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Inequality, Redistribution and Wage Progression

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Changes in the structure of work and families over the last four decades have increased many labour market inequalities. Growing earnings inequality, adverse labour market 'shocks' for the low-educated, and geographically concentrated pockets of deprivation are among the most evident of these in Britain. The decade since the financial crisis has brought these inequalities into sharper focus, and the Covid-19 pandemic has further exacerbated labour market inequality. The object of this paper is to highlight the key role played by poor wage progression for lower- and middle-educated workers in understanding inequality in the labour market and for designing effective policy responses. It is unlikely that we can address all the concerns about low wages, wage progression and earnings inequality through the tax and welfare system alone. The challenge is how best to balance tax and welfare benefit policy with other policies, such as human capital policies, the minimum wage and labour market regulation. The results point to a mix of policies that aim to enhance wage progression for the lower-educated within a welfare system that supports low-earning families and provides a minimum wage floor for hourly wages.

Introduction

The structure of work and families have changed dramatically across most developed economies over the last four decades. Although Britain stands out in terms of some of the largest changes in labour market inequalities, the same underlying trends have been experienced in many economies across North America and Europe. The inequality 'boom' of the 1980s and early 1990s in Britain has been well documented; see Atkinson (1999), Gosling *et al.* (2000) and Blundell and Preston (1998). The focus in this paper is on the labour market since the early 1990s—in particular, the poor lifetime wage progression and adverse labour market 'shocks' that have beset the labour market for the lower-educated in Britain for more than 25 years.

Divergent wage progression is a key factor in the growing earnings inequality for men and women. It had already been highlighted as a potential issue in earlier discussions of welfare to work policy design (see Blundell 2002), and lies behind the poor earnings profiles across working life experienced by a majority of the lower-educated. Low levels of progression explain the prevalence of 'in-work' poverty in Britain whereby adults with children require support through the welfare benefit system despite being in employment. These trends in earnings—combined with historically high rates of employment—have led to an increased focus on the problem of in-work poverty, which on the eve of the Covid pandemic accounted for almost 60% of all poverty in Britain, and around 70% of working-age poverty; see Bourquin *et al.* (2019).

Lack of wage progression is a key determinant of low pay over the working life. Figure 1 plots the average hourly wage over the working life by highest level of education and by gender. It shows that low progression is the norm for those with low levels of education (GCSEs), and that progression is particularly flat for women once they reach their thirties. As a result, there has been a growing policy interest in pay progression—or lack of it—and it is central to the discussion of labour market inequality.

The squeeze on living standards in the decade since the financial crisis has brought these labour market inequalities into sharp focus. The Covid-19 pandemic has further exacerbated

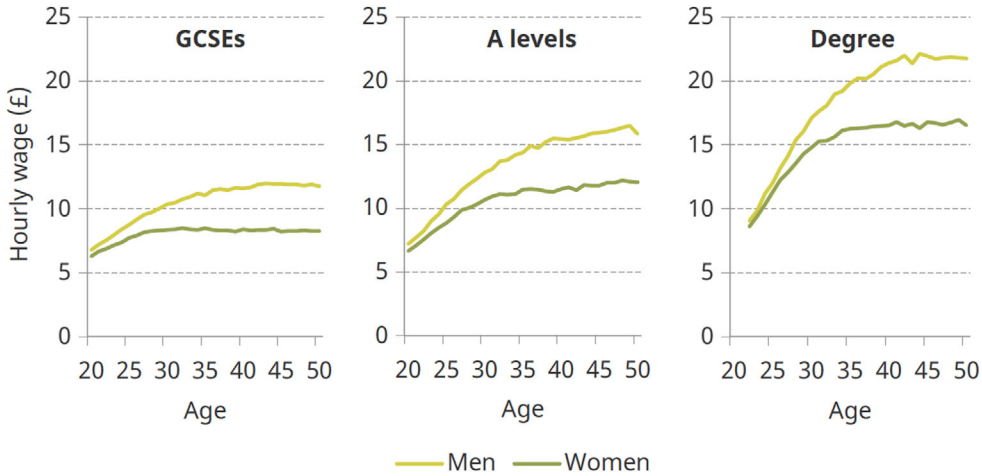

FIGURE 1. Age–wage profiles by education and age in Britain. *Notes*: Average hourly wages, deflated using the Consumer Prices Index (CPI) and expressed in January 2016 prices. Individuals in the bottom two and top one percentiles of the gender- and year-specific hourly wage distributions are excluded. Education is measured by the highest level of qualifications (GCSEs: leave school at age 16; A-levels: leave shcool at age 18; Degree: leave with university degree or above), and the data are drawn from the Labour Force Survey, 1993Q1–2018Q4. Source: Blundell *et al.* (2020a). [Colour figure can be viewed at wileyonlinelibrary.com].

them and, at the same time, opened up fissures along new dimensions that have typically favoured higher-educated workers. As we look to policy responses, it is unlikely that we can, or would want to, address all the concerns about low wages, poor wage progression and earnings inequality through traditional tax and welfare policies alone. The challenge is how best to balance tax and welfare benefit policy with other policies, such as human capital policies, minimum wages, labour market regulation and place-based policies.

Differential progression over the working life is a central part of the story about labour market inequality and concerns about it.[1] Understanding the determinants of progression also has important policy implications. For the lower-educated, employment is (increasingly) not enough to move families out of poverty, and even with the support of the hourly minimum wage, is not a guarantee of longer-run self-sufficiency. The analysis described below pinpoints the role of labour market attachment, part-time work, training, skills and firms in driving differences in wage progression. This is then brought together with a discussion of in-work benefits, family incomes, and assortativeness in families, to build an appropriate policy mix. The hope is that this will prove a fruitful way to understand and improve career progression that goes beyond wages to include job mobility, promotion prospects and other relevant labour market dynamics.

There are two main sections to this paper. The first Section sets the scene by exploring the relationship between the rise in earnings inequality and family income inequality in Britain, and exploring the link to changes in hours worked among men and women, in turn discussing the role of the tax and welfare system in supplementing low earnings and mediating labour market inequality. The second main section examines three interrelated issues for labour market inequality: labour market attachment, work-related training, and the skill match with firms. This is followed by a final concluding theme thoughout the paper, section that draws out some policy implications.

Wage progression is the common theme, and the empirical results draw on some recent studies in Britain. These studies exploit different sources of household panel data and employer–employee matched data to develop a comprehensive picture of the drivers and

implications of wage progression. We begin by examining the role of education, labour market attachment and part-time work, highlighting gender differences. This draws on Blundell *et al.* (2016), exploiting the detailed panel data on earnings, hours and demographics in the British Household Panel Study/UK HLS. The analysis then turns to the role of on-the-job training, separating human capital investments in learning-by-doing from investments in training during working life. This analysis draws on Blundell *et al.* (2021) and uses training questions covering the period since 1991 that distinguish the type of training as well as measuring the hours spent in work-related training. We finish this discussion with an analysis on the role of skills and firms. This starts by noting that some lower-educated workers do manage to achieve reasonable wage progression and asks: what are the key determinants of such success? The analysis focuses on the skills among the lower-educated that are valued by firms, and examines which types of firms value them most. The work draws on the recent study by Aghion *et al.* (2021), which uses matched employer–employee data for Britain on worker characteristics and firm characteristics to highlight the role of soft skills in improving opportunities for wage progression.

