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Abstract

Using over four decades of British micro data, this paper looks at how the narrowing gender employment gap stalled in the early 1990s. Changes to the structure of employment between and within industry sectors impacted the gap at approximately constant rates throughout the period, and do not account for the stall. Instead, changes to how women's likelihood of paid work was affected by their partners' characteristics explains most of the gap's shift in trend. Increases in women's employment when they had children or achieved higher qualifications continued to narrow the gap even after it had stalled overall.

Keywords: gender employment equality; structural change; micro time series dataset; UK labour market; labour supply
JEL codes: E24; J16; J21

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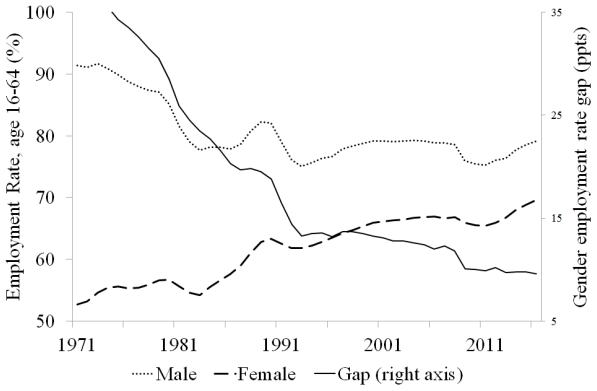
1 Introduction

A long-term view over 20th-century Great Britain shows the scale of the increases in women's labour force participation and employment. Combined with falling attachment to the labour force among men, these trends have resulted in a significant narrowing of the gender employment gap (GEG) since the beginning of the last century.[1] However, a different pattern emerges in more recent decades: the trend towards there being no GEG appears to have stalled.

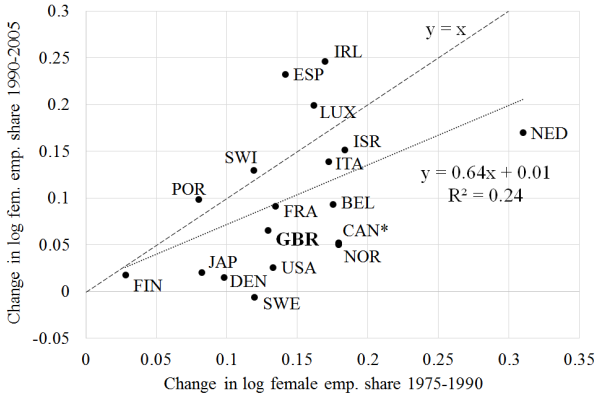
Figure 1A shows the UK's GEG from 1971 to 2016. The overall reduction from 39 to 10 percentage points did not happen at the same rate throughout this period. The gap narrowed by around one percentage point per year between 1971 and 1990, but on average by only a third of a point per year in the subsequent twenty-five years. Over the same period, the gender gap in hours worked fell consistently (see Figure 4 later). This picture is not unique to the UK. For 18 industrialised countries, including the US, Canada and most of Western Europe, Figure 1B plots the relative change in the female share of total employment for two consecutive periods (before and after 1990) against each other. Most countries lie below the 45-degree line, implying a slowdown in the rate at which GEGs have fallen. The stall in Great Britain is more pronounced than the average among these countries, but less so than in the US, Canada, Sweden, Denmark and Norway, though the Scandinavian countries had smaller gaps left to close by 1990.

FIGURE 1: Gender employment gaps in the UK and elsewhere since the 1970s

(a) The UK working-age gender employment rate gap, 1971-2016



(b) The evolution of female employment shares across countries: 15 years before and after 1990



Notes.- (a) author calculations using ONS Labour Market Statistics (accessed 10/11/2017). Gap is expressed as male minus female. (b) author calculations using ILOSTAT labour market indicators (accessed 10/11/2017). *Canada is 1976-1990 due to lack of data availability for 1975.

Numerous studies, summarised in what follows, have focused on long-term trends in female employment, especially in the US. But this literature, although important, represents evidence on just one side of the GEG. Our aim in this paper is to shed light on why Great Britain's GEG has not continued to narrow as quickly since the early 1990s as it did in the preceding decades.[2] Given that there was no similar stall in the decrease of the gender gap in hours worked from the 1990s onward, we focus on employment and on two potential determinants of its long-run changes. First, we assess the role of changes to labour force composition and how some individual and household characteristics among men and women relate to employment. Second, we describe the influence of industrial structural change.

[1] Throughout what follows and unless stated otherwise, GEG refers to the percentage point difference of the female employment rate from the male counterpart.

[2] The data we study do not include Northern Ireland, so the analysis and results are not representative of the whole UK; Northern Ireland contains approximately 2-3% of the UK's population over the time period studied.

We use micro data from representative samples of British households to study a measured fall in the GEG of 17 percentage points between 1973 and 1989, and a further fall by 2005 of only 7 points. Using shift-share analysis and Blinder-Oaxaca decompositions, we ask whether the changing distribution of some observable characteristics among men and women, or how they affect the likelihood of employment, can account for the pattern of employment rates and the gender gap. We find that the largest part of the GEG's stall is accounted for by changes in employment rates related to what we call partner characteristics, which include a partner's employment status and their education levels. The likelihood of employment for a man living in a single person household or with a non-employed partner fell consistently since 1973. The increased employment rate of women whose partners were also working accounted for over 80% of the rise in aggregate female employment before 1989. However, this increase slowed dramatically thereafter, and this factor accounted for the majority of how the GEG has stalled. These results suggest that the gender pattern of work in Great Britain is closely related to trends in the share of prime-working-age men and women living in households with no work. Greater gender equality in employment has largely been driven by increases in the within household distribution of work, at the expense of greater polarisation of work between households.

It is plausible that the historical rise in the services sectors has been to the comparative advantage of women and has reduced gender work equality in Britain. Confirming this, we find that between-industry shifts in employment accounted for an increased female share of overall employment at approximately the same rate before and after the early 1990s. Within-industry changes in the types of workers employed tended not to favour female employment and, similar to the between-industry effects, did so at about the same rate over the past four decades. Therefore, the pace of industrial structural change in Britain does not account for why the trend towards gender equality has stalled. We also show that the overall slowdown in the narrowing of the GEG coincided with less representation of women within several industry sectors, such as in Manufacturing and Banking & Finance, after conditioning on the types of worker characteristics, apart from gender, that these sectors have tended to employ.

The remainder of the paper proceeds as follows: Section 2 reviews the existing evidence; Section 3 describes how changes to the composition of employment among men and women, and who is working, accounted for the decline and stall in Great Britain's GEG; Section 4 analyses what role the pace of industrial structural change has had; Section 5 summarises and further discusses our main findings. Further information is presented in the Online Appendix, describing the main data source, how we constructed a sample of households for analysis and some additional results.

2 Reviewing the evidence on gender employment gaps in the long run

The evidence on how GEGs have evolved over time is limited. However, insight can be drawn from a large literature which focuses on how female employment has evolved in the long run. Before proceeding, we note that most of this literature concerns the US experience, with there being less evidence for Great Britain or other countries.

Historical development and cohort-based analysis

In Great Britain, the female participation rate in both 1850 and 1960 was around 35-40% percent (Joshi et al., 1985; Costa, 2000; Olivetti, 2014). In the US, only 18% of women worked for pay in 1890, increasing to 26% and 60% percent by 1940 and 2000, respectively (Olivetti, 2014). Goldin (1992, 2006) distinguishes

three phases in this evolution of US female participation over the last two centuries. The first phase, from the late 19th century to 1920, was characterised by the expansion of single women's employment, with married women's work being at this time still stigmatised. The second phase, from 1920 to 1950, witnessed growth in married women's paid employment, facilitated by increases in office work, new technologies, both in work and the home, and wider school and university enrolment. The third phase, from 1950 to 1970, saw the expansion of married women's work at an even greater rate. Within this long period, the 1940s are widely considered a watershed period in the US: a decade of huge changes in the labour force (Goldin, 1991). However, others have argued that the female employment surge was only temporary and, as soon as the War was over, women returned to exclusive household work.[3]

Goldin (1992)'s long-term analysis of US women's work also represents a helpful introduction to cohort-based analyses. For US women born before the 1950s, she shows that labour force participation over the life cycle rose steeply when they were in their 20s to late 40s, and then decreased in their early 50s. But this changed for women born since the mid-1950s, who experienced a higher participation rate overall, but with a dip in the middle (the so-called 'sagging middle'), and a phasing out that began at a later age than for previous cohorts. Goldin and Mitchell (2017) suggest that the sagging middle of the life cycle is due to the greater employment rates of women in their 20s, together with delayed childbearing and the impacts of motherhood. In another prominent US cohort-based analysis, Attanasio et al. (2008) study the life-cycle labour supply of three birth cohorts in the US: the Elizabeth Dole (1930s), Hillary Clinton (1940s) and Oprah Winfrey (1950s) generations. While the Clintons worked more than the Doles, both cohorts' participation was low during childbearing years, which was no longer the case in the Winfrey cohort. The authors' analysis suggests that the increased participation over the life cycle for the 1950s cohort was accounted for in large part by decreased childcare costs relative to wages.

Evidence for the UK is more sparse. Joshi et al. (1985) look at birth cohorts working between 1850 and 1980, finding that the increase in female participation in post-war Britain until the 1970s was mainly among married women aged over 35, and that cohort-specific factors explained most of this secular increase in participation. Gregg et al. (2007) analyse the role of policy and legislative changes during the period 1974-2000, isolating birth cohorts whose mothers experienced significant increases in employment. They find that an important role was played by maternity rights, which affected mothers' decisions to return to work.

Industrial structure and the demand for skills or occupations

Another perspective on gender equality emphasises the role of changes in the economic structure of countries. Echoes of this can be traced as far back as Adam Smith's argument that the development of commerce and industry would improve women's economic position by reducing the social position of the military (Dimand et al., 2004). More recently it would be the decline of jobs in manufacturing and the growth of the services sectors that play to the comparative advantage of women, resulting in a relative increase in the demand for female labour (Goldin, 2006; Ngai and Petrongolo, 2017). This comparative advantage can be explained by the services sectors being associated with the more intensive use of 'brain' and interpersonal skills or tasks, as opposed to those associated with 'brawn', and therefore by these sectors

[3] Goldin (1991) gives a comprehensive summary of the watershed and the revisionist approaches to the role of the Second World War on female labour force participation. The two perspectives are not exclusive (Goldin and Olivetti, 2013): women's labour supply was altered by the War, particularly for those who entered white-collar occupations, but there is variance between groups of women in the persistence of the effects from this large shock to the economy and society.

creating jobs which are considered more suitable for women who aspire to work. Olivetti and Petrongolo (2014, 2016) show that the process of structural change, through differences and changes in the services share of the economy, can account for more than half of the cross-country variation in women's relative labour market outcomes.

Other specific factors

The literature has discussed several other factors in the evolution of female employment over time and the different experiences of some cohorts. These factors include: increased education; reduced hours; increased real wages; technological change; decreased fertility; increased awareness of the role of women from changing social attitudes or the expansion of the feminist movement; the household division of labour; and the income and labour market positions of partners. The impacts of these factors have more often been studied in isolation rather than in combination.[4] For Great Britain, Gomulka and Stern (1990) study the evolution of employment between 1970 and 1983. They conclude that changes in labour supply behaviour played a major role, as opposed to changes in the prevalence of characteristics related to work among women, such as education levels. They suggest that this was affected by the introduction from the 1970s of more stringent employment and equalities legislation. Gutiérrez-Domènech and Bell (2004) extend this analysis to the period 1984-2002. They also find that in the 1980s changes in behaviour mostly contributed to female participation growth, whereas in the 1990s growth was driven by changes in the characteristics of UK working-age women. Overall however, they suggest that periods of greater female participation changes, for example the 1980s, are those in which changes in behaviour have a positive and significant impact.

The extent to which the rise in female participation can be explained by increases in relative real wages has been well-studied. Smith and Ward (1985) find that rising real wages accounted for 60% of the total expansion in the US female labour force during the 1950-1980 period. Layard et al. (1980) estimate labour supply elasticities from the 1974 British General Household Survey, concluding that real wages explained about one third of the increase in female participation between 1973 and 1977. Huang (2018) discusses how the decline in US female labour force participation observed since 2000 may be associated with falling real wages among women once education levels are accounted for. Related is the evidence on the so-called added-worker effect, whereby women might theoretically increase their labour supply due to a reduction in their partner's income (Layard et al., 1980; Attanasio et al., 2005; Benito and Saleheen, 2013). This has been a popular explanation for the rise in US female participation in the 1970s and 1980s, since this period also coincided with a significant decline in aggregate male wage growth. However, Juhn and Murphy (1997) show that the individual-level evidence during this period tells a different story: the most rapid increases in US female labour supply during this period were among women married to men with relatively high wages, and high-wage men also experienced greater wage increases over this period; conversely women married to low-wage men slowed their rate of labour force entry in the 1970s and 1980s, just as their husbands' wage growth also declined rapidly.

