

# An analysis of hours worked per worker in Spain: trends and recent developments

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## Rationale

Changes in working hours are one of the factors that determine the contribution of labour to an economy's growth. It is therefore worth assessing whether the moderate downward trend observed in this variable over the last four decades is likely to persist.

## Takeaways

- The fall in average working hours in Spain between 1987 and 2019 (from 37 to 31.8 hours per week) reflects a range of structural changes in the economy over that period, such as the increase in the weight of the services sector and the rise in part-time work.
- The pandemic accelerated the decline in average working hours, although the most recent data point to a recovery. Nonetheless, overall, the working week is now just over one hour shorter than before the health crisis. The sectors most affected were the contact-intensive ones. Working hours in trade still fall some way short of their historical trend.
- Looking ahead, factors such as demographic ageing, the increasing weight of the services sector and the rise in the part-time employment rate suggest that the downward trend in hours worked per worker could continue.

## Keywords

Employment, working hours, historical trend, pandemic.

## JEL classification

J21, J22, J81.

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### Introduction

The number of hours worked per worker affects the extent to which labour contributes to the production of goods and services. Where the number of hours per worker (or intensive margin) remains constant, a rise in the number of workers (or extensive margin) is tantamount to an increase in labour input, since the total number of hours worked increases. However, if the number of persons in employment rises, but each person works fewer hours, the pace of growth in hours worked slows down.

Thus, an analysis of hours worked per worker is key when it comes to explaining both long-term trends and cyclical fluctuations in employment. The historical downward trend in this variable has limited the contribution of labour to economic activity. Meanwhile, the number of hours worked by each worker offers firms a flexible tool, enabling them to adjust their labour costs without having to cut staff in the face of adverse shocks.

This article aims to analyse, separately, the structural and cyclical aspects of hours worked per worker in Spain. To this end, it draws on the information on persons in employment and hours worked in the Annual National Accounts (ANA) and the Spanish Labour Force Survey (LFS). The second section analyses the long-term trend observed in this variable in Spain. Beginning midway through the 1980s, the period chosen ends in 2019, the year before the pandemic, to ensure that the impact of the health crisis does not distort the analysis. The third section looks at how hours worked per worker responded to such a powerful adverse shock. Lastly, the final section summarises the main conclusions.

### Historical trend in the number of hours worked per worker in Spain

According to the LFS, annual hours worked per worker in Spain fell by between 200 and 300 hours (more than 14%) between the mid-1980s and 2019. This amounts to a drop in average weekly working hours from 37 to 31.8 (see Chart 1). Broadly speaking, this decline reflects factors common to other economies, such as technological progress,<sup>1</sup> which has yielded productivity gains leading to an increase in the time devoted to leisure at the expense of time spent working. In any event, certain structural changes, although also apparent at a global level, have probably been more far-reaching in the Spanish economy, particularly if we restrict ourselves to the last 40 years. These transformations include changes in the sectoral structure of the economy (with the services sector accounting for a larger share), the progressive incorporation of women into the labour market, the trend towards more part-time work and, more recently, demographic ageing.

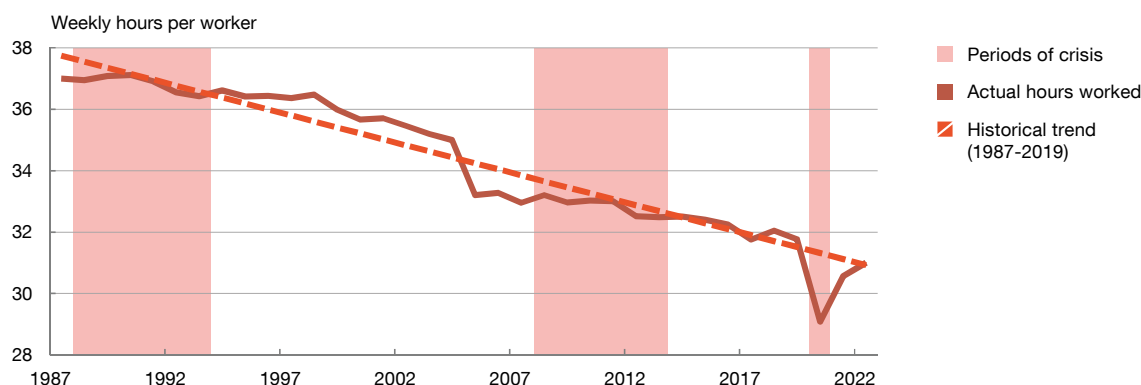
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1 Timo Boppart and Per Krusell. (2020). "Labor Supply in the Past, Present and Future: A Balanced Growth Perspective". *Journal of Political Economy*, 128(1). <https://www.journals.uchicago.edu/doi/full/10.1086/704071?mobileUi=0>

