in work intensity between Scotland and England are unlikely to have a systematic impact on child poverty rates.

In terms of change over time, although there is variation in the work intensity of families in Scotland and England, these differences have remained stable. For example, in 1998-2001, 36% of families in Scotland were found in the fourth and fifth quintile groups of work intensity compared to 34% of families in England, with the comparative figures for 2006-2009 being 38% and 36% respectively. Thus, trends in work intensity have been similar in both Scotland and England and are unlikely to have contributed to the faster reduction of child poverty in Scotland.

Head of Household: Occupational Class and Industry of Employment

The definition of head of household changed between the two periods of interest to make it less biased towards males. Therefore, change over time is difficult to identify. For example, the rise in the proportion of families headed by an adult working in public administration is likely to partly result from the change in definition.

In 1998-2001, Scotland had a slightly smaller proportion of families headed by adults working in skilled trades than England but by 2006-2009 this difference was no longer statistically significant. This group has a higher risk of living in relative poverty before housing costs than the managerial group. Therefore, this population convergence is not consistent with a faster fall in relative child poverty in Scotland compared to England though the small numbers involved may have softened the effect. Other differences in occupational class are unlikely to explain differential child poverty trends in Scotland and England.

The proportion of families headed by an agricultural worker stayed static in Scotland and fell in England suggesting a divergence in populations. This would be expected to slow the rate of decrease in relative child poverty in Scotland compared to England before and after housing costs though the number of families involved is small.

The increasing proportion of families with heads of household working in the construction industry in Scotland relative to England may have contributed to the slightly faster reduction in relative child poverty in Scotland before housing costs, but is unlikely to have affected poverty trends after housing costs are considered.

There are no statistically significant differences between Scotland and England in the proportion of families whose head of household works in catering. Scotland has a higher proportion of families whose head of household works in public administration than England, but the difference has been static over time. Therefore these are unlikely to have contributed to the differential trends in child poverty in Scotland and England.

²¹ The Cramer's V values are 0.0414 in 1998-2001 and 0.0325 in 2006-2009.

Table 18: Occupational Class of Head of Household

1998/9 to 2000/1										
N(%)	Manager	Professional	Assoc. Prof	Admin	Skilled	Service	Sales	Process	Elementary	Unknown
England ex. London	18%	9%	8%	6%	14%	7%	5%	10%	5%	17%
Scotland	16%	10%	8%	6%	12%	8%	5%	10%	6%	19%
Total	18%	9%	8%	6%	14%	7%	5%	10%	5%	17%
2006/7 to 2008/9										
England ex. London	17%	12%	12%	6%	12%	5%	4%	8%	8%	15%
Scotland	17%	11%	13%	6%	12%	6%	5%	8%	8%	16%
Total	17%	12%	13%	6%	12%	5%	4%	8%	8%	15%

Table 19: Industry of Employment of Head of Household

1998/9 to 2000/1										
N(%)	Agriculture	Energy	Manuf.	Const.	Catering	Transport	Finance	Public Admin.	Other Service	Missing
England ex. London	1%	2%	20%	8%	13%	7%	12%	17%	3%	18%
Scotland	2%	3%	17%	7%	14%	6%	9%	19%	3%	20%
Total	1%	2%	20%	8%	13%	7%	12%	17%	3%	18%
2006/7 to 2008/9										
England ex. London	1%	1%	14%	9%	13%	7%	14%	22%	3%	16%
Scotland	2%	4%	11%	10%	12%	6%	12%	24%	3%	17%
Total	1%	2%	14%	9%	13%	7%	14%	22%	3%	16%

As previously discussed, the definition of head of household changed after 1998-2001 to enable women to be classified as the head of household if they are living as a couple and are the highest earner. This makes the trends over time in terms of occupational class and industry of employment difficult to discern.

For example, Table 19 (above) suggests that the proportion of families headed by an adult working in public administration has increased from 17% to 22% in England and Scotland. However, although this will partially be related to the expansion of the public sector it is also an artefact of the change in definition of head of household, as female-headed households form an important component of this group: in 2006-2009 15% of male heads of household in England, excluding London and Scotland worked in public administration compared to 33% of female heads of household.

As discussed in the previous chapter, the associations between occupational class, industry of employment and relative poverty are not always in the expected direction once other variables associated with poverty have been controlled for. This is due to the strong association between wage and employment-related variables. Therefore the significant associations between occupational class and industry and relative poverty relate to aspects of employment or family characteristics apart from earnings, such as access to assets (if this leads to a higher income from investments) or behaviour in relation to the amount of housing costs accrued²².

In considering the potential impact the differences between England and Scotland's populations in terms of occupational class may have had on child poverty trends it is necessary to examine relative poverty before and after housing costs separately.

Before housing costs, the occupational groups which have higher probabilities of living below the poverty line than the managerial group are households headed by adults working in skilled trades and elementary occupations. As Table 18 (above) suggests there has been convergence between England and Scotland's populations in relation to both these occupational groups. In 1998-2001, 14% of households in England were headed by an adult working in a skilled trade compared to 12% of households in Scotland, with this difference being statistically significant²³, but by 2006-2009 the proportions of households led by skilled workers was the same. In 1998-2001, England had a slightly lower proportion of families headed by adults working in elementary occupations than Scotland with the gap closing by 2006-2009, although neither of these differences were statistically significant.

The convergence between England and Scotland's population of households headed by adults working in elementary occupations is consistent with a faster fall in child relative poverty before housing costs in Scotland than in England but given the differences are not statistically significant, this is unlikely to have been instrumental in supporting the faster reduction of child poverty in Scotland. The relative advantage Scotland held over England in reducing child poverty as a result of the lower proportion of families working in skilled trades has declined over time, which might have been expected to slow the decrease in child poverty before housing costs in

²² In comparison to families headed by a managerial worker or adult working in finance (reference).

²³ Tests for statistical significance were found for each occupational group separately. Full details are given in Appendix C.

Scotland relative to England. That this has not occurred may reflect the small number of households represented by the change.

After housing costs, the groups which have a lower or higher risk of living in relative poverty than the managerial group are those working in professional, administrative, service and elementary occupations. England and Scotland have had similar proportions of families headed by adults working in elementary, service and administrative capacities both in 1998-2001 and 2006-2009²⁴. The similarity between the two countries in these respects would suggest that occupational class has not contributed to the faster fall of relative child poverty after housing costs in Scotland.

In relation to the group of families headed by a professional worker, there was no statistically significant difference between Scotland and England's populations in 1998-2001 but by 2006-2009 there had been a degree of divergence with Scotland having a lower proportion of families headed by a professional worker than England. As families headed by a professional worker have a lower risk of poverty after housing costs than those headed by a managerial worker, it might be expected that this would tend to slow the rate of decrease in child poverty in Scotland relative to England. However, this association is only significant in the model for 1998-2001, when there is no difference between England and Scotland's populations according to descriptive statistics. Therefore, the divergence in the proportion of families headed by a professional worker is unlikely to have contributed to the faster fall of relative child poverty after housing costs in Scotland.

With regard to industry of employment, families headed by an adult working in agriculture, construction and public administration all have different risks of poverty than those working in finance both before and after housing costs. Families headed by an adult working in catering have higher odds of living in poverty than financial workers before housing costs. Families whose industry of employment is not recorded have a lower risk of poverty than financial workers after housing costs. Therefore, differences in the populations of England and Scotland in relation to these industries seen in Table 19 (above) will be examined.

Scotland has a higher proportion of families headed by an agricultural worker (2%) than England, (1%) both in 1998-2001 and 2006-2009, reflecting the importance of the fishing and farming industries in Scotland. However, although this difference appears to have remained static over time, the variation is not significant in 1998-2001 but is statistically significant later in the decade, suggesting that there has been a small degree of divergence. As families headed by an agricultural worker have a higher risk of living in relative poverty both before and after housing costs, this divergence may have worked to slow the rate of decrease in child poverty in Scotland relative to England. That this has not occurred may relate to the small number of households headed by an agricultural worker.

There has also been a divergence between England and Scotland in the proportion of families headed by construction workers. In 1998-2001 there was no statistically significant difference between the two countries, but in 2006-2009 10% of families in

²⁴ Differences between the proportion of families headed by administrative, service and elementary workers in England and Scotland were not significant in either year.

Scotland were headed by a construction worker compared to 9% in England, with this difference being statistically significant. It is unlikely that this divergence will have had an impact on relative poverty trends after housing costs are deducted from income, as the association between having a head of household working in the construction industry as opposed to finance and relative poverty after housing costs is not significant in 2006-2009. However, as families with a head of household working in the construction industry have lower odds of living in relative poverty before housing costs in 2006-2009, this divergence may have contributed to the slightly faster reduction of child poverty before housing costs in Scotland.

Conversely, there has been a convergence in the proportions of families who do not have an industry classification in England and Scotland. In 1998-2001, 18% of households in England were headed by an adult whose industry of employment was not recorded compared to 20% in Scotland, with this difference becoming non-significant by the end of the decade. Given the nature of the associations between having an unrecorded industry and relative poverty shown in the previous chapter, this convergence may have worked to slow the decrease in relative child poverty after housing costs in Scotland relative to England. However, the mechanisms behind are unclear so this finding should be interpreted with caution.

In terms of the proportions of families whose head of household works in catering, there are no statistically differences between England and Scotland either at the beginning or end of the decade. Scotland does have a significantly higher proportion of families whose head of household works in public administration, but the size of this difference has remained static over time. Therefore, this is unlikely to have contributed to the differential trends in child poverty between England and Scotland.

Household Benefit Receipt

The final section will examine the ways in which differences in benefit receipt by families in England and Scotland may have contributed to child poverty trends.

Work-related Benefits: tax credits and income support

The proportion of families who receive tax credits has increased considerably following reforms to this benefit. As tax credit receipt is negatively associated with relative poverty before and after housing costs, this is likely to have contributed significantly to the reduction in child poverty overall. Tax credit receipt does not differ between Scotland and England, and therefore is unlikely to have contributed to the differential trends in child poverty between the two countries.

Income support receipt has declined over the course of the decade, and has fallen faster in Scotland than in England. This is unlikely however to have led to a drop in relative poverty (after housing costs), but rather reflect the nature of benefit eligibility.

A larger proportion of families with economically inactive and unemployed adults received income support in Scotland compared to England in 1998-2001, but there was no difference in 2006-2009. The reasons for this decline in difference are not clear, so the implications of child poverty trends are not conclusive.

Table 20: Income Support and Tax Credits by Country

1998/9 to 2000/1				
N(%)	Household does not receive tax credits	Household receives tax credits	Household does not income support	Household receives income support
England ex. London	88%	12%	85%	15%
Scotland	88%	12%	83%	17%
Total	88%	12%	85%	15%
2006/7 to 2008/9				
	Household does not receive tax credits	Household receives tax credits	Household does not income support	Household receives income support
England ex. London	40%	60%	86%	14%
Scotland	39%	61%	86%	14%
Total	40%	60%	86%	14%

As Table 20 suggests, tax credit receipt has become much more wide-spread following reforms to this benefit. In 1998-2001, 12% of families received either the Family Credit or the re-branded and more generous Working Families Tax Credit whereas in 2006-2009 the majority of families (60%) received Working Tax Credits, Child Tax Credits or both. This is true in both England (excluding London) and Scotland, suggesting that the reforms have affected both countries equally.

That similar proportions of families in both countries receive tax credits, a conclusion supported by tests for statistical significance, suggests that this Westminster-administered benefit has not contributed to the faster reduction of child poverty in Scotland compared to England, either before or after housing costs.

However, the increased distribution of tax credits is likely to be associated with the fall in child poverty rates overall. Both before and after housing costs are considered, tax credit receipt is negatively associated with child poverty, suggesting that those families who have access to this additional income are less likely to live in relative poverty than those who do not, controlling for other factors. Although the change in the strength of this association over time just fails to reach statistical significance, the fact that five times as many households with children have access to tax credit income in 2006-2009 than in 1998-2001 is likely to have contributed to the reduction in child poverty overall. This suggests that tax credits have been an effective tool for reducing child poverty, in line with Waldfogel's (2010) findings.

Although the models presented in the previous chapter suggest that families receiving income support were more likely to live in relative poverty after housing costs than those who did not in 1998-2001 (the association is not significant in 2006-2009) this does not necessarily indicate that it is income support which brings about increased odds of poverty. Rather, given the association between earnings from employment and relative poverty, it is more likely that those living in poverty are more likely to receive an out-of-work benefit.

The results in Table 20 suggest that receipt of income support (Income Support, Pension Credit and from 2006-2009 Income-based Jobseekers Allowance) has decreased slightly over time, falling from 15% to 14% of families, with this decrease likely to be associated with the fall in unemployment²⁵. However, there is a statistically significant difference between out-of-work benefit receipt in Scotland and England in 1998-2001, with a greater proportion of families receiving income support in Scotland. This difference is not significant in 2006-2009.

Given the association between unemployment and receiving income support, in order to identify whether these benefits are being administered differently in Scotland and England, rather than this convergence being due to the faster decrease in unemployment in Scotland, it is necessary to see if this association remains significant after controlling for work status.

Table 21: income support receipt by country controlling for work status

	N(%)	1998/9 to 2000/1		2006/7 to 2008/9	
		Household does not receive income support	Household receives income support	Household does not receive income support	Household receives income support
No unemployed adults	England ex. London	87%	13%	89%	11%
	Scotland	85%	15%	88%	12%
One or more unemployed adults	England ex. London	67%	33%	55%	45%
	Scotland	67%	33%	57%	43%
No economically inactive adults	England ex. London	95%	5%	97%	3%
	Scotland	95%	5%	97%	3%
One or more economically inactive adults	England ex. London	65%	35%	67%	33%
	Scotland	58%	42%	64%	36%
Total		85%	15%	86%	14%

Italicized figures show a statistically significant association ($p < 0.05$) using the Chi Squared statistic

The results in Table 21 suggest that the convergence in the proportion of families receiving income support in England and Scotland over the course of the decade is only partly due to the decrease in unemployment. Although income support receipt is associated with both unemployment and economic activity, similar families according to work status have been more likely to receive income support in Scotland. In 1998-2001, 42% of families with one or more economically inactive adult received income support compared to 35% of economically inactive families in England; similarly 13%

²⁵ Households containing one or more adults who are economically inactive are also more likely to receive income support, but economic inactivity has risen slightly over the course of the decade.

of families where at least one adult was unemployed received income support in England compared to 15% in Scotland. This suggests that, although the criteria for benefit receipt are the same, benefits have been administered differently in the two countries. Furthermore, this difference has reduced over time, with similar proportions of economically inactive and unemployed families receiving income support in Scotland and England by 2006-2009.

The implications of this for child poverty trends are not conclusive. First, it is difficult to identify why variation existed between England and Scotland. It may be that the families differed systematically in some respect which is not being captured by the control variables and which meant more families were eligible for income support in Scotland. Alternatively, it could suggest that the way families were assessed for eligibility has varied in the different nations.

However, the convergence between the two nations, with there being no statistically significant difference in income support receipt for similar families in England and Scotland suggests that devolution has not contributed to a differential administration of benefits in Scotland.

Housing-related Benefits: housing benefit and council tax rebate

Over the course of the decade, the proportion of families receiving housing benefit and council tax rebate has declined in England and Scotland. Although there are negative associations between receiving higher levels of these benefits (compared to medium and lower levels) and the odds of living in relative poverty, this is unlikely to have *caused* a decrease in child poverty but rather reflect the nature of the benefits.

Historically, a greater proportion of families in Scotland have received council tax benefit and housing benefit than families in England. As with income support, the reasons for this difference cannot be determined from this analysis, meaning that the implications for child poverty trends are unclear.

A greater proportion of families in England receive the highest amounts of housing benefit and council tax rebate, whilst families in Scotland are more likely to receive medium amounts of these benefits. This is likely to be related to differences in house prices and council tax levels in the different nations, reflecting the needs-based nature of these payments.

The differences in housing-related benefit receipt in England and Scotland have not changed over the course of the decade. They are therefore unlikely to have contributed to the faster fall in child poverty in Scotland relative to England. This is particularly the case for poverty before housing costs due to the relationship between housing costs and housing-related benefits.

In common with income support, housing benefit and council tax rebate eligibility criteria are determined by the Westminster government. However, they are needs-based and related to housing costs, and so are intended to vary for similar families who face different house prices and council tax rates.

Table 22: housing benefit by country

Amount of Housing Benefit Received – Quintile Groups						
1998/9 to 2000/1						
	None Reported	1 st quintile (<=£29.54)	2 nd quintile (<=£38.00)	3 rd quintile (<=£45.74)	4 th quintile (<=£57.38)	5 th quintile (>£57.38)
England ex. London	82%	2%	3%	4%	4%	5%
Scotland	77%	6%	8%	5%	3%	2%
Total	82%	3%	3%	4%	4%	5%
2006/7 to 2008/9						
	None Reported	1 st quintile (<=£44.60)	2 nd quintile (<=£54.29)	3 rd quintile (<=£64.00)	4 th quintile (<=£79.00)	5 th quintile (>£79.00)
England ex. London	85%	2%	2%	3%	4%	4%
Scotland	84%	4%	5%	3%	2%	2%
Total	85%	2%	2%	3%	4%	4%

Table 23: council tax rebate by country

Amount of Housing Benefit Received – Quintile Groups						
1998/9 to 2000/1						
	None Reported	1 st quintile (<=£5.63)	2 nd quintile (<=£7.47)	3 rd quintile (<=£8.76)	4 th quintile (<=£10.47)	5 th quintile (>£10.47)
England ex. London	79%	3%	3%	4%	5%	5%
Scotland	75%	7%	7%	5%	3%	3%
Total	79%	3%	4%	4%	5%	5%
2006/7 to 2008/9						
	None Reported	1 st quintile (<=£9.05)	2 nd quintile (<=£11.82)	3 rd quintile (<=£13.67)	4 th quintile (<=£16.78)	5 th quintile (>£16.78)
England ex. London	83%	3%	2%	4%	4%	4%
Scotland	83%	5%	5%	3%	3%	1%
Total	83%	3%	3%	4%	4%	4%

As Table 22 above suggests, there are differences between England and Scotland in terms of families' receipt of housing benefit, with these differences being significant in 1998-2001 and in 2006-2009. That a greater proportion of housing benefit recipients in England receive amounts which place them in the highest two quintiles whilst families in Scotland are over-represented in the lowest two quintiles suggests

that house prices are higher in England than Scotland and have remained so over the course of the decade (ONS 2003). This is also true of council tax rebate receipt, as shown in Table 23.

When comparing the proportion of families not receiving housing benefit and council tax rebate in Scotland and England, Tables 22 and 23 suggest that there has been convergence over the course of the decade. In 1998-2001, a greater proportion of families in Scotland received some housing benefit than in England, but in 2006-2009 similar proportions of families in each nation received income from this source. The same pattern can be seen for council tax rebate receipt.

The reason for this faster decline in housing benefit and council tax rebate receipt in Scotland compared to England may be due to the faster economic amelioration in Scotland, seen in the faster decline in unemployment for example, meaning that the number of families eligible for these benefits declined at a faster rate. Alternatively, it could indicate that in 1998-2001, the same benefit was administered 'on the ground' differently in England and Scotland, but this difference has declined over time. The implications the faster drop in housing-related benefit receipt has for child poverty are therefore unclear.

That receipt of higher levels of housing benefit and council tax rebate are negatively associated with relative poverty does not imply that this decline in receipt has worked to increase child poverty: rather, it reflects that fewer families need this benefit as a result to changes in economic circumstances such as the fall in unemployment.

Although there are differences between Scotland and England in terms of the amounts of housing benefit received, the pattern of receipt has not changed over time. A higher proportion of families in England receive the highest amounts of housing benefit and council tax rebate and a higher proportion of families in Scotland receive medium amounts of these benefits both in 1998-2001 and 2006-2009. Therefore, housing-related benefits are unlikely to have contributed to the faster decline in child poverty in Scotland relative to England.

Conclusion

The overall decline in relative child poverty in Scotland and England can be attributed to the economic amelioration seen in the UK until the recent recession. The increased access to work - in conventional employment and self-employment - and the decline in unemployment are likely to have played significant roles in reducing child poverty.

Social change has to some degree contributed to this overall trend, with an increasing number of families caring for one child as opposed to multiple children meaning household resources do not have to be divided to the same degree. However, social change has also countered this overall trend. The proportion of families from ethnic minority backgrounds and increase in single parent families, who because of their lower access to income from employment are at greater risk of living in poverty before and after housing costs, has increased over the course of the decade, which may have prevented child poverty rates from falling further than they otherwise might have done.

Government policy has also contributed to the decline in child poverty. This is particularly the case in relation to the reform of tax credits, which has seen a significantly larger proportion of families having access to additional income. Scottish Government policies are also likely to have played a role in the reduction of child poverty, with the focus on increasing educational opportunities, raising standards in schools and increasing the higher education participation rate by both the Scottish and Westminster governments likely to have contributed to the reduction in child poverty before housing costs. The increased exposure to housing costs of those with higher levels of educational attainment means this advantaged is removed once housing costs are considered.

The factors which are likely to have contributed to the differential rates of decline in relative child poverty rates in Scotland compared to England are summarised below.

Table 24: Likely impact of differences in population trends on relative child poverty

Slow decrease in Scotland	Not affect the difference in trend	Quicken decrease in Scotland	Unclear Effect
Access to odd jobs (slight effect)	Several children	Ethnicity	Head of household's industry of employment is not recorded
Working in the agricultural sector and skilled trades (slight effect)	Disability and adults of pension age	Single parents and female head of household (complex)	Receipt of Income Support
	Tenure (BHC only)	Age (negligible)	
	Economic inactivity	Tenure (AHC only)	
	Earnings per hour and work intensity	Qualifications (slight effect)	
	Occupational class (except skilled workers)	Self employment and multiple jobs	
	Working in public administration or catering	Unemployment	
	Tax credit and housing-related benefit receipt	Working in construction	

As Table 24 suggests, very few factors have worked to slow the rate of decrease in child poverty in Scotland relative to England. Furthermore, the impact of the declining proportion of families with access to income from odd jobs, and the increasing relative importance of the agricultural sector and skilled trades in Scotland is likely have been slight because of the small numbers involved.

A number of factors have had the same impact on child poverty trends in Scotland and England, including important factors like wage and work intensity. Although these will not have supported the faster fall of child poverty in Scotland than in England, they will not have hindered the process.

The roles that having a non-recorded industry of employment and receipt of income support may have played is unclear, but they are unlikely to have made a significant difference to differential child poverty trends in Scotland and England. The way in which the proportion of single-parent and female-headed households may have affected child poverty trends is complex, but they are unlikely to have hindered the faster reduction of child poverty in Scotland, and may have helped slightly.

Therefore, those factors which could have contributed to the faster fall in child poverty have not been hindered in their effects. Of these, the ones which are likely to have had the biggest impact are the faster fall in unemployment, the increased access to income from self-employment and the slower rate of increase in the proportion of families from ethnic minority backgrounds who face a higher risk of poverty. These factors are shown to have a strong association with relative poverty for families with children both before and after housing costs. Therefore although in some cases the differences may be slight, they represent a large number of families and influence these families' exposure to poverty risk significantly.

The faster decline in those households where no adults have qualifications in Scotland compared to England may also have resulted in a faster decline in relative poverty before housing costs in Scotland, although this effect is likely to have been slight. Due to the association between educational levels and housing costs, this advantage is unlikely to have affected child poverty after housing costs are considered.

In addition, changes to tenure-related behaviour in Scotland compared to England may have contributed to the slightly faster fall of relative child poverty after housing costs, as a greater proportion of families acquired mortgages and the proportion of renters decreased. This change is unlikely to have affected poverty before housing costs as tenure choice to some degree reflects access to income.

Thus, overall increased access to employment and natural population differences have contributed to the faster decline of child poverty in Scotland compared to England both before and after housing costs are considered. These effects are likely to have been the most significant.

However, the slight effect educational attainment may have had on relative poverty before housing costs and tenure after housing costs suggests that there are other factors which influence child poverty which are within the realms of social policy.

Conclusions and Policy Recommendations

Research Questions:

- Which factors had the biggest effect on poverty reduction between 1998-99 and 2008-09?
- Why did poverty reduce more in Scotland than England over this period?
- Can this reduction be attributed to any successful UK or Scottish Government policies?

Relative Child Poverty Reduction

Between 1998-99 and 2008-09, relative child poverty declined across the UK. Although the trend has not always been consistent. As Tables 1 and 2 show below, the overall effect has been to reduce the number of children and the number of households with children living in relative poverty.

Despite this fall, the 'risk' of living in child poverty before and after housing costs, associated with particular factors has shown a high degree of stability over time. Thus it could be argued that much of the reduction in child poverty can be explained with reference to population change rather than an alteration in risk. However, there are three principal areas where the risk of relative poverty associated with these factors has changed significantly over time.

The Risk of Relative Child Poverty

First, the increased risk of living in relative poverty associated with having several dependent children in the household rather than just one child has declined over the last 10 years. Therefore, families who have two or more children are less likely to live below the poverty line than they were a decade ago, holding all other factors constant.

The increased risk of poverty faced by larger families (usually defined as three to four children or more) has been identified in government documents, with a recognition that the structure of UK benefits means families with two or more children receive smaller amounts for the second and each additional child (Bradshaw et al 2006). However, the way the Child Tax Credit has been up-rated has to some extent mitigated this effect as the child element has increased with earnings whilst the family element has not been increased (ibid: 9). Thus, although the UK benefit system has remained skewed towards single-child families, which may contribute to the increased risk of poverty for larger families, the amounts of tax credit payments for children may have facilitated a reduction in risk of over time, both before and after housing costs are deducted from income.

Second, the reduced risk of poverty for those families receiving tax credits has increased over the course of the decade, with this difference only just failing to reach statistical significance. Thus, families in receipt of tax credits have had a lower risk of poverty than similar families who do not receive these payments since 1998-2001, but the protection from poverty associated with tax credit receipt has increased.