Besides real wage increases, Greenwood et al. (2005) describe how the development of labour-saving technology in the household sector, such as washing machines and microwave ovens, could explain more than half the rise in US female labour force participation between 1900 and 1980. Technological

[4] See Olivetti (2006) and Eckstein and Lifshitz (2011) for prominent examples of the latter, both studying US female employment increases since the 1960s.

progress in the home has also been a significant driver of the decline in marriage and the rise in divorce in the US, which have had additional effects on US employment gaps and income inequality, especially between households (Greenwood et al., 2016). Other advances in the household, affecting the time costs of women's reproductive role and their comparative advantage in childcare, for example instant (baby) formula, were probably significant in married women's increased participation in the mid-part of the 19th century (Albanesi and Olivetti, 2016).

The impacts of legislation and other institutional developments have also been widely studied. These have affected, for example, fertility rates, medical advances and the tendency of women to marry later (Goldin and Katz, 2002), to plan childbearing and their career (Bailey, 2006), and to reconcile work and motherhood (Albanesi and Olivetti, 2016). Specifically, Olivetti and Petrongolo (2017) find little compelling evidence for the impact of parental leave on gender gaps in a set of OECD countries, while finding stronger evidence for the positive impact of early childhood spending and in-work benefits. For Britain, Gregg et al. (2007) conclude that it was the interaction between legislative measures and increases in relative earnings, along with the reduction in taxation of part-time work, that determined the overall transformation of married women's employment between 1974 and 2000. These effects on the British labour market were not uniform, but mostly concerned women with employed partners and relatively high levels of education.

A common theme of these explanations and the related empirical evidence is that the issue of gender labour supply cannot be separated from what happens at the household level. Indeed, some of the most prominent research on labour supply has emphasised the household context in which work and consumption decisions take place (e.g., Blundell and Macurdy, 1999; Doepke and Tertilt, 2016). Moreover, the development of women's employment during most of the 20th century was a story of increased *married* labour force participation driving the overall level. A more recent literature has suggested that the economic nature of households, and especially the differences between them, has changed markedly in recent decades. Gregg et al. (2010) document the conflicting trends between individual and household labour market outcomes for the US, Britain, Germany, Spain and Australia. In these countries, individual worklessness rates have fallen over the past two decades, while household-based rates have not. For the UK, Gregg and Wadsworth (2001, 2008) find that the most important contribution to these trends has come from work polarisation across households. For a given employment rate, there have been large increases in the prevalence of dual-earner and no-earner couples over time. Jobs appear to have transferred to better-educated women, while older and less-educated men have lost out. These groups of men and women do not typically share the same households.

Stalling gender employment gap progress

Few studies focus on explaining the stalling of progress since the 1990s. Goldin (2006) points out that whether or not the trend in US women's participation has levelled off depends on the age group examined. The evidence shows that women in their 30s continue to be committed to the labour force, probably because "they were in the labor force for longer before they married, invested more in formal and informal training, and shaped their identities before having children". Blau and Kahn (2007)'s analysis of US married women's labour supply finds that most of the change since the 1990s is explained by the dramatic 50% reduction in women's own wage labour supply. Considering that a husband's own wage elasticity did not

change substantially in this period, they conclude that married women's and married men's responses to wages were becoming more similar.

Aaronson et al. (2006) show how the lower US participation rate since 2000 is in stark contrast to the increasing trend of the previous three decades. They suggest that the stall since the mid-1990s in the progress of higher female participation, with each successive birth cohort, was associated with cohorts of women born since the 1950s not having substantially greater attachment to work than those before them. This is confirmed by Lee (2014), who finds this was the case regardless of education, childbearing, caring responsibilities and marital status. Juhn and Potter (2006) also suggest that the female rate is unlikely to rise above the level seen in the 1990s, unless there are Government or private sector-led initiatives, such as the expansion of income tax credits, changes to social security that increase the retirement age and employer-led initiatives to improve flexible working. Fortin (2015) suggests that gender-role attitudes explain a third of the US levelling off: post-1966 birth cohorts hold more traditional gender-role attitudes than the baby-boomer cohort, particularly regarding housewifery. Macunovich (2009), also for the US, finds that the reversal in the pattern of ever greater female employment rates has not only been among highly educated women with young children, but has been more general and especially marked among single women, women with no children, and women with more than 16 years of education (college graduates), who have high marriage and fertility rates.

In summary, substantial explanations are still missing on the stalled GEG since the 1990s, while most research has focused on the longer-term increase in female employment or participation. Regarding the latter, three explanations appear to be the most prominent: the relative increase in female real wages, the household dimension, and the potential role played by structural changes to the economy and the associated increase in the employment share of the services sectors. In what follows, we provide further evidence on the latter two of these explanations for Great Britain, and we discuss briefly the role of the gender wage gap at the end.

3 Did the British gender employment gap stall for some but not for others?

We use microdata from Great Britain's General Household Survey (GHS) covering the period 1972-2006. This was a repeated annual cross-section study, collected as a stratified random sample, and contains information for households and all their individual members.[5] We exploit a time series (or pseudo-cohort) version of the dataset for 1972-2004 created by the UK's Office for National Statistics (ONS). We further extend this time series to 2006, to before the onset of the global financial crisis of 2007-08 and the UK's subsequent Great Recession, and add some information from the annual datasets. We only use variables that change minimally over the period in question, and so can be considered approximately as part of a consistent time series dataset.[6]

The main variable of interest is employment status. The personal characteristics we focus on as potential explanatory variables are age groups [6 categories], highest qualification [4], number of dependent children

[5] We favour this source over the Labour Force Survey (LFS), from which official UK time series of aggregate employment are derived, because the information collected by the GHS is more detailed and more consistent over time, with fewer changes in the sampling methodology or the survey questions, especially concerning the key variables of interest here. Similarly, we prefer the GHS to the British Household Panel Survey, as the latter only covers the post-1990 period and suffers from sample attrition.

[6] The GHS was redesigned extensively from 2006 and the micro data thereafter becomes inconsistent, explaining our restricted period for analysis. Although we would have ideally looked at the past decade too, the UK GEG has been approximately constant since the Great Recession (Online Appendix Figure A1), and so this lack of more recent data should be unlikely to affect our conclusions about how the stalled gender equality progress from the early 1990s came about.

[3], whether at least one of those children is an infant (aged less than 5 years: pre-compulsory UK school age) [2], and marital/partner status [2].[7] For those who are married, cohabiting, or in a same-sex couple, the partner's employment status [2] and highest qualification [4] are also considered. Once these characteristics are fully interacted, besides age groups which are only considered later, there are 180 distinct 'types', or groups, of workers. For example, one of these distinct types contains married men/women, who have a degree and two non-infant children, whose wives/husbands are employed and have further education qualifications. We choose not to use the household income data in the GHS for two reasons. First, it is not consistently recorded across the entire period we analyse. Second, there is a high rate of non-response to the income section of the survey. Consequently, we are unable to consider the role of partner income on individual labour supply directly, but we can capture its impact on the GEG to the extent that it is correlated with partner qualifications. Similarly, hours worked data in the GHS are inconsistently measured and collected over time, and feature high non-response rates.

The final analysis dataset includes partnered and single individuals of prime-working-age (aged 25-54), with non-missing values for all the explanatory variables, including the partner characteristics. This contains approximately 7-12 thousand observations per year. To smooth the time series, we pool the annual samples in each rolling three-year period: i.e., estimates in what follows for 1973 are based on the pooled sample of households for 1972-1974. Online Appendix A provides further details on the GHS, its design, how our sample was constructed and how all variables were derived, including all their categories. Online Appendix Figure A1 shows that, for the resultant sample, the trends we observe in the male and female employment rates and, especially, the level of the gap between them match those published by the ONS for the full UK working-age population over the period 1972-2006.

What a gender-blind distribution of work could look like

To illustrate how the GEG has changed over time, in the context of shifting demand for worker characteristics, we begin with a motivating and descriptive representation of what a 'gender-blind' distribution of work could look like in Great Britain. Let the observed employment rate of a worker with gender $g \in \{m, f\}$ and type of personal characteristics i be e_{ig}. The share of the male or female population who are type i is given by α_{ig}. Terms referring to non-gendered employment rates or shares of the population omit the g subscript. A starting point for a *counterfactual* gender-blind distribution of work is one where only differences in population type shares, taking as given the non-gendered employment rate for each type, would determine the GEG:

$$GEG_{Cf} = \sum_i (\alpha_{im} - \alpha_{if}) e_i \ . \tag{1}$$

We then describe an *adjusted* gap, subtracting this counterfactual from the *actual* value, thus addressing how much of the GEG in any period is not accounted for by the different distribution of worker types among men and women:

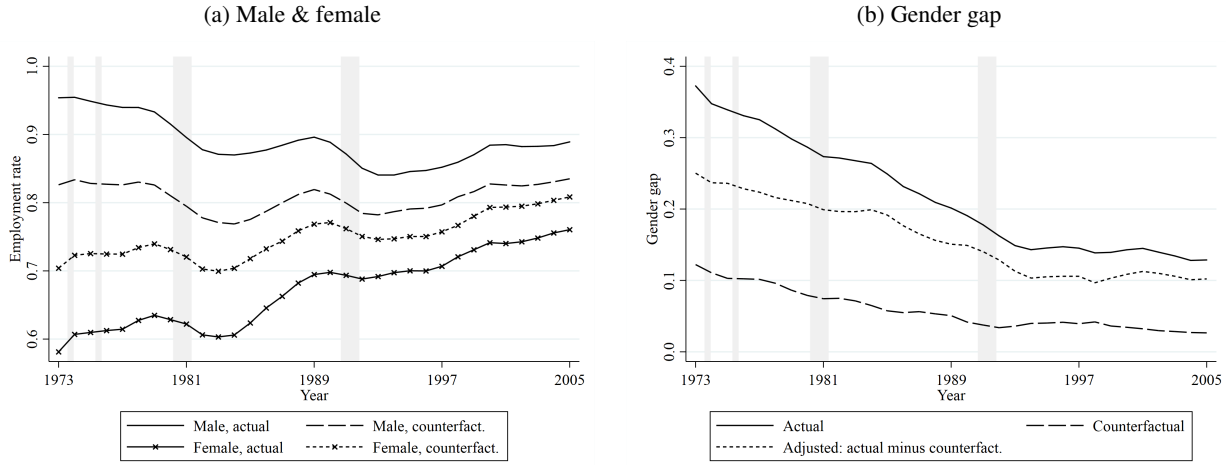
$$GEG_{Adj} = GEG - GEG_{Cf} \ . \tag{2}$$

In this way, we describe what the GEG would be if the type-specific employment rates of men and women were the same. Or, in other words, what the GEG would be if it was determined only, for example, by higher employment rates for those with degrees, or for those who are married, and so on.

[7] The values in square brackets give the number of derived categories for each of these variables which we use in the following analysis.

Figure 2 shows these measures of the actual, counterfactual and adjusted gaps over four decades since 1973 (panel b), along with the associated employment rate series of men and women (panel a). The actual GEG declined consistently until 1993, falling from 38 to 15 percentage points. Thereafter, it levelled off, decreasing by only a further 3 points by 2005. During this later period, female employment continued to increase, but male employment reversed its previous trend. The counterfactual gap also decreased from around 10 percentage points in 1973 to 5 in 1993: if men and women had gender-blind employment rates, we would have expected to measure a decrease in the GEG between 1973 and 1993 which was less than a quarter of that actually observed. The overall non-gendered composition of British employment moving through this period tended to decreasingly favour the personal characteristics held by men relative to women. Not only do gender differences in workers' type-specific employment rates account for most of the GEG throughout these four decades, but they also account for the majority of its decrease too. Since 1993, they also account for the entirety of why the narrowing of the GEG has stalled: despite accounting for a minority of the actual gap's decrease before 1993, the counterfactual accounts for all the decrease since then to 2005. This suggests that the changing overall composition of work, and the non-gendered supply or demand of personal characteristics to the labour market, is unlikely to explain why progress in closing the GEG has stalled more recently. Instead, this motivates us to look for evidence of changes in the gender-specific trends of labour supply *behaviour*.

FIGURE 2: Gender employment rate and gap estimates, age 25-54.



Notes.- author calculations using General Household Survey, 1972-2006. Gap is expressed as male minus female. The *counterfactual* should be interpreted as the level or gap which would occur only due to the different relative prevalence of characteristics among men and women; i.e., not because similar men and women have different employment rates. Shaded areas denote official periods of UK recessions.

These general measures, and our discussion thereof, offer little in the way of any specific explanations for why the GEG appears to have stalled since the early 1990s. We attempt to address this in what follows. Also, this gender-blind analysis is limited by the extent to which the values e_i, being functions of both e_{if} and e_{im}, provide a reasonable way to construct a counterfactual. By construction, the actual employment rate for each worker type is endogenous to the disproportionate demand and supply of male and female work throughout the economy. The distribution of work across personal characteristics could in fact be significantly different in a truly gender-blind economy.

