

Article

Average hours worked and economic growth, UK: 1998 to 2022

Analysis of the longer-term trends in average hours worked in the UK, more recent changes since the coronavirus (COVID-19) pandemic, and the impact on economic growth.

Contact:
Gabriele Bindi, Graeme
Chamberlin, Sumit Dey-
Chowdhury
economic.advice@ons.gov.uk
+44 2075 928622

Release date:
22 January 2024

Next release:
To be announced

Table of contents

1. [Main points](#)
2. [Overview of average weekly hours worked](#)
3. [Accounting for changes in average hours worked](#)
4. [Individual characteristics and changes in average hours worked since the coronavirus \(COVID-19\) pandemic](#)
5. [The contribution of average hours worked to economic growth](#)
6. [Average hours worked and economic growth data](#)
7. [Data sources and quality](#)
8. [Related links](#)
9. [Cite this article](#)

1 . Main points

- Between 1998 and 2022, average weekly hours worked in the labour market fell by 1.3 hours, reflecting a significant fall for men aged 25 to 49 years who are full-time, and increases in women's hours worked have been insufficient to offset this; average hours have also fallen because of compositional changes in the labour market, with more women and older workers present.
- Since 2019, average weekly hours worked have fallen by 0.3 hours, reflecting a continuation of the same longer-term trends; however, the proportion of female workers working full-time has increased over this period and is perhaps an indication of greater flexibility in working arrangements.
- The analysis of household survey data from the Annual Population Survey (APS) provides conclusions on the determinants of hours worked in the labour market and in changes since the coronavirus (COVID-19) pandemic; age, sex, marital status, nationality, housing tenure, self-employment, whether or not a graduate and occupation are important determinants of hours worked.
- Changes in average weekly hours worked had a large negative impact on economic growth during the pandemic, but over the longer term, the decline in average hours worked has had a much smaller effect on the long-term growth rate of gross domestic product (GDP).

2 . Overview of average weekly hours worked

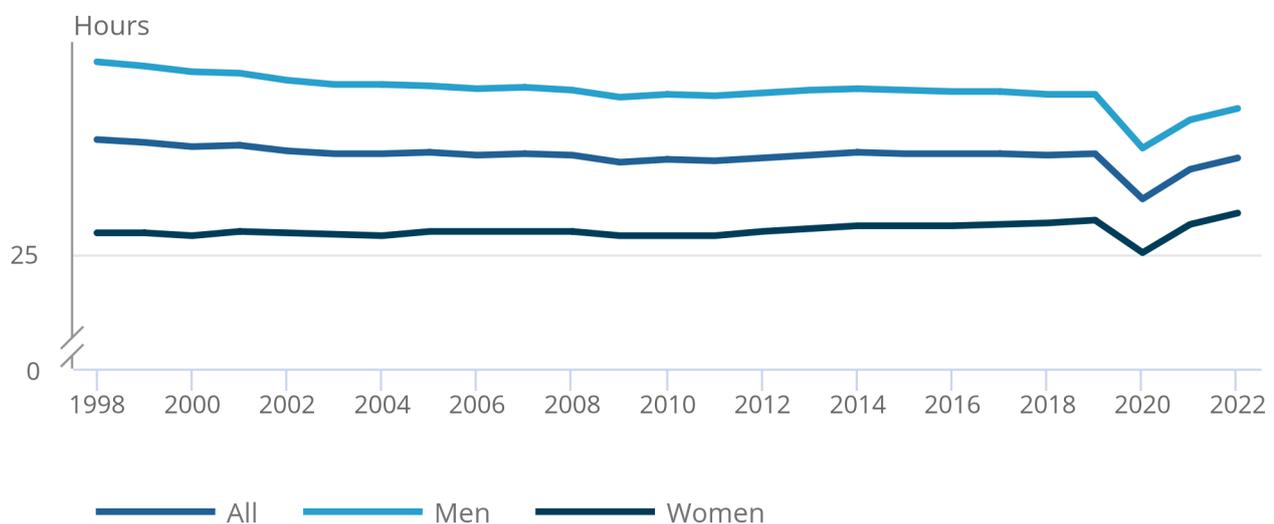
For all those in employment, average weekly hours have trended downwards from 33.1 in 1998 to 31.8 in 2022 – a total fall of 1.3 hours per week (see Figure 1). More recently, in 2020, there was a sharp fall in average weekly hours to 29.0 from 32.1 in the previous year, reflecting the impact of the coronavirus (COVID-19) pandemic. Since then, average weekly hours have recovered to 31.8 in 2022, but this is still 0.3 hours per week lower than before the pandemic in 2019.