Table 1: The number of children living in relative poverty 1998-99 to 2008-09

Before Housing Costs											
N (%)	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
England	2,810,000 (26%)	2,770,000 (25%)	2,480,000 (23%)	2,460,000 (23%)	2,400,000 (22%)	2,350,000 (22%)	2,270,000 (21%)	2,350,000 (22%)	2,380,000 (22%)	2,410,000 (22%)	2,350,000 (22%)
Greater London	420,000 (26%)	430,000 (27%)	420,000 (27%)	380,000 (24%)	410,000 (26%)	430,000 (27%)	430,000 (27%)	380,000 (24%)	380,000 (24%)	330,000 (21%)	370,000 (23%)
England ex. London	2,390,000 (26%)	2,340,000 (25%)	2,050,000 (22%)	2,080,000 (22%)	1,980,000 (21%)	1,920,000 (22%)	1,840,000 (20%)	1,970,000 (22%)	2,000,000 (22%)	2,080,000 (23%)	1,980,000 (22%)
Scotland	300,000 (28%)	300,000 (28%)	280,000 (27%)	280,000 (27%)	260,000 (24%)	250,000 (24%)	210,000 (21%)	210,000 (21%)	210,000 (21%)	200,000 (20%)	210,000 (21%)
GB/UK	3,300,000 (26%)	3,260,000 (26%)	2,950,000 (23%)	2,920,000 (23%)	2,940,000 (23%)	2,870,000 (22%)	2,740,000 (21%)	2,810,000 (22%)	2,870,000 (22%)	2,890,000 (23%)	2,800,000 (22%)
After Housing Costs											
	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
England	3,740,000 (34%)	3,590,000 (33%)	3,380,000 (31%)	3,350,000 (31%)	3,250,000 (30%)	3,140,000 (29%)	3,110,000 (29%)	3,270,000 (31%)	3,370,000 (31%)	3,410,000 (32%)	3,330,000 (30%)
Greater London	640,000 (40%)	660,000 (41%)	650,000 (41%)	590,000 (37%)	600,000 (38%)	640,000 (40%)	660,000 (41%)	640,000 (40%)	640,000 (40%)	600,000 (37%)	650,000 (40%)
England ex. London	3,100,000 (33%)	2,920,000 (31%)	2,720,000 (29%)	2,760,000 (30%)	2,640,000 (28%)	2,500,000 (27%)	2,450,000 (27%)	2,630,000 (29%)	2,730,000 (30%)	2,810,000 (31%)	2,680,000 (29%)
Scotland	330,000 (31%)	350,000 (32%)	340,000 (32%)	330,000 (31%)	280,000 (27%)	280,000 (27%)	250,000 (25%)	250,000 (24%)	250,000 (25%)	240,000 (24%)	260,000 (26%)
GB/UK	4,300,000 (34%)	4,160,000 (33%)	3,950,000 (31%)	3,880,000 (31%)	3,870,000 (28%)	3,720,000 (29%)	3,650,000 (28%)	3,820,000 (30%)	3,910,000 (31%)	3,990,000 (31%)	3,870,000 (30%)

Figures for Great Britain are given from 1998-99 to 2001-02 and for the UK from 2002-03 onwards.

Table 2: The number of households with dependent children in relative poverty 1998-99 to 2008-09

Before Housing Costs											
N (%)	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
England	1,510,000 (21%)	1,530,000 (22%)	1,430,000 (20%)	1,230,000 (20%)	1,420,000 (20%)	1,380,000 (19%)	1,380,000 (19%)	1,540,000 (21%)	1,480,000 (20%)	1,510,000 (20%)	1,530,000 (20%)
Greater London	230,000 (21%)	260,000 (23%)	260,000 (24%)	240,000 (22%)	280,000 (25%)	260,000 (24%)	270,000 (24%)	250,000 (21%)	260,000 (22%)	230,000 (20%)	250,000 (22%)
England ex. London	1,290,000 (21%)	1,270,000 (21%)	1,170,000 (19%)	1,180,000 (20%)	1,160,000 (19%)	1,110,000 (18%)	1,120,000 (18%)	1,280,000 (21%)	1,210,000 (20%)	1,270,000 (20%)	1,280,000 (20%)
Scotland	160,000 (22%)	170,000 (23%)	160,000 (22%)	170,000 (23%)	170,000 (24%)	150,000 (21%)	140,000 (19%)	140,000 (20%)	140,000 (19%)	140,000 (19%)	140,000 (20%)
GB/UK	1,770,000 (21%)	1,810,000 (23%)	1,690,000 (20%)	1,690,000 (21%)	1,790,000 (21%)	1,710,000 (20%)	1,680,000 (19%)	1,850,000 (21%)	1,760,000 (20%)	1,820,000 (20%)	1,830,000 (20%)
After Housing Costs											
		1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
England	2,100,000 (30%)	2,030,000 (29%)	2,000,000 (28%)	1,960,000 (28%)	1,960,000 (28%)	1,870,000 (26%)	1,930,000 (26%)	2,180,000 (29%)	2,120,000 (28%)	2,140,000 (28%)	2,190,000 (29%)
Greater London	360,000 (33%)	410,000 (37%)	420,000 (38%)	390,000 (35%)	410,000 (37%)	400,000 (36%)	420,000 (38%)	450,000 (37%)	440,000 (37%)	410,000 (35%)	440,000 (39%)
England ex. London	1,730,000 (29%)	1,610,000 (27%)	1,580,000 (26%)	1,570,000 (26%)	1,540,000 (16%)	1,480,000 (24%)	1,510,000 (24%)	1,730,000 (28%)	1,690,000 (27%)	1,740,000 (27%)	1,740,000 (27%)
Scotland	180,000 (26%)	200,000 (27%)	190,000 (26%)	200,000 (27%)	190,000 (27%)	170,000 (24%)	170,000 (23%)	170,000 (24%)	160,000 (23%)	160,000 (23%)	170,000 (24%)
GB/UK	2,410,000 (29%)	2,360,000 (29%)	2,310,000 (28%)	2,270,000 (28%)	2,360,000 (28%)	2,250,000 (26%)	2,280,000 (26%)	2,540,000 (29%)	2,250,000 (27%)	2,530,000 (28%)	2,540,000 (28%)

Figures for Great Britain are given from 1998-99 to 2001-02 and for the UK from 2002-03 onwards.

According to Waldfogel (2010), tax credit reform has been instrumental in child poverty reduction in the UK, with the amounts of payments flowing to families becoming more generous since the Working Families Tax Credit was replaced in 2003 by the Working Tax Credit and Child Tax Credit. The results presented here support this conclusion, and indicate that changes to social security have been strongly associated with decreasing the risk of relative child poverty.

These two differences, show that Westminster government policy has resulted in a reduction in child poverty risk for some families. However, the risk of living in poverty associated with household unemployment has increased significantly over time. Families living in a household where one or more adults is classified as unemployed have a higher risk of living below the poverty line before and after housing costs now than at the start of the decade, holding all other factors constant. This shows that the risk of poverty has not decreased for all families.

The increased risk of poverty faced by families with children experiencing unemployment suggests that the strand of Westminster government policy aimed at increasing security for out of work families has not been effective for child poverty reduction where adults are deemed able to work. The converse is true for families where work may be deemed less possible; for example, controlling for a cluster of other variables households with a disabled adult or an adult of pension age are less likely to live below the poverty line than similar households where all adults are working-age and are not disabled.

This suggests that where policies aimed at increasing access to work - the New Deals and Working for Families - have failed to facilitate labour market entry, the risk of poverty for those families is high and is growing. This demonstrates the importance of employment for child poverty reduction.

Poverty and Population Change

That child poverty has fallen in the UK overall despite the increased risk of poverty associated with unemployment can be attributed to the reduction in unemployment which occurred simultaneously. In Great Britain, the number of households where at least one adult was unemployed was 1,860,000 (9%) in 1998-2001 whereas in the 2006-2009 the number of households with one or more unemployed adult members was 1,490,000 (7%) in Great Britain and 1,520,000 (7%) in the UK as a whole.

Similarly, the proportion of households where the number of hours worked by all the adults together is zero, and earnings from employment is zero has declined over the course of the decade. Given the association between work intensity and earnings from employment per hour, this suggests that the overall reduction in unemployment levels may have played a significant role in reducing child poverty before and after housing costs across the UK.

Thus, increased employment opportunities have played a significant role in the reduction of child poverty across the UK. The decrease in unemployment is related to the growing UK economy until the recent recession but research suggests that labour-market activation policies may also have played a role, with programmes like

the New Deals and Working For Families being associated with increased employment for the target groups (Dolton et al 2006, McQuaid et al 2009).

The type of employment available may also be associated with the reduction in child poverty independently of wage levels and work intensity. Changes to the population of households headed by workers of different occupational classes and employed in different sectors are likely to have been influenced by the changing definition of 'head of household' as well as by employment trends. For example, as female heads of household are over-represented in public administration, the considerable increase in the number of households in which the head works in public administration is likely to have resulted at least partially from the changing definition of head of household to make it less biased towards males.

However, where the associations between occupational class and sector of employment and relative poverty have remained consistent over time, changes to the populations of England (excluding London) and Scotland may have influenced the decline in relative child poverty.

In terms of occupational class, there has been a slight decrease in the number of households headed by an adult working in a skilled trade and an increase in the number of households working in elementary occupations. Both of these occupational groups face a higher risk of living below the poverty line than families where the head of household works in a managerial capacity. Therefore, the slight reduction in the number of skilled worker households may have helped support the decline in child poverty before housing costs. However, the increase in the number of elementary households from 930,000 (5%) in 1998-2001 to 1,390,000 (8%) in 2006-2009 would be expected to be associated with a rise in child poverty before housing costs (the association with poverty after housing costs was non-significant in 2006-2009). That child poverty rates have declined again suggests that the rise in elementary jobs has not thus far hindered the reduction in child poverty as other factors have been more influential. However, if jobs of this nature continue to increase and the phenomenon underlying the association is not addressed then this may prevent a further reduction of child poverty in the future.

Similarly, the much higher risk of relative poverty associated faced by agricultural workers in comparison to those working in finance has not changed significantly over the course of the decade. The number of families working in this industry in England has declined slightly, which may have facilitated a fall in relative child poverty before and after housing costs, but has remained static in Scotland.

Government policy can also play a role in supporting a fall in child poverty without altering the actual risk of poverty faced by particular groups. With regards to tax credits, following reforms to the benefit, the total number of families receiving tax credits has risen considerably, with more than half of families with children now receiving some tax credit payments. Given the reduced risk of poverty faced by families receiving tax credits compared to similar families who do not, this reform to extend benefit eligibility is likely to have played a considerable role in reducing child poverty trends across the UK.

A further impact of government policy on child poverty trends can be seen in an examination of the trends with regard to household qualifications. From 1998-2001 to 2006-2009, the number of unqualified households fell considerably whilst the proportion of households where at least one adult holds a degree has grown. Increasing the number of adults with qualifications in the household and holding a degree are negatively associated with relative child poverty before housing costs (though not after housing costs are deducted from income). Therefore, policies to increase the number of qualified adults and expanding access to higher education may have played a role in reducing child poverty rates before housing costs.

However, the results suggest that the association between poverty and education has diminished over time, with families where some adults have qualifications losing the protection against the risk of poverty compared to households where no adults have qualifications by 2006-2009. This could suggest that as increasing numbers of individuals become qualified and highly qualified, the value of education in shielding a family against the risk of poverty declines. Therefore, increasing access to educational qualifications may continue to facilitate a reduction in child poverty, but there may be diminishing returns from this expansion.

The reduction in child poverty can also be attributed to population change resulting from social trends. Where the risk of poverty has not altered, the fall in poverty rates may relate to differences in the populations of 1998-2001 and 2006-2009. Where changes relate to the characteristics of the head of household, population trends are difficult to discern. Rising or falling proportions of families according to the demographic or employment characteristics of the head of household may relate to population change or the impact of changing the nature of the definition of 'head of household' to make it less biased towards males, or both.

The four principal changes to the demographic composition of the population of households in England (excluding London) and Scotland over the course of the decade relate to the proportion of only-child households, female-headed households and those headed by an adult from an ethnic minority background as well as the proportion of households where one or more adults is sick or disabled.

In terms of family size, social change has supported changes to social security which have lowered the risk of poverty for larger families. The number of families with two or more children has decreased over the course of the decade, confirming a social trend which has been previously documented (for example Bradshaw et al 2006). The reduction in the number of households with two or more children may result in a reduced risk of poverty for those households and a drop in the number of children living in relative poverty. However, if poverty more widely is considered, the long-term effect of this trend may be to raise other types of poverty, such as pensioner poverty as if fertility continues to fall this may increase the gerontic dependency ratio (Macnicol 2008). Therefore, although the risk of poverty is lower for families with one as opposed to several children, it needs to be considered whether this is a trend which it would be beneficial to encourage.

The increase in female-headed households between 1998-2001 and 2006-2009 is likely have come about at least partially as a result to the change in definition to 'head of household'. Given the definition was specifically re-worked to remove the

bias towards males, it is likely that the impact of the definition change regarding the gender of the head of household would be significant, with the potential influences of definition and social change difficult to disentangle.

The number of households with at least one adult who self-defines as sick or disabled has decreased over the course of the decade, with the number of households falling dramatically from 3,870,000 (23%) in 1998-2001 to 2,340,000 (13%) in 2006-2009. What has contributed to the fall in the number of households with at least one working-age adult who has a long-term illness or disability which limits everyday activities is unclear. However, although disability has a positive association with poverty risk when no other factors are controlled for, once other factors of importance are controlled this effect is softened and even reversed to reduce the risk of poverty for these households. The way in which disability is associated with poverty once other factors are held constant means that this reduction in the number of households with one or more disabled adults may not have reduced child poverty in England and Scotland as much as would be expected. However, that fewer adults feel they have a limiting illness or disability contributes positively to the public good, regardless of its effects on child poverty trends.

In terms of the ethnicity of the head of household, this shows greater stability over time which gives an increased degree of confidence to inferences about the impact this might have had on child poverty rates. All families headed by an adult from an ethnic minority background have a higher risk of living below the poverty line compared to those headed by a White individual before and after housing costs are deducted from income, possibly because White families have increased access to wealth and potentially therefore investment income than those from ethnic minority backgrounds (Hills et al 2010). Therefore, the rise in the number of families headed by an adult from an ethnic minority background from 940,000 (5%) in 1998-2001 to 1,610,000 (9%) in 2006-2009 would be expected to lead to an increase in child poverty rates both before and after housing costs.

That this has not occurred suggests that the influence of other elements of population change, such as the fall in unemployment, may have outweighed the association between ethnicity and relative poverty, enabling child poverty to fall despite this social trend. However, as the proportion of families from ethnic minority backgrounds is increasing this suggests that in order for child poverty to continue to fall, this counter-trend will have to be addressed.

Finally, although this is unlikely to be *causally linked* with poverty before housing costs, changes to tenure may have influenced the overall reduction in child poverty after housing costs. Although the numbers and proportions of families in England (excluding London) and Scotland who rent their accommodation and live rent free have changed only slightly over the course of the decade, there has been a reduction in the number of families buying their home with a mortgage and an increase in the number of families who own their accommodation outright.

As those who own their accommodation have a lower risk of relative poverty after housing costs than those who buy with a mortgage, this trend is likely to have supported the fall in child poverty after housing costs. This is particularly the case as the proportion of owner-occupiers has increased across the earnings distribution,

meaning that the increased protection has been afforded to families with a high risk of poverty in the lowest earnings quintile as well as higher up the earnings distribution where the risk of poverty is much lower.

Summary

Thus, overall economic amelioration, government policy and population change have all contributed to the falling numbers of children living in relative poverty before and after housing costs. However, the biggest influencers are likely to be access to work particularly through conventional employment but also via increased access to income from self-employment.

Government policy has worked to reduce child poverty with the reform of tax credits playing an important role in child poverty reduction. Evaluations of labour market activation programmes have been shown to have reduced the incidence of unemployment for the target groups which may have contributed to the increased number of households with no unemployment. However, economic improvements are also likely to have influenced this trend, and it is thus difficult to discern how far improvements in access to employment have been driven by economic conditions and how much can be attributed to government policy.

Finally government policy in relation to the expansion of education may have facilitated the fall in relative child poverty, although differences in behaviour mean the protection of increased education does not make a statistically significant difference once housing costs have been deducted from income.

Some changes to the populations of England and Scotland however may have worked to reduce the speed at which child poverty has decreased, in particular the rise in the proportion of families whose head of household comes from an ethnic minority background and the increasing importance of the elementary occupations. If child poverty is to continue to fall, these risks and what lies behind them will have to be addressed.

The Faster Fall In Scotland: devolution, devolved policy and population change

Relative child poverty has thus declined in both Scotland and England (excluding London). However, as Tables 1 and 2 show, this fall has been faster in Scotland than in England, either including or excluding Greater London.

The results of the multivariate regression analysis suggest that there is no evidence of a 'Scotland effect' which might have led to a faster reduction in child poverty in Scotland relative to England. There are no differences in poverty risk for similar families on either side of the border before housing costs are considered, whilst after housing costs, although families in Scotland do face a lower risk of poverty than similar families in England, the size of this risk has not changed over time.

Therefore, differences in population trends in Scotland and England, as well as areas potentially relating to economic and social policy may have played a role in this decline.

Economic Factors: Employment and Work

A key variation in population trends relating to households with children between Scotland and England (excluding London) which may have contributed to the faster fall in relative child poverty has been increased access to work. The proportion of households with some unemployment has decreased much more quickly in Scotland than in England whilst for those with lower incomes from conventional employment, there has been increased access to income from self employment.

Other factors which may have contributed to the overall faster decrease of child poverty in Scotland relative to England relate to the nature of available employment. The increased proportion of families whose head of household works in the construction industry in Scotland relative to England is consistent with the faster decrease in relative child poverty in Scotland due to the lower risk of poverty faced by this group.

However, some factors relating to the availability and types of employment may have prevented relative poverty from falling even more quickly in Scotland compared to England, although the number of households involved is small. In particular, decreased access to odd jobs and the unchanged size of the agricultural industry may have hindered the faster fall in child poverty whilst the decline of families who head of household works in a skilled trade in England may have robbed Scotland of a comparative advantage for reducing relative poverty before housing costs.

In terms of increased access to work, theories of devolution suggest that greater freedom to tailor policies to encourage industry to settle and grow can result in an 'economic dividend' to a devolved nation. This may have facilitated the reduction in unemployment which is likely to have been a key factor in the faster reduction in child poverty (Rodríguez-Pose and Gill 2005).

Supporting this, The Scottish Government has implemented policy programmes to try and assist families into employment, such as the Working For Families programme and The Fairer Scotland Fund. Working For Families has been judged to have been successful in assisting families into employment (McQuaid et al 2009). However, following the fund's absorption into the Fairer Scotland Fund to give local authorities a greater degree of decision-making autonomy in allocating resources, and with plans to roll this into the general funding stream for 2010-11, it is unclear to what extent the activities will continue as the need for budgetary constraint continues to affect local authorities (Sinclair and McKendrick 2009).

Conversely, Bivand et al (2010) argue that, as the reduction in unemployment seen in Scotland has been matched by a similar decrease in unemployment in the North East of England. They argue that it is therefore unlikely that either devolution or Scottish Government policy have been influential in reducing unemployment and child poverty. It is possible to argue that, given unemployment levels 10 years ago were lower in Scotland than in the North East of England, producing the same rate of decline was a more difficult process for Scotland and that therefore economic amelioration above and beyond that seen in the North East was needed to produce a similar effect.

However, this does suggest that the fall in unemployment and changes to industry which may have facilitated a faster reduction in child poverty in Scotland may be due at least in part to general economic amelioration.

Social Policy Areas

Social security is likely to have played a considerable role in reducing child poverty, with reform to tax credits to increase eligibility and generosity channelling more resources to a larger proportion of families with children. However, social security is a reserved matter, and it is unlikely that tax credits have had a differential impact in Scotland and England. This proposition is supported by the evidence presented here.

However, there are some areas of social policy which may have contributed to the faster reduction of child poverty in Scotland compared to England which may stem from Scottish Government policy. In particular, that the proportion of households where no adults have qualifications has declined at a faster rate in Scotland than in England is consistent with the hypothesis that Scottish Government initiatives to increase educational attainment and access to training for adults such as the Individual Learning Accounts and the Literacy And Numeracy Action Plan may have been more successful than the policies pursued in England by the UK Government.

Nonetheless, the faster increase in the number of households with at least one degree holder in England compared to Scotland suggests that devolution has not led to increased access to all types of educational opportunity, or alternatively that degree-holders are less likely to remain in Scotland after graduation. As the protection against child poverty before housing costs associated with qualifications has decreased over the course of the decade, increasing access to education at higher levels and encouraging those who have benefitted from HE to remain in the country will become increasingly important in reducing child poverty further.

The other area of social policy which may have contributed to the slightly faster fall in relative child poverty after housing costs in Scotland compared to England relates to housing. In England, the proportion of families buying their homes with a mortgage has decreased whilst the numbers renting their accommodation have increased. The reverse can be seen in Scotland where an increasing proportion of families have taken out mortgages over the course of the decade whilst the number of families renting their homes has decreased.

This is unlikely to have affected child poverty trends before housing costs due to the association between income and tenure. However, it is likely to have contributed to the faster fall in child poverty after housing costs in Scotland compared to England as the proportion of families in the most 'at risk' tenure category - those who rent their accommodation - has declined in Scotland and increased in England.

The reason for the increased uptake of mortgages in Scotland whilst the number of families taking this option in England has declined is not clear from the findings presented here. However, the results suggest that a greater proportion of families in Scotland with the lowest levels of income from employment are buying mortgages (as opposed to renting) compared to a decade ago with the reverse being true in

England²⁶. Therefore, the difference between Scotland and England relates to mortgage purchasing behaviour in the lowest earnings groups. Further research is needed to assess what has influenced this trend and what the implications are for relative child poverty reduction targets. This is particularly the case as, although mortgage holders may have a lower risk of poverty than renters if risk is examined one point in time, it may be that in the longer term, mortgage holders face a higher risk of poverty if they are unable to sustain their repayments.

Population Trends

The final area which has contributed to the faster fall of child poverty in Scotland compared to England stems from differences in the population trends of the two nations.

The proportion of ethnic minority families has increased at a faster rate in England than in Scotland, which may have hindered the progress in reducing child poverty in England to a greater degree than Scotland. This is due to the positive association between having a head of household from an ethnic minority background and the risk of relative poverty before and after housing costs are deducted from income.

Although this may have contributed to the faster fall of child poverty in Scotland, it is important to address why families from ethnic minority backgrounds face a higher risk of poverty than White families controlling for wage, work intensity, employment and family size. The population of ethnic minority families is increasing in both England and Scotland, and therefore if child poverty rates are to continue to fall, the mechanisms behind this association will need to be addressed.

The proportion of female-headed households is higher in Scotland than in England this the difference between the two countries being statistically significant when examining households with lower levels of income from employment. Controlling for earnings and other factors associated with child poverty, families where the head of household is female have a lower risk of living below the relative poverty line than male-headed households. The mechanisms behind this association are unclear, but it may relate to an increased access to income from miscellaneous sources for households led by women.

The higher number of female-headed households in Scotland than in England may partially relate to a difference in the number of single-parent households in the two countries, with Scotland having a larger proportion of lone-parent households than England²⁷. However, the difference is not solely related to differences in family type: for example, in England (excluding London) 24% of multiple-adult households are led by a woman compared to 26% in Scotland²⁸. Further research to identify why households led by women face a decreased risk of poverty controlling for other factors, and why there is a greater proportion of female-headed households in

²⁶ At higher earnings levels, the reduction in the proportion of mortgage holders is associated with an increase in the number of owner occupiers in both England and Scotland.

²⁷ A disproportionate number of single-parent families have a head of household who is female, reflecting the gendered nature of lone parenthood.

²⁸ A more detail version of this analysis is available in Appendix C.

Scotland could help identify the implications this may have for continuing to reduce the rates of child poverty in Scotland and England.

Summary

The faster fall in child poverty rates in Scotland compared to England is likely to relate to the quicker decrease of unemployment, increased access to self-employment for those household with lower levels of income from conventional earnings, differences in educational attainment, variations in family accommodation and natural population trends.

Some of these, such as demographic trends, are unlikely to be related to devolution and Scottish Government policy. The increase in the proportion of families with lower levels of earnings from employment who are purchasing their homes with a mortgage in Scotland, whilst renting has increased in England for families with access to similar earnings, may relate to the behaviour of families or financial institutions. Further research is needed to identify why trends in tenure have differed in Scotland and England and what the implications of this might be for the continued attempts to reduce child poverty.

The reduction of employment may relate to the 'economic dividend' of devolution and Scottish Government initiatives to facilitate access to employment, although it may also be attributed to general economic amelioration which occurred on both sides of the boarder.

Scottish Government policy may also have led to a faster decline in the number of households with no qualification holders of adult age in Scotland than in England. However, the faster increase in the number of households where at least one adult has a degree suggests that Scottish Government education policy may not be working equally well in all areas.

Child poverty in the future

Although child poverty has declined in Scotland over the past ten years, the decrease has stalled since 2003-04. In 2008-09, child poverty rose for the first time. Between 2007-08 and 2008-09, the number of children living in relative poverty increased by 10,000 (1%) before housing costs and by 20,000 (2%) after housing costs are deducted from income. In England, the number of children living in relative poverty declined both before and after housing costs in the same period.

However, the proportion of *households with children* whose income places them below the poverty line did not increase to the same degree. The number of households with children living below the poverty line in Scotland increased by approximately 8,000 before housing costs and by 10,000 after housing costs²⁹. This finding is consistent with the increased risk of living below the poverty line experienced by larger families in comparison to those caring for one dependent child, and suggests that mechanisms which increase the risk of poverty for larger families will need to be tackled in order to meet child poverty reduction targets.

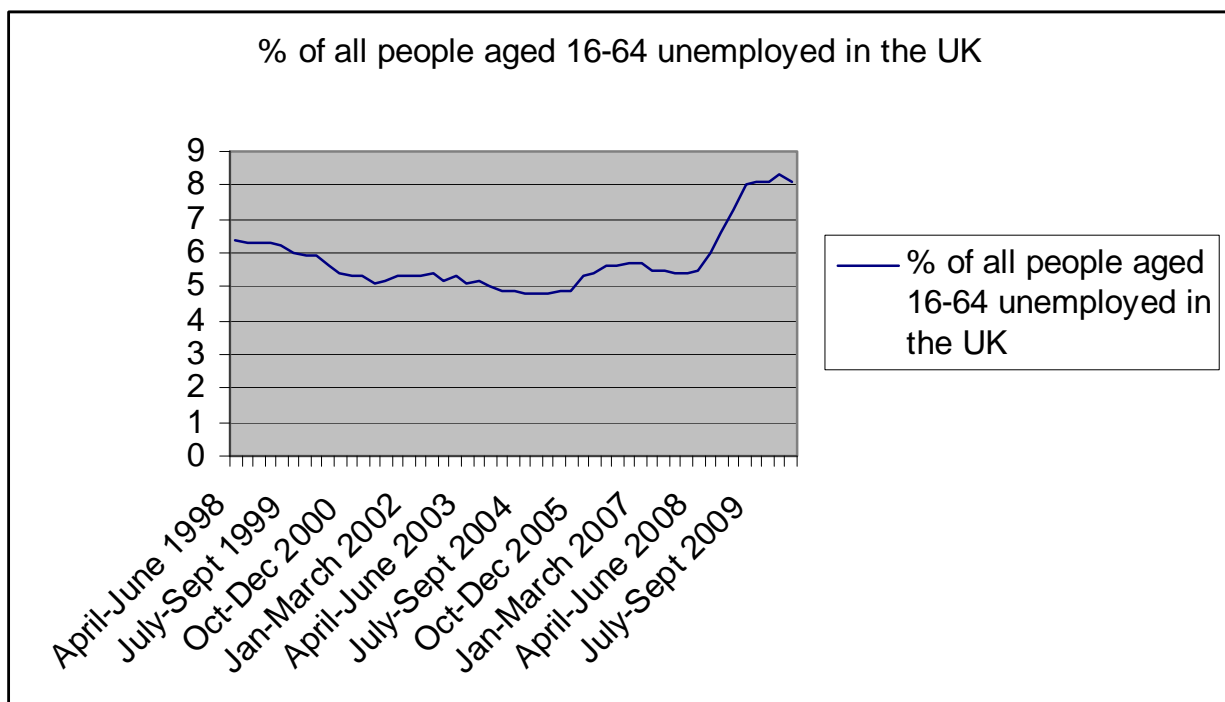
²⁹ Calculated using unrounded figures.

According to research from the New Policy Institute, this rise in child poverty in Scotland relates to a rise in in-work poverty for families with children (forthcoming). This may reflect changes in the last year in relation to access to wage levels which are not being captured by the analysis presented here, which looks at the last three years.