Worker characteristics and household employment

To assess how the GEG has changed over time and to disentangle the roles of the gender type-specific employment rates and the composition of types in the population, we improve on the analysis above in two steps. First, we carry out a shift-share analysis of male and female rates, and consequently the GEG, which sheds some light on what factors can account for the latter's trends. We then apply a regression-based decomposition of the changes in male and female employment rates and the GEG through time. This latter approach considers each set of worker and household types jointly, compared with the shift-share analysis, which can only address in turn the unconditional contribution from the changes in the employment rates associated with each mutually exclusive set of characteristics. To focus on accounting for why the GEG has stalled, we split our analysis period into equal length sub-periods, thus decomposing changes relative to initial values in years $z \in \{(19)73, 89\}$.

Shift-share analysis

Starting with the shift-share analysis, the change in the GEG can be written as:

$$\Delta_{t-z} GEG_t = \sum_i \Bigg[\underbrace{(\Delta_{t-z}\alpha_{imt})e_{imz} - (\Delta_{t-z}\alpha_{ift})e_{ifz}}_{\text{Composition shifts}} + \underbrace{\alpha_{imz}(\Delta_{t-z}e_{imt}) - \alpha_{ifz}(\Delta_{t-z}e_{ift})}_{\text{Employment rate changes}} \Bigg] + \text{ Interactions }, \tag{3}$$

where t denotes some year subsequent to the initial value and Δ_{t-z} denotes the difference operator relative to that initial period.[8] The 'Composition shifts' represent how much of the change in the GEG between years z and t is due to changes in each of the shares of the male and female populations who are type i. The 'Employment rate changes' represent how much of the change in the GEG is accounted for by differences between the employment rate changes of male and female worker types.

Table 1 reports the results of the shift-share decomposition. The last two columns account for how the GEG declined by 17 percentage points between 1973 and 1989 but only by 7 points between 1989 and 2005. Composition shifts account for a third of the change in the GEG in the second period, compared with around an eighth in the first period. Employment rate changes account for the clear majority of why the GEG declined in the first period, and the lack of similar changes in the second period accounts for why its decline slowed during this time. This slowdown appears to be driven by a decrease of 11 and an increase of 7 percentage points in the male and female rates in the first period, respectively, with comparable decreases of 4 and 0 percentage points in the second period. This suggests that it was these latter changes, as opposed to those in the composition of the prime-working-age population, that accounted for the declining pace of the GEG decrease from the 1990s onwards.

Table 1 also shows how between 1973 and 1989 the fall in the GEG was mostly accounted for by changes in the employment rates of men and women with no qualifications, increasing the overall female rate by 3 percentage points, and decreasing the male rate by 9 points. However, between 1989 and 2005

[8] We admit the interaction terms, rather than re-scaling initial values to their averages over the periods in order to get rid of them. We favour this approach because the interpretation and graphical representation of what each component accounts for is more straightforward, since it is based on actual employment rates and shares at some initial point in time.

TABLE 1: Shift-share decomposition of changes in overall employment rates and the gender employment gap, 1973-89 and 1989-2005 (ppts)

	Male		Female		GEG	
	73-89	89-05	73-89	89-05	73-89	89-05
Composition shifts	0.8	2.3	3.1	4.8	-2.3	-2.5
Employment rates	-10.9	-3.8	7.4	0.0	-18.3	-3.8
Interactions	4.3	0.8	0.8	1.7	3.5	-0.9
Total (actual)	-5.8	-0.7	11.3	6.6	-17.1	-7.3
Employment rates:*						
By highest qualification:						
None	-8.7	-2.1	3.3	-2.1	-12.0	0.1
Any below A-level	-1.6	-1.1	3.0	1.4	-4.6	-2.5
A-level or prof.	-0.4	-0.5	1.0	0.6	-1.4	-1.1
Degree	-0.1	-0.2	0.1	0.1	-0.2	-0.3
By dependent children:						
No children	-4.0	-2.7	1.1	-1.2	-5.0	-1.5
>0, no infant	-3.6	-0.6	2.9	-0.5	-6.5	0.0
1-2, incl. infant	-1.6	-0.5	3.0	1.9	-4.6	-2.3
3+, incl. infant	-1.7	-0.1	0.5	-0.1	-2.2	0.1
By partner status:						
No partner	-7.0	-1.9	-0.3	-0.6	-6.7	-1.3
Partner employed	-1.5	-0.7	9.6	1.4	-11.1	-2.1
Partner non-employed	-2.3	-1.2	-1.9	-0.8	-0.4	-0.4

* Contributions from changes only in the employment rates associated with each mutually exclusive set of characteristics; i.e., each set of contributions sums to the overall contribution for the time period from 'Employment rates' stated above.

Notes.- author calculations using General Household Survey, 1972-2006, ages 25-54 only. Gap (GEG) expressed as male minus female (changes).

both male and female employment rates for those with no qualifications decreased by 2 percentage points. Therefore, the majority of the slowdown in closing the GEG is accounted for by the employment rates of men and women with no qualifications equally worsening in recent decades, whereas previously women's increasing relative employment in this group had rapidly contributed to closing the GEG.

Looking at the contribution of employment rate changes solely by the individual's dependent children type, much of the reduction in the pace at which the GEG declined between the two periods can be accounted for by the changes for those with no children or no infant, and especially for women in these categories. The increasing employment rate of women with no, or non-infant children initially contributed to decrease the GEG before 1989, but from 1989 to 2005 the employment rate of these types decreased.

In terms of 'partner status', it was the large increase in the employment of women with employed partners in the first period, relative to the second, that accounted for the stall in the closing of the GEG. Over half the contribution of overall employment rate changes in 1973-1989 was driven by changes in the employment rate of these women, whereas in 1989-2005 this proportion fell to just over one third. The reduction in the employment rate of men with no partner accounted for roughly two thirds of the reduction in the overall male employment rate in 1973-1989, compared with just less than half in 1989-2005.[9]

[9]Online Appendix Figure B1 depicts the male and female employment rates and the gap between them implied, relative to the base years of 1973 and 1989, only by changes in the distribution of single or partner households among men and women. Panel c therein shows that these implied changes in the gap are small relative to each base year, suggesting that it was not simply changes

Regression-based decomposition

Equation 3 and the results in Table 1 only allow for comparisons of the impact of employment rate changes for each mutually exclusive set of characteristics. We now quantify how much of the change in male and female employment rates, and the gap between them, can be jointly explained either by changes to the composition of the workforce or by changes to some estimated parameters which associate individual or household characteristics with employment more generally. To do so, we use the Blinder-Oaxaca decomposition as extended for use in binary-response models (Fairlie, 1999, 2006; Bauer and Sinning, 2008). We consider double decompositions, looking at changes in the employment rate gap over different periods of time. In other words, we consider what explains the differences in the changes in male and female employment rates in some period, and combine this to assess the impact on the GEG.[10] We also apply a threefold extension of the Blinder-Oaxaca method, as proposed by Daymonti and Andrisani (1984), as this allows us to carry out a decomposition explicitly fixing certain variables at their initial levels within each period.

With our dataset being a pseudo panel, as opposed to a true panel, it is not entirely possible to disentangle the changing preferences and behaviours of individuals across cohorts from the true relationship between observable worker characteristics and employment. For instance, even if our samples in 1973 and 1989 were identical based on a set of observable characteristics, it may be that the labour supply choices of individuals across time periods differ due to shifts in preferences or values. This means we are unable to say, for example, that any estimated effects from parameter changes are entirely due to exogenous changes in labour supply behaviour. As a result, we do not identify any effects net of selection in our regression-based decompositions, nor do we account for any feedback in the supply and demand of certain individual characteristics. In an ideal scenario, but one which is impossible, we would be able to observe individuals in each period as each worker type. Nonetheless, as we are concerned with the relationship between aggregate employment and individual characteristics, having a nationally representative sample in each time period is beneficial. It is possible that large demographic shifts, for example in the prevalence of early retirement or school leaving ages, could result in our worker samples differing systematically over time. Focusing on a sample of prime-working-age individuals in each period should help to alleviate this problem, by excluding those at the extremes of the labour force age distribution.

We first estimate logit models of male and female employment in selected years, without a constant term. The independent variables considered in these models, contained in the regressor matrices $\mathbf{X}_{gt}$, are dummies for an individual's five-year banded age [6 categories], partner characteristics (the interaction of whether or not single and their partner's employment status and highest qualification level) [9], dependent children (0, 1-2, 3+, interacted with whether any of the children is an infant) [5], and highest qualification [4], with omitted categories and all variables constructed as described in Online Appendix Table A2. From each of these models we take the vector of parameter estimates, $\widehat{\beta}_{gt}$, which represents the change in probability of employment associated with a change in each variable in $\mathbf{X}_{gt}$. We then decompose the

in the prevalence of single or couple households that drove the GEG's pattern over time. Online Appendix Figures B2-B4 also provide comparable illustrations of changes for each of the mutually exclusive set of characteristics described in Table 1.

[10] This is a simple extension of the Blinder-Oaxaca that has been widely applied before. For a prominent early example see Smith and Welch (1989) applying this to account for changes in the black-white wage gap in the US over time.

change in the GEG between the initial year z and time t as:

$$\begin{aligned}\Delta_{t-z}GEG_t = &\underbrace{\left\{E_{\beta_{mz}}[e_{mt}|\mathbf{X}_{mt}] - E_{\beta_{mz}}[e_{mz}|\mathbf{X}_{mz}]\right\} - \left\{E_{\beta_{fz}}[e_{ft}|\mathbf{X}_{ft}] - E_{\beta_{fz}}[e_{fz}|\mathbf{X}_{fz}]\right\}}_{\text{Composition}} \\ &+ \underbrace{\left\{E_{\beta_{mt}}[e_{mz}|\mathbf{X}_{mz}] - E_{\beta_{mz}}[e_{mz}|\mathbf{X}_{mz}]\right\} - \left\{E_{\beta_{ft}}[e_{fz}|\mathbf{X}_{fz}] - E_{\beta_{fz}}[e_{fz}|\mathbf{X}_{fz}]\right\}}_{\text{Coefficients}} \\ &+ \{E_{\beta_{mt}}[e_{mt}|\mathbf{X}_{mt}] - E_{\beta_{mt}}[e_{mz}|\mathbf{X}_{mz}] + E_{\beta_{mz}}[e_{mz}|\mathbf{X}_{mz}] - E_{\beta_{mz}}[e_{mt}|\mathbf{X}_{mt}]\} \\ &\underbrace{-\{E_{\beta_{ft}}[e_{ft}|\mathbf{X}_{ft}] - E_{\beta_{ft}}[e_{fz}|\mathbf{X}_{fz}] + E_{\beta_{fz}}[e_{fz}|\mathbf{X}_{fz}] - E_{\beta_{fz}}[e_{ft}|\mathbf{X}_{ft}]\}}_{\text{Interactions}}\end{aligned} \tag{4}$$

where $E_{\beta_{mz}}[e_{mt}|\mathbf{X}_{mt}]$ is the expected male employment rate conditional on the labour force composition observed in period t, but evaluated with the parameters that associate characteristics with employment in period z. We use parameter estimates $\widehat{\beta}_{gt}$ from each gender-year employment model as estimates of β_{gt}. The 'Composition' effect gives the change in the GEG explained by changes in the distribution of observables in $\mathbf{X}_{gt}$. The 'Coefficients' effect is the amount explained by changes in the response of employment rates, $\widehat{\beta}_{gt}$, acting via the initial distribution of observable characteristics in the labour force. With this effect derived directly from the coefficients of individual year-gender employment models, any differences in impact across time periods may capture changing labour supply or demand behaviour. The final two rows of Equation (4) give the 'Interactions' contributions, resulting form our preferred threefold decomposition approach. These have no simple interpretation, other than being what cannot be accounted for by the composition or coefficients effects. Since we use categorical variables, and so that our results and interpretation are invariant to the choice of the omitted categories, we do not report or interpret the individual coefficient estimates in the model or the decomposition.[11] For example, we will focus on the role of dependent children more generally, rather than trying to identify the specific effects of having three or more children.

The results of this double (time and gender) Blinder-Oaxaca decomposition are summarised in Table 2 and Figure B5 (Online Appendix Tables B1 and B2 contain more detailed results with standard error estimates). Focusing on the last two columns of Table 2, which show the change in the GEG, the overall Coefficients effect accounts for the vast majority of the decline in the GEG and its stall since the early 1990s: between 1973 and 1989, these effects made up over 90% of the decline, in contrast to 75% between 1989 and 2005. More specifically, what appears to be driving both the decline and stall is the Coefficients effect for partner characteristics. This accounts for almost 12 percentage points, or around 70%, of the total decline of the GEG between 1973-1989. In the second period, however, this effect accounts for none of the decrease in the GEG. For men, changes in the regression model coefficients relating their partners' characteristics to their own employment likelihood reduced the overall male employment rate by 9 and 8 percentage points in the first and second periods, respectively. Comparable changes for women, however, resulted in an increase of 3 percentage points in the female employment rate in the first period, but a decrease approximately equal to that of the male rate in the second period. This reversal between periods would suggest a significant change in how the characteristics of women's partners affected the likelihood they were employed.

[11] Oaxaca and Ransom (1999) discuss this invariance of the effect of categorical variables in a linear decomposition. Although our decomposition is non-linear, we do not interpret any of our estimates without this consideration.