Figure 1: In 2022, average weekly hours for all those in employment were 1.3 hours lower than in 1998 and 0.3 hours lower than before the coronavirus (COVID-19) pandemic in 2019

Average weekly hours worked for all, men and women in employment, UK, 1998 to 2022

Figure 1: In 2022, average weekly hours for all those in employment were 1.3 hours lower than in 1998 and 0.3 hours lower than before the coronavirus (COVID-19) pandemic in 2019

Average weekly hours worked for all, men and women in employment, UK, 1998 to 2022



Source: Labour Force Survey

This fall is relatively small, at less than 1% of average weekly hours in 2022. However, given total employment in the UK during 2022 was 32.7 million, it is equivalent to approximately 310,000 fewer people in employment. Over the same period, there has been an increase in inactivity of 580,000 people over 50 years of age, reported in our [Employment-population ratio and changes article](#). Therefore, this drop in average weekly hours is significant in terms of its quantitative impact on labour supply.

Figure 1 shows that trends in average weekly hours worked are very different for men and women. For men, average weekly hours worked have dropped significantly, from 38.6 in 1998 to 35.3 in 2022, a total of 3.3 hours per week. Compared with before the pandemic in 2019, average weekly hours for men were 0.9 lower in 2022. In comparison, average weekly hours for women have trended upwards from 26.5 in 1998 to 27.9 in 2022, a total increase of 1.4 hours per week. This has also been the case since before the pandemic, with average weekly hours worked by women being 0.5 higher in 2022 than in 2019.

Although women continue to work fewer hours on average per week than men, their relative contribution to labour supply is increasing, both in terms of average working hours and total share of employment. When analysing changes in average weekly hours worked over time, gender is a consistent factor.

3 . Accounting for changes in average hours worked

We make use of shift-share analysis to identify the factors accounting for the longer-term fall in average working hours from 1998 and the more recent fall since before the coronavirus (COVID-19) pandemic in 2019. This is a technique that aims to break down total change of economic indicators into various components to identify underlying sources of growth or decline.

Shift effects reflect the weighted contribution to the change in average weekly hours worked by a particular employment group. For instance, if men reduced their hours, that respective shift effect would consist of the specific fall in average weekly hours for that group weighted by their share in total employment.

Share effects pick up the impact of compositional changes in total employment on average hours. For instance, if average working hours for men and women are unchanged, but there is an increase in the relative proportion of women in total employment, then average hours in total will fall because women tend to work fewer average weekly hours than men.

Along with gender, we consider shift and share contributions to changes in average weekly hours relating to the following two factors:

- labour market status – that is the numbers of those in employment working full-time and part-time or holding second jobs
- age – that is the impact of changes in the age distribution of those in employment

Labour market status

Figure 2 shows a decomposition of the 1.3 hours fall in average weekly hours worked between 1998 and 2022. The largest component (negative 1.2 hours) is accounted for by the decline in average hours of men working full-time. There was also a small negative contribution from women working full-time reducing their average weekly hours (negative 0.1 hours). In contrast, both men and women working part-time increased their average weekly hours, contributing an offsetting 0.1 hours and 0.2 hours to the total change, respectively.

