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Policy Brief

A policy mix for equitable sustainable development in the UK:

The effects of gender equality, wages, wealth concentration and fiscal policy

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Abstract

Our results summarised in this policy brief show that in order to solve the UK's inequality, ecological sustainability and productivity problems, investing in the care and green economy and taxing wealth to fund this investment offers a viable policy package. We present a policy mix of social and physical public investment, increasing wages of women and men with closing the gender gaps via upward convergence, and progressive income and wealth taxation. In particular we analyse the effects of a 1%-point increase in public social spending in education, childcare, health and social care, which we refer to as 'purple social infrastructure', and physical investment as a ratio to GDP, a 2% increase in female hourly wage rate, a 1% increase in male wage rate, a 1%-point increase in the tax rate on wealth, a 1%-point increase in the tax rate on profit income, and a 1%-point decrease in the tax rate on wage income. As a result of this policy, we estimate that in the medium-run, GDP increases by 10.9%, women's employment increases by 9.6%, men's employment increases by 5.8%, and public debt/GDP decreases by 10.3%-point.

The positive impact of a 1%-point increase in public social investment in education, childcare, health and social care on both output (by 2.7% in the medium-run) and employment is substantial, and despite a strong positive effect on productivity, employment of both women and men increase (by 3.2% and 0.4% in the medium-run). A 1%-point increase in public social investment increases productivity (output per hour) in the rest of the economy by 3.3% percent, which provides supporting evidence that this spending functions as infrastructure investment, as it has long term benefits for the society as a whole, and it improves gender equality by socializing the unpaid invisible domestic labour of women. The increase in productivity is substantially higher in the case of public "purple" social infrastructure investment (3.3%) compared to the case of public physical infrastructure investment (0.5%).

An upward convergence in wages, i.e. increasing wages of both men and women with closing gender pay gap leads to higher GDP in both the short and the medium-run. In that sense, output in the UK is both wage-led and gender equality-led, and hence equality-led. Labour market policies such as an increase in the minimum wage or collective bargaining coverage, while at the same time enforcing equal pay legislation and aiming at higher rates of pay rise in occupations at the bottom end of the pay scale, where women constitute a large share of the workforce, are expected to have a positive effect on GDP. In the medium-run higher wages also lead to higher productivity. However as the effect on productivity is stronger than on output, employment may fall in the medium run, unless there is a further demand stimulus. Hence, achieving both higher wages and gender equality and employment for both men and women requires a further stimulus to demand, and an adequate mix of public investment in social and physical infrastructure can achieve equality, ecological sustainability and productivity at once.

A policy mix of only upward convergence in wages and public social infrastructure investment, i.e. hiring more teachers, nurses, social care workers and paying higher hourly wage rates has a strong positive impact on output and women's employment, but men's employment decreases in the medium-run due to strong productivity gains. Public debt/GDP falls as an outcome of this policy mix.

A policy mix of upward convergence in wages and public investment in both social and physical infrastructure leads to a higher increase in output, and employment of both men and women increase both in the short and the medium-run. However, public debt/GDP increases marginally in the medium-run in this policy mix, and an increase in tax rates is required to improve public debt/GDP. But increasing public spending funds about half of itself by generating higher output and tax revenues. It is also worth emphasizing that private investment increases both in the short and medium-run, despite the partial negative effect of higher government borrowing thanks to the positive demand and productivity effects.

An increase in the progressivity of income taxation in the form of increasing tax rate on capital income and decreasing tax rate on labour income increases output, private investment, men's and women's employment, and decreases public debt/GDP in both the short and the medium-run. An increase in the tax rate on wealth decreases wealth concentration, and has a positive and very strong impact on output, private investment, employment and the budget balance. The results indicate that taxation of wealth is a particularly effective policy to fund purple and green public investment; e.g. inheritance tax may be a suitable tool for funding long term elderly care.

A policy mix for equitable sustainable development in the UK:

The effects of gender equality, wages, wealth concentration and fiscal policy

1. Introduction

Our recent research presents the macroeconomic effects of a policy mix of upward convergence in wages, i.e. increasing wages for both women and men with closing gender pay gap, public investment in both purple social infrastructure in health, social care, education and child care, and green physical infrastructure, and progressive taxation with increasing taxes on capital income and wealth and decreasing taxes on labour income (Onaran, Oyvat and Fotopoulou, 2019). We analyse the effects of alternative policies on GDP, hours of employment of women and men, productivity (output per hour) and their implications for the ratio of public debt to GDP.

A distinctive feature of the last four decades has been a rise in multiple dimensions of inequality in the UK -a trend common in many developed and developing countries. There has been a sharp polarization of personal income distribution as well as a significant change in functional income distribution, i.e. a fall in the share of labour income in national income. There has been also a remarkable increase in wealth concentration. Figure 1 in the Appendix shows the functional income distribution, i.e. the share of wages in national income (labour compensation/GDP at factor cost, adjusted for the labour compensation for each self-employed equivalent to the average compensation of the dependent employees) and wealth concentration (share of the top 1% in total net wealth) in the UK. The share of wages in GDP fell from its peak of 0.706 to 0.584 in 1996 and despite a recovery since then, it is 4%-point below its peak at 0.665 as of 2016. Wealth concentration, measured by the share of the top 1% in total net wealth, has fallen from 0.283 in 1972 to 0.152 in 1984 and has risen sharply since then to 0.233 as of 2016.