The results presented here confirm the low levels of earnings progression for lower-educated workers and show that although female employment has grown, it has done little to reverse rising family earnings inequality. The research highlights the diverging wage profiles by education and part-time work, and notes that employment alone is not enough to escape poverty and low earnings. It finds low rates of on-the-job training for lower-educated workers, even though returns to work-related training are found to be sizeable, with a significant impact on wage progression. Digging deeper by occupation and firm, the results uncover heterogeneity in wage progression among lower-educated workers, with some doing well. Lowed educated workers in soft-skill occupations are shown to see improved progression, with more training and longer tenures. The results also establish that wage progression is stronger for low-educated workers in soft skills occupations when they are employed in firms with a large share of high-skilled workers and in firms that are more innovative.

This work has key implications for designing an appropriate policy mix to address labour market inequality, and the concluding section considers these implications, looking beyond the pandemic towards the post-Covid economy. The results point to a mix of policies that aim to enhance wage progression for the lower-educated within a welfare system that supports low-earning families and provides a minimum wage floor for hourly wages.

I. Earnings Inequality, Family Incomes and Redistribution

Inequality in labour market earnings in Britain has increased dramatically over the last 40 years. The early 1980s through to the early 1990s saw a strong rise across the wage distribution for men and for women. Part of this was driven by the rise in the return to education and increasing skills premia; see Machin and Van Reenen (1998) and Autor *et al.* (2003). There were many other factors at work, including the decline in Unions, the fall in the share of manufacturing, and the rise in financial services; see Giupponi and Machin (2022).

The focus in this paper is on the period from the mid-1990s to the present, that is, the period following the 1980s 'inequality boom' during which earnings inequality has continued to rise but inequality in household disposable income has stayed reasonably stable—except, that is, at the very top, where the top income share, even after taxes, has continued to rise for most of the period. This period of stability in inequality in disposable income can be seen from the strong rise in the Gini and the 90–10 in Britain up until the early 1990s, followed by a constant, although high, level of these inequality measures since the mid-1990s; see Belfield

et al. (2017). Underlying this stability in income inequality, however, are key changes in labour market inequality along with a strong increase in in-work welfare benefits over most of the period, with a reversal in the generosity of welfare benefits over recent years, partially offset by a strong increase in the minimum wage; see Low Pay Commission (2021).

Figure 2(a) documents the growth in hourly wage and weekly earnings inequality for men from the mid-1990s until the 2016/17 period, after which the Brexit vote and the Covid pandemic have produced a number of higher-frequency changes that will be discussed briefly in the final section of the paper. The figure shows the strong growth in male weekly earnings inequality, with a real decline in lower earnings and a strong rise towards the top. The decline in real earnings at the bottom disappears completely when we examine hourly wages. This is driven by two off-setting effects. The first is the rise in the real value of the minimum wage since 1999, when it was first introduced, which has propped up hourly wages among the low paid with no noticeable impact on employment. Indeed, since its introduction, the minimum wage has successfully maintained real hourly wages at the bottom in Britain. The second effect is the fall in hours of work among lower-wage male workers, which has driven most of the fall in weekly earnings for men at the bottom. As Figure 2(b) suggests, this fall in hours worked has followed a secular trend since the mid-1990s.

The pattern for women in Britain has been almost symmetric, at least for those below the top 10%, as can be seen from Figure 3. The growth in hourly wages for women has been stable at a rate higher than that for men due to their low base and the extra bite from the minimum wage as women have been its main beneficiaries. The hours of work for women have also increased as jobs with very low hours have become less frequent. This has certainly increased household earnings at the bottom, and once we look at total household earnings, the negative real growth rates at the bottom that we saw for male earnings become positive for household earnings. However, as Figure 4 shows, the higher growth for women has done little to offset the rise in household earnings inequality. The larger share of male earnings in household earnings, the strong assortativeness by wages in couples, and the poor wage progression for lower-educated men and women, have been the dominant forces in driving household earnings inequality in Britain.

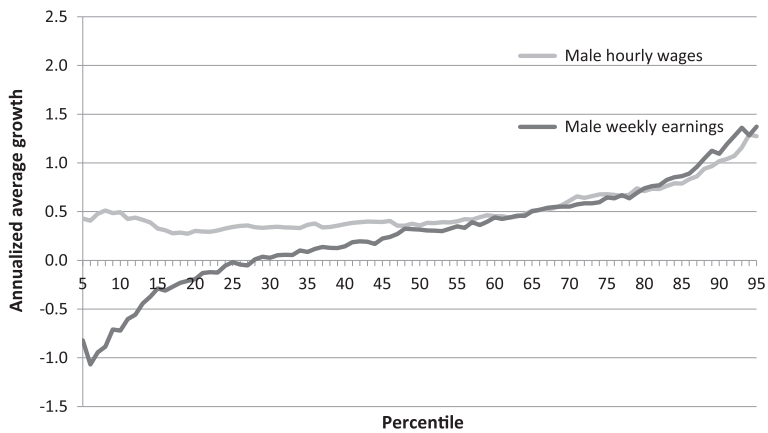

FIGURE 2(a). Growth in male weekly earnings and hourly wages, 1994–2016. *Notes*: Data used are FRS 1994–5 and 2016–17, not in full-time education and aged under 64 years. Source: Blundell *et al.* (2018).

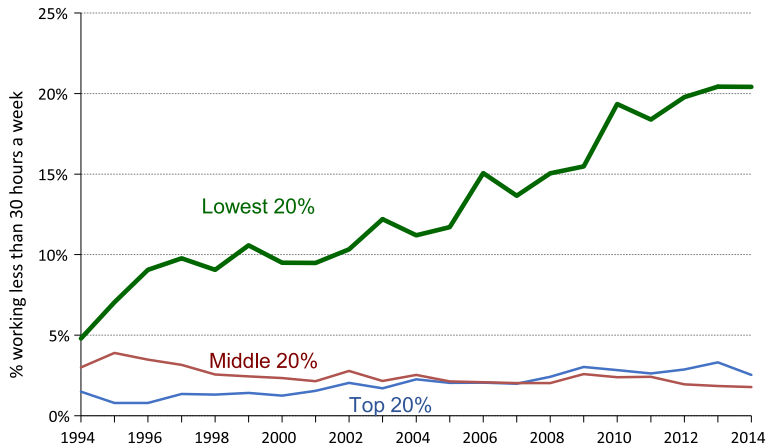

FIGURE 2(b). Proportion of men aged 25–55 working less than 30 hours, by hourly wage quintile. Source: IFS calculations using Labour Force Survey. [Colour figure can be viewed at wileyonlinelibrary.com].