Chart 1

**Hours worked per employee reveal a historical downward trend**

1.a During COVID-19, the pace of decline was faster than the historical trend and than in previous crises



SOURCES: INE and Banco de España.

By activity, between 1995 and 2019 hours worked per worker fell across all sectors, with the exception of construction. Moreover, the increasing specialisation in the services sector exerted additional downward pressure, this being the sector with the lowest number of hours per worker (see Chart 2.a). Specifically, the change in the composition of employment by productive sector explains almost one third of the decline in hours worked per worker over that period, easily offsetting the increase seen in the construction sector.

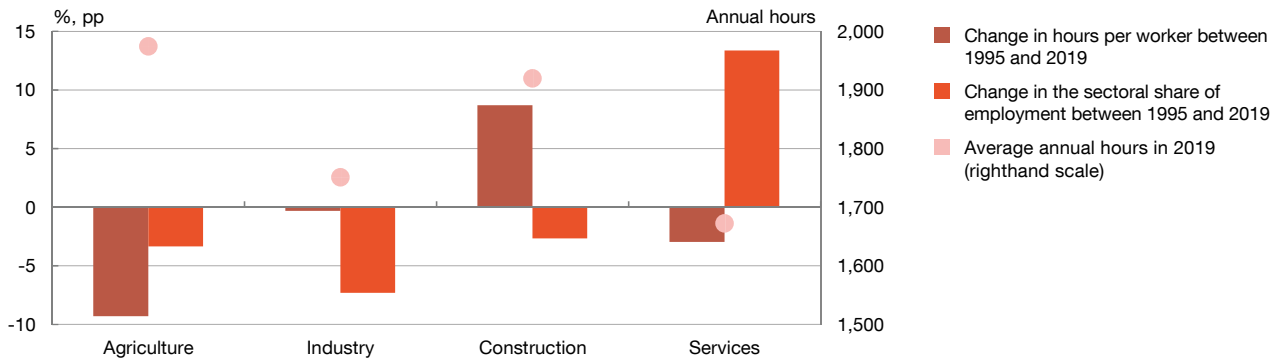
The number of hours worked per worker can fall if the hours of both full-time and part-time workers are reduced, but also if the share of part-time workers in the economy increases. Over recent decades, the weekly working hours of the average full-time worker in Spain fell by almost four hours between 1987 and 2019 (from 38 to 34.3 hours). Meanwhile, the working hours of part-time workers remained under half the full-time working week (around 17 hours). The sharp rise observed in the part-time employment rate (from 5.2% in 1987 to 14.6% in 2019) also contributed to the fall in average weekly working hours. This increase in the part-time employment ratio was behind around 40% of the decrease in working hours, while the decline in full-time working hours accounted for the rest.