Meanwhile, despite improvements in legal rights and education, gender gaps in income and employment remain very high and women do the vast majority of unpaid domestic care, which reinforces gender gaps in employment and wages and occupational segregation further. In 2014 women carried out 61.5% of all the hours of unpaid work at the household and 69.3% of the unpaid care work (in adult care and child care, laundry, cleaning and housework) in the UK (ONS, 2016). The high cost of childcare and elderly care mean that many women have no choice but to stay at home and act as unpaid carers for their children or elderly relatives rather than go

back to work full time. This contributes substantially to the gender disparity in pay that we see between men and women. Despite an improvement since the early 1980s, recent gender pay gap reporting shows that men earn, on average, almost 20% more than women. Figure 2 in the Appendix presents the ratio of the hourly wage rate of men to that of women and the share of women in hours worked in health, social care, education and child care (henceforth, the social sector) and the rest of the economy in the UK. As of 2015 the hourly wage rate of men/women in the social sector and the rest of the economy are still as high as 1.313 and 1.230 respectively (own calculations based on EUKLEMS data). Women still constitute the vast majority of employment in the social sector with a ratio of 0.752 in 2015. Hence, the gender composition of hours of paid care work is similar to the composition of unpaid care work. The share of women in hours worked in the rest of the economy is still as low as 0.406 (own calculations based on EUKLEMS data).

There is a growing recognition that inequality is both economically and socially destabilizing. Furthermore, the UK's productivity lags behind other European countries, and is still well below 2008 recession levels. Our results suggest that inequalities, weak public social infrastructure and low productivity are linked, and that gender equality, higher wages, lower wealth concentration and investing in care and green economy are key to addressing the problems social, economic and ecological sustainability.

We develop a novel macroeconomic model to analyse the effects of multiple dimensions of inequalities and fiscal policies on macroeconomic outcomes, integrating i) the impact of three dimensions of inequalities –functional income distribution between wages and profits, gender inequality, and wealth concentration, and their interactions; ii) the impact of fiscal policies, particularly the effects of government spending in social vs. physical infrastructure, and different types of taxation; iii) both the demand and supply-side effects; iv) effects on both output and employment measured by hours of work of women and men. We build a three sector gendered model with social sector (health, social care, education, child care), the rest of the market economy, and unpaid care sectors and three types of factors of production -male and female labour, and capital. On the demand side, we model behavioural equations determining consumption, private investment, exports, imports and government spending. On the supply side, productivity changes in the medium-run as an outcome of changes in wages, public and private expenditure. Hours of employment in the social sector and the rest of the economy are determined by output and labour productivity in the relevant sectors, and social norms about

occupational segregation determines hours of employment of women and men in both sectors. Wealth concentration depends on functional income distribution and wealth tax. We estimate this model econometrically for the UK using time series data for the period of 1970-2016. For the medium-run estimation of productivity we use panel data of 18 industries for the period of 1970-2015.

The next section analyses the effects of labour market policies and public spending and taxes. The final section concludes with policy implications.

2. The effects of labour market policies, purple and green public infrastructure investment and taxation

We use the empirical estimation results to analyse the effects of changes in wages, gender pay gap, different types of public spending, and taxes. Different types of inequalities interact, in particular i) changes in wages affect functional income distribution between wage and profit income, and ii) changes in the share of profit (after-tax) in national income as well as wealth tax affect wealth concentration. In each case we analyse the case where the increase in the wage rate, public spending/GDP or tax rates take place in the first period (the short-run), and then the relevant variables stay constant in the next period in order to compare the effects in the short and medium-run.

Table 1 in the Appendix shows the total effects of changes in wages and gender pay gap on the components of aggregate demand (consumption in social services and the rest of the economy, private investment, exports, imports, government investment in social and physical infrastructure and government current spending, all as a ratio to GDP), GDP, hours of employment (total as well as of women and men) and public debt as a ratio to GDP. The effects are after considering the multiplier effects of any initial change on demand. The medium-run (MR) is defined as the cumulative of the effects in the short-run (SR) and the next period when productivity in the rest of the economy (N) changes endogenously.

Scenario (A) presents the effects of a 1% increase in both female and male hourly (real) wage rate in N; scenario (B) presents the effects of a 1% increase in only female wages in N with constant male wages; i.e. closing the gender pay gap in N by 1% (1% decline in α^N). In both cases, taking into account both demand and productivity effects, all components of demand except exports increase both in the short and the medium-run. Exports decrease as an increase in wages in N lead to a decline in the profit share. Private investment increases despite a decline in profitability due to demand effects. The multiplier is 2.234. In scenario (A), GDP increases by

0.244% in the short-run and by 0.146% in the medium-run; hence the economy is wage-led, although the effect is economically small. The increase in GDP the medium-run in all scenarios is smaller as in the next period the increase in productivity in N leads to a decline in employment in N and therefore offsets some of the demand effects.