TABLE 2: Blinder-Oaxaca type decomposition of changes in overall employment rates and the gender gap, 1973-89 and 1989-2005 (ppts)

	Male		Female		GEG	
	73-89	89-05	73-89	89-05	73-89	89-05
Composition:						
Age/Cohort	0.1	-0.1	0.6	-0.2	-0.5	0.1
Partner charcs	1.0	0.9	-1.9	-1.4	2.9	2.4
Dependent chld.	0.2	0.0	3.0	0.3	-2.8	-0.3
Highest qual. (self)	1.0	2.0	3.0	5.7	-1.9	-3.7
Subtotal	2.3	2.8	4.7	4.4	-2.3	-1.5
Coefficients:						
Age/Cohort	-5.1	1.2	0.3	3.0	-5.5	-1.9
Partner charcs	-8.8	-8.3	3.0	-8.4	-11.8	0.1
Single	*-1.3*	*-1.1*	*-2.2*	*-2.5*	*0.9*	*1.4*
Non-employed partner	*-5.6*	*-1.8*	*-0.4*	*-1.3*	*-5.2*	*-0.5*
Employed partner	*-2.1*	*-4.2*	*4.3*	*-7.0*	*-6.4*	*2.8*
Partner quals.	*0.2*	*-1.3*	*1.3*	*2.3*	*-1.1*	*-3.5*
Dependent chld.	1.0	1.5	-1.2	1.8	2.2	-0.4
Highest qual. (self)	2.6	1.6	3.5	5.0	-0.9	-3.3
Subtotal	-10.3	-4.0	5.6	1.4	-15.9	-5.5
Interactions	2.1	0.5	1.0	0.8	1.1	-0.4
Total (actual)	-5.8	-0.7	11.3	6.6	-17.1	-7.3

Notes.- author calculations using General Household Survey, 1972-2006, ages 25-54 only. The contribution from individual covariates are grouped as follows – 'Age/cohort': dummy variables for age groups; 'Partner chars': marital status interacted with dummy variables for a partner's employment status and their highest qualification; 'Dependent chld.': interaction of dummy variables for number of children and whether or not there is an infant in the household; 'Highest qual. (self)': individual's highest qualification level. See Online Appendix Table A2 for more details, incl. omitted categories.
Since we exclude the constant term from the regression equations, there is no omitted category for {Single, Non-employed partner, Employed Partner}.

Table 2 also shows the results from decomposing further the joint Coefficients effect from partner characteristics. Again, focusing on the last two columns, the difference between the two periods in the specific Coefficients effects of having a non-employed or employed partner is what drove the overall change in the GEG. In the period 1973-1989, the effect representing changes in how having an employed partner predicted an individual's own employment likelihood accounted for 4 of the 11 percentage points increase in the female employment rate. In the following years to 2005, however, this effect accounted for a 7 percentage point reduction in the female employment rate. The comparable Coefficients effects reduced the male employment rate over both periods. But across the two periods, there is a large reduction in the male effect from having a non-employed partner. Between 1973 and 1989, this particular effect accounted for a fall in the male employment rate of over 5 percentage points. Thereafter to 2005, the same Coefficients effect only explains a further 2 percentage points decrease in the male employment rate. In Table 2, partner qualifications contribute to the closing of the GEG to a *greater* extent in the second period. This shows that females with highly qualified partners were more likely to be employed in the second period than the first, while the opposite was true for males. Whilst we cannot directly estimate the impact of partner income on the likelihood of employment, it is conceivable that partner qualifications partially capture its effect: given that those with higher qualification levels earn more on average, we could expect a similar pattern in Coefficients effects for income if it were included in our regressions.

The importance of partners' employment status, which appears to have shifted the male and female employment trends, raises concerns of potentially important omitted variables. Some predictors of an individual's employment status are potentially missing from our analysis, such as disability status. These missing worker characteristics could be more or less correlated over time with those we are able to include in the regression models. For example, it may be the case that a large proportion of men have partners who are non-employed because of high levels of household wealth. If there were large increases over time in the number of men with wealthy, non-employed partners, then the estimated employment effects of having a non-employed partner would be overestimated, and the associated Coefficients effects we account for in the decomposition would then be exaggerated between periods. Similarly, we cannot rule out that the estimated Coefficients effects of the partner characteristics here are reflecting other variables which are missing from the analysis, such as the hours worked and wage rates of partners.

Table 2 also shows that a large proportion of the overall change in the GEG is attributable to the Coefficients effects of what we label 'Age/Cohort': around a third and a quarter in 1973-1989 and 1989-2005, respectively. In this decomposition it is not possible to disentangle the role of the life cycle from birth cohort effects. However, we can see that, although large, our estimates of these effects did not have a major role in explaining why the GEG's progress has stalled, relative to the much greater role of the partner characteristics effects.

There is evidence in Table 2 that improved prospects for women who were highly qualified and who had dependent children continued to close the GEG beyond 1990. The last two columns of the table show that changes in the coefficients relating these characteristics to employment reduced the GEG by a larger amount in the second period relative to the first. Specifically, in 1973-1989, Coefficients effects accounted for a reduction in the likelihood of a woman with dependent children being in employment, however in 1989-2005 they led to a 2 percentage points increase in the female employment rate. Also, while changes in the coefficients relating women's highest qualifications to employment resulted in an increased likelihood of employment in both 1973-1989 and 1989-2005, in the latter period the overall effect was 1.5 percentage points larger. The Coefficients effect in the case of qualifications, however, explains roughly the same proportion of the total change in the female employment rate as the related Composition effect. This suggests that both changes in the distribution of qualifications among women, and how they affect the likelihood of female employment, have been important in preventing a reversal of the overall GEG trend.[12]

4 Does the pace of industrial structural change account for stalling progress?

As summarised before, several studies have attributed the historical pace of structural change - typically describing the rise and fall of industry shares of aggregate output, total hours worked or employment - to trends in gender labour market outcomes in Great Britain and elsewhere. In a general equilibrium framework, changes to industry structure, the demand for specific worker types by those industries, and industry- or worker-type-specific wages, could all be co-determined with the supply of employment by different worker types (see for examples Olivetti and Petrongolo, 2014 and Ngai and Petrongolo, 2017).

[12]Online Appendix Figure B5 depicts results from the decomposition of the change in the GEG using, for illustrative purposes, four equally spaced time sub-periods: 1973-1981, 1981-1989, 1989-1998, and 1997-2005. It shows the reduction in the total GEG in each period. It highlights the relative importance of Coefficients relative to Composition effects, with the latter being smaller in absolute magnitude in all but the last period, when the majority of the slowdown occurred. Online Appendix Figure B6 provides equivalent illustrations for changes in the male and female employment rates individually.

However, the analysis of the previous section broadly takes this co-determination as given, and instead only accounted for how the changing composition of worker types and their associated employment rates might explain the stalled progress in the British GEG since the early 1990s. In this section, we look at the other side of the coin, accounting for the changing pace of industrial transformation in the labour market, approximately taking as given how the prevalence of worker types in employment has also changed over time. Before proceeding, we should note the possibility that changes in male and female labour supply have in fact driven the changing industry composition of British employment. However, as argued by Lee and Wolpin (2006) and Olivetti and Petrongolo (2014), the existing evidence to date suggests this is not a major issue, and that it is a reasonable assumption that the growth in the services sector in developed economies was driven by demand factors associated with technical change, and that labour supply factors were approximately neutral in determining the industry mix of employment.

Shift-share analysis: within and between industry changes in employment

We classify workers in the GHS into one of eight different major industry sectors, which allow for approximately consistent categories over time. Unlike the measures of worker heterogeneity discussed above in Section 3, there are clear breaks in the time series of how British industry has been classified within the GHS. For the period between 1972 and 1980, the survey used the 1968 Standard Industrial Classification (SIC-UK). For the years between 1981 and 1994 it used the 1980 SIC-UK, and for the remaining years in our sample it used the 1992 SIC-UK, which, for comparability, we nonetheless convert to the 1980 classification using ONS correlations. To be confident that the seams between classification schemes are not accounting for any of our findings, we study the role of industrial change in British employment within these three separate periods, and then compare the results across periods.[13]

Like Olivetti and Petrongolo (2016) and Ngai and Petrongolo (2017), who characterise trends in the female share of hours worked in several countries, we quantify how much of the changes in the female share of total employment are accounted for by changes between and within British industry sectors, using a shift-share analysis. Let F_{kt} be the share of all employment in sector k which is female in some period t. The share of sector k in total employment is represented by λ_{kt}. A shift-share decomposition of the change in the whole economy's female employment share, since initial period $z \in \{(19)73, 82, 94\}$, is then given by:

$$\Delta_{t-z}F_t = \sum_k \left[\underbrace{(\Delta_{t-z}\lambda_{kt})F_{kz}}_{\text{Ind. composition shifts}} + \underbrace{\lambda_{kz}(\Delta_{t-z}F_{kt})}_{\text{Within-ind. gender shares}} + \underbrace{(\Delta_{t-z}\lambda_{kt})(\Delta_{t-z}F_{kt})}_{\text{Interactions}} \right]. \quad (5)$$

The results of this decomposition are presented in Table 3. The first component of the above, which we label 'Ind. composition shifts', gives the change in the female employment share since each initial period arising from changes only in the industry composition of employment; i.e., holding constant the composition of employment *within* each sector, but allowing only for changes in the composition of employment *between* sectors. For the periods 1973-9 and 1982-93, approximately half the rise in the female employment share was accounted for by changes in the industry composition of British employment. We also see in Table 3 that for the later period 1994-2005 these between-industry shifts in employment

[13] Online Appendix Table A2 contains further details on how we classified British industry for the purposes of the following analysis.

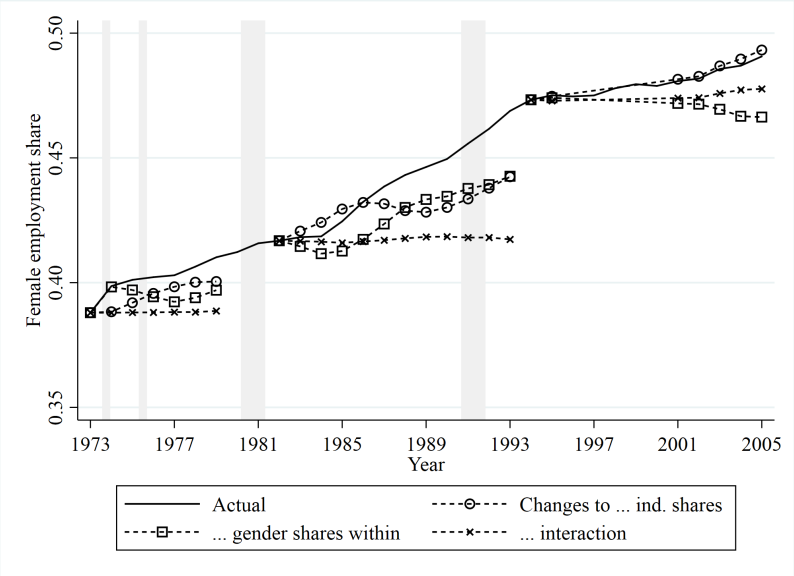
accounted for a rising female employment share at approximately the same rate as before. However, this was after the narrowing of the GEG had stalled, and so these changes then accounted for more than the actual rise in the female share of employment over that period. Based on this evidence, it appears a slowdown in the pace of industrial structural change does not account for the stall in the GEG since the early 1990s. It is, therefore, unlikely that factors such as technical change could explain the stall. Instead, as Figure 3 also shows for changes in the female share of employment throughout each of the three sub-periods, the slowdown in what we label as changes in 'Within industry gender shares' accounts for the stall in gender employment equality.

TABLE 3: Shift-share decomposition of changes in the female share of total employment, 1973-79, 1982-93 and 1994-2005 (ppts)

	73-79	82-93	94-05
Industry composition shifts	1.2	2.6	2.0
Within-industry gender shares:			
Employment-education gender shares	4.0	5.7	1.3
Industry education demand shifts	-1.6	-2.0	-1.9
Subtotal (incl. interactions)	0.9	2.6	-0.7
Interactions	0.1	0.1	0.4
Total (actual)	2.2	5.2	1.7

Notes.- author calculations using General Household Survey, 1972-2006, ages 25-54 only. See Online Appendix Table B3 for a further disaggregation of the 'Within-industry gender shares' component by industry sector.

FIGURE 3: Female share of total employment: levels implied by changes to the overall industry distribution of employment, or the gender shares within industries, since 1973/82/94



Notes.- author calculations using General Household Survey, 1972-2006, ages 25-54 only. Shaded areas denote official periods of UK recessions.