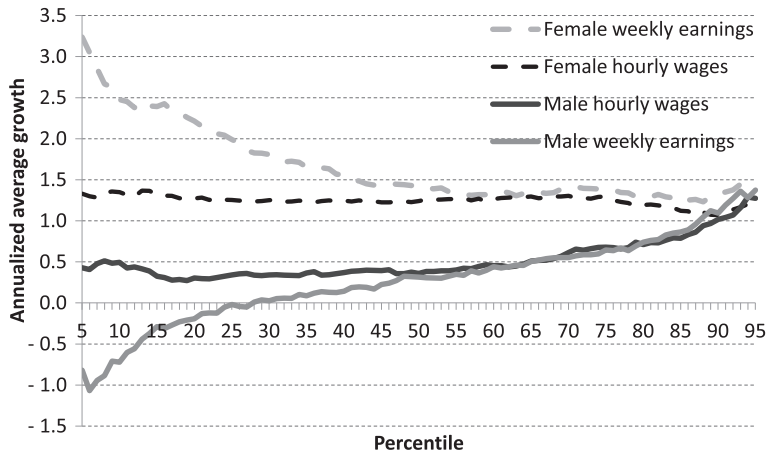

FIGURE 3. Growth in female and male hourly wages and weekly earnings. *Notes*: Data used are FRS 1994–5 and 2016–17. Source: Blundell *et al.* (2018).

II. UNDERSTANDING WAGE PROGRESSION

Education, part-time work and wage progression

Disentangling the role of work experience and part-time work in wage progression requires the careful analysis of longitudinal data following individual workers through time. The analysis here uses the BHPS (British Household Panel Study component of the UK Household Longitudinal Study), which has collected detailed longitudinal data on British households since 1991. At its core it is an annual face to face interview, and it includes measures of education qualifications, and detailed measures of individual training, labour supply, childcare, demographics, incomes and assets. It is also linked to life histories for panel members that capture choices from age 16, with detailed family background variables, including measures of parental education, number of siblings, sibling order, whether lived with parents when aged 16, books at home as a child, and financial conditions of family.

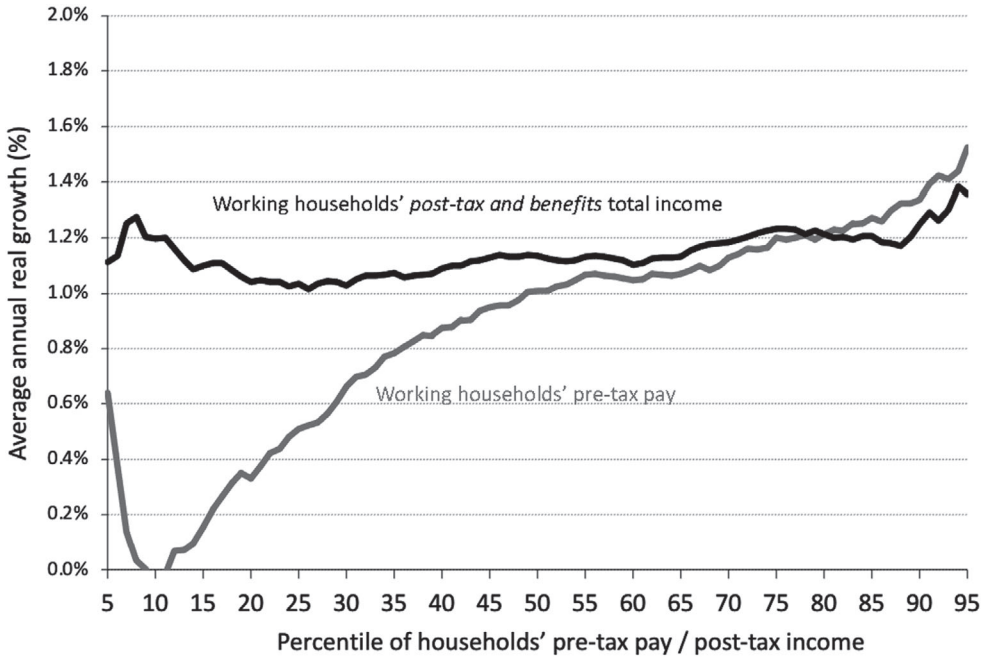

FIGURE 4. Household income growth for working households, 1994/5 to 2016/17. *Notes*: Includes self-employment income and self-employed households, Family Resources Survey. All income measures are equivalized. Source: Blundell *et al.* (2018).

The panel can be input into the IFS TAXBEN[2] budget constraint simulation model for every family in every year. This allows reasonably accurate measurements of taxes—including personal income tax, national insurance, council tax and working tax credits (in-work benefits)—and welfare benefits—including child benefit, income support and housing benefit.

To assess the overall level of wage progression, Figure 5 uses the panel data to draw average age profiles for average log wages for women by education group. This descriptive analysis, which mirrors the profiles in Figure 1 from the Labour Force Survey, plots the profiles separated into the three education groups: those that leave education at 16 (the minimum school-leaving age during this period) with GCSEs, those that complete high school (with A levels), and those that complete at laeast a three-year university degree or equivalent. The analysis highlights the depressing lifetime progression in the labour market for lower-educated women.

Figure 5 also suggests that returns to experience are strongly *complementary* with education, with those who have benefited from educational investments receiving a higher wage with higher wage growth through their working life. A similar pattern can be seen for men with even stronger growth for educated men; see Costa Dias *et al.* (2018) and Figure 1. Lower-educated men have seen more lifetime growth in wages than women, partly due to the prevalence of part-time work among women, but the wage profiles for lower-educated men remain poor. The growing incidence of part-time work for lower-wage men that was documented in Figure 2(b) will have a role in this, although the level of part-time work for men remains at a much lower level that that experienced by women. Figure 6 highlights the lower labour market attachment around child-rearing years for women.