In scenario (B), GDP increases by 0.062% in the short-run and by 0.027% in the medium-run; hence the economy is gender equality-led, but the effects are even smaller than in the case when both wages increase.

Hours of employment of both men and women increase in the short-run in both scenarios (A) and (B), but decrease in the medium-run (by 0.556% in (A) and 0.105% in (B)) as the productivity increase in N in the medium-run (0.812% in (A) and 0.153% in (B)) is stronger than the increase in GDP.

Scenario (C) presents the effects of a 1% increase in both female and male wages in the social sector (health, social care, education and child care, H[1]) and scenario (D) presents the effects of a 1% increase in only female wages in H with constant male wages; i.e. closing the gender pay gap in H by 1% (1% decline in α^H). Demand increases again with both higher wages and gender equality both in the short and the medium-run. Compared to the effects of increasing wages in N, the total effects on GDP are higher for a variety of reasons: The increase in consumption in H is higher because a rise in wages in H have a more substantial effect on the female wage bill and the marginal propensity to consume in H out of the female wage income is higher compared to the male wage income. The increase in private investment is higher because a rise in wages in H does not squeeze private profits. For this reason, the rise in imports in the short run is smaller and exports do not fall in the short run and increase in the medium-run, as a rise in productivity in N by 0.433% increases the profit share. The multiplier is 2.245. In scenario (C) GDP increases by 0.427% in the short-run and by 0.333% in the medium-run, and in Scenario (D) GDP increases by 0.298% in the short-run and by 0.232% in the medium-run. In both scenarios, employment of women increases not only in the short-run but also in the medium-run albeit by a small amount (0.022% and 0.012% respectively), but the employment of men increase only in the short-run and decreases slightly in the medium-run due to productivity gains in the rest of the economy (by 0.071% and 0.054% respectively).

[1] The increase in hourly real wage rate in N and H in GBP is comparable. A 1% increase in female wages in H and N are £0.18 and £0.17 respectively, and a 1% increase in male wages in H and N are £0.24 and £0.21 respectively in 2015.

Finally, scenario (E) presents the effects of a 1% increase in female and male wages in both N and H, which is the sum of the effects in scenarios (A) and (C), and (F) presents and upward convergence scenario of closing the gender pay gaps with female wages increasing faster than male wages, i.e. a 2% increase in female wages and 1% increase in male wages in both N and H, which is the sum of the effects in simulations (A), (B), (C) and (D). An example of the latter scenario would be to increase average wages via an increase in the minimum wage or collective bargaining coverage while at the same time enforcing equal pay legislation and aiming at higher rates of increases in occupations at the bottom end of the pay scale, where women constitute a large share of the workforce. In the upward convergence scenario, GDP increases by 1.030% in the short-run and by 0.736% in the medium-run, but despite an increase in employment of both women and men in the short run, employment decreases in the medium-run for both (by 0.528% for women and 0.865% for men). Total employment, as well as employment of both men and women, are wage-led and gender equality-led in the short-run but not in the medium-run when wages increase in both sectors.

Along with the increase in GDP, public debt as a ratio to GDP decreases in all scenarios, including in (C)-(F), all of which include a direct increase in public social infrastructure spending via higher wage rates in H; e.g. in (F) public debt/GDP decreases by 0.354%-points in the short-run and 0.327%-points in the medium-run.

Table 2 in the Appendix shows the total (post-multiplier) effects of fiscal policies. Scenario (A) presents the effects of a 1%-point increase in public social infrastructure investment as a ratio to GDP (κ^H), i.e. higher hours of employment in H (e.g. more teachers, nurses, social care workers) with a constant wage rate in H. Following Ilkkaracan (2013), who coined the term "purple" economy for public social infrastructure to chime with the green economy, we label this policy as purple public social infrastructure investment. Scenario (B) presents the effects of a 1%-point increase in public physical infrastructure investment/GDP (κ^G). To indicate the priority of investment in renewable energy, public transport, and housing insulation we label this investment as green public investment. In both cases, all components of demand increase, and the increase in the medium-run is slightly smaller due to the increase in productivity.

A 1%-point increase in public investment in social infrastructure increases productivity (output per hour) in the rest of the economy by 3.3% percent in the medium run. The high effect of public spending in education, childcare, health and social care on productivity in the rest of the economy provides supporting evidence that this spending serves the purpose of infrastructure

investment. The increase in productivity is substantially higher in the case of higher social infrastructure investment (3.272%) compared to the case of higher physical infrastructure investment (0.510%). This is mostly due to the strong direct positive impact of social infrastructure on productivity as well as the higher rate of increase in household consumption in H, as more jobs are created for women in scenario (A) in H, which predominantly hires women. In the case of higher social infrastructure spending, GDP increases more (3.585% in the short-run and 2.707% in the medium-run) than the case of physical infrastructure investment (2.046% in the short-run and 1.999% in the medium-run) not only in the short-run but also the medium-run. The GDP and employment impact are substantially higher than the effects of increasing wages by 1% in Table 1. Despite productivity increases, employment increases not only in the short-run but also the medium-run for both men and women in both scenarios. However, the increase in women's employment is much stronger compared to men in the case of social infrastructure investment due to occupational segregation and concentration of women in the social sector. Women's employment increases by 6.722% in the short-run and 3.238% in the medium-run while men's employment increases by 4.437% in the short-run and only 0.420% in the medium-run in the case of public purple social infrastructure investment, whereas in the case of public physical infrastructure investment employment of both men and women increase at a rather similar rate (2.210% for women and 2.109% for men in the short-run and 1.764% for women and 1.576% for men in the medium-run).