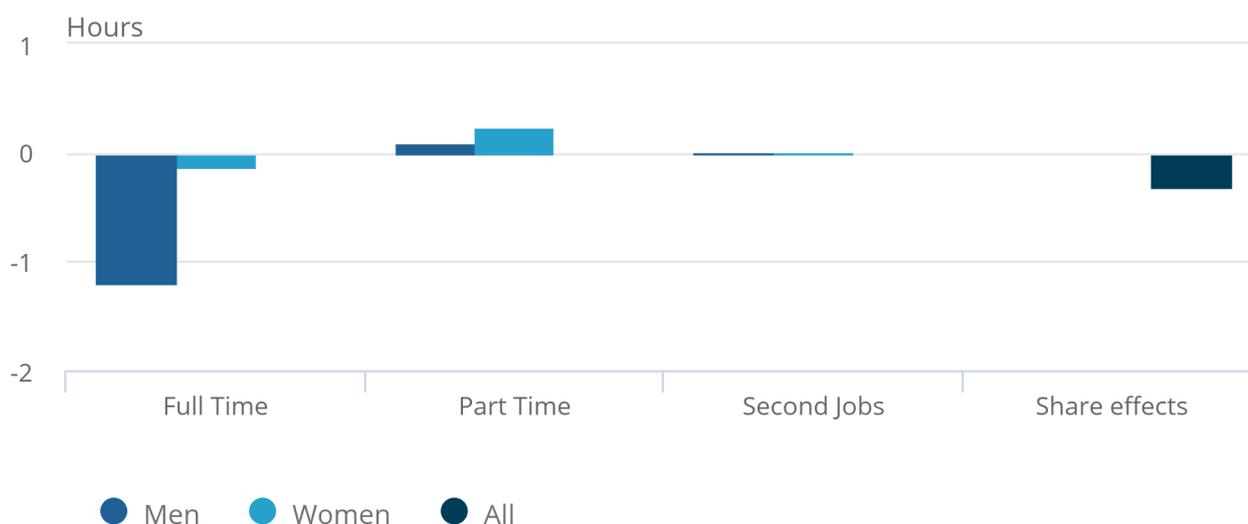
Figure 2 also shows that men and women working second jobs had a marginal impact on average hours worked between 1998 and 2022. The overall share effects contributed negative 0.3 hours to the total change in average hours worked. This primarily reflected the fall in the relative proportion of men working full-time and a corresponding increase in the relative proportion of women working full-time in total employment. The share effect is negative because, on average, full-time men work more hours than full-time women.

Figure 2: Men working full time account for nearly all the fall in average hours since 1998

Shift-share analysis, contributions by gender and employment status to the negative 1.3 hours change in average weekly hours worked between 1998 and 2022, UK

Figure 2: Men working full time account for nearly all the fall in average hours since 1998

Shift-share analysis, contributions by gender and employment status to the negative 1.3 hours change in average weekly hours worked between 1998 and 2022, UK



Source: Labour Force Survey

The same analysis for the period 2019 to 2022 (see Figure 3) gives broadly similar results. The largest contributor to the total fall of 0.3 average hours worked weekly came from a fall in men's full-time average hours (negative 0.5 hours) and to a much lesser extent from women full-time workers (negative 0.1 hours). Again, there were small offsetting increases because of average hours worked by both men and women part-time workers increasing.

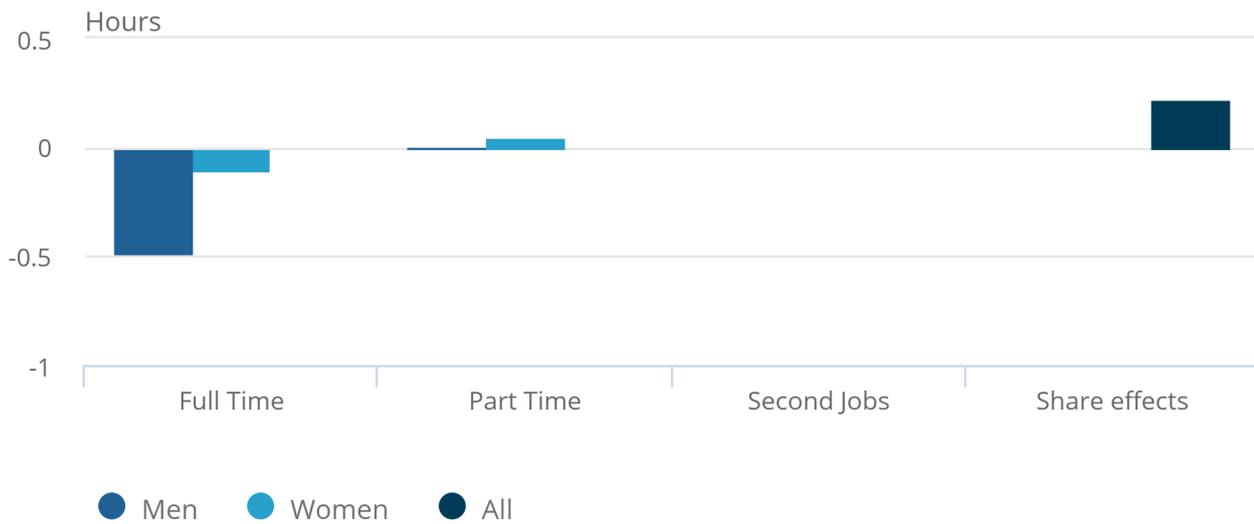
However, an interesting result is the positive share effect that contributed 0.2 hours to the change in average weekly hours during this period. This primarily reflects an increase in the relative share of women working full-time as opposed to part-time, perhaps because flexible working conditions have become more widespread since the pandemic (see our [Homeworking in the UK dataset](#)).