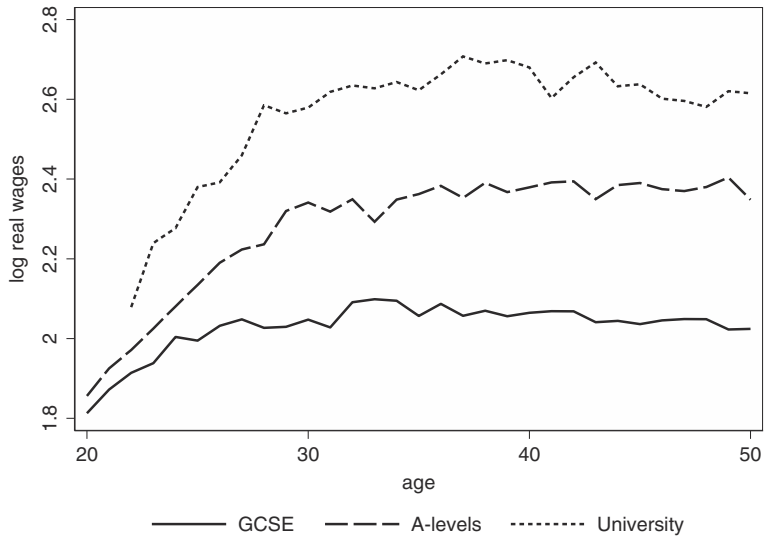

FIGURE 5. Mean log wage rates for working women over the lifecycle by education. *Notes*: Average log real hourly wage, women, BHPS/UK HLS, 2008 prices. Source: Blundell *et al.* (2016).

The tax and welfare benefit system in Britain has, until very recently,[3] placed an incentive on part-time work through the interaction between taxes, in-work tax credits and welfare benefits. Figure 7 shows the budget constraint, in weekly income, that would have been faced by a typical low-wage lone parent with one child in 2000. Indeed, part of the motivation for the WFTC (Working Families Tax Credit), the British variant of the US Earned Income Tax Credit (EITC) introduced in 1999, was to preserve labour market attachment and reduce skill depreciation for women; see Blundell and Hoynes (2004). It is worth noting too that the *minimum hours eligibility* rules have been eliminated in the recent Universal Credit policy that replaced working tax credits; see Browne *et al.* (2016). These part-time incentives in the British tax credit system are clearly reflected in the behaviour of weekly working hours, as can be seen in Figure 8, which plots a histogram of working hours for single women aged 18–45 with and without children across a selection of tax years. There are clear differences over time. In 1991 when there was no incentive at 16 hours in the tax credit system for women with children, in 1995 when there were small incentives at 16 hours, and in 2002, the post-WFTC period, when there are strong incentives for mothers to work at least 16 hours per week.

These descriptive analyses are purely indicative and can equally well be driven by selection bias and other confounding effects. To address these econometric concerns, we develop a panel data model for log wages that incorporates work experience. This is then estimated on the British household panel study. We might expect the level of accumulated work experience capital to differ depending on whether the work experience was in a full-time job or in a part-time job. It will also differ across individuals of different levels of education and across gender, and could depreciate too. For any individual i of education s and age t, we write the cumulation of experience capital κ_{ist} as

$$\kappa_{ist} = \kappa_{is,t-1}(1-\delta_s) + \alpha_{1s}\, FT_{i,t-1} + \alpha_{2s}\, PT_{i,t-1},$$

FIGURE 6. Female employment and part-time work by age and education. *Notes*: Plots are for all women. Source: Blundell *et al.* (2016). [Colour figure can be viewed at wileyonlinelibrary.com].

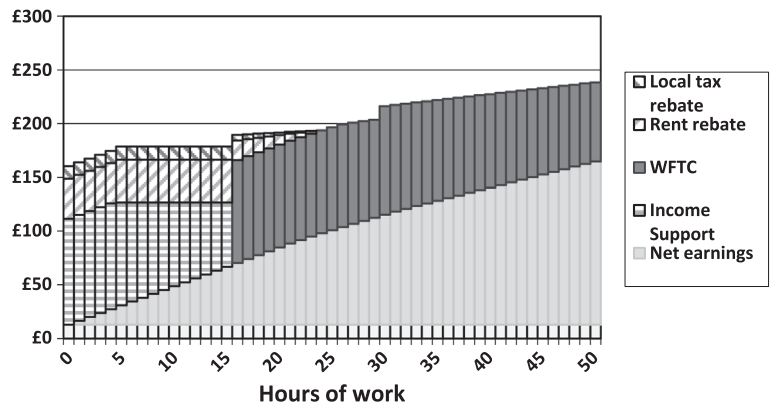

FIGURE 7. Interaction between taxes, tax credits and benefits. *Notes*: Single parent, wage £6.50 per hour, 1 child, no other income, rent £80 per week. Ignores council tax and rebates. Source: IFS calculations, year 2000.

where δ_s is the depreciation rate for a worker of education level s, and α_{1s} and α_{2s} measure the impact of part-time (PT) and full-time (FT) work on experience capital. Parameters δ_s and α_{2s} are estimated, while α_{1s} is normalized to unity.

In addition to experience capital, the log wage $\ln w_{ist}$ for any individual will depend on gender, education, age, other observable background factors x_i (which could include cohort, family financial circumstances and family social environment), and unobservable measures of skills and heterogeneity represented by ω_i. We write

$$\ln w_{ist} = \ln W_{st} + \gamma_{0s}(x_i) + \gamma_{1s}(x_i) \ln(\kappa_{ist} + 1) + \omega_i + \nu_{ist} + \xi_{ist}, \quad (1)$$

