Briefing

Resolution Foundation

Starting out or getting stuck?

An analysis of who gets trapped in low paid work - and who escapes

Alex Hurrell

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E: info@resolutionfoundation.org T: 020 3372 2960 @resfoundation

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Executive Summary

Low pay in the UK should be a cause for great concern. With one in five workers on a low wage, and the UK ranking poorly against other developed economies in terms of the prevalence of low pay, far too many people suffer from in-work poverty, their life chances limited by low income.

These concerns are all the more pressing today. Government spending, which has in recent decades acted to redress low pay through the tax credit and benefits system, is very unlikely to supplement the incomes of low paid workers to the extent it has in the past, given ongoing cuts to public expenditure.

Yet in examining low pay, far too little attention is devoted to understanding the role labour markets play in determining how people's fortunes evolve over time. In particular, we do not possess sufficient knowledge about the extent to which the low paid are able to get on in life by working their way up the earnings scale.

In previous work the Resolution Foundation has examined trends in pay mobility across the earnings scale. In this paper we undertake an in-depth analysis of pay progression amongst the low paid, using data that tracks earnings between 1975 and 2012. Our analysis details the extent of low pay persistence today, and how this has changed over time. We also identify the groups who are less likely to progress out of low pay and those who are more likely to do so.

Key research questions

This paper addresses the following questions:

- Are there significant numbers of low paid workers who remain stuck on low pay for long periods of time?
- Are low paid workers more likely to remain stuck on low pay now than in earlier periods?
- Are there systematic differences between the low paid who progress and those who do not?

Methodology

To answer these questions we have mapped out how the pay of a group of the same individuals changed over time. Using data provided by the New Earnings Survey Panel Dataset – which tracks the earnings of individuals since 1975 - we can identify how many workers remain stuck on low pay over time, and how many progress up the earnings scale.

We begin by calculating, for the most recent period (2012), how many of the low paid have consistently been trapped on low pay over the previous decade (2002-2011). This allows us to identify the extent of the problem of persistent low pay in Britain today.

We then calculate how many manage to escape from low pay. Taking 2002 as our base year, we throw our analysis forward and ask: of those identified as low paid in 2002, how many progressed out of low pay over the next decade (2003-2012), and what are the characteristics associated with those who moved up the pay scale and those who did not? With this analysis we can also compare what happened over the past decade with previous periods.

Key findings

- The majority of those who were low paid in 2002, almost three quarters (73 per cent), had not managed to escape low pay by 2012. Nearly half (46 per cent) had escaped low pay during the decade but, worryingly, then found themselves back in or at risk of low pay by 2012. Twenty-seven per cent had stayed on low pay in every year they had been employed in the period.

- The proportion of individuals who are stuck permanently on low pay has fallen slightly in recent decades but remains high.
- Twenty-eight per cent of those on low pay in 2012 have only ever held low paid jobs in the previous 10 years there. Among women, this proportion rises to 33 per cent.
- The public sector appears to offer better opportunities for pay progression than the private sector, and particularly than in jobs in retail, sales and customer services, manufacturing and care where low pay persistence is notably high.

Moving onto a higher wage remains a huge challenge for the low paid. While significant numbers do manage to move up the pay ladder, there are still far too many who remain trapped at the bottom, or who fall back onto low pay having escaped momentarily. Furthermore, many low paid workers struggle to earn more unless they switch occupations, sectors or in some cases move from small to large organisations.

As an illustration of individuals' differing fortunes, take women who worked in a low-paying elementary occupation (such as cleaning) in 2002. Of these, 38 per cent remained stuck on low pay throughout the subsequent decade, compared to just 13 per cent that managed to escape. By contrast, those that worked for central government in 2002 were far more likely to progress: only 10 per cent of these employees remained stuck against 40 per cent that did manage to escape low pay by 2012.

This paper highlights the extent of the problem of persistent low pay. Our findings are particularly pertinent to government policies which seek to encourage workers onto higher wages, including the flagship Universal Credit programme. Key to getting the design of such policies right is an understanding that individuals face genuine barriers to pay progression beyond their control, while specific groups appear to face even more significant obstacles preventing them from earning more.

Introduction

Low pay in the UK is a major problem. Last year one in five workers was low paid, unchanged since the 1990s and significantly higher than 30 years ago. When measuring low pay prevalence, the UK also ranks poorly against other mature economies, while in some industries, such as the retail and care sectors, low pay is endemic.

Yet in examining low pay, far too little attention is given to trying to understand the opportunities and barriers individuals face in attempting to work their way up the earnings ladder. This is a crucial gap in our knowledge. While low pay is a concern in itself, what's more problematic is if a worker has difficulty escaping these conditions. This is particularly the case for some individuals, such as those coming towards the end of their peak-earning years, where the opportunities for pay progression are further limited.

Analysing pay progression among the low paid is also timely. Living standards have fallen sharply since the 2008 financial crisis, squeezed by flat wages and rising prices, and the next election is set to be one fought over how to improve the fortunes of low and middle income earners. Meanwhile, continued cuts to public expenditure will limit the ability of the taxpayer to supplement the incomes of the low paid to the extent seen in the past. As the Social Mobility and Child Poverty Commission recently argued, employers and government will have to do more to lift wages and to help people raise their own incomes by earning more over time.[1]

Understanding pay progression is crucial when it comes to structuring policy that is designed to encourage the low paid to earn more. Under the government's flagship Universal Credit system, for example, benefit claimants who are in work and earning less than the annual salary of a full-time minimum wage job are required to make efforts to increase their total earnings up to this threshold or face sanctions. Key to getting the design of such policies right is understanding that individuals face genuine barriers to pay progression, while certain specific groups appear to be particularly disadvantaged.

Why does pay progression matter?

The ability to move up the earnings scale matters for every worker but particularly for the low paid, who tend to suffer higher levels of in-work poverty and rely on state support to supplement their incomes. Pay mobility also impacts levels of social mobility. Persistent low pay represents a constraint on intra-generational social mobility – the extent to which individuals, whatever their starting point, can 'get on' under their own efforts and move up the earnings distribution – for those at the very bottom of the pay scale.

Difficulties in escaping low pay present problems particular to specific groups. Unlike the young, for whom low pay may legitimately reflect a lack of experience or some sharing of the costs of training between employee and employer,[2] low wages are likely to be particularly troubling for workers in the peak-earning period (aged 30 to 50) of their lives. Low pay for these workers presents specific challenges in terms of living standards and child poverty, and suggests that a large group remain stuck on low pay for long periods of time, perhaps even their whole careers.

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[1] Social Mobility and Child Poverty Commission (2013), "State of the Nation 2013: social mobility and child poverty in Great Britain", HM Government.

[2] Similarly, we may also be less concerned about the small number of pensioners who hold low pay jobs, since for many this will reflect gradual transitioning into retirement or mini-jobs to supplement pension income. In terms of living standards, many older workers are also less likely to have dependents than those in the peak-earning ages of 30-50.

Previous Resolution Foundation studies have looked at earnings mobility, assessing the extent of, and factors associated with, significant movements up the earnings scale.[3] In this report we return to this theme, but this time with a specific focus on movements out of low pay.

There have been two notable recent studies in this area. First, a 2011 report by The Work Foundation's, *The hourglass and escalator*, which describes the recent 'hollowing out' and increasing polarisation of the labour market and highlights that one of the negative aspects of growing polarisation is that it may create additional barriers to earnings mobility.[4] They use British Household Panel Survey (BHPS) data to analyse earnings mobility between 2001/02 and 2008/09. They find that around a third of those in the bottom 10 per cent of earners in the initial period were still there seven years later, and that more than 60 per cent remained in the bottom three deciles. Women and those with no qualifications were significantly more likely to remain stuck at the bottom of the earnings distribution. They therefore conclude that for many people low-wage work is not acting as an 'escalator' into employment offering better wages and prospects, but is instead often a reflection of dead-end jobs.

More recently, the Centre for Economic and Social Inclusion (CESI) published a study examining low pay and progression in London and the UK.[5] In this they compare individuals' employment and earnings between April 2012 and March 2013 using the Labour Force Survey (LFS). Using a definition of low pay as being the region-specific Living Wage, they find 17 per cent of the non-student population remained stuck on low pay over the year. They define 'pay progression' as being an annual increase in hourly pay above the national median wage growth rate, and find that 33 per cent of those on low pay saw no pay progression under this definition. On average, low paid workers that changed jobs within the year saw far greater wage growth than those that did not, and those who received job related training saw higher wage growth on average.

The research presented in this report builds on this previous research by considering pay progression over a longer time span (10 years) and repeats the analysis for many different years allowing us to assess how pay progression has varied over time. It considers pay progression (and remaining stuck in low pay) in terms of individuals' earning trajectories over the entire 10 year analysis horizon, rather than simply comparing snapshots at the start and finish. Finally, the NESPD hourly earnings data used for the analysis is generally taken to be more reliable than that contained in other datasets.[6] However, while the NESPD earnings data is considered more reliable than other sources, there are a number of limitations to the data, including no information on education and skills, missing data and no information on the self-employed. These limitations, and their implications for the analysis, are set out in Annex A.

Key research questions

This report addresses the following questions:

- What is the extent of the problem of persistent low pay?
- Are there significant numbers of low paid workers who remain stuck on low pay for long periods of time?
- Do many workers 'churn' between low pay and better paid work?

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[3] The two previous Resolution Foundation papers on earnings mobility are *'Moving on up? Social mobility in the 1990s and 2000s'* and *'Snakes and Ladders: who climbs the rungs of the earnings ladder'* both by Savage (2011). These two studies in turn build on work by Dickens and McKnight (2008) and Dickens (2000), in addition to parts of the research summarised in Jenkins (2011).
[4] Sissons, P The hourglass and the escalator, Paul Sissons, July 2011, The Work Foundation
[5] Wilson T, Gardiner G, Krasnowski, K (2013). *'Work in progress: low pay and progression in London and the UK'*, Centre for Economic and Social Inclusion.
[6] Fry and Ritchie (2013).

- Are there low paid workers who manage to progress?
- Are there any systematic differences between the low paid who progress and those who get stuck?

If systematic differences can be identified, this allows those stuck on low pay to be clearly characterised, thus enabling policy to be specifically targeted at this group. Identifying factors associated with progression off low pay can guide the design of such policies: what is it about those that progress from low pay that enables them to escape, and to what degree can policy interventions replicate these enabling conditions for those stuck on low pay?

Methodology

To examine the persistence of low pay we have mapped out the pay of a group of the *same individuals* over a period back to 1975. We use data provided by the New Earnings Survey Panel Dataset (NESPD) – a longitudinal panel version of the Annual Survey of Hours and Earnings (ASHE). The NESPD has been used in a number of previous studies to analyse earnings dynamics.[7]

Importantly, these datasets[8] record earnings far more accurately than other data. They also track hourly wages rather than total earnings, enabling us to see when the low paid improve their income through higher wages rather than from working longer hours. Having data as accurate and extensive as this allows us to identify and then examine low pay persistence in the UK over multiple periods.

Our analysis is in two parts. In the first we begin by asking: how many of today's low paid employees have remained stuck on low pay over time? To answer this question we identify the number of low paid today and then work *backwards*, looking at how many were stuck on low pay in prior years. This allows us to identify the size of the problem of persistent low pay in the UK today.

But we also need to identify those who *have* managed to escape low pay so that we can measure them against those who did not. This is the second part of our analysis. Here we begin by identifying the numbers of low paid during a particular year – 2002 - and then look *forwards*, asking: of those who were low paid in 2002, how many then managed to progress out of low pay? This group can then be compared to those who remained persistently low paid, those who were not persistently low paid but didn't manage to escape, and those who left the workforce (for example due to death, retirement or prolonged unemployment or economic inactivity) or became self-employed for the entirety of the subsequent decade

This paper is therefore structured as follows:

In **Section 2** we start with 2012 as our base year and calculate how many of today's low paid employees have consistently been stuck on low pay over the previous decade (2002-2011), before considering how the numbers stuck on low pay compares with earlier periods.