Figure 3: Men in full-time employment are working fewer hours compared with before the coronavirus (COVID-19) pandemic

Shift-share analysis, contributions by gender and employment status to the negative 0.3 hours change in average weekly hours worked between 2019 and 2022, UK

Figure 3: Men in full-time employment are working fewer hours compared with before the coronavirus (COVID-19) pandemic

Shift-share analysis, contributions by gender and employment status to the negative 0.3 hours change in average weekly hours worked between 2019 and 2022, UK



Source: Labour Force Survey

Age

Age is widely recognised as an important determinant of hours worked. Our [Worker movements and economic inactivity article](#) identifies age as an important factor resulting in a reduction in UK labour supply, with significant increases in inactivity among older and younger persons.

Figure 4 shows the shift-share contributions by age and gender to the fall of 1.3 hours in average weekly hours worked between 1998 and 2022. There are strong negative shift effects for men between the ages of 25 and 64 years, consistent with the fall in average weekly hours of men in full-time employment previously reported. There were offsetting positive shift effects from women in the same age categories, particularly in the 50 to 64 years age group, perhaps reflecting the increasing state pension age for women.

Negative shift effects for both men and women under 25 years of age probably reflect higher rates of participation in further and higher education. There were also positive shift effects for people aged 65 years and over of both sexes. However, this age group tends to work relatively low average hours compared with the others and employment rates are also relatively low.

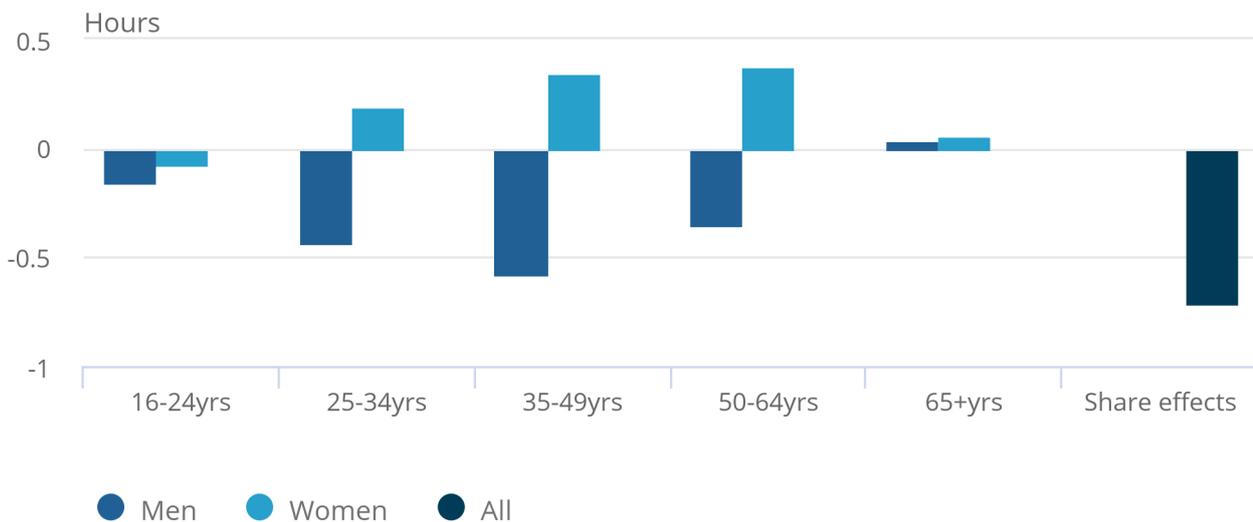
We estimate that the overall share effect is significantly negative, contributing over half (negative 0.7 hours) of the total change in average weekly hours. This not only reflects the increasing participation of women in employment – as women work fewer hours per week on average than men in all age categories – but also the consequence of the ageing UK population. Those aged 50 years and over tend to work fewer hours than workers aged 25 to 49 years, so a growing share of older workers in total employment would also contribute to a negative share effect.