The increase in child poverty seen in Scotland between 2007-08 and 2008-09 reflects a trend seen in England (both including and excluding London) between 2006-07 and 2007-08, where child poverty rose temporarily only to fall again the following year. Therefore the recent increase in child poverty in Scotland may not be indicative of a long-term trend.

As previously discussed, child poverty is strongly associated with work and employment. Since 2008/09, unemployment has continued to increase as the recession has continued to affect the labour market as Figure 1 (below) demonstrates. Therefore, the research presented here does not take into account the recent rise in unemployment.

Figure 1: Unemployment in the UK April-June 1998 to April-June 2010³⁰



It is therefore highly probable that FRS data for 2009/10 will show a levelling or even an increase in relative child poverty compared to 2008/9. In order to continue the fall in child poverty rates in line with current government targets, policy interventions to try and support families in and out of work will be necessary.

³⁰ Adapted from ONS (2010)

Policy Recommendations

In order to continue the reduction in relative child poverty before and after housing costs in Scotland, it is important not only to support the decline which has been seen until recently, but also to increase the rate of progress in order to meet the targets laid out in the Child Poverty Act 2010. Possible ways of encouraging this are:

1. Address why families where the head of household is from an ethnic minority background have a higher risk of living below the poverty line than similar families where the head of household is White. This is important as the size of the ethnic minority population is increasing, and therefore if child poverty is to be eradicated in the future, the risk of poverty these groups of families face will need to be reduced.
2. Work and in particular well-paid work are important shields against the risk of poverty for families with children. It is important that The Scottish Government continues to support families into employment and to progress in their careers, particularly during the recession when employment opportunities are reduced through initiatives such as the Fairer Scotland Fund.
3. Scottish Government initiatives to help families into work have been judged to be successful, but local authorities may face pressures to reduce the allocation of resources to support these activities in these times of budgetary constraints (Sinclair and McKendrick 2009). Monitoring local authority activities and resource allocation and liaising with local authorities to stress the importance of Working For Families may help reduce the tendency to divert resources to other areas of activity.
4. The public sector forms an important component of the labour market in Scotland, and families whose head of household works in public administration have a lower risk of living in relative poverty than those working in most other industries. However, the availability of jobs in public administration is likely to decrease given the recommendations of the Independent Budget Review (Independent Budget Review Panel 2010). It will be important to sustain as many public administration jobs as possible and at the same time support a growth in private sector employment opportunities to ensure that there are positions available for parents. Stakeholders in the business sector need to be consulted to find a workable means for increasing stable private sector employment.
5. Families with access to higher levels of wage have a significantly reduced risk of poverty than those whose returns from employment are lower. In order to facilitate access to higher levels of family income, the Scottish Government needs to continue to support families' access to the Scottish living wage both in the public and the private sector.
6. Increasing access to self-employment is also likely to help families with children avoid or escape from relative poverty. A policy programme to support those in the early stages of their move into self-employment through access to networking opportunities, grants and favourable loans may help the creation of stable income streams for families.
7. Families where the head of household works in the agricultural sector face an increased risk of living below the poverty line before and after housing costs are taken into account. Although the proportion of families to which this applies in Scotland is small (2%) these families are particularly vulnerable. Therefore, if child poverty is to be eradicated, increased support to ensure that agricultural

workers can maximise their incomes and gain access to stable resources will be necessary.

8. Scotland has performed well in comparison to England in reducing the number of households in which no adults have any educational qualifications, suggesting that skill-based and lifelong learning policies are having a positive effect. However, the rate of increase in access to higher education has not been as fast in Scotland as it has in England. The rate of expansion in higher education in England has declined since the onset of the recession (West and Barham 2009) meaning that this rate of increase in HE participation in England is unlikely to continue. Therefore, increased investment in higher education and in particular the creation of additional university places in Scottish universities may facilitate a continued faster reduction of child poverty in Scotland in comparison to England.
9. If child poverty is to continue to decline, the risk of relative poverty faced by larger families associated with the social security regime set by the UK Government (Bradshaw et al 2006) will need to be addressed. Scotland needs to be able to ensure that its larger families are supported to a greater degree. One way of approaching this would be through lobbying the UK Government for a change in the structure of benefits to increase support to larger families. Alternatively, a change in the degree of autonomy which Scotland has over social security enabling greater divergence between England and Scotland could allow Scotland's welfare regime to be changed to support larger families.

Summary

The decline in child poverty across the UK has been influenced by a number of factors. In particular, UK Government social security policy to increase resources to families with children and increase educational opportunities is likely to have made a significant impact in reducing relative child poverty. This finding is consistent with other research (see Waldfogel 2010, Hills and Stewart 2005).

The faster decline of child poverty in Scotland compared to England, until recently, is likely to have been driven to a large extent by the faster fall in unemployment, with a faster fall in the proportion of households where no adults have qualifications and natural population differences likely to have contributed to the decline. How far this change can be attributed to devolution and to Scottish Government policy is unclear.

The findings are consistent with an interpretation that devolution has assisted a faster fall in the reduction of child poverty. However, other evidence suggests that the principal driver, unemployment, may not be due to policy divergence or to an economic dividend of devolution but rather to factors which have affected the UK as a whole (Bivand et al 2010).

Although child poverty has declined over the course of the decade, the rate of progress has stalled since 2003-04 and relative child poverty increased slightly in 2008-09. This may be a temporary effect rather than an indication of a long-term trend. However, it will be important to support a faster reduction in relative child poverty if the targets laid out in the Child Poverty Act 2010 are to be met. Supporting parents into work, and in particular well-paid work, as well as addressing the particular risk faced by certain types of family is likely to facilitate the necessary further reduction.

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Appendix A – Methodology and FRS Data

The Data

The data for the analyses are taken from different databases of the Family Resources Survey (FRS), in particular from the databases relating to jobs, adults and households, as well as data from the related Households Below Average Income (HBAI) database. The analyses focuses on *households* as the unit of analysis and therefore where necessary variables relating to lower level units within the household (jobs, individual adults, benefit units) were aggregated to household level. For example, given the information in the jobs table, it was possible to indentify which adults had two or more jobs, from this it was possible to identify the number of adults with two or more jobs in each household and this was the variable used for analysis.

The analyses undertaken use data from several years of the FRS, amalgamated to increase the sample size. This is necessary to augment the sample size to a sufficient level to support regression analysis, where small sample sizes of groups can lead to a risk of type II errors where associations which are present in the population are missed when analysing the sample because of large standard errors.

Although the FRS is stratified by region, it does not seek to augment the sample size of groups according to non-regional criteria. Thus, groups which make up a small proportion of the population as a whole necessarily make up a small proportion of the sample. This is further exacerbated by the nature of the analysis which is being carried out here. As only households with dependent children have been included, the absolute size of these groups in the sample even smaller. For example, in 2008/09 there were 25,092 households contained in the FRS, of which 208 had heads of house who were from mixed-race backgrounds; of the 7,622 households containing dependent children, 89 had household heads from mixed-race backgrounds.

Thus, for the analysis, three adjacent years of FRS data were combined. To help assess the factors associated with child poverty a decade ago, FRS data from 1998-99, 1999-2000 and 2000-01 were combined. Three years from the end of the decade, 2006-07, 2007-08 and 2008-09 were combined to assess the more recent picture. As new samples are drawn each year, the households in the datasets are independent of one another, satisfying the assumption of case independence necessary for logistic regression analysis.

The FRS has been collected so as to facilitate valid comparative analysis across different data years, with similar questions and coding procedures used from year to year. This has enabled, for the most part, the same variables to be included in the analyses relating to the earlier and the later years of interest. Where variables have changed over time, then alternatives giving the same or similar information have been used instead. For example, the coding scheme for household ethnicity as contained in the HBAI database (which is drawn from the FRS) has changed between 1998-2001 and 2006-2009, so an alternative variable giving the ethnicity of the head of household in the household database was used as an alternative.

The only exceptions to this are first, the inclusion of Northern Ireland for the later years; as the FRS did not sample households from Northern Ireland before 2002 this variable could not be included in earlier models. Second, tax credits changed during the period of interest with Family Credit in 1998-1999 being rebranded and made more generous as the Working Families Tax Credit during 1999-2001, reformed subsequently to the Working Tax Credit and Child Tax Credit for 2006-2009. The variable 'tax credits' indicates that a household received one of more of these credits as appropriate for the year of interview. Third, for out-of-work benefits, information about income-based Jobseekers' Allowance was included for the later years but not the earlier years where out of work benefits include Income Support and Pension Credit only. Finally, the definition of 'head of household' changed in 2002-03 to make it less biased towards males. This has had a particular impact on the number of female-headed households in the sample and the proportion of households where the head of the family works in the public sector.

Missing Values

Some households which are present in the FRS Household database do not appear in the HBAI database. As information from the HBAI was used to determine whether or not the household fell above or below the poverty line, both before and after housing costs, it was therefore necessary to exclude households about which the FRS had information but the HBAI did not. This amounted to 45 households with dependent children in 1998-2001 and 54 households with dependent children in 2006-2009.

Where household information was missing for hours worked, household earnings from employment and levels of council tax rebate and housing benefit, missing values were set to zero on the assumption that these values had not been recorded because the question was not applicable to them. For the most part, this proved to be a valid assumption: one in-work household in 1998-2001 and no in-work households in 2006-2009 recorded zero working hours; four households in 1998-2001 and no households in 2006-2009 reporting a receipt of housing benefit did not give the value of their benefit and 40 households in 1998-2001 and 43 households reportedly in receipt of council tax benefit in 2006-2009 had missing information on the amount of council tax rebate received. Running the models without these cases did not change the direction or significance of the associations, with the absolute values of the coefficients changing only slightly. It was therefore decided not to exclude these cases to allow the models to benefit from the full variation contained in the data. None of these households with missing values for important variables were not present in the HBAI.

However, there were some problems with this assumption regarding income from employment with 6% of in-work household in 1998-2001 and 7% of in-work households in 2006-2009 reporting zero earnings. This suggests that for a small proportion of in-work households, income information was missing rather than not recorded because the question was not applicable. It was decided not to exclude these cases but to create a dummy variable to show that their income information was missing and thus to include these respondents in the model separately. This was also the approach taken for the occupational class and standard industrial classification of the head of household. Where the coefficients for these dummy

variables were not significantly different to the reference category, they are not included in the parsimonious model.

Model Selection and Multicollinearity

Stepwise selection was used to ensure that a parsimonious model was specified. The same variables were offered for inclusion in each of the models. After models were built via stepwise selection, if necessary it was checked to see whether interaction terms were significant once the parent variables were included. If they were not, these interaction terms were excluded at this stage.

A multiple linear regression model was then built including the same explanatory variables to check that there was an acceptable level of multicollinearity between them; if the tolerance value was above 0.2 then multicollinearity was considered to be at an acceptable level. This resulted in some variables being removed, in particular the number of earners in the household, and some categorical variables being recoded so that more respondents were included in the same category, for example for housing benefit and council tax rebate amounts where two quintiles were included in the same category and earnings per hour and hours work, where those household with no income and no hours of work were included in the same group as the lowest quintile group. Where this occurred, the variables with the lowest tolerance levels were removed or combined.

Variables

The following variables were all included in the stepwise selection process, meaning that they were all potential explanatory variables. Not all of these variables do appear in the models: if there were no significant associations between them the dependent variables they were not included.

Variable Name	Categories	Description
<i>Dependent Variables</i>		
Relative Child Poverty BHC	<ul style="list-style-type: none"> - Household with at least one dependent child is in poverty before housing costs. - Household with at least one dependent child is not in poverty after housing costs. 	Household income falls below 60% of the median in the year of interest before housing costs are considered. Absolute value of the poverty line varies each year as the median income changes.
Relative Child Poverty AHC	<ul style="list-style-type: none"> - Household with at least one dependent child is in poverty before housing costs. - Household with at least one dependent child is not in poverty after housing costs. 	Household income falls below 60% of the median in the year of interest after housing costs are taken into account. Absolute value of the poverty line varies each year as the median income changes.

<i>Independent Variables</i>		
Location of household (reference category England excluding London)	<ul style="list-style-type: none"> - Wales - Scotland - London - Northern Ireland 	Household is in a devolved or semi-devolved area of the UK, compared to England excluding London. Data from Northern Ireland are not available for 1998-2001.
Household size (reference category single-adult household)	Household has two or more adults	The number of adults in the household. These adults could be parents/carers, family members or other adults.
Number of children (reference category single-child household)	Household has two or more dependent children	An indication of family size.
Pensioner household (reference category no pensioners in household)	Household members include one or more adults of pensioner age	An indication of household composition.
Disability status (reference category no household members are recorded as having a disability)	Household includes at least one adult who self-defines as having an illness or disability that limits everyday activities.	An indication of household composition.
Head of household gender (reference category male)	Head of household is female	The gender of the head of household.
Head of household age	Continuous variable	Age of head of household
Ethnicity of head of household (reference category White)	<ul style="list-style-type: none"> - Indian - Pakistani/Bangladeshi - Black/Black British - Other Ethnicity (including Mixed Race) 	Ethnicity of head of household used instead of household ethnicity to facilitate comparison across the years of interest. Mixed race heads of household were not recorded separately in 1998-2001.
Tenure (reference category buying with mortgage)	<ul style="list-style-type: none"> - Home owned outright - Home is rented - Tenants live rent free or squat 	Indication of household ownership. Very few households in the sample are recorded as squatting so they are included with those living rent free.
Qualifications held by household members (reference category no household members hold a qualification)	<ul style="list-style-type: none"> - Some household members hold qualifications - All household members hold qualifications - One or more household members have a degree 	Indication of education levels of household members.

Self-employment (reference category no household members are self-employed)	One or more adults in the household is self-employed	Indication of employment status of household.
Workless Household - Unemployed (reference category no household members are unemployed)	One or more adults in the household is unemployed (ILO definition)	Indication of employment status of household.
Workless Household – Economically Inactive (reference category no household members are economically inactive)	One or more adults in the household is economically inactive (ILO definition)	Indication of employment status of household.
Multiple Jobs (reference category no household members have two or more jobs)	One or more adults in the household has more than one job	Indication or ‘work stability’ of household
Odd Jobs (reference category no household members have an odd job)	One or more adults has at least one odd job	Indication or ‘work stability’ of household
Household earnings per hour (reference category household earnings from employment per hour are zero, missing or in the lowest quintile group)	<ul style="list-style-type: none"> - Earnings per hour puts household in second quintile group - Earnings per hour puts household in third quintile group - Earnings per hour puts household in fourth quintile group - Earnings per hour puts household in highest quintile group 	Total unequivalised gross household earnings divided by the number of hours worked by the household (the sum of the hours worked by each adult in the household). The distribution is separated into quintile groups. An indication of wage.
Total hours in employment of household (reference category number of hours worked by household are zero, missing or in the lowest quintile group)	<ul style="list-style-type: none"> - Hours worked puts household in second quintile group - Hours worked puts household in third quintile group - Hours worked puts household in fourth quintile group - Hours worked puts household in highest quintile group 	The sum of the hours worked by each adult member of the household. The distribution is separated into quintile groups. An indication of work intensity.

Occupational class of head of household (reference category Managers and Senior Officials)	<ul style="list-style-type: none"> - Professional - Associate Professional and Technical - Administrative and Secretarial - Skilled Trades - Personal Service - Sales and Customer Service - Process, Plant and Machine Operatives - Elementary - Missing – not recorded 	<p>The occupation of the head of household used as an indication of socio-economic status, often taken as a proxy for social class.</p> <p>Where dummy variables for the categories were not significant they were removed from the model, and join the default reference category Managerial.</p>
Industry where head of household's employment lies (reference category Finance and Business)	<ul style="list-style-type: none"> - Agriculture and Fisheries - Mining and Energy - Manufacturing - Construction - Distribution and Catering - Transport and Communications - Public Administration - Other Service - Missing – not recorded 	<p>The industry of the head of household's employment. Where dummy variables for the categories were not significant they were removed from the model, and join the default reference category Financial and Business Sector.</p> <p>See the table below for more information for industry coding scheme.</p>
Tax Credit Receipt (reference category household does not receive tax credits)	Household receives at least one type of tax credit.	<p>The tax credits included in this variable are:</p> <p>1998-1999: Family Credit</p> <p>1999-2000: Family Credit/ Working Families Tax Credit</p> <p>2000-2001: Working Families Tax Credit</p> <p>2006-2009: Working Tax Credit/ Child Tax Credit</p>
Income Support (reference category household does not receive a form of income support)	Household receives a form of income support.	Benefits included as income support are Income Support, Pension Credit and from 2006-2009 only Income-based Jobseekers Allowance
Council Tax Rebate (reference category amount of council tax rebate received by household is zero, missing or in the first quintile group)	<ul style="list-style-type: none"> - Amount of CTR received puts household in second or third quintile group - Amount of CTR received puts household in fourth or highest quintile group 	<p>Total, gross amount of Council Tax Rebate received by household. Two quintile groups included in each dummy variable to overcome multicollinearity.</p>

Housing Benefit Amount (reference category amount of housing benefit received by household is zero, missing or in the first quintile group)	- Amount of HB received puts household in second or third quintile group - Amount of HB received puts household in fourth or highest quintile group	Total, gross amount of Housing Benefit received by household. Two quintile groups included in each dummy variable to overcome multicollinearity.
Interaction terms between location and tax credit receipt	- Wales by Tax Credit Receipt Scotland by Tax Credit Receipt - London by Tax Credit Receipt - Northern Ireland by Tax Credit Receipt (2006-09)	Interaction terms (location*tax credit receipt) E.g. households in Wales <i>and</i> receiving tax credits are compared to households in England excluding London and Wales which do not receive tax credits.
Interaction terms between location and multiple jobs	- Wales by Multiple Jobs Scotland by Multiple Jobs - London by Multiple Jobs - Northern Ireland by Multiple Jobs (2006-09)	Interaction terms (location*multiple jobs) E.g. households in Wales <i>and</i> where one or more adults has two plus jobs are compared to households in England excluding London and Wales where no adults have multiple jobs.
Interaction terms between location and odd jobs	- Wales by Odd Jobs Scotland by Odd Jobs - London by Odd Jobs - Northern Ireland by Odd Jobs (2006-09)	Interaction terms (location*odd jobs) E.g. households in Wales <i>and</i> where one or more adults has at least one odd job are compared to households in England excluding London and Wales where no adults have odd jobs.
Interaction terms between location and unemployment	- Wales by one plus adults unemployed Scotland by one plus adults unemployed - London by one plus adults unemployed - Northern Ireland by one plus adults unemployed (2006-09)	Interaction terms (location*one or more adults unemployed) E.g. households in Wales <i>and</i> where one or more adults has at least one odd job are compared to households in England excluding London and Wales where no adults are unemployed.

Coding Scheme for Standard Industrial Classification (Industry)

Dummy Variables	Original Categories
Agricultural and Fisheries	Agriculture, hunting etc. Forestry, logging etc. Fishing, fish farms, hatcheries etc.
Mining and Energy	Coal, lignite, mining, peat extraction. Oil, gas extraction etc. not surveying. Uranium, thorium, ore mining. Mining of metal ores. Other mining, quarrying. Recycling. Electricity, gas, steam etc. supply. Water collection, purification, supply etc.
Manufacturing	Food, beverage manufacture. Tobacco products manufacture. Textile manufacture. Clothing, fur manufacture. Leather, leather goods manufacture. Wood, straw, cork, wood products not furniture. Pulp, paper, paper products manufacture. Printing, publishing, recorded media. Coke petrol products, nuclear, fuel manufacture. Chemicals, chemical products manufacture. Rubber, plastic products manufacture. Other non-metallic products manufacture. Basic metals manufacture. Fabric-metal products not machine, equipment manufacture. Machine, equipment manufacture. Office machinery, computer manufacture. Electronic machinery, equipment manufacture. Radio, TV, communication equipment manufacture. Medical, precision, optical equipment manufacture. Motor vehicle, trailer etc. manufacture. Other transport equipment manufacture. Furniture etc. manufacture.
Construction	Construction
Distribution and Catering	Sales of motor vehicles, parts, fuel etc. Wholesale, commission trade, fee, contract. Retail trade not motor vehicle repairs. Hotels, restaurants.
Transport and Communications	Transport by land, pipeline. Water transport. Air transport. Auxiliary transport activities, travel agents. Post, telecommunications.
Financial and Business	Financial intermediary not insurance, pensions. Insurance, pensions not Social Security. Other financial not insurance, pensions.

	<p>Real estate activities. Personal, household, machine, equipment rental no op. Computer, related activities. Research, development. Other business activities.</p>
Public Administration	<p>Public administration, defence, social security. Education. Health, social work.</p>
Other Service	<p>Sanitation, sewage, refuse, disposal etc. Activities of membership organisations. Recreational, cultural, sporting activities. Other service activities.</p>
Missing	<p>Undefined Unrecorded</p>
Not included (none in the database)	<p>Private households with employment persons. Workplace outside UK. Extra-territorial organisations etc.</p>

Appendix B – Full Models and Diagnostics

Full Models

Binary Logistic Regression: Household With Child In Relative Income Poverty Before Housing Costs 1998/9 to 2000/1					
Parameter	β	Wald	Exp(β)	95% CI Exp(β)	
				Lower	Upper
Intercept	0.0722	0.2090			
Location of household (ref. GB in 1998 or UK in 2008)					
Greater London	-0.1325	3.2841	0.876	0.759	1.011
Household has two or more adults (ref. lone parent)	0.1492	2.6261	1.161	0.969	1.390
Household has two or more children (ref. only one dependent child)	0.6304***	194.0345	1.878	1.719	2.053
There are one or more pensioners in the household	-1.0480***	44.2202	0.351	0.257	0.478
One or more disabled adults in household	-0.3426***	44.0791	0.710	0.642	0.786
Age of head of household	-0.00709**	7.0148	0.993	0.988	0.998
Head of household is female	-0.2811***	11.4294	0.755	0.641	0.889
Ethnicity of head of household (ref. White)					
Indian	0.5696***	13.9015	1.768	1.310	2.385
Pakistani/Bangladeshi	1.1334***	76.8166	3.106	2.411	4.002
Black or Black British	0.3783**	9.4934	1.460	1.148	1.857
Other Ethnicity (including Mixed Race)	0.3737*	6.3394	1.453	1.086	1.944
Tenure (ref. mortgage)					
Own home outright	0.2711**	9.3105	1.311	1.102	1.561
Living rent free/squatting	0.3566	2.9552	1.428	0.951	2.145
Renting	0.4040***	45.5701	1.498	1.332	1.684
Qualifications (ref. households where no adults have qualifications)					
One or more household members have degrees	-0.4563***	29.5983	0.634	0.538	0.747
All have qualifications below degree level	-0.2634***	24.2480	0.768	0.692	0.853
Some have qualifications below degree level	-0.2246**	10.4944	0.799	0.697	0.915
One or more self-employed adults in the household	-0.1463	3.0797	0.864	0.734	1.017
One or more adults in the household are economically inactive	0.9013***	228.4847	2.463	2.191	2.768

One or more adults in the household are unemployed	1.2465***	293.5037	3.478	3.016	4.011
One or more household members has two or more jobs	-0.2633*	4.7887	0.769	0.607	0.973
One plus household members have at least one odd job	-0.1053	0.6322	0.900	0.694	1.167
Household earnings per hour (ref. no earnings including missing and lowest quintile)					
Second quintile	-1.1109***	247.9654	0.329	0.287	0.378
Third quintile	-2.2635***	546.7656	0.104	0.086	0.126
Fourth quintile	-3.3677***	589.8410	0.034	0.026	0.045
Fifth quintile	-4.9362***	442.7362	0.007	0.005	0.011
Hours worked per week by the household (ref. no hours/ lowest quintile)					
Second quintile	-0.5655***	51.8484	0.568	0.487	0.663
Third quintile	-1.3471***	231.8353	0.260	0.219	0.309
Fourth quintile	-2.0261***	329.4198	0.132	0.106	0.164
Fifth quintile	-2.2613***	367.7042	0.104	0.083	0.131
Social Class (ref. managerial)					
Social Class: Skilled	0.0517***	0.3825	1.053	0.894	1.241
Social Class: Elementary	0.2840	11.1670	1.328	1.125	1.569
Industry (ref. finance)					
Agricultural	0.7014***	18.8502	2.017	1.469	2.768
Construction	-0.1572	2.1812	0.855	0.694	1.053
Distribution and Catering	0.1800	7.5110	1.197	1.053	1.362
Public Administration	0.0401	0.2737	1.041	0.896	1.210
Household receives at least one tax credit	-0.3181***	25.5388	0.728	0.643	0.823
Council Tax Rebate Amount (ref. not received or first, fourth or fifth quintile)					
Second or Third Quintile	0.1645**	6.6405	1.179	1.040	1.336
Housing Benefit Amount (ref. not received/ first to third quintile)					
Fourth or Fifth Quintile	-1.3163***	418.7612	0.268	0.236	0.304
London by Multiple Jobs (interaction term)	-1.1234	2.8936	0.325	0.089	1.186

Significance: $p < 0.001$ (***) $p < 0.01$ (**) $p < 0.05$ (*)

N = 22,741

Binary Logistic Regression: Household With Child In Relative Income Poverty Before Housing Costs 2006/7 to 2008/9					
Parameter	β	Wald	Exp(β)	95% CI Exp(β)	
				Lower	Upper
Intercept	0.1891	1.4630			
Location of household (ref. GB in 1998 or UK in 2008)					
Greater London	-0.2906***	13.7281	0.748	0.641	0.872
Household has two or more adults (ref. lone parent)	0.2805***	15.9510	1.324	1.154	1.519
Household has two or more children (ref. only one dependent child)	0.4033***	85.0603	1.497	1.374	1.631
There are one or more pensioners in the household	-1.1175***	60.6874	0.327	0.247	0.433
One or more disabled adults in household	-0.2527***	20.8696	0.777	0.697	0.866
Age of head of household	-0.00432	2.8506	0.996	0.991	1.001
Head of household is female	-0.0606	1.0355	0.941	0.838	1.058
Ethnicity of head of household (ref. White)					
Indian	0.6096***	17.4643	1.840	1.382	2.448
Pakistani/Bangladeshi	0.7595***	45.8434	2.137	1.715	2.663
Black or Black British	0.5270***	22.3271	1.694	1.361	2.108
Other Ethnicity (including Mixed Race)	0.3803***	11.7295	1.463	1.177	1.818
Tenure (ref. mortgage)					
Own home outright	0.3061***	15.2310	1.358	1.165	1.584
Living rent free/squatting	0.5810*	6.5270	1.788	1.145	2.792
Renting	0.1467*	6.3685	1.158	1.033	1.298
Qualifications (ref. households where no adults have qualifications)					
One or more household members have degrees	-0.2830***	11.7343	0.754	0.641	0.886
All have qualifications below degree level	-0.1889**	9.4285	0.828	0.734	0.934
Some have qualifications below degree level	-0.0717	0.7102	0.931	0.788	1.100
One or more self-employed adults in the household	-0.3672***	21.3409	0.693	0.593	0.809
One or more adults in the household are economically inactive	0.9183***	254.2121	2.505	2.238	2.804
One or more adults in the household are unemployed	1.5820***	399.6877	4.865	4.166	5.681