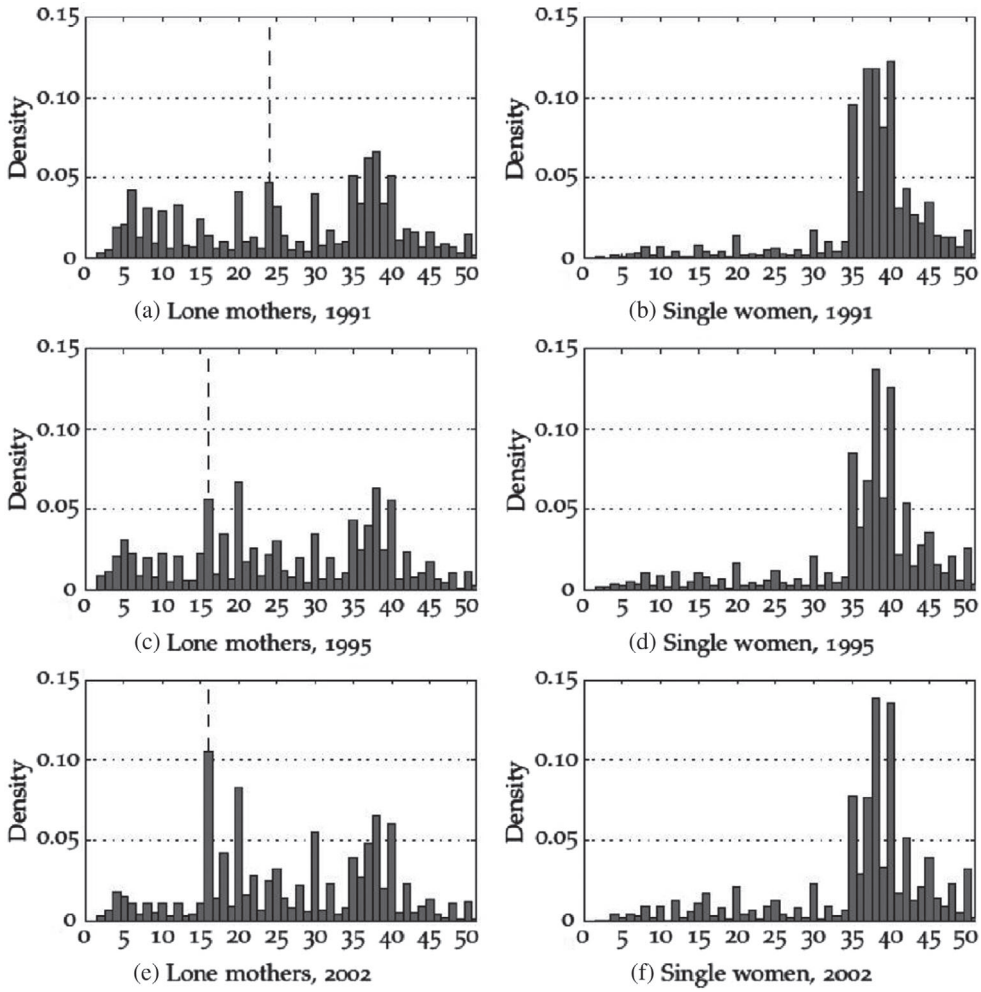

FIGURE 8. Histogram of hours worked. Single women, lower-educated, aged 18–45; bunching at tax kinks. Source: Blundell and Shephard (2012).

where the first term on the right-hand side is a baseline Mincer effect ($\ln W_{st}$), then there are the family background factors x_i. The experience capital term $\ln(\kappa_{ist}+1)$ is chosen to fit the wage profiles (see Blundell *et al.* 2016), and the coefficients $\gamma_{1s}(x_i)$ are allowed to depend on education level and family background characteristics. Individual heterogeneity is represented by ω_i, persistent shocks by $v_{ist} = \rho_s v_{is,t-1} + \mu_{ist}$, and random shocks by ξ_{ist}. For estimation, wage equation (1) is embedded within a dynamic discrete choice model of employment and part-time work. To address selection bias and the endogeneity of part-time work and experience, simulated tax-benefit instruments are used; see Blundell *et al.* (2016) for details.

We focus on wage equation estimates for women since, as we have already seen, they exhibit a large variation in the amount of part-time work and employment, as well as facing non-linear incentives to work through the British tax credit and welfare system. This variation allows us to recover more precise estimates of the impact of work experience on wage profiles. The wage profiles for men in different education groups display similar broad features, and we return to a discussion of the poor wage progression for low-educated men in the analysis

TABLE 1
WAGE EQUATION ESTIMATES: WOMEN

	GCSE	A level	University
Returns to experience (γ_{0s})	0.15 (0.01)	0.23 (0.01)	0.31 (0.01)
Autocorrelation coefficient (ρ_s)	0.92 (0.01)	0.91 (0.01)	0.88 (0.01)
Depreciation rate (δ_s)	0.08 (0.01)	0.06 (0.01)	0.07 (0.01)
Accumulation of human capital in part-time work (α_{2s})	0.15 (0.02)	0.10 (0.02)	0.12 (0.01)

Notes
Method of simulated moments estimates. Interactions with background factors x included. Correlated unobserved heterogeneity in wage and choice model.
Data: 18 waves from the BHPS/UK HLS, 1991 onwards. Unbalanced panel of 7359 women aged 19–59. Descriptive statistics and full set of results available.
Source: Blundell *et al.* (2016).

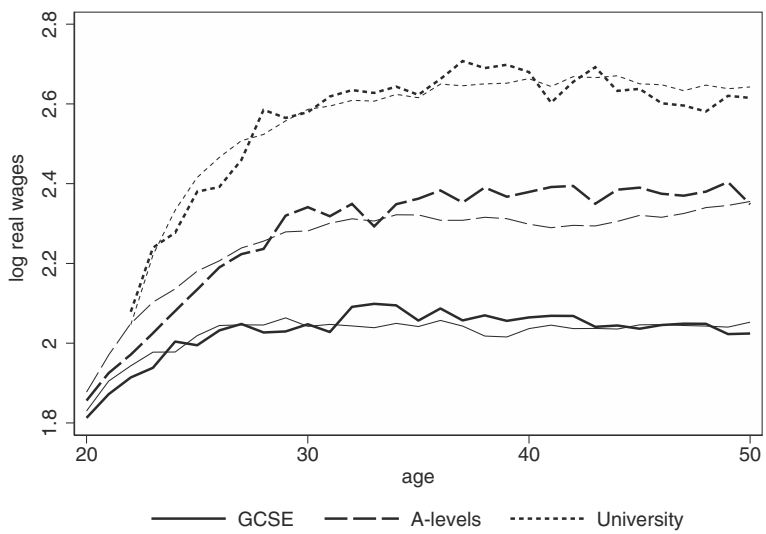

FIGURE 9. Women's wage profiles, model fit. *Notes*: Women, BHPS/UK HLS. Interactions with background factors are included. Grey lines show the model fit. Source: Blundell *et al.* (2016).

of occupational skills and wage progression in the subsection on 'The role of firms and soft skills' below.

A summary of the key wage equation parameter estimates for women are presented in Table 1. The results show a strong impact of education in the role of work experience, γ_{0s}, even with a strong autocorrelation of around 0.9 in the unobservable checks. Depreciation of experience capital is relatively fast, with depreciation rates in the 6–8% range across education groups. The results also show a small impact of part-time work in work experience capital, with the part-time coefficient estimate, α_{2s}, closer to 0.1 than the 0.5 that it would be if part-time work were worth 50% of the experience capital of full-time work. Returns to work experience show strong complementarity with education, with much lower returns to work experience for lower-educated and also for part-time work. The implied wage profiles for each education group are presented in Figure 9 alongside the descriptive data plot. Figure 10 shows that the estimated model is also able to replicate the employment profiles over the working life.