In large part, this rise in part-time employment stems from the incorporation of women into the labour market. In recent decades, the female participation rate (defined as the number of economically active women as a percentage of women of working age) has risen significantly, from 30% in early 1987 to 53.3% in 2019. In parallel, part-time employment has increased, since there is a substantial difference between the proportion of men and of women within the group of workers with this type of contract, the latter accounting for a much larger share. Specifically, in 2019 three out of every four part-time workers were women (a share that was even larger in the late 1980s, when it stood at four out of every five). Consequently, around 22% of female employment is part-time, as opposed to 7% in the case of men (see Chart 2.b). While part-time

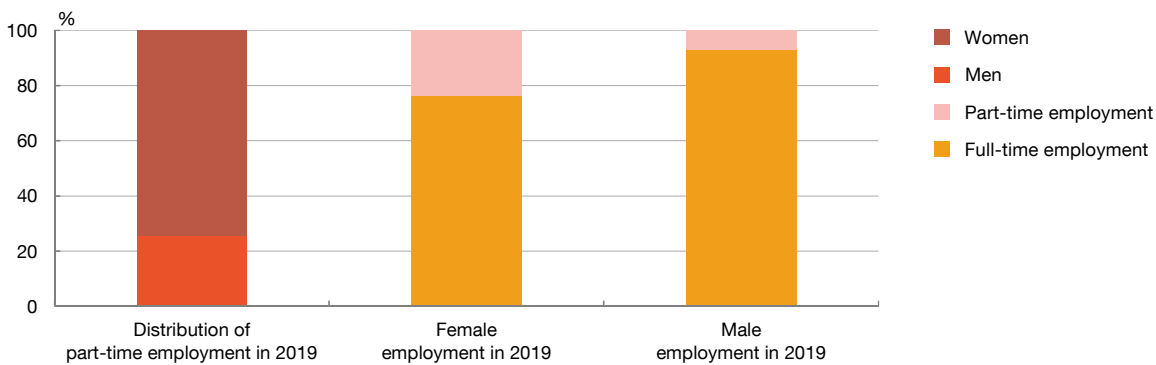
Chart 2

**Structural changes in recent decades have contributed to the historical downward trend in hours per worker**

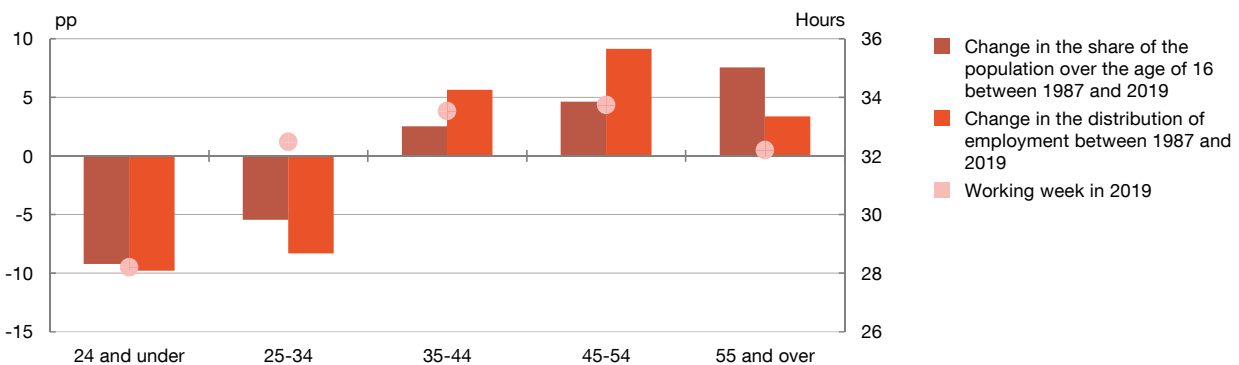
2.a Specialisation in the services sector has been the biggest contributor to the fall in hours worked per worker



2.b Part-time work and female employment are closely correlated, and the incorporation of women into work has therefore contributed to the decline in working hours



2.c Groups aged between 35 and 54 and with the longest working hours are those whose relative share of the total increased the most



SOURCES: INE and Banco de España.



employment has been trending upwards in both cases, it has risen less sharply among men, and this gap has therefore widened slightly.

Meanwhile, changing age demographics have also had their part to play in the trend in number of hours worked per worker. In age terms, the segment of the work force that has seen the largest

relative increase since the late 1980s has been the cohort between the ages of 35 and 54. Given that the individuals in this age interval have the longest working hours, this had a slight positive impact on the average length of the working week (see Chart 2.c). However, in recent years demographic ageing and the raising of the retirement age have shifted momentum from this cohort to older workers, who have shorter working hours.