One or more household members has two or more jobs	-0.5371***	14.5279	0.584	0.443	0.770
One plus household members have at least one odd job	-0.5441**	7.5573	0.580	0.394	0.855
Household earnings per hour (ref. no earnings including missing and lowest quintile)					
Second quintile	-1.1239***	277.6760	0.325	0.285	0.371
Third quintile	-1.9998***	517.2587	0.135	0.114	0.161
Fourth quintile	-2.9847***	597.3815	0.051	0.040	0.064
Fifth quintile	-4.5468***	525.7755	0.011	0.007	0.016
Hours worked per week by the household (ref. no hours/ lowest quintile)					
Second quintile	-0.6071***	64.9542	0.545	0.470	0.632
Third quintile	-1.2273***	216.8553	0.293	0.249	0.345
Fourth quintile	-1.8399***	306.2497	0.159	0.129	0.195
Fifth quintile	-2.0637***	351.9358	0.127	0.102	0.158
Social Class (ref. managerial)					
Social Class: Skilled	0.2515**	8.9009	1.286	1.090	1.517
Social Class: Elementary	0.2415***	11.4259	1.273	1.107	1.464
Industry (ref. finance)					
Agricultural	0.7169***	18.7836	2.048	1.481	2.832
Construction	-0.3612***	12.2744	0.697	0.569	0.853
Distribution and Catering	0.1542*	5.7591	1.167	1.029	1.323
Public Administration	-0.1778**	6.7676	0.837	0.732	0.957
Household receives at least one tax credit	-0.6240***	175.2324	0.536	0.489	0.588
Council Tax Rebate Amount (ref. not received or first quintile)					
Second or Third Quintile	0.2145**	9.6429	1.239	1.082	1.419
Housing Benefit Amount (ref. not received/ first to third quintile)					
Fourth or Fifth Quintile	-1.1454***	315.7135	0.318	0.280	0.361
London by Multiple Jobs (interaction term)	0.9766*	4.6844	2.655	1.097	6.430

Significance: p<0.001(***) p<0.01 (**) p<0.05 (*)

N=23,010

Binary Logistic Regression: Household With Child In Relative Income Poverty After Housing Costs 1998/9 to 2000/1					
Parameter	β	Wald	Exp(β)	95% CI Exp(β)	
				Lower	Upper
Intercept	0.7150***	26.0475			
Location of household (ref. GB in 1998 or UK in 2008)					
Scotland	-0.2585**	10.4518	0.772	0.660	0.903
Wales	-0.1006	1.2252	0.904	0.757	1.081
Northern Ireland	n/a	n/a	n/a	n/a	n/a
Greater London	0.1330	2.8362	1.142	0.978	1.334
Household has two or more children (ref. only one dependent child)	0.5056***	127.7944	1.658	1.519	1.810
There are one or more pensioners in the household	-1.0467***	45.9333	0.351	0.259	0.475
One or more disabled adults in household	-0.4290***	66.3799	0.651	0.587	0.722
Age of head of household	-0.00712**	7.3361	0.993	0.988	0.998
Head of household is female	-0.1822**	7.4796	0.833	0.731	0.950
Ethnicity of head of household (ref. White)					
Indian	0.5894***	15.8103	1.803	1.348	2.411
Pakistani/Bangladeshi	0.9260***	44.3022	2.524	1.922	3.316
Black or Black British	0.3456*	6.5471	1.413	1.084	1.841
Other Ethnicity (including Mixed Race)	0.6867***	18.4677	1.987	1.453	2.718
Tenure (ref. mortgage)					
Own home outright	-0.5466***	37.6403	0.579	0.486	0.689
Living rent free/squatting	-0.8256***	13.1386	0.438	0.280	0.684
Renting	0.4473***	67.5974	1.564	1.406	1.740
One or more adults in the household are self-employed	-0.1923*	4.9859	0.825	0.697	0.977
One or more adults in the household are economically inactive	0.9720***	258.5598	2.643	2.348	2.976
One or more adults in the household are unemployed	1.3787***	309.5133	3.970	3.405	4.629
One or more household members has two or more jobs	-0.1328	1.5908	0.876	0.712	1.076
One plus household members have at least one odd job	-0.1938	2.3612	0.824	0.643	1.055
Household earnings per hour (ref. no earnings/ lowest quintile)					
Earnings are missing	-0.2740**	9.2952	0.760	0.638	0.907
Second quintile	-1.1013***	270.8862	0.332	0.292	0.379
Third quintile	-2.1024***	644.5513	0.122	0.104	0.144

Fourth quintile	-3.0364***	856.4020	0.048	0.039	0.059
Fifth quintile	-4.8065***	861.9995	0.008	0.006	0.011
Hours worked per week by the household (ref. no hours including missing and lowest quintile)					
Second quintile	-0.4170***	31.6652	0.659	0.570	0.762
Third quintile	-1.2936***	259.8339	0.274	0.234	0.321
Fourth quintile	-2.0077***	418.7739	0.134	0.111	0.163
Fifth quintile	-2.2369***	462.1776	0.107	0.087	0.131
Social Class (ref. managerial, skilled, operative, elementary, unknown)					
Social Class: Professional	-0.2931**	6.9436	0.746	0.600	0.928
Social Class: Administrative	-0.1970*	4.5085	0.821	0.685	0.985
Social Class: Service	0.0219	0.0585	1.022	0.856	1.220
Social Class: Element	0.2165*	6.3662	1.242	1.050	1.469
Industry (ref. finance, mining, transport and communication, manufacturing, other service)					
Agricultural	0.5374***	11.2366	1.712	1.250	2.344
Construction	-0.2180*	6.4186	0.804	0.679	0.952
Public Administration	-0.1333	3.0440	0.875	0.754	1.017
Missing	-0.6244***	56.2956	0.536	0.455	0.630
Household receives at least one tax credit (either FC or WFTC in 1998 or CTC or WTC in 2008)	-0.3363***	25.2069	0.714	0.627	0.815
Household receives out-of-work benefit: Income Support, Pension Credit or from 2006-2009 Jobseekers' Allowance (Income Based)	0.3503***	19.2265	1.419	1.214	1.660
Council Tax Rebate Amount (ref. not received or first quintile)	0.0132	0.0338	1.013	0.881	1.166
Fourth or Fifth Quintile					
London by Tax Credit (interaction term)	0.5745**	6.8185	1.776	1.154	2.734
Wales by Multiple Job (interaction term)	0.3673	0.8256	1.444	0.654	3.188
London by Multiple Job (interaction term)	-1.2018*	5.8390	0.301	0.113	0.797

Significance: $p < 0.001$ (***) $p < 0.01$ (**) $p < 0.05$ (*)

N = 22,741

Binary Logistic Regression: Household With Child In Relative Income Poverty After Housing Costs 2006/7 to 2008/9					
Parameter	β	Wald	Exp(β)	95% CI Exp(β)	
				Lower	Upper
Intercept	0.9408***	47.3957			
Location of household (ref. GB in 1998 or UK in 2008)					
Scotland	-0.2833***	22.8811	0.753	0.671	0.846
Wales	-0.0526	0.3079	0.949	0.788	1.142
Northern Ireland	-0.4508***	37.7318	0.637	0.552	0.736
Greater London	0.1345	1.6262	1.144	0.930	1.407
Household has two or more children (ref. only one dependent child)	0.2878***	49.3419	1.333	1.231	1.445
There are one or more pensioners in the household	-0.9192***	46.6300	0.399	0.306	0.519
One or more disabled adults in household	-0.3243***	32.9427	0.723	0.647	0.808
Age of head of household	-0.00564*	5.3461	0.994	0.990	0.999
Head of household is female	-0.1583**	8.4949	0.854	0.767	0.949
Ethnicity of head of household (ref. White)					
Indian	0.6684***	24.9513	1.951	1.501	2.536
Pakistani/Bangladeshi	0.7522***	41.1150	2.122	1.686	2.670
Black or Black British	0.3385**	9.1018	1.403	1.126	1.748
Other Ethnicity (including Mixed Race)	0.5627***	26.5374	1.755	1.417	2.174
Tenure (ref. mortgage)					
Own home outright	-0.6024***	59.7902	0.548	0.470	0.638
Living rent free/squatting	-0.2494	1.2566	0.779	0.504	1.205
Renting	0.4065***	63.4323	1.502	1.359	1.660
One or more adults in the household are self-employed	-0.3633***	20.6635	0.695	0.595	0.813
One or more adults in the household are economically inactive	0.9389***	296.9284	2.557	2.298	2.845
One or more adults in the household are unemployed	1.6837***	416.1412	5.385	4.581	6.331
One or more household members has two or more jobs	-0.6192***	26.0021	0.538	0.424	0.683
One plus household members have at least one odd job	-0.6203***	11.6055	0.538	0.376	0.768
Household earnings per hour (ref. no earnings/ lowest quintile)					
Earnings are missing	-0.1305	2.4473	0.878	0.745	1.034
Second quintile	-1.0124***	271.8317	0.363	0.322	0.410
Third quintile	-1.8576***	625.7394	0.156	0.135	0.180

Fourth quintile	-2.6976***	854.7433	0.067	0.056	0.081
Fifth quintile	-4.2073***	988.5885	0.015	0.011	0.019
Hours worked per week by the household (ref. no hours including missing and lowest quintile)					
Second quintile	-0.4351***	41.3357	0.647	0.567	0.739
Third quintile	-1.0792***	236.4496	0.340	0.296	0.390
Fourth quintile	-1.5181***	334.5973	0.219	0.186	0.258
Fifth quintile	-1.9211***	447.8147	0.146	0.123	0.175
Social Class (ref. managerial, skilled, operative, elementary, unknown)					
Social Class: Professional	-0.0666	0.5374	0.936	0.783	1.118
Social Class: Administrative	-0.0873	0.9305	0.916	0.768	1.094
Social Class: Service	-0.2123*	5.1744	0.809	0.674	0.971
Social Class: Element	0.1317	3.5848	1.141	0.995	1.307
Industry (ref. finance, mining, transport and communication, manufacturing, other service)					
Agricultural	0.7385***	23.1661	2.093	1.549	2.827
Construction	-0.1432	3.2554	0.867	0.742	1.012
Public Administration	-0.1685**	6.6839	0.845	0.744	0.960
Missing	-0.2581***	11.2547	0.772	0.664	0.898
Household receives at least one tax credit (either FC or WFTC in 1998 or CTC or WTC in 2008)	-0.5506***	132.6355	0.577	0.525	0.633
Household receives out-of-work benefit: Income Support, Pension Credit or from 2006-2009 Jobseekers' Allowance (Income Based)	-0.0911	1.6247	0.913	0.794	1.050
Council Tax Rebate Amount (ref. not received or first quintile)					
Fourth or Fifth Quintile	-0.1668*	5.2751	0.846	0.734	0.976
London by Tax Credit (interaction term)	0.2970*	4.7000	1.346	1.029	1.760
Wales by Multiple Job (interaction term)	1.4262**	8.4453	4.163	1.591	10.892
London by Multiple Job (interaction term)	0.5011	1.6632	1.651	0.771	3.535

Significance: p<0.001(***) p<0.01 (**) p<0.05 (*)

N = 23,010

Model Diagnostics

	Before Housing Costs		After Housing Costs	
	1998 to 2001	2006 to 2009	1998 to 2001	2006 to 2009
R Square	0.3669	0.3285	0.4470	0.3910
Max Rescaled R Square	0.5591	0.5116	0.6318	0.5581
McFadden's Pseudo R Square ³¹	0.428	0.388	0.482	0.411
Likelihood Ratio Test full model vs. intercept only	10397.2498 (p<0.001)	9164.2786 (p<0.001)	13470.9670 (p<0.001)	11412.6330 (p<0.001)
Hosmer and Lemeshow Test	79.4644 (p<0.001)	56.2486 (p<0.001)	85.0315 (p<0.001)	58.9602 (p<0.001)
c statistic	0.912	0.899	0.926	0.902
Number of cases	22,741	23,010	22,741	23,010

These diagnostic tests relate to different aspects of model fit. The R Square and Rescaled R Square statistics are not widely used for binary logistic regression models. Unlike for multiple linear regression models, they do not show what percentage of the variance in the dependent variable is explained by the model and are thus difficult to interpret but they do give an indication of how much better a fit a model with covariates is compared to an intercept only model.

McFadden's Pseudo R Square does give an approximation of how much variation is explained, although the relationship is not as straightforward as for multiple linear regression models. The two measures, R Square and Pseudo with larger values indicating a model with a better fit, with the R Square indicating how different the model with covariates is from the intercept only model whilst the Pseudo R-Square indicates how close the model with covariates is to the saturated or 'perfect' model (Shtatland et al 2010). According to Tabernick and Fidel (2000) an acceptable value of McFadden's Pseudo R Square is 0.2 to 0.4; all of the models meet or exceed this criteria suggesting that there is a good fit between the model and the data.

The Likelihood Ratio test statistic also gives a measure of how much closer the model with covariates fits the data in comparison to the model with intercept only without covariates. A significant result (p<0.05) indicates that the model with covariates is a significantly better fit than the intercept only model.

The Hosmer and Lemeshow test statistic also give an indication of 'goodness of fit'. Here a non-significant result (p>=0.05) is desired as the null hypothesis is that there

³¹ The McFadden's Pseudo R Square value is not available as output in SAS, although it is given as the default diagnostic test by other quantitative analysis software programmes. It is possible to calculate it based on the -2 Log Likelihood statistics which are available. It is calculated by dividing the -2 Log Likelihood value for the intercept and covariates model by the -2 Log Likelihood value for the intercept only model subtracting this from 1. Expressed as an equation McFadden's Pseudo R Square = 1 - [-2LogL intercept and covariates/-2LogL intercept only] (Shtatland et al 2010).

is a lack of fit in the data. In all cases, this test suggests that the model fit is inadequate as shown by the small p values. However, it has been shown that this test can give an exaggerated indication of a lack of fit where sample sizes are extremely large, a condition met by these models where the sample size is 22,747 in 1998-2001 and 23,010 in 2006-2009. This is because the tests examine deviation from perfect fit, and where these deviations are small the difference is magnified as a result of the large sample size to produce a result showing significant difference (Krammer and Zimmerman 2007).

A different indication about the adequacy of the models is given by the c statistic values. The c statistic gives an indication of the proportion of cases which have been correctly classified as a result of the model with covariates, with a value of 1 indicating a perfect test, where all cases are classified correctly and 0.5 indicating a model which classifies no better than would random allocation. Thus, the closer the value to 1 of the c statistic, the better the predictive power of the model with values of 0.9 and higher usually taken to indicate a very high degree of accuracy (Zweig et al 1992). All of these models have c statistic values of 0.899 or above, suggesting that the variables included are able to accurately classify which households will and will not be in relative poverty, increasing confidence in interpretation.

Thus, overall the model fit can be considered adequate for the purposes of this research. McFadden's R Square, the Likelihood Ratio and the c test statistics all give a strong indication of good fit. This lends support to the conclusion that the apparent lack of fit suggested by the Hosmer and Lemeshow statistics is due to the sample sizes involved rather than to difficulties with the model. Nonetheless, the values of the coefficient estimates, as opposed to the relative size and direction, should be treated with caution. The interpretations of the results presented in this report aim to recognise this need for caution.

Appendix C – Descriptive Statistics

This appendix presents the tables given in 'Explaining the Trend' with tests for statistical significance and association without using weights. The results using weights presented earlier give more accurate estimates for the population to adjust for the stratified nature of the sample as well as non-response.

Table 1: Households with one and several adults by country controlling for earnings

N(%)		1998/9 to 2000/1		2006/7 to 2008/9	
		Household has one adult	Household has several adults	Household has one adult	Household has several adults
Overall	England ex. London	3,696 (21.66%)	13,365 (78.34%)	3,310 (22.84%)	11,184 (77.16%)
	Scotland	443 (23.91%)	1,410 (76.09%)	826 (24.06%)	2,607 (75.94%)
No Earnings and First Quintile	England ex. London	3,079 (47.57%)	3,394 (52.43%)	2,671 (48.69%)	2,815 (51.31%)
	Scotland	387 (53.23%)	340 (46.77%)	663 (52.66%)	596 (47.34%)
Second Quintile	England ex. London	374 (16.92%)	1,836 (83.08%)	362 (20.25%)	1,426 (79.75%)
	Scotland	33 (14.60%)	193 (85.40%)	92 (21.30%)	340 (78.70%)
Third Quintile	England ex. London	157 (5.77%)	2,565 (94.23%)	175 (8.02%)	2,006 (91.98%)
	Scotland	14 (5.34%)	248 (94.66%)	49 (9.61%)	461 (90.39%)
Fourth Quintile	England ex. London	61 (2.14%)	2,788 (97.86%)	77 (3.13%)	2,387 (96.88%)
	Scotland	5 (1.56%)	316 (98.44%)	15 (2.50%)	585 (97.50%)
Fifth Quintile	England ex. London	25 (0.89%)	2,782 (99.11%)	25 (0.97%)	2,550 (99.03%)
	Scotland	4 (1.26%)	313 (98.74%)	7 (1.11%)	625 (98.89%)
Total		4,139 (21.88%)	14,775 (78.12%)	4,136 (23.07%)	13,791 (76.93%)

Overall: Chi-Square = 1998-2001: 4.9225 (p=0.0265); 2006-2009: 2.3412 (p=0.1260)
Phi = 1998-2001: -0.0161; 2006-2009: -0.0114

No earnings/1st quintile: Chi-Square = 1998-2001: 8.4037 (p=0.0037); 2006-2009: 6.4672 (p=0.0110)
Phi = 1998-2001: -0.0342; 2006-2009: -0.0310

2nd quintile: Chi-Square = 1998-2001: 0.7939 (p=0.3729); 2006-2009: 0.2359 (p=0.6272)
Phi = 1998-2001: 0.0181; 2006-2009: -0.0103

3rd quintile: Chi-Square = 1998-2001: 0.0769 (p=0.7778); 2006-2009: 1.3590 (p=0.2437)
Phi = 1998-2001: 0.0052; 2006-2009: -0.0225

4th quintile: Chi-Square = 1998-2001: 0.4818 (p=0.4876); 2006-2009: 0.6471 (p=0.4211)
Phi = 1998-2001: 0.0123; 2006-2009: 0.0145

5th quintile: Chi-Square = 1998-2001: 0.4267 (p=0.5136); 2006-2009: 0.0960 (p=0.7567)
Phi = 1998-2001: -0.0117; 2006-2009: -0.0055

NB: Chi square test for association for 5th quintile group 1998-2001 invalid due to small sample size.

Table 2: Households with one child and several children by country

N(%)	1998/9 to 2000/1		2006/7 to 2008/9	
	Household has one child	Household has several children	Household has one child	Household has several children
England ex. London	6,715 (39.36%)	10,346 (60.64%)	6,186 (42.68%)	8,308 (57.32%)
Scotland	822 (44.36%)	1,031 (55.64%)	1,562 (45.50%)	1,871 (54.50%)
Total	7,537 (39.85%)	11,377 (60.15%)	7,748 (43.22%)	10,179 (56.78%)

Chi-Square = 1998-2001: 17.4452 (p<0.001); 2006-2009: 8.9934 (p=0.0027)
Phi = 1998-2001: -0.0304; 2006-2009: -0.0224

Table 3: one or more disabled adults in the household and relative poverty

1998/9 to 2000/1				
N(%)	Relative poverty Before Housing Costs		Relative poverty After Housing Costs	
	Not in poverty	In poverty	Not in poverty	In poverty
No disabled adults	11,801 (80.63%)	2,835 (19.37%)	10,822 (73.94%)	3,814 (26.06%)
One or more disabled adults	2,949 (68.93%)	1,329 (31.07%)	2,606 (60.92%)	1,672 (39.08%)
Total	14,750 (77.98%)	4,164 (22.02%)	13,428 (71.00%)	5,486 (29.00%)
2006/7 to 2008/9				
N(%)	Relative poverty Before Housing Costs		Relative poverty After Housing Costs	
	Not in poverty	In poverty	Not in poverty	In poverty
No disabled adults	12,738 (82.47%)	2,707 (17.53%)	11,635 (75.33%)	3,810 (24.67%)
One or more disabled adults	1,549 (62.41%)	933 (37.59%)	1,290 (51.97%)	1,192 (48.03%)
Total	14,287 (79.70%)	3,640 (20.30%)	12,925 (72.10%)	5,002 (27.90%)

BHC: Chi-Square = 1998-2001: 263.7610 (p<0.0001); 2006-2009: 531.9705 (p<0.0001)
Phi = 1998-2001: 0.1181; 2006-2009: 0.1723

AHC: Chi-Square = 1998-2001: 272.7166 (p<0.0001); 2006-2009: 579.9357 (p<0.0001)
Phi = 1998-2001: 0.1201; 2006-2009: 0.1799

Table 4: one or more disabled adults in the household by country

N(%)	1998/9 to 2000/1		2006/7 to 2008/9	
	No disabled adults	One or more disabled adults	No disabled adults	One or more disabled adults
England ex. London	13,188 (77.30%)	3,873 (22.70%)	12,492 (86.19%)	2,002 (13.81%)
Scotland	1,448 (78.14%)	405 (21.86%)	2,953 (86.02%)	480 (13.98%)
Total	14,636 (77.38%)	4,278 (22.62%)	15,445 (86.15%)	2,482 (13.85)

Chi-Square = 1998-2001: 0.6810 (p=0.4092); 2006-2009: 0.0667 (p=0.7962)

Phi = 1998-2001: -0.0060; 2006-2009: 0.0019

Table 5: one or more adults of pension age in the household by country

N(%)	1998/9 to 2000/1		2006/7 to 2008/9	
	No adults of pension age	One+ adults of pension age	No adults of pension age	One+ adults of pension age
England ex. London	16,772 (98.31%)	289 (1.69%)	14,174 (97.79%)	320 (2.21%)
Scotland	1,820 (98.22%)	33 (1.78%)	3,369 (98.14%)	64 (1.86%)
Total	18,592 (98.30%)	322 (1.70%)	17,543 (97.86%)	384 (2.14%)

Chi-Square = 1998-2001: 0.0756 (p=0.7834); 2006-2009: 1.5629 (p=0.2112)

Phi = 1998-2001: 0.0020; 2006-2009: -0.0093

Table 6: Ethnicity of head of household by country

1998/9 to 2000/1					
N(%)	White	Black	Indian	Pakistani/ Bangladeshi	Other
England ex. London	16,080 (94.25%)	205 (1.20%)	277 (1.62%)	313 (1.83%)	186 (1.09%)
Scotland	1,828 (98.65%)	4 (0.22%)	2 (0.11%)	11 (0.59%)	8 (0.43%)
Total	17,908 (94.68%)	209 (1.11%)	279 (1.48%)	324 (1.71%)	194 (1.03%)
2006/7 to 2008/9					
	White	Black	Indian	Pakistani/ Bangladeshi	Other
England ex. London	13,045 (90.00%)	308 (2.13%)	330 (2.28%)	420 (2.90%)	391 (2.70%)
Scotland	3,305 (96.27%)	29 (0.84%)	12 (0.35%)	31 (0.90%)	56 (1.63%)
Total	16,350 (91.20%)	337 (1.88%)	342 (1.91%)	451 (2.52%)	447 (2.49%)

Chi-Square = 1998-2001: 66.2380 (p<0.0001); 2006-2009: 416.7601 (p<0.0001)

Cramer's V = 1998-2001: 0.0592; 2006-2009: 0.0905

Table 7: Gender of head of household by country with controls for levels of earnings

	N(%)	1998/9 to 2000/1		2006/7 to 2008/9	
		Male Head of Household	Female Head of Household	Male Head of Household	Female Head of Household
Overall	England ex. London	13,176 (77.23%)	3,885 (22.77%)	8,830 (60.92%)	5,664 (39.08%)
	Scotland	1,370 (73.93%)	483 (26.07%)	1,989 (57.94%)	1,444 (42.06%)
No Earnings and First Quintile	England ex. London	3,326 (51.38%)	3,147 (48.62%)	2,047 (37.31%)	3,439 (62.69%)
	Scotland	316 (43.47%)	411 (56.53%)	403 (32.01%)	856 (67.99%)
Second Quintile	England ex. London	1,783 (80.68%)	427 (19.32%)	1,060 (59.28%)	728 (40.72%)
	Scotland	183 (80.97%)	43 (19.03%)	252 (58.33%)	180 (41.67%)
Third Quintile	England ex. London	2,530 (92.95%)	192 (7.05%)	1,617 (74.14%)	564 (25.86%)
	Scotland	245 (93.51%)	17 (6.49%)	366 (71.76%)	144 (28.24%)
Fourth Quintile	England ex. London	2,768 (97.16%)	81 (2.84%)	1,974 (80.11%)	490 (19.89%)
	Scotland	313 (97.51%)	8 (2.49%)	459 (76.50%)	141 (23.50%)
Fifth Quintile	England ex. London	2,769 (98.65%)	38 (1.35%)	2,132 (82.80%)	443 (17.20%)
	Scotland	313 (98.74%)	4 (1.26%)	509 (80.54%)	123 (19.46%)
Total		14,546 (76.91%)	4,368 (23.09%)	10,819 (60.35%)	7,108 (39.65%)

Overall: Chi-Square = 1998-2001: 10.2151 (p=0.0014); 2006-2009: 10.3291 (p=0.0013)
Phi = 1998-2001: 0.0232; 2006-2009: 0.0240

No/1st quintile: Chi-Square = 1998-2001: 16.3862 (p<0.0001); 2006-2009: 12.4532 (p=0.0004)
Phi = 1998-2001: 0.0477; 2006-2009: 0.0430

2nd quintile: Chi-Square = 1998-2001: 0.0114 (p=0.9148); 2006-2009: 0.1301 (p=0.7183)
Phi = 1998-2001: -0.0022; 2006-2009: 0.0077

3rd quintile: Chi-Square = 1998-2001: 0.1172 (p=0.7321); 2006-2009: 1.2032 (p=0.2727)
Phi = 1998-2001: -0.0063; 2006-2009: 0.0211

4th quintile: Chi-Square = 1998-2001: 0.1302 (p=0.7183); 2006-2009: 3.8530 (p=0.0497)
Phi = 1998-2001: -0.0064; 2006-2009: 0.0355

5th quintile: Chi-Square = 1998-2001: 0.0181 (p=0.8928); 2006-2009: 1.7804 (p=0.1821)
Phi = 1998-2001: -0.0024; 2006-2009: 0.0236

NB: Chi square test for association for 5th quintile group 1998-2001 invalid due to small sample size.

