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Aiming for "full employment": why and how?

Antoine Bozio, Paris School of Economics, EHESS, IPP, CAE, **Jean Ferreira**, CAE,
Camille Landais, London School of Economics, CAE,
Alice Lapeyre, Mariane Modena, **Max Molaro** CAE

This *Focus* analyses employment and hours worked over 55 years in France, Germany, the United Kingdom and the United States in order to identify the employment margins or reserves of working hours, that public policies could focus on. The objective of full employment is by no means self-evident if we consider that the choices of participation in the labour market and effort in terms of working hours are solely a matter of the preferences of our fellow citizens. But if there are obstacles to French people's desire to participate more fully in the labour market, then there are strong reasons for wanting to intervene to encourage employment and thus increase the volume of hours worked in France. Beyond the individual impact of better access to employment, the positive externalities on public finances of a higher employment rate make this a legitimate public policy objective, provided we are not mistaken about the real bottlenecks.

This comparative study highlights several factual observations that deserve to be spelled out. Firstly, France has an actual deficit in hours worked per capita of around 100 hours a year compared with its European neighbours and 300 hours compared with the United States. This historical divergence dates back to the late 1970s and peaked in the mid-1990s. Secondly, this gap with Germany and the UK can be explained entirely by a lower employment rate in France and not at all by a lower number of hours in employment. Thirdly, France's lower employment rate is entirely concentrated among young people and older people: young people enter the labour market much more slowly in France, and leave the labour market earlier. Fourthly, women's contribution to the employment dynamic, which has historically been very strong, is running out of steam. Finally, employment among the unskilled is plummeting, revealing the extreme difficulty of integrating into the labour market those who leave the education system without neither qualifications nor training.

These findings provide a clearer picture of the public policies that are likely to achieve the goal of full employment: encouraging a better match between training provisions and the needs of the labour market, which would lead to more rapid integration into the labour market; enabling an increase in the employment rate of older people who are able to continue their careers by reforming retirement schemes and adapting them to the heterogeneity of situations; further encouraging the integration of women into the labour market; and providing specific resources for the excessive proportion of young people who leave the education system without neither qualifications nor a job.

Introduction

The objective of achieving «full employment» is generally presented as a policy aimed at reducing the unemployment rate, i.e. reducing the proportion of people looking for a job. But this approach can be very simplistic in that certain public policies increase participation in the labour market without reducing unemployment and, conversely, it is sometimes possible to reduce the unemployment rate without really increasing employment - for example by discouraging people from seaking employment - or without increasing the quantity of work supplied to the economy - for example by multiplying contracts with very short working hours (mini-jobs, zero-hour contracts, etc.). In order to consider the objective of full employment more globally, we need to look at the total number of hours worked in a country.

Nevertheless, the will to increase the overall amount of work is by no means self-evident. Working is a choice and everyone should be able to freely dispose of their work. Everyone approaches this choice in a different way, according to very different abilities, preferences and needs. Depending on the country or over time, cultural changes may also affect the way people view work and leisure, and it is not for economists to discuss the merits of these choices. The historical decline in the number of hours worked over the last 150 years, observed in most developed countries, suggests that leisure is a normal good and that, more often than not, productivity gains are used to increase leisure time. Why, then, should we question the total level of work quantity in France? Two main reasons for this. The first is that labour supply choices can exert externalities, i.e. effects on all the other players, but which are not internalised, i.e. they are not taken into account by individuals when they make their choices. These externalities can take many forms, but fiscal externalities are one of the most important, given the predominant role of taxes on labour in financing government spending and social protection. Through their labour supply choices, individuals indirectly affect all the revenues used to finance public services and social transfers.

The second reason is the existence of numerous frictions, barriers or other inefficiencies in the labour market which mean that certain individuals or groups (women, low-skilled young people, etc.) would like to work but either cannot, or cannot work as much as they would like. In this case, the level of work does not reflect people's choices and this justifies looking at how to eliminate these barriers.

The main message of this Focus is that there is indeed room for manoeuvre in terms of the total quantity of work in France, which may be important in the current budgetary debates. France has a lower average number of working hours per capita than most of its neighbours. And we are far from «full employment»: many groups, especially the young and the least qualified, are not well integrated into the labour market. The objective of full employment therefore makes sense in the French case.

It involves identifying the public policies that should be mobilised as a priority. They differ according to the diagnosis made of the populations likely to contribute to increased participation in the labour market: according to age, gender or qualification. This Focus proposes to measure in detail the margins of participation in the labour market, whether in terms of the employment rate (extensive margin) or the number of hours worked for each of these jobs (intensive margin). This approach is intended to be historical, in order to track long-term trends in the total number of hours worked in France, and is based on international comparisons, with the examples of Germany, the United Kingdom and the United States as a counterpoint.

The aim of this Focus goes beyond the question of statistical measurement of the number of hours worked and comparability between countries. More fundamentally, the aim is to identify the levers that can be used to restore growth in France by increasing the quantity of work. In the medium term, encouraging everyone to participate in the labour market, with workloads that provide sufficient income to ensure a decent standard of living, is the surest way to support both public finances and the ability to finance the public policies that our fellow citizens want. Over and above the quantity of work, the productivity of those hours worked is the decisive factor in sustaining an increase in the population's standard of living. This Focus therefore contributes to the diagnosis of productivity trends in international comparison, by revisiting the usual statistics through the prism of an in-depth study of the comparability of productivity measures.