In **Section 3** we identify how many manage to escape from low pay. We ask: of those identified as low paid in 2002, how many progressed out of low pay over the next decade? Again we consider how the findings compare with earlier periods.

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7 See for example: Blundell et al (2013), Dickens (2000a) and Dickens (2000b).

8 The earnings data in ASHE/NESPD is very accurate because it is collected directly from employers based on pay roll information, rather than being reported by individuals. In contrast, one possible alternative, the British Household Panel Dataset (BHPS) contains information on education and skills in addition to employment characteristics, but relies on self-reported earnings data. The BHPS also has a much smaller sample size, which would constrain the scope of any analysis.

Then in **Section 4** we look at specific characteristics associated with those who moved up the pay scale and those who did not. This allows us to compare those who are more likely to remain stuck on low pay with those less likely to do so.

A summary of the key findings and their policy implications is set out in the conclusion. Full methodological details and data limitations are set out in Annex A, while more detailed results are located in Annexes B, C, D and E.

Before turning to Section 2 it is worth briefly mentioning some of the factors that we have not been able to take account of. The data we use in this paper does not measure education, skills and training levels among the low paid, all of which we would expect to influence an individual's chances of moving up the pay ladder. There is also no information about an employee's wider family situation. For example, whether you have children, and their age, is likely to have a strong influence on your earnings, for women in particular. We also have no way of isolating the specific impact of the economic slowdown in 2009-2012, which we might expect to present increased barriers to escaping low pay (to the extent that it may have reduced pay progression among low earners relative to median wage growth).

Section 2: The scale of the persistent low pay problem

Low pay is a major problem in the UK, with one in five workers considered low paid in 2012, unchanged from the 1990s.[9] Britain's slow economic recovery - under which inflation has repeatedly outstripped wage rises - and deep cuts to public spending have combined to raise awareness about falling living standards among low and middle income earners. Yet our understanding of the dynamics of low pay remains limited.

In this report we look beyond the numbers of low paid, and instead explore the persistence of low pay in the UK. Doing so will tell us how able individuals are to progress up the earnings scale, and what action we might need to take to help more people progress. We begin by identifying how many low paid individuals have remained stuck at the bottom of the pay ladder in recent years.

We define employees as being 'stuck' on low pay if they are aged over 25 and low paid in 2012, and have only held low paid jobs throughout the previous decade (2002-2011). We define low pay as pay that is less than two-thirds of the contemporary median hourly wage, the standard measure of low pay. The data we use to identify the persistence of low pay also measures hourly wages rather than total earnings so that where we identify pay progression it genuinely reflects moving to better paid work rather than simply working more hours.

The 'stuck' group includes those who have been caught in a cycle between unemployment or inactivity and low paid work - the 'low-pay-no-pay' cycle.[10] Because of limitations in the data, it also includes those who have switched between low paid jobs and self-employment, for which we do not have earnings information. Since the data only provide annual snapshots of an employee's hourly earnings as of April in each year, some of those who are trapped may not have been continuously in low paid work over the previous decade, but they will have been as of each April when the snapshot occurs.[11]

Overall, more than one in four (28 per cent) of all low paid workers in 2012 found themselves stuck on low pay for the previous decade, corresponding to 1.3 million people or 5 per cent of the workforce.

Under our definition, those aged under 25 cannot be defined as 'stuck' because many of them will not have progressed out of low pay simply because they have not been in the labour market for long enough. Therefore if we consider the proportion of low paid employees aged over 25, the proportion that is stuck is much higher. In fact, more than two-in-five (44 per cent) of all low paid employees aged over 25 have been stuck on low pay for the previous decade.

The proportion and number of the low paid stuck on low pay varies by sex, full-time/part-time work status, age, region and key low-pay occupations and industries, as Figure 1 shows. This analysis enables us to identify whether there are certain groups among the low paid who are relatively more likely to find themselves stuck on low pay.

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[9] Whittaker, M. and Hurrell, A. (Low Pay Britain, 2013).

[10] Table B2 in Annex B shows that 46 per cent of the stuck were present in the sample (i.e. in employment) for fewer than four years of the previous decade (2002-2011). This illustrates the extent to which our definition of the 'stuck' encompasses those cycling between low paid work and unemployment/inactivity, in other words those caught in the low-pay-no-pay trap.

[11] See Annex A for further discussion.

Low paid workers are somewhat more likely to have remained stuck in low pay if they:

- are **female** (33 per cent);
- live in the **North East** (34 per cent); or
- work in an **elementary occupation** (32 per cent).

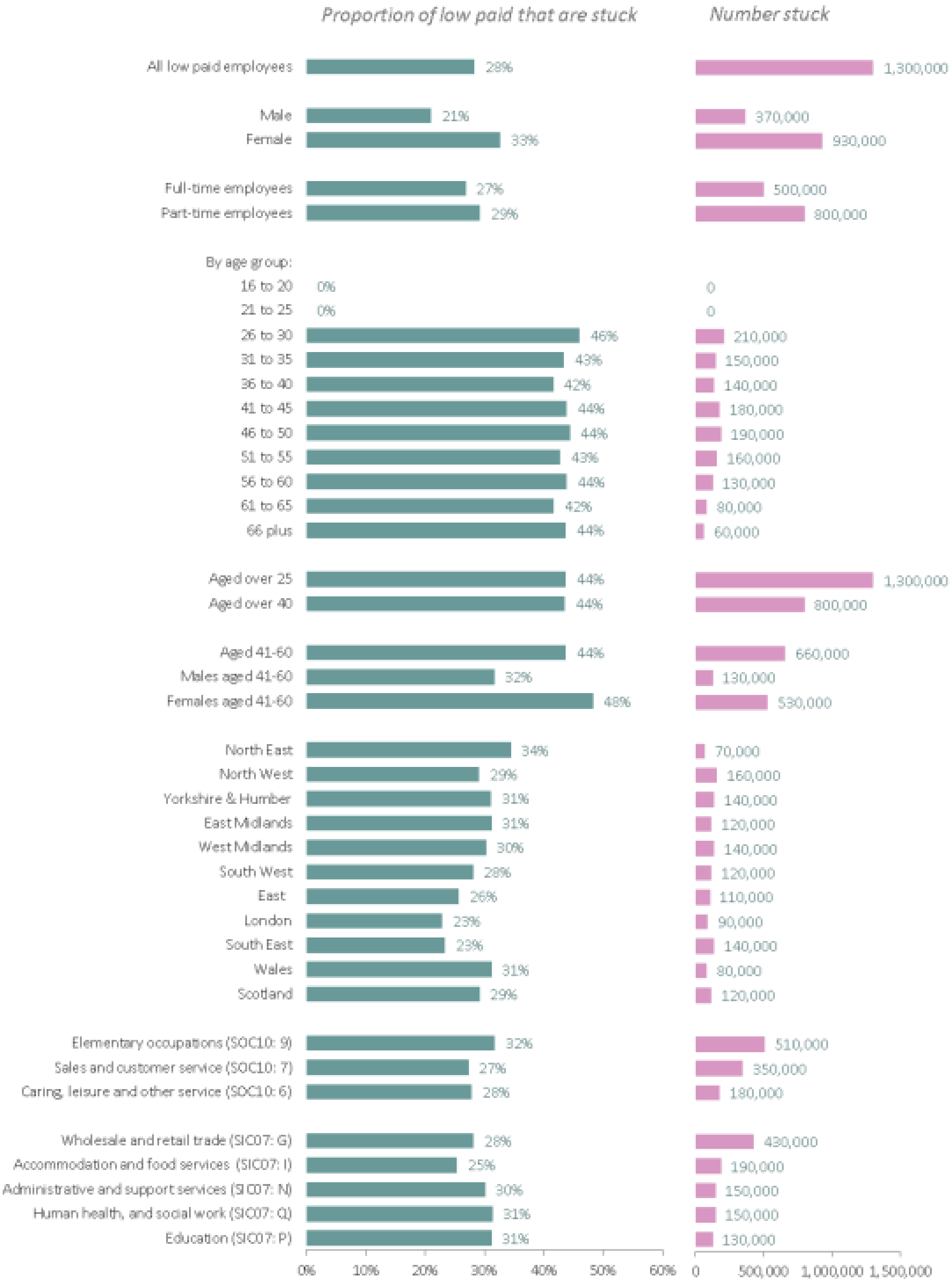
Looking at the age profile of individuals who remain in low pay throughout the period also reveals some important insights. Half (51 per cent) of those trapped on low pay are between the ages of 41 and 60. These are people who at the start of the previous decade, in 2002, were in the peak-earning years of their life (31-50) but who, despite this, were unable to progress out of low pay. This finding is particularly worrying because many, having already been stuck on low pay for a decade, have by now reached an age where they will have limited scope for any subsequent pay progression as they continue their careers. The proportion aged 41-60 rises to 57 per cent among females trapped on low pay, compared to 35 per cent for males, highlighting the degree to which this is a problem that affects middle-aged women in particular (see Figure B1 in Annex B). Many women take time out of work at this stage of their careers to have and look after their children (something we cannot analyse directly due to data limitations), and this will explain in part why low paid females aged 41-60 are much more likely to be stuck than their male counterparts (48 vs. 32 per cent). But this still prompts questions as to what prevents many women from being able to balance caring responsibilities with work that offers opportunities for progression, and about how this situation could be improved.

Failure to escape low pay during the peak-earning phase of life is of particular concern given the difficulties individuals face in earning more later on in their careers, but it is also worth noting how the oldest and youngest individuals fare. Eight per cent of those who remained stuck on low pay during the 10-year period were aged 26-30 years old. Many of this age group will have spent some of the previous decade in education, limiting the time they have had to build up the experience necessary to progress. At the other extreme, a further five per cent of those who remained stuck were aged over 65. While for some of this group this will simply reflect transitioning to retirement or taking up mini-jobs to supplement income, we should still be concerned about those who were forced to work beyond pension age because of limited opportunities to earn more as they approached retirement.

The findings in this section present a worrying picture about low pay persistence. Our analysis demonstrates that there are many workers for whom low pay is not acting as a first rung on the ladder but one on which many remain stuck for long periods of time, many of whom, particularly women, are at or past the peak-earning phase of their careers.

In the next two sections we assess how many low paid workers manage to escape low pay and then look at whether there are systematic differences between those who remain stuck on low pay and those who manage to escape on to higher wages, in order to gain a better understanding of what characteristics or factors might enable pay progression.

Figure 1: Proportion of low paid employees and total number of employees who are stuck on low pay by sex, full-time work status, age, region and selected low-pay occupations and industries (2012)



Notes: (1) Employees are defined as stuck on low pay if they are low paid and aged over 25 in 2012, and have only ever held a low paid job in the previous decade (2002-2011).

(2) Low pay is defined as being paid less than two-thirds of the contemporary median hourly wage.

Source: Resolution Foundation analysis of NESPD 1975-2012

Section 3: Escaping low pay

As we have seen, significant numbers of people remain stuck on low pay for long periods of time. In the past 10 years, that number equated to 44 per cent of all low paid workers over the age of 25. This tells us something new and useful about the recent plight of today's low paid workers, but it does not help us to see why things ended up this way.

To do that, we need to identify how many people manage to progress on to higher paid work, how many do not, and to see whether there are key differences between these two sets of individuals.

In sections 3 and 4 we therefore take a different approach. We look back to the UK's low paid working population in the year 2002. We pinpoint the employees who were low paid in 2002 as they were about to travel through a decade of their working lives. We then track these employees over the following decade, up to 2012, to see who went on to become stuck in low pay and who went on to escape low pay.[12] By cutting the numbers in this way, we get a better sense of what characterises those who remain stuck on low pay. This is helpful if we want to explore the question of why some people find themselves stuck at the bottom of the pay ladder while others do not.

What do we mean by escaping low pay?

We can define three distinct groups among the low paid:

- ***Escapers****:* Those who progress off low pay;
- ***The stuck***: Those who remain stuck on low pay; and
- ***Cyclers****:* Those who are not stuck but do not escape.