Table 8: number of adults in the household by gender of head of household

N(%)	1998/9 to 2000/1		2006/7 to 2008/9	
	Male Head of Household	Female Head of Household	Male Head of Household	Female Head of Household
One Adult	365 (8.82%)	3,774 (91.18%)	326 (7.88%)	3,810 (92.12%)
Two + Adults	14,181 (95.98%)	594 (4.02%)	10,493 (76.09%)	3,298 (23.91%)
Total	14,546 (76.91%)	4,368 (23.09%)	10,819 (60.35%)	7,108 (39.65%)

Chi-Square = 1998-2001: 13830.1183 (p<0.0001); 2006-2009: 6185.3893 (p<0.0001)

Phi = 1998-2001: -0.8551; 2006-2009: -0.5874

Table 9: gender of head of household and relative poverty

1998/9 to 2000/1				
N(%)	Relative poverty Before Housing Costs		Relative poverty After Housing Costs	
	Not in poverty	In poverty	Not in poverty	In poverty
Male head of household	12,219 (84.00%)	2,327 (16.00%)	11,587 (79.66%)	2,959 (20.34%)
Female head of household	2,531 (57.94%)	1,837 (42.06%)	1,841 (42.51%)	2,527 (57.85%)
Total	14,750 (77.98%)	4,164 (22.02%)	13,428 (71.00%)	5,486 (29.00%)
2006/7 to 2008/9				
N(%)	Relative poverty Before Housing Costs		Relative poverty After Housing Costs	
	Not in poverty	In poverty	Not in poverty	In poverty
Male head of household	9,261 (85.60%)	1,558 (14.40%)	8,681 (80.24%)	2,138 (19.76%)
Female head of household	5,026 (70.71%)	2,028 (29.29%)	4,244 (59.71%)	2,864 (40.29%)
Total	14,287 (79.70%)	3,640 (20.30%)	12,925 (72.10%)	5,002 (27.90%)

BHC: Chi-Square = 1998-2001: 1328.6182 (p<0.0001); 2006-2009: 587.7727 (p<0.0001)

Phi = 1998-2001: 0.2650; 2006-2009: 0.1811

AHC: Chi-Square = 1998-2001: 2295.3096 (p<0.0001); 2006-2009: 898.8604 (p<0.0001)

Phi = 1998-2001: 0.3484; 2006-2009: 0.2239

Table 10: independent group t-test for age of head of household

1998-2001: Dependent variable age of head of household

Summary Statistics

Class (Country)	N	Mean	Lower Confidence Interval Mean	Upper Confidence Interval Mean
England (ex. London)	17,061	39.007	38.874	39.139
Scotland	1,853	38.195	37.805	38.585
Difference		0.8117	0.3889	1.2345

T Tests

Method	Variances	DF	T Value	Pr > t
Pooled	Equal	19000	3.76	<0.0002
Satterthwaite	Unequal	2304	3.87	<0.0001

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	17,060	1,852	1.07	0.0556

The non-significant result for the test for equality of variances suggests that we can accept the null hypothesis that there is no difference in the variances of the age of the head of household between Scotland and England (excluding London). Therefore the T Value for the Pooled method (in the T Tests table) should be used. The small p value ($p < 0.001$) suggests that the difference is statistically significant.

1998-2001: Dependent variable age of head of household

Summary Statistics

Class (Country)	N	Mean	Lower Confidence Interval Mean	Upper Confidence Interval Mean
England (ex. London)	14,494	39.707	39.557	39.847
Scotland	3,433	39.603	39.314	39.892
Difference		0.0992	-0.231	0.429

T Tests

Method	Variances	DF	T Value	Pr > t
Pooled	Equal	18,000	0.59	0.5555
Satterthwaite	Unequal	5305	0.60	0.5477

Equality of Variances

Method	Num DF	Den DF	F Value	Pr > F
Folded F	14,493	3,432	1.07	0.0175

The significant result for the test for equality of variances suggests that the T Value for the Satterthwaite method (in the T Tests table) should be used. The large p value ($p = 0.5477$) suggests that the difference is not statistically significant.

Table 11: Tenure-type by country controlling for earnings

1998/9 to 2000/1					
N(%)		Own outright	Mortgage	Renting	Rent Free
No Earnings and First Quintile	England ex. London	554 (8.56%)	2,089 (32.27%)	3,773 (58.29%)	57 (0.88%)
	Scotland	44 (6.05%)	134 (18.43%)	544 (74.83%)	5 (0.69%)
Second Quintile	England ex. London	207 (9.37%)	1,357 (61.40%)	615 (27.83%)	31 (1.40%)
	Scotland	14 (6.19%)	114 (50.44%)	90 (39.82%)	8 (3.54%)
Third Quintile	England ex. London	168 (6.17%)	2,123 (77.99%)	407 (14.95%)	24 (0.88%)
	Scotland	12 (4.58%)	202 (77.10%)	45 (17.18%)	3 (1.15%)
Fourth Quintile	England ex. London	129 (4.53%)	2,468 (86.63%)	233 (8.18%)	19 (0.67%)
	Scotland	17 (5.30%)	274 (85.36%)	24 (7.48%)	6 (1.87%)
Fifth Quintile	England ex. London	175 (6.23%)	2,482 (88.42%)	138 (4.92%)	12 (0.43%)
	Scotland	19 (5.99%)	285 (89.91%)	10 (3.15%)	3 (0.95%)
Total		1,339 (7.08%)	11,528 (60.95%)	5,879 (31.08%)	168 (0.89%)
2006/7 to 2008/9					
N(%)		Own outright	Mortgage	Renting	Rent Free
No Earnings and First Quintile	England ex. London	504 (9.19%)	1,688 (30.77%)	3,250 (59.24%)	44 (0.80%)
	Scotland	106 (8.42%)	308 (24.46%)	830 (65.93%)	15 (1.19%)
Second Quintile	England ex. London	191 (10.68%)	957 (53.52%)	630 (35.23%)	10 (0.56%)
	Scotland	39 (9.03%)	232 (53.70%)	152 (35.19%)	9 (2.08%)
Third Quintile	England ex. London	219 (10.04%)	1,510 (69.23%)	437 (20.04%)	15 (0.69%)
	Scotland	39 (7.65%)	357 (70.00%)	107 (20.98%)	7 (1.37%)
Fourth Quintile	England ex. London	239 (9.70%)	1,957 (79.42%)	263 (10.67%)	5 (0.20%)
	Scotland	50 (8.33%)	495 (82.50%)	45 (7.50%)	10 (1.67%)
Fifth Quintile	England ex. London	260 (10.10%)	2,169 (84.23%)	142 (5.15%)	4 (0.16%)
	Scotland	69 (10.92%)	538 (85.13%)	23 (3.64%)	2 (0.32%)
Total		1,716 (9.57%)	10,211 (56.96%)	5,879 (32.79%)	121 (0.67%)

Table 12: Tenure-type by country

1998/9 to 2000/1				
N(%)	Own outright	Mortgage	Renting	Rent Free
England ex. London	1,233 (7.23%)	10,519 (61.66%)	5,166 (30.28%)	143 (0.84%)
Scotland	106 (5.72%)	1,009 (54.45%)	713 (38.48%)	25 (1.35%)
Total	1,339 (7.08%)	11,528 (60.95%)	5,879 (31.08%)	168 (0.89%)
2006/7 to 2008/9				
	Own outright	Mortgage	Renting	Rent Free
England ex. London	1,413 (9.75%)	8,281 (57.13%)	4,722 (32.58%)	78 (0.54%)
Scotland	303 (8.83%)	1,930 (56.22%)	1,157 (33.70%)	43 (1.25%)
Total	1,716 (9.57%)	10,211 (56.96%)	5,879 (32.79%)	121 (0.67%)

Overall: Chi-Square = 1998-2001: 60.6460 (p<0.0001); 2006-2009: 24.9320 (p<0.0001)
Cramer's V = 1998-2001: 0.0566; 2006-2009: 0.0373

No/1st quintile: Chi-Square = 1998-2001: 75.5981 (p<0.0001); 2006-2009: 23.7619 (p<0.0001)
Cramer's V = 1998-2001: 0.1025; 2006-2009: 0.0594

2nd quintile: Chi-Square = 1998-2001: 22.3947 (p<0.0001); 2006-2009: 10.3644 (p=0.0157)
Cramer's V = 1998-2001: 0.0959; 2006-2009: 0.0683

3rd quintile: Chi-Square = 1998-2001: 1.9915 (p=0.5742); 2006-2009: 5.0593 (p=0.1675)
Cramer's V = 1998-2001: 0.0258; 2006-2009: 0.0434

4th quintile: Chi-Square = 1998-2001: 5.8859 (p=0.1173); 2006-2009: 27.4773 (p<0.0001)
Cramer's V = 1998-2001: 0.0431; 2006-2009: 0.0947

5th quintile: Chi-Square = 1998-2001: 3.5604 (p=0.3130); 2006-2009: 4.5539 (p=0.2075)
Cramer's V = 1998-2001: 0.0338; 2006-2009: 0.0377

NB: Chi square test for association for 5th quintile group 1998-2001 invalid due to small sample size.

Table 13: adults' educational qualifications by country

1998/9 to 2000/1				
N(%)	No adults have qualifications	Some adults have qualifications	All adults have qualifications	One or more adults have degrees
England ex. London	3,038 (17.81%)	3,220 (18.87%)	6,983 (40.93%)	3,820 (22.39%)
Scotland	384 (20.72%)	348 (18.78%)	696 (37.56%)	425 (22.94%)
Total	3,422 (18.09%)	3,568 (18.86%)	7,679 (40.60%)	4,245 (22.44%)
2006/7 to 2008/9				
	No adults have qualifications	Some adults have qualifications	All adults have qualifications	One or more adults have degrees
England ex. London	1,206 (8.32%)	1,517 (10.47%)	7,532 (51.97%)	4,239 (29.25%)
Scotland	316 (9.20%)	400 (11.65%)	1,733 (50.48%)	984 (28.66%)
Total	1,522 (8.49%)	1,917 (10.69%)	9,265 (51.68%)	5,223 (29.13%)

Chi-Square = 1998-2001: 12.7598 (p=0.0052); 2006-2009: 7.7114 (p=0.0524)
Cramer's V = 1998-2001: 0.0260; 2006-2009: 0.0207

Table 14: household member unemployment and economic inactivity by country

1998/9 to 2000/1				
N(%)	No household adults unemployed	One or more adults unemployed	No adults economically inactive	One or more adults economically inactive
England ex. London	15,667 (91.83%)	1,394 (8.17%)	11,207 (65.69%)	5,854 (34.31%)
Scotland	1,638 (88.40%)	215 (11.60%)	1,218 (65.73%)	635 (34.27%)
Total	17,305 (91.49%)	1,609 (8.51%)	12,425 (65.69%)	6,489 (34.31%)
2006/7 to 2008/9				
	No household adults unemployed	One or more adults unemployed	No adults economically inactive	One or more adults economically inactive
England ex. London	13,579 (93.69%)	915 (6.31%)	9,399 (64.85%)	5,095 (35.15%)
Scotland	3,202 (93.27%)	231 (6.73%)	2,287 (66.62%)	1,146 (33.38%)
Total	16,781 (93.61%)	1,146 (6.39%)	11,686 (65.19%)	6,241 (34.81%)

Unemployment:

Chi-Square = 1998-2001: 25.2966 (p<0.0001); 2006-2009: 0.8021 (p=0.3705)

Phi = 1998-2001: 0.0366; 2006-2009: 0.0067

Economic Inactivity:

Chi-Square = 1998-2001: 0.0014 (p=0.9702); 2006-2009: 3.8345 (p=0.0502)

Phi = 1998-2001: -0.0003; 2006-2009: -0.0146

Table 15: household member self-employment by country controlling for earnings

	N(%)	1998/9 to 2000/1		2006/7 to 2008/9	
		No self-employed adults	One or more self-employed adults	No self-employed adults	One or more self-employed adults
Overall	England ex. London	15,083 (88.41%)	1,978 (11.59%)	12,870 (88.80%)	1,624 (11.20%)
	Scotland	1,687 (91.04%)	166 (8.96%)	3,079 (89.69%)	354 (10.31%)
No Earnings and First Quintile	England ex. London	5,068 (78.29%)	1,405 (21.71%)	4,361 (79.49%)	1,125 (20.51%)
	Scotland	630 (86.66%)	97 (13.34%)	1,029 (81.73%)	230 (18.27%)
Second Quintile	England ex. London	1,912 (86.52%)	298 (13.48%)	1,587 (88.76%)	201 (11.24%)
	Scotland	198 (87.61%)	28 (12.39%)	377 (87.27%)	55 (12.73%)
Third Quintile	England ex. London	2,571 (94.45%)	151 (5.55%)	2,031 (93.12%)	150 (6.88%)
	Scotland	238 (90.84%)	24 (9.16%)	470 (92.16%)	40 (7.84%)
Fourth Quintile	England ex. London	2,763 (96.98%)	86 (3.02%)	2,369 (96.14%)	95 (3.86%)
	Scotland	313 (97.51%)	8 (2.49%)	581 (96.83%)	19 (3.17%)
Fifth Quintile	England ex. London	2,769 (98.65%)	38 (1.35%)	2,522 (97.94%)	53 (2.06%)
	Scotland	308 (97.16%)	9 (2.84%)	622 (98.42%)	10 (1.58%)
Total		16,770 (88.66%)	2,144 (11.34%)	15,949 (88.97%)	1,978 (11.03%)

Overall: Chi-Square = 1998-2001: 11.5491 (p=0.0007); 2006-2009: 2.2546 (p=0.1332)
Phi = 1998-2001: -0.0247; 2006-2009: -0.0112

No/1st quintile: Chi-Square = 1998-2001: 27.6891 (p<0.0001); 2006-2009: 3.1957 (p=0.0738)
Phi = 1998-2001: -0.0620; 2006-2009: -0.0218

2nd quintile: Chi-Square = 1998-2001: 0.2120 (p=0.6452); 2006-2009: 0.7570 (p=0.3843)
Phi = 1998-2001: -0.0093; 2006-2009: 0.0185

3rd quintile: Chi-Square = 1998-2001: 5.6508 (p=0.0174); 2006-2009: 0.5873 (p=0.4435)
Phi = 1998-2001: 0.0435; 2006-2009: 0.0148

4th quintile: Chi-Square = 1998-2001: 0.2778 (p=0.5981); 2006-2009: 0.6392 (p=0.4240)
Phi = 1998-2001: -0.0094; 2006-2009: -0.0144

5th quintile: Chi-Square = 1998-2001: 4.2408 (p=0.0395); 2006-2009: 0.5969 (p=0.4397)
Phi = 1998-2001: 0.0368; 2006-2009: -0.0136

NB: Chi square test for association for 5th quintile group 1998-2001 invalid due to small sample size.

Table 16: household member additional work by country

1998/9 to 2000/1				
N(%)	No adults have an odd job	One or more adults has an odd job	No adults have several jobs	One or more adults has several jobs
England ex. London	16,536 (96.92%)	525 (3.08%)	15,847 (92.88%)	1,214 (7.12%)
Scotland	1,801 (97.19%)	52 (2.81%)	1,752 (94.55%)	101 (5.45%)
Total	18,337 (96.95%)	577 (3.05%)	17,599 (93.05%)	1,315 (6.95%)
2006/7 to 2008/9				
	No adults have an odd job	One or more adults has an odd job	No adults have several jobs	One or more adults has several jobs
England ex. London	14,265 (98.42%)	229 (1.58%)	13,670 (94.31%)	824 (5.69%)
Scotland	3,401 (99.07%)	32 (0.93%)	3,241 (94.41%)	192 (5.59%)
Total	17,666 (98.54%)	261 (1.46%)	16,911 (94.33%)	1,016 (5.67%)

Odd Jobs:

Chi-Square = 1998-2001: 0.4148 (p=0.5195); 2006-2009: 8.1193 (p=0.0044)

Phi = 1998-2001: -0.0047; 2006-2009: -0.0213

Several Jobs:

Chi-Square = 1998-2001: 7.1629 (p=0.0074); 2006-2009: 0.0443 (p=0.8334)

Phi = 1998-2001: -0.0195; 2006-2009: -0.0016

Table 17: household earnings per hour by country

Household Earnings Per Hour – Quintile Groups						
1998/9 to 2000/1						
N(%)	None Reported	1 st quintile (<=£4.39)	2 nd quintile (<=£6.06)	3 rd quintile (<=£7.83)	4 th quintile (<=£10.57)	5 th quintile (>£10.57)
England ex. London	3,656 (21.43%)	2,920 (17.12%)	2,471 (14.48%)	2,528 (14.82%)	2,646 (15.51%)	2,840 (16.65%)
Scotland	444 (23.96%)	294 (15.87%)	264 (14.25%)	259 (13.98%)	288 (15.54%)	304 (16.41%)
Total	4,100 (21.68%)	3,214 (16.99%)	2,735 (14.46%)	2,787 (14.74%)	2,934 (15.51%)	3,144 (16.62%)
2006/7 to 2008/9						
	None Reported	1 st quintile (<=£6.08)	2 nd quintile (<=£8.23)	3 rd quintile (<=£10.70)	4 th quintile (<=£14.87)	5 th quintile (>£14.87)
England ex. London	3,012 (20.78%)	2,481 (17.12%)	2,079 (14.34%)	2,106 (14.53%)	2,301 (15.88%)	2,515 (17.35%)
Scotland	696 (20.27%)	568 (16.55%)	503 (14.65%)	514 (14.97%)	547 (15.93%)	605 (17.62%)
Total	3,708 (20.68%)	3,049 (17.01%)	2,582 (14.40%)	2,620 (14.61%)	2,848 (15.89%)	3,120 (17.40%)

Chi-Square = 1998-2001: 7.4025 (p=0.1924); 2006-2009: 1.5567 (p=0.9064)

Cramer's V = 1998-2001: 0.0198; 2006-2009: 0.0093

Table 18: household work intensity by country

Household Hours Worked Per Week – Quintile Groups						
1998/9 to 2000/1						
N(%)	None Reported	1 st quintile (<=39)	2 nd quintile (<=50)	3 rd quintile (<=70)	4 th quintile (<=88)	5 th quintile (>88)
England ex. London	2,885 (16.91%)	2,431 (14.25%)	2,303 (13.50%)	3,804 (22.30%)	3,130 (18.35%)	2,508 (14.70%)
Scotland	387 (20.89%)	266 (14.36%)	199 (10.74%)	378 (20.40%)	318 (17.16%)	305 (16.46%)
Total	3,272 (17.30%)	2,697 (14.26%)	2,502 (13.23%)	4,182 (22.11%)	3,448 (18.23%)	2,813 (14.87%)
2006/7 to 2008/9						
	None Reported	1 st quintile (<=37)	2 nd quintile (<=47)	3 rd quintile (<=67)	4 th quintile (<=82)	5 th quintile (>82)
England ex. London	2,231 (15.39%)	2,226 (15.36%)	1,905 (13.14%)	3,273 (22.58%)	2,632 (18.16%)	2,227 (15.63%)
Scotland	565 (16.46%)	501 (14.59%)	394 (11.48%)	737 (21.47%)	704 (20.51%)	532 (15.50%)
Total	2,796 (15.60%)	2,727 (15.21%)	2,299 (12.82%)	4,010 (22.37%)	3,336 (18.61%)	2,759 (15.39%)

Chi-Square = 1998-2001: 32.3880 (p<0.0001); 2006-2009: 18.8875 (p=0.0020)

Cramer's V = 1998-2001: 0.0414; 2006-2009: 0.0325

Table 19: Country by Occupational Class of Head of Household

1998/9 to 2000/1										
N(%)	Manager	Professional	Assoc. Prof	Admin	Skilled	Service	Sales	Process	Elementary	Unknown
England ex. London	3,056 (17.91%)	1,577 (9.24%)	1,379 (8.08%)	1,041 (6.10%)	2,313 (13.56%)	1,244 (7.29%)	812 (4.76%)	1,702 (9.98%)	909 (5.33%)	3,028 (17.75%)
Scotland	287 (15.49%)	180 (9.71%)	140 (7.56%)	108 (5.83%)	218 (11.76%)	144 (7.77%)	91 (4.91%)	175 (9.44%)	117 (6.31%)	393 (21.21%)
Total	3,343 (17.67%)	1,757 (9.29%)	1,519 (8.03%)	1,149 (6.07%)	2,531 (13.38%)	1,388 (7.34%)	903 (4.77%)	1,877 (9.92%)	1,026 (5.42%)	3,421 (18.09%)
2006/7 to 2008/9										
	Manager	Professional	Assoc. Prof	Admin	Skilled	Service	Sales	Process	Elementary	Unknown
England ex. London	2,493 (17.20%)	1,724 (11.89%)	1,792 (12.36%)	850 (5.86%)	1,658 (11.44%)	781 (5.39%)	586 (4.04%)	1,110 (7.66%)	1,129 (7.79%)	2,371 (16.36%)
Scotland	564 (16.43%)	364 (10.60%)	435 (12.67%)	200 (5.83%)	389 (11.33%)	193 (5.62%)	157 (4.57%)	272 (7.92%)	270 (7.86%)	589 (17.16%)
Total	3,057 (17.05%)	2,088 (11.65%)	2,227 (12.42%)	1,050 (5.86%)	2,047 (11.42%)	974 (5.43%)	743 (4.14%)	1,382 (7.71%)	1,399 (7.80%)	2,960 (16.51%)

Overall: Chi-Square = 1998-2001: 25.8977 (p=0.0021); 2006-2009: 8.6963 (p=0.4653)
Cramer's V = 1998-2001: 0.0370; 2006-2009: 0.0220

Professional: Chi-Square = 1998-2001: 0.4394 (p=0.5074); 2006-2009: 4.4996 (p=0.0339)
Phi = 1998-2001: 0.0048; 2006-2009: -0.0158

Administrative: Chi-Square = 1998-2001: 0.2187 (p=0.6400); 2006-2009: 0.0075 (p=0.9308)
Phi = 1998-2001: -0.0034; 2006-2009: -0.0006

Service: Chi-Square = 1998-2001: 0.5656 (p=0.4520); 2006-2009: 0.2945 (p=0.5874)
Phi = 1998-2001: 0.0055; 2006-2009: 0.0041

Skilled: Chi-Square = 1998-2001: 4.6335 (p=0.0314); 2006-2009: 0.0320 (p=0.8580)
Phi = 1998-2001: -0.0157; 2006-2009: -0.0013

Elementary: Chi-Square = 1998-2001: 3.1684 (p=0.0751); 2006-2009: 0.0219 (p=0.8823)
Phi = 1998-2001: 0.0129; 2006-2009: 0.0011

Table 20: Country by Industry of Employment of Head of Household

1998/9 to 2000/1										
N(%)	Agriculture	Energy	Manuf.	Const.	Catering	Transport	Finance	Public Admin.	Other Service	Missing
England ex. London	229 (1.34%)	255 (1.49%)	3,385 (19.84%)	1,298 (7.61%)	2,169 (12.71%)	1,133 (6.64%)	2,062 (12.09%)	2,862 (16.78%)	518 (3.04%)	3,150 (18.46%)
Scotland	33 (1.78%)	46 (2.48%)	307 (16.57%)	125 (6.75%)	251 (13.55%)	113 (6.10%)	154 (8.31%)	354 (19.10%)	66 (3.56%)	404 (21.80%)
Total	262 (1.39%)	301 (1.59%)	3,692 (19.52%)	1,423 (7.52%)	2,420 (12.79%)	1,246 (6.59%)	2,216 (11.72%)	3,216 (17.00%)	584 (3.09%)	3,554 (18.79%)
2006/7 to 2008/9										
	Agriculture	Energy	Manuf.	Const.	Catering	Transport	Finance	Public Admin.	Other Service	Missing
England ex. London	142 (0.98%)	190 (1.31%)	1,992 (13.74%)	1,189 (8.20%)	1,846 (12.74%)	1,012 (6.98%)	1,999 (13.79%)	3,158 (21.79%)	473 (3.26%)	2,493 (17.20%)
Scotland	77 (2.24%)	126 (3.67%)	361 (10.52%)	331 (9.64%)	406 (11.83%)	186 (5.42%)	406 (11.83%)	819 (23.86%)	112 (3.26%)	609 (17.74%)
Total	219 (1.22%)	316 (1.76%)	2,353 (13.13%)	1,520 (8.48%)	2,252 (12.56%)	1,198 (6.68%)	2,405 (13.42%)	3,977 (22.18%)	585 (3.26%)	3,102 (17.30%)

Overall: Chi-Square = 1998-2001: 62.1262 (p<0.0001); 2006-2009: 178.5199 (p<0.0001)
Cramer's V = 1998-2001: 0.0573; 2006-2009: 0.0998

Agriculture: Chi-Square = 1998-2001: 2.3544 (p=0.1249); 2006-2009: 36.7041 (p<0.0001)
Phi = 1998-2001: 0.0112; 2006-2009: 0.0452

Construction: Chi-Square = 1998-2001: 1.7858 (p=0.1814); 2006-2009: 7.3996 (p=0.0065)
Phi = 1998-2001: -0.0097; 2006-2009: 0.0203

Catering: Chi-Square = 1998-2001: 1.0380 (p=0.3083); 2006-2009: 2.0922 (p=0.1481)
Phi = 1998-2001: 0.0074; 2006-2009: -0.0108

Public Admin: Chi-Square = 1998-2001: 6.4248 (p=0.0113); 2006-2009: 6.8785 (p=0.0087)
Phi = 1998-2001: 0.0184; 2006-2009: 0.0196

Missing: Chi-Square = 1998-2001: 12.2144 (p=0.0005); 2006-2009: 0.5643 (p=0.4525)
Phi = 1998-2001: 0.0254; 2006-2009: 0.0056

Table 21: Gender by Industry of Employment of Head of Household

1998/9 to 2000/1										
N(%)	Agriculture	Energy	Manuf.	Const.	Catering	Transport	Finance	Public Admin.	Other Service	Missing
Male head of household	243 (1.67%)	297 (2.04%)	3,422 (23.53%)	1,403 (9.65%)	1,816 (12.48%)	1,163 (8.00%)	1,940 (13.34%)	2,345 (16.12%)	441 (3.03%)	1,476 (10.15%)
Female head of household	19 (0.43%)	4 (0.09%)	270 (6.18%)	20 (0.46%)	604 (13.83%)	83 (1.90%)	276 (6.32%)	871 (19.94%)	143 (3.27%)	2,078 (47.57%)
Total	262 (1.39%)	301 (1.59%)	3,692 (19.52%)	1,423 (7.52%)	2,420 (12.79%)	1,246 (6.59%)	2,216 (11.72%)	3,216 (17.00%)	584 (3.09%)	3,554 (18.79%)
2006/7 to 2008/9										
	Agriculture	Energy	Manuf.	Const.	Catering	Transport	Finance	Public Admin.	Other Service	Missing
Male head of household	199 (1.84%)	277 (2.56%)	2,026 (18.73%)	1,449 (13.39%)	1,299 (12.01%)	1,046 (9.67%)	1,720 (15.90%)	1,698 (15.69%)	344 (3.18%)	761 (7.03%)
Female head of household	20 (0.28%)	39 (0.55%)	327 (4.60%)	71 (1.00%)	953 (13.41%)	152 (2.14%)	685 (9.64%)	2,279 (32.06%)	241 (3.39%)	2,341 (32.93%)
Total	219 (1.22%)	316 (1.76%)	2,353 (13.13%)	1,520 (8.48%)	2,252 (12.56%)	1,198 (6.68%)	2,405 (13.42%)	3,977 (22.18%)	585 (3.26%)	3,102 (17.30%)

Chi-Square = 1998-2001: 3880.8779 (p<0.0001); 2006-2009: 4290.7678 (p<0.0001)
Cramer's V = 1998-2001: 0.4530; 2006-2009: 0.4892

Table 22: Income Support and Tax Credits by Country

1998/9 to 2000/1				
N(%)	Household does not receive tax credits	Household receives tax credits	Household does not income support	Household receives income support
England ex. London	15,070 (88.33%)	1,991 (11.67%)	14,375 (84.26%)	2,686 (15.74%)
Scotland	1,622 (87.53%)	231 (12.47%)	1,500 (80.95%)	353 (19.05%)
Total	16,692 (88.25%)	2,222 (11.75%)	15,875 (83.93%)	3,039 (16.07%)
2006/7 to 2008/9				
	Household does not receive tax credits	Household receives tax credits	Household does not income support	Household receives income support
England ex. London	5,748 (39.66%)	8,746 (60.34%)	12,370 (85.35%)	2,124 (14.65%)
Scotland	1,320 (38.45%)	2,113 (61.55%)	2,932 (85.41%)	501 (14.59%)
Total	7,068 (39.43%)	10,859 (60.57%)	15,302 (85.36%)	2,625 (14.64%)

