Inequality

The IFS Deaton Review

Women and men at work

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Executive summary

- **The average working-age woman in the UK earned 40% less than her male counterpart in 2019.** That gap is about 13 percentage points, or 25%, lower than it was 25 years ago.

- **The vast majority of the modest convergence in earnings of the past 25 years can be explained by the closing of the gender gap in education levels.** Of the 13 percentage point drop in the gender pay gap, 10 percentage points (or over three-quarters) would have been expected from the rapid catch-up of educational attainment of women, who are now 5% more likely to have graduated from university than men. This suggests that the additional contribution to closing the gender earnings gap from other changes in policy, the economy and society over the past quarter-century has been muted.

- **Inequalities in all three components of labour market earnings – employment, working hours and hourly wages – remained large.** In 2019, working women still earned 19% less per hour than men. This gap was 5 percentage points smaller than the gap in the mid 1990s, though again women's relative advances in education can account for the majority of the gain.

- **Gaps in all three components are linked.** The fact that women have more career breaks and years working part-time contributes to them having lower hourly earnings further down the line.

- **In a big break from the past, the hourly wage gap between men and women is now bigger for those with degrees or A-level-equivalent qualifications than for those with lower education.** It used to be that gender differences in hourly wages were especially large among less-well-educated workers. The introduction of, and increases to, the UK's minimum wage have been an important factor in helping low-paid women. More highly educated women have not made comparable progress.

- **Gender gaps in hourly wage rates are especially large at the top, with women failing to reach the same levels of high pay as men.** In 2019, women at the top (90th percentile) earned per hour only 77% of what their male counterparts did, while that figure was about 90% for women at the bottom (10th percentile) compared with men at the same level.

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- **Gender differences in time spent doing paid work are not completely balanced out by the differences in time doing unpaid domestic work.** In the UK, working-age women on average do 1.5 fewer hours of paid work and 1.8 more hours of unpaid work per day than men.

- **Gender gaps in pay, paid work and unpaid work have substantial consequences for inequalities in material living standards.** Women in single-adult families, especially single mothers, are especially vulnerable to poverty. Women in opposite-gender couple families have been found to consume less than their male partners.

- **Inequalities in earnings and its three components increase vastly after parenthood.** The opening of gaps around childbirth suggests that unpaid care work is central in shaping inequalities in the labour market.

- **The gendered roles that mothers and fathers take on appear to be largely unrelated to their relative earnings potential.** Even mothers who earn more than their male partners before childbirth are more likely than their partners to reduce hours of work in the years after childbirth.

- **The existing policy environment (including parental leave, childcare, and the tax and benefit system) often sustains and incentivises a traditionally gendered division of labour, even when policies are ostensibly gender-neutral.** For instance, welfare subsidies that are taxed away with family income will disincentivise the work of a second earner, who is usually the woman. At the same time, policies designed to incentivise a more equal division of labour often have quite muted effects.

- **At the level of the whole economy and society, these heavily gendered patterns of paid and unpaid work strongly suggest that the talents of women and men are not being used in the most productive way possible.** This means that, overall, the economy produces less (both market goods and services and unpaid care) than would be possible if the talents of women and men were allocated more efficiently.

- **Norms, preferences and beliefs appear central to the choices of families.** Two-fifths of both men and women in the UK agree that 'a woman should stay at home when she has children under school age'. Internationally, there is huge variation in the proportion of the population who hold traditional gender attitudes. The extent of agreement with such statements is strongly positively correlated with gender gaps in labour market outcomes.

- **However, these constructs are not immutable.** An accumulation of policies consistently supporting a more equal sharing of responsibilities between parents (or large policy reforms challenging gender roles) may help build up a change in attitudes that leads to permanent change in norms. Given the huge economic costs associated with the status quo, even expensive policies could potentially pay for themselves if they successfully ensure that the talents of both women and men are put to their most productive uses, whether in the labour market or at home.

1. Introduction

This chapter is concerned with the differences between men and women in all activities that can be labelled as 'work' – that is, the time and energy that people devote to producing things of value. Work thus encompasses the production of market goods and service as well as the time spent doing household chores, childcare or care of the elderly.

Data from the UK and other high-income countries reveal a sharp, if unsurprising, divide: men do more paid work outside the house, women do more unpaid work inside. Moreover, when doing paid work, women are paid less. This pattern has remained stable in the past quarter of a century. Gender differences in the sharing of unpaid work – including the sharing of childcare, other care work, and housework – shape much of the unequal outcomes we see in the labour market; a deeply uneven division of unpaid work makes it hard to achieve equal outcomes in paid work.

Do these differences in labour market outcomes between men and women matter? In this chapter, we explore their many consequences and contend that there are several important reasons why they do: gender disparities in the amount of work individuals do, the types of work they do, and the rewards they get for doing that work are all central determinants of broader gender inequalities in social status, well-being and poverty. First off, work (both paid and unpaid) can be intrinsically important for well-being and life satisfaction. Second, different types of work bring different extrinsic rewards. Particularly important here is the distinction between paid and unpaid work. While unpaid work, such as housework and care work, is crucial for the functioning of the economy and society, the fact that it does not bring monetary rewards can leave people who do not work for pay vulnerable to economic hardship and poverty. This is the case both in the short and longer run, if the absence of paid work in the present reduces work opportunities and earnings in the future. Inequalities in paid work may also translate into broader inequalities in well-being if individual contributions to family income bring with them influence in important family decisions, reflecting how paid work can be directly connected to agency and autonomy.

At the level of the whole economy, gender inequalities may hamper aggregate efficiency and reduce the overall quantity of the goods and services (both market and non-market) produced. The amount of output that an economy can produce for a given level of resources is largest when the skills and talents of individuals are allocated to the activities where their return is largest. If women face higher barriers to participating in paid work (or, similarly, men face higher barriers to participating in domestic and care work), this will result in women's (respectively men's) talents not being put to their best use and will reduce overall efficiency. A corollary here is that such inefficiencies will reduce government tax revenue, which is an important point since it implies that even costly policies that succeed in putting women's and men's talents to better use in the labour market may ultimately pay for themselves.

The chapter has three parts. The first part delves into the data to decompose differences in paid work into their individual components and to cast light on the interdependence between paid work and unpaid work by studying the evolution of the gender gaps across life stages. The analysis yields two key findings. First is that men and women make the same investments in education and have similar career trajectories up to the point of having children. The second finding is that, at that point, the gaps open up, demonstrating the central role of unpaid care in shaping inequalities in the labour market.

The second part of the chapter aims to understand the underlying causes that create the gap. We test, and reject, the hypothesis that families allocate their female and male members' labour by comparative advantage. We then study the role of policies and social norms and how they affect one another. We discuss ideas for policies that can potentially shift the norms and allow women and men to face the same choice set, as well as discussing evidence on discrimination and bias against women in the workplace.

The final part discusses the consequences of gender inequalities in work. We study how continuing gender inequalities in the labour market combine with secular changes in the composition of families in driving inequalities in the well-being of individuals and families. We then show evidence of the aggregate economic cost of gender inequalities, focusing on gender differences in the allocation of talent in education and work.

Part I. Evidence

2. The gender earnings gap across countries

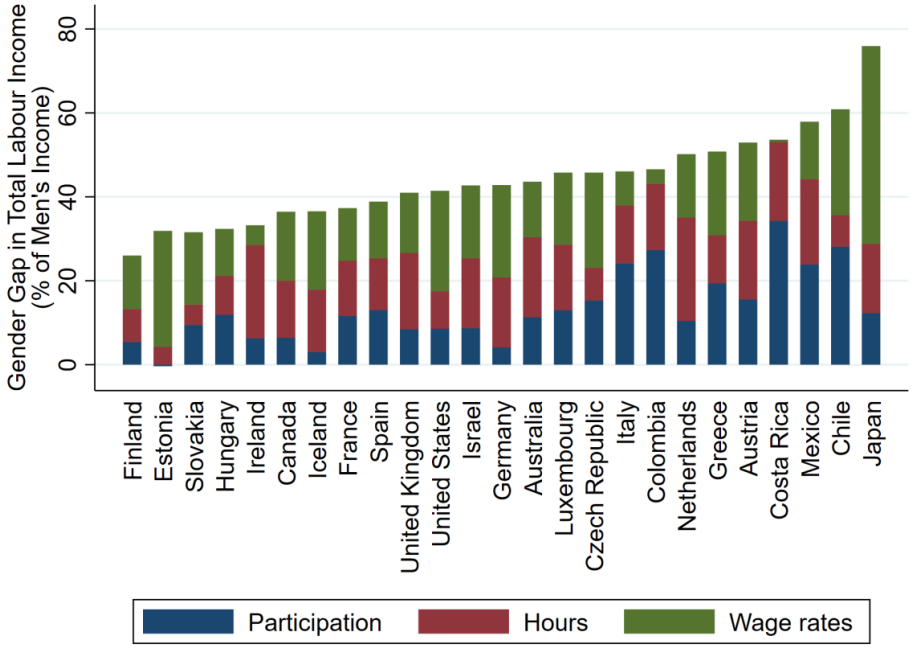
We start by describing gender inequalities in labour income, in the UK and other comparable high-income countries. The gender gap is calculated as the difference between the average total income that adult men and adult women earn from their labour before any taxes and transfers, which is then expressed in percentage terms, as a fraction of men's average total labour earnings. This is the key summary measure of gender differences in labour market outcomes, encapsulating differences in all aspects of working life including how much men and women work, the types of jobs they do, their experiences and skills, and labour market discrimination. Since someone's earned income is the product of whether or not they work for pay, the hours they work and the wages they earn for each hour, gender gaps can be decomposed into gender gaps across these three margins: participation, hours and wage rates.[2]

Figure 1 plots the gender gap in total labour income for the subset of OECD countries for which we have access to recent data. It is immediately evident that gender gaps in earnings are very large across all these countries. In the UK, women earn around 40% less than men. Elsewhere, gender gaps range from around 20–30% in Eastern European and Scandinavian nations to over 50% in Austria, Mexico and Japan.

For countries with suitable data, we break this overall gap down into its three margins: women participating in paid employment at lower rates (in blue); women working fewer hours than men (in red); and women earning less per hour than men (in green). In Italy, for example, more than half of the overall gap in earnings is accounted for by a lower participation rate among women, and most of the remaining gap is accounted for by shorter working hours among those women who do work for pay. In the UK, by contrast, while women do work for pay at lower rates than men, a larger share of the overall gap is accounted for by women working for shorter hours and receiving less per hour than men.

[2] The gaps that we will report and decompose in this chapter, which encompass all gender differences in working lives, are broader than what is reported in most other accounts of gender pay gaps, which focus on differences in median or mean earnings among working men and women and often consider only full-time workers.

Figure 1. Gender gap in labour market income across OECD countries (as % of male income)



Note: The gender gap in total earnings is given by $\Delta^Y = (Y^m - Y^f)/Y^m$. This can be decomposed into the sum of components driven by gaps in wages (G^W), gaps in hours conditional on wages being equal (G^H) and gaps in participation conditional on wages and hours being equal (G^P): $\Delta^Y = G^W + G^H + G^P$, where $G^W \equiv (w^m - w^f)/w^m$; $G^H \equiv (h^m - h^f)/h^m \times w^f/w^m$; and $G^P \equiv (p^m - p^f)/p^m \times w^f/w^m \times h^f/h^m$.

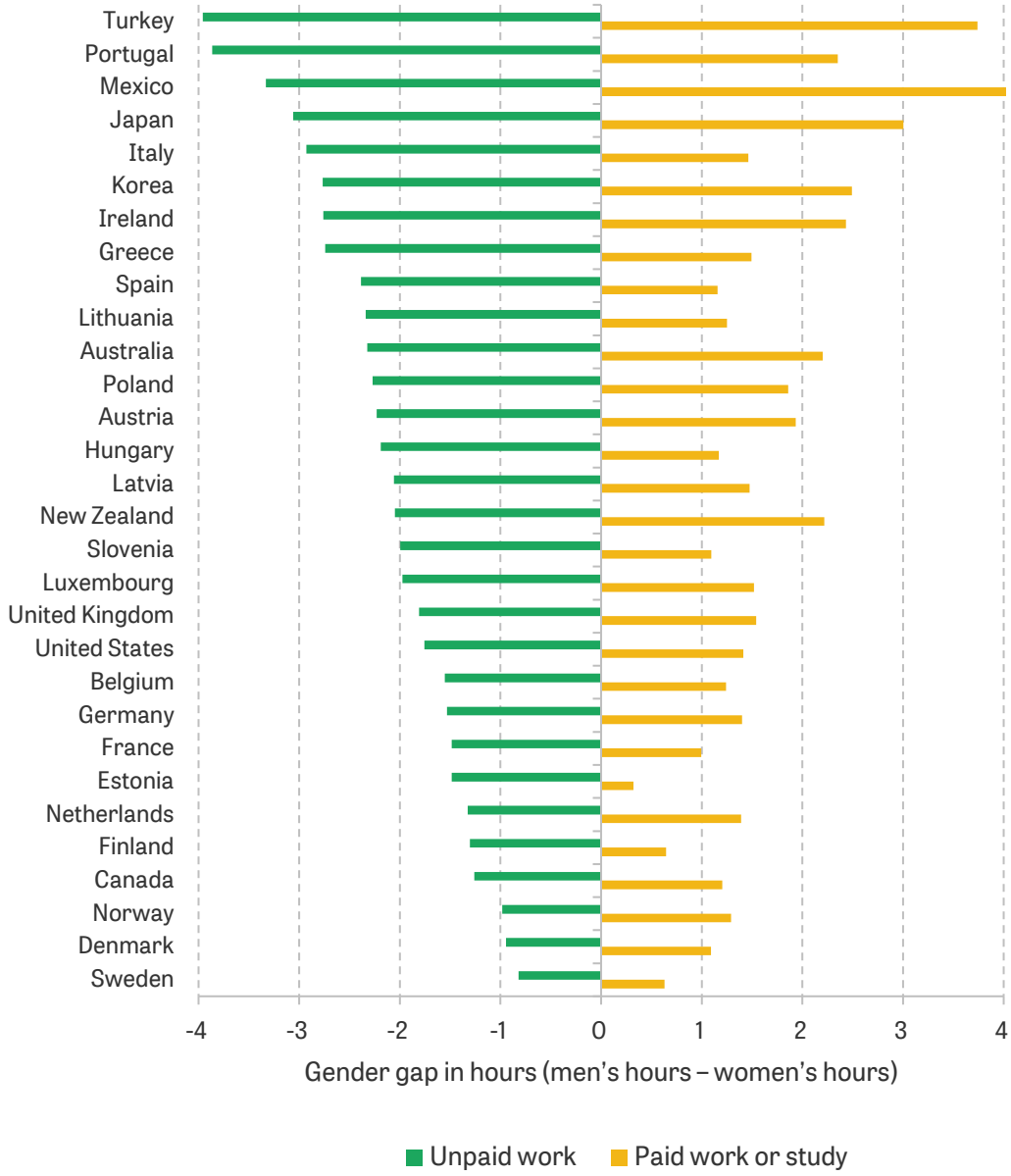
Source: Kleven and Landais (2017), based on data from the Luxembourg Income Study.

Men's disproportionate presence in, and reward for, paid work is counterbalanced by women's disproportionate share of unpaid household work, including childcare, cooking and cleaning. Figure 2 plots the gender gaps in the average daily time (measured in hours) that men and women spend on paid work and unpaid work for a selection of OECD countries. Gaps are defined as the difference between male and female time spent in each type of work. All data come from nationally representative time-use surveys.

The gold bars in Figure 2 confirm our previous finding: across all countries, women spend substantially less time in paid work than men. In green, though, we see that across all countries, women spend more time doing unpaid work (which includes childcare). The figures suggest that in the UK, women do a full 1 hour 50 minutes more unpaid work than men do on a typical day. This figure places the UK just about average amongst OECD countries in terms of how inequitable the division of unpaid work is between genders. While the division of unpaid work is more equitable in the UK than it is in, say, Japan, Turkey or Portugal, the UK is substantially more inequitable in this regard than the Scandinavian countries. In Sweden, for example, women do 50 minutes more unpaid work than men do.

The gender gaps in paid and unpaid work are negatively correlated: in countries where women do more of the latter, they also tend to do less of the former. Moreover, in most countries, the allocation of domestic work is more unequal than that of paid work. This difference suggests that women have less free time for other non-work activities than men do. In the UK, for example, women's total paid and unpaid work time exceeds that of men by an average of 16 minutes per day. In some countries, the differences are much more pronounced, at more than 1 hour per day in many Southern and Eastern European countries.

Figure 2. Gender gaps (male – female) in time spent on paid work and study, and unpaid work

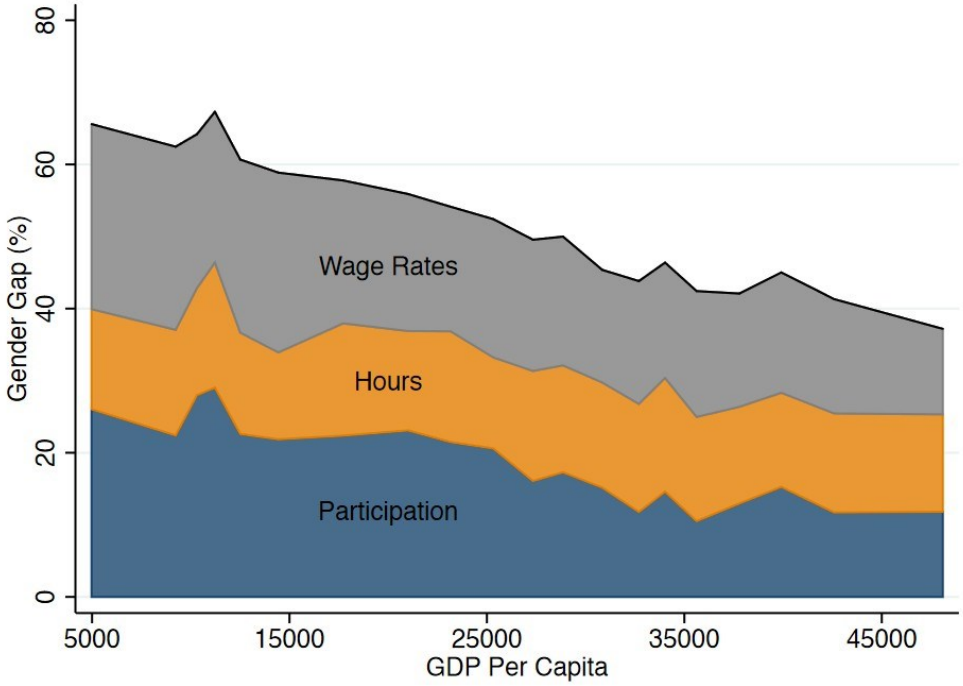


Note: Figure plots the male–female gender gap in time use (men's hours minus women's hours) amongst average adult women and men (aged 15–64) in OECD countries. Unpaid work includes care of one's own children. In each case, the latest nationally representative time-use survey is used.

Source: https://stats.oecd.org/Index.aspx?DataSetCode=TIME_USE.

Figures across countries suggest that gender gaps are negatively associated with economic development (Blau and Kahn, 2017). The effects could flow in both directions: we argue later in this chapter that reducing the gaps may promote growth by facilitating a more efficient allocation of productive resources in the economy; in turn, richer economies can more easily provide the support that women, especially mothers, need to drive successful working lives. Would we expect current gender gaps in earnings to close any time soon, with continuing economic growth? Using data from Kleven and Landais (2017), Figure 3 shows how average gender gaps in total labour income vary with countries' GDP (black line) and decomposes that gap over the three margins. The relationship between GDP and the gender gaps is identified from within-country time variation rather than across-country comparisons.

Figure 3. Gender gap in labour income, by GDP



Note: GDP refers to purchasing power parity (PPP)-adjusted GDP expressed in real 2011 dollars.

Source: Kleven and Landais, 2017.

Despite trending downwards, gender gaps in total labour market income remain very large even at the highest levels of economic development. Moreover, the downwards slope is shallow. If we were to interpret the GDP trends as causal, we would infer that, at the current speed, GDP per capita would have to more than double before the gap finally closed. At an optimistic 3% average yearly growth rate, that would take about 24 years to achieve for the wealthiest nations. Figure 3 also shows that the closing of the overall gap in labour income with economic growth is largely driven by falling gaps in labour force participation and in the wage rate; gaps in hours worked appear to change little with economic growth.