However, the role of factors such as technical change cannot be completely ruled out from the analysis above. For instance, if some industries have tended to employ relatively more highly qualified workers over time, possibly due to technical change, then we would expect this to have negatively affected the female share of employment, since men make up a larger proportion of those with higher qualifications. To assess this, we can rewrite the contribution in (5) from the changes in within-industry gender shares for any industry sector k as:

$$\lambda_{kz}(\Delta_{t-z}F_{kt}) = \sum_i \left[\underbrace{\lambda_{kz}\mu_{ikz}(\Delta_{t-z}F_{it})}_{\text{Emp. type gender shares}} + \underbrace{\lambda_{kz}(\Delta_{t-z}\mu_{ikt})F_{iz}}_{\text{Within-ind. emp. type shifts}} + \underbrace{\lambda_{kz}(\Delta_{t-z}\mu_{ikt})(\Delta_{t-z}F_{it})}_{\text{Interactions}} \right], \tag{6}$$

where μ_{ikt} refers to the share of worker type i in the total employment of sector k, and F_{it} refers to the female share in the total employment of worker type i. What we label 'Within-ind. emp. type shifts' now accounts for the role of changes to the types of workers typically employed in each industry sector. Specifically, we focus on the role of education levels in the workforce over time, i.e., suppose that i denotes the four levels of an individual's highest qualification. Table 3 shows how these 'Industry education demand shifts' do in fact account for a fall in the female share of overall employment in all three sub-periods. Similar to the contribution from between-industry employment shifts, this within-industry component would have accounted for a change in the female employment share at approximately the same rate throughout our sample period. This further emphasises that a change of pace in whatever the labour demand factors might be is highly unlikely to explain the stalled GEG, either through such a slowdown affecting the extent to which employment has moved between sectors, or through how its composition has changed within sectors. Instead, changes to 'Employment-education gender shares' accounted for large rises in the female share of employment before the early 1990s, but only a relatively small amount since. In other words, the GEG patterns over time are mostly accounted for by changes to the female employment shares of different groups of workers, as opposed to changes in what types of workers were employed by particular industries. Overall, this decomposition shows that other factors, as discussed in the preceding section, account for how the recent narrowing of the GEG has stalled in Britain.

Have employment gaps continued to close in some sectors but not in others?

The previous results are largely silent on the heterogeneity in both the level and changes of the gender gaps within industry sectors. To shed light on this, we return to our approach of describing what gender-blind distributions of work could have looked like. In a similar way as before, we derive the female employment shares within each industry sector that we would predict based on those sectors' gender-blind 'demand' for worker characteristics, using the same set of 180 different worker types as before in Section 3. For example, we consider what would be the female share of the Construction sector if it employed men and women with no qualifications, who are married, with no children, etc., in the same proportion as there are such men and women in the prime-working-age population, without any regard for gender. We then subtract these predicted, or conditional, gender-blind female shares from their actual levels in each year, such that a negative value for this difference indicates that women were disproportionately under-represented in that sector. We interpret this as a measure of relative female under/over-representation, conditioning on the composition of worker types employed by each sector. Table 4 shows these differences for the eight major industry sectors and the years 1982, 1993 and 2005, as well as the changes between these years. We see that the difference between the actual female share and its predicted gender-blind level within some

sectors is large, such as Construction, where it stood at −35 percentage points in 1982, falling further over the period. In four sectors there were improvements in conditional female representation for the period 1982-93, which were partly or completely reversed thereafter in the period 1993-2005: Primary divisions, Engineering, Distribution and Banking & finance. In Construction and Other Manufacturing, female representation worsened in both sub periods. In Transport & communications female representation worsened in the first period but improved in the second, and in Other services there were small increases in female over-representation in both periods. In general, despite differences in the patterns between sectors, female representation within the most male dominated sectors, as well as in Banking & finance, appears to have lessened since the early 1990s, whereas there were increases in the decade before. This tells us that the stalled GEG is also symptomatic of women's conditional representation in certain industry sectors lessening, despite the closing of gaps with men in terms of some observable characteristics overall, such as education levels.

TABLE 4: Difference between actual and predicted 'gender-blind' female employment shares by industry (ppts)

				Change	
	1982	1993	2005	82-93	93-05
Primary divisions, 0-2	-27.9	-23.9	-31.4	4.0	-7.5
Engineering, 3	-24.5	-24.2	-27.2	0.4	-3.0
Other manufacturing, 4	-7.9	-10.0	-16.0	-2.1	-6.0
Construction, 5	-34.6	-36.4	-37.0	-1.7	-0.6
Distribution, 6	2.5	3.6	1.3	1.1	-2.3
Transport & comms, 7	-27.2	-27.8	-24.9	-0.6	2.9
Bank & finance, 8	-1.9	-0.3	-4.5	1.6	-4.2
Other services, 9	13.7	14.5	14.8	0.8	0.3

Notes.- author calculations using General Household Survey, 1981-83, 1992-93, 2004-2006, ages 25-54 only. Industry divisions listed are defined by SIC-UK 1980.

5 Summary and further discussion

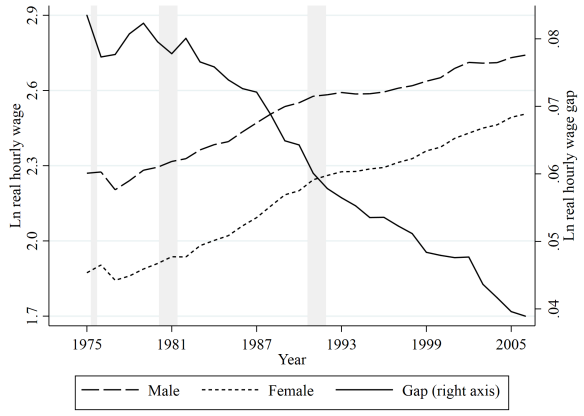
In several developed countries, the movement towards gender equality in the labour market has slowed in recent decades. The trend in this regard stalled for British employment after the early 1990s. We have attempted to answer how this happened. We have found that factors such as technical change, which we observed through their effects on the mixing of employment and worker types between and within industry sectors, do not appear to explain the relative changes in the trends of male and female prime-working-age employment. Similarly, the composition of individual characteristics, between and among men and women, does not address the stalled GEG. Instead we found that changes in the employment rates associated with some individual characteristics, particularly those relating to partners or the lack thereof, account for why the GEG has stalled. Before the shift in trend, the relatively rapid rise in gender equality had tended to take place within households, while employment inequality across households grew: more highly educated women, whose partners tended to also be in paid work, replaced less educated men in the labour force, whose wives or partners did not see their own likelihoods of working increase much at all.

Section 2 discussed some of the evidence on the role that changes in real wages might have played in explaining the long-term rise in female participation: when real wages go up, women tend to substitute

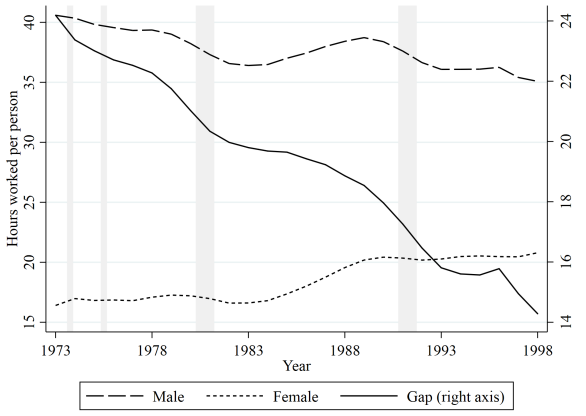
unpaid for paid work or increase their hours of work.[14] Therefore, a natural question we have yet failed to address is whether the stalling of the GEG since the 1990s is associated with changes in UK real wages. Figure 4 shows that, unlike the employment rate, the decreasing gender gaps in real wages and hours worked per person have not stalled in recent decades in the UK. Female real hourly wages increased at a higher rate than male wages between 1975 and 2005, resulting in a generally constant rate of wage gap decrease over the same period. Why did the GEG stall while the real wage gap kept on falling since the 1990s? To potentially rationalise this, we look at the extensive margin: we would expect to see an increasing female participation rate and a reduction in the gender gap in participation. This is shown in Figure 5(a). If this rise in participation did not translate into higher employment, then the increased female labour supply must have resulted in increased unemployment rates, especially among women. However, Figure 5(b) shows that the average unemployment rate gap in the UK has not changed much since the early 1990s, while there is evidence of a shift in the early 1980s, almost a decade earlier, when the male unemployment rate overtook the female rate (see Albanesi and Sahin, 2018, for similar evidence of this pattern in the US). One explanation could be that the constant rate of increase in female real wages is illusory. Huang (2018) has found that the growth in US female real wages in recent decades was more than accounted for by the substantial rise in women's educational attainment. Unfortunately, for the UK, the paucity and inconsistency of the available sources of historical earnings data that can be matched to education records do not allow us to robustly assess this possible explanation.

FIGURE 4: Mean hours worked per person and mean log real hourly wages, with gender gaps

(a) Real hourly wages, 1975-2005



(b) Hours worked per person. 1973-1998

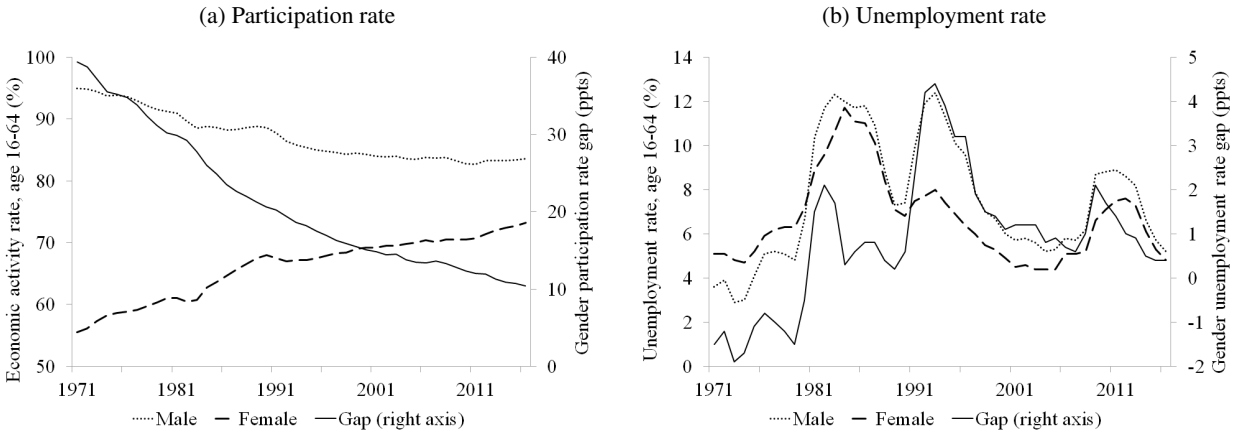


Notes.- the series for "Real hourly wages" are taken from Elsby et al. (2016), who calculated these mean values using the representative British New Earnings Survey Panel Dataset for all employees aged 25-59 in April, excluding the top and bottom 1% of male and female hourly wages in each year. Real wages were expressed in April 2012 pounds using the ONS RPIX prices index. "Hours worked per person" are author calculations using General Household Survey, 1972-1998, ages 25-54 only: the same sample of individuals and households as described throughout Sections 3 & 4. Working hours were not consistently recorded after 1998 when compared with before. See Online Appendix Table A2. Gaps are expressed as male minus female. Shaded areas denote official periods of UK recessions.

Throughout, our analysis focused on aggregate changes in employment differences between the genders, and so has not addressed changes in hours worked or their potential impacts on the likelihood of employment. Figure 4 shows that across the 1990s - after the closing of the GEG had begun to stall - the gender gap in hours worked fell in the UK. Women on average work less hours than men (Figure 4(b)), so reduced demand for part-time work, for example, might have contributed to the stalling of the

[14]There is an extensive literature which looks to estimate the female wage elasticity of labour supply. The most recent evidence points to the importance of heterogeneity across individuals (Attanasio et al., 2015).

FIGURE 5: Gender unemployment rate and participation rate gaps in the UK, ages 16-64, 1971-2016



Notes.- author calculations using ONS Labour Market Statistics (accessed 10/11/2017). Gap is expressed as male minus female. Unemployment rate expressed as the share of economically active persons.

GEG. Although we cannot answer this proposition directly, we could expect that any such mismatch between supply and demand would be reflected in unemployment rates. But Figure 5 shows that the steady increase in Female participation across the 1990s and early 2000s was also met with a steadily declining unemployment rate. Over the same period, male part-time work grew significantly more than female part-time work.[15]

We can also ask whether this stall in employment equality is the new norm: can we expect the GEG to close any time soon? We have shown that between-industry shifts in employment have consistently tended to account for a reduction in the British GEG. We also found that changes in the observable composition of worker types filling jobs within industry sectors, with respect to the levels of education, have over the same period consistently worked against closing the GEG. However, the contribution from between-industry shifts was of a magnitude greater. But it is only practical to envisage that these shifts in employment cannot be limitless. The last UK Census in 2011 showed that 81% of the workforce was engaged in the services sectors, an increase of 6 percentage points compared with 2001, though the preceding decades had seen even larger relative increases in the services share of employment.[16] If the pace of structural change in Britain permanently slows, or that change becomes less friendly to women in terms of the types of jobs created and destroyed, then it is hard to see a path to the GEG closing significantly further.