By way of a summary of the impact of the different variables considered on trends in average working hours, Table 1 includes results obtained from the estimation of regressions in which variables with potential effects on the number of hours per worker have been added one by one. In this case, the sample period is notably shorter.<sup>2</sup> Column 6 of the table, analysing the effects of each variable once all the others have been included, shows that part-time status is the biggest determinant of the length of working hours. Specifically, the working week of part-time workers is, on average, 16 hours shorter than that of their full-time counterparts. In terms of gender, on average women work just under two fewer hours a week than men, even after controlling for the larger proportion of women in part-time work. On average, individuals across all age groups work more hours than the under-25s, with the exception of the over-55s, who work an average of over one hour less than the youngest cohort. This last figure may reflect the impact of partial early retirement mechanisms. By educational attainment, the differences between workers with medium and high educational attainment levels are small, and somewhat larger between the latter and workers with a low educational attainment level, who on average work just over half an hour a week less. By contract type, temporary workers have a slightly shorter average working week than their permanent counterparts. Lastly, by productive sector, the estimations confirm that the shortest working weeks are to be found in the services and, above all, the non-market sectors, followed by agriculture, market services, industry and construction, in that order.

These findings can be used to prepare different scenarios regarding the future path of average working hours. For example, the demographic structure envisaged in the National Statistics Institute (INE)'s latest Spanish population projections (October 2022) would suggest that, by 2023, compared with the current figure, the average working week will have fallen by almost three hours a year, assuming that the employment rates by age remain constant between now and then. Moreover, if the Spanish economy were to converge towards a sectoral structure akin to the European Union average, the share of employment in non-market services would rise, these, as noted above, being the activities with the shortest working hours. Thus, the annual number of hours worked per individual would be around two and a half hours lower than the current figure. In an exercise in which the part-time employment rate in Spain rises from the 13.6% recorded at end-2022 to the level of Germany (27.9% as per the latest available figure, for 2021), annual working hours would fall by 121 (or nearly two and a half hours a week), over 7.5%. Lastly, if, for example, the downward trend in the percentage of workers with low educational attainment levels were to continue, with a shift towards those with a medium educational attainment level, annual working hours would rise by around three and a half hours over the next 11 years.

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<sup>2</sup> Drawing on the quarterly information based on the LFS microdata between 2014 and 2019.

Table 1

**Impact of demographic and employment characteristics on the number of hours worked per week (a)**

Dependent variable: number of actual hours worked per week		Estimation period: 2014 Q1 - 2019 Q4					
Explanatory variables:	(1)	(2)	(3)	(4)	(5)	(6)	
<b>Gender</b>							
Women	-4.895***	-2.082***	-2.103***	-1.993***	-2.082***	-1.668* *	
<b>Type of working arrangement</b>							
Part-time		-16.439***	-16.433***	-16.522***	-15.989***	-16.150***	
<b>Age</b>							
25-34			0.896***	1.047***	0.855***	0.855***	
35-44			0.909***	1.056***	0.586***	0.662***	
45-54			0.665***	0.762***	0.189***	0.492***	
55 and over			-1.024***	-0.900***	-1.539***	-0.959***	
<b>Education level</b>							
Medium				0.543***	0.354***	0.587***	
High				-0.466***	-0.460***	0.548***	
<b>Type of contract</b>							
Temporary					-0.480***	-0.321***	
<b>Economic sector</b>							
Industry						1.593***	
Construction						1.905***	
Market services						1.180***	
Non-market services						-1.460***	
Constant	33.642***	35.180***	34.681***	34.317***	34.952***	33.725***	
Number of observations	1,459,636	1,459,636	1,459,636	1,459,636	1,196,034	1,196,034	
Adjusted coefficient of determination	0.025	0.145	0.147	0.148	0.179	0.185	
Region fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	

**SOURCE:** Banco de España.

**a** The coefficients estimated refer to the differential effect on the number of hours actually worked per worker in relation to the baseline cohort in each category in the event of a unit change in the corresponding variable. In each case, and depending on the explanatory variables included in the different regressions, the baseline cohort comprises men, under the age of 25, with a low education level, working full-time in agriculture and with a permanent contract. One asterisk denotes a level of significance of 10%, two denote 5% and three denote 1%.