More specifically, we define *escapers* as those among the 2002 low paid who by the end of the subsequent decade are consistently in work and have progressed off low pay. This is defined as being in work and earning above the low pay threshold in 2010, 2011 and 2012.

In contrast, *the stuck* are defined as those among the 2002 low paid who only ever held low paid jobs in the subsequent decade (2003-2012), including those who cycle between unemployment/inactivity and low paid work.[13] Importantly, because of limitations in the data, this group also includes those who have switched between low paid jobs and self-employment, for which we do not have earnings information. Furthermore, since the data only provide annual snapshots of an employee's hourly earnings as of April each year, some of those who are trapped may not actually have been continuously in low paid work over the previous decade.[14]

Cyclers include those among the 2002 low paid who had a non-low paying job in the survey reference period (April) for at least one year in the subsequent decade. Unlike those who were permanently stuck on low pay, these individuals escaped low pay during the decade. However, unlike the escapers, the cyclers did not escape out of low pay for good: according to our analysis, they had not progressed onto higher paid work for the final three years of the subsequent

[12] Note that the 'forward-looking' stuck group identified in this chapter are slightly different to the 'backward-looking' stuck group identified in the previous chapter. This is because of those defined as 'forward-looking' stuck in 2002, 72 per cent were not working in 2012. Similarly, for those defined as 'backward-looking' stuck in 2012, 76 per cent were not working in 2002.
[13] Table C1 in Annex C shows that 44 per cent of those who remain stuck on low pay after 2002 are present in the sample for less than four years out of the subsequent decade (2003-2012). This again illustrates the extent to which our definition of the 'stuck' encompasses those cycling between low paid work and unemployment/inactivity, in other words those caught in the low-pay-no-pay trap.
[14] See Annex A for further discussion.

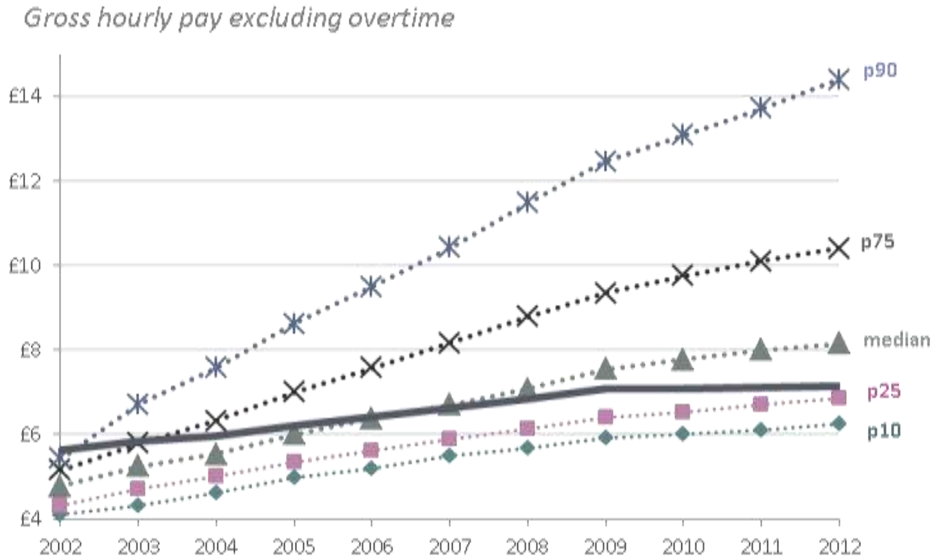
decade, being either out of work, self-employed or low paid in the survey reference period (April) for the years 2010, 2011 and 2012. In distinguishing between the cyclers and the escapers, emphasis is placed on these final three years of the period in question. Being in work and earning above the low-pay threshold for these final years is taken to reflect sustained progression off low pay.

In addition to our three groups is a residual of individuals who left the workforce or became self-employed for the entirety of the subsequent decade, and do not form a core part of our analysis. Most of these individuals – who we can refer to as the *exiters* – will have exited the workforce permanently due to retirement or death. Apart from those who shifted into self-employment, the rest were consistently absent from the labour market in the survey reference period (April) for all years in the subsequent decade. This could be due to frequent or long-term unemployment, moving abroad or prolonged economic inactivity, which covers those in full-time education, stay-at-home parents and full-time carers.[15]

Individuals on low pay in 2002 experienced diverging fortunes over the following decade. To illustrate the extent to which their fortunes subsequently diverged, Figure 2 shows gross hourly percentile trends among the cohort of employees who were low paid in 2002 over the next decade. In 2002, there was very little variation in hourly wages across the low paid group, with the top-earning 10 per cent of low paid workers earning at least £5.43 per hour. By 2003 the top-earning 10 per cent of the cohort had already escaped low pay, earning in excess of £6.71 per hour compared to a low pay threshold £5.83. By 2012, only around 25 per cent of the cohort still remained in low pay, with those in the top 10 per cent earning more than double the low pay threshold.

[15] Unfortunately due to data limitations the exiters group may also include a small number of employees who were in fact in employment in the subsequent decade, but for whom we have no earnings data. This means the proportion of the low paid that are exiters will be biased upwards, but the extent of this bias is likely to be very small. See Annex A for further discussion.

Figure 2: Gross hourly pay percentile trends among the cohort of employees who were low paid in 2002 (2002-2012)



Notes: (1) Low pay is defined as being paid less than two-thirds of the contemporary median hourly wage.

(2) The thick black line shows the low pay threshold for each year.

Source: Resolution Foundation analysis of NESPD 1975-2012

Table 1 compares the average hourly wage for escapers, cyclers and the stuck at the start and at the end of the period (2002 and 2012). In 2002 the average wage was similar across all three groups (ranging from £4.59 to £4.82). However, by 2012 the average wage of those who had progressed out of low pay had reached £11.22, higher than the median across all employees in that year (£10.71). In fact around half of those who managed to escape low pay are, by 2012, at least two-thirds of the way up the earnings scale. In contrast, those who remained stuck in low pay had an average wage of just £6.43 in 2012, representing almost no real increase once inflation (as captured by the RPI) is taken into account.

The very different average wage trajectories experienced by the escapers and the stuck, with cyclers sitting somewhere in between, illustrate that the division of the 2002 low paid into these categories is genuinely capturing meaningful differences among the low paid. These employees, who were all low paid in 2002, went on to experience vastly differing fortunes in the subsequent decade: some never managed to progress out of low paid work (the stuck), while others managed to progress significantly up the earnings scale (the escapers).

Table 1: Average gross hourly wage (excluding overtime) in 2002 and 2012, by low pay category

	2002	2012
Escapers	£4.82	£11.22
Stuck	£4.59	£6.43
Cyclers	£4.77	£9.00
Non-low paid	£12.38	£17.42

Notes: (1) Escapers are defined as those among the 2002 low paid who are in work and no longer on low pay in the most recent three years (2010, 2011 and 2012).

(2) The stuck are defined as those of the 2002 low paid who only ever held low paid jobs for all years they were employed in the subsequent decade (2003-2012).

(3) Cyclers are defined as those among the 2002 low paid that had a non-low paying job for at least one year in the subsequent decade.

(4) Low pay is defined as being paid less than two-thirds of the contemporary median hourly wage.

Source: Resolution Foundation analysis of NESPD 1975-2012

What proportion of the low paid managed to escape?

We now turn to look at what proportion of the low paid in 2002 had managed to move on to higher pay by 2012. We can do this by comparing the relative size of each of our three groups – those who managed to escape low pay; those who were stuck in low pay; and those who temporarily escaped low pay – at the start of the period.

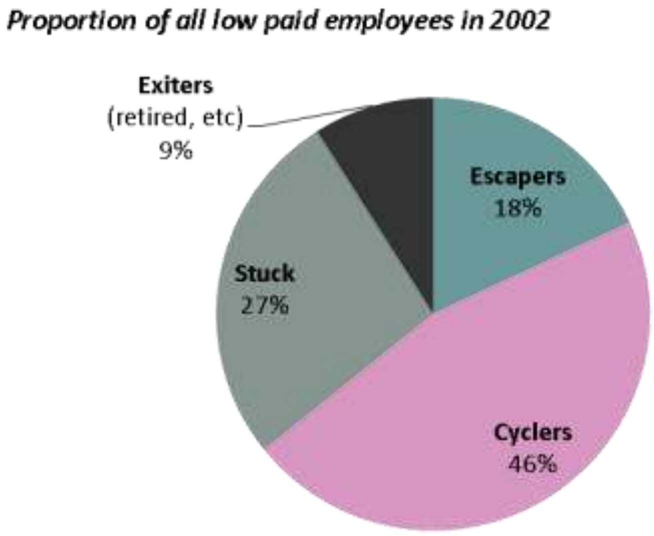
Figure 3 reveals that almost one in five (18 per cent) of the low paid in 2002 had escaped low pay by 2012. This corresponds to around 800,000 people and four per cent of the 2002 workforce. Meanwhile over a quarter (27 per cent, corresponding to 1.3 million employees) remained stuck in low pay in the subsequent decade, having only ever held low paying jobs in the period 2003-2012.

Strikingly, nearly half (46 per cent, equivalent to 2.2 million workers) were not stuck in low pay, but did not escape low pay either, where escaping is defined as being in employment and no longer on low pay in the most recent three years (2010, 2011 and 2012). The remainder (9 per cent, 400,000 individuals) either became self-employed, died, retired or left the workforce for the entirety of the subsequent decade.

So while large numbers of the low paid remain trapped, a significant proportion do manage to progress. However, if we look at it from the perspective of the low paid, it is clear the odds you will make a sustained escape from low pay are against you.

If we combine the number who move in and out of low pay (46 per cent) with the number stuck on low pay (27 per cent), we can see that almost three quarters (73 per cent) of the low paid in 2002 had failed to move up the earnings ladder sustainably by 2012.

Figure 3: Proportion of low paid employees in 2002 who escaped low pay, cycled, remained stuck and exited over the subsequent decade



Notes: (1) Escapers are defined as those among the 2002 low paid who are in work and no longer on low pay in the most recent three years (2010, 2011 and 2012).

(2) The stuck are defined as those of the 2002 low paid who only ever held low paid jobs for all years they were employed in the subsequent decade (2003-2012).

(3) Cyclers are defined as those among the 2002 low paid that had a non-low paying job for at least one year in the subsequent decade (2003-2012).

(4) Exiters are defined as those among the 2002 low paid who became self-employed or left the workforce for the entirety of the subsequent decade. Reasons for leaving the workforce include: retirement, death, frequent or long-term unemployment, moving abroad or prolonged economic inactivity (e.g. those in full-time education, stay-at-home parents and full-time carers).

(5) Low pay is defined as being paid less than two-thirds of the contemporary median hourly wage.

Source: Resolution Foundation analysis of NESPD 1975-2012

How has the proportion of the low paid that manage to escape changed over time?

We now need to assess the extent to which the current rate of progression from low pay is typical across time. Has persistent low pay always been this prevalent? How does the likelihood of progressing out of low pay compare to previous periods? This is of particular importance given that our reference period 2003 – 2012 encompasses the 2008 financial crash and its aftermath. Given the depth of the ensuing economic downturn, it is reasonable to think that many of those who might otherwise have left low paying work could not, perhaps because higher unemployment put downward pressure on wages, particularly for those at the bottom of the earnings scale. Some of those who had moved on to higher paying work during the decade may also have found themselves back in low pay by 2012 after losing their jobs and being forced to take a lower paid position.

To investigate the variation in the persistence of low pay over time we consider how many workers are escapers, stuck and cyclers for every year from 1975 to 2002. For each of those years we calculate the proportion of employees that escape, cycle or remain stuck in low pay over the subsequent decade. Calculating the number of those who remain stuck on low pay in 1982, for example, would measure the number of those who had remained on low pay for the entire 1982-

1992 period. By considering the number who escape, get stuck and cycle in each year, we can plot the evolution of the relative size of these groups over time.