Tax Credits:

Chi-Square = 1998-2001: 1.0225 (p=0.3119); 2006-2009: 1.6944 (p=0.1930)

Phi = 1998-2001: 0.0074; 2006-2009: 0.0097

Income Support:

Chi-Square = 1998-2001: 13.5520 (p=0.0002); 2006-2009: 0.0082 (p=0.9279)

Phi = 1998-2001: 0.0268; 2006-2009: -0.0007

Table 23: income support receipt by country controlling for work status

	N(%)	1998/9 to 2000/1		2006/7 to 2008/9	
		Household does not receive income support	Household receives income support	Household does not receive income support	Household receives income support
No unemployed adults	England ex. London	13,467 (85.96%)	2,200 (14.04%)	11,878 (87.47%)	1,701 (12.53%)
	Scotland	1,362 (83.15%)	276 (16.85%)	2,803 (87.54%)	399 (12.46%)
One or more unemployed adults	England ex. London	908 (65.14%)	486 (34.86%)	492 (53.77%)	423 (46.23%)
	Scotland	138 (64.19%)	77 (35.81%)	129 (55.84%)	102 (44.16%)
No economically inactive adults	England ex. London	10,637 (94.91%)	570 (5.09%)	9,066 (96.46%)	333 (3.54%)
	Scotland	1,149 (94.33%)	69 (5.67%)	2,210 (96.63%)	77 (3.37%)
One or more economically inactive adults	England ex. London	3,738 (63.85%)	2,116 (36.15%)	3,304 (64.85%)	1,791 (35.15%)
	Scotland	351 (55.28%)	284 (44.72%)	722 (63.00%)	424 (37.00%)
Total		15,875 (83.93%)	3,039 (16.07%)	15,302 (85.36%)	2,625 (14.64%)

No unemployed adults:

Chi-Square = 1998-2001: 9.5338 (p=0.0020); 2006-2009: 0.0102 (p=0.9195)

Phi = 1998-2001: 0.0235; 2006-2009: -0.0008

One or more unemployed adults:

Chi-Square = 1998-2001: 0.0739 (p=0.7857); 2006-2009: 0.3195 (p=0.5719)

Phi = 1998-2001: 0.0068; 2006-2009: -0.0167

No economically inactive adults:

Chi-Square = 1998-2001: 0.7547 (p=0.3850); 2006-2009: 0.1684 (p=0.6815)

Phi = 1998-2001: 0.0078; 2006-2009: -0.0038

One or more economically inactive adults:

Chi-Square = 1998-2001: 18.0870 (p= p<0.0001); 2006-2009: 1.3927 (p=0.2379)

Phi = 1998-2001: 0.0528; 2006-2009: 0.0149

Table 24: housing benefit by country

Amount of Housing Benefit Received – Quintile Groups						
1998/9 to 2000/1						
N(%)	None Reported	1 st quintile (<=£29.54)	2 nd quintile (<=£38.00)	3 rd quintile (<=£45.74)	4 th quintile (<=£57.38)	5 th quintile (>£57.38)
England ex. London	13,850 (81.18%)	432 (2.53%)	487 (2.85%)	639 (3.75%)	745 (4.37%)	908 (5.32%)
Scotland	1,385 (74.74%)	111 (5.99%)	156 (8.42%)	101 (5.45%)	53 (2.86%)	47 (2.54%)
Total	15,235 (80.55%)	543 (2.87%)	643 (3.40%)	740 (3.91%)	798 (4.22%)	955 (5.05%)
2006/7 to 2008/9						
	None Reported	1 st quintile (<=£44.60)	2 nd quintile (<=£54.29)	3 rd quintile (<=£64.00)	4 th quintile (<=£79.00)	5 th quintile (>£79.00)
England ex. London	12,018 (82.92%)	379 (2.61%)	293 (2.02%)	471 (3.25%)	631 (4.35%)	702 (4.84%)
Scotland	2,850 (83.02%)	132 (3.85%)	184 (5.36%)	124 (3.61%)	63 (1.84%)	80 (2.33%)
Total	14,868 (82.94%)	511 (2.85%)	477 (2.66%)	595 (3.32%)	694 (3.87%)	782 (4.36%)

Chi-Square = 1998-2001: 227.5505 (p<0.0001); 2006-2009: 217.7391 (p<0.0001)

Cramer's V = 1998-2001: 0.1211; 2006-2009: 0.1102

Table 25: council tax rebate by country

Amount of Council Tax Rebate Received – Quintile Groups						
1998/9 to 2000/1						
N(%)	None Reported	1 st quintile (<=£5.63)	2 nd quintile (<=£7.47)	3 rd quintile (<=£8.76)	4 th quintile (<=£10.47)	5 th quintile (>£10.47)
England ex. London	13,329 (78.13%)	504 (2.95%)	592 (3.47%)	807 (4.73%)	893 (5.23%)	936 (5.49%)
Scotland	1,356 (73.18%)	135 (7.29%)	141 (7.61%)	95 (5.13%)	65 (3.51%)	61 (3.29%)
Total	14,685 (77.64%)	639 (3.38%)	733 (3.88%)	902 (4.77%)	958 (5.07%)	997 (5.27%)
2006/7 to 2008/9						
	None Reported	1 st quintile (<=£9.05)	2 nd quintile (<=£11.82)	3 rd quintile (<=£13.67)	4 th quintile (<=£16.78)	5 th quintile (>£16.78)
England ex. London	11,788 (81.33%)	418 (2.88%)	399 (2.75%)	603 (4.16%)	665 (4.59%)	621 (4.28%)
Scotland	2,815 (82.00%)	194 (5.65%)	186 (5.42%)	95 (2.77%)	95 (2.77%)	48 (1.40%)
Total	14,603 (81.46%)	612 (3.41%)	585 (3.26%)	698 (3.89%)	760 (4.24%)	669 (3.73%)

Chi-Square = 1998-2001: 197.6399 (p<0.0001); 2006-2009: 220.3233 (p<0.0001)

Cramer's V = 1998-2001: 0.1022; 2006-2009: 0.1109

Appendix D – Alternative Models

Looking at different English regions and the risk of poverty where a different income threshold is used was beyond the scope of this project. However during discussions with the experts who took part in this project, it became clear that looking at different regions and different poverty levels would be useful.

Therefore, to facilitate future research this section will present the same binary logistic regression models (for relative poverty for households with dependent child before and after housing costs) first with regional controls and second using different income thresholds for poverty.

The full models (including confidence intervals and diagnostic test results) are presented below:

- 1) Relative poverty (60% of median income) including controls for the English regions – dummy variables for Wales, Scotland and Northern Ireland are included whether or not the associations are significant. The reference category is the North East of England.
- 2) Relative poverty with a lower threshold (40% of median income).
- 3) Relative poverty with an even lower threshold (20% of median income). It is hypothesised that families with this level of income experience much lower levels of material deprivation than would be expected.
- 4) Relative poverty (60% of median income) excluding families whose income is below 20% of median income.

**1.1 Household With Child In Relative Income Poverty with Regional Controls
Before Housing Costs 1998/9 to 2000/1**

Parameter	β	Wald	Exp(β)	95% CI Exp(β)	
				Lower	Upper
Intercept	0.1064	0.3517			
Location of household (ref. North East England)					
North West	0.0903	0.7042	1.094	0.886	1.351
Yorkshire and Humber	-0.0278	0.0601	0.973	0.779	1.215
East Midlands	0.0342	0.0799	1.035	0.816	1.312
West Midlands	-0.0671	0.3402	0.935	0.746	1.172
East of England	-0.2930*	6.1540	0.746	0.592	0.940
Greater London	-0.2193	3.5853	0.803	0.640	1.008
South East	-0.3303**	8.6151	0.719	0.576	0.896
South West	0.0156	0.0175	1.016	0.806	1.279
Wales	-0.0815	0.4313	0.922	0.723	1.176
Scotland	-0.1232	1.0930	0.884	0.702	1.114
Household has two+ adults (ref. lone parent)	0.1436	2.4193	1.154	0.963	1.383
Household has two+ children (ref. only one dependent child)	0.6365***	196.7070	1.890	1.729	2.066
There are one or more pensioners in the household	-1.0585***	44.7363	0.347	0.254	0.473
One or more disabled adults in household	-0.3558***	47.2682	0.701	0.633	0.775
Age of head of household	-0.00670*	6.2246	0.993	0.988	0.999
Head of household is female	-0.2821***	11.4438	0.754	0.640	0.888
Ethnicity of head of household (ref. White)					
Indian	0.5410***	12.3094	1.718	1.270	2.324
Pakistani/Bangladeshi	1.1051***	72.2530	3.020	2.340	3.896
Black or Black British	0.3810**	9.5805	1.464	1.150	1.863
Other Ethnicity (including Mixed Race)	0.3907**	6.8944	1.478	1.104	1.979
Tenure (ref. mortgage)					
Own home outright	0.2735**	9.4469	1.315	1.104	1.565
Living rent free/squatting	0.3850	3.4235	1.470	0.977	2.209
Renting	0.4126***	46.7823	1.511	1.342	1.700
Qualifications (ref. households where no adults have qualifications)					
One or more household members have degrees	-0.4354***	26.7405	0.647	0.549	0.763
All have qualifications below degree level	-0.2490***	21.3750	0.780	0.701	0.866
Some have qualifications below degree level	-0.2153**	9.5920	0.806	0.704	0.924
One or more self-employed adults in the household	-0.1264	2.2844	0.881	0.748	1.038

One or more adults in the household are economically inactive	0.9082***	230.7247	2.480	2.206	2.788
One or more adults in the household are unemployed	1.2481***	292.4730	3.484	3.019	4.020
One or more household members has two or more jobs	-0.2580*	4.5977	0.773	0.610	0.978
One plus household members have at least one odd job	-0.0952	0.5136	0.909	0.701	1.180
Household earnings per hour (ref. no earnings including missing and lowest quintile)					
Second quintile	-1.1129***	247.7654	0.329	0.286	0.377
Third quintile	-2.2567***	542.6912	0.105	0.087	0.127
Fourth quintile	-3.3542***	583.9997	0.035	0.027	0.046
Fifth quintile	-4.9052***	436.8146	0.007	0.005	0.012
Hours worked per week by the household (ref. no hours/ lowest quintile)					
Second quintile	-0.5418***	47.2155	0.582	0.498	0.679
Third quintile	-1.3263***	223.7356	0.265	0.223	0.316
Fourth quintile	-2.0158***	324.7947	0.133	0.107	0.166
Fifth quintile	-2.2486***	362.4138	0.106	0.084	0.133
Social Class (ref. managerial)					
Social Class: Skilled	0.0505	0.3640	1.052	0.893	1.239
Social Class: Elementary	0.2957***	12.0484	1.344	1.137	1.588
Industry (ref. finance)					
Agricultural	0.6973***	18.5465	2.008	1.462	2.758
Construction	-0.1437	1.8206	0.866	0.703	1.067
Distribution and Catering	0.1847**	7.8812	1.203	1.057	1.368
Public Administration	0.0424	0.3038	1.043	0.897	1.213
Household receives at least one tax credit	-0.3389***	28.7750	0.713	0.630	0.806
Council Tax Rebate Amount (ref. not received or first, fourth or fifth quintile)					
Second or Third Quintile	0.1705**	7.0088	1.186	1.045	1.345
Housing Benefit Amount (ref. not received/ first to third quintile)					
Fourth or Fifth Quintile	-1.2931***	387.0855	0.274	0.241	0.312
London by Multiple Jobs (interaction term)	-1.1342	2.9502	0.322	0.088	1.174

Significance: p<0.001(***) p<0.01 (**) p<0.05 (*)

N = 22,741

McFadden's Pseudo R-Square: 0.43

Likelihood Ratio Test Statistic: 10434.0143 (p<0.001)

Hosmer and Lemeshow Test Statistic: 72.2695 (p<0.001)

c Test Statistic: 0.913

**1.2 Household With Child In Relative Income Poverty with Regional Controls
Before Housing Costs 2006/7 to 2008/9**

Parameter	β	Wald	Exp(β)	95% CI Exp(β)	
				Lower	Upper
Intercept	0.2657	2.0484			
Location of household (ref. North East England)					
North West	-0.1161	0.9520	0.890	0.705	1.124
Yorkshire and Humber	-0.0335	0.0703	0.967	0.755	1.239
East Midlands	-0.0437	0.1125	0.957	0.742	1.236
West Midlands	-0.0129	0.0105	0.987	0.772	1.262
East of England	-0.2593	3.9967	0.772	0.598	0.995
Greater London	-0.4166**	10.5082	0.659	0.513	0.848
South East	-0.3201**	6.7019	0.726	0.570	0.925
South West	-0.1818	1.8122	0.834	0.640	1.086
Scotland	-0.1209	1.0841	0.886	0.706	1.113
Wales	-0.00351	0.0006	0.996	0.760	1.307
Northern Ireland	-0.0420	0.1160	0.959	0.753	1.221
Household has two+ adults (ref. lone parent)	0.2721***	14.9361	1.313	1.143	1.507
Household has two or more children (ref. only one dependent child)	0.4027***	84.5524	1.496	1.373	1.630
There are one or more pensioners in the household	-1.1278***	61.5946	0.324	0.244	0.429
One or more disabled adults in household	-0.2602***	21.9907	0.771	0.691	0.859
Age of head of household	-0.00367	2.0379	0.996	0.991	1.001
Head of household is female	-0.0661	1.2270	0.936	0.833	1.052
Ethnicity of head of household (ref. White)					
Indian	0.5812***	15.4645	1.788	1.338	2.389
Pakistani/Bangladeshi	0.7431***	42.6940	2.102	1.682	2.627
Black or Black British	0.5345***	22.7795	1.707	1.370	2.125
Other Ethnicity (including Mixed Race)	0.3882***	12.1446	1.474	1.185	1.834
Tenure (ref. mortgage)					
Own home outright	0.2986***	14.4433	1.348	1.156	1.572
Living rent free/squatting	0.5894**	6.6983	1.803	1.154	2.817
Renting	0.1557**	7.1181	1.168	1.042	1.310
Qualifications (ref. households where no adults have qualifications)					
One or more household members have degrees	-0.2602**	9.8629	0.771	0.655	0.907
All have qualifications below degree level	-0.1761**	8.1456	0.839	0.743	0.946
Some have qualifications below degree level	-0.0606	0.5056	0.941	0.796	1.112
One or more self-employed adults in the household	-0.3549***	19.8595	0.701	0.600	0.820

One or more adults in the household are economically inactive	0.9159***	251.4992	2.499	2.232	2.799
One or more adults in the household are unemployed	1.5867***	400.5756	4.888	4.184	5.709
One or more household members has two or more jobs	-0.5148***	13.3073	0.598	0.453	0.788
One plus household members have at least one odd job	-0.5104*	6.6395	0.600	0.407	0.885
Household earnings per hour (ref. no earnings including missing and lowest quintile)					
Second quintile	-1.1250***	277.5329	0.325	0.284	0.371
Third quintile	-1.9983***	515.7166	0.136	0.114	0.161
Fourth quintile	-2.9772***	593.9022	0.051	0.040	0.065
Fifth quintile	-4.5134***	517.1906	0.011	0.007	0.016
Hours worked per week by the household (ref. no hours/ lowest quintile)					
Second quintile	-0.5985***	63.0368	0.550	0.474	0.637
Third quintile	-1.2171***	212.8944	0.296	0.251	0.349
Fourth quintile	-1.8375***	304.5453	0.159	0.130	0.196
Fifth quintile	-2.0602***	349.9292	0.127	0.103	0.158
Social Class (ref. managerial)					
Social Class: Skilled	0.2482**	8.6554	1.282	1.086	1.512
Social Class: Elementary	0.2408***	11.3323	1.272	1.106	1.464
Industry (ref. finance)					
Agricultural	0.6962***	17.5398	2.006	1.448	2.779
Construction	-0.3631***	12.3794	0.695	0.568	0.851
Distribution and Catering	0.1554*	5.8361	1.168	1.030	1.325
Public Administration	-0.1813**	7.0231	0.834	0.729	0.954
Household receives at least one tax credit	-0.6244***	174.3683	0.536	0.488	0.588
Council Tax Rebate Amount (ref. not received or first, fourth or fifth quintile)					
Second or Third Quintile	0.1907**	7.3286	1.210	1.054	1.389
Housing Benefit Amount (ref. not received/ first to third quintile)					
Fourth or Fifth Quintile	-1.1171***	290.7940	0.327	0.288	0.372
London by Multiple Jobs (interaction term)	0.9560*	4.4922	2.601	1.075	6.297

Significance: p<0.001(***) p<0.01 (**) p<0.05 (*)

N = 23,010

McFadden's Pseudo R-Square: 0.39

Likelihood Ratio Test Statistic: 9184.4961 (p<0.001)

Hosmer and Lemeshow Test Statistic: 63.0011 (p<0.001)

c Test Statistic: 0.900

**1.3 Household With Child In Relative Income Poverty with Regional Controls
After Housing Costs 1998/9 to 2000/1**

Parameter	β	Wald	Exp(β)	95% CI Exp(β)	
				Lower	Upper
Intercept	0.5912***	13.0257			
Location of household (ref. North East England)					
North West	0.2333*	4.6993	1.263	1.023	1.559
Yorkshire and Humber	-0.0190	0.0280	0.981	0.785	1.226
East Midlands	0.0356	0.0880	1.036	0.819	1.311
West Midlands	0.0405	0.1246	1.041	0.832	1.304
East of England	0.0606	0.2751	1.062	0.847	1.333
Greater London	0.2523*	4.5265	1.287	1.020	1.624
South East	0.2089	3.6517	1.232	0.995	1.527
South West	0.2875*	6.1543	1.333	1.062	1.673
Scotland	-0.1421	1.4535	0.868	0.689	1.093
Wales	0.0150	0.0143	1.015	0.793	1.299
Household has two or more children (ref. only one dependent child)	0.5063***	127.7973	1.659	1.520	1.811
There are one or more pensioners in the household	-1.0530***	46.4044	0.349	0.258	0.472
One or more disabled adults in household	-0.4318***	66.9691	0.649	0.586	0.720
Age of head of household	-0.00756**	8.2734	0.992	0.987	0.998
Head of household is female	-0.1930**	8.3518	0.825	0.723	0.940
Ethnicity of head of household (ref. White)					
Indian	0.6205***	17.2437	1.860	1.388	2.493
Pakistani/Bangladeshi	0.9469***	45.9739	2.578	1.960	3.389
Black or Black British	0.3474*	6.5868	1.415	1.086	1.845
Other Ethnicity (including Mixed Race)	0.6810***	18.1268	1.976	1.444	2.703
Tenure (ref. mortgage)					
Own home outright	-0.5511***	38.1659	0.576	0.484	0.686
Living rent free/squatting	-0.8310***	13.3472	0.436	0.279	0.680
Renting	0.4500***	67.9932	1.568	1.409	1.745
One or more adults in the household are self-employed	-0.1991*	5.3158	0.819	0.692	0.971
One or more adults in the household are economically inactive	0.9446***	247.8013	2.572	2.287	2.893
One or more adults in the household are unemployed	1.3646***	304.4357	3.914	3.358	4.562
One or more household members has two or more jobs	-0.1361	1.6761	0.873	0.710	1.072
One plus household members have at least one odd job	-0.1844	2.1370	0.832	0.649	1.065
Household earnings per hour (ref. no earnings/ lowest quintile)					
Earnings are missing	-0.2482**	7.6982	0.780	0.655	0.930

Second quintile	-1.0880***	264.6354	0.337	0.296	0.384
Third quintile	-2.0861***	637.2505	0.124	0.106	0.146
Fourth quintile	-3.0219***	851.2908	0.049	0.040	0.060
Fifth quintile	-4.7944***	857.4834	0.008	0.006	0.011
Hours worked per week by the household (ref. no hours including missing and lowest quintile)					
Second quintile	-0.4070***	30.0324	0.666	0.575	0.770
Third quintile	-1.2904***	257.5685	0.275	0.235	0.322
Fourth quintile	-2.0056***	416.9528	0.135	0.111	0.163
Fifth quintile	-2.2304***	459.1076	0.107	0.088	0.132
Social Class (ref. managerial, skilled, operative, elementary, unknown)					
Social Class: Professional	-0.2844*	6.5284	0.752	0.605	0.936
Social Class: Administrative	-0.1808	3.8177	0.835	0.696	1.001
Social Class: Service	0.0520	0.3350	1.053	0.883	1.256
Social Class: Element	0.2584**	9.2968	1.295	1.097	1.529
Industry (ref. finance, mining, transport and communication, manufacturing, other service)					
Agricultural	0.5259**	10.7165	1.692	1.235	2.318
Construction	-0.2048*	5.6540	0.815	0.688	0.965
Public Administration	-0.1318	2.9736	0.876	0.755	1.018
Missing	-0.5274***	42.3905	0.590	0.503	0.692
Household receives at least one tax credit (either FC or WFTC in 1998 or CTC or WTC in 2008)	-0.3332***	24.5750	0.717	0.628	0.818
Household receives out-of-work benefit: Income Support, Pension Credit or from 2006-2009 Jobseekers' Allowance (Income Based)	0.3353***	17.5608	1.398	1.195	1.636
Council Tax Rebate Amount (ref. not received or first quintile)					
Fourth or Fifth Quintile	-0.00706	0.0096	0.993	0.863	1.143
London by Tax Credit (interaction term)	0.5742**	6.8352	1.776	1.155	2.731
Wales by Multiple Job (interaction term)	0.3811	0.8897	1.464	0.663	3.232
London by Multiple Job (interaction term)	-1.1989*	5.8176	0.302	0.114	0.799

Significance: $p < 0.001$ (***) $p < 0.01$ (**) $p < 0.05$ (*)

N = 22,741

McFadden's Pseudo R-Square: 0.48

Likelihood Ratio Test Statistic: 13477.0954 ($p < 0.001$)

Hosmer and Lemeshow Test Statistic: 89.3058 ($p < 0.001$)

c Test Statistic: 0.926

**1.4 Household With Child In Relative Income Poverty with Regional Controls
After Housing Costs 2006/7 to 2008/9**

Parameter	β	Wald	Exp(β)	95% CI Exp(β)	
				Lower	Upper
Intercept	0.8842***	28.5904			
Location of household (ref. GB in 1998 or UK in 2008)					
North West	-0.00513	0.0021	0.995	0.797	1.242
Yorkshire and Humber	-0.0742	0.3786	0.929	0.733	1.176
East Midlands	-0.0277	0.0500	0.973	0.763	1.240
West Midlands	0.0882	0.5416	1.092	0.864	1.381
East of England	0.1855	2.3766	1.204	0.951	1.524
Greater London	0.2313	2.6303	1.260	0.953	1.667
South East	0.2682*	5.4638	1.308	1.044	1.637
South West	0.1911	2.3383	1.211	0.948	1.547
Scotland	-0.1998	3.2590	0.819	0.659	1.017
Wales	0.0302	0.0514	1.031	0.794	1.338
Northern Ireland	-0.3713**	9.7896	0.690	0.547	0.870
Household has two or more children (ref. only one dependent child)	0.2863***	48.7106	1.332	1.229	1.443
There are one or more pensioners in the household	-0.9133***	46.0629	0.401	0.308	0.522
One or more disabled adults in household	-0.3169***	31.4122	0.728	0.652	0.814
Age of head of household	-0.00612*	6.2635	0.994	0.989	0.999
Head of household is female	-0.1572**	8.3645	0.855	0.768	0.951
Ethnicity of head of household (ref. White)					
Indian	0.6955***	26.8235	2.005	1.541	2.608
Pakistani/Bangladeshi	0.7870***	44.0450	2.197	1.741	2.772
Black or Black British	0.3390**	9.0945	1.404	1.126	1.749
Other Ethnicity (including Mixed Race)	0.5607***	26.2682	1.752	1.414	2.171
Tenure (ref. mortgage)					
Own home outright	-0.6044***	59.9468	0.546	0.469	0.637
Living rent free/squatting	-0.2574	1.3370	0.773	0.500	1.196
Renting	0.3933***	59.1234	1.482	1.341	1.638
One or more adults in the household are self-employed	-0.3746***	21.9134	0.688	0.588	0.804
One or more adults in the household are economically inactive	0.9408***	297.8080	2.562	2.302	2.851
One or more adults in the household are unemployed	1.6852***	415.9298	5.393	4.587	6.342
One or more household members has two or more jobs	-0.6441***	27.9498	0.525	0.414	0.667
One plus household members have at least one odd job	-0.6449***	12.4646	0.525	0.367	0.751
Household earnings per hour (ref. no earnings/ lowest quintile)					
Earnings are missing	-0.1405	2.8338	0.869	0.738	1.023

Second quintile	-1.0155***	272.7939	0.362	0.321	0.409
Third quintile	-1.8663***	629.5127	0.155	0.134	0.179
Fourth quintile	-2.7133***	861.3069	0.066	0.055	0.079
Fifth quintile	-4.2498***	1000.8624	0.014	0.011	0.019
Hours worked per week by the household (ref. no hours including missing and lowest quintile)					
Second quintile	-0.4394***	42.0533	0.644	0.564	0.736
Third quintile	-1.0847***	238.0440	0.338	0.295	0.388
Fourth quintile	-1.5225***	335.7968	0.218	0.185	0.257
Fifth quintile	-1.9287***	450.3990	0.145	0.122	0.174
Social Class (ref. managerial, skilled, operative, elementary, unknown)					
Social Class: Professional	-0.0797	0.7663	0.923	0.773	1.104
Social Class: Administrative	-0.0966	1.1374	0.908	0.760	1.084
Social Class: Service	-0.2208*	5.5884	0.802	0.668	0.963
Social Class: Element	0.1357	3.7947	1.145	0.999	1.313
Industry (ref. finance, mining, transport and communication, manufacturing, other service)					
Agricultural	0.7477***	23.7126	2.112	1.563	2.854
Construction	-0.1463	3.3887	0.864	0.739	1.010
Public Administration	-0.1619*	6.1611	0.851	0.749	0.967
Missing	-0.2523**	10.7378	0.777	0.668	0.904
Household receives at least one tax credit (either FC or WFTC in 1998 or CTC or WTC in 2008)	-0.5461***	130.1087	0.579	0.527	0.636
Household receives out-of-work benefit: Income Support, Pension Credit or from 2006-2009 Jobseekers' Allowance (Income Based)	-0.0830	1.3470	0.920	0.800	1.059
Council Tax Rebate Amount (ref. not received or first quintile)					
Fourth or Fifth Quintile	-0.1935	7.0535	0.824	0.714	0.951
London by Tax Credit (interaction term)	0.2891*	4.4390	1.335	1.020	1.747
Wales by Multiple Job (interaction term)	1.4628**	8.8720	4.318	1.649	11.307
London by Multiple Job (interaction term)	0.5242	1.8141	1.689	0.788	3.622

Significance: $p < 0.001$ (***) $p < 0.01$ (**) $p < 0.05$ (*)