3. The gender earnings gap over time

We have documented that the gender gap in earnings remains very large across the world, including in wealthy countries. In this section, we focus more specifically on the UK case, using data from the UK Labour Force Survey (LFS), and show how the labour market position of men and women evolved over the last two-and-a-half decades. LFS collects quarterly data for a large sample of individuals residing in the UK. These data are used to calculate official labour market statistics such as the unemployment rate. LFS contains detailed information on economic activity, weekly hours of work, pre-tax earnings, occupation and industry, as well as the usual socio-demographic information on age, education, family composition and geographical area of residence. Earnings are reported for employees only, so we will exclude the self-employed when discussing income from work and working hours.[3] In what follows, we use the subsample of

[3] The self-employed are a non-negligible minority of workers, particularly among men: LFS figures suggest that of all employed individuals aged 20–55 between 2015 and 2019, about 17% of the men and 9% of the women were self-employed. While excluding the self-employed may introduce some bias in our estimates as, in particular, self-employed

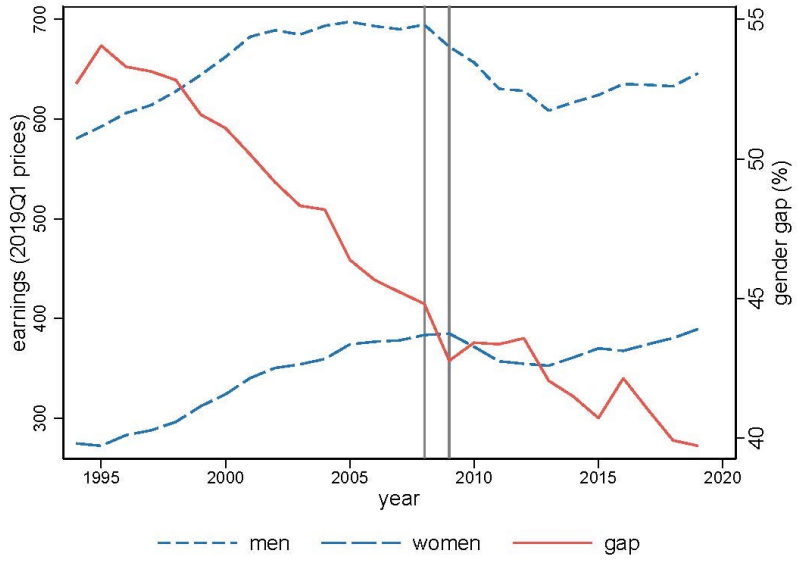
adults in their main working years, aged 20–55, and exclude those who report being in full-time education, retired or long-term sick.[4] Overall our sample contains about 2.1 million individuals, 52% of whom are women.

Women became more educated than men, but still earn less

Figure 4 plots the gender earnings gap in real weekly earnings for men and women over the last 25 years. It shows clearly that the gap is large and slow moving. Men earned just over twice as much as women in the 1990s and just under twice as much 25 years later. There were clear gains in earnings for both men and women over the first 15 years of our data, until the Great Recession partly dissipated them, especially for men.

Contrary to the earnings gap, the gap in education attainment closed completely in the 2000s, and adult women below the age of 55 are now more educated then men in the same cohorts. This is shown in Figure 5. The solid line in each panel quantifies the excess proportion of educated men as compared with women, separating between A levels (the British equivalent of high-school qualifications) and higher in the left-hand panel, and three-year university degrees and higher on the right. Both lines show that the proportion of educated women surpassed that of men a few years before 2010, and the gap has continued to widen in favour of women since then. The main takeaway is that current gender differences in earnings cannot be attributed to major differences in skills as measured by education attainment.

Figure 4. Trends in pre-tax earnings and the gender pay gap



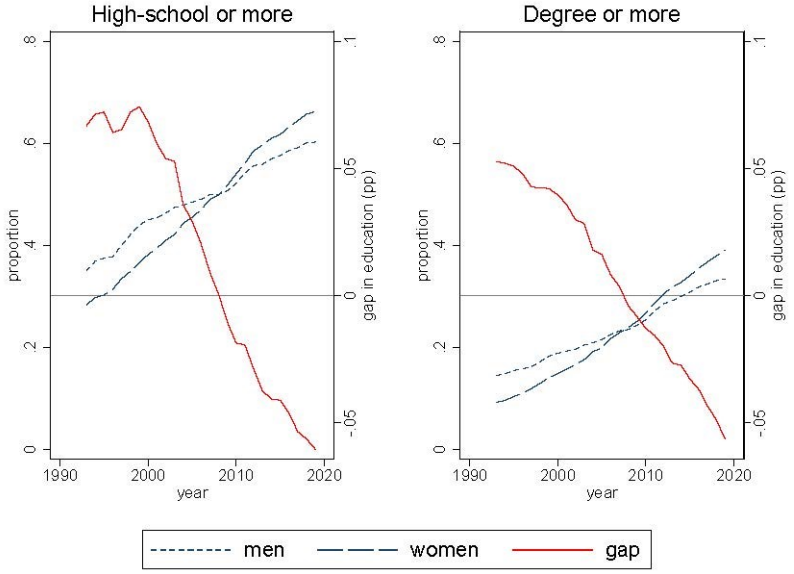
Note: Earnings levels measured on the left axis, in 2019 prices. Gender pay gaps measured on the right axis, as a percentage of men's earnings. Vertical lines locate the Great Recession.

Source: LFS data 1994–2019, men and women aged 20–55 and not retired, long-term sick or in full-time education.

individuals earn on average less than employees, other data sources (the UK Household Longitudinal Survey) reveal that the gender gap in earnings among the self-employed is remarkably similar to that among employees. So any bias should be small.

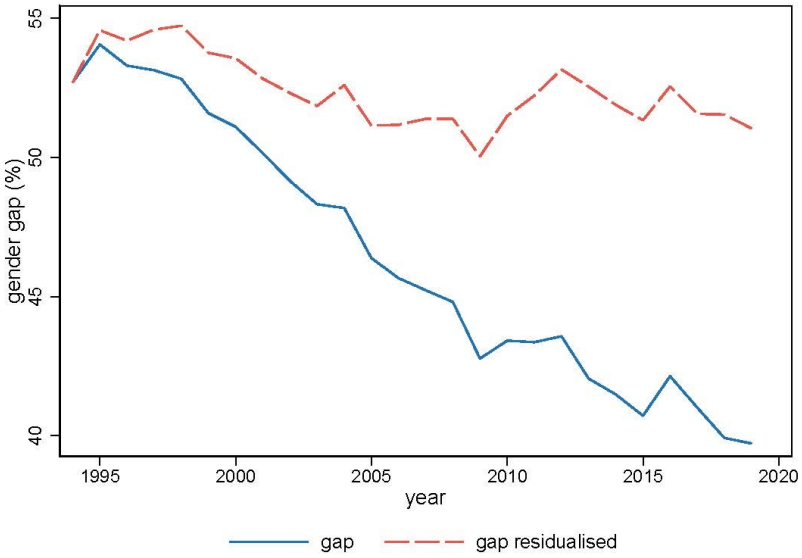
[4] In our sample, these three categories account for 7% of men and 7.5% of women in this age group.

Figure 5. Gender gap in completed education



Source: LFS data 1994–2019, men and women aged 20–55 and not retired, long-term sick or in full-time education.

Figure 6. Gender gap in pre-tax earnings: controlling for education



Note: Gender pay gaps as a percentage of men's earnings. Residualised gap calculated keeping the gender-specific distribution of education fixed over the entire period and normalised to equal the raw gap in 1994.

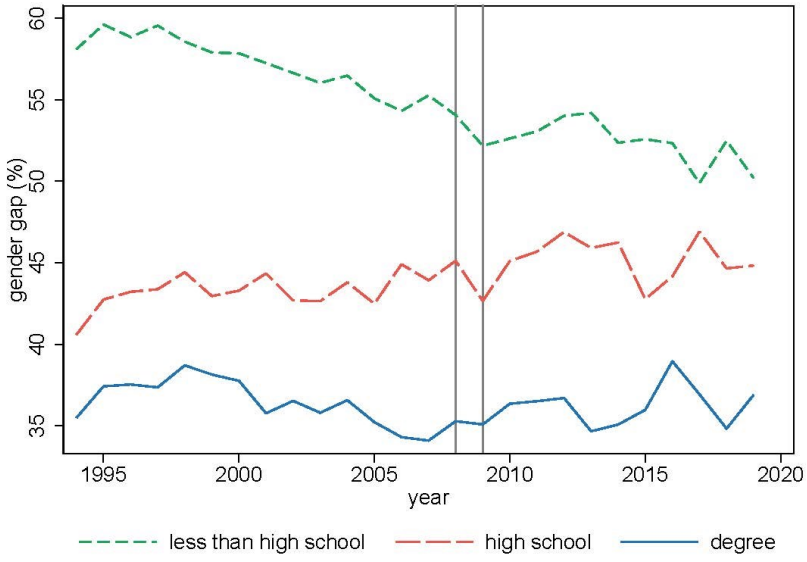
Source: LFS data 1994–2019, men and women aged 20–55 and not retired, long-term sick or in full-time education.

In fact, the closing of the education gap explains the vast majority of the modest gender convergence in earnings documented in Figure 4, as shown in Figure 6. The solid line is the earnings gap depicted in Figure 4, while the dashed line shows the residual gap, which is the gap that would obtain had the gender-specific distribution of education remained fixed over the period;[5] we normalise the gap to match that observed at the start of the period, in 1994. What is clear from the figure is that the closing of the gap can be almost entirely loaded on the differential

[5] We use the education distribution in the pooled cross-sections.

change in education attainment of men and women, with women overtaking men on that dimension. In other words, had it not been for the rapid growth in education attainment of women relative to men, the gap might have remained almost unchanged over the period.

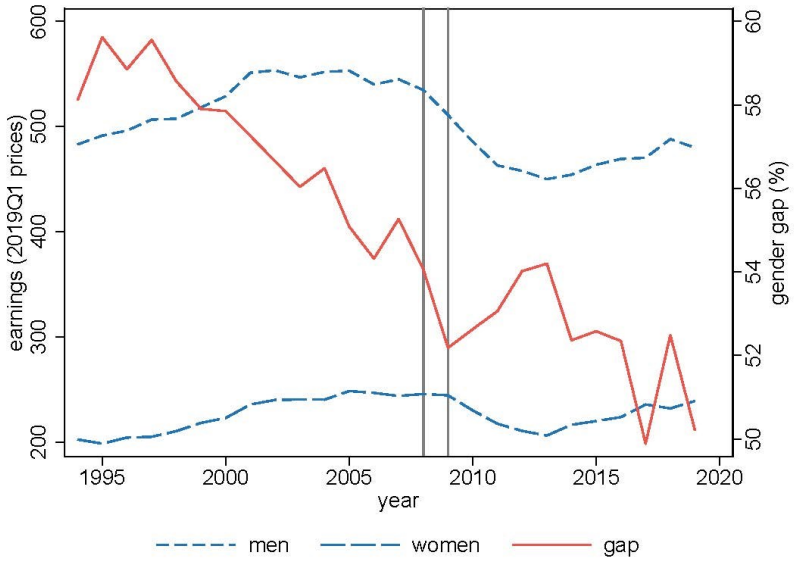
Figure 7. Gender gap in pre-tax earnings, by education



Note: Gender pay gaps as a percentage of men's earnings. Vertical lines locate the Great Recession.

Source: LFS data 1994–2019, men and women aged 20–55 and not retired, long-term sick or in full-time education.

Figure 8. Trends in pre-tax earnings and the gender pay gap for those who left school with only basic qualifications (GCSEs or less)



Note: Earnings levels measured on the left axis, in 2019 prices. Gender pay gaps measured on the right axis, as a percentage of men's earnings.

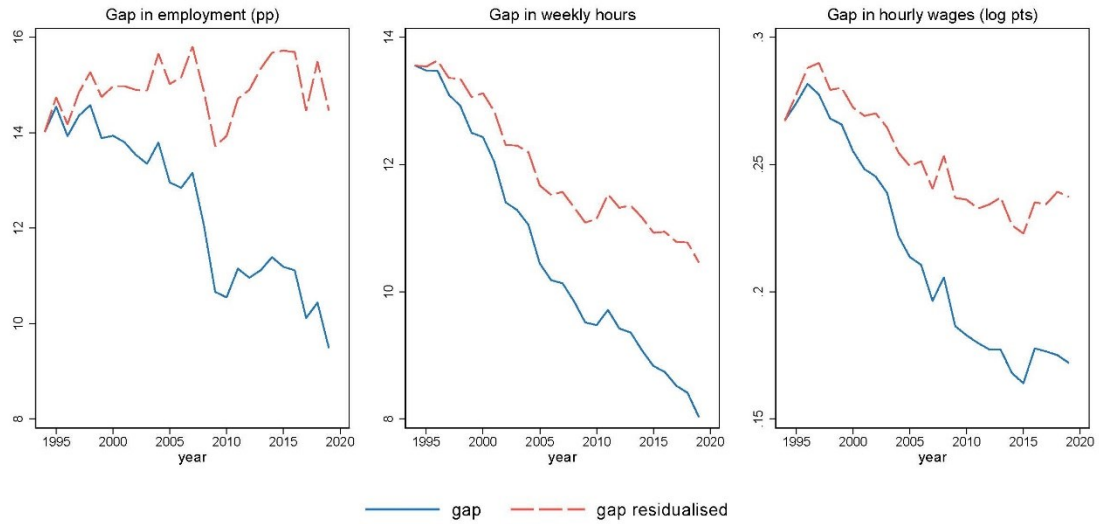
Source: LFS data 1994–2019, men and women aged 20–55 and not retired, long-term sick or in full-time education.

One possibility is that the average earnings gap hides different trends for different education levels. Figure 7 investigates this further by looking at the earnings gap in three education groups: those who leave school at 16 with at most basic qualifications (GCSEs), those with A levels or equivalent qualifications acquired when children are 18, and those with three-year university degrees or higher. Three patterns are of note. First, the level of the gap decreases with education: the gap for university graduates is about two-thirds of the gap experienced by individuals who have not completed A levels. Second, there has been no change in the gap for individuals who have completed secondary and tertiary education. Given the large increase in the share of women with university degrees, this might be partly due to changes in selection – i.e. in who attends university – as well as to persistent differences in the choices of college majors across gender (e.g. Zafar, 2013). Third, the only group for which there is some sign of the earnings gap closing over the recent past is the lowest-educated. Figure 8 zooms in on the trends for this group, showing a 9 percentage point reduction in the gap. This modest convergence is due to male earnings dropping after the 2008 recession; female earnings were mostly stagnant over the period.

High-skilled women earn lower wages; low-skilled women work less

To understand the earnings gap, we need to understand its components. Do women earn less because they work less or because they are paid less? Figure 3 already suggested that employment, working hours and wages all contribute to the wide disparities in pay observable across all levels of economic development. Here we look into how their contribution changed over time in the UK. Figure 9 plots trends in each of these three components of earnings with and without controlling for changes in educational attainment. The panel on the left shows that the gap in employment closed by 4 percentage points over the period, and that the entirety of this change can be rooted to women's gains in education since more-educated women have closer ties to the labour market. The middle panel shows that the gap in hours worked among those employed also decreased, by about 5½ weekly hours, but once we compare individuals with the

Figure 9. Gender gaps in employment, working hours and hourly wage rates: controlling for education



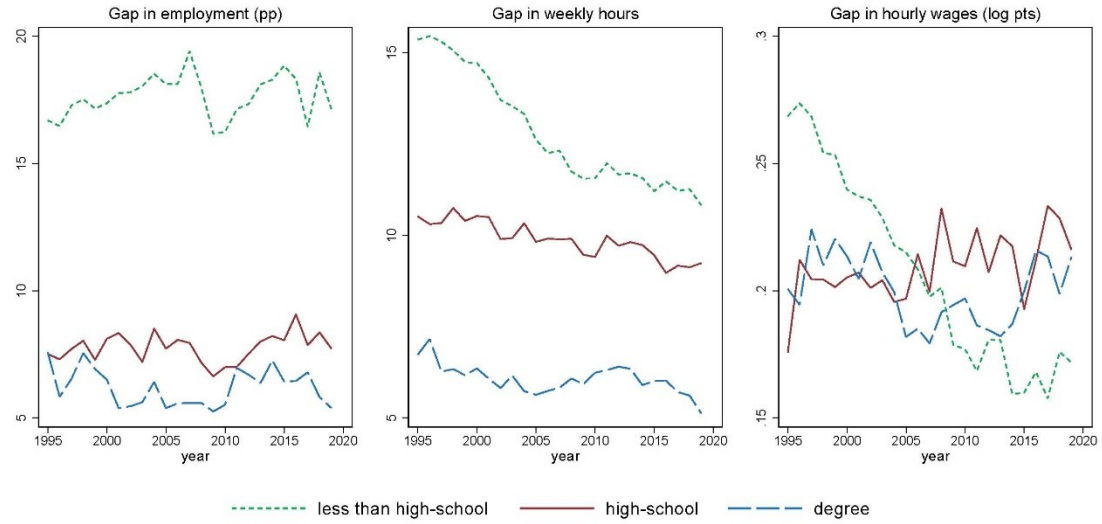
Note: Residualised gaps calculated on the outcomes of men and women net of gender-specific education fixed effects and normalised to equal the raw gaps in 1994.

Source: LFS data 1994–2019, men and women aged 20–55 and not retired, long-term sick or in full-time education.

same education level we see a more modest change in the gap of about 3 hours for the last 25 years. The panel on the right shows a similar pattern for wage rates: the gap falls over time but this is largely due to women getting increasingly more educated; once we control for education attainment, there is a modest decline until 2005 and little change after that.

These trends were not uniform across education groups. Figure 10 investigates this and shows some interesting patterns. First, the gaps in employment remained remarkably flat over the entire period, and were more than twice as large for those with basic qualifications as for more-educated groups (panel on the left). Second, conditional on employment, the gender gap in working hours narrowed by almost 5 weekly hours for workers with basic qualifications, but it remained more than twice as large for them as for university-educated workers, and almost 20% above the gap for those with A-level qualifications (middle panel). Third, this movement in working hours was accompanied by a sharp drop of 10 log points in the wage gap of workers with basic qualifications, which contrasts with no convergence at all for workers with higher qualifications (panel on the right). As a result, the gender gap in hourly wage rates was, by 2019, about 5 log points smaller for those at the bottom of the education distribution than for their more-educated peers. These figures are almost the exact reverse of those for the 1990s.

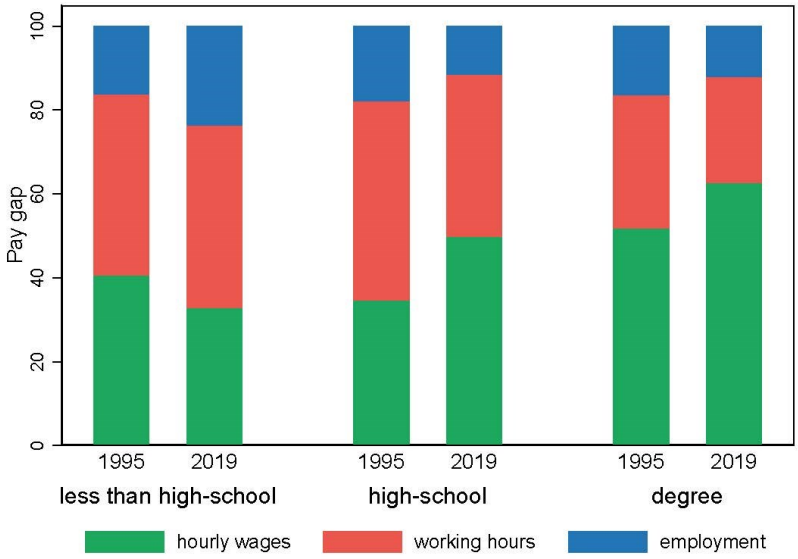
Figure 10. Gender gaps in employment, working hours and hourly wage rates, by education



Source: LFS data 1995–2019, men and women aged 20–55 and not retired, long-term sick or in full-time education.