Figure 4 shows how the proportion of low paid employees who escape, cycle and get stuck in low pay has changed over time. Encouragingly, it shows that the proportion of employees escaping low pay has been gradually increasing over time, from just 12 per cent in 1975 to 18 per cent in 2002. The picture is slightly more mixed for those stuck on low pay. Here, the proportion rose rapidly from 25 per cent in 1975 to 35 per cent in 1981. It fell slightly in the next few years before rising to peak once again at 35 per cent in 1992. Since then it has been gradually falling, reaching 27 per cent in 2002.[16]

Pay mobility among the low paid has increased since the 1990s. Since the early 1990s the proportion of low paid employees who manage to progress on to higher wages has increased, while the proportion remaining stuck on low wages has fallen, indicating there has been some improvement in earnings mobility. Moreover, this increase in pay mobility among the low paid that occurred between the early 1990s and 2002 happened during a period where inequality in the bottom half of the earnings distribution, as measured by the ratio of the 50th and 10th percentiles, remained flat.[17] This finding is in line with previous Resolution Foundation work and other studies, which found that overall total earnings mobility increased between the 1990s and the 2000s.[18] While there are some crucial methodological differences between this analysis and our previous work, this consistency is reassuring.[19]

Although this trend is encouraging, there are still too many low paid employees who remain trapped. If we look at the numbers of people who manage to escape low pay for good, we can see that recent advances in pay progression are limited.

As we saw earlier, 73 per cent of the low paid in 2002 had either failed to escape low pay, or escaped only temporarily, sliding back into low pay or remaining at risk of low pay by 2012. This is similar to the equivalent measure for the year 1975, at 73 per cent. In fact this measure is 72-74 per cent for all years apart from the period 1990 to 1996, peaking at 77 per cent in 1994.The majority of the low paid in 2002 were therefore likely to remain low paid a decade later, as was the case for all earlier periods since 1975.

To address this, it is vital that we build a better picture of those who do manage to escape low pay. By improving our understanding of how some of the low paid shift into higher paid work we can help to better design policy directed at reducing the persistence of low pay. The next section therefore looks at the comparative characteristics of those who get stuck earning a low income and those who move up the pay ladder, and identifies the key factors associated with progression out of low pay.

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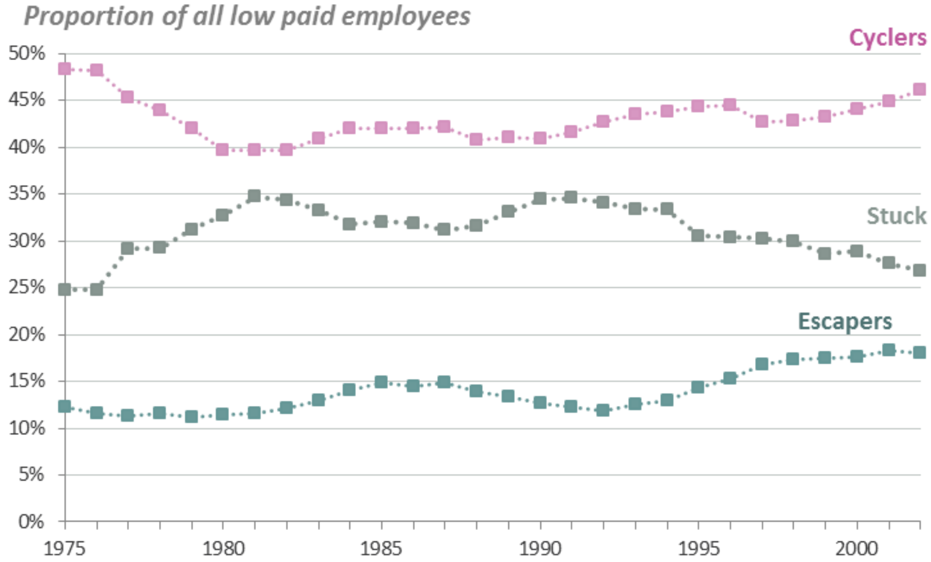
16 Figures A2 and A3 in Annex A show that these findings are not sensitive to the specific choice of the length of the period used to define escapers and the stuck, though clearly the number of people captured changes as we shrink or stretch the time horizon.

17, Whittaker and Bailey (Squeezed Britain 2012).

18 Savage (2011a), Savage (2011b) and Dickens and McKnight (2008).

19 For example, our previous work focused on total (rather than hourly) earnings, which is of course a function of both an individual's wage and the number of hours worked. It also looked at all significant movements up the earnings scale (two or more deciles) regardless of starting point, in contrast to the analysis presented here which is specifically focussed on movements out of low pay (which roughly corresponds to movements out of the bottom earnings quintile).

Figure 4: Proportion of low paid employees that escape, cycle or remain stuck over the subsequent decade (1975-2002)



Notes: (1) Escapers are defined as those among the low paid who are non-low paid in the final three years of the subsequent decade.

(2) The stuck are defined as those of the low paid who only ever held low paid jobs in the subsequent decade.

(3) Cyclers are defined as those among the low paid that had a non-low paying job for at least one year in the subsequent decade.

(4) Low pay is defined as being paid less than two-thirds of the contemporary median hourly wage.

Source: Resolution Foundation analysis of NESPD 1975-2012.

Section 4: Who escapes low pay?

Despite low pay persistence, significant numbers of individuals do manage to progress beyond low pay. This is also the case in the most recent period we analysed, 2003 – 2012, during which time a deep recession raised unemployment and curtailed wage growth. Why might some individuals manage to move up the pay ladder when others do not?

In this chapter we try to identify systematic differences between those who do escape low pay and those who do not, so that we can clearly characterise the latter group. This will enable policy to be specifically targeted at those most vulnerable to persistent low pay. Furthermore, identifying factors associated with progressing off low pay can guide the design of such policies: what is it about those who escape that enables them to progress, and to what degree can policy interventions replicate these enabling conditions for those stuck on low pay?

How do escapers compare to the stuck?[20]

Those who managed to progress were much ***more likely*** to be **male** compared to those who remained stuck on low pay (see Figure 5 below). They were also generally a lot **younger**.

In Figure 6 we look at how the employment characteristics of the escapers and the stuck compared at the start of the period in 2002 and at the end of the period in 2012. The groups are not identical in the initial period, but what is interesting is to see how these differences grow over time:

- Those who progressed out of low pay had become much ***more likely*** to be in **employment** than those who were stuck on low pay, with only 30 per cent of the latter group employed in 2012. Individuals who escaped low pay had also become much *more likely* to be **employed full-time.**
- By 2012 escapers were much more likely to have shifted into employment in the **public sector**.
- They were also much more likely to have switched into **managerial, professional and technical occupations**, with relatively fewer employed in sales and customers services and elementary occupations.
- The escapers had also become slightly more likely to be working in **education** or **health**, with a shift away from retail. Conversely, those stuck on low pay had become more likely to be working in retail.

There are also some important differences between how the employment characteristics of those who escaped low pay and those who did not evolved over the subsequent decade (2003-2012). As we see in Figure 7:

- Those who managed to progress during the decade had ***more years*** in **employment** and more years where they had **switched jobs** within the last 12 months. They also, on

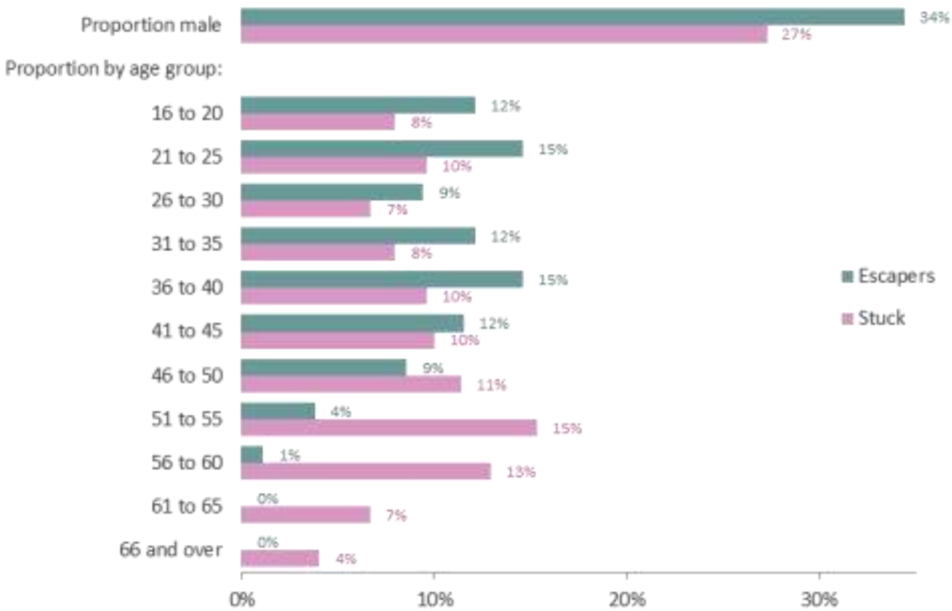
[20] Tables D1, D2 and D3 in Annex D provide a detailed analysis of the comparative characteristics of the four groups of low paid employees: escapers, the stuck, cyclers and exiters. Table D1 presents the initial characteristics of the groups: how the groups compared at the beginning of the period (2002). Table D2 presents the final characteristics of the groups: how the groups compared at the end of period (2012). Table D3 compares variations in employment characteristics as they unfold over the following decade, which we refer to as *dynamic* characteristics. These include measures that capture attachment to the labour market, job stability, predominant employer type and the degree to which employees remain working in specific industries or occupations between 2003 and 2012. It also includes the extent to which employees have already been stuck on low pay in the decade prior to the current year (i.e. have only ever held low paying jobs when employed in the years 1992-2002), and how this varies across the four groups.

average, had more years working for **very large employers** (1,000+ employees), **central government** or a **local authority**.

- On the other hand, those who progressed were ***<u>less likely</u>*** to have **remained working in the same type of occupation**, in particular **sales and customer services** and **elementary occupations**. They were less likely to remain working in **manufacturing**, **wholesale and retail** or **accommodation and food services** jobs.
- Those who progressed were also ***<u>less likely</u>*** to have **already been stuck on low pay over the previous decade** (1992-2002) than those who did not. Notably, half of those who remained stuck on low pay over the period 2002-2012 were already stuck, compared to 37 per cent among those who went on to progress.

These simple comparisons are interesting, and they point towards the potential factors associated with progressing out of low pay. However, some of these factors are themselves inter-related, so it is important to understand which are the key factors once we allow for any such correlations. It is possible that some of the apparently important variations highlighted turn out to have no association with an individual's chances of escaping low pay, or even have an association in the opposite direction, once we have controlled for other factors.