N = 23,010

McFadden's Pseudo R-Square: 0.41

Likelihood Ratio Test Statistic: 11435.3896 ($p < 0.001$)

Hosmer and Lemeshow Test Statistic: 57.1369 ($p < 0.001$)

c Test Statistic: 0.903

**2.1 Household With Child With Income Below 40% Median
Before Housing Costs 1998/9 to 2000/1**

Parameter	β	Wald	Exp(β)	95% CI Exp(β)	
				Lower	Upper
Intercept	-1.5010***	37.2870			
Location of household (ref. GB in 1998 or UK in 2008)					
Greater London	0.2846**	7.0190	1.329	1.077	1.641
Household has two or more adults (ref. lone parent)	0.3459*	5.7598	1.413	1.065	1.875
Household has two or more children (ref. only one dependent child)	0.0942	1.7955	1.099	0.957	1.261
There are one or more pensioners in the household	-1.5399***	27.9006	0.214	0.121	0.380
One or more disabled adults in household	-0.2942***	13.4134	0.745	0.637	0.872
Age of head of household	-0.00081	0.0385	0.999	0.991	1.007
Head of household is female	-0.3097*	5.5905	0.734	0.568	0.948
Ethnicity of head of household (ref. White)					
Indian	0.5487**	8.2395	1.731	1.190	2.518
Pakistani/Bangladeshi	0.7215***	24.5906	2.057	1.547	2.736
Black or Black British	0.4058*	4.5241	1.501	1.032	2.181
Other Ethnicity (including Mixed Race)	0.5817**	8.8948	1.789	1.221	2.622
Tenure (ref. mortgage)					
Own home outright	0.4695***	18.4461	1.599	1.291	1.981
Living rent free/squatting	-0.0532	0.0266	0.948	0.500	1.797
Renting	-0.3163***	12.0503	0.729	0.610	0.871
Qualifications (ref. households where no adults have qualifications)					
One or more household members have degrees	0.0774	0.4325	1.080	0.858	1.361
All have qualifications below degree level	-0.0785	0.7776	0.924	0.776	1.101
Some have qualifications below degree level	0.0376	0.1366	1.038	0.851	1.268
One or more self-employed adults in the household	0.2152	3.3080	1.240	0.983	1.564
One or more adults in the household are economically inactive	0.2380**	6.6771	1.269	1.059	1.520
One or more adults in the household are unemployed	0.5915***	36.5061	1.807	1.491	2.189
One or more household members has two or more jobs	-0.2277	1.4382	0.796	0.549	1.155
One plus household members have at least one odd job	0.0389	0.0379	1.040	0.703	1.538
Household earnings per hour (ref. no earnings including missing)					

and lowest quintile)					
Second quintile	-1.9066***	143.7993	0.149	0.109	0.203
Third quintile	-2.8105***	150.5939	0.060	0.038	0.094
Fourth quintile	-3.4863***	142.5868	0.031	0.017	0.054
Fifth quintile	-3.7562***	173.9108	0.023	0.013	0.041
Hours worked per week by the household (ref. no hours/ lowest quintile)					
Second quintile	-0.7124***	29.9538	0.490	0.380	0.633
Third quintile	-1.2804***	77.3181	0.278	0.209	0.370
Fourth quintile	-1.5923***	86.3706	0.203	0.145	0.285
Fifth quintile	-1.7988***	107.0038	0.165	0.118	0.233
Social Class (ref. managerial)					
Social Class: Skilled	0.1690	1.7293	1.184	0.920	1.523
Social Class: Elementary	0.2669	3.7464	1.306	0.997	1.711
Industry (ref. finance)					
Agricultural	0.5689*	6.4664	1.766	1.139	2.739
Construction	-0.1214	0.5891	0.886	0.650	1.208
Distribution and Catering	0.3821***	14.9186	1.465	1.207	1.779
Public Administration	0.2106	2.8684	1.234	0.967	1.575
Household receives at least one tax credit	-0.8460***	53.8301	0.429	0.342	0.538
Council Tax Rebate Amount (ref. not received or first, fourth or fifth quintile)					
Second or Third Quintile	-0.6120***	27.5906	0.542	0.432	0.681
Housing Benefit Amount (ref. not received/ first to third quintile)					
Fourth or Fifth Quintile	-1.6356***	167.6781	0.195	0.152	0.250
London by Multiple Jobs (interaction term)	-0.7079	0.8485	0.493	0.109	2.222

Significance: $p < 0.001$ (***) $p < 0.01$ (**) $p < 0.05$ (*)

N = 22,741

McFadden's Pseudo R-Square: 0.25

Likelihood Ratio Test Statistic: 2265.1461 ($p < 0.001$)

Hosmer and Lemeshow Test Statistic: 23.9389 ($p = 0.0023$)

c Test Statistic: 0.871

**2.2 Household With Child With Income Below 40% Median
Before Housing Costs 2006/7 to 2008/9**

Parameter	β	Wald	Exp(β)	95% CI Exp(β)	
				Lower	Upper
Intercept	-1.2214***	26.6788			
Location of household (ref. GB in 1998 or UK in 2008)					
Greater London	0.0949	0.7077	1.100	0.881	1.371
Household has two or more adults (ref. lone parent)	0.5246***	25.7179	1.690	1.380	2.070
Household has two or more children (ref. only one dependent child)	0.1023	2.3862	1.108	0.973	1.261
There are one or more pensioners in the household	-1.1777***	26.8510	0.308	0.197	0.481
One or more disabled adults in household	-0.2809**	10.8952	0.755	0.639	0.892
Age of head of household	-0.00107	0.0757	0.999	0.991	1.007
Head of household is female	-0.0289	0.1135	0.971	0.821	1.150
Ethnicity of head of household (ref. White)					
Indian	0.3217	2.3704	1.379	0.916	2.078
Pakistani/Bangladeshi	0.4455**	10.0162	1.561	1.185	2.057
Black or Black British	0.7653***	24.2364	2.150	1.585	2.915
Other Ethnicity (including Mixed Race)	0.6451***	20.0755	1.906	1.438	2.528
Tenure (ref. mortgage)					
Own home outright	0.2094*	4.1197	1.233	1.007	1.509
Living rent free/squatting	1.0337***	17.0846	2.811	1.722	4.590
Renting	-0.2893***	11.0882	0.749	0.632	0.888
Qualifications (ref. households where no adults have qualifications)					
One or more household members have degrees	0.1354	1.2607	1.145	0.904	1.450
All have qualifications below degree level	0.1169	1.4257	1.124	0.928	1.362
Some have qualifications below degree level	-0.0196	0.0234	0.981	0.763	1.260
One or more self-employed adults in the household	-0.0787	0.5259	0.924	0.747	1.143
One or more adults in the household are economically inactive	0.4741***	30.2224	1.607	1.357	1.902
One or more adults in the household are unemployed	1.0306***	104.7823	2.803	2.301	3.414
One or more household members has two or more jobs	-0.3109	2.2009	0.733	0.486	1.105
One plus household members have at least one odd job	-0.9729**	7.3473	0.378	0.187	0.764
Household earnings per hour (ref. no earnings including missing)					

and lowest quintile)					
Second quintile	-1.8057***	173.2767	0.164	0.126	0.215
Third quintile	-2.7835***	181.7934	0.062	0.041	0.093
Fourth quintile	-2.9464***	197.6896	0.053	0.035	0.079
Fifth quintile	-4.0552***	218.3500	0.017	0.010	0.030
Hours worked per week by the household (ref. no hours/ lowest quintile)					
Second quintile	-0.6503***	29.3563	0.522	0.413	0.660
Third quintile	-1.0203***	63.9841	0.360	0.281	0.463
Fourth quintile	-1.4015***	81.4324	0.246	0.182	0.334
Fifth quintile	-1.6279***	103.2962	0.196	0.143	0.269
Social Class (ref. managerial)					
Social Class: Skilled	0.3121*	6.3192	1.366	1.071	1.743
Social Class: Elementary	0.1346	1.3241	1.144	0.910	1.439
Industry (ref. finance)					
Agricultural	0.2509	1.1326	1.285	0.810	2.040
Construction	-0.2012	1.8780	0.818	0.613	1.090
Distribution and Catering	0.1250	1.6175	1.133	0.935	1.374
Public Administration	-0.1191	1.1602	0.888	0.715	1.103
Household receives at least one tax credit	-1.1203***	264.4327	0.326	0.285	0.373
Council Tax Rebate Amount (ref. not received or first quintile)					
Second or Third Quintile	-0.6610***	30.7276	0.516	0.409	0.652
Housing Benefit Amount (ref. not received/ first to third quintile)					
Fourth or Fifth Quintile	-1.8136***	210.1711	0.163	0.128	0.208
London by Multiple Jobs (interaction term)	-1.1826	1.2567	0.306	0.039	2.423

Significance: $p < 0.001$ (***) $p < 0.01$ (**) $p < 0.05$ (*)

N=23,010

McFadden's Pseudo R-Square: 0.28

Likelihood Ratio Test Statistic: 2775.6490 ($p < 0.001$)

Hosmer and Lemeshow Test Statistic: 21.9104 ($p = 0.0051$)

c Test Statistic: 0.880

**2.3 Household With Child With Income Below 40% Median
After Housing Costs 1998/9 to 2000/1**

Parameter	β	Wald	Exp(β)	95% CI Exp(β)	
				Lower	Upper
Intercept	-0.4174*	6.2564			
Location of household (ref. GB in 1998 or UK in 2008)					
Scotland	-0.2669**	7.0078	0.766	0.628	0.933
Wales	-0.0602	0.3033	0.942	0.760	1.167
Greater London	0.2701***	11.1426	1.310	1.118	1.535
Household has two or more children (ref. only one dependent child)	0.0904	2.9681	1.095	0.988	1.213
There are one or more pensioners in the household	-1.0725***	24.9849	0.342	0.225	0.521
One or more disabled adults in household	-0.1706**	8.2056	0.843	0.750	0.948
Age of head of household	0.00490	2.5415	1.005	0.999	1.011
Head of household is female	-0.2758***	14.0453	0.759	0.657	0.877
Ethnicity of head of household (ref. White)					
Indian	0.4061*	5.9661	1.501	1.084	2.079
Pakistani/Bangladeshi	0.4933***	15.6077	1.638	1.282	2.092
Black or Black British	0.2196	2.6332	1.246	0.955	1.624
Other Ethnicity (including Mixed Race)	0.5764***	14.5761	1.780	1.324	2.392
Tenure (ref. mortgage)					
Own home outright	-0.6342***	32.5613	0.530	0.427	0.659
Living rent free/squatting	-1.5287***	12.4426	0.217	0.093	0.507
Renting	-0.1276	3.4220	0.880	0.769	1.008
One or more adults in the household are self-employed	-0.0452	0.1749	0.956	0.773	1.181
One or more adults in the household are economically inactive	0.5817***	69.2463	1.789	1.560	2.052
One or more adults in the household are unemployed	0.8664***	136.7542	2.378	2.057	2.750
One or more household members has two or more jobs	-0.3154*	3.8436	0.730	0.532	1.000
One plus household members have at least one odd job	-0.2614	2.4715	0.770	0.556	1.067
Household earnings per hour (ref. no earnings/ lowest quintile)					
Earnings are missing	0.2974**	9.0621	1.346	1.109	1.634
Second quintile	-1.4497***	207.2107	0.235	0.193	0.286
Third quintile	-2.5875***	295.4696	0.075	0.056	0.101
Fourth quintile	-3.3033***	303.3476	0.037	0.025	0.053
Fifth quintile	-4.1914***	324.2990	0.015	0.010	0.024
Hours worked per week by the household (ref. no hours including missing and					

lowest quintile)					
Second quintile	-0.6932***	49.1494	0.500	0.412	0.607
Third quintile	-1.4213***	161.7624	0.241	0.194	0.301
Fourth quintile	-1.8251***	183.6901	0.161	0.124	0.210
Fifth quintile	-1.9320***	199.3930	0.145	0.111	0.189
Social Class (ref. managerial, skilled, operative, elementary, unknown)					
Social Class: Professional	-0.3281*	5.1999	0.720	0.543	0.955
Social Class: Administrative	-0.1655	1.5203	0.847	0.651	1.102
Social Class: Service	-0.0792	0.4701	0.924	0.737	1.159
Social Class: Element	0.0762	0.5145	1.079	0.876	1.329
Industry (ref. finance, mining, transport and communication, manufacturing, other service)					
Agricultural	0.5659**	8.9020	1.761	1.214	2.554
Construction	-0.2343*	4.5450	0.791	0.638	0.981
Public Administration	0.0119	0.0138	1.012	0.829	1.235
Missing	-0.6016***	48.2178	0.548	0.462	0.649
Household receives at least one tax credit (either FC or WFTC in 1998 or CTC or WTC in 2008)	-1.0778***	140.7342	0.340	0.285	0.407
Household receives out-of-work benefit: Income Support, Pension Credit or from 2006-2009 Jobseekers' Allowance (Income Based)	-1.0235***	166.0483	0.359	0.308	0.420
Council Tax Rebate Amount (ref. not received or first quintile)					
Fourth or Fifth Quintile	0.0281	0.1655	1.028	0.898	1.178
London by Tax Credit (interaction term)	0.5159*	4.8321	1.675	1.058	2.654
Wales by Multiple Job (interaction term)	1.2459**	7.5836	3.476	1.432	8.437
London by Multiple Job (interaction term)	-0.7624	1.3959	0.467	0.132	1.653

Significance: p<0.001(***) p<0.01 (**) p<0.05 (*)

N = 22,741

McFadden's Pseudo R-Square: 0.28

Likelihood Ratio Test Statistic: 4152.1104 (p<0.001)

Hosmer and Lemeshow Test Statistic: 29.2815 (p=0.0003)

c Test Statistic: 0.865

**2.4 Household With Child With Income Below 40% Median
After Housing Costs 2006/7 to 2008/9**

Parameter	β	Wald	Exp(β)	95% CI Exp(β)	
				Lower	Upper
Intercept	-0.2984	3.2565			
Location of household (ref. GB in 1998 or UK in 2008)					
Scotland	-0.2306**	9.4047	0.794	0.685	0.920
Wales	-0.00156	0.0002	0.998	0.796	1.253
Northern Ireland	-0.3373***	12.6083	0.714	0.592	0.860
Greater London	0.2281*	4.5947	1.256	1.020	1.547
Household has two or more children (ref. only one dependent child)	-0.1485**	8.9680	0.862	0.782	0.950
There are one or more pensioners in the household	-1.0128***	29.2769	0.363	0.252	0.524
One or more disabled adults in household	-0.1585*	6.1322	0.853	0.753	0.967
Age of head of household	0.00396	1.8373	1.004	0.998	1.010
Head of household is female	-0.0643	0.9886	0.938	0.826	1.064
Ethnicity of head of household (ref. White)					
Indian	0.3041	3.3043	1.355	0.976	1.881
Pakistani/Bangladeshi	0.4770***	17.2349	1.611	1.286	2.018
Black or Black British	0.5860***	26.0738	1.797	1.435	2.250
Other Ethnicity (including Mixed Race)	0.4902***	18.5206	1.633	1.306	2.041
Tenure (ref. mortgage)					
Own home outright	-0.6610***	42.4430	0.516	0.423	0.630
Living rent free/squatting	-0.0161	0.0040	0.984	0.596	1.624
Renting	0.1390*	4.3841	1.149	1.009	1.309
One or more adults in the household are self-employed	-0.1888	3.5667	0.828	0.681	1.007
One or more adults in the household are economically inactive	0.7250***	118.5238	2.065	1.812	2.352
One or more adults in the household are unemployed	1.4413***	352.4594	4.226	3.636	4.912
One or more household members has two or more jobs	-0.4417**	6.6863	0.643	0.460	0.899
One plus household members have at least one odd job	-0.4567*	3.9046	0.633	0.403	0.996
Household earnings per hour (ref. no earnings/ lowest quintile)					
Earnings are missing	0.2248*	5.7801	1.252	1.042	1.504
Second quintile	-1.4034***	235.0488	0.246	0.205	0.294
Third quintile	-2.1429***	309.1332	0.117	0.092	0.149
Fourth quintile	-2.5512***	332.6550	0.078	0.059	0.103
Fifth quintile	-3.7632***	397.2897	0.023	0.016	0.034
Hours worked per week by the household					

(ref. no hours including missing and lowest quintile)					
Second quintile	-0.4830***	29.1830	0.617	0.518	0.735
Third quintile	-0.8805***	84.8050	0.415	0.344	0.500
Fourth quintile	-1.1602***	101.3446	0.313	0.250	0.393
Fifth quintile	-1.4009***	134.7484	0.246	0.194	0.312
Social Class (ref. managerial, skilled, operative, elementary, unknown)					
Social Class: Professional	0.0150	0.0162	1.015	0.806	1.278
Social Class: Administrative	-0.1370	1.0888	0.872	0.674	1.128
Social Class: Service	-0.1263	0.9793	0.881	0.686	1.132
Social Class: Element	-0.1067	1.3559	0.899	0.751	1.076
Industry (ref. finance, mining, transport and communication, manufacturing, other service)					
Agricultural	0.5742**	9.1733	1.776	1.225	2.575
Construction	-0.1640	2.5131	0.849	0.693	1.040
Public Administration	-0.1906*	4.3452	0.826	0.691	0.989
Missing	-0.1555	3.1631	0.856	0.721	1.016
Household receives at least one tax credit (either FC or WFTC in 1998 or CTC or WTC in 2008)	-0.9548***	282.0757	0.385	0.344	0.430
Household receives out-of-work benefit: Income Support, Pension Credit or from 2006-2009 Jobseekers' Allowance (Income Based)	-1.2230***	241.9053	0.294	0.252	0.343
Council Tax Rebate Amount (ref. not received or first quintile)					
Fourth or Fifth Quintile	-0.0953	1.6393	0.909	0.786	1.052
London by Tax Credit (interaction term)	0.000212	0.0000	1.000	0.755	1.325
Wales by Multiple Job (interaction term)	0.9563	2.0631	2.602	0.706	9.594
London by Multiple Job (interaction term)	-0.5007	0.6131	0.606	0.173	2.123

Significance: $p < 0.001$ (***) $p < 0.01$ (**) $p < 0.05$ (*)

N = 23,010

McFadden's Pseudo R-Square: 0.27

Likelihood Ratio Test Statistic: 4272.9553 ($p < 0.001$)

Hosmer and Lemeshow Test Statistic: 48.3221 ($p < 0.001$)

c Test Statistic: 0.858

**3.1 Household With Child With Income Below 20% Median
Before Housing Costs 1998/9 to 2000/1**

Parameter	β	Wald	Exp(β)	95% CI Exp(β)	
				Lower	Upper
Intercept	-2.7112***	37.6736			
Location of household (ref. GB in 1998 or UK in 2008)					
Greater London	0.1861	1.1099	1.205	0.852	1.703
Household has two or more adults (ref. lone parent)	-0.00614	0.0005	0.994	0.590	1.675
Household has two or more children (ref. only one dependent child)	0.0270	0.0526	1.027	0.816	1.294
There are one or more pensioners in the household	-1.4722**	7.4847	0.229	0.080	0.659
One or more disabled adults in household	-0.5269***	13.0361	0.590	0.444	0.786
Age of head of household	0.00483	0.4661	1.005	0.991	1.019
Head of household is female	-0.8677***	11.2699	0.420	0.253	0.697
Ethnicity of head of household (ref. White)					
Indian	0.0726	0.0476	1.075	0.560	2.064
Pakistani/Bangladeshi	0.1841	0.4363	1.202	0.696	2.076
Black or Black British	0.4528	1.8709	1.573	0.822	3.009
Other Ethnicity (including Mixed Race)	0.3614	1.2429	1.435	0.760	2.709
Tenure (ref. mortgage)					
Own home outright	0.0957	0.3039	1.100	0.783	1.546
Living rent free/squatting	-0.5240	0.7548	0.592	0.182	1.931
Renting	-0.2254	2.1361	0.798	0.590	1.080
Qualifications (ref. households where no adults have qualifications)					
One or more household members have degrees	0.7022***	13.4570	2.018	1.387	2.937
All have qualifications below degree level	0.2511	2.1162	1.285	0.916	1.803
Some have qualifications below degree level	0.1313	0.4668	1.140	0.782	1.662
One or more self-employed adults in the household	0.2496	1.9783	1.284	0.906	1.818
One or more adults in the household are economically inactive	0.2481	2.7472	1.282	0.956	1.719
One or more adults in the household are unemployed	0.3445	3.8415	1.411	1.000	1.992
One or more household members has two or more jobs	-0.0234	0.0085	0.977	0.593	1.608
One plus household members have at least one odd job	0.2459	0.7239	1.279	0.726	2.253
Household earnings per hour					

(ref. no earnings including missing and lowest quintile)					
Second quintile	-2.5050***	54.7881	0.082	0.042	0.159
Third quintile	-3.2483***	56.7572	0.039	0.017	0.090
Fourth quintile	-3.2498***	71.6302	0.039	0.018	0.082
Fifth quintile	-3.3842***	99.2297	0.034	0.017	0.066
Hours worked per week by the household (ref. no hours/ lowest quintile)					
Second quintile	-0.3434	2.6777	0.709	0.470	1.070
Third quintile	-0.6821**	9.1743	0.506	0.325	0.786
Fourth quintile	-1.0180***	14.9070	0.361	0.216	0.606
Fifth quintile	-1.2781***	22.7227	0.279	0.165	0.471
Social Class (ref. managerial)					
Social Class: Skilled	0.0178	0.0077	1.018	0.684	1.516
Social Class: Elementary	-0.1634	0.3262	0.849	0.485	1.488
Industry (ref. finance)					
Agricultural	0.5997	3.2856	1.822	0.952	3.484
Construction	-0.5160	3.7969	0.597	0.355	1.003
Distribution and Catering	0.4163**	6.8684	1.516	1.111	2.070
Public Administration	0.2710	2.1866	1.311	0.916	1.878
Household receives at least one tax credit	-1.3364***	26.9230	0.263	0.159	0.435
Council Tax Rebate Amount (ref. not received or first, fourth or fifth quintile)					
Second or Third Quintile	-1.8639***	22.0218	0.155	0.071	0.338
Housing Benefit Amount (ref. not received/ first to third quintile)					
Fourth or Fifth Quintile	-2.6325***	43.3934	0.072	0.033	0.157
London by Multiple Jobs (interaction term)	-0.8641	0.6615	0.421	0.053	3.382

Significance: $p < 0.001$ (***) $p < 0.01$ (**) $p < 0.05$ (*)

N = 22,741

McFadden's Pseudo R-Square: 0.22

Likelihood Ratio Test Statistic: 813.4093 ($p < 0.001$)

Hosmer and Lemeshow Test Statistic: 11.3474 ($p = 0.1828$)

c Test Statistic: 0.877

**3.2 Household With Child With Income Below 20% Median
Before Housing Costs 2006/7 to 2008/9**

Parameter	β	Wald	Exp(β)	95% CI Exp(β)	
				Lower	Upper
Intercept	-1.7566***	15.7433			
Location of household (ref. GB in 1998 or UK in 2008)					
Greater London	0.2216	1.5317	1.248	0.879	1.773
Household has two or more adults (ref. lone parent)	0.1403	0.5298	1.151	0.789	1.679
Household has two or more children (ref. only one dependent child)	0.0619	0.3016	1.064	0.853	1.327
There are one or more pensioners in the household	-1.6729**	9.6132	0.188	0.065	0.540
One or more disabled adults in household	-0.5234**	9.9154	0.592	0.428	0.821
Age of head of household	-0.0144*	4.1621	0.986	0.972	0.999
Head of household is female	-0.3980**	6.7540	0.672	0.497	0.907
Ethnicity of head of household (ref. White)					
Indian	-0.0880	0.0533	0.916	0.434	1.932
Pakistani/Bangladeshi	-0.1744	0.3789	0.840	0.482	1.464
Black or Black British	0.2944	1.0549	1.342	0.765	2.354
Other Ethnicity (including Mixed Race)	0.4392	3.6115	1.551	0.986	2.441
Tenure (ref. mortgage)					
Own home outright	0.1957	1.5893	1.216	0.897	1.648
Living rent free/squatting	-0.0397	0.0088	0.961	0.420	2.198
Renting	-0.6764***	19.2764	0.508	0.376	0.688
Qualifications (ref. households where no adults have qualifications)					
One or more household members have degrees	1.1134***	19.8528	3.045	1.866	4.969
All have qualifications below degree level	0.7681**	10.8890	2.156	1.366	3.402
Some have qualifications below degree level	0.3174	1.1912	1.374	0.777	2.429
One or more self-employed adults in the household	-0.1806	1.1231	0.835	0.598	1.166
One or more adults in the household are economically inactive	0.4983***	12.0797	1.646	1.243	2.180
One or more adults in the household are unemployed	0.8297***	21.4505	2.293	1.614	3.257
One or more household members has two or more jobs	-0.2819	0.7645	0.754	0.401	1.419
One plus household members have at least one odd job	-0.7169	1.7620	0.488	0.169	1.407
Household earnings per hour (ref. no earnings including missing)					

and lowest quintile)					
Second quintile	-3.0046***	50.6625	0.050	0.022	0.113
Third quintile	-2.8077***	62.5039	0.060	0.030	0.121
Fourth quintile	-2.7210***	83.0083	0.066	0.037	0.118
Fifth quintile	-3.5008***	132.4123	0.030	0.017	0.055
Hours worked per week by the household (ref. no hours/ lowest quintile)					
Second quintile	-0.6876**	10.1426	0.503	0.329	0.768
Third quintile	-0.7195***	11.8243	0.487	0.323	0.734
Fourth quintile	-1.0590***	17.7251	0.347	0.212	0.568
Fifth quintile	-1.1097***	19.1477	0.330	0.201	0.542
Social Class (ref. managerial)					
Social Class: Skilled	-0.0630	0.0900	0.939	0.622	1.417
Social Class: Elementary	0.0151	0.0044	1.015	0.648	1.591
Industry (ref. finance)					
Agricultural	-0.0247	0.0037	0.976	0.438	2.173
Construction	-0.0432	0.0366	0.958	0.615	1.492
Distribution and Catering	-0.0194	0.0121	0.981	0.694	1.387
Public Administration	-0.2072	1.3036	0.813	0.570	1.160
Household receives at least one tax credit	-1.5786***	152.4124	0.206	0.161	0.265
Council Tax Rebate Amount (ref. not received or first quintile)					
Second or Third Quintile	-1.3180***	17.4475	0.268	0.144	0.497
Housing Benefit Amount (ref. not received/ first to third quintile)					
Fourth or Fifth Quintile	-3.5013***	35.1762	0.030	0.009	0.096
London by Multiple Jobs (interaction term)	-12.0568	0.0014	<0.001	<0.001	>999.999

Significance: $p < 0.001$ (***) $p < 0.01$ (**) $p < 0.05$ (*)

N=23,010

McFadden's Pseudo R-Square: 0.27

Likelihood Ratio Test Statistic: 1047.2093 ($p < 0.001$)