An implication from these results is that the relative importance of earnings capacity (as measured by hourly wages) in explaining the gender pay gap evolved in opposite directions for different education groups over this period. Figure 11 illustrates this. By 2019, only about one-third of the gender pay gap among those who left school with basic or no qualifications is explained by differences in wage rates, down from 40% in the 1990s. That reflected the relative gains in wages that low-educated women saw over this period, as compared with low-educated men. To compensate, differences in employment rates became a more important component of the gender earnings gap of this group, which mechanically resulted from the lack of convergence in employment rates of men and women during a period over which both wages and hours converged.

Figure 11. Components of the gender earnings gap in 1995 and 2019, by education



Source: LFS data for 1995 and 2019, men and women aged 20–55 and not retired, long-term sick or in full-time education.

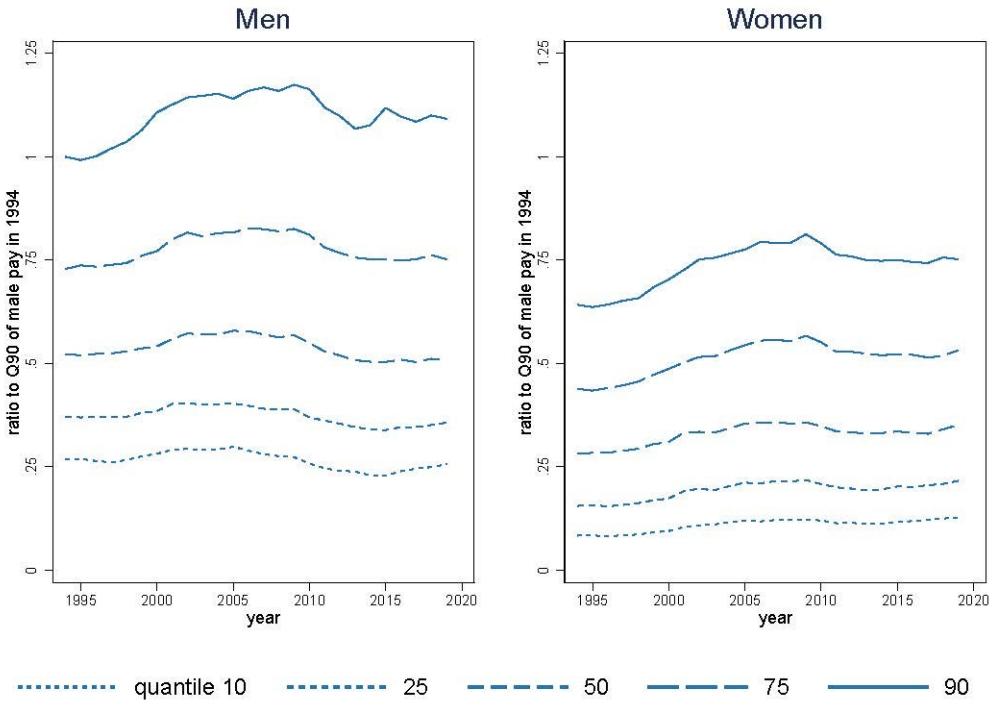
In contrast, gender gaps in hourly wages topped 50% and 60% of the 2019 earnings gap among high-school and university graduates respectively, up from less than 40% and 50% in 1995. These trends do not originate from expanding gaps in wage rates; instead, they reflect a small convergence in labour supply among those with more education qualifications that resulted in a small drop in the contribution of differences in employment and working hours to the earnings gap. What is also clear from Figure 11 is that gender differences in labour supply among the most-educated are comparatively small, and remained small over the period. For this group, it is mostly the differences in wage rates, or the capacity of women to earn, that dent their earnings relative to those of men.

Top earners are mostly men

Figure 12 shows the distribution of earnings of men and women over the last 25 years. It plots percentiles 10, 25, 50, 75 and 90 of positive earnings normalised on the earnings of percentile 90 for men in 1994, which is therefore set to 1. Top earners play a key role in explaining the gap (Fortin, Bell and Bohm, 2017). In the UK, women at the top (90th percentile) earn 67% of their male counterparts earn; they earn about the same as men at the 75th percentile. Evidence from other sources corroborates this finding and shows how women's representation becomes increasingly rarer further up the earnings distribution. For instance, by the mid 2010s, women made up only 11% of earners in the top 0.1% in the UK (Joyce, Pope and Roantree, 2019). At the other end of the distribution, fewer than 25% of men earn the same as or less than the median woman. The graph clearly shows that today, as 25 years ago, women are missing at the top and men are missing at the bottom of the earnings distribution.

These patterns are replicated by the distribution of earnings potential as captured by hourly wages. Figure 13 shows the distribution of hourly wages over the same period, for men and women. As for earnings, we see women missing at the top of the wage distribution, and men missing at the bottom.

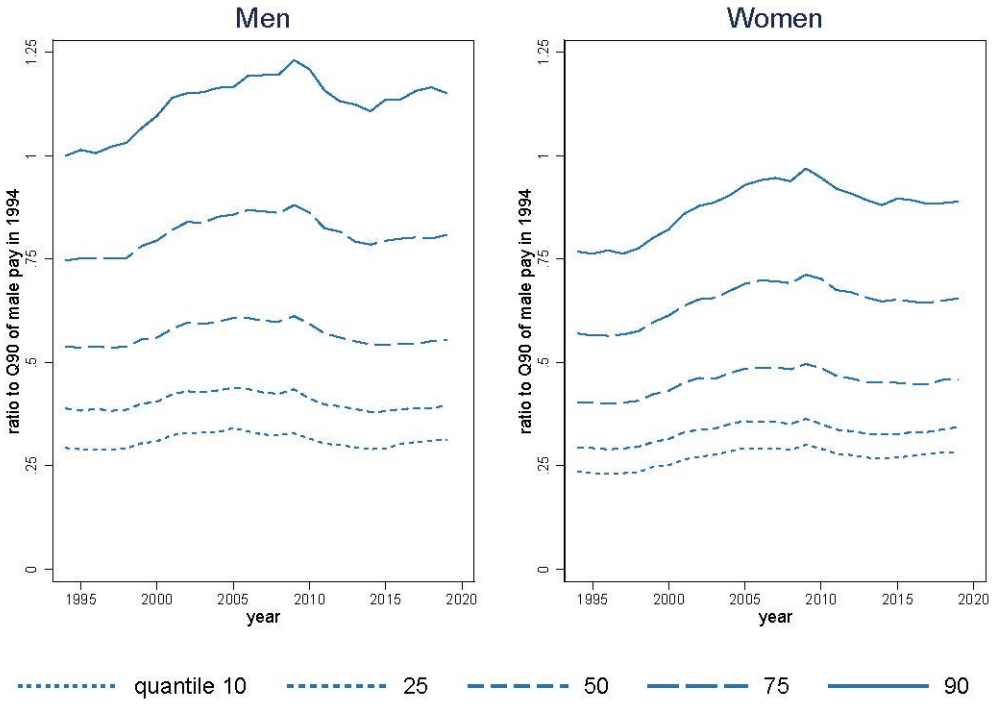
Figure 12. Time trends in percentiles of earnings distribution, by gender



Note: Earnings of employees measured in relation to 90th percentile of men's earnings in 1994.

Source: LFS data 1994–2019, men and women aged 20–55 and not retired, long-term sick or in full-time education.

Figure 13. Time trends in percentiles of hourly wage distribution, by gender



Note: Hourly wage rates for employees measured in relation to 90th percentile of men's hourly wage rate in 1994.

Source: LFS data 1994–2019, men and women aged 20–55 and not retired, long-term sick or in full-time education.

4. Children

So far, we have examined how labour market outcomes for adult men and adult women have evolved over the past 25 years. In this section, we use primarily panel data from the UK Household Longitudinal Study (UKHLS)[6] to document how gender gaps in labour market outcomes develop over the course of working life and with the arrival of children. These data span the same three decades as the LFS data, but follow adults over time from when they first join the panel. In line with our previous calculations, earnings and wage data refer exclusively to employees.

Earnings inequalities open over the life cycle with the arrival of children

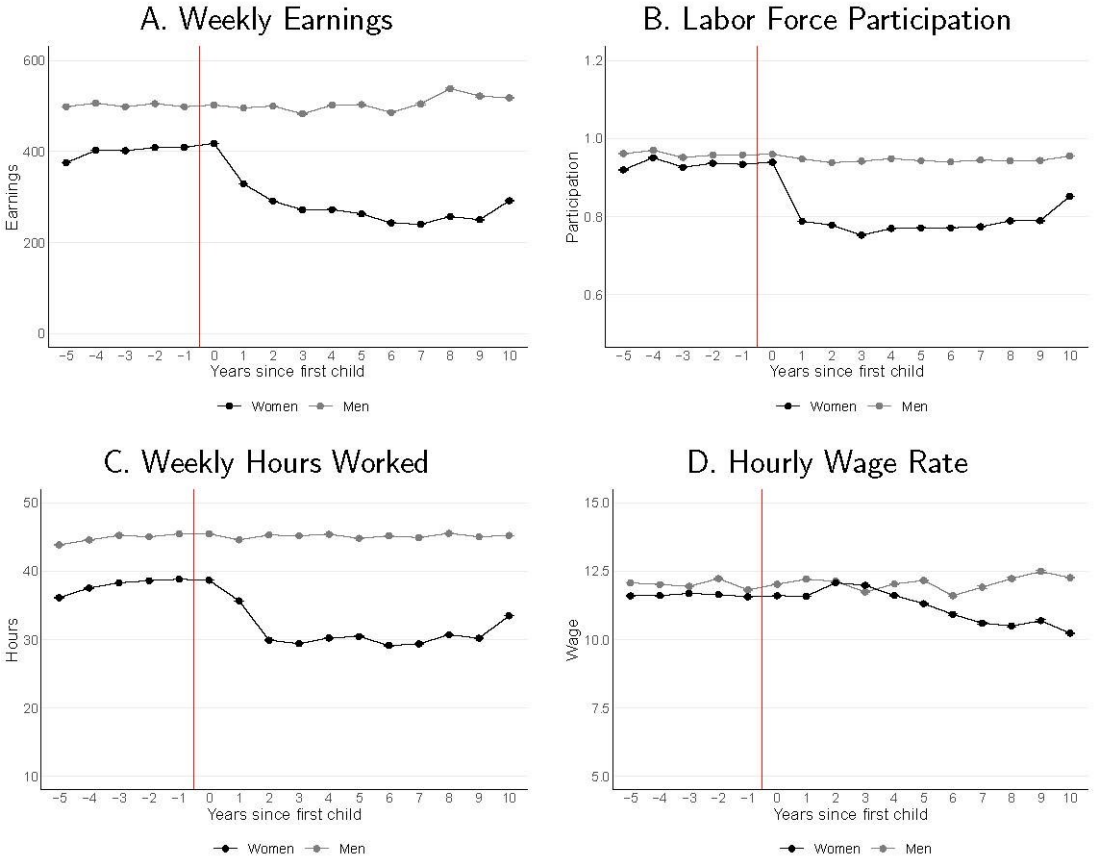
Figure 14 shows how earnings and their components evolve over the life course. Specifically, we plot total earnings, participation, hours and wages by gender and by cohort over age, considering a wider age range than before to highlight how the gaps change over the working life. We see little inequality between male and female outcomes during the late teens and early 20s. Gender gaps start to open up during the mid 20s and early 30s, when the average male earnings pull away from the average female earnings. Looking at the three components of total earnings – participation, hours and wages – we see big gender gaps by the time individuals reach their 30s. Comparing across cohorts reveals a striking stability in the patterns of inequality.

Figure 14. Gap in earnings opens gradually over the course of working life, in parallel with gaps in employment, hours and wages, and not much changed across cohorts

Source: UKHLS data 1991–2017.

[6] The UKHLS is the combination of two panel surveys, the British Household Panel Survey, which ran between 1991 and 2008, and Understanding Society, which took over in 2009.

Figure 15. Arrival of children is the key event behind the opening of the gender gaps in labour market outcomes



Note: All panels control for age and year fixed effects. Hours worked in panel C are conditional on participation.

Source: UKHLS data 1991–2017.

The fact that the gender gaps in the labour market tend to open up during the late 20s and early 30s suggests a gendered response to parenthood as a potential driver. We can examine this in more detail by looking at how the labour market outcomes of men and women change around the birth of a first child. Figure 15 plots average earnings, participation, hours and wages in the five years preceding and the ten years following the birth of a first child, by gender.[7]

We see that the average earnings of men are almost entirely unaffected by parenthood: they keep increasing at a constant rate. However, maternal earnings, which are already lower than those of fathers prior to birth, take a sharp fall immediately after the birth of their first child and then stabilise at a much lower level with very little growth. Seven years after the birth of a first child, women's earnings are, on average, less than half those of men.

This post-parenthood gender divergence occurs across all three components of total earnings: whether individuals participate in the labour market at all, the hours they work conditional on participation, and the hourly wage they receive for their labour. Moreover, labour force participation and working hours diverge immediately after birth, while hourly wages diverge more gradually.

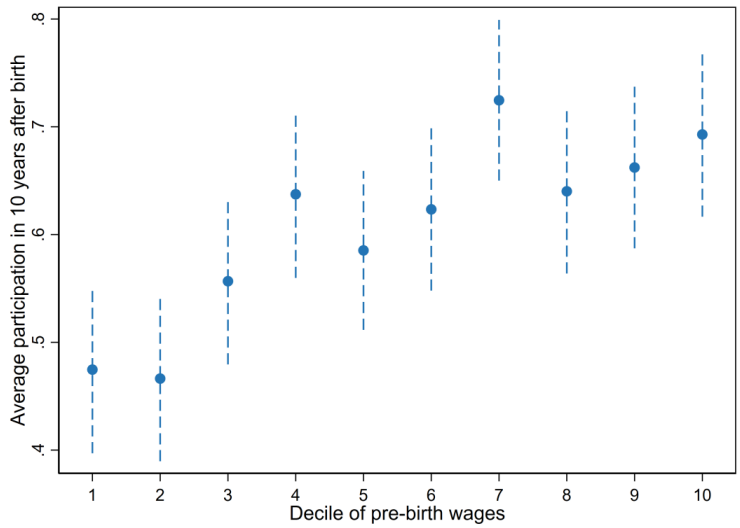
[7] Plotted figures are calculated on the subsample of parents who are observed both before and after childbirth.

The patterns of labour market outcomes around birth are immediately suggestive of women taking on the largest share of the childcare and additional domestic work after birth. This is in line with the patterns we documented in Figure 2.

It is important to note that these child penalties are present and large both for women in couples and for single mothers. Later in this chapter, we discuss lone parenthood and the fact that it is a phenomenon mostly experienced by women. For instance, UKHLS data show that, among parents of children aged 16 and under who live with their children, only 1.7% of fathers are lone parents while that proportion increases to 20% among mothers – and that exposes them (and their children) to acute economic vulnerability.

While large, the wage gaps reported in Figure 15 may nevertheless underestimate the true gender wage gap if participation after childbirth is especially selective among women. This is, in fact, what the evidence in Figure 16 suggests: women with the lowest hourly wages before childbirth are employed roughly 45% of the time in the first 10 years after childbirth, compared with an employment rate of nearly 70% for women with the highest pre-birth wages over the same period.[8] In other words, the women for whom we observe wages after childbirth are disproportionately those who we expect to be high earners, implying that our descriptive figures understate the extent of gender differences in wages by failing to adjust for the opening difference in the composition of employed parents by gender. In Figure 17, we correct the post-birth wage gap for differential selection into work by gender. We do so by reweighting the wages of fathers by the probability that a mother in his place in the pre-birth wage distribution would stay active in paid work after parenthood; we also net out education and age fixed effects. The corrected gender gap (in blue in the figure) opens faster and is larger while children are young than raw figures suggest.

Figure 16. Maternal employment rates during first 10 years of oldest child, by pre-birth wages

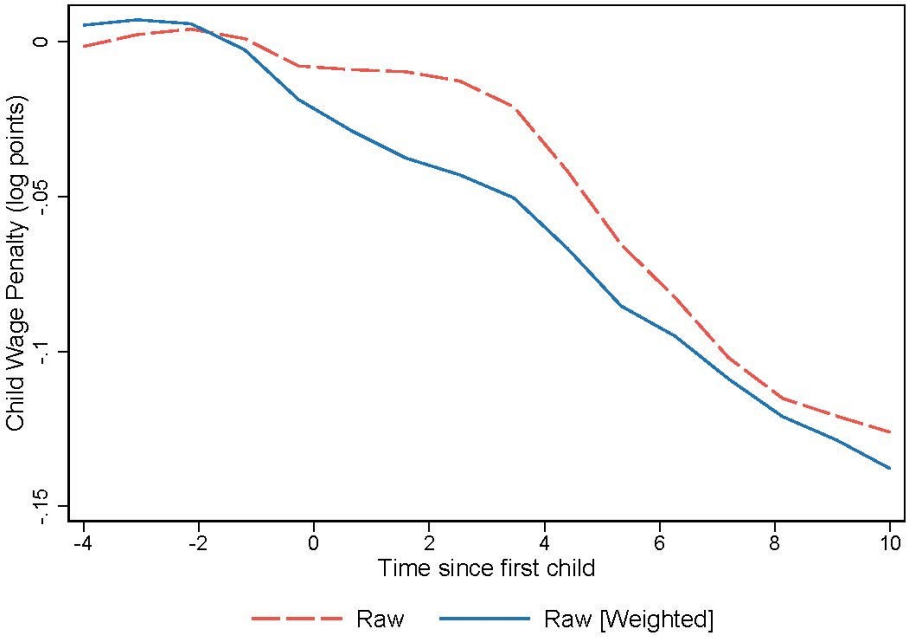


Note: Graph plots average maternal participation rates (dots) and 95% confidence intervals (vertical lines) in years 1 to 10 after the birth of first child among mothers who worked before birth, by decile of pre-birth maternal wage distribution.

Source: UKHLS data 1991–2017, mothers observed before and after the birth of their first child and who were working prior to that first birth. Proportion of time in work calculated using years for which women are observed in the data.

[8] Proportion of working time after birth refers to the years women are observed in the sample in years 1 to 10 after birth. While not all women are observed in all 10 years after birth, we find no systematic differences in the number of post-birth observations by pre-birth wage level.

Figure 17. Impact of differential selection into work on the gender wage gap among parents, by time to / since birth of first child



Note: Graph shows raw gap (red dashed line) and gap obtained when fathers' wages are reweighted to reproduce the post-birth participation probabilities of mothers by rank of pre-birth wages (blue solid line). We also control for education and age fixed effects.

Source: UKHLS data 1991–2017, mothers and fathers observed before and after the birth of their first child and who were working prior to that first birth.

Mothers' ability to earn hurt more permanently by them missing out on accumulating working experience and progressing to better jobs

Earlier, we looked at the contemporaneous mechanical effect that employment and short working hours have on the earnings of women and mothers, as compared with men and fathers. We showed that the gender gaps in earnings, employment and hours open sharply immediately after the birth of the first child but that, in contrast, differences in hourly wages widen gradually. These patterns suggest that work interruptions carry long-lasting effects on mothers' ability to earn that build up over time, by denting the working skills of mothers, the ways that employers perceive those skills and the types of jobs mothers end up doing. Conceivably, skill development and better-paid and higher-status jobs – key ingredients of higher wage rates – require continuous substantial investments that are incompatible with the frequent interruptions often associated with motherhood.

Blundell et al. (2016) study how the experience of work, and of working longer hours, accumulates the skills that are productive in work and the skills that support the wage progression of women living in Britain. They find large and significant returns to labour market experience for full-time work. In turn, non-participation and short working hours hold women back in their careers by not producing these gains in skills. The long-term penalties of non-participation and short working hours are larger for more-educated women, as quantified in Table 1 (taken from that study).[9] The table shows the average loss in hourly wages at age 50 that results from the

[9] Blundell et al. (2016) develop an empirical life-cycle model of female labour supply and human capital accumulation in work. The model was estimated for women aged 19–50 over the years 1991–2008. The long-term penalties in Table 1 were obtained from model simulations that reproduce the labour supply profiles over the life cycle observed in the data.

accumulation of part-time and non-working periods that happen during women's working life, mostly during motherhood. Data show that, by 50, women who left school with GCSEs, A levels or university qualifications accumulated, respectively, 8.2, 5.1 and 3.6 years spent not working for pay and 6.1, 4.9 and 3.7 years working part-time hours. Column 1 quantifies the associated wage loss from their time in part-time rather than full-time working hours. The 6.1 years of part-time work that women who leave school with only basic qualifications accumulate are responsible for an average loss of 5.3% of their hourly wages at 50. In turn, the 3.7 cumulative years of part-time hours that university graduates do on average imply a larger loss in wage rates of 7.7% at age 50. Non-participation carries further cumulative costs, which again are increasing with education. Women with only GCSE qualifications lose another 5.2% of their hourly wages (=10.5–5.3) from the cumulative effect of their average 8.2 years of non-participation; university graduates take only about 3.6 years away from work, but this costs them 6.6% (=14.3–7.7) of their hourly wage rates.