Figure 4: Higher proportions of women and older people in employment have contributed to the fall in average hours worked

Shift-share analysis, contributions by gender and age to the negative 1.3 hours change in average weekly hours worked between 1998 and 2022, UK

Figure 4: Higher proportions of women and older people in employment have contributed to the fall in average hours worked

Shift-share analysis, contributions by gender and age to the negative 1.3 hours change in average weekly hours worked between 1998 and 2022, UK



Source: Labour Force Survey

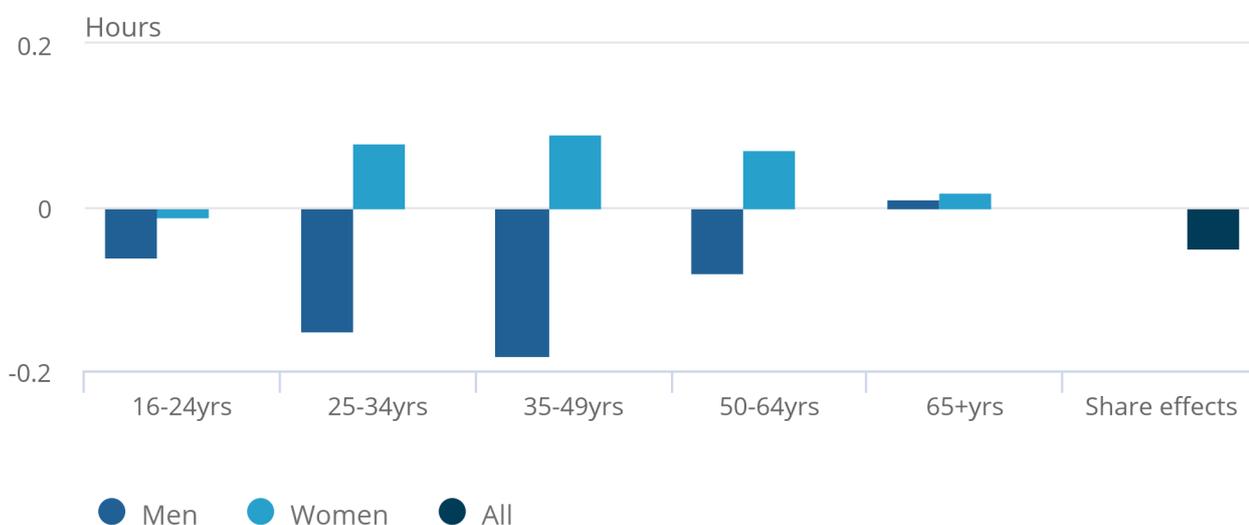
Figure 5 shows the same patterns in the contributions to the 0.3 hours fall in average weekly hours between 2019 and 2022. Men's average hours fell in every age category except those aged over 65 years. Meanwhile, women's average hours increased in every category except the 16 to 24 years age group. As before, share effects had a significant negative impact, because of both the increasing proportion of women and older people in total employment.

Figure 5: Since 2019, average hours worked by men have fallen in every age category except those aged over 65 years

Shift-share analysis, contributions by gender and age to the negative 0.3 hours change in average weekly hours worked between 2019 and 2022, UK

Figure 5: Since 2019, average hours worked by men have fallen in every age category except those aged over 65 years

Shift-share analysis, contributions by gender and age to the negative 0.3 hours change in average weekly hours worked between 2019 and 2022, UK



Source: Labour Force Survey

4 . Individual characteristics and changes in average hours worked since the coronavirus (COVID-19) pandemic

Determinants of average hours worked in 2022

Our [Annual Population Survey \(APS\)](#) collects information on UK individuals concerning their labour market activities and other personal characteristics, constituting a large and detailed source. In the 2022 survey, we identified nearly 74,000 respondents who were over 16 years of age, reported to be in employment and working a positive number of hours in the reference week. By also collecting other personal information, it is then possible to discern what characteristics might be important determinants of hours worked by individuals.

We do this by estimating a simple model where individual total hours worked are regressed on a set of personal characteristics. The results are presented in Table 1.

Table 1: The determinants of hours worked by those in UK employment in 2022
Regression coefficients on personal characteristics in a regression where the dependent variable was total weekly hours, 2022, UK

Variable	Coefficient	t-Statistic	Probability
Constant	41.55	280.17	0.00
16-24 years	-4.51	-23.55	0.00
25-34 years	0.41	3.13	0.00
50-64 years	-0.36	-3.23	0.00
65+ years	-9.30	-47.51	0.00
Female	-6.03	-63.25	0.00
Non-UK nationality	0.90	6.34	0.00
Married/cohabiting	-0.49	-4.74	0.00
Self-employed	-1.59	-12.03	0.00
Owner-occupier (no mortgage)	-2.42	-23.03	0.00
Non-graduate	-0.19	-1.84	0.07
(SOC1) Managers and directors	2.81	17.84	0.00
(SOC3) Associate professional/technical	-1.04	-6.90	0.00
(SOC4) Administrative/secretarial	-2.90	-17.19	0.00
(SOC5) Skilled trades	1.59	8.52	0.00
(SOC6) Caring, leisure, other service	-3.18	-17.09	0.00
(SOC7) Sales and customer service	-6.43	-31.49	0.00
(SOC8) Process, plant and machine operatives	0.50	2.40	0.02
(SOC9) Elementary	-7.43	-39.69	0.00

Source: Annual Population Survey

Notes

1. The sample size was 73,977.
2. The coefficients reported are statistically significantly different from zero, at the 5% level where probability is less than 0.05, and at the 10% level where probability is less than 0.1.