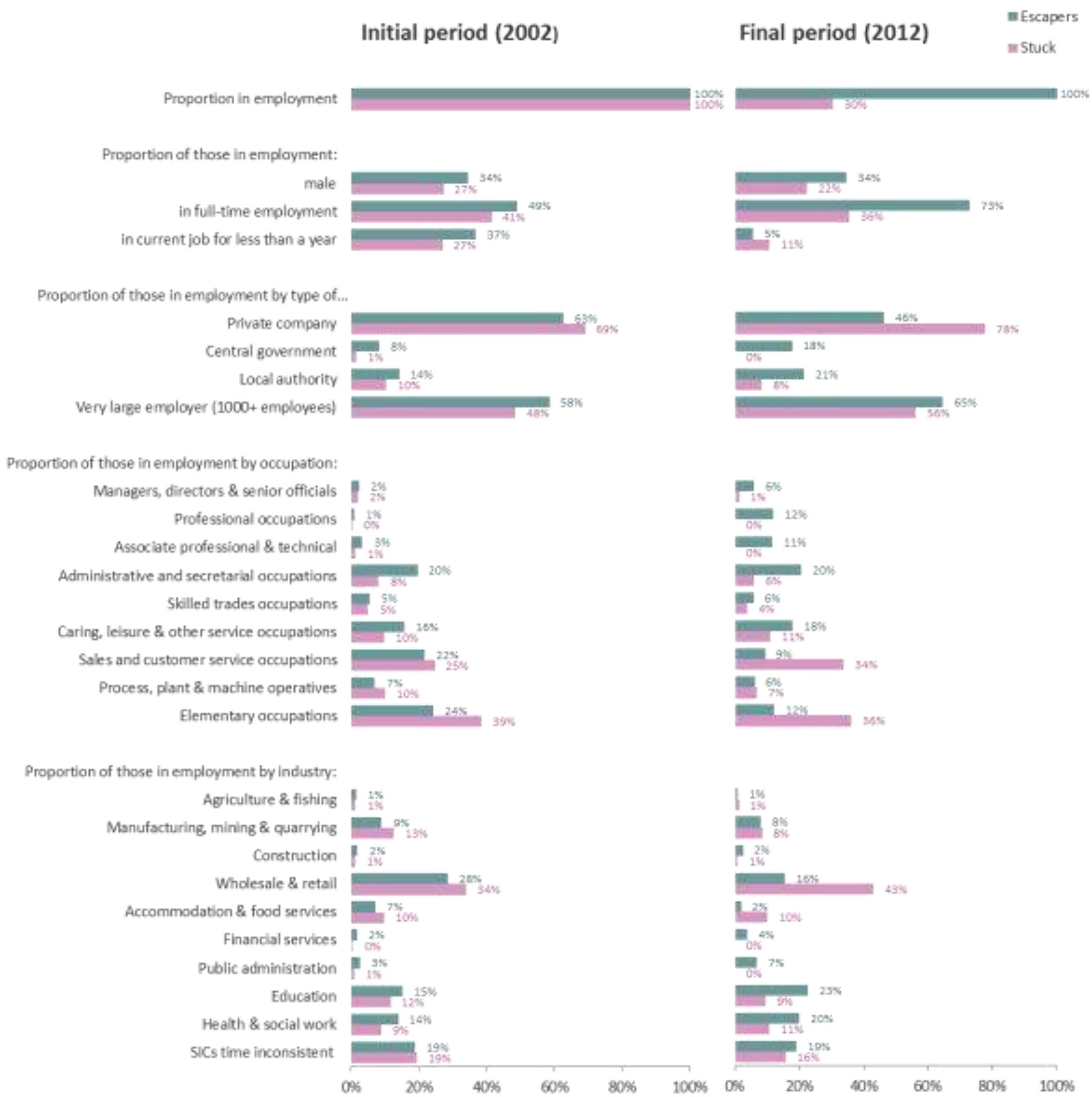
Figure 5: Comparison of escapers and the stuck: by sex and age in 2002



Notes: See Figure 4.

Source: Resolution Foundation analysis of NESPD 1975-2012

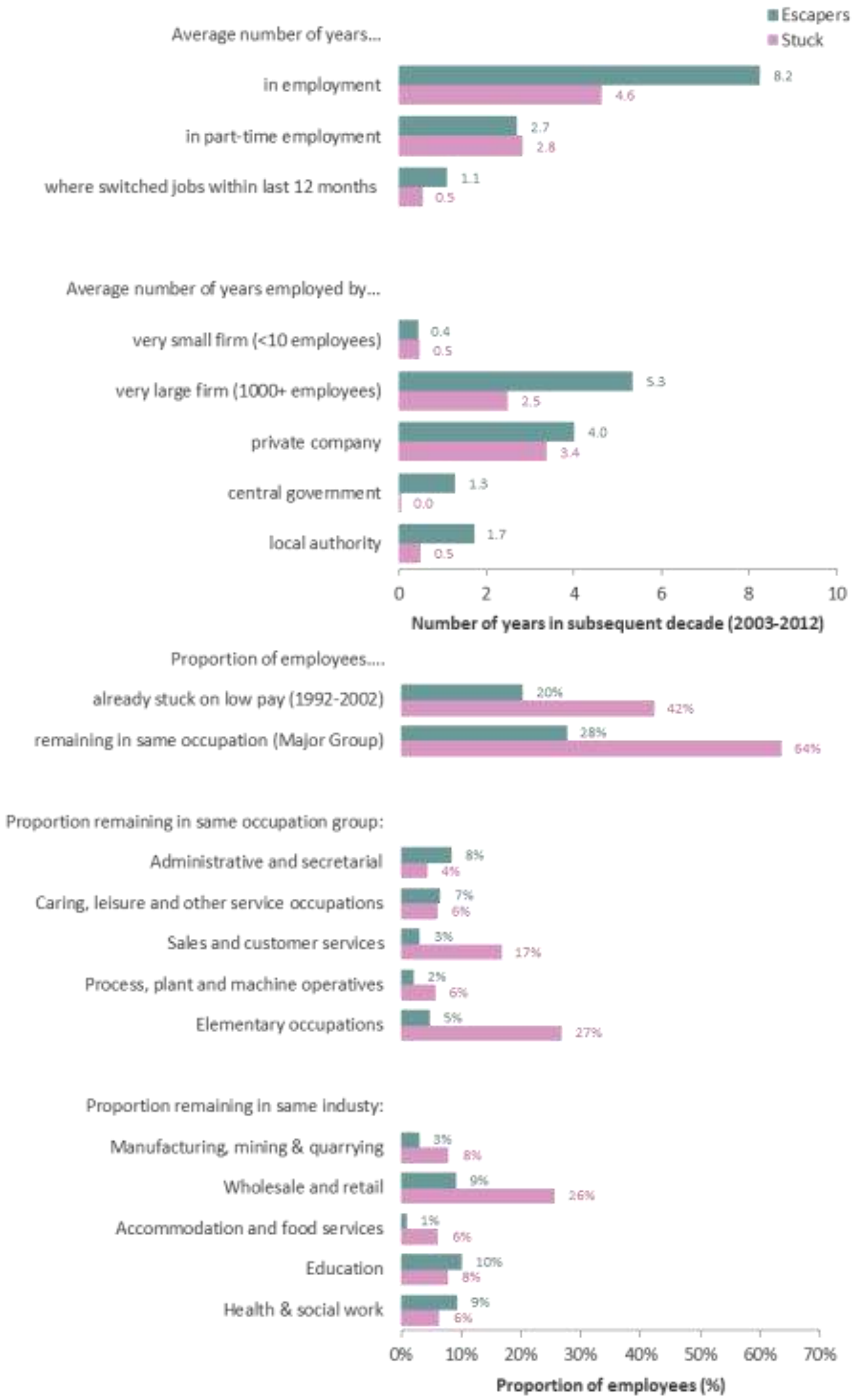
Figure 6: Comparison of escapers and the stuck: initial vs. final characteristics



Notes: See Figure 4.

Source: Resolution Foundation analysis of NESPD 1975-2012

Figure 7: Comparison of escapers and the stuck: dynamic characteristics (2002-2012)



Notes: (1) Escapers are defined as those among the 2002 low paid who are in work and no longer on low pay in the most recent three years (2010, 2011 and 2012).

(2) The stuck are defined as those of the 2002 low paid who only ever held low paid jobs for all years they were employed in the subsequent decade (2003-2012).

(3) Occupation groups based on matched SOC2000 and SOC2010 major groups.

(4) Industry groups based on matched SIC1992, SIC2003 and SIC2007 sections.

(5) Low pay is defined as being paid less than two-thirds of the contemporary median hourly wage.

Source: Resolution Foundation analysis of NESPD 1975-2012

What are the key factors associated with progression out of low pay?

While the comparisons presented in the previous section are useful and informative, it is also important to understand which factors are most strongly associated with escaping low pay once we have controlled for other observable characteristics. For example, if we want to understand whether being male is associated with moving out of low pay, then we need to isolate being male from other potential factors, like a man being more likely to work full-time or being less likely to work in retail.

The details and full results of the statistical analysis we ran to identify the key factors associated with the probability that a low paid employee will escape low pay are set out in Annex E. The key findings are summarised in Table 2.

Table 2: Key factors associated with progression out of low pay

Positive factors	Negative factors
1. Being male	1. Being young (although this effect is less pronounced for women)
2. Number of years in employment	2. Already stuck on low pay (1992-2002)
3. Number of years working for central government	3. Number of years in part-time employment
4. Number of years working for a local authority	4. Number of years where employee has switched jobs within the last year (as of April that year)
	5. Number of years working for very small employers (<10 employees)
	6. Number of years working for private companies
	7. Remaining in *manufacturing, mining & quarrying* industry
	8. Remaining in *wholesale & retail* industry
	9. Remaining in *accommodation & food services* industry
	10. Remaining in *caring, leisure & other service* occupations
	11. Remaining in *sales & customer service* occupations
	12. Remaining in *process, plant & machine operative* occupations
	13. Remaining in *elementary* occupations

The findings allow us to see which factors are associated with low pay progression and which factors are associated with failure to escape low pay. This will help us to identify certain groups which are more prone to getting stuck on low pay, and design policy that specifically targets them.

The results indicate that in order to progress out of low pay, it is important to remain in sustained, stable employment. Those who predominantly work part-time are less likely to progress. Perhaps unsurprisingly, those who have already been stuck on low pay are more likely to remain stuck going forward.

Even after number of years of employment, part-time status, industry, occupation and various other employment characteristics are controlled for, women are less likely to progress out of low pay. This is a worrying result and one that warrants further attention.

Low paid employees are also increasingly less likely to escape as they get older, although this age effect is less pronounced for women.

The public sector appears to provide better opportunities for pay progression for low paid employees compared to private companies, perhaps related to having stronger trade union representation and more systematic pay progression agreements. Another, perhaps unsurprising, finding is that very small employers – those with fewer than 10 employees – appear to offer fewer opportunities for progression compared to larger organisations. Larger organisations will tend to offer more scope for career progression because they offer a wider range of roles and more job levels.

The results of our analysis also show that certain industries and occupations offer less opportunity for pay progression. Employees who remain in *manufacturing*, *wholesale and retail* and *accommodation and food services* industry jobs are less likely to escape low pay. Similarly, those who remain in *caring, leisure and other service*, *sales and customer service*, *process, plant and machine operative* and *elementary* occupations are also much less likely to experience pay progression.

In contrast to one of the key findings of the recent CESI study, we find that, all else equal, frequent job switching by the low paid will make progression less likely.[21] The difference between the findings might partly be accounted for by the fact that the other study focused on short-term, year-to-year progression rather than progression over the period of a decade. However, it is also notable that the effect of job switching can be ambiguous. While our results suggest that the more times you switch jobs the less likely you are to progress, for employees working in the low paying industries and occupations where there are fewer opportunities for progression, as well as those working for very small employers, switching is likely to be advantageous. This finding is in line with evidence from the US.[22] At the same time, while job switching can enable employees to move to higher paying roles, it can also reflect job insecurity or spells of unemployment.[23]

As a robustness check, but also to understand how the factors associated with escaping low pay have changed over time, this analysis was repeated separately for the years 1996 to 2002.[24] A summary of the results is presented in Table E2 in Annex E.

Repeating the analysis for previous years reveals the results are generally highly stable over time, though there are a few exceptions. Job switching becomes insignificant once the variables controlling for remaining stuck in low paying occupations are omitted. This suggests that job switching may have a positive association with escaping where it reflects switching out of low paying occupations, but is otherwise negative. The ambiguous effect of job switching is also highlighted by the fact that the coefficient on the job switching variable is significant and positive for the years 1996 to 2000. The negative association of number of years employed by a very

[21] Wilson et al (2013).
[22] Strawn J and Martinson K (2001).
[23] Unfortunately the NESPD data does not allow us to separate out voluntary and involuntary job switching.
[24] The occupation group dummies were omitted from the models because these were not consistent between 2002 and prior years.

small firm is only significant for 2000 and 2002; however, prior to this it is the number of years working for a very large firm that is significant.

The results are also generally very stable In terms of the magnitude of the associations with escaping. One interesting exception is the correlation with being male, which seems to be diminishing slightly over time. In other words, the additional likelihood that a low paid male will progress, over and above all other factors, is falling over time. So while a woman is less likely to progress than an equivalent male with exactly the same employment characteristics, this differential appears to be falling. In contrast, the negative association with number of years working for a private company is slightly increasing, as is the positive association with years worked for a local authority. The positive association with working for central government fell from 1996 to 2000, but has since increased. One explanation for this might be if pay progression in central government jobs has been relatively less affected by the recession.