Table 1. Pay penalty: cumulative effects of observed part-time and non-work patterns on the wages of women at age 50, by education

	Part-time penalty	Penalty for not working and working part-time
GCSEs	5.3%	10.5%
A levels	7.0%	12.5%
University	7.7%	14.3%

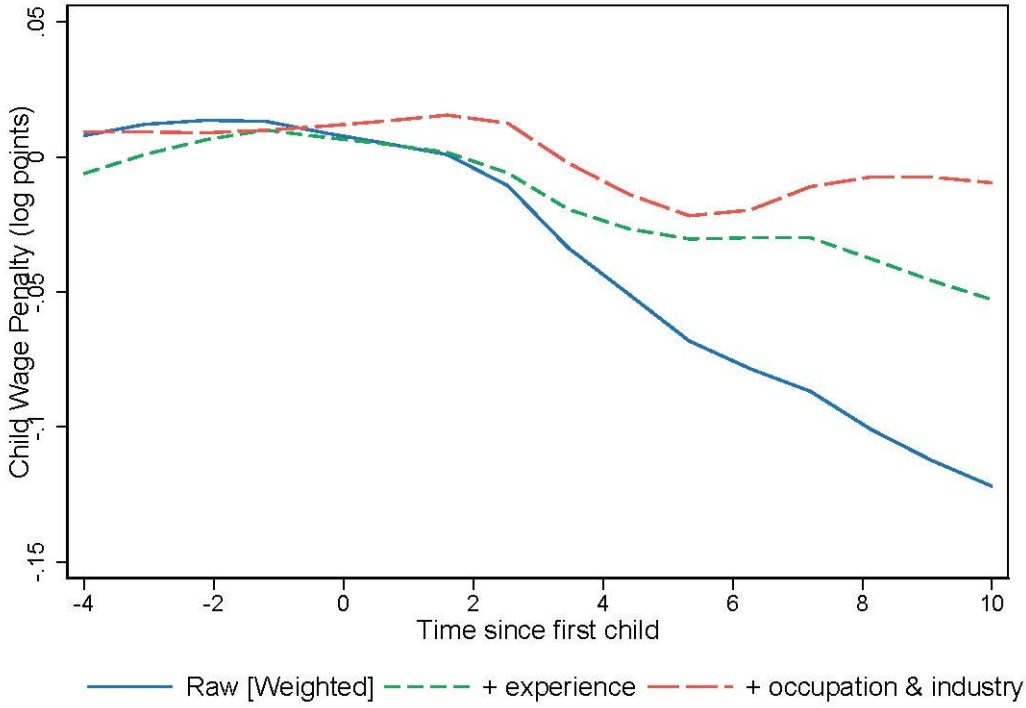
Note: The first column shows the effect on wages at 50 if the amount of human capital gained from part-time work is the same as that of full-time work; the second column cancels, in addition, the human capital cost of not working. The life-cycle of part-time work and full-time work is kept fixed at the patterns observed in the data. These data patterns show that, by 50, women who left school with GCSE, A-levels and University qualification accumulated, respectively, 8.2, 5.1 and 3.6 years spent not working for pay and 6.1, 4.9 and 3.7 years working part-time hours. The effects reported in this Table refer to the wage loss of this accumulation of periods not working for pay or doing only part-time hours.

Source: Blundell et al., 2016.

The same forces that lead mothers to reduce their labour supply may also make mothers more likely to end up taking jobs that offer flexibility in working hours, provide a family-friendly environment, involve short commutes or are less demanding overall. Recent evidence provides support for the hypothesis that women, especially mothers, choose jobs with these amenities more than men do when they have a choice (Mas and Pallais, 2017; Wiswall and Zafar, 2017; Petrongolo and Ronchi, 2020; Le Barbanchon, Rathelot and Roulet, 2020). These mechanisms can affect women's wages immediately, via compensating wage differentials (i.e. women may be paid less in order to offset the value they gain from, for example, flexibility in working schedules), and persistently, if they imply that women sort into jobs and occupations that are not the best match for their skills and offer limited opportunities for learning and progression.

Taken together, these differences in labour market attachment and the types of jobs that men and women do are likely to mediate child penalties in hourly wages. Figure 18 quantifies some of these effects. All curves are corrected for selection in the same way as for Figure 17. The raw (weighted) gap is contrasted with what would result with the removal of differences in accumulated working experience in full-time and part-time hours and with the additional removal of differential sorting into occupations, industries and sectors (public/private). Together these factors explain most of the opening gap by the time the child reaches 10 years of age.

Figure 18. Impacts of missed working experience and differential sorting to occupations, industries and sectors on the gender wage gap among parents, by time to / since birth of first child



Note: Graph shows raw gap (blue solid line), gap net of differences in part-time and full-time experience (green short-dashed line) and gap additionally net of differences in sorting to occupations at four-digit SOC code, industries at two-digit SIC code and private/public sector (red long-dashed line). All gaps are obtained when fathers' wages are reweighted according to the participation probabilities of mothers by rank in pre-birth wages.

Source: UKHLS data 1991–2017, mothers and fathers observed before and after the birth of their first child and who were working prior to that first birth.

The majority of the gender gaps in labour market outcomes can be traced to child penalties

How important are child penalties in explaining the overall gender gap and its persistence? Using estimates of child penalties in Denmark and in Austria over the long run, Kleven, Landais and Søgaard (2019) and Kleven et al. (2021) decompose the evolution of the total gender gap in earnings in both countries into the gap explained by child penalties and the residual gap explained by differences in men's and women's careers not related to the arrival of children. They find that in both countries, more than 80% of the gender gap today can be explained by child penalties. The residual gap (not associated with child penalties) used to be larger, but has been shrinking quickly as women closed the education gap and massively increased their participation in the labour market. In contrast, the gap explained by child penalties has been extremely stable in both countries. While the data available in the UKHLS do not enable us to offer a similar decomposition, it is very likely that the role of child penalties is equally important in explaining the persistence of a large gender gap in earnings in the UK.

We will now dig deeper into the reasons why women and men, even if in partnerships, continue to adopt such different roles on becoming parents and share paid and unpaid work so unequally.

Part II. What drives gender gaps?

To understand the fundamental causes of the gap, we need to investigate why it is that women drop out of the labour market or reduce their working hours to become primary care givers, regardless of their careers and pay before the arrival of children. In this part of the chapter, we investigate whether these patterns can be rationalised by financial incentives that families face, stemming from both the labour market and the policy environment. We then discuss the role of preferences and norms surrounding gender roles and the role of discrimination and bias against women within the workplace.

5. Financial incentives within heterosexual couples

The stark divergence in the patterns of paid work after parenthood documented in Figure 15 could be due to fathers earning a higher wage rate than mothers at the time they have their first child. Pressed with the financial and time demands of raising children, couples may decide to prioritise the paid work of the parent with the greater earnings capacity while the other parent takes on the main caring responsibilities. Such an arrangement would maximise total earnings of the family as a whole. In the majority of two-parent opposite-gender households, the man has the higher wage prior to the birth of the child, and so in these households such an arrangement would result in fathers working longer hours for pay and mothers doing the majority of the childcare while working shorter hours or stopping paid work completely.

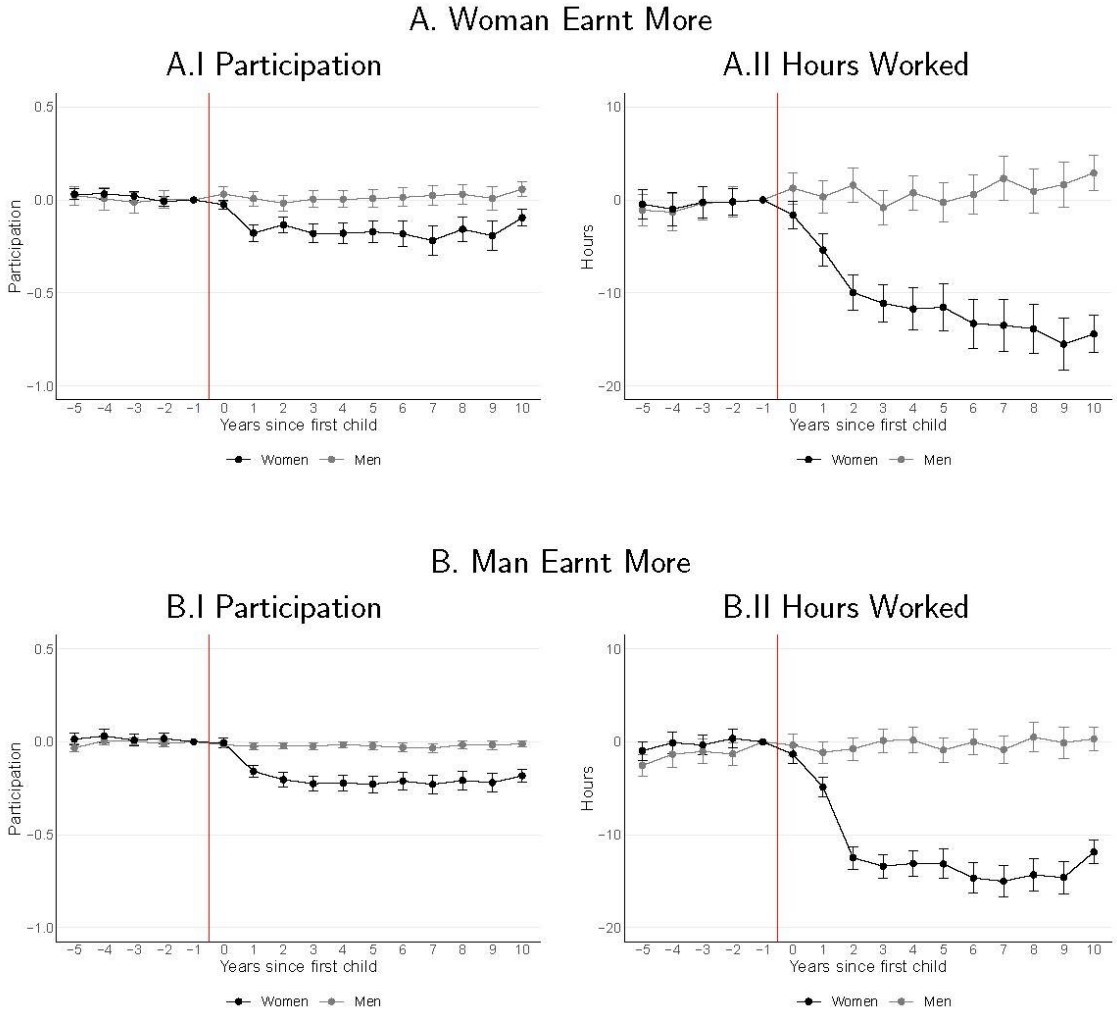
To examine whether such an argument is sufficient to 'explain' gendered patterns of work after childbirth, we first compare the employment and working hours of heterosexual parents, depending on the relative earnings of mothers and fathers within the household prior to the birth of their first child. For this, we need to restrict our sample to couples where both parents were active in paid work in the years prior to childbirth. What emerges in Figure 19 does not corroborate the claim that couples prioritise the work of the parent with higher earnings. Regardless of which parent had earned the most pre-birth, women's employment falls by about 20% below its pre-birth level during the first years of parenthood and does not appreciably recover over the following decade. Likewise, amongst parents who do keep working for pay, women's average weekly hours of paid work fall by almost 15 hours below their pre-birth level regardless of who had the higher earnings.[10]

This is not definitive evidence against the notion that parents share paid work and childcare purely based on what they are already relatively 'better' at (with respect to earnings capacity, childcare or housework), but it does make it seem unlikely. To square this hypothesis with the fact that higher-earning mothers reduce their hours of paid work by so much more than their lower-earning partners (and do so by as much as lower-earning mothers), these mothers would have to be orders-of-magnitude better at childcare and other domestic work than their partners or than alternative (paid) sources of childcare provision. Moreover, that differential would have to be larger than the corresponding differential in families where the mother earned less than the father, since otherwise fathers in families where the mother has a relative advantage in market work would take more of the domestic work than their counterparts in families where it is the father who earns the most, while higher-paid mothers would keep working for pay. We do not have any evidence that men and women differ in their productivity at childcare and domestic

[10] Similar patterns emerge if we split couples by which partner had the higher hourly wage rate before the birth of the first child – see Andrew et al. (2021).

work, and indeed it seems likely that differences at a particular point in time are more the result of differences in the acquired experience doing such tasks than pre-existing differences. In particular, Kleven, Landais and Søgaard (2021) show that evidence does not support childbearing and breastfeeding being a key source of comparative advantage driving the observed differences in labour market outcomes between mothers and fathers after the arrival of children. They document that child penalties are virtually identical in couples whose first child is a biological child and in couples whose first child is adopted.[11]

Figure 19. Employment and hours of parents, by who earned more prior to the birth of the first child

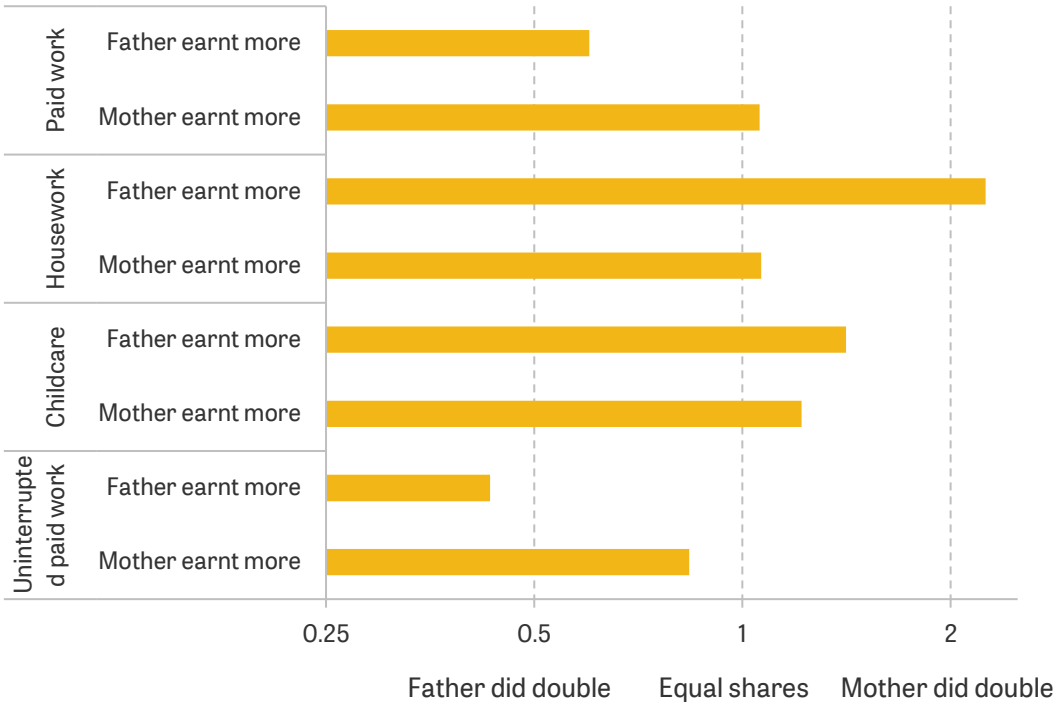


Note: All panels control for age and year fixed effects. Panel A shows child penalties in participation (A.I) and hours worked (A.II) in couples where the mother earnt more than the father prior to the first child being born. Panel B shows similar child penalties in couples where the father earnt more than the mother prior to the first child being born.

Source: UKHLS data 1991–2017.

[11] Moreover, specialisation does not seem to be relevant for same-sex couples where the two parents swap the primary caregiver roles from the first to the second child (Boye and Evertsson, 2020).

Figure 20. Maternal time relative to paternal time in paid work and domestic work, by who earned more prior to the COVID-19 shock



Note: Uses a log scale.

Source: Andrew et al., 2021.

In addition to seeing how men and women change their labour supply differently upon becoming parents – an event that is often planned well in advance and associated with different incentives to interrupt work for mothers and fathers, something we come back to later – it is informative to see whether fathers and mothers react differently to unexpected shocks that arrive at a stage in their lives when their roles in the family are well established. The COVID-19 lockdowns and school closures (which massively increased the need for childcare) are a rather dramatic recent natural experiment in this regard.

Using data from time-use surveys that the Institute for Fiscal Studies and the Institute of Education collected during the March–June 2020 lockdown, we looked at how 3,591 two-parent opposite-gender couples in England who were both working for pay both before and during the crisis shared paid work, domestic work and childcare. Figure 20 plots the ratio of the average amount of time that mothers spent on various activities – including paid work, housework and childcare – to the average amount of time that fathers spent on these same activities. It plots these ratios separately for households where the mother earned more prior to the crisis and households where the father earned more.

We see that couples' behaviour is, to some extent, related to who the higher earner was: mothers who earned more than their partners pre-crisis do relatively more paid work, and less housework, during the crisis than mothers who earned less than their partners. However, the pattern is not symmetric with respect to gender. Fathers who earned more pre-crisis do less than half the amount of housework that their female partners do, whereas mothers who earned more still do more housework than their lower-earning male partners. Similarly, mothers always

do more childcare, on average, regardless of whether or not they were the higher earner. These patterns match differences in working time: fathers who are the highest-paid partner do almost double the amount of paid work that their lower-paid partner does, and more than double the amount of uninterrupted paid work; in turn, mothers who earned more than their partners do roughly the same amount of paid work hours as their partners, and fewer hours of uninterrupted paid work.

This evidence shows that, also in response to an unanticipated economic crisis such as that brought on by the COVID-19 pandemic, the division of work appears strongly gendered and to be driven by much more than households maximising their financial interests. Gendered responses to the unanticipated shock can be observed even in couples where the mother is the main earner, so where the division of labour does not conform with traditional specialisation patterns.

Overall, the available evidence suggests that the large gender gaps in hours of work, hourly wages and earnings that open up after people become parents are unlikely to reflect the financial incentives that mothers and fathers face. Families in which the woman earned the highest hourly wage prior to childbirth seem to behave in a very similar way to other families after childbirth, with respect to choices over who does paid work and who does childcare. Similar dynamics have played out during the pandemic: in families in which the woman earned the higher hourly wage prior to the closure of schools and childcare facilities, it was still the mothers who reduced hours of paid work by far the most and increased hours of childcare by far the most.

We conclude that families' decisions about paid work and childcare are not merely informed by where mothers and fathers are in their careers. Other factors, such as the policy environment, gender norms or gendered preferences over how to share domestic and work responsibilities may also be important.

6. The policy environment

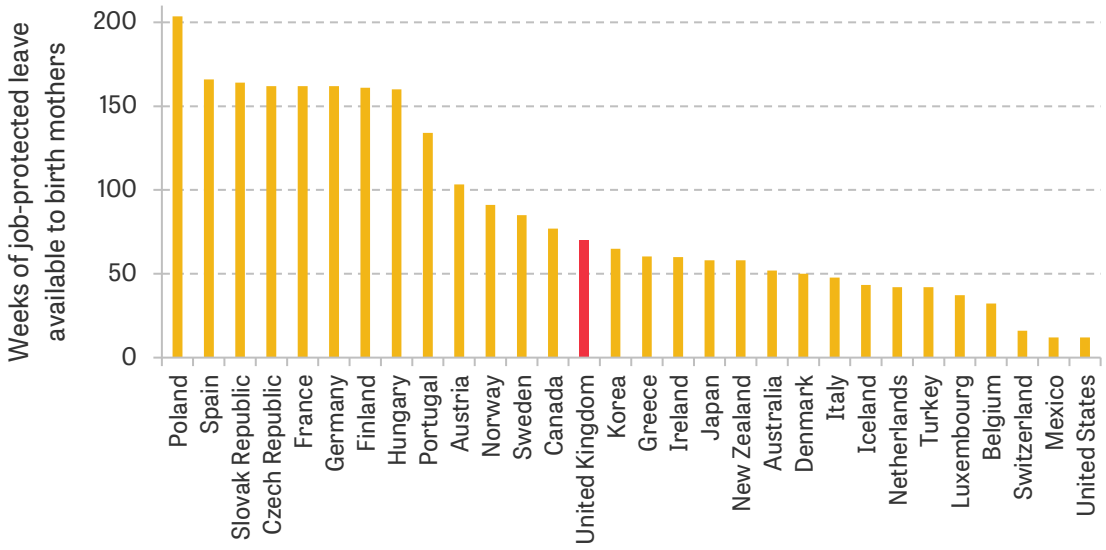
A key aim of the welfare systems that operate in most high-income countries is to provide some protection to the incomes of families and the environments in which children are brought up. While these policies are for the most part gender neutral, their effects may be gendered. That is because the large discrepancies in labour market outcomes of men and women that we described earlier interact with the incentives that these policies create. In this section, we discuss some of the existing evidence on the impacts of policies for families with children on gender equality in work and pay. We focus on three areas that have been highlighted as important in the UK and other high-income countries: parental leave, childcare, and benefits for families, including in-work benefits.