The regression constant (41.6 hours) provides the average weekly hours worked for a person with the following set of characteristics:

- aged 35 to 49 years
- male
- UK or Irish nationality
- single
- is an employee or in training
- does not own a home outright
- employed in a professional or technical occupation (Standard Occupational Classification (SOC)2)

The estimated regression coefficients then show the effect of that respective personal characteristic on total hours worked relative to this control. For instance, the impact of being in the age category 16 to 24 years would be to lower hours worked by 4.5 hours per week, whereas being in the age category 65 years and over would lower hours worked by 9.3 hours per week.

Being female lowers total weekly hours by six hours. Nationalities other than UK and Irish work 0.9 hours more. Being married or in a co-habiting relationship (non-single) lowers total weekly hours by 0.5 hours and being self-employed lowers total hours by 1.6 hours per week. Owning your home outright lowers weekly hours by 2.4 hours. Managers and directors (SOC1) work 2.8 hours more. Significantly fewer hours per week are worked by administrative and secretarial occupations (SOC4: 2.9 hours), caring, leisure and other services occupations (SOC6: 3.2 hours), sales and customer services occupations (SOC7: 6.4 hours), and elementary occupations (SOC9: 7.4 hours).

Modelling the changes in individual hours worked between 2019 and 2022

We estimate the same regression on the 2019 version of the APS to determine the effect of these personal characteristics on hours worked relative to the year before the coronavirus (COVID-19) pandemic. However, we also include the 2022 survey data so interaction terms can be estimated for each of the coefficients. These interaction terms then suggest the impact of those personal characteristics on changes in hours worked between 2019 and 2022. The results are presented in Table 2. Note that only those effects that were estimated to be non-zero at a 10% significance level or better are shown.

The interaction term relating to the regression constant is estimated at negative 0.6 hours, which implies that the person with the set of baseline characteristics described previously lowered their weekly hours by this amount between 2019 and 2022. The other interaction terms then describe the impact of that personal characteristic on the change in weekly hours between 2019 and 2022, relative to that fall of 0.6 hours.

For instance, those aged 16 to 24 years reduced their hours by a further 0.6 hours, whereas those aged 65 years and over increased weekly hours by 1.1 hours (relative to the fall of 0.6 hours, so an actual increase of 0.5 hours). Women increased their relative hours by 0.8 hours, perhaps reflecting more flexible working practices adopted since the pandemic.

We found that the self-employed reduced their hours by a further 0.8 hours. This is consistent with analysis in our [Understanding changes in self-employment in the UK: January 2019 to March 2022 article](#).

Those who owned their home without a mortgage lowered their hours by a further 0.5 hours. This concurs with recent research by the Bank of England, which can be read on the [Bank Underground website](#). The research finds that negative income shocks tend to lower the labour supply of owner-occupier households, but increases that of those with an outstanding mortgage.

In terms of occupations, managers and directors (SOC1) further lowered their hours by 0.5. Administrative and secretarial occupations (SOC4) and sales and customer services occupations (SOC7) both increased theirs by a relative 0.7 hours per week.

Table 2: How personal characteristics determined changes in weekly hours worked between 2019 and 2022
 Regression coefficients on the interaction terms to estimate the impact of personal characteristics on the change
 in total weekly hours between 2019 and 2022, UK

Variable	Coefficient	t-Statistic	Probability
Constant	-0.62	-3.07	0.00
16-24 years	-0.56	-2.28	0.02
65+ years	1.14	4.12	0.00
Female	0.75	5.86	0.00
Self-employed	-0.81	-4.66	0.00
Owner-occupier (no mortgage)	-0.45	-3.18	0.00
Non-graduate	0.26	1.87	0.06
(SOC1) Managers and directors	-0.45	-2.08	0.04
(SOC4) Administrative/secretarial	0.65	2.84	0.00
(SOC7) Sales and customer service	0.67	2.49	0.01