These results have important implications for policy. The low paid who work part time, women, older workers, those with few opportunities to get on in the private sector, and those who remain working in specific low paying industries and occupations, all face more significant barriers to pay progression than other groups. If persistent low pay is to be addressed, this must be based on an understanding of the profile of those unable to achieve pay progression. The results from our analysis also show that we may be able to learn from sectors where pay mobility appears higher, such as local and central government.

Conclusion

Summary of key findings

With 20 per cent of workers in the UK earning a low wage, it is clear that low pay remains a significant challenge. Rightly, attention is turning to how we might improve labour market outcomes for the low paid. But to tackle low pay in Britain we need a far better understanding of the persistence of low wages, and the opportunities and barriers individuals face when trying to move up the earnings scale. The analysis in this paper has set out to improve that understanding.

Our analysis has shown that there are large numbers of employees in the UK labour market who are unable to progress out of low pay. In 2012 there were 1.3 million employees who were stuck on low pay for the previous decade, representing 28 per cent of low paid employees. Worryingly, almost half of these workers, mainly women, were at or past the peak-earning phase of their careers.

Looked at over time, it appears pay mobility among the low paid has improved since the 1990s. Almost one in five (18 per cent) of the low paid in 2002 had managed to escape low pay by 2012, higher than the 12 per cent who managed to do so in the 1990s; the percentage stuck on low pay permanently has also fallen (from 35 to 28 per cent).

However, if we look at the numbers of individuals who manage to progress on to higher wages and then *stay* on higher wages we can see that escaping low pay remains beyond the majority of the low paid.

Almost three quarters (73 per cent) of those who were low paid in 2002 remained on low pay in 2012, with nearly half (46 per cent) escaping low pay during the decade but then finding themselves back in low pay by 2012. If you were among the low paid workforce in 1992, there was a 78 per cent chance you would still be on low pay ten years later. If you were low paid in 1982, the odds of you remaining on low pay were slightly better, at 74 per cent.

Policy implications

The findings of this paper are relevant to policymakers in a number of ways. By improving our understanding of the characteristics that are associated with low pay, our findings may help target future policy at those groups who face bigger and more significant barriers to pay progression. We can also learn lessons from those among the low paid who manage to escape low pay.

A central finding of the report is that in order to progress out of low pay it is important to remain in sustained, stable employment. Yet for many low paid employees this is not enough. There is a need to improve pay mobility within some industries and occupations in particular. Pay progression is especially low in the retail, hospitality and manufacturing sectors and for elementary, sales and customer services and caring occupations, where large numbers of workers appears to be trapped in low pay for long periods of time. Many of these workers only find higher paying roles by changing their industry or occupation. This is relevant to the way we think about training and skills development, job search support and career coaching, when trying to help workers progress.

Women also face particular barriers to pay progression, and are more likely to remain trapped in low pay than their male counterparts. According to our analysis, in 2012 one third of low paid women had spent the previous ten years on low pay, against 21 per cent of men. This draws attention once again to the particular barriers women face to working and getting on in the UK labour market. Our analysis also shows that people who work part-time are less likely to find higher paying work while those already stuck on low pay are more likely to remain stuck in future.

For some workers, such as those balancing family responsibilities with paid employment, increasing their hours or working full-time is not an option. High rates of part-time work reflect a need by many to fit jobs around childcare, particularly in the peak-earnings phase of their lives. There is an urgent need to improve the quality of part-time work, finding new ways for part-time workers to progress over time.

Finally, the public sector appears to offer better opportunities for pay progression than the private sector. Private sector workers who work for small employers seem to fare particularly badly, as well as those in industries like retail and care. Policymakers and employers who are thinking about how to improve progression in the private sector may be able to learn lessons from these findings.

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Annex A – Data and methodological issues

Survey design

The analysis uses the New Earnings Survey Panel Dataset (NESPD), a longitudinal version of the Annual Survey for Hours and Earnings (New Earnings Survey prior to 2004). The sample is drawn from HMRC PAYE records and represents a 1 per cent sample of individuals registered for National Insurance based on the last two digits of the National Insurance Number (NINO). Employers of these individuals are contacted each year and asked to complete a short questionnaire and provide payroll information. As the same sample approach (including the same final two NINO digits) is used each year, this allows the creation of a longitudinal panel. The NESPD therefore tracks the same employees over time, from 1975 to 2012. This allows us to identify workers who remain stuck on the minimum wage from year to year.[25] The key wage measure used is hourly wage excluding overtime (hexo).

Scope of the dataset

In addition to hourly, weekly and annual earnings, the NESPD dataset contains information on a range of other employment characteristics: age, sex, region (from 2003), whether working part-time or full-time, whether working in the same job continuously for the past year, whether pay was set with reference to a collective agreement (from 2005), industry (SIC), occupation (SOC), and sector (public, private, etc). In addition, where SIC and SOC coding frames are sufficiently consistent over time, we can also identify the degree to which employees have remained working in the same industry or occupation. Therefore for a fairly wide range of measures, we can compare the employment characteristics of the low paid who remain stuck on low pay with those that progress.

Calibration weights

The calibration weights that are used for cross-sectional analysis of ASHE are not available in the NESPD. Although the analysis presented in this paper exploits the longitudinal structure of the data (i.e. to identify the stuck, the escapers, etc), all the estimations are actually cross-sectional. So ideally we might have wanted to apply the ASHE weights, particularly to estimate aggregate totals (e.g. total number of employees that have been stuck on low pay, etc.). While technically feasible to link the ASHE weights to the NESPD dataset using employer national insurance numbers, these linking codes are not available in the publically accessible datasets. However, to the extent that the sample is a true 1 per cent random sample, the unweighted NESPD estimates of means and proportions of employees are still reliable. [26]

Where aggregate totals are required, these are calculated by applying the NESPD proportion estimate (e.g. proportion of employees that are stuck) to the relevant aggregate total (e.g. total number of employees) calculated based on ASHE and using the survey weights.

[25] From 2004 there are some individuals in the dataset that, for a given year, have information for more than one job recorded. In these cases, in line with the construction of the NES panel in previous years, information for the main job is kept, with the rest dropped.

[26] The only exception to this is for the years 2007 and 2008 where the ASHE sample was cut, but not uniformly across the employee population. In fact the sample of employees working in specific low paying industries was maintained, with the sample reduction focused on industries identified as having a high degree of homogeneity across workers. However, as the key years for the analysis are 2002 and 2012, this has limited implications for the analysis. But the 2007 and 2008 sample reduction does affect the interpretation of 'gaps' in the data, something that is discussed below.

Panel errors

The NESPD documentation highlights the fact that there may be some instances where records may have the same cross-year identifier (anonymised national insurance numbers) but may belong to different individuals. The ONS therefore recommend that users check for consistency of the sex and age variables before assuming that records with the same identifier necessarily correspond to the same individual. Checking for these age and sex inconsistencies does indeed reveal such cases. Based on the various documentation, it appears these errors are due to a combination of (a) age and sex errors in the sample frame data extracted from HMRC PAYE administration data and (b) national insurance numbers genuinely not uniquely identifying individuals over time (e.g. due to recycling of NINOs). Provided both occur more or less randomly we can drop these panel error cases from the analysis without any bias to the results. To check for this we compared the characteristics of the employees that were dropped due to having panel errors against those were weren't dropped. Because the incidence of panel errors is not constant over time, this comparison was run separately for different years. This analysis suggests that panel error cases are slightly more likely to be female, younger, less well paid, in part-time employment and to have changed jobs in the last year.

SIC and SOC codes

The NESPD contains information on the industry and occupation in which employees are employed, with all jobs classified according to detailed SIC and SOC codes respectively. The SIC and SOC code coding frames have been periodically modified over time, which presents a challenge for this analysis, in particular when we want to identify individuals that remain working in the same industry or occupation over time. Therefore an attempt was made to create harmonised SIC sections and SOC major groups. The harmonised SIC sections were based on matching the SIC1992, SIC2003 and SIC2007 sections. The SIC1992 and SIC2003 sections match closely, but the SIC2003 and SIC 2007 sections are less consistent. Time-consistent section matches were identified using ASHE data for 2008-2010 which contained both SIC2003 and SIC2007, and therefore the overlap between the two coding frames could be assessed. The analysis of variations by industry is therefore limited to these time-consistent SIC sections. The harmonised SOC major groups were based on matching the SOC2000 and SOC2010 major groups. The harmonised SOC major groups are only available from 2002. Prior to this SOC1990 was used, but an analysis of the overlap between the SOC1990 and SOC2000 major groups using ASHE for the years in which both were available indicated the two coding frames could not be easily matched.

Missing data

Not all individuals in the NESPD sample are present in the data for every year. This is due to both the scope and design of the sample, as well as data errors.

In terms of the sample scope, there are legitimate reasons why an individual will not appear in the data in every year. This is because those who are not in employment or are self-employed as of the survey reference period (April) will not be captured in the data. The possible reasons for not being in employment and therefore not appearing in the data in that particular year are unemployment, moving abroad or economic inactivity, which covers those in full-time education, stay-at-home parents and full-time carers. Some individuals will obviously also exit the workforce permanently due to retirement or death.

However, there are a number of reasons why individuals may not appear in the data even though they were in employment for that year.

First, they could be working for an employer with no employee earning above the employer National Insurance Contributions (NICs) threshold. Secondly, they may in fact be in work and in the dataset, but their wage information is simply missing (item non-response).[27] Thirdly, they may be in work but switched jobs since the sample was extracted and were therefore untraceable, or their employer has failed to return the required information (survey non-response). Finally, in 2007 and 2008 only, they may not appear even if they were employed because the sample was cut (in an attempt to cut costs). Therefore for these two years an individual in the NESPD sample may have been in work but does not appear in the data because they were randomly selected to be dropped from the survey for that year (before being reinstated from 2009).

Apart from the first[28], these data limitations are problematic because they potentially upwardly bias our estimates of the proportion of employees that remain stuck on low pay, and bias downwards our estimates of the proportion of employees that escape.

Since the definition of the stuck is being in low paid work for all years in which an employee is working in the previous/subsequent decade, if an employee who is low paid in all years in which they appear in the data was in fact in employment for one or more years they appear absent missing due to non-response or the 2007 and 2008 sample reduction, provided they are working in low paid work in those absent years, this doesn't affect their being classified as stuck and so won't affect the estimates.

The sample reduction in 2007 and 2008 means our core 10 year period estimates may particularly understate the proportion of escapers in periods 1997 to 2000, with some of the escapers being incorrectly assigned as cyclers. However, we have attempted to adjust the estimates for these years in Figure 4; Figure A2 and Figure A3 to account for this effect. In any case, this problem does not affect the headline 2002 estimate of the proportion of employees that manage to escape low pay by the end of the 2003-2012 period.

In summary, due to these data limitations, our estimates of the proportion stuck will be upwardly biased, but the magnitude of this bias is likely to be small. There is also a potential bias in the estimates of the proportion that escaper low pay for the years 1997 to 2000, but we have made efforts to adjust for this in the analysis.