Parental leave

Most developed countries have maternity leave and parental leave policies that involve a period of paid leave after the birth of a child and a longer period of job protection; they are often supplemented with parental leave that can be taken later on in a child's life. One key rationale behind protecting the jobs of birth mothers while they take time off is that it facilitates their return to work later on, by preserving the jobs for which mothers have likely built up match-specific knowledge and skills. Such measures may also help prevent overt discrimination against new mothers in the labour market. There is huge variation in the length of job protection across countries, as shown in Figure 21. In countries such as Germany and Spain, protected leave

extends for up to 3 years; in the UK, it is less than half that, at 70 weeks; and it is much shorter in the US, at 12 weeks.

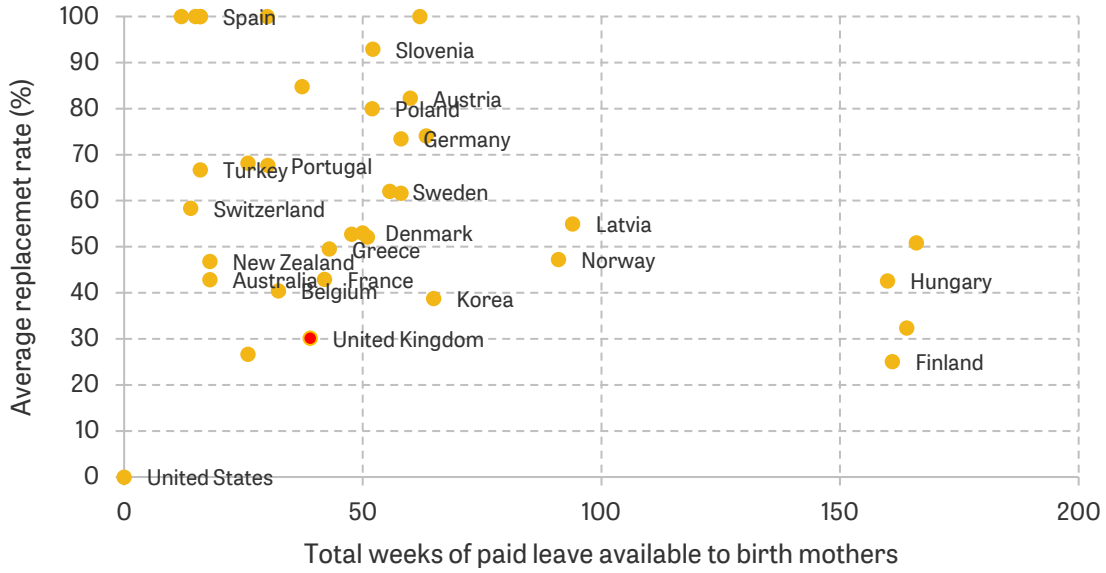
Figure 21. Maximum period of job-protected leave available to birth mothers across the OECD, 2018



Note: Figure plots the maximum period of job-protected leave that birth mothers are entitled to. This combines paid leave and unpaid leave. It also combines defined maternity leave and more-general parental leave. In the UK, for example, it combines 52 weeks of statutory maternity leave with 18 weeks of unpaid parental leave.

Source: Section PF2.5, https://www.oecd.org/els/family/database.htm.

Figure 22. Replacement rates and maximum period of paid leave available to birth mothers across the OECD



Note: Figure plots the average replacement rate (in 2014) against total weeks of paid leave that birth mothers are entitled to (in 2018) across OECD countries. The replacement rate is defined as the proportion of previous gross earnings replaced by the paid leave and is calculated by the OECD.

Source: Sections PF2.4 and PF2.5, https://www.oecd.org/els/family/database.htm.

Paid maternity leave is generally shorter than the period of job protection, but equally unequal across countries. There is also huge variation in how generous entitlements to maternity payments are across countries. Figure 22 illustrates this. It plots total weeks of paid leave available to mothers (which includes designated maternity leave and parental leave that is available to mothers) against the 'replacement rate' for a mother on average earnings.[12] This replacement rate is defined as the minimum maternity payments that a mother is entitled to by law (excluding employer top-ups) as a percentage of maternal pre-birth earnings. In Sweden, for example, mothers can take up to 56 weeks of paid leave, paid at an average of 62% of their prior earnings. A group of countries including Chile, Spain, Israel and the Netherlands have shorter periods of paid leave (e.g. 16 weeks in the Netherlands) but the leave is paid at 100% of prior earnings. By contrast, the US offers no paid maternity leave. In the UK, maternity entitlement is to 39 weeks of paid leave, which is somewhere in the middle of OECD countries, but at a low replacement rate of 30%. Since maternity compensation in the UK is composed mainly of flat payments, the system is comparatively more generous for low-income mothers.

While the legal protections entailed in maternity leave policies may facilitate and promote the return of mothers to work, it is much less clear that very long periods of leave are also beneficial for female labour market outcomes.[13] On the contrary, long absences from paid work may erode mothers' attachment to the labour market and their labour market skills, making paid work less financially rewarding for them in the long term. In turn, mothers who stay at home caring for their young children for extended periods will likely develop the skills to do so efficiently while allowing fathers the space to invest in their careers; they may also change their attitudes to female labour market participation (Gangl and Ziefle, 2015). The resulting divergence in market and domestic skills between partners, possibly reinforced by their changing gender attitudes, is likely to permanently affect how couples divide labour.

The implied ambiguity in the effects of maternity leave is borne out in the empirical evidence. Cross-country evidence suggests that protected leave periods of up to 1 year increase the return of mothers to work, while longer leaves reduce these benefits (Olivetti and Petrongolo, 2017). In a recent study, Kleven et al. (2021) estimate that varying the maximum amount of protected maternity leave in Austria over an already generous period, from 12 to 24 months, then from 24 to 18 months, and then from 18 to 30 months, had no impact, either positive or negative, on women's careers beyond the point that they were on leave.

Until recently, most parental leave provisions were available for birth mothers only. This is gradually changing in many OECD countries, where there has been a push to increase access to protected leave for fathers, to same-gender partners and also to non-biological parents. Given its particular relevance to gender inequality, we focus our discussion on fathers but note that in the UK same-gender partners have the same entitlements, while entitlements for adoptive parents or those having a child through surrogacy differ slightly. Ensuring fathers have access to parental leave has immediate welfare and equity justifications: it enables men to enjoy and bond with their children during their first years of life; it could also promote gender equality in the long term, by facilitating a more equal share of paid and unpaid work among parents.

[12] Since parental leave that is open to both men and women is disproportionately taken by women, we consider the maximum time available to mothers as the best summary measure of the generosity of maternity leave.

[13] Of course, long periods of leave may be beneficial for women's well-being, particularly since mothers who work for pay still tend to pick up the vast majority of the unpaid work at home. In this sense, paid leave from employment may contribute to a more equal allocation of total work time across genders.

Despite the progress towards more equality in access to paternity leave, the policy environment remains heavily skewed in the direction of mothers taking the vast majority of parental leave in most countries. Until recently, fathers of newborn babies in the UK were entitled to just two weeks of paid paternity leave. In 2015, the government introduced shared parental leave and shared parental pay. This reform allowed mothers to transfer up to 50 weeks of their total maternity leave and up to 37 weeks of their paid leave entitlements to their partners. While shared parental leave was touted as providing the financial means for fathers to play a more active role in childcare during the first year of a child's life, uptake has been very low. In 2018–19, figures from HMRC suggest that just 10,700 couples took up paid shared parental leave, which is less than 2% of the 654,000 women who took up maternity leave in that year.[14]

A number of factors may explain the low uptake. First, the policy did not cover all fathers. For example, self-employed fathers are not eligible for shared parental leave, nor are those classed as 'workers' rather than employees (for instance, if they are on a zero-hours contract). By contrast, self-employed mothers are still entitled to a (less generous) maternity allowance, and they can transfer some of their allowance to their employee partners.

Second, on average, financial incentives continue to favour mothers taking parental leave over fathers even in couples eligible for shared parental leave. In the UK, statutory maternity pay defines the minimum compensation available for mothers on maternity leave. It pays 90% of average weekly earnings (before tax) for the first 6 weeks, followed by a flat weekly rate[15] for the remaining 33 weeks. Fathers earn the same flat rate for their reserved two weeks of paternity pay, as do partners on leave in couples that share parental leave. These differences in how maternity and shared leave are remunerated are magnified at the employer level. Many employers top up parental pay, but the generosity of these pay enhancements is variable. A recent survey of 375 employers found that 63.5% of employers offer enhancements to statutory maternity pay and more than 20% offer at least 6 months of full-paid leave.[16] In contrast, only 25.1% of employers offer pay enhancements to shared parental leave, and around 20% of employers closely match the enhancements they offer to employees on shared parental and maternity leave.[17] Overall, the results of this survey indicate that far more mothers will be entitled to enhanced pay than fathers, implying that many couples will lose out financially if transferring parental leave from the mother to the father.

To illustrate how entitlements depend on who takes parental leave, consider a couple with both partners working for a typical employer, who tops up maternity pay to full pay for the first 13 weeks and half pay for the next 13 weeks, but does not top up paternity pay or shared parental pay. If both partners are paid equally at the average weekly rate amongst parents prior to their first birth,[18] and the couple chooses to divide the 39 weeks of parental pay equally among spouses instead of the mother taking it all, they will lose 1.3% of their pre-birth annual earnings. If instead mothers are paid at the average rate that mothers get pre-birth, and fathers are paid at the

[14] Sources: https://www.birmingham.ac.uk/news/latest/2019/08/university-of-birmingham-research-shows-take-up-of-shared-parental-leave-is-increasing.aspx and https://www.emwllp.com/latest/less-than-a-third-of-men-take-paternity-leave/.

[15] Currently the minimum of £151.97 or 90% of average weekly earnings.

[16] Source: https://www.xperthr.co.uk/survey-analysis/maternity-leave-and-pay-xperthr-survey-2021/165964/.

[17] Source: https://www.xperthr.co.uk/survey-analysis/paternity-and-shared-parental-leave-and-pay-xperthr-survey-2021/165965/.

[18] Specifically £442 per week, calculated from UKHLS.

average rate that fathers get pre-birth, the equivalent loss will jump to 6.7% of their annual earnings.[19]

Despite the remaining asymmetries in the incentives, it is clear that many couples who would gain financially from taking up shared parental leave do not.[20] The low take-up rates overall suggest that factors other than financial incentives are holding many couples back from sharing care more equally during the first months of a child's life. To counteract the inertia holding back changes to the status quo, many countries introduced non-transferable paternity leave. Sometimes termed 'use-it-or-lose-it' months, this leave is not transferable to mothers and is sometimes compensated at high rates, therefore creating stark incentives for fathers to use it. There is huge variation across countries in the provision of protected paternity leave. Many OECD countries offer very little, among them the UK with 2 weeks at an average pay of 19% of prior earnings. Others offer much more, such as Sweden with 14 weeks at 76% pay and Germany with 9 weeks at 65% pay.

Evidence on the effects of paternity protected and paid leave is scant and quite mixed on their ability to shift gender roles. Research from Norway suggests that men were more likely to take up paternity leave if their brothers and co-workers had done so before them, thus suggesting that these policies may have multiplier effects and that their impact builds over time (Dahl, Løken and Mogstad, 2014). Research from Spain (Farré and González, 2019), Canada (Patnaik, 2019) and Germany (Tamm, 2019) finds that reforms that encouraged fathers to take parental leave when their children were very young had permanent effects on the amount of childcare fathers did later on, as their children got older. However, Ekberg, Eriksson and Friebel (2013) show that the Swedish 'Daddy-Month' reform, which created an earmarked paternal leave, increased fathers' uptake of paid leave but did not significantly alter the long-run division of household work.

Childcare

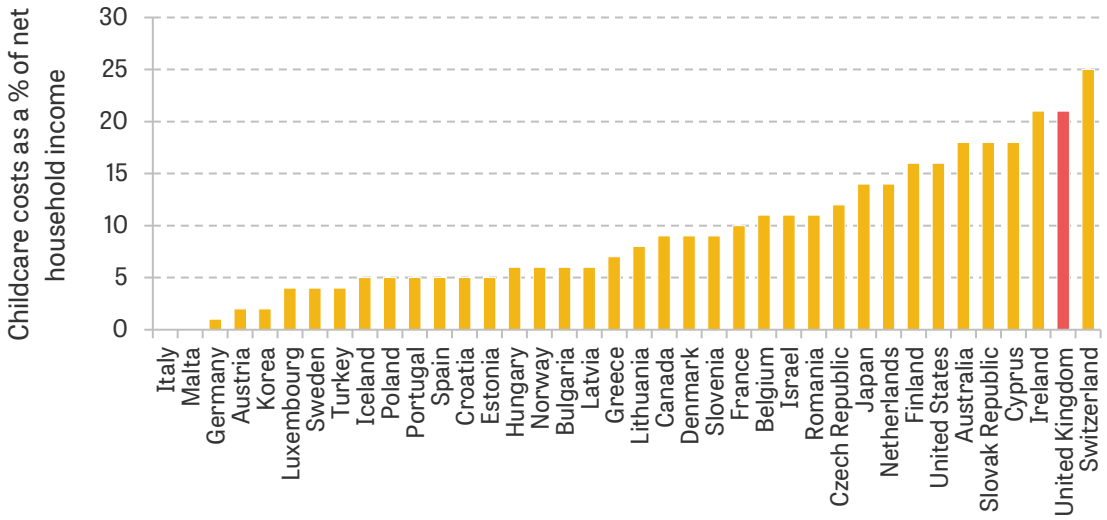
In contrast with parental leave, the policy environment around childcare is usually gender neutral in its design. In practice, the ways it interacts with other policies and the circumstances of men and women may, however, result in gendered responses.

In England, children aged 3 and above are entitled to 30 hours free childcare if their parent(s) are working and have an income higher than the equivalent of the national minimum wage for 16 hours a week. Free childcare provision to working families has become substantially more generous over time. Means-tested childcare benefits provide further help with additional childcare costs to lower-income families, helping to pay for longer hours and younger children. Despite these subsidies, childcare is still especially expensive for families in the UK. Figure 23 demonstrates this; it compares the net cost (total costs minus government subsidies or tax breaks) of full-time childcare for a family with a 2-year-old and a 3-year-old against the average income of a couple where both partners work. We see that the average two-earner couple in the UK would spend over 20% of their income on childcare, one of the highest shares among OECD countries and second only to Switzerland.

[19] Specifically £403 per week for mothers and £495 per week for fathers, calculated from UKHLS.

[20] These include those couples where the mother out-earns the father or where the father's employer enhances shared parental leave but the mother's employer does not enhance maternity leave.

Figure 23. Net childcare costs as a percentage of household income for a couple earning average incomes across the OECD in 2019



Note: Figure shows net childcare costs (costs net of any government subsidies and tax breaks) as a percentage of household income for a couple family with a 2-year-old and a 3-year-old as a percentage of household income. The two partners both earn average incomes. For methodology for calculating net childcare costs, see OECD (2019).

Source: Figure reproduced from OECD, 'Net childcare costs (indicator)', 2021, doi: 10.1787/e328a9ee-en (accessed on 16 June 2021).

The degree to which expensive childcare affects gender inequalities will depend on already-existing gender inequalities in labour market outcomes. In the majority of opposite-gender couples with children, the father is the higher earner and the more active partner in the labour market. Prohibitively expensive childcare is, therefore, most likely to affect the labour supply of the mother. In turn, this means that reducing the cost of childcare will disproportionately incentivise mothers to work.

Recent research supports this view, suggesting that it is only the labour supply of mothers, and not that of fathers, that responds to reforms to childcare policies (Brewer et al., 2018). Yet, evidence on the ability of childcare policies to significantly change the labour supply of mothers is so far inconclusive. Some studies find that increases in access to childcare result in very large impacts on maternal labour supply, while others find much smaller effects (Cascio, Haider and Skyt Nielsen, 2015; Morrissey, 2017; Olivetti and Petrongolo, 2017). For example, Kleven et al. (2019) find that large expansions of local childcare in Austria had virtually no impact on gender gaps in labour market outcomes, while studies of childcare expansion in Quebec suggest large impacts on mothers' employment and earnings that persist into the long run (Lefebvre and Merrigan, 2008; Lefebvre, Merrigan and Verstraete, 2009; Haeck, Lefebvre and Merrigan, 2015).

Institutional and social differences are likely to play a role in explaining this variation. For example, childcare costs were particularly high in Canada prior to the expansion in provision, which may have contributed to the subsidies being particularly effective. The specific designs of different policies are also likely to be important. A particularly interesting finding in this literature is that the generosity of the subsidy and how it is delivered matter. Brewer et al. (2018) compare the impact of providing part-time (12.5–15 hours per week) versus full-time (30 hours per week) free childcare in schools. They find that offering only part-time childcare had at most a very small impact on women's labour supply, but that increasing free childcare coverage to full-time hours had substantial impacts on mothers' being in the labour force and in paid work, with impacts

increasing over time. These non-linearities may be due to it being hard, either financially or practically, for parents to 'top up' partial provision. This research thus suggests that for childcare policies to have a meaningful impact on women's labour supply, they must be generous enough to allow women to feasibly work in the time provided.

In-work benefits and the benefit system

Most high-income countries run a system of benefits that provide income support to out-of-work, low-income individuals and families. These benefits are usually especially generous towards families with children, and are key instruments for protecting them against the risk of poverty. One typical feature of these benefits is an inbuilt quick reduction of entitlements as family income increases or as individuals gain employment, which creates adverse incentives to work. Such disincentives can be especially meaningful and consequential for low-paid workers and those with generous entitlements. Since on average women are lower paid than men, and as mothers (particularly lone mothers) have comparatively large entitlements, they are especially likely to see little net financial reward from paid work. Overall, then, the quick withdrawal of benefit payments for low-income households with children can inadvertently contribute towards keeping mothers away from work.

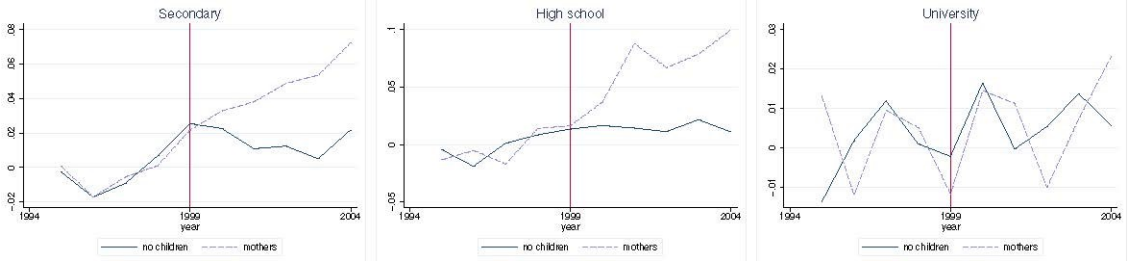
To counteract these adverse effects and promote active work among low-income families with children, new provisions that became gradually more widespread in the 1990s and early 2000s introduced in-work credits (also known as tax credits). In-work credits were not specifically targeted at mothers but were expected to encourage their work by more than that of fathers, who were already working for pay at much higher rates. Along with the US, the UK was one of the first countries to provide work-conditioned cash assistance.