Source: Annual Population Survey

Notes

1. The combined samples from the 2019 and 2022 surveys consisted of 184,424 observations – those over 16 years of age, in employment and reporting non-zero weekly hours in the reference week.
2. The interaction terms presented in this figure are calculated using a dummy variable for the year 2022 to find out how the respective coefficient on each personal characteristic has changed since 2019.
3. The constant reports the change in total weekly hours (negative 0.62) between 2019 and 2022 for the baseline set of characteristics. The coefficients presented in the figure then report changes in weekly hours relative to the constant for the effect of each respective personal characteristic. Note that the only coefficients reported were those where the change relative to the constant was estimated to be statistically significant at the 10% level (probability is less than 0.1); the coefficients relating to the change in total hours between 2019 and 2022 for the other personal characteristics are not displayed.

5 . The contribution of average hours worked to economic growth

Gross domestic product (GDP) can be written as the product of the following measures:

GDP equals productivity multiplied by average hours multiplied by employment rate multiplied by participation rate multiplied by adult population.

If productivity is measured in terms of output per hour worked, and the product of the other right-hand-side variables equals the total hours worked in the economy, then it can easily be seen that GDP equals output per hour multiplied by total hours worked.

Figure 6 shows the contribution of each factor to the annual growth rate of UK GDP between 1998 and 2022. This shows that average hours worked had a large impact on GDP growth during the coronavirus (COVID-19) pandemic. Annual GDP contracted by approximately 10.9% in 2020, of which 10.3 percentage points was accounted for by a sharp drop in average hours worked that year. This reflects the impact of national lockdowns and the furlough scheme. In 2021, GDP rebounded by approximately 8.3%, of which 6.7 percentage points reflected the recovery in hours worked. In 2022, GDP continued its recovery, growing by approximately 4.3%, of which 2.6 percentage points was accounted for by a further recovery in average hours worked.

Figure 6: Changes in hours worked has a large impact on UK GDP growth during the coronavirus (COVID-19) pandemic

Annual growth rate of GDP (%) and its respective contributions (percentage points), UK, 1998 to 2022

Figure 6: Changes in hours worked has a large impact on UK GDP growth during the coronavirus (COVID-19) pandemic

Annual growth rate of GDP (%) and its respective contributions (percentage points), UK, 1998 to 2022



Source: Labour Force Survey

Notes:

1. The annual growth rates of gross domestic product (GDP) reported in this chart have been calculated using a logarithmic approximation, so might differ by a small amount relative to official estimates.

Figure 7 provides a summary of the contributions to growth between 1998 and 2019. Over this period, average annual growth of GDP was 1.7% per year, of which the annual contribution of average hours worked was negative 0.16 percentage points. This shows that, while average hours worked can have significant short-term effects on the economy, the downward trend in average hours worked has had a relatively small impact on UK economic growth over the longer term.

Figure 7 also shows the total growth in UK between 2019 and 2022 and its relative contributing factors. For instance, the level of GDP was 1.64% higher in 2022 than it was in 2019, but with large negative contributions resulting from a fall in both average hours worked (negative 0.97 percentage points) and the labour force participation rate (negative 1.34 percentage points). This highlights that the decline in average hours worked has had a more significant impact on UK GDP growth since the pandemic. It also suggests that the potential for growth to be supported by a continuing recovery in average hours to pre-pandemic levels.