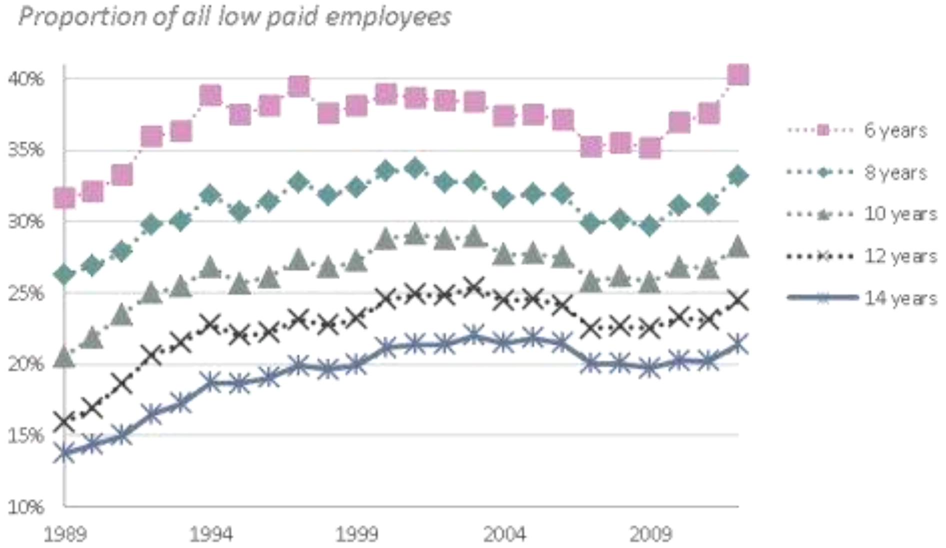
Sensitivity of results to choice of period length used to define stuck employees and those who progress

Figures A1, A2 and A3 below show that the *shape* of the trends are not sensitive to the specific choice of the length of the period used to define what it means to be 'stuck' (though clearly the number of people captured rises and falls as we shrink or stretch the time horizon).

[27] The item non-response rate for the measure of hourly wage excluding overtime has fallen from over 16 per cent in 1975 to under five per cent in 2012.

[28] Where an employee is absent from the data but is in fact working for an employer with no employee earning above the employer NICs threshold, it is clear that there is no problem because by definition the employee will themselves be earning under the NICs threshold and therefore be low paid.

Figure A1: Proportion of low paid employees that have remained stuck on low pay, by length of previous period (1989-2012)



Notes: (1) The stuck are defined as those of the low paid who go on to only ever held low paid jobs for all the years they were employed in the previous period.

(2) Low pay is defined as being paid less than two-thirds of the contemporary median hourly wage.

Source: Resolution Foundation analysis of NESPD 1975-2012

Figure A2: Proportion of low paid employees that remain stuck on low pay, by length of future period (1975-2006)

Notes: (1) The stuck are defined as those of the low paid who go on to only ever held low paid jobs for all the years they were employed in the subsequent period.

(2) Low pay is defined as being paid less than two-thirds of the contemporary median hourly wage.

Source: Resolution Foundation analysis of NESPD 1975-2012

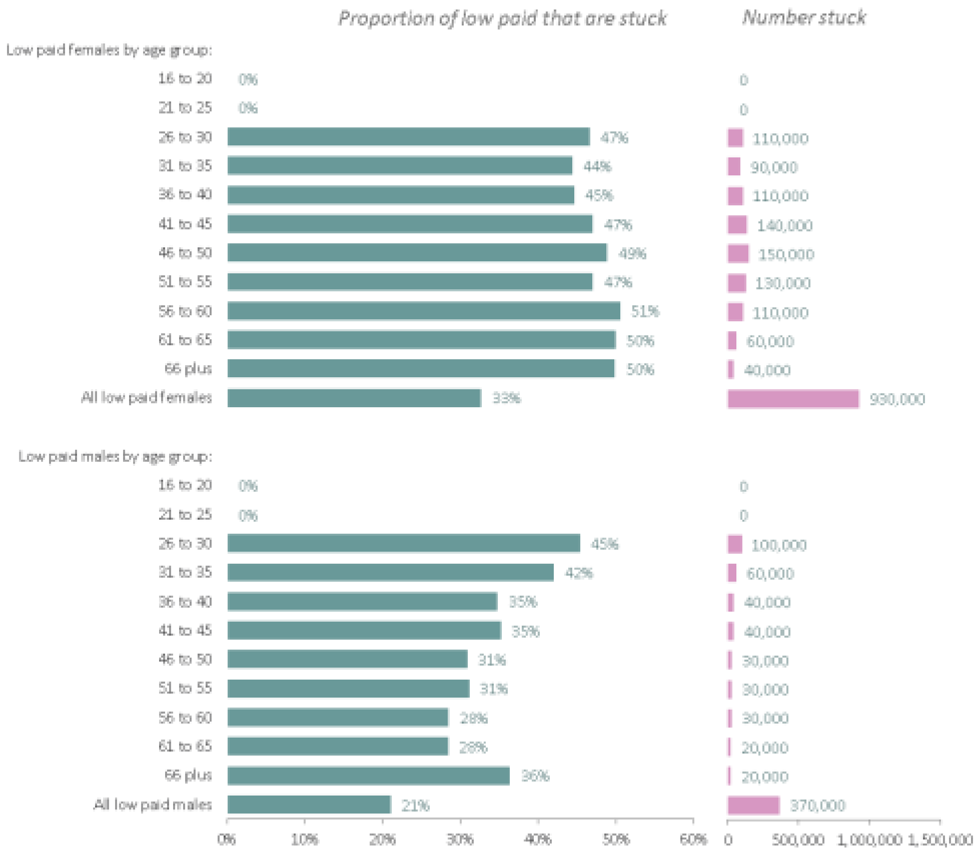
Figure A3: Proportion of all low paid employees that escape low pay, by length of future period (1975-2006)

Notes: (1) Escapers are defined as those among the low paid who are in work and no longer on low pay in the final three years of the subsequent period.
(2) Low pay is defined as being paid less than two-thirds of the contemporary median hourly wage.

Source: Resolution Foundation analysis of NESPD 1975-2012

Annex B – Additional charts and tables for section 1

Table B1: Proportion of low paid employees and total number of employees that are stuck on low pay by sex (2012)



Notes: (1) Employees are defined as stuck on low pay if are low paid and aged over 25 in 2012, and have only ever held a low paid job in the previous decade (2002-2011).
(2) Low pay is defined as being paid less than two-thirds of the contemporary median hourly wage.

Source: Resolution Foundation analysis of NESPD 1975-2012

Table B2: Distribution of employees by number of years in sample in previous decade, by low pay stuck status and age (2012)

Number of years individual appears in sample in previous decade (2002-2011)	Stuck on low pay (age 26+)	Low paid but not stuck (age 26+)	Stuck on low pay (age 16-25)	Low paid but not stuck (age 16-25)	Not low paid	All employees
0	0	17	0	74	4	7
1	18	4	44	8	5	7
2	15	6	27	5	6	7
3	13	7	16	5	7	7
4	10	8	8	4	7	7
5	8	9	3	2	8	8
6	7	9	1	1	9	9
7	7	10	1	1	11	10
8	7	11	+	+	14	12
9	6	9	+	+	12	11
10	8	9	0	0	16	14
Overall	**100**	**100**	**100**	**100**	**100**	**100**

Notes: (1) Employees are defined as stuck on low pay if they are low paid and aged over 25 in 2012, and have only ever held a low paid job in the previous decade (2002-2011).
(2) The non-stuck low paid are those who had a non-low paid job in at least one year in the previous decade.
(3) Low pay is defined as being paid less than two-thirds of the contemporary median hourly wage.
(4) '+' denotes estimate is very close to zero but is based on too few observations to present.

Source: Resolution Foundation analysis of NESPD 1975-2012

Annex C – Additional charts and tables for section 2

Table C1: Distribution of employees by number of years in sample in subsequent decade, by low pay category (2002)

Number of years individual appears in sample in subsequent decade (2003-2012)	Escapers	Cyclers	Stuck	Exiters	Non-low paid	All employees
0	0	0	0	82	5	5
1	0	4	16	15	5	6
2	0	7	16	3	6	6
3	1	9	13	+	6	7
4	2	11	11	+	8	8
5	5	12	8	0	8	8
6	8	13	7	0	9	9
7	13	13	7	0	11	11
8	21	12	8	0	14	14
9	20	11	6	0	13	12
10	31	9	8	0	16	15
Overall	**100**	**100**	**100**	**100**	**100**	**100**

Notes: (1) Escapers are defined as those among the 2002 low paid who are in work and no longer on low pay in the most recent three years (2010, 2011 and 2012).

(2) The stuck are defined as those of the 2002 low paid who only ever held low paid jobs for all years they were employed in the subsequent decade (2003-2012).

(3) Cyclers are defined as those among the 2002 low paid that had a non-low paying job for at least one year in the subsequent decade.

(4) Exiters are defined as those among the 2002 low paid who became self-employed or left the workforce for the entirety of the subsequent decade. Reasons for leaving the workforce include: retirement, death, frequent or long-term unemployment, moving abroad or prolonged economic inactivity (e.g. those in full-time education, stay-at-home parents and full-time carers).

(5) Low pay is defined as being paid less than two-thirds of the contemporary median hourly wage.

(6) '+' denotes estimate is very close to zero but is based on too few observations to present.

Source: Resolution Foundation analysis of NESPD 1975-2012

Annex D – Additional charts and tables for section 3

Table D1: Initial characteristics of the 2002 low paid, by future progression status (2002)

(%)	Escapers	Cyclers	Stuck	Exiters	Non-low paid	All employees
Proportion by sex:						
Male	34	36	27	40	57	52
Female	66	64	73	60	43	48
Proportion by age group:						
16 to 20	24	21	9	13	2	5
21 to 25	14	12	7	10	8	8
26 to 30	9	9	7	8	13	12
31 to 35	12	9	8	7	15	14
36 to 40	15	11	10	6	15	14
41 to 45	12	10	10	6	14	13
46 to 50	9	9	11	6	12	12
51 to 55	4	10	15	10	12	11
56 to 60	1	6	13	13	7	7
61 to 65	+	2	7	14	2	3
66 and over	+	1	4	7	0	1
Proportion by full-time/part-time status:						
Full-time employees	49	50	41	42	85	77
Part-time employees	51	50	59	58	15	23
Proportion by employer type:						
Private company	63	68	69	68	61	62
Sole proprietor	3	4	6	6	2	2
Partnership	6	6	8	8	4	4
Public corporation or nationalised industry	0	1	0	0	2	2
Central government	8	4	1	2	11	10
Local authority	14	12	10	10	14	14
Non-profit institution	5	5	5	5	6	6
Proportion by job tenure:						
Held current job for more than a year	63	65	73	62	81	78
Held current job for less than a year	37	35	27	38	19	22
Proportion by size of employer:						
Less than 10 employees	7	9	11	14	6	6
10-24 employees	8	8	10	10	7	7
25-99 employees	11	12	14	14	11	11
100-499 employees	11	11	12	12	13	13
500-999 employees	5	5	4	5	7	6
1000 or more employees	58	55	48	45	56	56
Proportion by occupation (SOC2000 & SOC2010, matched major groups):						
Managers, directors and senior officials	2	3	2	3	16	13

(%)	Escapers	Cyclers	Stuck	Exiters	Non-low paid	All employees
Professional occupations	1	1	0	1	14	11
Associate professional and technical	3	3	1	2	15	13
Administrative and secretarial occupations	20	14	8	10	20	19
Skilled trades occupations	5	6	5	6	9	9
Caring, leisure and other service occupations	16	13	10	12	5	7
Sales and customer service occupations	22	23	25	19	4	8
Process, plant and machine operatives	7	9	10	10	8	8
Elementary occupations	24	29	39	37	8	12
Proportion by industry (SIC1992, SIC2003 & SIC2007, matched sections):						
Agriculture & fishing	1	1	1	1	0	1
Manufacturing, mining & quarrying	9	10	13	11	18	17
Construction	2	2	1	2	4	4
Wholesale and retail	28	31	34	27	11	15
Accommodation and food services	7	9	10	10	1	3
Financial services	2	1	0	1	7	5
Public administration	3	2	1	1	7	6
Education	15	13	12	10	15	14
Health & social work	14	10	9	11	10	10
Working in industries that cannot be reliably matched over time (time inconsistent SICs)	19	22	19	25	25	24

Notes: See Table C1.