As summarised before, many previous studies have made clear that the long-run trends and recent patterns in female work have been very much a married women's affair. In looking ahead, however, it seems important to relate this more directly to the findings on household work polarisation of Gregg and Wadsworth (2001) and Gregg and Wadsworth (2008). The household dimension of work sheds light on issues that a singular focus on individual employment rates does not. In our own analysis, we observed that the trends of household polarisation place a set of bounds within which gender employment rates have simultaneously evolved. The substantial growth in female employment before the early 1990s subsequently slowed down as it approached the limit imposed by these bounds; i.e., once there had already been large increases in the employment of women whose partners were also likely to work. The implication is that little further narrowing of the GEG can take place due to further increases in the employment of highly-educated

[15] Source: "Long-term trends in UK employment: 1861 to 2018", ONS (2019): ons.gov.uk/economy/nationalaccounts/...
[16] Source: "Five facts about... the UK service sector", ONS Digital (2016): visual.ons.gov.uk/...

married women. For the GEG to fall further, the bounds placed by the extent of the household polarisation of work imply that the labour market needs to see more women moving into work whose partners are not working or, paradoxically, men whose partners do work to stop working themselves.

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On why the gender employment gap in Britain has stalled since the early 1990s

Online Appendix

September 2020

Appendix A. Further description of the data and sample construction

The General Household Survey (GHS) was a nationally representative survey of individuals living in private households in Great Britain, carried out annually by the Office for National Statistics (ONS) between 1972 and 2006. Before 1988 and after 2004 the GHS was conducted over calendar years, whereas from 1988 to 2004 the survey reported on a financial-year basis, running annually from April to March. The survey was designed to collect consistent and nationally representative information on the social, demographic and economic characteristics of households over time. As such, the survey questionnaire and variables of the GHS were subject to minimal year-to-year changes. To obtain a representative sample of Great Britain, the survey used a probability stratified two-stage sample design, with households stratified first by geographical location and then by economic indicators, such as the proportion of households with no car. The survey run was only broken in 1997/98 and 1999/2000 for review. The former break led to changes thereafter in the survey design, which did not significantly impact any of the key individual nor household variables we use here. The latter break was to review the sampling procedure to continue to maintain representativeness. From 2006 the GHS content was redesigned, as per EU requirements, to contain comparable data to the Survey of Income and Living Conditions (EU-SILC) and became the General Lifestyle Survey (GLS).

We use the GHS Time Series data set, which contains a set of key variables from each annual wave of data between 1972 and 2004. It was originally referred to as the GHS Pseudo-Cohort Dataset. The time series dataset was created by the ONS to analyse changes in social and economic inequalities over those three decades or so. To correct for small discrepancies between years, all variables were adjusted to match their most recent version. For example, all 'Marital Status' variables prior to 1992 were adjusted to contain a category for 'Cohabiting', due to its inclusion as a possible response from that year onward. The time-series dataset only includes variables that were similar and comparable over the entire survey period. As a result, it excludes income data as the income and earnings portion of the survey changed significantly between 1973 and 1982 to bring it in line with the Family Expenditure Survey. The income section of the survey also generally has a high non-response rate of around 11%, compared with around only 1% for most other questions. It also excludes data on hours since these were only recorded up until 1998. An indicative reference for the GHS time series dataset is as follows: Office for National Statistics. Social and Vital Statistics Division. (2007). *General Household Survey: Time Series Dataset, 1972-2004*. [data collection]. UK Data Service. SN: 5664. We favour the GHS Time Series dataset over other annual nationally representative surveys, such as the UK Annual Population and Labour Force Surveys, due to its detail at the household level and its consistent design over a long period of time. We extend the time series dataset by adding some variables from the annual cross-sectional datasets for 1972-2004, such as the UK Standard Industrial Classification (SIC) Job Industry Division of individuals' main job, and by also adding observations and years from the 2005 and 2006 datasets.

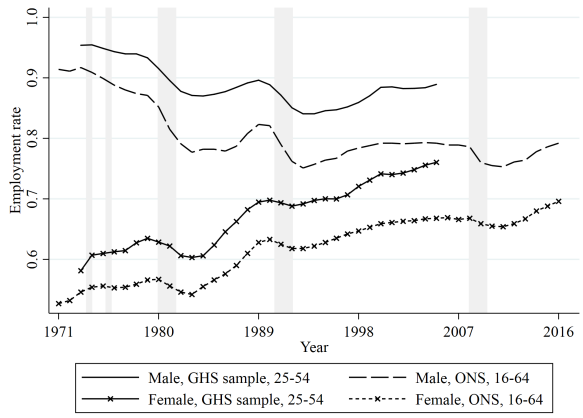
To create a consistent and practical analysis dataset, we drop all observations with missing values for any of the variables later used to define a worker's type, employment status or industry of employer. Partners are matched by identifying compatible pairs of individuals who share the same household and family identifiers, and report to be similarly married, cohabiting or in a same-sex couple. In the tiny number of cases where partners could not be definitively traced within the datasets, these households and individuals were dropped. 'Partner characteristics' are then defined simply as the characteristics of the person with whom each of these individuals was matched. The GHS classifies a family as *"A married or opposite sex cohabiting couple on their own; or a married or opposite sex cohabiting couple, or a lone*

parent, and their never-married children (who may be adult), provided these children have not children of their own". The analysis sample therefore represents an approximate random and representative sample of people aged 25-54 who were living in Britain each year between 1972 and 2006. Table A1 documents a decline in the analysis sample size over the period both for men and women. However, this is not due to any restrictions we place on the sample or increasing survey non-response, but rather a combination of financial constraints faced by the ONS and the use of different sampling procedures over time. In all the analysis described in the main text, we pool the sample for each three-year period to improve accuracy, such that estimates of the employment rate for 1973 are based on the 1972-1974 pooled samples of the GHS. As shown in Figure A1, the trends in both British male and female employment rates aged 25-54, and the gap between them, in the resulting sample of the GHS, match those used by the ONS as UK National Statistics for the working-age population over the same period, derived from the Labour Force Survey. Not only the trends, but the cyclical patterns in the employment rates estimated from the two separate sources are also comparable.

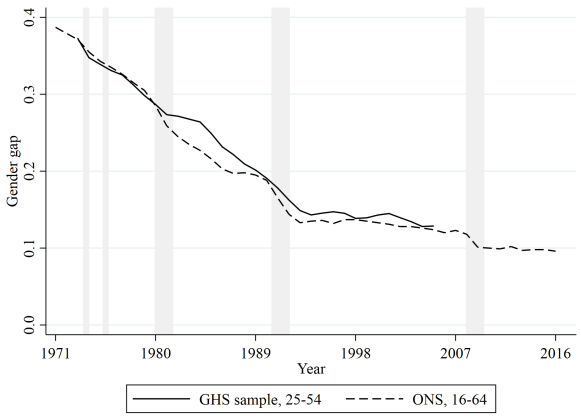
Every man and woman in our analysis sample is assigned to one of 180 mutually exclusive worker types or groups, based on the complete interaction of a set of observable characteristics. For example, married men/women, who have a degree, two non-infant children, a wife/husband who is employed and who also has A-levels as their highest qualification, are assigned to a specific worker type for that exact combination of characteristics. Table A2 below contains notes on the variables from both the GHS Time Series (TS) and annual cross-sectional datasets which were used to define these individual worker types.

FIGURE A1: Comparison of GHS sample (GB) employment rates and gender gap with ONS National Statistics (UK), 1971-2016

(a) Male & female



(b) Gender gap



Notes.- author calculations using General Household Survey, 1972-2006 and ONS Labour Market Statistics (accessed 31/05/2017). Gap is expressed as male minus female. Shaded areas denote official periods of UK recessions.

TABLE A1: Sample number of observations

	Male	Female	Total
1972	5,835	6,017	11,852
1973	5,659	5,933	11,592
1974	4,900	5,101	10,001
1975	5,488	5,694	11,182
1976	5,369	5,626	10,995
1977	5,534	5,664	11,198
1978	5,387	5,521	10,908
1979	5,173	5,317	10,490
1980	5,239	5,311	10,550
1981	5,456	5,579	11,035
1982	4,517	4,696	9,213
1983	4,274	4,467	8,741
1984	4,195	4,317	8,512
1985	4,359	4,472	8,831
1986	4,515	4,705	9,220
1987	4,580	4,748	9,328
1988	4,391	4,601	8,992
1989	4,902	5,080	9,982
1990	4,588	4,754	9,342
1991	4,785	5,013	9,798
1992	4,769	5,113	9,882
1993	4,665	4,947	9,612
1994	4,026	4,376	8,402
1995	3,966	4,384	8,350
1996	3,691	4,011	7,702
1998	3,384	3,720	7,104
2000	3,373	3,726	7,099
2001	3,691	4,046	7,737
2002	3,432	3,850	7,282
2003	4,023	4,413	8,436
2004	3,355	3,776	7,131
2005	4,576	5,080	9,656
2006	3,275	3,767	7,042

Notes.- author calculations using General Household Survey, 1972-2006.

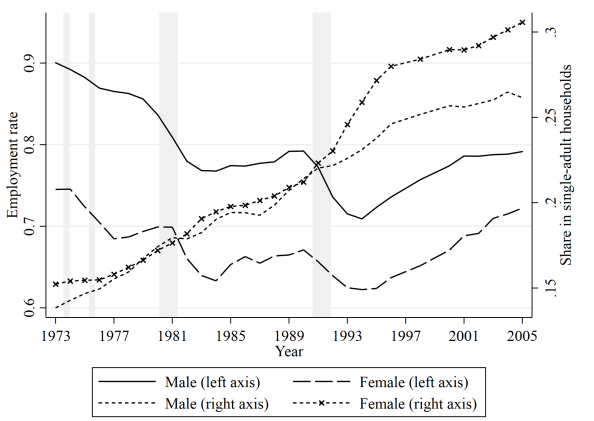
TABLE A2: Notes on time series variables used and derived from the General Household Survey, 1972-2006

	GHS variables	*Notes*	*Derived Categories*
Age	TS: *page*[1] 2005/6: *age*	Individuals were assigned to five-year age groups.	25-29*, 30-34, 35-39, 40-44, 45-49, 50-54.
Highest Qual.	TS: *pedfull* 2005/6: *edlev00*	The 19 and 13 possible levels of education were respectively reduced to 4 major UK levels, with these partly determined by what is most comparable over time in the UK.	None, Any less than A-level*, A-level or professional (High school/ secondary), Degree (College/ tertiary).
Dependent Chld.	TS: *pn0to4, pn5to15* 2005/6: *n0to4, n5to15*	Children defined as being aged less than 16 years. Dependency determined by household relationship variables. Variables give the number of children an individual has aged 0-4, and 5-15 respectively.	None*, 1-2, 3+
Infant	TS: *pn0to4* 2005/6: *n0to4*	Infants are defined as being aged 0-4 years. Indicator created of whether or not a household contained an infant.	Infant in household, or not*.
Employment	TS: *pdvilo3a* 2005/6 *dvilo3a*	International Labour Organization (ILO) definition of employment status. 2 categories generated from the original 3: In employment, unemployed, economically inactive.	In employment, or not.
Marital Status	TS: *pdvmardf* 2005/6: *dvmardf*	2 categories were derived from the original 7. Before 1992 there were only five categories: those for 'Cohabiting' and 'Same Sex Couple' were added in 1992 and 1996 respectively.	Married/ Cohabiting/ Same Sex couple; Single/ Widow/ Divorced/ Separated
Job Industry	1972-80: *indust*	Standard Industrial Classification (SIC) UK 1968 orders. The 24 orders were matched to their respective SIC-UK 1980 industry divisions using ONS correlations.[2] These 10 divisions were then reduced to 8 by grouping the 3 smallest.	Primary Orders $(1, 2, 4, 18)$[3], Engineering (5-9), Other Manufacturing (3,10-16), Construction (17), Distribution (20), Transport & Communications (19), Banking & Finance (21), Other Services (22-24).
	1981: *sicclass* 1982: *sic* 1983-93: *sicr* 1994: *indmain*	SIC-UK 80 industry divisions. These 10 divisions were reduced to 8 by grouping the 3 smallest.	Primary Divisions (0,1,2), Engineering (3), Other Manufacturing (4), Construction (5), Distribution (6), Transport & Communications (7), Banking & Finance (8), Other Services (9).
	1995-97: *indmain* 1998-2006: *indstry1*	SIC-UK 92 industry section sub-classes In 1995/66. These were matched to the suitable SIC-UK 80 industry division using ONS correlations. From 1998-2006 the GHS carried out this conversion. In both cases the 10 industry divisions were reduced to 8 by grouping the smallest 3.	As above.
Hours of Work	1972-1998: *workhrs*	Number of hours usually worked per week excluding overtime. Post 1998 it was not possible to separately identify usual and overtime hours worked.	