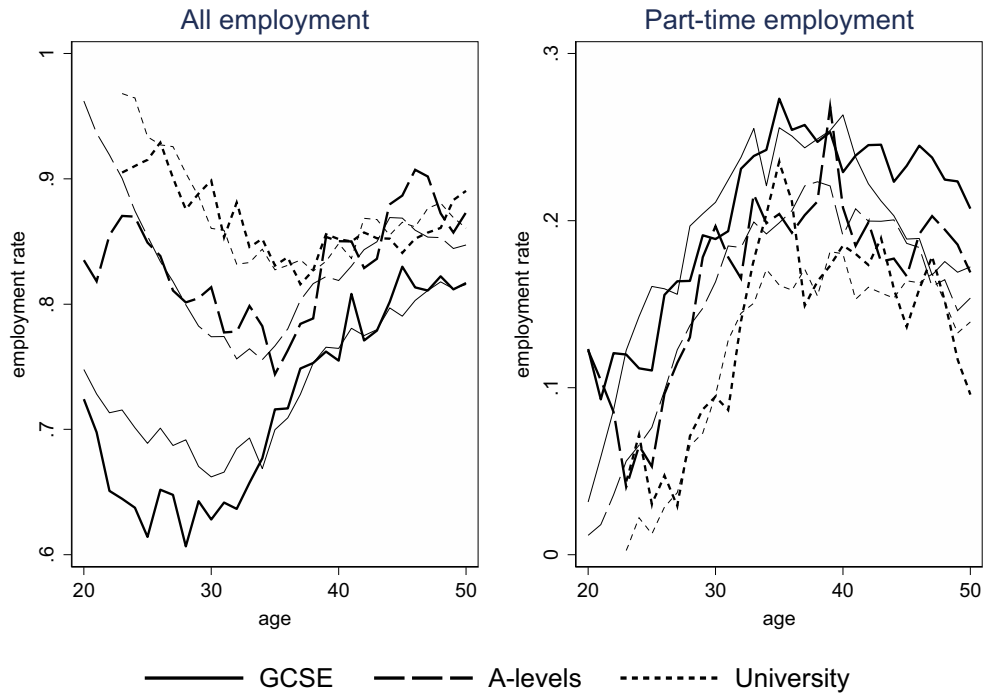

FIGURE 10. Women's employment over the lifecycle, model fit. *Notes*: Women, BHPS/UK HLS. Source: Blundell *et al.* (2016). [Colour figure can be viewed at wileyonlinelibrary.com].

These results have strong implications for welfare benefit reform, where the importance of low returns to experience for the low-educated, and the adverse impact of part-time work, limit the effectiveness of the British (earned income) tax credits. But what about the role of on-the-job training rather than pure learning by doing? We now turn to this question.

Training and wage progression

The empirical analysis of training has documented mixed impacts on wages; see McCall *et al.* (2016). Earlier work on Britain has nonetheless found a significant impact for qualification-based work-related training; see Blundell *et al.* (1996, 1999). Work-related training levels for those workers with low education levels are low and add little to the already poor human capital investments of this group. This is clear from Figure 11, which uses the training questions in the BHPS to plot the proportion of workers involved in substantive non-induction training—that is, training of at least 50 hours per year, across their working life—by gender and by education group. These data show a strong complementary with initial levels of education. For men, the monotonic decline with age follows a standard 'Becker–Ben-Porath' style pattern, with most investments occurring early in the working life. For women, the story is different. A second peak in training intensity occurs in middle-age, as children enter full-time schooling. Blundell *et al.* (2021) exploit this pattern, and the implicit incentives for investments in training in the in-work benefit system, to re-examine wage dynamics when training investments are allowed to add to the human capital stock.

In this analysis, the panel data model (1) is extended so that the log wage for individual i, schooling s, age t, includes a training investment indicator $D_{i,t-1}$—representing at least 40 hours of training in the prior year—in the expression for the stock of human capital:

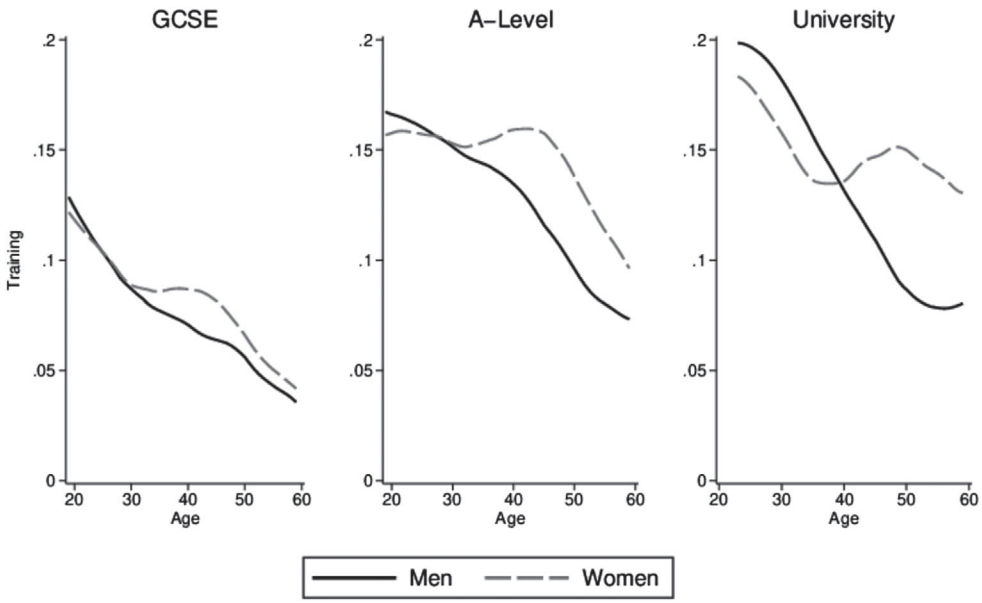

FIGURE 11. Training rates over the lifecycle, by gender and education. *Notes*: BHPS data for years 1991–2008. The training variable is an indicator for having had 40 or more hours of work-related training over the last 12 months. Lines are smoothed using an Epanechnikov kernel. Source: Blundell *et al.* (2021).

$$\kappa_{ist} = \kappa_{is,t-1}(1-\delta_s) + FT_{i,t-1} + \alpha_{2s}\, PT_{i,t-1} + \tau_s D_{i,t-1}. \tag{2}$$

The impact of training, τ_s, is found to be significant, *conditional* on education, experience, family background, persistent shocks and heterogeneity. Particularly strong effects are documented for the A-level (high school completion) group, with estimated returns equivalent to that in formal education. For women, training is shown to partially offset human capital depreciation from lost work experience and (partially) reverse the gender wage gap.

The significant impact on earnings of work-related training for lower-educated women returning to work after children is confirmed in the recent work on the Norwegian 'second chance' adult training reform for the low-educated by Bennett *et al.* (2020). Blundell *et al.* (2021) show that a revenue-neutral subsidy for firm-based qualification training can be designed to provide an effective incentive for training that leads to wage progression.

The role of firms and soft skills

As we have seen, lower-educated workers have, on average, low wages and low wage progression. There is heterogeneity, however, and here we dig deeper into why some lower-education workers do well. Do firms matter, and what occupational skills bring largest returns? We draw on the results in Aghion *et al.* (2021), who use employee–employer matched data for Britain to examine the role of skills, measured through the task content of occupations, in determining wage progression. Worker-level data, collected from firms based on tax records, is matched with firm census data at the four-digit level and O*Net measurements of occupational tasks.