Source: Resolution Foundation analysis of NESPD 1975-2012

Table D2: Final characteristics of the 2002 low paid, by future progression status (2012)

(%)	Escapers	Cyclers	Stuck	Non-low paid	All employees
Proportion in employment in 2012:	100	47	30	52	51
Proportion of those in employment by sex:					
Male	34	32	22	55	51
Female	66	68	78	45	49
Proportion of those in employment by age group:					
16 to 20	0	0	0	0	0
21 to 25	0	0	0	0	0
26 to 30	23	21	7	2	5
31 to 35	15	13	7	8	9
36 to 40	9	9	8	14	13
41 to 45	12	11	12	18	17
46 to 50	15	13	16	19	18
51 to 55	11	13	15	17	16
56 to 60	9	10	16	13	12
61 to 65	4	6	12	7	7
66 and over	2	3	7	2	2
Proportion of those in employment by full-time/part-time status:					
Full-time employees	73	56	36	79	75
Part-time employees	27	44	64	21	25
Proportion of those in employment by employer type:					
Private company	46	67	78	56	57
Sole proprietor	1	2	+	1	1
Partnership	4	3	5	2	2
Public corporation or nationalised industry	2	1	+	3	3
Central government	18	7	+	15	14
Local authority	21	14	8	15	15
Non-profit institution	8	7	5	8	7
Proportion of those in employment by job tenure:					
Held current job for more than a year	95	84	89	91	91
Held current job for less than a year	5	16	11	9	9
Proportion of those in employment by size of employer:					
Less than 10 employees	5	7	9	5	5
10-24 employees	6	7	9	6	6
25-99 employees	9	12	12	10	10
100-499 employees	10	12	10	13	12
500-999 employees	5	5	4	6	6
1000 or more employees	65	57	56	60	60
Proportion of those in employment by occupation (SOC2000 & SOC2010, matched major groups):					
Managers, directors and senior officials	6	4	1	13	11

(%)	Escapers	Cyclers	Stuck	Non-low paid	All employees
Professional occupations	12	6	+	21	19
Associate professional and technical	11	7	+	17	15
Administrative and secretarial occupations	20	14	6	17	16
Skilled trades occupations	6	5	4	7	7
Caring, leisure and other service occupations	18	15	11	6	8
Sales and customer service occupations	9	19	34	5	8
Process, plant and machine operatives	6	8	7	7	7
Elementary occupations	12	21	36	7	10
Proportion of those in employment by industry (SIC1992, SIC2003 & SIC2007, matched sections):					
Agriculture & fishing	1	1	1	0	0
Manufacturing, mining & quarrying	8	7	8	13	12
Construction	2	2	1	3	3
Wholesale and retail	16	29	43	12	15
Accommodation and food services	2	4	10	1	2
Financial services	4	2	+	6	5
Public administration	7	3	+	9	8
Education	23	16	9	17	17
Health & social work	20	13	11	13	13
SICs time inconsistent	19	22	16	26	25

Notes: See Table C1.

Source: Resolution Foundation analysis of NESPD 1975-2012

Table D3: Dynamic characteristics of escapers, cyclers, the continuously stuck and exiters (2002)

	Escapers	Cyclers	Stuck	Exiters	Non-low paid	All employees
Average number of years in subsequent decade (2003-2012)…						
in employment	8.2	6.0	4.6	0.2	6.2	6.1
in part-time employment	2.7	2.6	2.8	0.1	1.1	1.4
in which switched jobs within last 12 months	1.1	1.0	0.5	0.0	0.6	0.7
Average number of years in subsequent decade (2003-2012) employed by...						
very small employer (<10 employees)	0.4	0.5	0.5	0.0	0.3	0.3
very large employer (1000+ employees)	5.3	3.5	2.5	0.1	3.7	3.6
private company	4.0	3.9	3.4	0.2	3.6	3.5
central government	1.3	0.4	0.0	0.0	0.8	0.7
local authority	1.7	0.9	0.5	0.0	1.0	1.0
Proportion of employees that…. (%)						
are low paid in 2002 and have only ever held low paid jobs in the previous decade (1992-2001)	20	24	42	29	0	6
remained working in the same occupation (Major Group) for the subsequent decade (2003-2012)	28	39	64	15	45	44
Proportion of employees that remained in the same occupation group for the subsequent decade (SOC 2000 & 2010, matched major groups) (%):						
Managers, directors and senior officials	0	1	1	+	7	6
Professional occupations	0	0	0	+	8	7
Associate professional and technical occupations	1	1	0	+	5	4
Administrative and secretarial occupations	8	6	4	1	9	9
Skilled trades occupations	2	3	2	1	4	4
Caring, leisure and other service occupations	7	7	6	2	2	3
Sales and customer service occupations	3	7	17	2	1	3
Process, plant and machine operatives	2	4	6	2	4	4
Elementary occupations	5	11	27	6	3	5
Proportion of employees that remained working in the same industry for the subsequent decade (SIC 1992, 2003 & 2007, matched sections) (%):						
Agriculture & fishing	1	0	1	+	0	0
Manufacturing, mining & quarrying	3	4	8	2	10	9
Construction	1	1	1	0	2	2
Wholesale and retail	9	14	26	4	6	8
Accommodation and food services	1	2	6	1	1	1
Financial services	1	0	0	+	4	3
Public administration	1	1	0	+	5	4
Education	10	8	8	2	10	10
Health & social work	9	6	6	2	8	7

Notes: See Table C1.

Source: Resolution Foundation analysis of NESPD 1975-2012

Annex E – Econometric analysis

To identify the key factors associated with progression out of low pay, we ran a probit regression where the dependent variable is a binary variable equal to one if an individual was an escaper, which is regressed against the available individual and employment characteristics variables. The estimation is restricted to just those employees who were low paid in 2002. The model therefore identifies the factors associated with escaping low pay, conditional on being low paid in initial period and controlling for observable characteristics. Table E1 presents the regression results.

Unfortunately due to data limitations we are unable to assess how education and skills and training influence pay progression, since this information is not covered in the NESPD. It would seem likely that having a low level of education and skills may hinder an individual's opportunities for pay progression. Similarly, it would be very useful to know whether training can support employees to progress, and what types of training are most effective.

As a robustness check, but also to understand how the factors associated with escaping low pay have changed over time, this analysis was repeated separately for the years 1996 to 2002. The occupation group dummies were omitted from the models because these were not consistent between 2002 and prior years. A summary of the results is presented in Table E2 below.

Repeating the analysis for previous years, reveals the results are generally highly stable over time, though there are a few exceptions. Job switching is significantly and negatively associated with escaping low pay in the full model for 2002 (Table E1). However, once the variables controlling for remaining stuck in low paying occupations are omitted it becomes insignificant (Table E2, 2002 column). This suggests that job switching may have a positive association with escaping where it is reflecting switching out of low paying occupations, but is otherwise negative. Interestingly, the coefficient on the job switching variable is significant and positive for the years 1996 to 2000. The negative coefficient on number of years employed by a very small firm is only significant for 2000 and 2002. Prior to this, it is the number of years working for a very large firm that is significant. Remaining working in education sector jobs was not significant in 2002, but has a significant negative association for 1997 to 2000. The same is true for remaining in health and social work for 1997 to 2001. Finally, the tempering of the age effect for women is much less pronounced for the years 1998, 1999 and 2000.

The results are also generally very stable in terms of the magnitude of the estimated coefficients over time, although again there are a few interesting variations over time. The correlation with being male seems to be diminishing slightly over time. In contrast, the negative association with number of years working for a private company is slightly increasing, as is the positive association with years worked for a local authority. The positive association with working for central government fell from 1996 to 2000, but has since increased. An explanation for this could be if central government pay progression was less affected by the recession. Finally, the magnitude of the coefficients on the variables indicating remaining working in *manufacturing, mining and quarrying* and *wholesale and retail* both rose to 1999 before falling.

Table E1: Probit regression results: probability of escaping low pay conditional on being low paid in initial year (2002)

Employee characteristics	Coef.	Std. Err.	Signif.
Male	0.195	0.047	***
Initial year characteristics (2002):			
Low paid in 2002 and have only ever held low paid jobs in the previous decade (1992-2001)	-0.243	0.029	***
Age group(reference category: 16-20)			
21 to 25	-0.108	0.056	*
26 to 30	-0.163	0.069	**
31 to 35	-0.269	0.072	***
36 to 40	-0.296	0.074	***
41 to 45	-0.490	0.083	***
46 to 50	-0.583	0.084	***
51 to 55	-0.817	0.088	***
56 to 60	-1.009	0.129	***
61 to 65	-0.788	0.179	***
66+	-0.786	0.248	***
Additional age effect for females			
21 to 25	-0.034	0.077	
26 to 30	0.148	0.088	*
31 to 35	0.267	0.088	***
36 to 40	0.197	0.087	**
41 to 45	0.296	0.096	***
46 to 50	0.283	0.098	***
51 to 55	0.068	0.109	
56 to 60	0.256	0.163	
61 to 65	0.172	0.252	
66+	-0.074	0.388	
Dynamic characteristics (2003-2012):			
Average number of years in subsequent decade (2003-2012)…			
in employment	0.346	0.007	***
in part-time employment	-0.077	0.004	***
switched jobs within last 12 months	-0.037	0.011	***
Average number of years in subsequent decade (2003-2012) employed by...			
very small firm (<10 employees)	-0.018	0.008	**
very large firm (1000+ employees)	-0.002	0.004	
private company	-0.051	0.005	***
central government	0.085	0.008	***
local authority	0.034	0.007	***
Remained working in the same industry (reference category: all those not remaining in these industries)			
Manufacturing, mining & quarrying	-0.245	0.062	***
Wholesale and retail	-0.248	0.040	***
Accommodation and food services	-0.329	0.093	***
Education	-0.013	0.051	
Health & social work	0.062	0.053	
Remained working in the same occupation group (reference category: all those not remaining in these occupations)			
Administrative and secretarial occupations	0.008	0.047	
Caring, leisure and other service occupations	-0.192	0.051	***
Sales and customer service occupations	-0.415	0.057	***
Process, plant and machine operatives	-0.233	0.072	***

Employee characteristics	Coef.	Std. Err.	Signif.
Elementary occupations	-0.600	0.046	***

Notes: N = 26,733; Pseudo R-sq = 0.333

(1) Escapers are defined as those among the 2002 low paid who are in work and no longer on low pay in the most recent three years (2010, 2011 and 2012).

(2) Low pay is defined as being paid less than two-thirds of the contemporary median hourly wage.

(3) The third column indicates the statistical significance of the estimated coefficient: *** = 99% ; ** = 95% ; * = 90%.

Source: Resolution Foundation analysis of NESPD 1975-2012

Table E2: Probit regression results: probability of escaping low pay conditional on being low paid in initial year, comparison over time (1996-2002)

Employee characteristics	1996	1997	1998	1999	2000	2001	2002
Male	***	***	**	**	**	***	***
Initial year characteristics:							
Low paid in 2002 and have only ever held low paid jobs in the previous decade	***	***	***	***	***	***	***
Age group(reference category: 16-20)							
21 to 25	***	***	**	***	**	***	**
26 to 30	***	***	***	***	***	*	***
31 to 35	***	***	***	***	***	***	***
36 to 40	***	***	***	***	***	***	***
41 to 45	***	***	***	***	***	***	***
46 to 50	***	***	***	***	***	***	***
51 to 55	***	***	***	***	***	***	***
56 to 60	***	***	***	***	***	***	***
61 to 65	***	***	***	***	***	***	***
66+	***	***	***	***	***	***	***
Additional age effect for females							
21 to 25	**						
26 to 30	***	**			*		**
31 to 35	***	***	***		**	***	***
36 to 40	***	**		**		***	***
41 to 45	***	***		*	***	***	***
46 to 50	***	**				***	***
51 to 55						*	
56 to 60	***	**	***	*		***	**
61 to 65							
66+		(omitted)	(omitted)	(omitted)	***		

Notes: (1) Escapers are defined as those among the 2002 low paid who are in work and no longer on low pay in the most recent three years (2010, 2011 and 2012).

(2) Low pay is defined as being paid less than two-thirds of the contemporary median hourly wage.

(3) Red cells correspond to positive coefficients, blue cells to negative coefficients.

(4) Asterisks indicate the statistical significance of the estimated coefficient: *** = 99% ; ** = 95% ; * = 90%.

Source: Resolution Foundation analysis of NESPD 1975-2012.

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For more information on this Briefing Note contact:

Alex Hurrell
alex.hurrell@resolutionfoundation.org
020 3372 2983