In both scenarios, public debt/GDP decreases in the short-run (by 0.981%-point in (A) and 0.213%-point in (B)) but increases marginally in the medium-run (by 0.497%-point in (A) and 0.550%-point in (B)). But even in the medium-run, increasing public spending funds about half of itself by generating higher output and tax revenues. It is also worth emphasizing that private investment increases overall, despite the partial negative effect of higher government borrowing thanks to the positive demand and productivity effects.

Scenario (C), (D) and (E) in Table 2 present the effects of a 1%-point increase in the implicit tax rate on capital income, wealth and labour income respectively. Increasing taxes on both capital and labour income lead to a decline in all components of demand and overall GDP, productivity in N as well as employment for both men and women in both the short and the medium-run. However, the negative effects on demand are much larger in the case of taxes on labour, even in the case of private investment, owing to a stronger negative effect on demand and productivity in N, and thereby public debt/GDP increases in the medium-run despite a rise in the

tax rate. In contrast, a 1%-point increase in the implicit tax rate on wealth has positive and very large effects on both GDP and employment of men and women; however, we have to emphasize that a 1%-point increase in the implicit tax rate on wealth is almost doubling the current rate, which stands at 0.989% in 2016 taking it back to its peak in 1970; hence an economically much more substantial increase than the 1%-point increase in the implicit tax rate on capital income. The most important effect of increasing wealth tax by 1%-point is the fall in wealth concentration (the ratio of the net private wealth of the top 1% to total net private wealth) by 0.876%-point, which in turn decreases the net private wealth of the top 1% and increases the net private wealth of the bottom 99% in both the short and the medium-run. Both of these developments lead to a significant increase in private investment due to the positive effect of the increase in the wealth of the bottom 99% and the fall in the wealth of the top 1% as well as higher consumption due to higher marginal propensity to consume in N out of the wealth of the bottom 99% . As a consequence, GDP increases by 0.902% in the short-run and 4.285% in the medium-run; total employment increases by 0.949% in the short-run and 4.134% in the medium-run with comparable effects for both men and women. Public debt/GDP falls by 4.264%-point in the short-run and 10.268%-point in the medium-run

Finally, in Table 3 in the Appendix we present the impact of policy mixes. Scenario (A) shows the effects of a 1%-point increase in purple public social infrastructure investment/GDP and closing the gender gaps via an upward convergence with a 2% increase in female wages and a 1% increase in male wages in both N and H. This sums up the effects in scenarios (A) in Table 2 and (F) in Table 1. GDP increases substantially in both the short-run (4.615%) and the medium-run (3.443%). Employment of women increases both in the short-run and the medium-run (7.835% and 2.710% respectively); however, employment of men increases only in the short-run (5.500%) but decrease in the medium-run (0.445%) due to productivity gains in N, where most male employment is generated. Public debt/GDP decreases (by 1.543%-point in the short-run and 0.010%-point in the medium-run) when fiscal expansion takes the form of both hiring more people and paying them a higher hourly wage rate in H combined with increasing wages and gender equality in also the rest of the economy.

Scenario (B) in Table 3 adds to (A) also a 1%-point increase in public green physical infrastructure investment/GDP (κ^G). Hence, scenario (B) is the case of purple and green public investment and upward convergence in wages, summing up the effects in scenarios (A) and (B) in Table 2 and (F) in Table 1. The effects on GDP are even stronger than in policy mix (A) and

employment of both men and women increase both in the short (7.609% and 10.044%) and the medium-run (1.132% and 4.475%).

To summarize, the effects of higher wages and gender equality on GDP are positive in both the short and the medium-run, albeit small; however, the effect of higher wages and gender equality on productivity is much stronger in the medium-run and therefore the impact on employment is negative. Hence, achieving both higher wages and gender equality and employment for both men and women requires a stimulus to demand in the form of higher public spending in both H and N. However, in this scenario, while public debt/GDP decreases in the short-run (1.756%-point), it increases marginally in the medium-run (0.540%-point).

Scenario (C) in Table 3 presents a policy of progressive income taxation, i.e. increasing tax rates on capital income and decreasing tax rates on labour income by 1%-point, which is equivalent to the effects in simulations (C) minus (E) in Table 2. This leads to higher GDP, private investment, and employment for both men and women and lower public debt/GDP in both the short and the medium-run. In the medium-run, GDP increases by 1.129%, women's employment increases by 0.840%, men's employment increases by 0.698% and public debt/GDP decreases by 0.531%-point.