The focus is on 'soft skills', which have become of increasing interest in understanding the ingredients of success in the labour market. For example, Deming (2017) suggests that

the evidence is overwhelming that these skills are—important drivers of success in school and in adult life. He points to the early work of Heckman and Kautz (2012). Analytical skills remain important, but there is a significant role for soft skills and interpersonal interaction. Deming notes the value of teamwork and how social skills increase productivity because they reduce the cost of trading tasks with other workers. Effective teamwork requires a complex and context-dependent understanding of team members and their likely responses to a wide range of scenarios. This is intuitive for most people, but it is very difficult to codify as a set of explicit instructions. This idea that soft skills are difficult to codify and measure is both their attraction—as they cannot be replaced easily with automation, as noted in Autor *et al.* (2020)—but also their downside—as, unlike STEM subjects, they are difficult to measure and verify.

We highlight the value of soft skills for lower-educated workers, and the way they can be used to lift wage progression for such workers. Our measures of soft skills relate to a specific set of tasks in the workplace, which includes the following measures.

- Problem sensitivity: the ability to tell when something is wrong or is likely to go wrong—it involves not necessarily solving a problem, only recognizing the problem.
- Active listening: giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate.
- Social perceptiveness: being aware of others' reactions and understanding them.
- Coordination: adjusting actions in relation to others' actions.
- Work with work group or team: the importance of working with others in a group or team in the job.
- Responsibility for outcomes and results: responsibility for work outcomes and results of other workers.
- Impact of decisions on co-workers or company results: impact that your decisions usually have on other people or the reputation of your employer.

These are then used to construct a single index of the importance of soft skills.

The soft skills index is first compared to the European Work Conditions Survey (EWCS) and is shown to be correlated with a host of measurements that workers associate with good jobs. An example is provided in Figure 12 using the EWCS categorization 'My job offers good prospects for career advancement'. A similar analysis shows that soft skills intensity is associated with higher levels of training.

Turning to the relationship between soft skills and wage progression itself, Figure 13 shows a plot of wage progression for lower-educated male workers according to the soft skills intensity index. It shows clearly that low-educated workers in occupations that require soft-skills experience higher wage progression.

Aghion *et al.* (2021) take the analysis further by estimating a panel data model for individual wages using the matched employer–employee data. The wage specifications extend more standard panel data wage equations, such as equation (1), by including the soft skills intensity index interacted with firm tenure and a set of characteristics of the firm. The empirical results confirm that lower-educated workers in high soft skills intensity occupations experience stronger wage progression. The results also establish that wage progression is stronger for low-educated workers in soft skills occupations when they are employed in firms with a large share of high-skilled workers and in firms that are more innovative.

Taken together, these results show that lower-educated workers can experience higher wage progression, and that this (partly) reflects the value of soft skills. Soft skills are associated with more training and longer tenures, and with higher progression in more

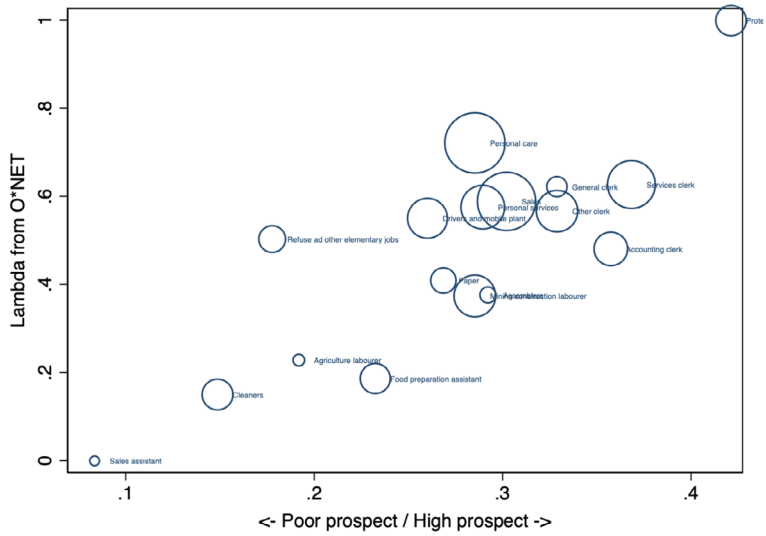

FIGURE 12. Index of soft skills and measurements of 'good jobs' in the EWCS. *Notes*: EWCS, 2015: 'My job offers good prospects for career advancement'; low-educated. Each dot is a two-digit occupation, scaled by employment in Britain. Source: Aghion *et al.* (2021). [Colour figure can be viewed at wileyonlinelibrary.com].

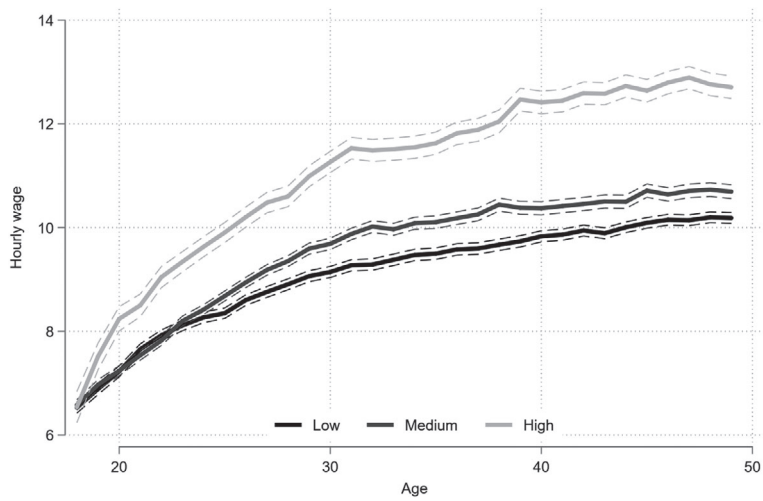

FIGURE 13. Wage progression for lower-educated male workers according to soft skills intensity. *Notes*: Data from Annual Survey of Hours and Employment (ASHE) 2004–19. Figure shows average hourly wage at each age for male workers in private sector firms in occupations with low educational requirements categorized by the measure of the importance of soft skills (Regulatory Qualification Framework). Soft skills index split into three equal bins. Source: Aghion *et al.* (2021).

innovative firms and firms with a larger share of higher-educated workers. Of course, cognitive and other skills matter too, but soft skills remain an important dimension for lower-educated workers.

III. Conclusions for Policy and Implications for the Post-Covid Economy

The motivation for this paper has been the high levels of earnings inequality in Britain and the poor earnings progression for lower-educated workers. There is clear evidence of diverging wage profiles by education and by part-time work, and low rates of on-the-job training for lower-educated workers. Employment alone is increasingly not enough to escape poverty and low earnings. Increasing female labour supply has not overcome increasing family earnings inequality due to part-time work, assortativeness and low female earnings share in family income.