Tax credits offer an enhanced subsidy to working families on low income, which is gradually tapered away once family income reaches some threshold.[21] The subsidy is more generous towards low-earnings families, particularly lone-parent families, promoting participation where the financial incentives might otherwise be weaker and shifting the withdrawal of benefits (and hence the adverse incentives to work and work more) further up the earnings distribution. This design implies that, for lone mothers, tax credits do encourage participation but the largest pay-offs are in low-paid jobs and short working hours that typically lead to no wage progression (see discussion in Section 4). In turn, the incentives to work of second earners in low-income couples can be negatively affected by the withdrawal of benefits being shifted higher up the income distribution, hence encouraging specialisation in couples and wider gender gaps in labour market outcomes.

The UK went through a significant expansion of in-work credits between 1999 and 2005, which increased the pay-off from work among low-paid parents. However, a parallel increase in out-of-work benefits for families with children meant that financial incentives to work changed much more modestly, and only positively for lone parents. In line with these changes, estimates of the impacts of these reforms show that lone mothers increased participation by about 5 percentage points, with the impact being stronger among low- and medium-educated mothers, as illustrated in Figure 24; similar estimates for mothers in couples detect no effect (Francesconi and van der Klaauw, 2007; Brewer et al., 2006; Blundell et al., 2016).

[21] For more detail on the UK and US systems, see Blundell and Hoynes (2004).

Figure 24. Effects of the tax credit reforms on female labour force participation



Note: The dotted line represents the participation rate of single mothers, who were affected by the reforms. The solid line represents the participation rate of single women without children, who were not affected by them. The participation rates of both groups are normalised to average 0 pre-reform. The actual participation rates in 1999 for each of the education groups in ascending order of education are 0.87, 0.94 and 0.95 for single women with no children and 0.41, 0.65 and 0.80 for lone mothers. The vertical line shows the last pre-reform year, 1999.

Source: Blundell et al., 2016.

Overall, this literature shows that the labour supply of low-paid lone mothers does respond to the financial incentives to work created by the tax and benefit system, suggesting that the right set of incentives may successfully improve the labour market outcomes of these mothers. However, existing evidence also shows that current measures to promote employment among lone mothers are not sufficient to permanently improve their labour market outcomes. This is hardly surprising since the policies that have been implemented so far promote mothers' sorting into low-quality jobs, and doing short working hours, at the expense of skills and career progression. There is much less evidence on the responsiveness of other groups of mothers, including those in couples and higher-paid mothers, whose financial incentives to work are only mildly affected by the benefit system.

Synopsis

In this section, we have shown that many features of the policy environments of high-income countries still encourage parents to share work in a traditionally gendered manner: to a large extent, parental leave policies remain highly skewed towards encouraging mothers to take the bulk of the leave; childcare remains expensive in many places, and sometimes not widely available particularly for younger children; the welfare system often offers only weak incentives for lone mothers and second earners in couples to participate actively in work or to work full-time hours. The fact that families are exposed to these incentives that discourage the participation of women for extended periods after the birth of a child may reinforce their effects and help crystallise a gendered division of responsibilities in the family.

Successive reforms have aimed to shift the balance and align the incentives to support the working lives of mothers, but existing evidence on the impacts of some of these reforms is quite mixed. Some studies find negligible effects, particularly for reforms to maternity leave and childcare policies. Evidence from other sources, however, suggests the impacts are more meaningful. (Olivetti and Petrongolo (2017) discuss potential factors explaining the discrepancies.) Despite the lack of consensus, it seems clear that the financial incentives provided by the current policy environment cannot explain all the existing gender inequalities we see. We saw in the last section that parents' reaction to the financial incentives from their relative earnings is quite muted: even when there are large financial benefits from dividing paid and care work in a more equitable way, many couples do not do so. In countries that have developed the most equitable policies, such as those in Scandinavia, gender gaps remain sizeable, although substantially smaller than elsewhere. It is revealing that there, as in the UK, the take-up of shared

parental leave has been slow, a fact that cannot be straightforwardly explained by the financial incentives that families face.

As we discuss next, gender attitudes and social norms are likely to be another key determinant of gender inequalities. However, it is important to note that the policy environment and the prevalent social norms likely interact in important ways. In particular, norms about the roles of men and women reinforce the status quo and may dampen the impact of policies aiming to create a more equal division of responsibilities. For example, the stickiness of breadwinning and caregiving norms might be one reason why men's uptake of shared parental leave in the UK has been so low. However, norms are not immutable, and an accumulation of policies consistently supporting a more equal sharing of responsibilities between parents (or a large policy reform challenging gender roles) may help build up a change in attitudes that leads to permanent change in norms. For instance, Dahl, Løken and Mogstad (2014) document spillover effects in the take-up of paternal leave, showing that while the impact of the father's leave time is initially slow, it picks up as the effects propagate through peer groups and lead to a gradual change in attitudes. Reinforcing those policies may help precipitate the change. Finally, while a gender-neutral policy environment may not be *sufficient* to achieve widespread shifts in the ways families organise labour, it may well be necessary. Even with increased appetite for a more egalitarian sharing, parents may find it hard to put this into practice if they are penalised for doing so, especially around the birth of a child when household finances are likely to be particularly tight.

7. Preferences, beliefs and norms

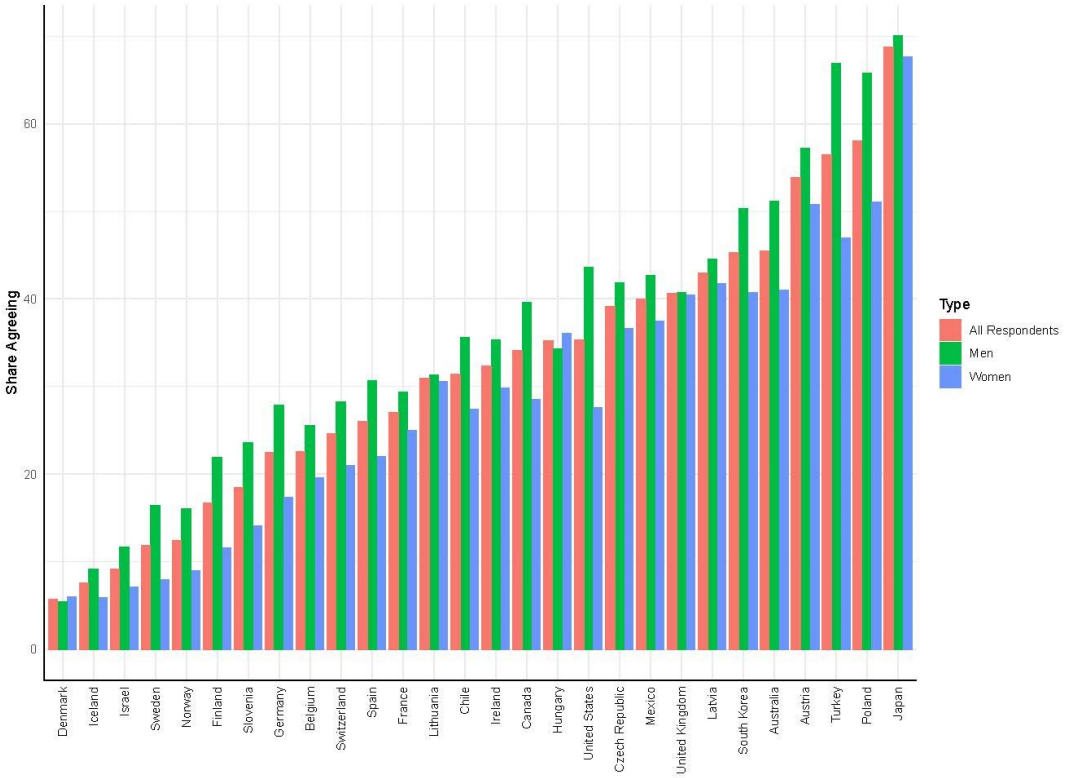
While income considerations are important drivers of individual and family choices, gendered preferences, beliefs, attitudes and norms should matter too. These terms cover a number of different but related ideas. For example, on average, women might enjoy doing childcare more than men; in turn, men might enjoy doing paid work more than women. Or both men and women might believe that women are better at childcare or that men are better at paid work. Alternatively, there might be widely accepted 'rules', or norms, at the societal or community level that dictate gender roles. Individuals may feel compelled to comply with these rules whether or not they agree with them if, for example, they fear that they would face social sanctions or stigma if they did not comply.

Empirical evidence shows that attitudes and norms remain heavily gendered. One often-used measure of gender norms is the fraction of the population agreeing with the statement that mothers should not work while their children are young. Values of this measure for different countries are plotted in Figure 25. In most of these countries, including the UK, a significant proportion of the population agree with that statement. Interestingly, Figure 26 shows that popular views on maternal labour market participation during their child's early years are strongly associated with the magnitude of child penalties, suggesting that the interconnections between the two may be an important part of the story (Kleven et al., 2019).

Gendered norms around breadwinning and caregiving are likely to reinforce the status quo. For instance, schools assuming that mothers will be more available than fathers to assist with social events, pick up sick children or communicate with schools may make those tasks easier and more enjoyable for mothers, or may exclude fathers more. This not only reinforces the norm, it may also effectively increase mothers' productivity at childcare and their preferences for taking it on, relative to those of fathers. Similarly, the finding that male students consider later earnings more seriously than their female peers when deciding about education pathways suggests that

breadwinning norms permeate to key early choices that can have permanent effects on later careers (Zafar, 2013).

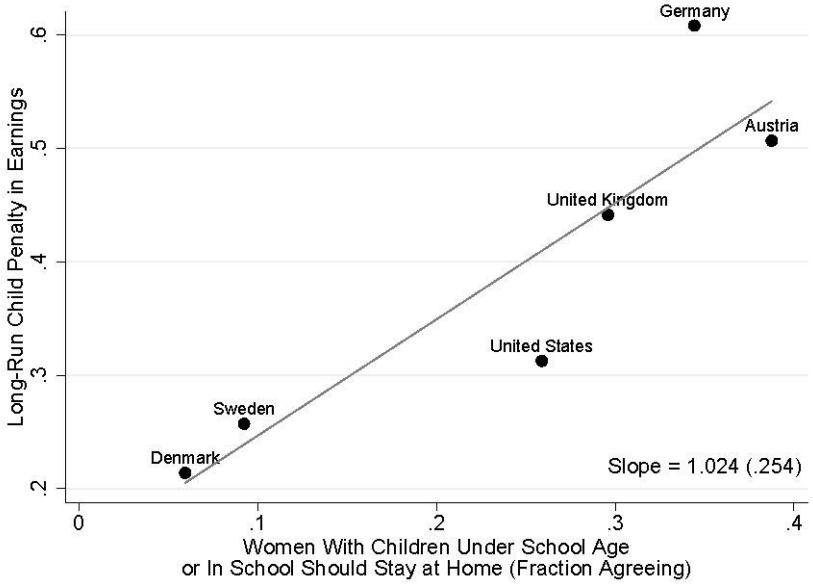
Figure 25. Percentage of respondents agreeing with the statement: 'A woman should stay at home when she has children under school age'



Note: The share agreeing is expressed as a percentage.

Source: Authors' calculations using data from the International Social Survey Programme, 2012.

Figure 26. Correlation between elicited gender norms and long-run penalties across countries



Source: Kleven et al., 2019.

Despite their role in reinforcing the status quo, gendered attitudes are not immutable. Instead, they seem contingent on individual circumstances, and can change when such circumstances do as well. Evidence of this dependence is documented by Kuziemko et al. (2018), who show that attitudes become more gendered around the birth of a child. Such changes in attitudes are consistent with theories of 'motivated reasoning'. According to them, individuals may rationalise the situation they find themselves in by aligning their beliefs and preferences with the choices they made. For example, women who planned to return to work after childbirth but end up not doing so may, a posteriori, find support for the idea that young children are better off cared for by their mothers. Peers and the social environment can also have a big impact on gender attitudes, contributing to the entrenchment of traditional gendered norms – for example, through the transmission of norms across generations (Platt and Polavieja, 2016; Kleven, Landais and Søgaard, 2019) – or to making them more progressive. Boelmann, Raute and Schönberg (2020) use variation in the composition of peer groups induced by the reunification of Germany to illustrate the latter case. They show that West German mothers in closest contact with mothers from East Germany, for whom the rates of maternal employment were far higher than in the West, adjusted their work patterns to almost completely mirror those of their new peers.

While pervading and sticky social norms may dampen the effects of policies aimed at balancing gender inequalities, the malleability of attitudes that is illustrated in the study of German mothers provides some reason for optimism.[22] It suggests that policies could have multiplier effects and upend the status quo if they change attitudes and perceptions. A notable feature of Figure 25 that we have not yet emphasised is the substantial variation in attitudes across countries. Specifically, in countries where the policy environment is most supportive of maternal work, such as those in Scandinavia, the idea that mothers should stay at home to care for their young children has little support. This could simply be a reaction to the quality of childcare available in these countries, which may be especially high and, hence, a better replacement for parental care than exists elsewhere. But it may also reflect the effect of others' opinions, choices and experiences in shaping one's views. It is notable that these are also the countries where gender inequalities are less pronounced, a fact that is likely related to the prevalent progressive social norms and supportive policy environment.

8. Discrimination and bias

Discrimination against women by employers, either in hiring or in pay and promotion decisions, may also contribute to gender gaps in wages. Literature from across wealthy nations consistently finds that there is a portion of the gender wage gap that cannot be accounted for by differences in measurable skills, hours of work, industry and occupation, or experience. Estimates of the 'residual' gender wage gaps are typically quite small relative to the total gap (Blau and Kahn, 2017). They also only capture discrimination in pay conditional on all other observed characteristics of jobs. In turn, discriminatory hiring and promotion processes that affect the types of jobs that men and women match with are likely to have much stronger and long-lasting effects on gender differences in pay, but will not be captured in the residual gap.

Some studies have focused on measuring the more subtle ways in which employer discrimination may be responsible for gender differences in pay and pay progression. Several experimental studies have found evidence that employers do view and treat male and female employees, or potential employees, differently. In the sphere of hiring, studies that have compared how gender

[22] Norms and attitudes have also been shown to change, and sometimes to change rapidly, in other contexts (Bursztyn, Egorov and Fiorin, 2020).

changes employers' reaction to job applications with otherwise identical qualifications and characteristics have painted a mixed picture and have suggested that the presence and magnitude of such discrimination may vary substantially across places, time and industries. Some studies have found evidence of gender discrimination in hiring for waiters in expensive restaurants in Philadelphia (Neumark, Bank and Van Nort, 1996) or in the rating of candidates for an academic job in science (Moss-Racusin et al., 2012). A nationally representative study in Germany found that controlling for all information contained on fictitious CVs, women were rated as worse candidates than men by human resource managers (Goldin and Rouse, 2000; Kübler, Schmid and Stüber, 2018). However, other studies have found no evidence of gender differences based on written job applications for sales, administrative, and clerical roles advertised through newspapers (Bertrand and Mullainathan, 2004) or for high-skilled positions advertised on an internet platform in the US (Rousille, 2020).

Discrimination in work creates an unfair system, contributes to an inefficient allocation of productive resources and, in the UK as in many other countries, is illegal. For the purposes of understanding what will reduce such discrimination against women, it is useful to understand what precise factors cause employers to act in a discriminatory way. One factor might be animus, where employers simply prefer men or believe that other employees do so.

Discrimination may also be due to employers believing that women have less-valuable skills and would show lower productivity than men if appointed to the role or if promoted. In some cases, such gendered beliefs might be rooted in employers' use of group-based average differences between men and women to make judgements about the future productivity of specific men and women even if these workers do not share the average characteristics. For example, we have seen that many women drop out of the labour market following parenthood while few men do. Knowing this, and wanting to hire employees who are likely to stay for a considerable time, employers may discriminate against women in the hiring or promotion processes, and may do so even against women who would remain 100% career focused after becoming mothers since this is not easily observed in advance (Gayle and Golan, 2012).

Employers' beliefs about the performance of prospective hires or even their current employees are not necessarily accurate. Indeed, increasing evidence shows that gendered stereotypes impact the way that the skills of men and women are perceived by employers or potential employers. Amongst academic economists, for instance, Sarsons et al. (2020) show that women receive less credit for the success of joint projects than men do, and enjoy less subsequent career success as a result. In a world where employers can only see noisy signals about a worker's performance, stereotypes can play an important role in shaping how those signals are interpreted and reflected on the careers of women and men. More generally, gender biases may result from how information about individual female and male workers is used differently in the workplace by all those whose activities are connected. A study of referrals to surgeons by primary-care doctors illustrates this point (Sarsons, 2019). It shows that a bad signal, specifically about a patient death which might occur at random but which may be the result of poor skills, leads to a sharper downward revision of the surgeon's ability if the surgeon is a woman rather than a man. However, when there is a positive outcome, primary-care doctors increase their estimate of the surgeon's skills by more for a male than for a female surgeon.

Part III. Consequences of gender inequalities in work

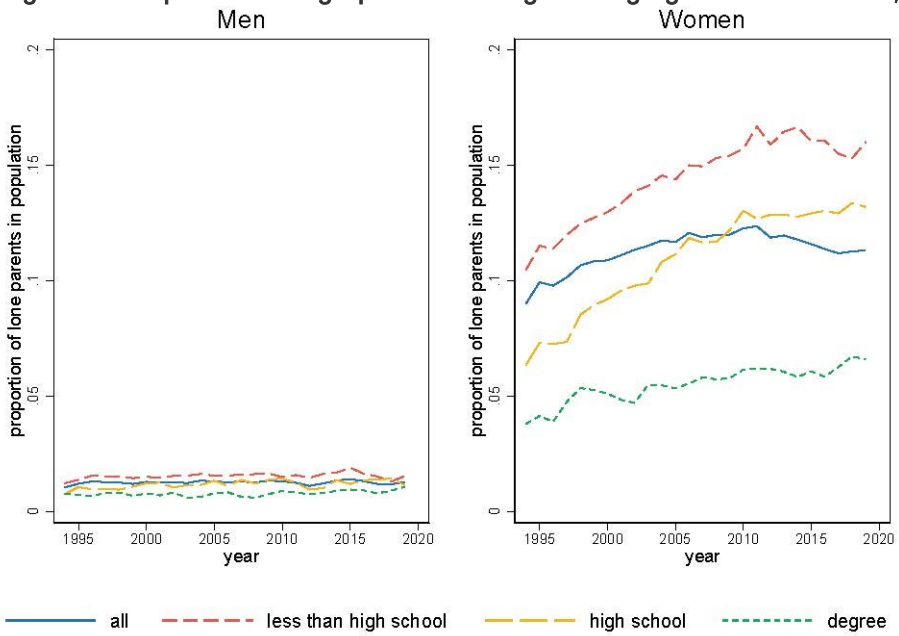
9. Inequalities in living standards

We have documented striking gender inequalities in labour market outcomes of women and men in the UK. Women participate in paid employment at lower rates than men and, when they do work for pay, they do so for fewer hours and for lower wages. What is more, the rate of progress in closing these gender gaps, many of which can be traced back to the arrival of children, has been slow. In this section, we discuss how these patterns interact with changes in family demographics in driving inequalities in the earnings, consumption and well-being of the families of men and women. We argue that the marked increase in the prevalence of single-adult families makes gender inequalities in work increasingly consequential for the living standards of families. In particular, lack of progress in the working outcomes of women relative to men, combined with expanding singlehood and lone-motherhood rates, has resulted in women being increasingly more represented in low-earnings families and more dependent on public transfers to sustain the living standards of their families. We also show that other changes in family structure, which saw increasing assortativeness in marriage and cohabitation, are compounding changes in the prevalence of single-adult families in increasing between-family inequality. We then discuss the implications of these trends in family structure and labour market outcomes for the well-being of individuals.

Single families

The evidence we have presented suggests that the unequal division of unpaid work that men and women do, and particularly so after they become parents, strongly shapes the widening gender gaps in the labour market after parenthood. Gaps in paid work widen exactly at the point where the amount of unpaid work that parents have to contend with vastly increases, and we have already seen (in Figure 2) that women take on the majority of this unpaid work.

Figure 27. Proportion of single parents among working-age men and women, by education



Source: Authors' estimates using UK LFS data for men and women aged 25–55.