Finally, scenario (D) in Table 3 presents a policy mix of purple and green public investment, upward convergence in wages, and progressive income and wealth taxation via a 1%-point increase in public social and physical infrastructure investment/GDP (κ^H and κ^G) and closing the gender gaps via upward convergence in wages with a 2% increase in female wages and a 1% increase in male wages in both N and H, a 1%-point increase in the tax rate on profit income (t^R), a 1%-point decrease in the tax rate on wages (t^W) and a 1%-point increase in the tax rate on wealth (t^{PW}), which is equivalent to the effects in simulations (A) plus (B) plus (C) plus (D) minus (E) in Table 2 plus (F) in Table 1. In the medium-run, GDP increases by 10.856%, women's employment increases by 9.607%, men's employment increases by 5.836%, and public debt/GDP decreases by 10.259%-point. The results indicate that taxation of wealth is a particularly effective policy to fund purple and green public investment; e.g. inheritance tax may be a suitable tool for funding long term elderly care.

3. Further policy implications

The high effect of public spending in education, childcare, health and social care on productivity in the rest of the economy provide evidence that this spending functions as infrastructure investment. Our analysis challenges conventional thinking about the categorization

of public spending in health and social care, education and child care in national accounts. Day to day spending in these sectors, e.g. wages of teachers, nurses or social care workers, is considered as current spending, thus not as investment, in our national accounts; however public spending in these social sectors has long term benefits to the society as a whole, with substantial productivity impact in all other sectors of the economy by increasing the skills, health and innovative capacity of people (Elson, 2016, 2017; Women's Budget Group, 2015). Improving the quality of childcare and early years education would develop the cognitive and creative capacity of our children, increasing their future productivity. Crucially, they improve gender equality, and reverse one of the most persistent dimensions of inequality in our societies, as they provide crucial services which are otherwise provided by the unpaid invisible domestic labour of women. Public supply of these services helps women to participate in social and economic life more equally. This in turn further increases productivity by unleashing the hidden potential of women. Moreover, in the current gendered occupationally segregated labour markets, these sectors employ predominantly women, and more social public spending helps closing the gender gap in employment. Women spend a higher proportion of their income on things that benefit the wellbeing of their children, such as health, education and healthy nutrition, so as women earn more, the positive effect on long-term productivity would be compounded.

Recognizing the vast amount and importance of the time women spend on unpaid care at the household, which is not accounted for in the standard national accounts and measures such as GDP, is crucial for designing policies to increase gender equality. A fiscal policy stance, which aims to publicly provide the necessary social services, would radically decrease the amount of unpaid domestic care. E.g. universal free child care and nurseries open for sufficiently long hours benefit mothers and fathers by giving them an equal chance to balance work and life, and also benefit the society by decreasing inequality between children from different backgrounds, and improving the creative capacity of children. Needless to say there will always be the need and desire for care provided by family members for children or the elderly in the domestic private sphere; regulations such as parental leave for both mothers and fathers, and working time arrangements that facilitate combining care and work for both men and women should ensure that time for caring can be equally shared between men and women.

Progressive taxation, which improves after tax equality in terms of income, wealth and gender, is also important in the context of public spending on non-means-tested services such as universal health and social care, education and child care. A higher tax rate on higher incomes is

a way for those who can afford to contribute more towards universally provided public services. The results further indicate that taxation of wealth is a particularly effective policy to fund purple and green public investment; e.g. inheritance tax may be a suitable tool for funding long term elderly care.

In this paper, we analysed the effect of the various labour market and fiscal policies on hours of employment of women and men; however, we did not analyse the changes in working time regulations. A change in labour market regulation leading to a shortening of the working week, where a given number of hours of employment can be shared among a higher number of employees is a further step for equitable sustainable development. A scenario of upward convergence in hourly wage rates along with a downward convergence in weekly working hours between men and women, i.e. men working shorter hours than the current circumstances, while more women increasing their hours of work, is expected to reduce both gender pay and employment gaps. Higher hourly wage rates may make a reduction in weekly working hours appealing for the current full-time employees, and the provision of high quality public social care infrastructure may make higher hours of work appealing for the current part-time workers, who are predominantly women.