## Developments in hours worked per worker during the pandemic

In 2020, the pandemic significantly accelerated the decline in hours worked per worker both in relation to the historical trend and as compared with previous crises. Essentially, this reflected the intensive use of job retention schemes (ERTE, by their Spanish acronym). Between 2019 Q4, just before the pandemic, and 2020 Q2, when the restrictions introduced to curb contagion were at their most severe, the average number of weekly hours per worker fell<sup>3</sup> by almost seven hours, around 21% of the working week (see Chart 1).

<sup>3</sup> The impact of job retention schemes on working hours stemmed from both short-time work schemes and temporary layoffs. In the case of the latter, although the persons affected do not work, they are deemed to be in employment according to the LFS (with zero hours worked).

The time series of hours worked per worker is highly seasonal. Thus, when looking to make a comparison between two periods, it is preferable to take the same quarter from two different years. Specifically, two comparisons have been made. In the first of these, based on LFS data, the duration of the working week in 2020 Q2 (at the height of the pandemic) was compared with the same quarter in 2019, with a view to insulating the analysis from seasonal effects. The aim in this case is to gain a detailed insight into the immediate effects of lockdown in aggregate terms and across different groups of workers based on their demographic and employment characteristics.

In aggregate terms, the policy measures adopted, including most notably the job retention schemes, meant that the change in total hours worked was essentially due to the intensive margin – number of hours per worker – rather than the extensive margin – number of workers (see Chart 3.a).<sup>4</sup>

By group, the early stages of the pandemic saw a reduction of working hours across the board. The decrease was similar in scale for men and women, with a gender gap of less than one hour. The gap was also small across age groups, with the under-25s being slightly more affected. However, the differences by educational attainment level were much more appreciable. The working week of workers with a higher educational attainment level fell by an average of around four hours, whereas it declined by almost nine for the rest. One possible explanation would be that those with a lower level of educational attainment tend to hold contact-intensive jobs, i.e. those hardest hit by the pandemic.<sup>5</sup> The working hours of permanent and temporary workers fell by seven and five hours, respectively. Lastly, the working week of full-time workers fell by more than seven hours, as compared with six in the case of part-time workers, which represented a much larger share of the total in the case of the latter (see Chart 3.b).

A detailed analysis of developments in the working week by economic sector reveals that the initial fall in hours per person was much more pronounced in sectors in which social contact is closest, such as trade, transport, accommodation and food services. In these cases, hours worked per person fell by almost a half. At the opposite extreme, agriculture and less contact-intensive sectors, in which a higher proportion of jobs can be performed remotely, such as information and communication services and financial activities, were the least affected (see Chart 3.c).

The second comparison looks at developments in hours per worker up to the present moment. Specifically, this variable for the latest quarter available in the LFS (2022 Q4) is compared with the same quarter of 2019. By end-2022, once the restrictions to contain the pandemic had been lifted, average working hours had resumed their historical downward trend. Specifically, in 2022