Table 2. Lone mother disadvantage: differences between the earnings, participation, working hours and hourly wages of lone mothers and mothers in couples during the first 10 years after birth of first child

	Earnings	Employment	Working hours	Hourly wages
Raw difference	–48.6%	–16.8ppt	–9.0%	–29.7%
Controlling for education	–33.0%	–10.9ppt	–3.1%	–21.8%

Note: Average differences between lone mothers and mothers in couples (as a percentage of the outcomes for mothers in couples in the case of earnings, working hours and wage rates).

Source: Authors' estimates using UKHLS data for mothers aged 20–55 in 2015–17.

One group of mothers is at particular disadvantage: lone mothers. Overall, this group expanded up to 2010; it also continues expanding for all education groups, but the increasing education attainment of women is moderating overall figures as lone motherhood is much more prevalent among women with lower education qualifications. In contrast, only 1% of men are single fathers today, a proportion that has not changed since the 1990s (see Figure 27). Compared with mothers living in partnerships, lone mothers are more constrained in how they organise work since the sharing of paid and unpaid work is less likely to be an option for them. While two parents in a partnership could, for example, choose to each do half of the childcare, lone mothers typically provide the vast majority of the informal childcare their children receive. They are also often seen as the single point of contact for schools and childcare providers, which translates into them being solely responsible for any unexpected support that may be needed. The especially large load of domestic and caring responsibilities that lone mothers bear, and the associated unpredictability in these domestic demands, can be difficult to combine with career progression.

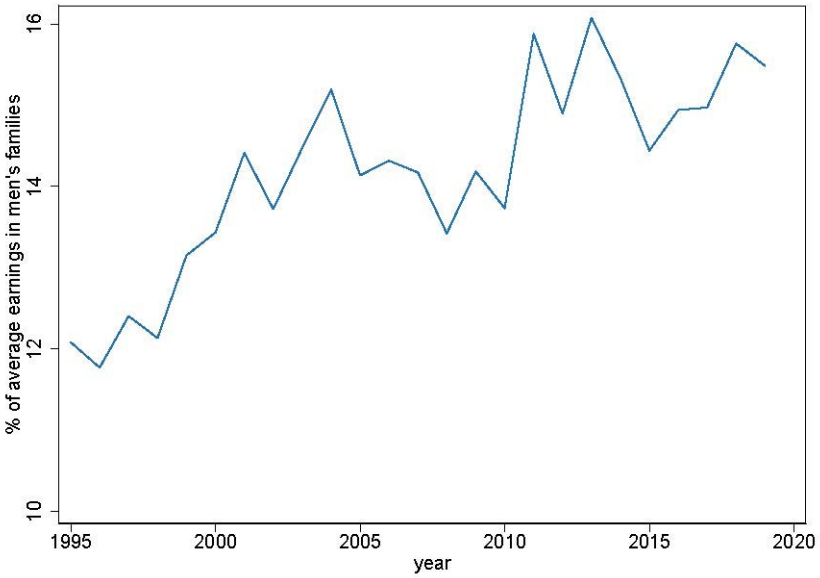
Empirical evidence shows that lone mothers do indeed earn less and work less for pay than mothers in couples. Table 2 quantifies these differences during the 10 years after the birth of the first child, for the years 2015–17. Lone mothers earn almost 50% less than mothers in couples, which results from a combination of less work and lower-paid work. In part, the difference can be accounted for by the disproportionate concentration of lone mothers among those with lower qualifications. However, controlling for education only partly closes the gap between mothers in couples and lone mothers. The second row of the table shows that, even for equally qualified women, lone mothers still earn 33% less than their peers in couples, are almost 11 percentage points less likely to participate in paid work and, when they do, their hourly wage rate is over 20% lower than that of mothers in couples.

The prevalence of single-adult families without children also increased over the years, especially among the least-educated. Based on figures from the UK Labour Force Survey, while 23% of individuals aged 20–55 were single in 1992–93, that proportion had increased to over 29% by 2019; among those who left school with GCSE qualifications or less, the prevalence of singlehood without children increased from 22% to 32%, while it remained unaltered at 25% for those with university degrees. Since women still earn much less than men, and especially so as lone mothers, the expanding number of low-skilled single-adult families is likely to translate into increasing numbers of women relative to men facing disadvantage and poverty.

Figure 28 shows first evidence of this by plotting the time trend in the difference in the average earned income of the families of men and women. We see that, by 2019, the average woman lives in a family whose total earnings are over 15% below those of the average man's family. These gender gaps are smaller than those we report for individual earnings since, mechanically, the

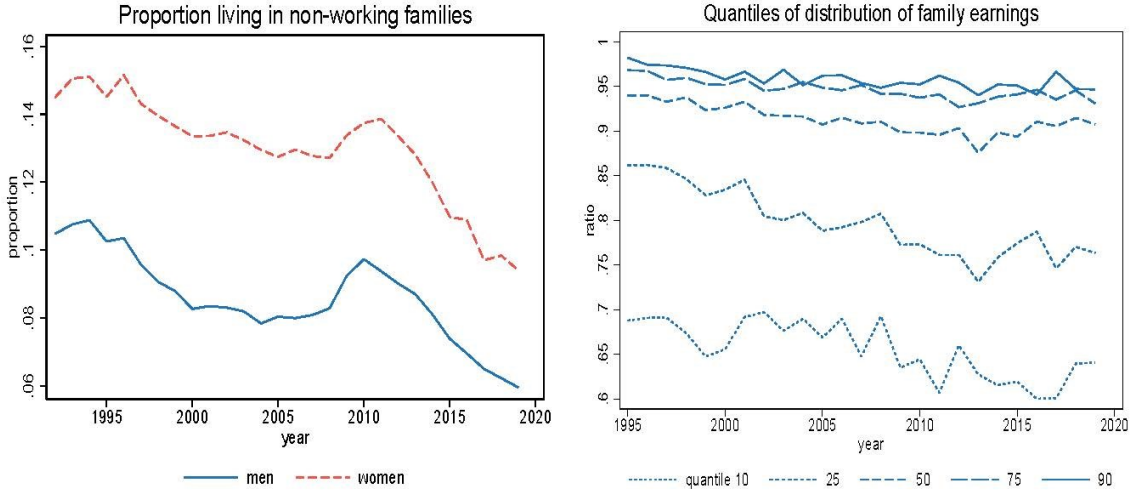
pairing of individuals in couples contributes to reduce gender differences. What is more relevant here, however, is that none of the 10 percentage point drop in the gender pay gap that we saw in individual labour earnings (shown in Figure 4) is visible in this figure. In fact, if anything, the gap has increased over time by about 3 percentage points, with most of the rise taking place during the 1990s and early 2000s.

Figure 28. Gap in average family earnings over time, between families of men and women



Source: Authors' estimates using UK LFS data, subsample of families of men and women aged 20–55 who are head of the household or their partner and who are not in full-time education or retired.

Figure 29. Trends in the prevalence of non-working families and in the distribution of family earnings (families of women compared with families of men)



Note: Left-hand panel shows time trends in the proportion of families of adult men and adult women where neither the head nor the partner (the latter in the case of couples) is working. Right-hand panel shows time trends in the ratio of percentiles 10, 25, 50, 75 and 90 of the distribution of family earnings in working families, comparing families of adult women with families of adult men.

Source: Authors' estimates using UK LFS data, subsample of families of men and women aged 20–55 who are head of the household or their partner and who are not in full-time education or retired.

Since single-adult families and single motherhood are strongly concentrated amongst the least-educated, who are disproportionately at the bottom of the income distribution, it is expected that the growing gender inequalities in family earnings are also more pronounced among low-income families. The left-hand panel of Figure 29 shows that the proportion of non-working families has dropped markedly over time, by about 4 percentage points between the mid 1990s and late 2010s,[23] but that the families of women are more likely to be non-working than those of men. That gap has narrowed slightly over time and now stands at about 4 percentage points.

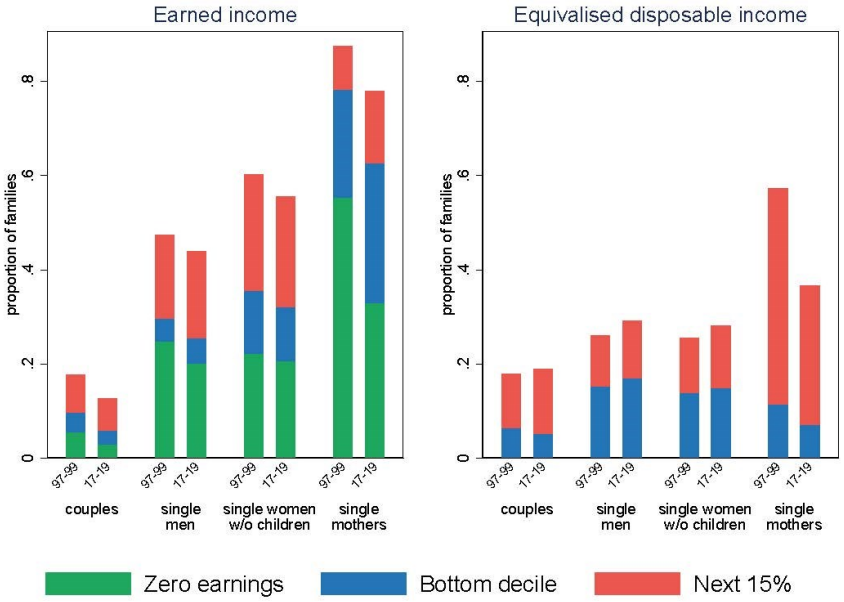
The right-hand panel of Figure 29 zooms in on working families and plots the ratio of quantiles of earned income for the families of women to the same quantiles for the families of men. We see inequalities widening at the bottom of the distribution, below the median. Gender inequalities in family incomes were already stronger at the 10th and 25th percentiles of the distribution in the 1990s, with families of women at that lower end earning 70–85% of what the families of men earned. More recently, these gaps were 10 percentage points larger, with the women's families in the 10th and 25th percentiles earning 60–75% of what the corresponding men's families do. Similar widening gaps cannot be seen at the top, where higher marriage rates have contributed to keep gender gaps in family income stable.

We have argued so far that the changing demographics may put women more than men at increased risk of poverty, offsetting gains in participation and earnings. To document these trends, Figure 30 shows the prevalence of low income by family demographics in 1997–99 and 20 years later, in 2017–19. It splits families into four groups – couples, single men, single women with no children and single mothers. The panel on the left plots the proportions of non-working families (in green) and of working families with earned incomes at or below percentile 10 and between percentiles 10 and 25 of the overall distribution of family earnings (in blue and red, respectively). The differences between families are striking. In the recent period, almost 80% of lone mothers' families have either zero earnings or earnings in the bottom quartile of the earnings distribution, with many more in the bottom decile than in the next 15% of the distribution.

Single women without children fare much better than single mothers on these measures, but worse than single men: while single men and women are equally likely to work, women are twice as likely as men to be in the bottom decile of the earnings distribution, and almost 50% more likely than men to be in the bottom quartile. Couples are much more protected against these extreme low earnings. The proportion of non-working couples is very low, and only a small proportion of couple families have family earnings in the bottom quartile. Over time, the most noticeable change is that all family types are now more likely to be in work. For couples and single people without children, this change is fully reflected in an increase in the proportion of families in the top three quartiles of the earnings distribution. This is not so for lone mothers: while the proportion of non-working lone mothers dropped by over 22 percentage points over the 20 years from the late 1990s, they remain concentrated in very similar proportions in the lower part of the earnings distribution.

[23] The figures we show here are lower than official numbers because they are based on the more restricted sample of families where both the head and the partner (in the case of couples) are aged 20–55 and neither retired nor in education.

Figure 30. Proportion of low-income families, by family type



Note: Left-hand panel shows proportion of non-working families (i.e. zero earnings) and working families at the bottom decile and quartile of the distribution of family earnings, by family type. Right-hand panel shows proportion of families in bottom decile and quartile of equivalised disposable income, using the OECD equivalence scale.

Source: Authors' estimates using: UK LFS data, subsample of families of men and women aged 20–55 who are head of the household or their partner and who are not in full-time education or retired; Households Below Average Income data, subsample of families (benefit units) of men and women aged 20–55 who are not retired.

The takeaway from this analysis is that the increasing number of low-educated single-adult and lone-mother families combined with the lack of substantial progress in the earnings of women is putting women and their families at a particularly high risk of poverty, even if they are in paid work (which is becoming increasingly common). But families have other sources of income that we have not considered in this discussion. Families with children, and in particular lone-mother families, can be entitled to substantial benefits when their earnings are low. The right-hand panel of Figure 30 shows the extent to which the transfer system supports the living standards of different types of families. It plots the proportion of families in the bottom decile and quartile of the distribution of equivalised disposable income, which includes earned income and public transfers.[24]

It is clear from the comparison of lone mothers with other family types that the benefit system is especially protective of their living standards, and more so now than in the 1990s. While in 2017–19 more than 60% of lone-mother families have no earnings or have earnings below the 10th percentile of the family earnings distribution, only 7% of them are in the bottom decile of the distribution of equivalised disposable income. This proportion also dropped over time, from about 11% in the late 1990s. Lone-mother families are nonetheless disproportionately concentrated in the bottom quartile of the distribution of equivalised disposable income, with almost 40% of them in this group. The living standards of single families without children are less protected: despite their lower concentration at the bottom of the earnings distribution compared with lone mothers, more of them (around 15%) can be found in the bottom 10% of the equivalised income distribution.

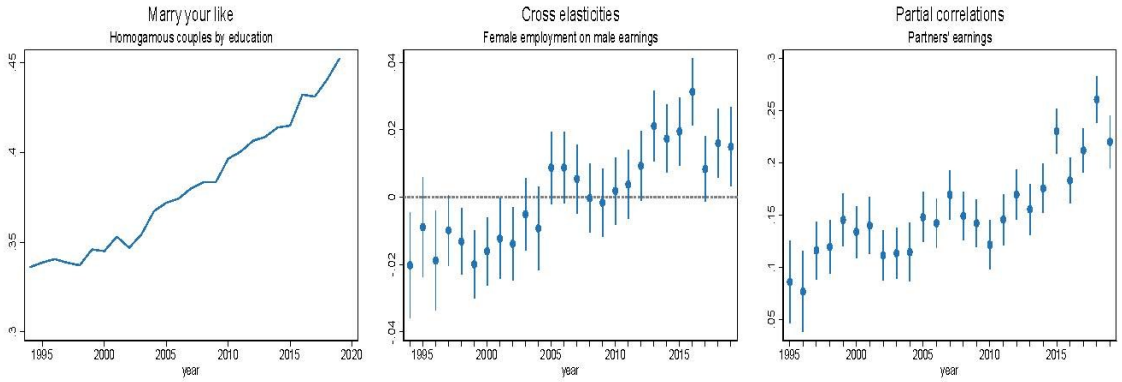
[24] We use the OECD equivalence scale to account for family size.

Inequalities between families

It is not only the increasing numbers of single and lone-mother families, and their disproportionate concentration at the bottom of the earnings distribution, that have pushed up economic inequalities between families. Another trend that contributes towards rising between-family inequality is that those who marry or cohabit are increasingly likely to do so with someone similar to themselves along characteristics that are predictive of career success, such as education. If partners become gradually more alike in their ability to earn in work, we would expect inequalities across coupled families to increase as well.

Assortativeness, or homogamy, refers to how similar the average married or cohabiting individual is to their partner. Figure 31 shows time trends in indicators of homogamy. On the left, we see that individuals have been increasingly likely to partner with someone with the same education level as them, using a detailed seven-level classification of education.[25] This secular increase has been documented for the US too (Lise and Seitz, 2011; Eika, Mogstad and Zafar, 2019; Shen, 2019; Chiappori, Costa-Dias and Meghir, 2020). Since education is a crucial determinant of wages in work, this trend suggests that the sorting patterns in marriage are pushing up across-family inequalities in earned income.

Figure 31. Homogamy in marriage and cohabitation



Note: Left-hand panel shows proportion of unions where both partners have the same level of education, in seven groups: college degree or higher, higher education below degree, A-level or equivalent, GCSE grades A–C, GCSE grades D–G, other qualifications, no qualifications. Middle panel shows coefficients of regression of female employment on log partner's earnings interacted with calendar year, conditional on fixed effects for year and education of both partners. Right-hand panel shows partial correlations between earnings of partners interacted with calendar year, for couples where both partners work; estimates obtained from residualised partner's earnings on a full set of gender-specific fixed effects for calendar year, education and age.

Source: Authors' estimates using UK LFS data, subsample of men and women in opposite-gender couple families, where both partners are aged 20–55.

The middle panel shows that conditional on the education of both partners, female participation is now positively associated with male earnings, whereas the reverse was true in the 1990s. In other words, while it used to be true that women who married, or cohabited with, the richest men were more likely to stay at home, now women who marry the richest men are more likely to work for pay. This increased association between the labour market outcomes of partners is further accentuated by the fact that women married to, or cohabiting with, the men with the highest earnings are likely to also have higher earnings. Indeed, the right-hand panel of Figure 31 plots

[25] It bundles education in the following classes: three-year college education or higher, higher education below degree, A-level or equivalent, GCSE grades A–C, GCSE grades D–G, other qualifications, no qualifications.

the time trend in the association between the before-tax earnings of partners in couples where both work for pay, conditional on the education and age of both partners, and reveals a clear strengthening of this association over time.[26]

The changing patterns of family formation that we have documented here, combined with rising female participation in the labour market, suggest that families are becoming more unequal from one another: high-earning women and men are increasingly more likely to be partnered (and thus to have an additional earner in the household) than their lower-earning peers, and are more likely to be partnered with a high-earning partner. Existing evidence supports this view. Considering only the changing marital patterns and singlehood rates by education, Chiappori et al. (2020) show for Britain that these fully explain (and reverse) the modest increase in family earnings inequality across two cohorts born 20 years apart, in the 10 years around 1950 and 1970 respectively. Specifically, keeping sorting patterns unaltered would bring inequality down by between 2 and 4 Gini-points. For the US, Dupuy and Weber (2021, forthcoming) find that changing marital patterns explain 25% of the very substantial 11 Gini-point increase in the dispersion of family earnings that happened over the past 60 years. These are likely lower bounds on the impact of changing family arrangements since they only consider the role of education in this process. The evidence we have shown in Figure 31 suggests that other traits related to labour market outcomes are important too in changing marital patterns. Since household income, rather than only individual income, will be an important determinant of the value of goods and services that women consume, these trends are likely to be increasing inequality in living standards between women.

Inequalities in well-being

Family income and its equivalised version offer only a partial view of inequalities in well-being across individuals and between genders because they do not account for how resources are allocated within families, to each family member. It is possible that individuals are poor even if their families are not poor, because of families sharing their resources unequally. When considering couples in particular, many studies have rejected the hypothesis of income pooling, whereby the resource allocation within couple families does not depend on the income source. On the contrary, evidence shows that the partner who earns the income has more command over its use (e.g. Thomas, 1990; Duflo, 2003; Browning, Chiappori and Lewbel, 2013; Lise and Yamada, 2019; Chiappori and Meghir, forthcoming). This observation has fundamental implications for how we think families are dividing resources between men and women. One approach to measuring inequality in individual well-being is to look directly at key determinants of individual-level well-being, including individual consumption and time use. A study by Lise and Seitz (2011) investigates inequalities in consumption allocations for a very specific population in the UK: that of couple families without children. It finds that ignoring intra-family division of resources underestimates consumption inequality in these families by up to 50%, with women getting a smaller share of the family consumption then men.