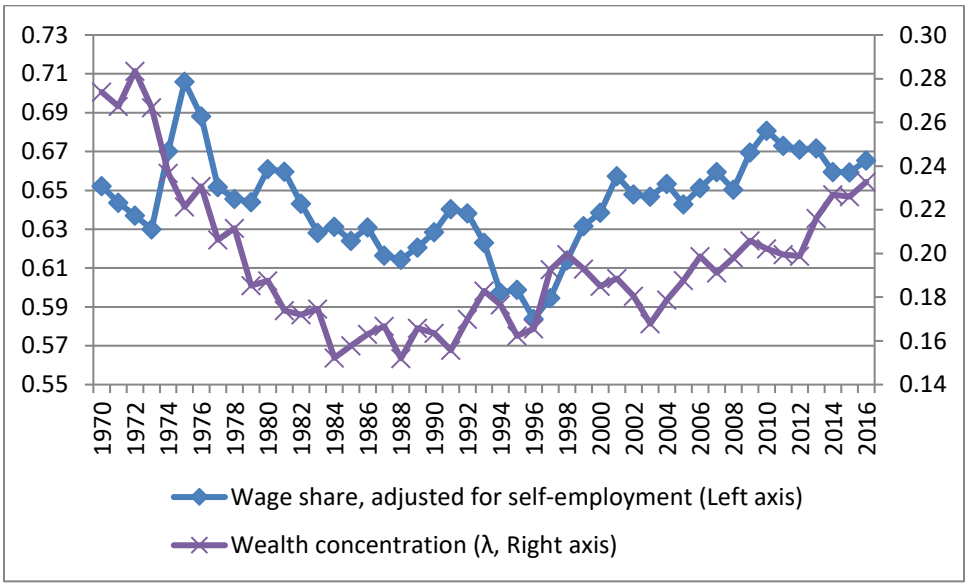
Changes in employment patterns and gender gaps can have further crucial effects on gender norms, which can further transform occupational and sectoral gender segregation.

There is also an important complementarity between gender equality, shorter working hours and green development (Onaran, 2016; İlkkaracan, 2013). A larger proportion of the society's time spent caring for each other is also a greener alternative, whether that is in paid or unpaid time, as these activities are much lower in terms of their carbon intensity. Furthermore social infrastructure services are very labour-intensive and therefore public investment in this area is a vehicle for generating more employment for a given rate of growth in national output —a target more consistent with low carbon emissions.

These findings hint at policy insights to address some urgent destabilizing economic and social issues in the UK and the world such as stagnation in productivity, unemployment, unhealthy growth driven by private debt or demographic and care crisis. An appropriate mix of the labour market and fiscal policies may help to tackle the multiple dimensions of inequalities with an aim to achieve a sustainable economy, environment and society.

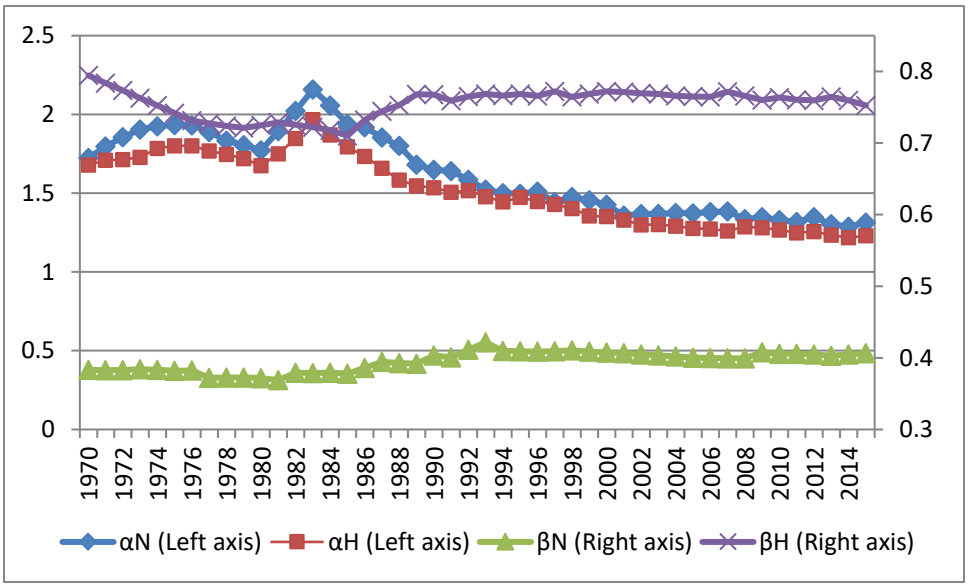
Appendix

Figure 1: The share of wages in GDP (adjusted, at factor cost) and wealth concentration (share of top 1% in total net wealth) in the UK



Source: AMECO for wage share and WIID for wealth concentration, based on Onaran et al. 2019.

Figure 2: The ratio of hourly wage rate of men/women (α) and share of women in hours worked (β) in the social sector (H) and the rest of the economy (N) in the UK



Source: Own calculations based on EU KLEMS database. Based on Onaran et al. 2019.

Table 1: The total (post-multiplier) effects of changes in wages and gender pay gap on the components of aggregate demand (as a ratio to GDP), GDP, employment (hours) and public debt/GDP