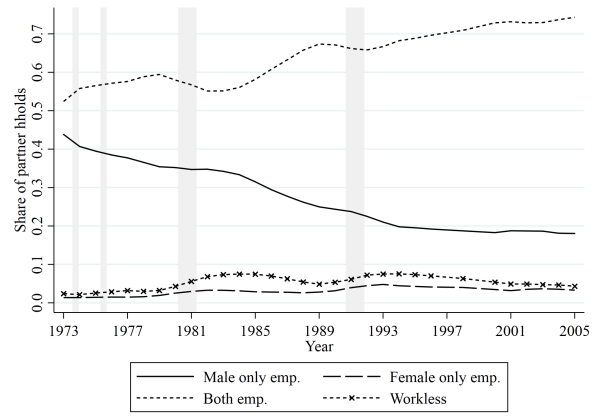
*Indicates the categories omitted from the regression equations and Blinder-Oaxaca decomposition.
[1]Variables preceded by TS are from GHS Time Series dataset, and those by a year from the corresponding cross section.
[2]For the appropriate documentation, see the UK Standard Industrial Classification of Economic Activities Archive
[3]Text is the derived category and numbers in parentheses are the SIC-UK orders/divisions that were grouped.

FIGURE A2: The distribution of work across households, 1973-2005

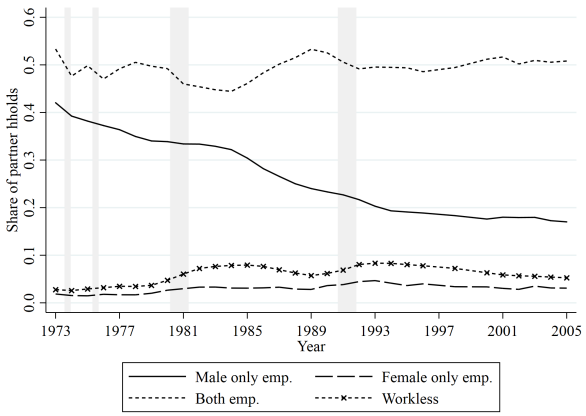
(a) Single-adult hholds



(b) Partner hholds - Male



(c) Partner hholds - Female

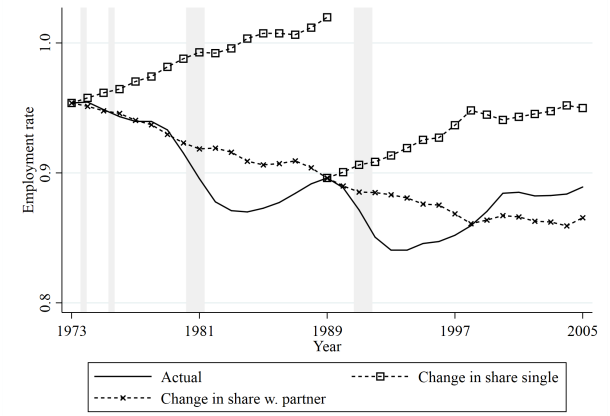


Notes.- author calculations using General Household Survey, 1972-2006. Shaded areas denote official periods of UK recessions.

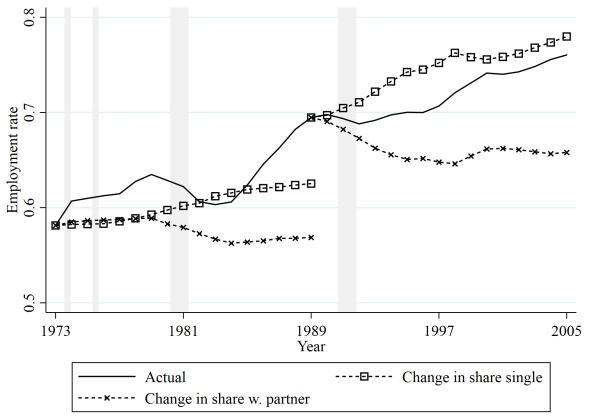
Appendix B. Additional figures and tables

FIGURE B1: Total employment rates and the gender employment gap implied by the changes (*only*) in the prevalence of single adult or couple households since 1973/89.

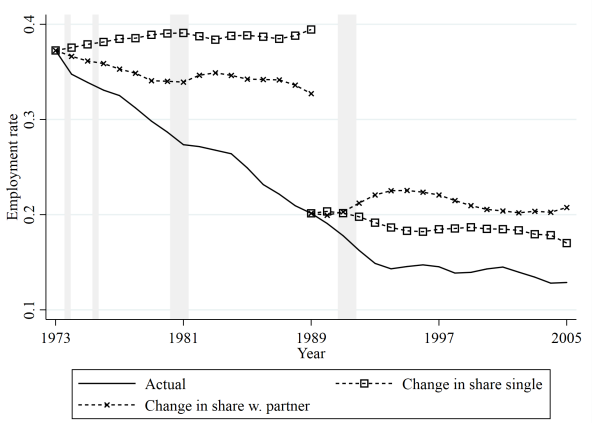
(a) Male



(b) Female



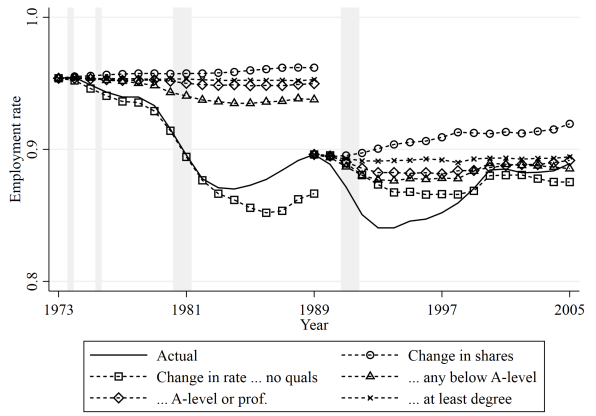
(c) GEG



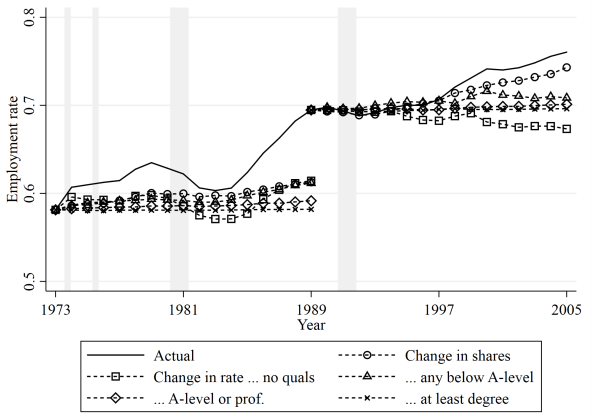
Notes.- author calculations using General Household Survey, 1972-2006. Gap (GEG) is expressed as male minus female. Each series gives the total employment rate implied by only the cumulative change, relative to 1973/89, in the share of single adult or couple households. Shaded areas denote official periods of UK recessions.

FIGURE B2: Total employment rates and the gender employment gap implied by the changes in either population composition or the employment rates within groups, by HIGHEST QUALIFICATION, since 1973/89.

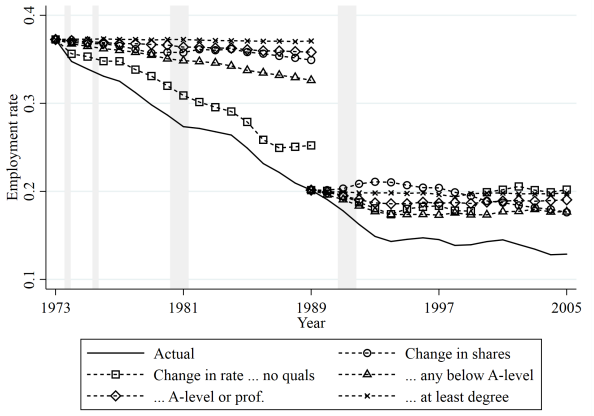
(a) Male



(b) Female



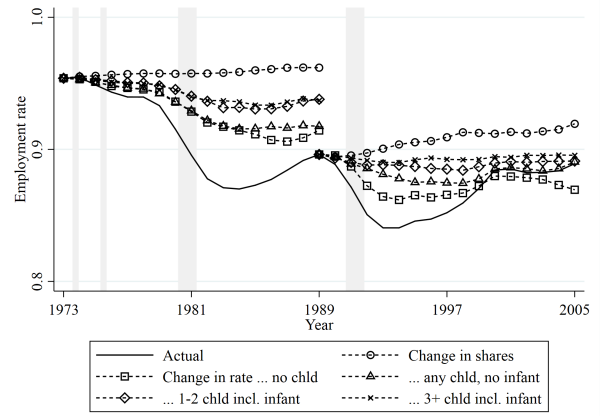
(c) GEG



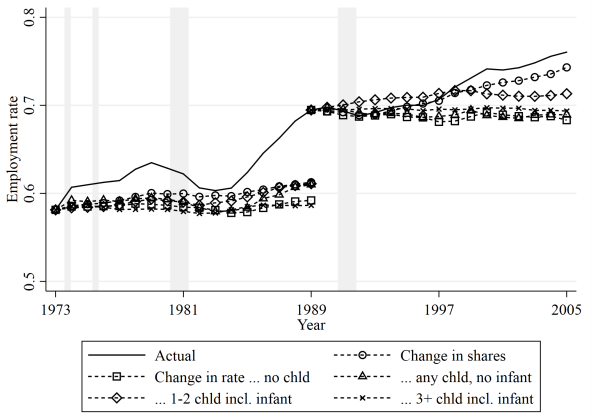
Notes.- author calculations using General Household Survey, 1972-2006. Gap (GEG) is expressed as male minus female. Each series gives the total employment rate implied by only the cumulative change, relative to 1973/89, in the employment rate (or gap) from only observed changes in type shares or the employment rates for some types.

FIGURE B3: Total employment rates and the gender employment gap implied by the changes in either population composition or the employment rates within groups, by NUMBER & AGE of DEPENDENT CHILDREN, since 1973/89.

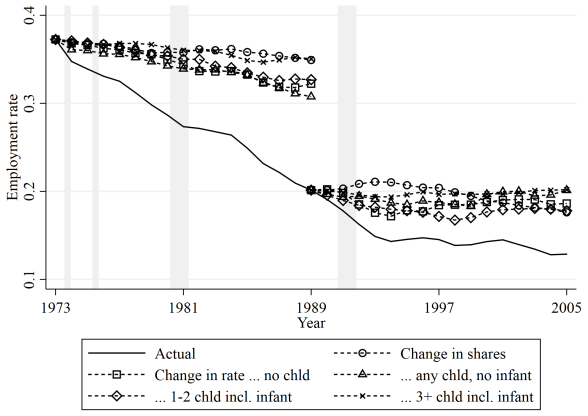
(a) Male



(b) Female



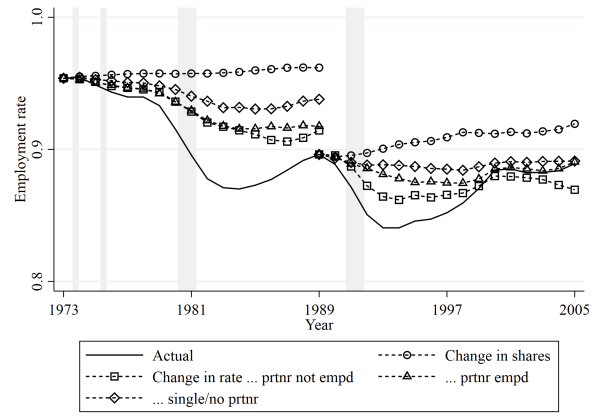
(c) GEG



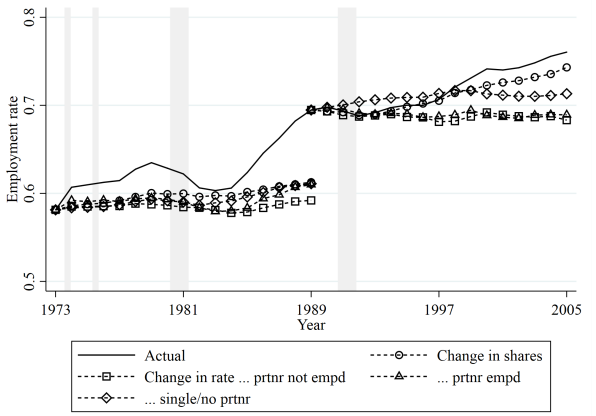
Notes.- see Figure B2, except analysis is a shift-share decomposition over fertility types

FIGURE B4: Total employment rates and the gender employment gap implied by the changes in either population composition or the employment rates within groups, by PARTNER'S EMPLOYMENT STATUS, since 1973/89.