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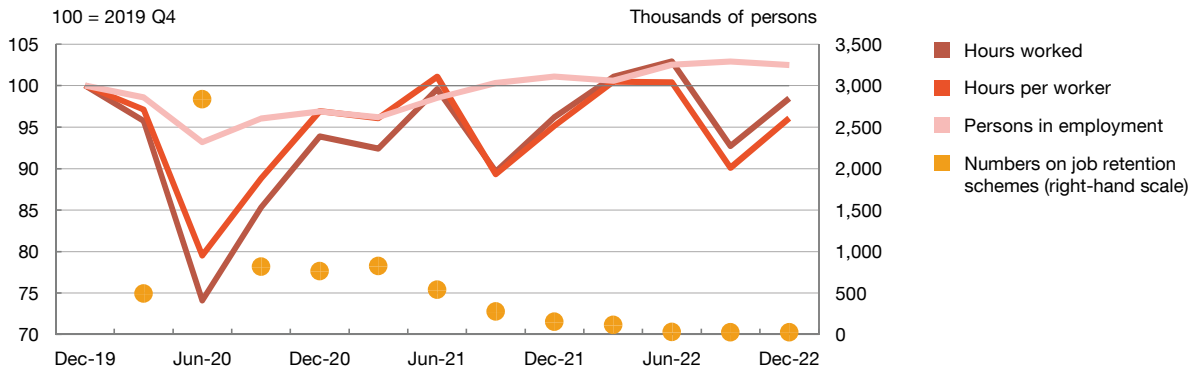
4 As well as actual hours worked, the LFS also offers information on usual hours. Usual hours need not necessarily match hours actually worked for a variety of reasons, e.g. holidays, illness, maternity/paternity leave, etc. Unlike in the case of actual hours worked, the pandemic did not have a significant impact on usual hours, which could confirm that firms used the number of hours worked per individual as an adjustment measure.

5 Around 40% of the workers with a low educational attainment level worked in trade, transport and accommodation and food services in 2019 Q4.

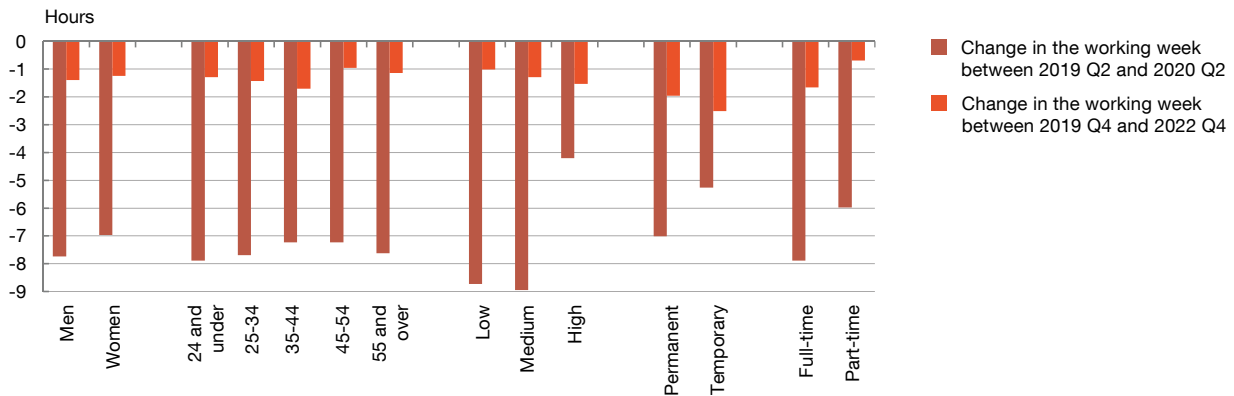
Chart 3

**The length of average working hours was used as a means of adjusting employment in the health crisis caused by COVID-19**

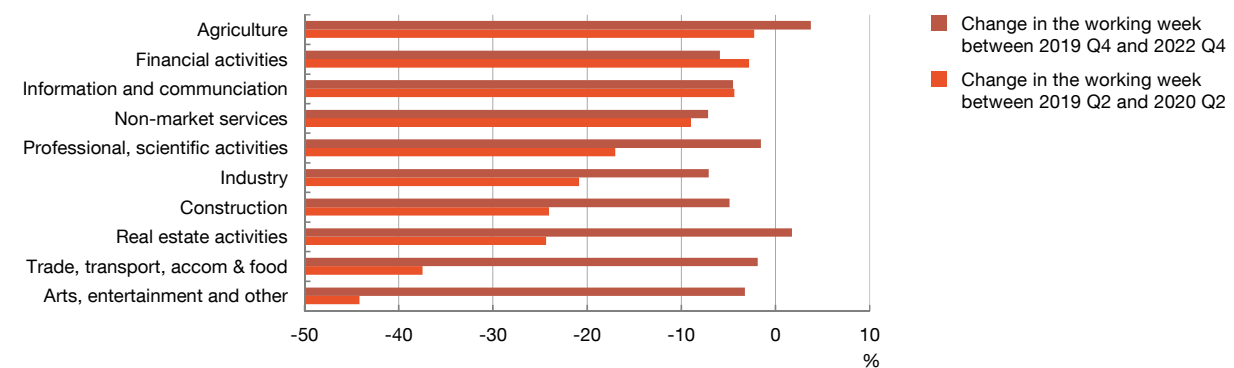
3.a Policy measures such as flexibilisation and the incentives for job retention schemes facilitated these types of adjustment