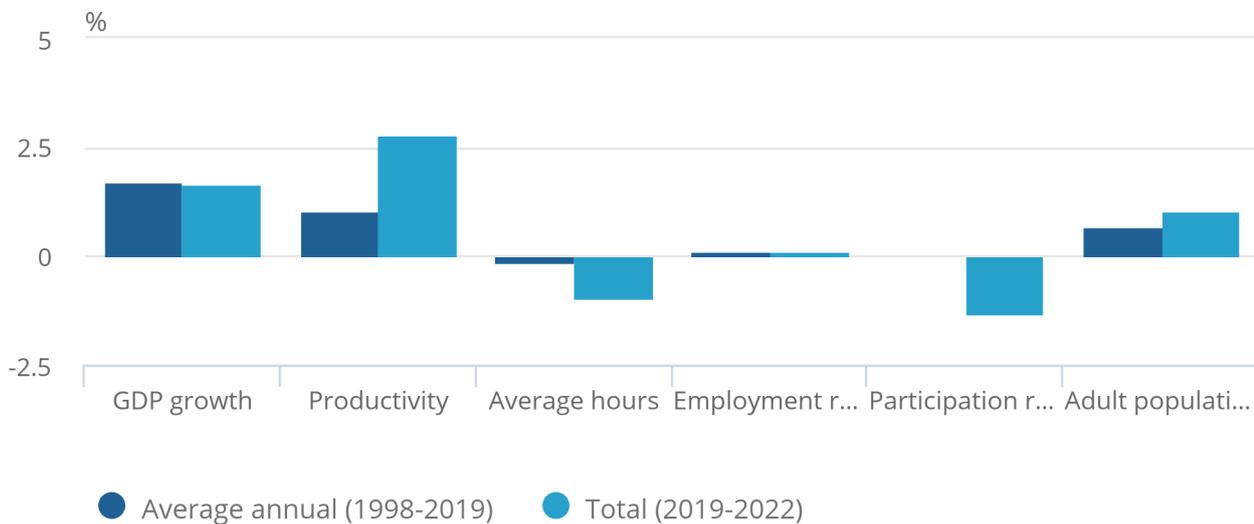
As the increase in GDP relative to before the pandemic has been achieved despite a fall in total hours worked, the relative contribution to growth from productivity has increased. It is not atypical for labour productivity to move pro-cyclically with the economy, especially if businesses have been hoarding labour that they can then start using more intensively. Both the [Institute for Fiscal Studies's October report](#) and the [Bank of England's Economic update \(PDF, 2.4MB\)](#) have identified the presence of hoarding in the UK labour market since the pandemic. This may be a consequence of job retention schemes and because of reported labour shortages, particularly for skilled workers.

Figure 7: Average hours worked have been an important factor in reducing the growth of GDP relative to before the coronavirus (COVID-19) pandemic

Average annual growth rate of GDP (%) and its respective contributions (percentage points) between 1998 and 2019, and the total growth in GDP (%) and its respective contributions (percentage points) between 2019 and 2022, UK

Figure 7: Average hours worked have been an important factor in reducing the growth of GDP relative to before the coronavirus (COVID-19) pandemic

Average annual growth rate of GDP (%) and its respective contributions (percentage points) between 1998 and 2019, and the total growth in GDP (%) and its respective contributions (percentage points) between 2019 and 2022, UK



Source: Labour Force Survey and Quarterly National Accounts

6 . Average hours worked and economic growth data

[A05 SA: Employment, unemployment and economic inactivity by age group \(seasonally adjusted\)](#)

Dataset | Released 12 September 2023

Employment, unemployment and economic inactivity levels and rates by age group, UK, rolling three-monthly figures, seasonally adjusted. Labour Force Survey.

[EMP01 SA: Full-time, part-time and temporary workers \(seasonally adjusted\)](#)

Dataset | Released 12 September 2023

Full-time, part-time and temporary workers, by sex, UK, rolling three-monthly figures published monthly, seasonally adjusted. Labour Force Survey.

[HOUR01 SA: Actual weekly hours worked \(seasonally adjusted\)](#)

Dataset | Released 12 September 2023

Actual weekly hours worked including by sex, full-time, part-time and second jobs, UK, rolling three-monthly figures published monthly, seasonally adjusted. Labour Force Survey.

7 . Data sources and quality

For data sources and quality information, please see Sections 6 and 7 of our [Labour market overview, UK: October 2023 bulletin](#).

8 . Related links

[Worker movements and economic inactivity in the UK: 2018 to 2022](#)

Article | Released 19 December 2022

Commentary on UK worker movements and increased inactivity during the coronavirus (COVID-19) pandemic compared with other countries.

[Homeworking in the UK, work from home status](#)

Dataset | Released 19 April 2021

Experimental estimates from the Annual Population Survey for homeworking in the UK, including breakdowns by sex, full-time or part-time, ethnicity, occupation, industry, qualifications, hours worked, pay and sickness absence among others. Includes regression outputs on the different outcomes for homeworkers.

[The employment-population ratio and changes in the UK labour market: 2008 to 2023](#)

Article | Released 28 March 2023

Analysing the labour market, focusing on changes in UK employment through the global financial crisis and the coronavirus (COVID-19) pandemic.

[Analysis of compositional changes in hours worked in the UK](#)

Article | Released 7 August 2019

Analysis of the changes in the UK labour composition during and after the economic downturn, and international comparison over the last five years.

9 . Cite this article

Office for National Statistics (ONS), released 22 January 2024, ONS website, article, [Average hours worked and economic growth, UK: 1998 to 2022](#)