	%-point change in consumption in N /GDP	%-point change in consumption in H /GDP	%-point change in private investment /GDP	%-point change in exports /GDP	%-point change in imports in N /GDP	%-point change in public social infrastructure investment /GDP	%-point change in government current expenditure /GDP	%-point change in public physical infrastructure investment /GDP	% Change in GDP	% change in total employment	% change in female employment	% change in male employment	%-point change in public debt /GDP
	$\Delta C^N/Y$	$\Delta C^H/Y$	$\Delta I/Y$	$\Delta X/Y$	$\Delta M/Y$	$\Delta G^H/Y$	$\Delta G^C/Y$	$\Delta I^G/Y$	$\Delta Y/Y$	$\Delta E/E$	$\Delta E^F/E^F$	$\Delta E^M/E^M$	$\Delta D/Y$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)[(i)]	(10)	(11)	(12)	(13)
A. The effects of a 1% increase in female and male wages in N													
SR (ii)	0.356	0.013	0.046	-0.045	0.188	0.030	0.025	0.007	0.244	0.257	0.263	0.251	-0.184
MR (ii)	0.133	0.002	0.067	-0.008	0.085	0.018	0.015	0.004	0.146	-0.556	-0.472	-0.623	-0.208
B. Closing gender pay gap in N by 1% : the effects of a 1% increase in only female wages in N (1% decline in $\alpha^{N)}$													
SR	0.091	0.006	0.013	-0.014	0.051	0.007	0.006	0.002	0.062	0.065	0.066	0.063	-0.053
MR	0.048	0.003	0.011	-0.011	0.031	0.003	0.003	0.001	0.027	-0.105	-0.089	-0.118	-0.069
C. The effects of a 1% increase in female and male wages in H													
SR	0.215	0.064	0.121	0.000	0.163	0.134	0.043	0.013	0.427	0.449	0.461	0.440	-0.170
MR	0.067	0.057	0.108	0.020	0.086	0.122	0.034	0.010	0.330	-0.030	0.022	-0.071	-0.119
D. Closing gender pay gap in H by 1% : the effects of a 1% increase in only female wages in H (1% decline in $\alpha^{H)}$													
SR	0.148	0.051	0.086	0.000	0.116	0.090	0.030	0.009	0.298	0.314	0.322	0.308	-0.155
MR	0.044	0.046	0.079	0.014	0.063	0.082	0.024	0.007	0.232	-0.024	0.012	-0.054	-0.112
E: The effects of a 1% increase in female and male wages in both N and H (iii)													
SR	0.571	0.077	0.167	-0.045	0.352	0.163	0.068	0.020	0.670	0.706	0.724	0.691	-0.354
MR	0.200	0.059	0.175	0.011	0.171	0.140	0.049	0.014	0.476	-0.586	-0.451	-0.694	-0.327
F. Upward convergence: The effects of a 2% increase in female wages and 1% increase in male wages in both N and H (closing gender pay gaps by 1% ; 1% decline in α^H iand α^N (iv))													
SR	0.811	0.133	0.266	-0.059	0.519	0.261	0.105	0.031	1.030	1.085	1.113	1.062	-0.562
MR	0.292	0.108	0.265	0.013	0.265	0.225	0.075	0.022	0.736	-0.715	-0.528	-0.865	-0.507

Notes: Based on Onaran et al. 2019. (i) Column (9)=(1)+(2)+(3)+(4)-(5)+(6)+(7)+(8). In each column, the effects are multiplied by the wage rate in the relevant sector and divided

(ii) SR: short run. MR: medium-run, defined as the cumulative of the effects in the short-run and the next period when productivity changes.

(iii) Sum of the effects in simulations (A) and (C)

(iv) Sum of the effects in simulations (A), (B), (C) and (D)

Table 2: The total (post-multiplier) effects of changes in fiscal policies on the components of aggregate demand (as a ratio to GDP), GDP, employment (hours) and public debt/GDP

	%-point change in consumption in N /GDP	%-point change in consumption in H /GDP	%-point change in private investment /GDP	%-point change in exports /GDP	%-point change in imports in N /GDP	%-point change in public social infrastructure investment /GDP	%-point change in government current expenditure /GDP	%-point change in public physical infrastructure investment /GDP	% Change in GDP	% change in total employment	% change in female employment	% change in male employment	%-point change in public debt /GDP
	$\Delta C^N/Y$	$\Delta C^H/Y$	$\Delta I/Y$	$\Delta X/Y$	$\Delta M/Y$	$\Delta G^H/Y$	$\Delta G^C/Y$	$\Delta I^G/Y$	$\Delta Y/Y$	$\Delta E/E$	$\Delta E^F/E^F$	$\Delta E^M/E^M$	$\Delta D/Y$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)[(i)]	(10)	(11)	(12)	(13)
A. The effects of a 1% -point increase in public purple social infrastructure investment/GDP (κ^H)													
SR (ii)	1.847	0.071	0.960	0.000	1.200	1.435	0.365	0.107	3.585	5.454	6.722	4.437	-0.981
MR (ii)	0.649	0.018	0.753	0.148	0.545	1.328	0.276	0.081	2.707	1.674	3.238	0.420	0.497
B. The effects of a 1% -point increase in public green physical infrastructure investment/GDP (κ^G)													
SR	0.985	0.034	0.512	0.000	1.003	0.249	0.208	1.061	2.046	2.154	2.210	2.109	-0.213
MR	0.916	0.027	0.472	0.023	0.945	0.243	0.204	1.060	1.999	1.660	1.764	1.576	0.550
C. The effects of a 1% -point increase in the tax rate on profit income (t^R)													
SR	-0.194	-0.006	-0.057	0.000	-0.102	-0.025	-0.021	-0.006	-0.208	-0.219	-0.224	-0.214	-0.200
MR	-0.230	-0.005	-0.009	-0.005	-0.094	-0.025	-0.021	-0.006	-0.207	-0.127	-0.143	-0.114	-0.478
D. The effects of a 1% -point increase in the tax rate on wealth (t^{PW})													
SR	0.298	0.015	0.802	0.000	0.442	0.110	0.092	0.027	0.902	0.949	0.974	0.930	-4.264
MR	1.986	0.066	3.199	0.020	2.070	0.521	0.436	0.128	4.285	4.134	4.293	4.006	-10.268
E. The effects of a 1% -point increase in the tax rate on wage income (t^W)													
SR	-1.080	-0.038	-0.321	0.000	-0.570	-0.142	-0.119	-0.035	-1.164	-1.226	-1.257	-1.200	0.212
MR	-1.156	-0.034	-0.394	-0.027	-0.614	-0.162	-0.136	-0.040	-1.335	-0.888	-0.983	-0.812	0.053