3.b Working hours fell due to the pandemic across demographic and employment characteristics, and have yet to recover their former level in any of the groups now the pandemic is over



3.c Those most affected were engaged in the most contact-intensive activities, in which working hours fell by almost a half



SOURCES: Ministerio de Inclusión, Seguridad Social y Migraciones, INE and Banco de España.





Q4 hours worked per worker stood around 4% below those observed three years earlier.<sup>6</sup> Nevertheless, one third of this decline in average weekly working hours is due to the rise in sickness leave, which remains at a high level after the pandemic.

By group, the fall in working hours in comparison with the pre-pandemic figure is widespread across the different population cohorts, regardless of their demographic and employment characteristics. No major differences are apparent across such groups, save in the case of temporary workers, for whom the gap between current and pre-crisis working hours remains wider. Nonetheless, the decline recently seen in temporary hiring, mainly as a result of the December 2021 labour market reform, both overall and relative to other hiring arrangements, mitigates its negative contribution to the recovery in the number of hours worked per worker.

Lastly, falls can be seen across most sectors, with the exception of real estate activities and agriculture, in which working hours have risen in comparison with the pre-pandemic period. This widespread reduction in working hours can be seen not only in the activities hardest hit by the health crisis, such as transportation and accommodation and food service activities, but also elsewhere, and particularly so in trade, construction and manufacturing, which have yet to resume the pre-crisis downward trend.

## Conclusions

The average number of hours worked per worker is an important factor when characterising the long-term trend and cyclical changes in employment. The historical downward trend in this variable over recent decades has limited the contribution of labour to output growth. This decline can be explained by technological progress and other structural changes arising over the past forty years, including the increase in the size of the services sector, the progressive incorporation of women (who are more likely to be in part-time employment) into the labour market and, more recently, changes in age demographics.

Meanwhile, changes in working hours are a flexible tool that firms can use to adjust their labour costs without having to cut staff in the face of adverse shocks. A very particular example of this is offered by the pandemic, which yielded a context ideally suited to using average working hours as a means of adjusting the extent to which the labour input is used, thanks to the widespread use of job retention schemes. The groups whose working hours fell most due to the pandemic were those working in more contact-intensive sectors, such as accommodation and food service activities, transport and trade. Average working hours have now resumed their historical downward trend. Nonetheless, overall, the working week is now just over one hour shorter than before the health crisis. The recovery is slower in the case of temporary workers. Conversely, the average pre-pandemic working hours in real estate activities and agriculture have now been exceeded.

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<sup>6</sup> The post-pandemic recovery in working hours has been stronger in the EU overall: in 2022 Q3 (the latest figure available for this aggregate), the number of hours per worker was just 1% lower than the 2019 Q3 figure.

Looking ahead, the downward trend in working hours per worker looks likely to continue in the coming years. Progressive demographic ageing will exert downward pressure on average working hours, as older workers account for a greater share of total employment. On average, older workers have shorter working hours, something that will increasingly be the case as working lives are expected to get longer due to the rise in the retirement age and to possible incentives for partial retirement. Moreover, the services sector is likely to continue accounting for an increasingly large share of total economic activity, which would also tend to reduce average working hours.

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