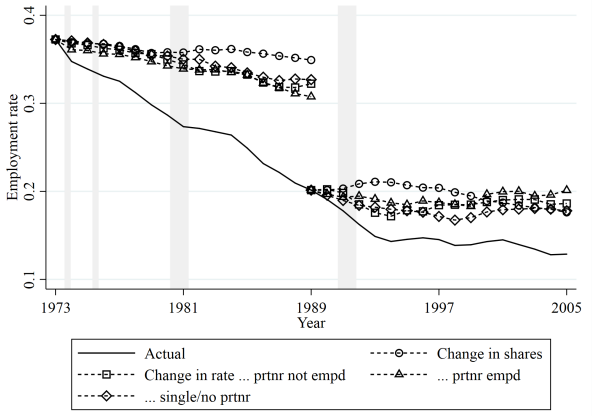
(a) Male



(b) Female

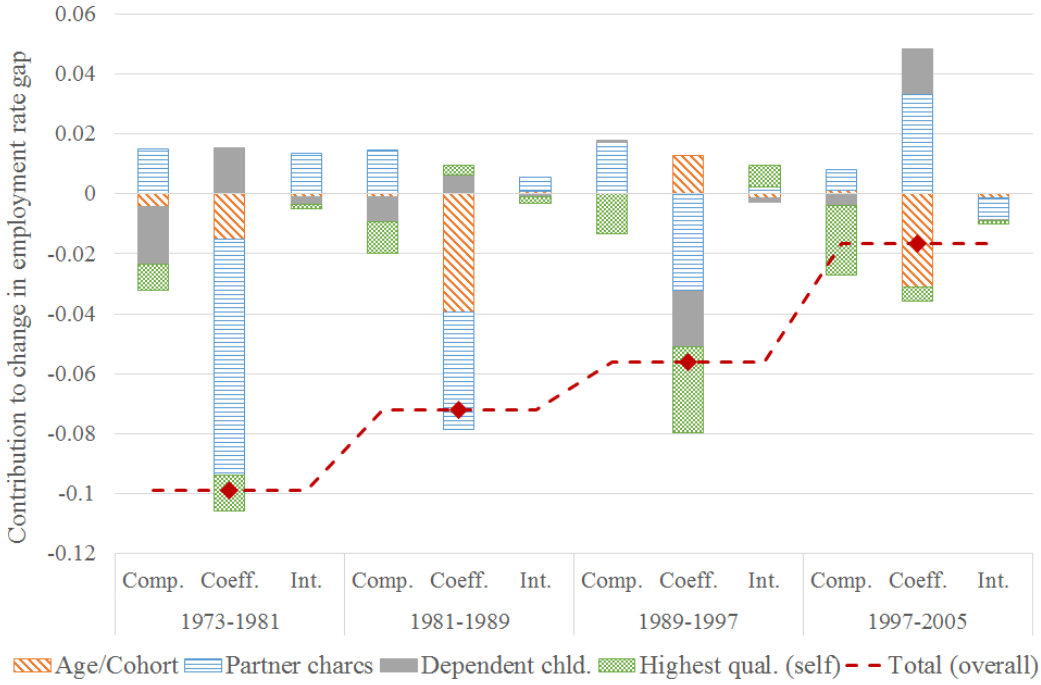


(c) GEG



Notes.- see Figure B2, except analysis is a shift-share decomposition over partner employment status.

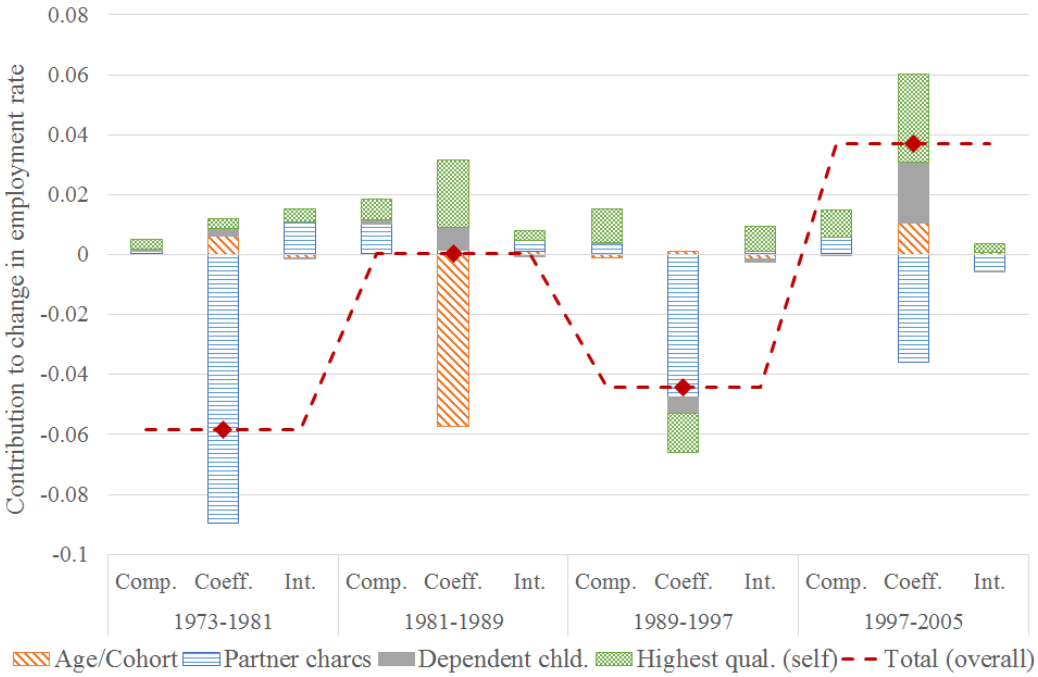
FIGURE B5: Blinder-Oaxaca type decomposition of the change in the gender employment rate gap, 1973-81, 1981-89, 1989-97 and 1997-2005



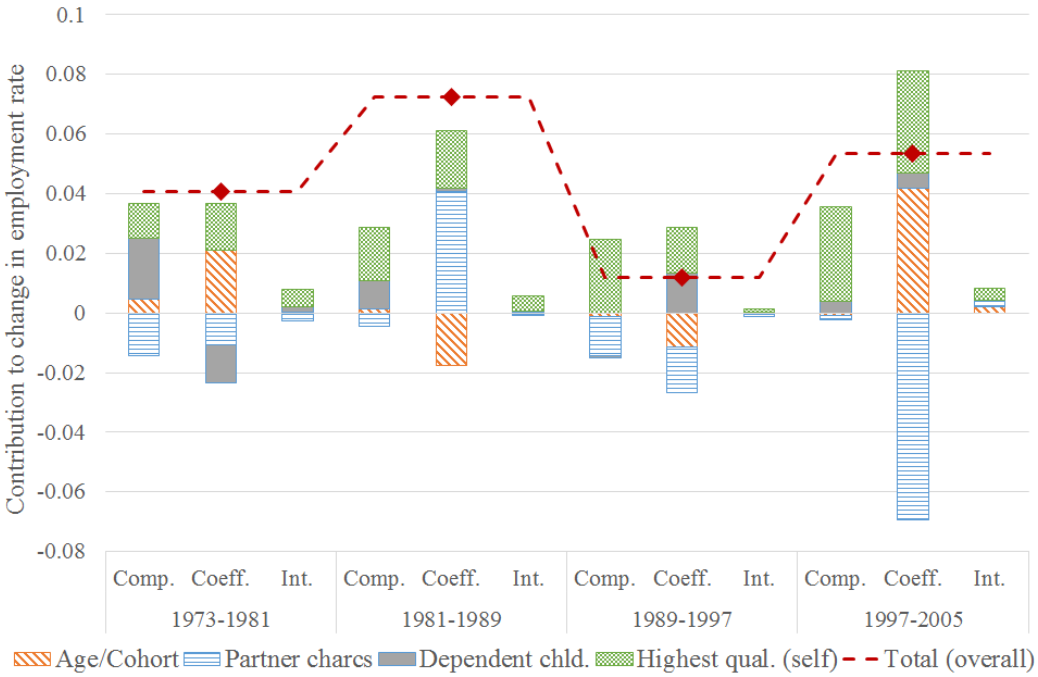
Notes.- author calculations using General Household Survey, 1972-2006, ages 25-54 only. Estimates are obtained from regressions of male and female employment likelihood on individual characteristics, and first using these to decompose changes between years for each gender, and then presenting how each of these together imply contributions to the change in the employment rate gap, stated as male minus female. See Online Appendix Figure B6 for a similar representation of the results for male and female changes separately. See notes to Table 2 for a description of the grouped sets of covariates defined by each legend item.

FIGURE B6: Blinder-Oaxaca type decompositions of the change in the male and female employment rates, 1973-81, 1981-89, 1989-97 and 1997-2005

(a) Male



(b) Female



Notes.- see Figure B5.

TABLE B1: Blinder-Oaxaca type decompositions of changes in male employment rates, 1973-81, 1981-89, 1989-97 and 1997-2005 (ppts)

	Time period			
	1973-81	1981-89	1989-97	1997-2005
Composition:				
Age/Cohort	0.000	0.000	-0.001	0.000
	(0.000)	*(0.001)*	*(0.001)*	*(0.001)*
Partner charcs	0.000	0.010	0.004	0.006
	(0.001)	*(0.002)*	*(0.002)*	*(0.002)*
Dependent chld.	0.001	0.001	0.000	0.000
	(0.001)	*(0.001)*	*(0.000)*	*(0.001)*
Highest qual. (self)	0.003	0.007	0.011	0.009
	(0.001)	*(0.001)*	*(0.003)*	*(0.003)*
Sub-total	0.005	0.019	0.014	0.015
	(0.001)	*(0.003)*	*(0.003)*	*(0.003)*
Coefficients:				
Age/Cohort	0.006	-0.057	0.001	0.011
	(0.007)	*(0.021)*	*(0.008)*	*(0.008)*
Partner charcs	-0.089	0.002	-0.048	-0.036
	(0.012)	*(0.021)*	*(0.011)*	*(0.014)*
Dependent chld.	0.003	0.007	-0.005	0.020
	(0.006)	*(0.012)*	*(0.006)*	*(0.007)*
Highest qual. (self)	0.003	0.022	-0.013	0.029
	(0.003)	*(0.013)*	*(0.005)*	*(0.007)*
Sub-total	-0.077	-0.026	-0.065	0.024
	(0.006)	*(0.006)*	*(0.006)*	*(0.005)*
Interactions:				
Sub-total	0.014	0.007	0.007	-0.002
	(0.003)	(0.002)	(0.003)	(0.002)
Total change:	-0.058	0.001	-0.044	0.037
	(0.006)	(0.005)	(0.006)	(0.005)
N. obs. initial year	16,349			
N. obs. end year	15,212	13,881	7,075	11,206

Notes.- author calculations using General Household Survey, 1972-2006, ages 25-54 only. The contribution from individual covariates are grouped as follows – 'Age/cohort': dummy variables for age groups; 'Partner chars': marital status interacted with dummy variables for a partner's employment status and their highest qualification; 'Dependent chld.': interaction of dummy variables for number of children and whether or not there is an infant in the household; 'Highest qual. (self)': individual's highest qualification level. Standard errors in parentheses are estimated using clustering on the 180 individual worker group types defined in the main text. See Online Appendix Table A2 for more details, incl. omitted categories.

TABLE B2: Blinder-Oaxaca type decomposition of changes in female employment rates, 1973-81, 1981-89, 1989-97 and 1997-2005 (ppts)

	Time period			
	1973-81	1981-89	1989-97	1997-2005
Composition:				
Age/Cohort	0.005	0.001	-0.001	-0.001
	(0.003)	*(0.002)*	*(0.002)*	*(0.003)*
Partner charcs	-0.014	-0.005	-0.013	-0.001
	(0.002)	*(0.001)*	*(0.003)*	*(0.002)*
Dependent chld.	0.020	0.010	0.000	0.004
	(0.012)	*(0.008)*	*(0.006)*	*(0.007)*
Highest qual. (self)	0.012	0.018	0.025	0.032
	(0.003)	*(0.004)*	*(0.006)*	*(0.005)*
Sub-total	0.022	0.024	0.010	0.034
	(0.011)	*(0.010)*	*(0.007)*	*(0.008)*
Coefficients:				
Age/Cohort	0.021	-0.018	-0.012	0.042
	(0.017)	*(0.011)*	*(0.022)*	*(0.017)*
Partner charcs	-0.011	0.041	-0.015	-0.069
	(0.024)	*(0.015)*	*(0.038)*	*(0.024)*
Dependent chld.	-0.013	0.001	0.013	0.005
	(0.008)	*(0.006)*	*(0.026)*	*(0.007)*
Highest qual. (self)	0.016	0.019	0.015	0.034
	(0.005)	*(0.006)*	*(0.020)*	*(0.011)*
Sub-total	0.013	0.044	0.002	0.012
	(0.007)	*(0.009)*	*(0.010)*	*(0.008)*
Interactions:				
Sub-total	0.005	0.005	0.000	0.008
	(0.003)	(0.003)	(0.004)	(0.003)
Total change:	0.041	0.073	0.012	0.054
	(0.013)	(0.013)	(0.011)	(0.009)
N. obs. initial year	17,051			
N. obs. end year	15,586	14,435	7,731	12,623

Notes.- see Table B1

TABLE B3: Contributions from within-sector gender share changes to the overall change in the female share of total employment, 1982-93 and 1994-2005 (ppts)

	82-93	94-05
Primary divisions, 0-2	0.69	-0.36
Engineering, 3	0.40	-0.01
Other manufacturing, 4	-0.14	-0.64
Construction, 5	0.31	0.14
Distribution, 6	0.15	-0.47
Transport & comms, 7	0.18	0.18
Bank & finance, 8	0.31	-0.28
Other services, 9	0.71	0.71
Total	2.6	-0.7

Notes.- author calculations using General Household Survey, 1981-2006, ages 25-54 only. Industry divisions listed are defined by SIC-UK 1980.