Notes: Based on Onaran et al. 2019. (i) Column (9)=(1)+(2)+(3)+(4)-(5)+(6)+(7)+(8). In each column, the marginal effects are divided by Y.

(ii) SR: short run. MR: medium-run, defined as the cumulative of the effects in the short-run and the next period when productivity in N changes endogenously

Table 3: The total (post-multiplier) effects of mix of labour market and fiscal policies on the components of aggregate demand (as a ratio to GDP), GDP, employment (hours) and public debt/GDP

	%-point change in consumption in N /GDP	%-point change in consumption in H /GDP	%-point change in private investment /GDP	%-point change in exports /GDP	%-point change in imports in N /GDP	%-point change in public social infrastructure investment /GDP	%-point change in government current expenditure /GDP	%-point change in public physical infrastructure investment /GDP	% Change in GDP	% change in total employment	% change in female employment	% change in male employment	%-point change in public debt /GDP
	$\Delta C^N/Y$	$\Delta C^H/Y$	$\Delta I/Y$	$\Delta X/Y$	$\Delta M/Y$	$\Delta G^H/Y$	$\Delta G^C/Y$	$\Delta I^G/Y$	$\Delta Y/Y$	$\Delta E/E$	$\Delta E^F/E^F$	$\Delta E^M/E^M$	$\Delta D/Y$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)[(i)]	(10)	(11)	(12)	(13)
A. Purple public investment and upward convergence in wages: The effects of a 1% -point increase in public social infrastructure investment/GDP (κ^H) and closing gender gaps via upward convergence in wages via 2% increase in female wages and 1% increase in male wages in both N and H (ii)													
SR	2.658	0.205	1.226	-0.059	1.719	1.696	0.470	0.138	4.615	6.539	7.835	5.500	-1.543
MR	0.941	0.126	1.018	0.161	0.809	1.554	0.351	0.103	3.443	0.959	2.710	-0.445	-0.010
B. Purple and green public investment and upward convergence in wages: The effects of a 1% -point increase in public social and physical infrastructure investment/GDP (κ^H and κ^G) and closing gender gaps via upward convergence in wages via 2% increase in female wages and 1% increase in male wages in both N and H (iii)													
SR	3.643	0.239	1.738	-0.059	2.722	1.945	0.678	1.199	6.661	8.693	10.044	7.609	-1.756
MR	1.856	0.153	1.490	0.184	1.754	1.797	0.554	1.163	5.443	2.619	4.475	1.132	0.540
C. Progressive income tax: The effects of a 1% -point increase in the tax rate on profit income (t^R) and a 1% -point decrease in the tax rate on wages (t^W) (iv)													
SR	0.887	0.032	0.264	0.000	0.469	0.116	0.097	0.029	0.956	1.007	1.033	0.986	-0.412
MR	0.926	0.029	0.385	0.022	0.519	0.137	0.115	0.034	1.129	0.761	0.840	0.698	-0.531
D. Purple and green public investment, upward convergence in wages, and progressive income and wealth taxation: a 1% -point increase in public social and physical infrastructure investment/GDP (κ^H and κ^G) and closing gender gaps via upward convergence in wages via 2% increase in female wages and 1% increase in male wages in both N and H a 1% -point increase in the tax rate on profit income (t^R), a 1% -point decrease in the tax rate on wages (t^W) and a 1% -point increase in the tax rate on wealth (t^{PW})(v)													
SR	4.827	0.286	2.804	-0.059	3.632	2.171	0.867	1.255	8.519	10.649	12.051	9.525	-6.431
MR	4.767	0.248	5.074	0.226	4.344	2.455	1.105	1.325	10.856	7.514	9.607	5.836	-10.259

Notes: Based on Onaran et al. 2019. (i) Column (9)=(1)+(2)+(3)+(4)-(5)+(6)+(7)+(8)

(ii) Sum of the effects in simulations (A) in Table 2 and (F) in Table 1.

(iii) Sum of the effects in simulations (A) and (B) in Table 2 and (F) in Table 1.

(iv) The effects in simulations (C) minus (E) in Table 2.

(v) The effects in simulations (A) plus (B) plus (C) plus (D) minus (E) in Table 2 plus (F) in Table 1.

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