Hosmer and Lemeshow Test Statistic: 3.9957 ($p = 0.8575$)

c Test Statistic: 0.891

**3.3 Household With Child With Income Below 20% Median
After Housing Costs 1998/9 to 2000/1**

Parameter	β	Wald	Exp(β)	95% CI Exp(β)	
				Lower	Upper
Intercept	-1.1341***	18.2290			
Location of household (ref. GB in 1998 or UK in 2008)					
Scotland	-0.0477	0.0878	0.953	0.695	1.307
Wales	-0.3963	3.6960	0.673	0.449	1.008
Greater London	0.4863***	15.8836	1.626	1.280	2.066
Household has two or more children (ref. only one dependent child)	-0.1156	1.8671	0.891	0.755	1.052
There are one or more pensioners in the household	-1.6078***	11.4042	0.200	0.079	0.509
One or more disabled adults in household	-0.1800	3.2488	0.835	0.687	1.016
Age of head of household	0.00266	0.2727	1.003	0.993	1.013
Head of household is female	0.0622	0.2318	1.064	0.826	1.371
Ethnicity of head of household (ref. White)					
Indian	0.0946	0.1340	1.099	0.662	1.825
Pakistani/Bangladeshi	0.2770	1.8546	1.319	0.885	1.965
Black or Black British	0.2544	1.3788	1.290	0.843	1.972
Other Ethnicity (including Mixed Race)	0.5144*	5.1183	1.673	1.071	2.612
Tenure (ref. mortgage)					
Own home outright	-0.7512***	19.5741	0.472	0.338	0.658
Living rent free/squatting	-1.0960	3.2996	0.334	0.102	1.090
Renting	-0.2271*	4.1879	0.797	0.641	0.990
One or more adults in the household are self-employed	-0.2778	3.4978	0.757	0.566	1.013
One or more adults in the household are economically inactive	0.5948***	29.9238	1.813	1.465	2.243
One or more adults in the household are unemployed	0.3382**	7.1375	1.402	1.094	1.797
One or more household members has two or more jobs	-0.1018	0.2221	0.903	0.592	1.379
One plus household members have at least one odd job	0.2408	1.1308	1.272	0.816	1.983
Household earnings per hour (ref. no earnings/ lowest quintile)					
Earnings are missing	0.6740***	26.6507	1.962	1.519	2.534
Second quintile	-2.1907***	119.6267	0.112	0.076	0.166
Third quintile	-3.3366***	119.4803	0.036	0.020	0.065
Fourth quintile	-3.3828***	138.6130	0.034	0.019	0.060
Fifth quintile	-3.5634***	178.8919	0.028	0.017	0.048
Hours worked per week by the household (ref. no hours including missing and					

lowest quintile)					
Second quintile	-0.9381***	34.9139	0.391	0.287	0.534
Third quintile	-1.1543***	47.5225	0.315	0.227	0.438
Fourth quintile	-1.1734***	38.4586	0.309	0.213	0.448
Fifth quintile	-1.3512***	48.1889	0.259	0.177	0.379
Social Class (ref. managerial, skilled, operative, elementary, unknown)					
Social Class: Professional	-0.2073	1.3268	0.813	0.571	1.157
Social Class: Administrative	-0.1144	0.3185	0.892	0.600	1.327
Social Class: Service	-0.5010*	6.6159	0.606	0.414	0.888
Social Class: Element	-0.3076	2.8751	0.735	0.515	1.049
Industry (ref. finance, mining, transport and communication, manufacturing, other service)					
Agricultural	0.4447	2.7822	1.560	0.925	2.631
Construction	-0.5203**	10.4166	0.594	0.433	0.815
Public Administration	0.0253	0.0284	1.026	0.764	1.376
Missing	-0.9619***	48.5643	0.382	0.292	0.501
Household receives at least one tax credit (either FC or WFTC in 1998 or CTC or WTC in 2008)	-1.8302***	104.2034	0.160	0.113	0.228
Household receives out-of-work benefit: Income Support, Pension Credit or from 2006-2009 Jobseekers' Allowance (Income Based)	-1.8726***	162.2218	0.154	0.115	0.205
Council Tax Rebate Amount (ref. not received or first quintile)					
Fourth or Fifth Quintile	-0.5625***	17.5541	0.570	0.438	0.741
London by Tax Credit (interaction term)	0.8409*	5.0103	2.319	1.110	4.842
Wales by Multiple Job (interaction term)	-0.0137	0.0002	0.986	0.122	7.960
London by Multiple Job (interaction term)	-0.8301	1.1261	0.436	0.094	2.020

Significance: p<0.001(***) p<0.01 (**) p<0.05 (*)

N = 22,741

McFadden's Pseudo R-Square: 0.24

Likelihood Ratio Test Statistic: 1552.6059 (p<0.001)

Hosmer and Lemeshow Test Statistic: 15.1580 (p=0.0561)

c Test Statistic: 0.871

**3.4 Household With Child With Income Below 20% Median
After Housing Costs 2006/7 to 2008/9**

Parameter	β	Wald	Exp(β)	95% CI Exp(β)	
				Lower	Upper
Intercept	-0.3119	1.5018			
Location of household (ref. GB in 1998 or UK in 2008)					
Scotland	-0.2322	3.8238	0.793	0.628	1.001
Wales	-0.3444	2.8387	0.709	0.475	1.058
Northern Ireland	-0.5230**	10.7237	0.593	0.433	0.811
Greater London	0.3898**	7.5922	1.477	1.119	1.948
Household has two or more children (ref. only one dependent child)	-0.0486	0.3898	0.953	0.818	1.110
There are one or more pensioners in the household	-0.9463**	8.2634	0.388	0.204	0.740
One or more disabled adults in household	-0.2520*	5.1282	0.777	0.625	0.967
Age of head of household	-0.00880	3.4787	0.991	0.982	1.000
Head of household is female	-0.0243	0.0586	0.976	0.802	1.188
Ethnicity of head of household (ref. White)					
Indian	-0.1120	0.1747	0.894	0.529	1.512
Pakistani/Bangladeshi	0.0140	0.0059	1.014	0.709	1.449
Black or Black British	0.5515**	10.0193	1.736	1.234	2.442
Other Ethnicity (including Mixed Race)	0.4692**	8.4368	1.599	1.165	2.194
Tenure (ref. mortgage)					
Own home outright	-0.8810***	35.2104	0.414	0.310	0.554
Living rent free/squatting	-1.0280**	6.7296	0.358	0.165	0.778
Renting	-0.2812**	7.8406	0.755	0.620	0.919
One or more adults in the household are self-employed	-0.3606**	6.9185	0.697	0.533	0.912
One or more adults in the household are economically inactive	0.7266***	53.9429	2.068	1.703	2.510
One or more adults in the household are unemployed	1.3794***	138.3427	3.972	3.157	4.999
One or more household members has two or more jobs	-0.1469	0.4338	0.863	0.558	1.337
One plus household members have at least one odd job	-0.5967	2.9245	0.551	0.278	1.091
Household earnings per hour (ref. no earnings/ lowest quintile)					
Earnings are missing	0.5079***	16.9355	1.662	1.305	2.116
Second quintile	-1.7231***	113.3755	0.179	0.130	0.245
Third quintile	-2.2706***	132.3076	0.103	0.070	0.152
Fourth quintile	-2.3847***	152.5864	0.092	0.063	0.134
Fifth quintile	-3.3854***	227.8064	0.034	0.022	0.053
Hours worked per week by the household					

(ref. no hours including missing and lowest quintile)					
Second quintile	-0.7432***	28.7058	0.476	0.362	0.624
Third quintile	-0.8478***	37.5909	0.428	0.327	0.562
Fourth quintile	-1.1526***	46.1030	0.316	0.226	0.440
Fifth quintile	-1.0925***	42.8597	0.335	0.242	0.465
Social Class (ref. managerial, skilled, operative, elementary, unknown)					
Social Class: Professional	0.2327	2.6265	1.262	0.952	1.672
Social Class: Administrative	-0.2780	1.6658	0.757	0.496	1.155
Social Class: Service	-0.1147	0.3273	0.892	0.602	1.321
Social Class: Element	-0.1529	1.1107	0.858	0.646	1.140
Industry (ref. finance, mining, transport and communication, manufacturing, other service)					
Agricultural	0.0772	0.0684	1.080	0.606	1.926
Construction	-0.1966	1.9204	0.822	0.622	1.085
Public Administration	-0.3645**	7.1360	0.695	0.532	0.907
Missing	-0.1462	1.1812	0.864	0.664	1.125
Household receives at least one tax credit (either FC or WFTC in 1998 or CTC or WTC in 2008)	-1.5197***	279.5825	0.219	0.183	0.261
Household receives out-of-work benefit: Income Support, Pension Credit or from 2006-2009 Jobseekers' Allowance (Income Based)	-2.4158***	286.4943	0.089	0.068	0.118
Council Tax Rebate Amount (ref. not received or first quintile)					
Fourth or Fifth Quintile	-0.5943***	16.7347	0.552	0.415	0.734
London by Tax Credit (interaction term)	-0.0968	0.1868	0.908	0.585	1.408
Wales by Multiple Job (interaction term)	1.7856*	6.3446	5.963	1.486	23.926
London by Multiple Job (interaction term)	-1.3408	1.6265	0.262	0.033	2.054

Significance: $p < 0.001$ (***) $p < 0.01$ (**) $p < 0.05$ (*)

N = 23,010

McFadden's Pseudo R-Square: 0.26

Likelihood Ratio Test Statistic: 1966.9850 ($p < 0.001$)

Hosmer and Lemeshow Test Statistic: 5.7442 ($p = 0.6759$)

c Test Statistic: 0.866

**4.1 Household With Child With Income Below 60% Median
Excluding Households with incomes below 20% median
Before Housing Costs 1998/9 to 2000/1**

Parameter	β	Wald	Exp(β)	95% CI Exp(β)	
				Lower	Upper
Intercept	-0.0584	0.1283			
Location of household (ref. GB in 1998 or UK in 2008)					
Greater London	-0.1552*	4.1800	0.856	0.738	0.994
Household has two or more adults (ref. lone parent)	0.1511	2.5505	1.163	0.966	1.400
Household has two or more children (ref. only one dependent child)	0.6541***	194.7994	1.923	1.755	2.108
There are one or more pensioners in the household	-1.0122***	39.2319	0.363	0.265	0.499
One or more disabled adults in household	-0.3376***	40.3564	0.713	0.643	0.792
Age of head of household	-0.00796**	8.3072	0.992	0.987	0.997
Head of household is female	-0.2469**	8.4149	0.781	0.661	0.923
Ethnicity of head of household (ref. White)					
Indian	0.6046***	14.2022	1.830	1.337	2.507
Pakistani/Bangladeshi	1.2275***	85.2186	3.413	2.630	4.429
Black or Black British	0.3972**	9.9863	1.488	1.163	1.903
Other Ethnicity (including Mixed Race)	0.3898*	6.3967	1.477	1.092	1.997
Tenure (ref. mortgage)					
Own home outright	0.2620**	7.6755	1.300	1.080	1.564
Living rent free/squatting	0.4957*	5.4433	1.642	1.082	2.489
Renting	0.4414***	50.9339	1.555	1.377	1.755
Qualifications (ref. households where no adults have qualifications)					
One or more household members have degrees	-0.5962***	43.6915	0.551	0.462	0.657
All have qualifications below degree level	-0.2690***	24.2951	0.764	0.687	0.850
Some have qualifications below degree level	-0.2353**	10.8250	0.790	0.687	0.909
One or more self-employed adults in the household	-0.3244***	13.0370	0.723	0.606	0.862
One or more adults in the household are economically inactive	0.9486***	232.5125	2.582	2.286	2.917
One or more adults in the household are unemployed	1.2942***	299.6363	3.648	3.151	4.224
One or more household members has two or more jobs	-0.3217*	5.9736	0.725	0.560	0.938
One plus household members have at least one odd job	-0.1395	1.0039	0.870	0.662	1.143

Household earnings per hour (ref. no earnings including missing and lowest quintile)					
Second quintile	-1.0224***	198.7069	0.360	0.312	0.415
Third quintile	-2.1841***	482.5493	0.113	0.093	0.137
Fourth quintile	-3.3657***	522.0721	0.035	0.026	0.046
Fifth quintile	-5.5721***	266.4776	0.004	0.002	0.007
Hours worked per week by the household (ref. no hours/ lowest quintile)					
Second quintile	-0.5636***	48.2709	0.569	0.485	0.667
Third quintile	-1.3726***	220.5190	0.253	0.211	0.304
Fourth quintile	-2.1177***	311.5940	0.120	0.095	0.152
Fifth quintile	-2.3650***	337.1883	0.094	0.073	0.121
Social Class (ref. managerial)					
Social Class: Skilled	0.0871	0.9736	1.091	0.918	1.297
Social Class: Elementary	0.3292***	14.3800	1.390	1.172	1.648
Industry (ref. finance)					
Agricultural	0.6407***	13.6980	1.898	1.352	2.664
Construction	-0.0475	0.1798	0.954	0.765	1.188
Distribution and Catering	0.1678*	5.9899	1.183	1.034	1.353
Public Administration	0.0282	0.1224	1.029	0.878	1.205
Household receives at least one tax credit	-0.2845***	19.6236	0.752	0.663	0.853
Council Tax Rebate Amount (ref. not received or first, fourth or fifth quintile)					
Second or Third Quintile	0.1864**	8.4134	1.205	1.062	1.367
Housing Benefit Amount (ref. not received/ first to third quintile)					
Fourth or Fifth Quintile	-1.2897***	392.2350	0.275	0.242	0.313
London by Multiple Jobs (interaction term)	-1.3298	2.7552	0.265	0.055	1.272

Significance: $p < 0.001$ (***) $p < 0.01$ (**) $p < 0.05$ (*)

N = 22,388

McFadden's Pseudo R-Square: 0.44

Likelihood Ratio Test Statistic: 10253.0974 ($p < 0.001$)

Hosmer and Lemeshow Test Statistic: 44.0791 ($p < 0.001$)

c Test Statistic: 0.918

**4.2 Household With Child With Income Below 60% Median
Excluding Households with incomes below 20% median
Before Housing Costs 2006/7 to 2008/9**

Parameter	β	Wald	Exp(β)	95% CI Exp(β)	
				Lower	Upper
Intercept	-0.0403	0.0624			
Location of household (ref. GB in 1998 or UK in 2008)					
Greater London	-0.3201***	15.2438	0.726	0.618	0.853
Household has two or more adults (ref. lone parent)	0.2815***	15.2724	1.325	1.151	1.526
Household has two or more children (ref. only one dependent child)	0.4208***	86.5597	1.523	1.394	1.664
There are one or more pensioners in the household	-1.0672***	53.3562	0.344	0.258	0.458
One or more disabled adults in household	-0.2334***	17.1622	0.792	0.709	0.884
Age of head of household	-0.00382	2.1105	0.996	0.991	1.001
Head of household is female	-0.0272	0.1954	0.973	0.862	1.098
Ethnicity of head of household (ref. White)					
Indian	0.6921***	21.0271	1.998	1.486	2.686
Pakistani/Bangladeshi	0.8315***	52.7135	2.297	1.835	2.875
Black or Black British	0.5603***	23.9457	1.751	1.399	2.192
Other Ethnicity (including Mixed Race)	0.3911***	11.4279	1.479	1.179	1.855
Tenure (ref. mortgage)					
Own home outright	0.3003***	12.9113	1.350	1.146	1.591
Living rent free/squatting	0.6160**	6.7605	1.852	1.164	2.946
Renting	0.1940**	10.3964	1.214	1.079	1.366
Qualifications (ref. households where no adults have qualifications)					
One or more household members have degrees	-0.4201***	23.6633	0.657	0.555	0.778
All have qualifications below degree level	-0.2245***	13.0388	0.799	0.707	0.902
Some have qualifications below degree level	-0.0740	0.7289	0.929	0.784	1.101
One or more self-employed adults in the household	-0.4603***	29.0769	0.631	0.534	0.746
One or more adults in the household are economically inactive	0.9432***	245.7889	2.568	2.282	2.889
One or more adults in the household are unemployed	1.6118***	394.6305	5.012	4.275	5.876
One or more household members has two or more jobs	-0.5832***	14.5504	0.558	0.414	0.753
One plus household members have at least one odd job	-0.5061*	6.1423	0.603	0.404	0.900
Household earnings per hour					

(ref. no earnings including missing and lowest quintile)					
Second quintile	-1.0304***	222.9809	0.357	0.312	0.409
Third quintile	-1.9171***	448.8349	0.147	0.123	0.176
Fourth quintile	-2.9928***	517.4712	0.050	0.039	0.065
Fifth quintile	-4.9816***	344.7216	0.007	0.004	0.012
Hours worked per week by the household (ref. no hours/ lowest quintile)					
Second quintile	-0.5834***	56.9970	0.558	0.480	0.649
Third quintile	-1.2564***	208.9342	0.285	0.240	0.338
Fourth quintile	-1.9161***	290.7549	0.147	0.118	0.183
Fifth quintile	-2.1754***	334.3901	0.114	0.090	0.143
Social Class (ref. managerial)					
Social Class: Skilled	0.3040***	11.8073	1.355	1.139	1.612
Social Class: Elementary	0.2699***	13.6915	1.310	1.135	1.511
Industry (ref. finance)					
Agricultural	0.8243***	22.5986	2.280	1.623	3.203
Construction	-0.3691***	11.1816	0.691	0.557	0.858
Distribution and Catering	0.1757**	6.9897	1.192	1.046	1.358
Public Administration	-0.1616*	5.1493	0.851	0.740	0.978
Household receives at least one tax credit	-0.5394***	120.7413	0.583	0.530	0.642
Council Tax Rebate Amount (ref. not received or first quintile)					
Second or Third Quintile	0.2459***	12.5721	1.279	1.116	1.465
Housing Benefit Amount (ref. not received/ first to third quintile)					
Fourth or Fifth Quintile	-1.0966***	283.9003	0.334	0.294	0.379
London by Multiple Jobs (interaction term)	1.2875**	7.8781	3.624	1.475	8.904

Significance: $p < 0.001$ (***) $p < 0.01$ (**) $p < 0.05$ (*)

N=22,624

McFadden's Pseudo R-Square: 0.40

Likelihood Ratio Test Statistic: 8878.0632 ($p < 0.001$)

Hosmer and Lemeshow Test Statistic: 61.3233 ($p < 0.001$)

c Test Statistic: 0.904

**4.3 Household With Child With Income Below 60% Median
Excluding Households with incomes below 20% median
After Housing Costs 1998/9 to 2000/1**

Parameter	β	Wald	Exp(β)	95% CI Exp(β)	
				Lower	Upper
Intercept	0.4857***	10.9264			
Location of household (ref. GB in 1998 or UK in 2008)					
Scotland	-0.3035***	13.1498	0.738	0.627	0.870
Wales	-0.0828	0.7720	0.921	0.765	1.107
Greater London	0.0653	0.6002	1.067	0.905	1.259
Household has two or more children (ref. only one dependent child)	0.5452***	134.6294	1.725	1.573	1.891
There are one or more pensioners in the household	-0.9643***	36.6899	0.381	0.279	0.521
One or more disabled adults in household	-0.4383***	63.5862	0.645	0.579	0.719
Age of head of household	-0.00888**	10.5122	0.991	0.986	0.996
Head of household is female	-0.1885**	7.4153	0.828	0.723	0.949
Ethnicity of head of household (ref. White)					
Indian	0.6572***	17.5672	1.929	1.419	2.624
Pakistani/Bangladeshi	0.9904***	47.1693	2.692	2.029	3.572
Black or Black British	0.3370*	5.7558	1.401	1.064	1.845
Other Ethnicity (including Mixed Race)	0.6267***	13.5532	1.871	1.340	2.612
Tenure (ref. mortgage)					
Own home outright	-0.5216***	30.0306	0.594	0.493	0.715
Living rent free/squatting	-0.6852**	8.5254	0.504	0.318	0.798
Renting	0.4811***	72.0492	1.618	1.448	1.808
One or more adults in the household are self-employed	-0.2549**	7.1982	0.775	0.643	0.934
One or more adults in the household are economically inactive	0.9548***	226.8039	2.598	2.294	2.942
One or more adults in the household are unemployed	1.3952***	295.8462	4.036	3.443	4.731
One or more household members has two or more jobs	-0.1580	1.9195	0.854	0.683	1.068
One plus household members have at least one odd job	-0.2282	2.8936	0.796	0.612	1.035
Household earnings per hour (ref. no earnings/ lowest quintile)					
Earnings are missing	-0.5387***	28.3982	0.584	0.479	0.711
Second quintile	-0.9560***	188.0235	0.384	0.335	0.441
Third quintile	-1.9412***	510.7960	0.144	0.121	0.170
Fourth quintile	-2.9138***	715.0449	0.054	0.044	0.067
Fifth quintile	-5.0255***	639.6514	0.007	0.004	0.010

Hours worked per week by the household (ref. no hours including missing and lowest quintile)					
Second quintile	-0.3370***	19.2589	0.714	0.614	0.830
Third quintile	-1.2574***	223.3726	0.284	0.241	0.335
Fourth quintile	-2.1012***	387.5889	0.122	0.099	0.151
Fifth quintile	-2.3549***	418.6050	0.095	0.076	0.119
Social Class (ref. managerial, skilled, operative, elementary, unknown)					
Social Class: Professional	-0.3366**	7.3328	0.714	0.560	0.911
Social Class: Administrative	-0.1727	3.1765	0.841	0.696	1.017
Social Class: Service	0.1289	1.9059	1.138	0.947	1.366
Social Class: Element	0.3174***	13.2121	1.374	1.158	1.630
Industry (ref. finance, mining, transport and communication, manufacturing, other service)					
Agricultural	0.4075*	5.3794	1.503	1.065	2.121
Construction	-0.0658	0.5182	0.936	0.783	1.120
Public Administration	-0.1598*	3.8745	0.852	0.727	0.999
Missing	-0.4995***	35.1338	0.607	0.514	0.716
Household receives at least one tax credit (either FC or WFTC in 1998 or CTC or WTC in 2008)	-0.2317***	11.2791	0.793	0.693	0.908
Household receives out-of-work benefit: Income Support, Pension Credit or from 2006-2009 Jobseekers' Allowance (Income Based)	0.4736***	32.7034	1.606	1.365	1.889
Council Tax Rebate Amount (ref. not received or first quintile)					
Fourth or Fifth Quintile	0.0194	0.0711	1.020	0.884	1.176
London by Tax Credit (interaction term)	0.5623*	6.3308	1.755	1.132	2.719
Wales by Multiple Job (interaction term)	0.4415	1.0872	1.555	0.678	3.566
London by Multiple Job (interaction term)	-1.1910*	4.4171	0.304	0.100	0.923

Significance: p<0.001(***) p<0.01 (**) p<0.05 (*)

N = 22,023

McFadden's Pseudo R-Square: 0.50

Likelihood Ratio Test Statistic: 12972.3557 (p<0.001)

Hosmer and Lemeshow Test Statistic: 47.5259 (p<0.001)

c Test Statistic: 0.930

**4.4 Household With Child With Income Below 60% Median
Excluding Households with incomes below 20% median
After Housing Costs 2006/7 to 2008/9**

Parameter	β	Wald	Exp(β)	95% CI Exp(β)	
				Lower	Upper
Intercept	0.5897***	16.5997			
Location of household (ref. GB in 1998 or UK in 2008)					
Scotland	-0.2823***	20.5178	0.754	0.667	0.852
Wales	-0.0168	0.0290	0.983	0.811	1.193
Northern Ireland	-0.3950***	26.5648	0.674	0.580	0.783
Greater London	0.0835	0.5142	1.087	0.865	1.366
Household has two or more children (ref. only one dependent child)	0.3011***	48.5466	1.351	1.242	1.471
There are one or more pensioners in the household	-0.8723***	39.3702	0.418	0.318	0.549
One or more disabled adults in household	-0.3249***	30.7865	0.723	0.644	0.810
Age of head of household	-0.00581*	5.1944	0.994	0.989	0.999
Head of household is female	-0.1720**	8.9295	0.842	0.752	0.943
Ethnicity of head of household (ref. White)					
Indian	0.7777***	30.4213	2.176	1.651	2.869
Pakistani/Bangladeshi	0.8139***	45.0400	2.257	1.779	2.862
Black or Black British	0.3306**	7.7805	1.392	1.103	1.756
Other Ethnicity (including Mixed Race)	0.5831***	24.8664	1.792	1.425	2.253
Tenure (ref. mortgage)					
Own home outright	-0.5423***	42.1366	0.581	0.494	0.685
Living rent free/squatting	-0.1666	0.5091	0.847	0.536	1.338
Renting	0.4724***	77.2320	1.604	1.443	1.782
One or more adults in the household are self-employed	-0.3895***	19.3502	0.677	0.569	0.806
One or more adults in the household are economically inactive	0.9462***	263.2588	2.576	2.298	2.888
One or more adults in the household are unemployed	1.6528***	364.0937	5.222	4.406	6.188
One or more household members has two or more jobs	-0.7252***	28.3791	0.484	0.371	0.632
One plus household members have at least one odd job	-0.5849**	9.2502	0.557	0.382	0.812
Household earnings per hour (ref. no earnings/ lowest quintile)					
Earnings are missing	-0.3985***	18.1844	0.671	0.559	0.806
Second quintile	-0.8986***	196.7187	0.407	0.359	0.462
Third quintile	-1.7567***	507.1529	0.173	0.148	0.201
Fourth quintile	-2.6786***	716.1264	0.069	0.056	0.084
Fifth quintile	-4.3455***	748.4525	0.013	0.009	0.018
Hours worked per week by the					

household (ref. no hours including missing and lowest quintile)					
Second quintile	-0.3648***	26.8184	0.694	0.605	0.797
Third quintile	-1.0800***	210.7157	0.340	0.294	0.393
Fourth quintile	-1.5243***	293.3562	0.218	0.183	0.259
Fifth quintile	-2.0780***	417.7366	0.125	0.103	0.153
Social Class (ref. managerial, skilled, operative, elementary, unknown)					
Social Class: Professional	-0.2049	3.7819	0.815	0.663	1.002
Social Class: Administrative	-0.0482	0.2602	0.953	0.792	1.147
Social Class: Service	-0.2011*	4.2059	0.818	0.675	0.991
Social Class: Element	0.1683*	5.4438	1.183	1.027	1.363
Industry (ref. finance, mining, transport and communication, manufacturing, other service)					
Agricultural	0.8303***	25.7984	2.294	1.665	3.160
Construction	-0.0945	1.2021	0.910	0.768	1.077
Public Administration	-0.1334	3.6966	0.875	0.764	1.003
Missing	-0.2790***	11.8990	0.757	0.646	0.887
Household receives at least one tax credit (either FC or WFTC in 1998 or CTC or WTC in 2008)	-0.3982***	59.9153	0.672	0.607	0.743
Household receives out-of-work benefit: Income Support, Pension Credit or from 2006-2009 Jobseekers' Allowance (Income Based)	0.0696	0.8778	1.072	0.927	1.240
Council Tax Rebate Amount (ref. not received or first quintile)					
Fourth or Fifth Quintile	-0.1408	3.6609	0.869	0.752	1.003
London by Tax Credit (interaction term)	0.3291*	5.0299	1.390	1.042	1.853
Wales by Multiple Job (interaction term)	1.2496*	4.1598	3.489	1.050	11.594
London by Multiple Job (interaction term)	0.8484*	4.2902	2.336	1.047	5.213

Significance: p<0.001 (***) p<0.01 (**) p<0.05 (*)

N = 22,120

McFadden's Pseudo R-Square: 0.42

Likelihood Ratio Test Statistic: 10698.1332 (p<0.001)

Hosmer and Lemeshow Test Statistic: 56.7685 (p<0.001)

c Test Statistic: 0.907