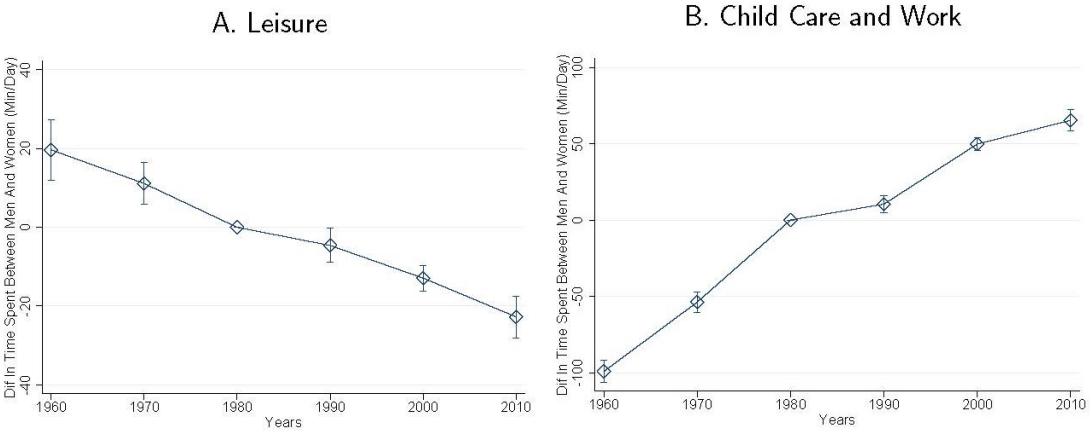
The same study also looks at how consumption inequality within and across families has changed in response to the changing patterns in work and family structure. Specifically, it explores how a gradually decreasing gender gap in earnings and the increasing similarity between partners in terms of their skills, labour market participation and earnings have affected consumption allocation within the family. One might suspect that these changes would mean that women had control over, on average, a larger share of household resources now than in the past. Lise and Seitz find that the closing of the earnings gap within couples, due to increased assortativeness in

[26] The figure is only for employees as the survey does not collect comparable pay data for the self-employed.

marriage and women's higher participation and earnings, resulted in less within-family inequality, fully offsetting the growing inequalities between families.

Other studies have focused on low-income countries, where intra-household inequalities may be more pronounced and consequential. Focusing on Malawi, a study by Dunbar, Lewbel and Pendakur (2013) estimates how resources are shared in families with children. It finds that men keep 45–50% of family income, and that their share is largely unresponsive to the number of children. Mothers sacrifice more of their resources to children: the first child gets about 20% of the family resources, and the following ones get an additional 5–10%. The study then assesses the consequences of this division for the incidence of poverty in Malawi. It finds that while the poverty rate for men is about 60%, it goes up to 85% for women and 95% for children. A more recent study measures resource shares within families and the incidence of poverty among men and women in five low- and medium-income countries – Albania, Bulgaria, Bangladesh, Iraq and Malawi (Lechene, Pendakur and Wolf, 2021). Using the World Bank's prescriptions for 'societal poverty lines', it finds large gender gaps in poverty rates, with women being 4–12 percentage points more likely to live in poverty than men in all those countries apart from Bulgaria.

Figure 32. Evolution of relative time use across genders



Note: Graph shows evolution of time use in leisure (panel A) and child care plus work (panel B) for women relative to men. Graph plots the coefficients of period fixed effects, conditional on country fixed effects.

Source: Multinational time-use survey covering more than 20 countries including the UK.

Data on relative consumption are still rare, which at least partly explains the paucity of studies estimating the allocation of consumption within the household. Complementing evidence on inequalities in time use is starting to emerge. We already saw in Figure 2 that, across most OECD countries (including the UK), women are doing more paid and unpaid work in total than men, and hence have less time left for leisure or other activities. While they spend less time doing paid work than men, on average, the hugely disproportionate amount of unpaid work they do leaves less free time for leisure. Figure 32 builds on this picture, showing that the relative leisure time of women has significantly declined over the last 50 years, while their relative time in work and childcare has increased very significantly. In other words, the increase in female labour force participation has not been met with a significant readjustment in relative childcare duties within the household, a pattern which is often referred to as employed women also doing a 'second shift' in the home (Hochschild, 1989). This highlights that for policies that incentivise women to increase their participation in paid work not to come at the expense of women's already disproportionately scarce leisure, either men must take on a larger share of the unpaid work or these policies must diminish the overall family load of such unpaid work (e.g. by providing childcare).

10. The economic cost of the status quo

In addition to having welfare consequences for individual women and men, the gender inequalities in work that we have documented are likely to have a detrimental impact on the overall productivity of the economy. Thinking about how gender relates to aggregate economic production is complicated by the fact that so much of the care work that women do is unpaid and not accounted for in typical measures of aggregate output (e.g. GDP) while, nevertheless, being crucial for the functioning of society and the sustaining of future generations. This creates the paradox that a parent looking after their own child does not add anything to measures of GDP, while if that parent paid someone else to do that same care, the value of that care would count towards GDP.[27]

Acknowledging that the care work that is overwhelmingly provided by women is hugely valuable and that it should be better reflected in measures of economic production, however, is unlikely to change the conclusion that the current split of paid and unpaid work between men and women is likely suboptimal from an economic efficiency standpoint. As discussed in Section 5, to rationalise the status quo as efficient, it would have to be the case that the high-earning women who drop out of the labour force or reduce their hours after having children are, on average, orders-of-magnitude better at childcare than their male partners or than alternative (paid) sources of childcare provision. There are also some good reasons to focus on the impacts of gender inequality on measures of national income, since it is closely related to the tax base and therefore how much tax the government can raise. A common argument made for not investing in policies that could improve gender equality, such as more generous and balanced parental leave or improved childcare, is the cost that the government would have to incur to fund them. However, if gender inequality harms national income then even expensive policies could pay for themselves if, by increasing gender equality, they also increased aggregate economic output.

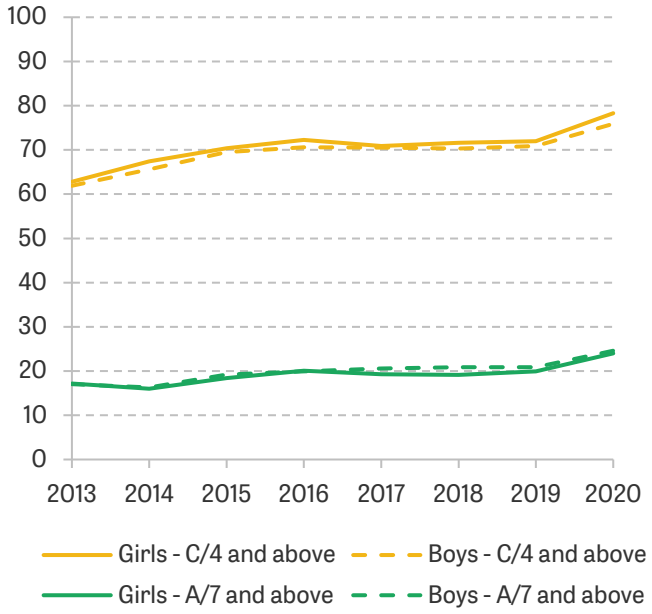
The gender inequalities in work that we document in this chapter mean that, on aggregate, women's talents are not mobilised for economic production in the market sector to the same degree as men's. This is most evident during the main child-rearing years, as women retract from their participation in the labour market. But it also happens in advance, when choices about investments that are productive in work are made in expectation of their future return, and it has consequences that outlast the child-rearing years, as the lost experiences in the labour market condition and limit future productivity.

When considering the most meaningful investments in human capital – those that happen in the formal education system – we saw in Section 3 that women are now, on average, at least as educated as men. However, it is not only the level of education that matters for productivity in work and for earnings; the field of study matters too. On that dimension, women do not voice the same motivations for investing in a field that offers them good career prospects. Cassidy et al. (2018) find that while girls enjoy doing maths and sciences at GCSE level and recognise that STEM courses offer better career opportunities than other fields, they are reluctant to take that route at a higher level at least partly because they perceive the education and working environments in these topics to be dominated by men. As a result, they are much less likely than boys to pursue

[27] Indeed, the Office for National Statistics (2018) estimates that in 2016, when valued at market prices, informal childcare in the UK was worth up to £351.7 billion; details of methodology can be found in Office for National Statistics (2016). Altogether, ONS estimates for 2016 that unpaid work within the household (including cleaning, laundry and childcare), the majority of which is performed by women, summed to £1.24 trillion, which was equivalent to 63.1% of measured GDP in that year. Where the 'production boundary' should be in the measures of economic output, and how goods and services not purchased in the market should be measured, are ongoing questions (Stiglitz, Sen and Fitoussi, 2009).

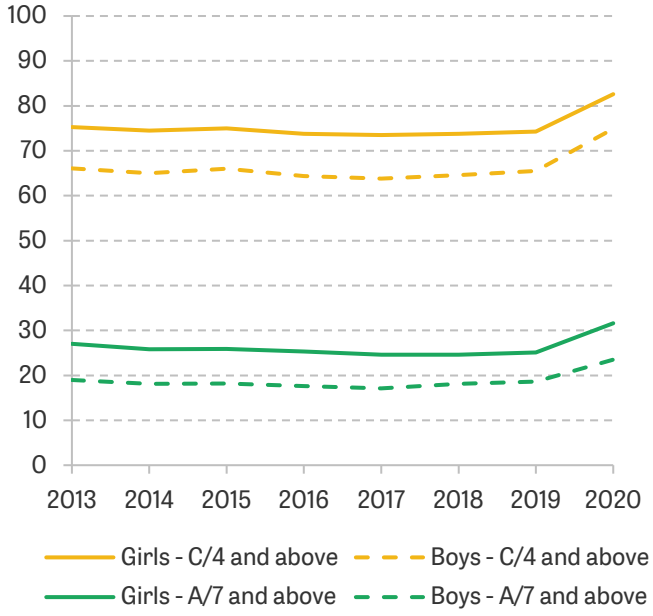
STEM avenues despite doing just as well on these subjects at GCSE. Figures 33 and 34 show, for 16-year-old girls and boys separately, the proportions of GCSE entries resulting in a good pass (a C/4 grade or above) and resulting in a top grade (an A/7 grade or above) in maths and in all subjects combined. We see that in maths, which is of particular relevance given its link to the highest-paid occupations, the grades of girls and boys are almost identical. Across all subjects taken together, girls outperform boys significantly. Overall, there is little reason to believe that women are inherently less able to take on the qualifications required for high-paying careers; instead, other factors are deterring them from doing so.

Figure 33. Girls match boys on GCSE maths



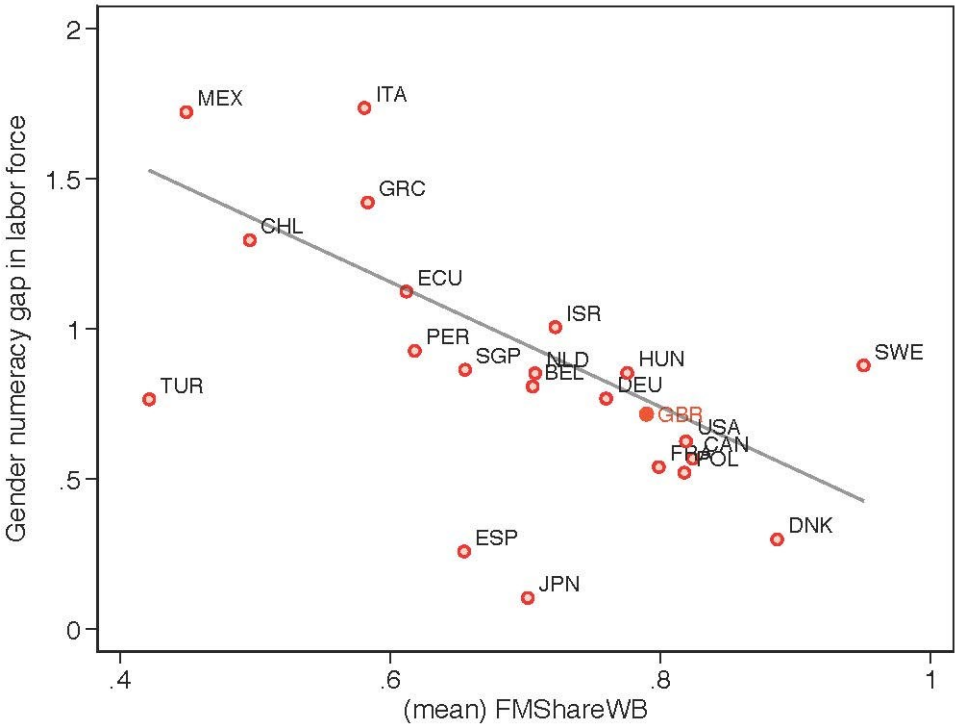
Source: Ofqual data (https://analytics.ofqual.gov.uk/apps/GCSE/Outcomes/).

Figure 34. Girls outperform boys on GCSEs (all subjects)



Source: Ofqual data (https://analytics.ofqual.gov.uk/apps/GCSE/Outcomes/).

Figure 35. Talent gap and labour force participation



Note: Figure shows the gender numeracy gap, calculated as the difference-in-differences in the maths test score between women and men who do and do not participate in the labour market. This gender numeracy gap is plotted against the country-level women-to-men ratio in labour market participation rates (FMShareWB).

Source: Authors' estimates using PIAAC data.

The gaps in investments that we see happening from the moment children are given a choice of subjects continue to widen over the course of life, with women staying away from the best-paid occupations and firms, working fewer hours and interrupting their careers more frequently than men do. These facts indicate that, from the point of view of maximising total financial earnings from paid work or, indeed, maximising tax revenue, the current organisation of paid work between men and women is not optimal. These patterns imply that the status quo involves a large group of women who do not work for pay, or who work low hours or in low-paying jobs, who would generate a huge amount of earnings if they were to work full-time in jobs that maximised their earnings capacity.

These types of gender gap mean that, on aggregate, women's talents are not translated into economic production (in the market sector) as efficiently as those of men. If it is the case that men and women who have more to gain, in terms of higher earnings, are more likely to work in the labour force than those with lower potential earnings, then the fact that women face higher barriers to work and hence are less likely to work for pay than men, implies that the average woman in work has a higher earnings capability than her average male counterparts. This is sometimes described as a 'talent gap', referencing the idea that less-talented men are taking jobs that more-talented women would take if they participated in the labour market at the same rates as men. The data do show evidence of such a talent gap in almost all countries with comparable data. We use test scores data from the OECD's Programme for the International Assessment of Adult Competencies (PIAAC), which provide an objective measure of literacy, maths and IT skills. We estimate the talent gap as the difference-in-differences in the maths test score between women and men, inside and outside the labour force. Figure 35 reports our estimates by country,

and shows that the gap is positive everywhere, which means that women in work are more positively selected from the higher-skilled group than men in work. The figure also shows a strong negative correlation between the estimated talent gap and the female-to-male labour force participation ratio. This is in line with the intuition that in countries with higher barriers, fewer women work outside the home and those who do are necessarily very talented.

Overall, evidence of a talent gap suggests that lowering barriers for women to participate in work, and more particularly in the work that best suits their skills, will increase productivity through an improved allocation of talent. Two recent papers provide evidence for these claims. Ashraf et al. (2021) exploit personnel data from a large multinational that operates in different countries and estimate that eliminating barriers to women's participation would increase this firm's productivity by 32% keeping the number of employees and the wage bill fixed, simply by attracting higher-earnings-capacity women to replace lower-earnings-capacity men. Hsieh et al. (2019) calibrate aggregate gains at the economy level by using changes over a long period in the US. The bottom line of this study is that the improved allocation of talent that happened over time, with women pursuing better careers and many among them investing further in education, can explain up to 40% of US growth in the last 50 years.

We contend that the large financial costs associated with the current status quo need to be acknowledged in the current policy debate. The presence of large financial costs highlights the potential for even expensive policies to pay for themselves if they are successful in expanding female labour force participation and therefore in expanding the tax base.

11. Discussion

We have documented large gender inequalities in labour market outcomes: men are more likely to work continuously over their working lives, work longer hours, and have higher hourly wages and earnings. Some gaps are closing – most notably in education, but also in employment – but a closer inspection reveals that important differences remain. For instance, the fractions of men and women achieving a university degree have converged. However, not all degrees are created equal: men are over-represented in degrees that pay more, such as engineering or economics. Moreover, women continue to earn less than men do and to be paid less per hour. Gaps in pay open the most after the arrival of children, which is when women more than men tend to interrupt their work and reduce their working hours. We show evidence in this chapter that these interruptions lead to losses in wage rates that can be traced to losses in working experience and women failing to progress to better jobs. Their consequences are especially visible at the top of the earnings distribution, with high-end jobs remaining mostly in the hands of men.

We contend that these differences in labour market outcomes are consequential for the well-being of men, women and their children. Changes in family structure that happened over the past decades have meant single-adult families and single parenthood are now much more prevalent, with the latter being disproportionately a female phenomenon. We show that singlehood and single motherhood, combined with continuing disadvantage in the labour market, make women especially vulnerable to poverty. We also document that, over time, partners in couples have become more alike in terms of their earnings capacity. This has two distinct consequences for inequality. On the one hand, inequality between partners is likely to drop as homogamy increases, and this is likely to benefit women particularly. On the other hand, homogamy increases inequalities between families and, since poorer families are more likely to split, it can disproportionally disadvantage women in poorer families by increasing the risk of single motherhood.

We also argue that gender gaps in the labour market dent aggregate economic growth. Evidence shows that the low participation in work and the slow career progression that is typical of women cannot be pinned on their lack of skills or productive ability. Instead, norms, attitudes and the policy environment combine to reinforce a traditional gendered division of labour, especially upon parenthood. This division constrains women and men from doing the work that they would be comparatively best at and therefore creates a barrier to efficient allocation of resources to economic activity. Consistently with this hypothesis, we find evidence that in countries with the lowest proportion of women participating in the labour market, participating women are especially positively selected. This suggests that, in these countries, only the most skilled women work, and many other highly productive women stay at home.

Given their costs, why do these gender inequalities remain? Two arguments are traditionally proposed to potentially justify such gender inequalities: the first is comparative advantage, the second is preferences.

Comparative advantage would result if, within couples, more men are comparatively better at market work than unpaid domestic work while the reverse applies to women. We have argued that gender inequalities are unlikely to reflect fundamental differences in comparative advantage on homemaking versus breadwinning. Indeed, men do not appear more suited for market work on aggregate, and the same holds if we look within households. We showed that there are many heterosexual couples where the woman out-earns the man before parenthood, but even in these couples it is she who takes the larger step back from paid work. Evidence on how couples split paid and unpaid work during the COVID lockdowns also renders comparative advantage an unlikely explanation for these gender inequalities.

The second argument posits that a gendered division of labour can be socially desirable if men and women gain different life satisfaction from different types of work. In particular, if women, on average, derive more satisfaction and pleasure from unpaid domestic work than men do, or if men derive more satisfaction from market work than women do, then the current division of labour could be optimal. In this case, it could be that women and men alike prefer the current allocation of work to a more equal one.

This argument is more problematic. The very notion of preferences makes little normative sense in the context of gender roles. As we have highlighted in this chapter, preferences, beliefs and stereotypes regarding gender roles are deeply culturally ingrained, but also strongly malleable, and responsive to the social, cultural and policy environment. In situations where choices are dictated by gender norms, choices can only tell us about what the norms are. Therefore observed choices within the current status quo, which are informed by existing gender norms and societal ideas about gender roles, tell us little about whether or not there could be alternative ways of dividing work between men and women that could improve satisfaction and well-being. For instance, when faced with our existing gender norms, many men may feel that reducing their paid work hours to be the primary carer for their children would not bring them satisfaction because that activity is seen as a low-status one for men. However, if caregiving were seen as a crucial and high-status activity for both men and women, then men could assign a higher value to such activity. Thus, the idea of informing social choice by seeking to identify the part of individual preferences that is deep and intrinsic seems dubious, and, in fact, even the notion that such intrinsic individual preferences could exist seems questionable.

The current framing of the normative debate regarding the welfare cost of gender inequality is inadequate. If we accept that we cannot infer the true or deep preferences from the choices that

women and men make under policies that incentivise a traditional division of labour and under strongly gendered cultural norms, then it might prove more useful to take a more positive stance. Rather than asking 'Are current gender inequalities socially desirable?', it might therefore be more useful to ask: 'What could be done to relax the ways in which gendered norms and the policy environment encourage women and men to adopt traditionally gendered roles in the labour market and in the household?'.

In that regard, we suggest that 'big push' policies that simultaneously try to relax the financial constraints to more equitable gender roles while also shifting gendered norms could have significant effects. In fact, years of policy reforms have failed to create a coherent set of incentives for equal responsibilities between men and women. While some policies support women coming back to work (e.g. childcare subsidies), others may effectively make it more costly (e.g. long maternity leave and unequal financial support for maternity and paternity leave). What else can policy do? We believe that current policies are largely inadequate because they implicitly accept traditional gender norms. Most notably, policy takes as a given that women are in charge of childcare, hence reiterating the view that the natural split of responsibilities is gendered. If gender norms and stereotypes keep society trapped in a bad equilibrium, the only way out is a 'big push', which could come as a policy sufficiently transformative to change the norm.

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