The empirical analysis reported here examined the roles of education, part-time work and gender—in particular, the role of human capital investments during working life contrasting learning-by-doing and on-the-job training. Finally, we looked at the role of firms, and asked: what attributes among the lower-educated are valued by firms, and which types of firms value them most—soft skills?

The results confirm poor wage progression for the low-educated, and low rates of training for such workers. There are some more positive findings, however, with significant returns for work-related training, and higher progression for low-educated workers with 'soft skills'. This is found to be especially the case in R&D firms and firms with a large share of higher-skilled workers.

These results point towards a new policy agenda to address labour market inequality, with a focus on 'good jobs'; see Rodrik and Stantcheva (2021a,b). Earned income tax credits, for example, have become a central plank of the modern labour market policy armoury. They effectively offset adverse means-testing incentives and encourage employment, and they are well-targeted to low-earning families. However, they typically produce little wage progression or 'self-sufficiency'. The results reported in this paper suggest reforms to tax credits that avoid part-time incentives and incorporate training incentives. This will not only support low earnings in work, but it will also have beneficial effects on wage progression, with an aim of allowing individuals to progress out of low earnings and lessen their reliance on in-work benefit support.

This suggests that human capital policies should be integrated more closely with in-work benefit policies. The results point to a re-think of vocational training, with a focus on work-related qualification training and an emphasis on soft skills, incentivizing skills for the lower-educated that are valued by firms, but also thinking carefully about the firm match. Skills alone are unlikely to produce good jobs unless they are matched to firms with complementary technology.

The results also point to place-based policies. It is hard to develop a good jobs agenda for lower-educated workers in local areas that lack R&D firms and a sizeable fraction of educated workers. Policy should combine training incentives with an emphasis on attracting R&D firms and firms that employ a mix of educational groups to deprived areas. Policies should be directed at reversing educational flight.

With this agenda in mind, we can also examine minimum wage policy and labour market regulation. Minimum wages are less well targeted to low-income families, due to the variety of different wages and hours that can make up family earnings. They have also become less effective at supporting weekly earnings with falling weekly hours for low-wage men. They have, however, clearly been a powerful force in propping up low hourly

wages in Britain, with little adverse impact on employment. The key is to see the minimum wage as a *complement* to tax credits and human capital policies, offsetting low wages that may reduce the effectiveness of tax credits in lifting family incomes, and aligning with training policy to enhance wage progression and to encourage human capital investments by employees.

A group in the labour market that requires particular attention is the self-employed, in particular, the solo self-employed. As Giupponi and Machin (2022) have shown, solo self-employment has grown strongly in Britain over the last two decades, and for low-educated workers it is associated with low wages and low rates of training. There are incentives in the tax system, the welfare benefit system and the regulation of employment contracts that favour self-employment, with little justification. There is a need to improve benefit eligibility and align effective tax rates for the self-employed, allowing more access to training and non-wage benefits, and perhaps regulations on minimum hourly rates of pay to mimic the minimum wage. Overall, policy should line up contract regulation between the solo self-employed and employees alongside redistributive tax credit, welfare benefits, minimum wage and human capital policies.

As a final note, it is useful to ask: what changes after Covid? The issue of wage progression and good jobs for the lower-educated has, if anything, become even more urgent for the post-Covid labour market. Although there is evidence of a short-run surge in demand for workers in low-wage occupations, it is likely that the longer-run outcome will be a further shift towards e-commerce occupations that require IT skills, jobs that can often be carried out at home. As we have seen during Covid, these jobs are found largely among workers in the higher deciles of the earnings distribution; see Figure 14. The result would be an increased labour market inequality.

There are positive aspects, however, to the direction of policy that may attenuate an increase in inequality and lead to a new emphasis on building a fairer society. Many more

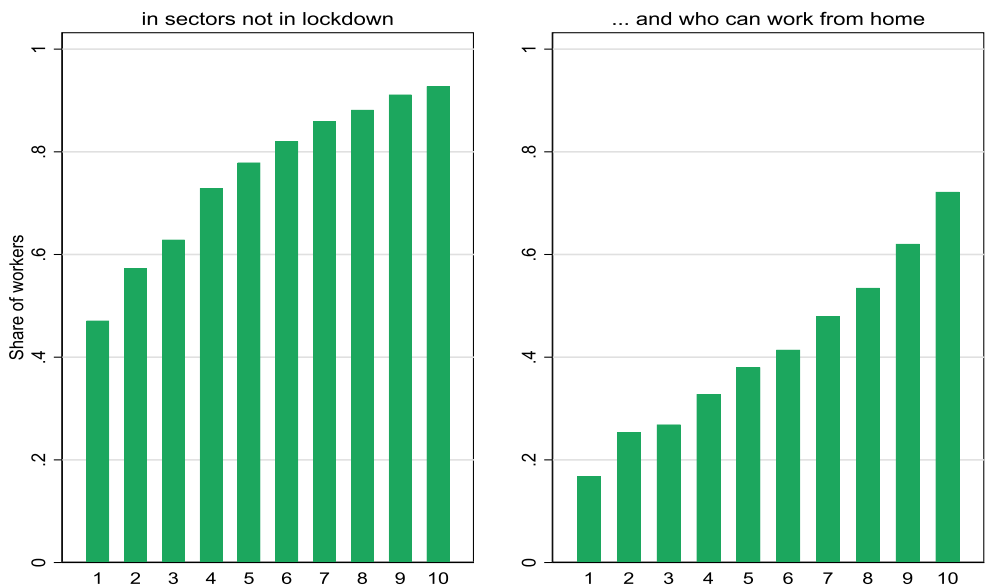

FIGURE 14. Share of workers in sectors not in lockdown and who can work from home, by decile of earnings distribution. *Notes*: Excluding key workers; based on analysis of Labour Force Survey data. Source: Blundell *et al.* (2020b, Figure 8). [Colour figure can be viewed at wileyonlinelibrary.com].

people will have experienced the welfare state during lockdown due to the extension of welfare benefits and the introduction of a generous furlough scheme. This may result in a change of attitudes to welfare, and usher in a renewed focus on expanded social insurance to improve replacement rates. To address longer-term labour market inequality and redistribution after Covid, policy will need to address the severe loss of skill investments among younger workers and those leaving education. Human capital policies aligned with redistributive policies will need to reflect the change in the nature of work and the structure of industry. Without serious reform to our education, vocational training and welfare system, we can expect a further increase in labour market inequality and a continuation of poor wage progression for the lower-educated.

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NOTES

1. Below, we document supporting evidence from the European Work Conditions Survey.
2. Since 1983, the IFS has built and maintained TAXBEN, which is a microsimulation programme that calculates the tax liabilities and benefit entitlements for individual households, given detailed information about those households; see Waters (2017).
3. See Brewer *et al.* (2019).

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