This Focus updates previous work[1] which ended in 2008, just before the financial crisis. By adding 16 years of additional data, it looks back over 55 years of changes in the labour market, including the major changes of the last decade linked to the financial crises and Covid, and the rise in the retirement age. The other original contribution of this study is

[1] Blundell R., Bozio A., Laroque G. (2011): «Labor Supply and the Extensive Margin», *American Economic Review*, 101(3) , pp. 482–86, and, with more methodological details, Blundell R., Bozio A., Laroque G. (2013): «Extensive and Intensive Margins of Labour Supply: Work and Working Hours in the US, the UK and France», *Fiscal Studies*, 34(1), pp. 1-29.

to examine the case of Germany, which is closer to the French situation in many respects, but whose employment rate has risen sharply over the last two decades.

After presenting the methodology in part 2, we describe the evolution of work in France over a long period and its decomposition according to the extensive and intensive margins in part 3. We then focus on the two groups that participate least in the labour market by international comparison: young people and older people, in an attempt to identify the possible causes of their lower participation (part 4). We then present a decomposition of labour dynamics in France over the last twenty years (part 5) before concluding with a discussion of the diagnosis that can be made of the evolution of productivity over time (part 6).

Methodology

Available sources

There are three main sources for measuring employment and hours worked. All have advantages and limitations which have been the subject of numerous analyses[2].

The first source is administrative data, generally collected by social security systems to calculate public pensions. In France, this is data from the base tous salariés (BTS) produced by INSEE on the basis of employers' declarations in the Déclaration sociale nominative (DSN) information system. The information is entered precisely for each contract and the percentage of time specified. This source does not provide a good measure of actual working hours if they differ from the contractual hours. In addition, paid leave, sick leave and leave for any other reason are generally poorly recorded.

The second source is establishment surveys in which employers are asked about employment and the number of hours worked by their employees. These surveys are reputed to be reliable, since companies are supposed to know precisely the hours worked by their employees. The main problem is that they do not cover the whole population and exclude the self-employed, the public sector and temporary workers. In addition, they measure hours per job and not per individual. The UK's Annual Survey of Hours and Earnings (ASHE) is a good example of this type of survey, as is the French equivalent, the Activité et conditions d'emploi de la main-d'œuvre (ACEMO), and the US Current Employment Survey (CES).

Finally, the third source is the employment surveys used in this study. For France, the United Kingdom and Germany, we use national labour force surveys which meet European standards in terms of methods and which feed into the European Union's employment surveys. For France, we use the employment survey carried out by INSEE. For the United Kingdom, we use the Labour Force Survey (LFS) and for Germany, data from the Labour Force Survey provided by Eurostat. For the United States, we use the Current Population Survey (CPS), which is very similar to the European employment surveys. We have thus mobilised individual data from over 200 statistical surveys in the four countries. These surveys have the advantage of interviewing a very large representative sample of the population, and therefore of clearly identifying employment and hours worked per person. The questionnaires are the fruit of intense international collaboration between statisticians under the aegis of the International Labour Organisation (ILO), which defines the rules for measuring unemployment, employment and the various notions of working hours (actual hours, usual hours, etc.). The main problem with these surveys is that they have not always been carried out continuously throughout the year, despite the fact that employment and hours worked are highly seasonal, differing between countries and over time (seasonal work, but also paid holidays at certain times of the year). This implies two measurement difficulties:

- annual surveys tend to overestimate hours worked by choosing a reference month with no holidays (e.g. March in France, rather than August); the switch from annual to continuous surveys leads to major breaks in the series, which must be taken into account in the long-term trend;
- self-reported working hours are generally considered to be an overestimate of actual hours worked.

However, these surveys have one major advantage: they contain comprehensive information on the demographic structure of households, levels of education or qualifications and other characteristics specific to these sources. This makes it possible to conduct disaggregated analyses of population sub-groups.

[2] See for example Fleck S. (2009): «International Comparisons of Hours Worked: An Assessment of the Statistics», *Monthly Labor Review*, vol. 32, no. 5, pp. 3-31.

National accounts data

National accounts are the secondary source most used by economists and, generally, the one that feeds the series on a large number of countries published by institutions. National accounts therefore provide a measure of aggregate hours worked, but from sources that differ from country to country. The principle adopted is not so much the comparability of sources, but the fact that the source chosen is the most reliable in each country. Thus, national accounts may be based on the three primary data sources mentioned, depending on the judgement of their relative reliability in order to obtain the best possible estimate of hours worked. In the United Kingdom, in the absence of reliable administrative data on hours worked, it is essentially the employment survey that is used, while France tends to use administrative data from the DSN. The measurement of hours worked in national accounts mobilises several sources in which employment surveys may, in several countries, play a secondary role: it is a question not only of conforming to the scope of economic activity covered by national accounts (inclusion of cross-border workers, non-ordinary households, etc.) but also of apprehending actual working hours using several sources such as company data, administrative data to measure contractual working hours and the various factors that play a role both upwards (overtime) and downwards (leave, sick leave, etc.).

When we compare the number of hours worked from different sources, we see that the differences are stable overall between countries and over time, although the number of hours worked from national accounts sources is lower than that established by employment surveys. While the number of hours worked declared in these surveys is often considered to be overestimated, it is not possible to assert that the number of hours contractually declared in administrative sources is the 'truth' about the amount of work actually done.

Methodological choices

This Focus is largely based on the approach used by Blundell et al (2011, 2013) for adjustments to employment surveys. The main points of this methodology are reproduced below.

To measure the extensive margin (whether a person is in employment or not), we use a binary variable, which is positive if, in the reference week, the person has a paid job or declares him/herself to be self-employed. With continuous surveys over all weeks, this definition gives a very good measure of employment over the year for the population as a whole.

To measure the intensive margin (the number of hours worked while in employment), we use the number of actual hours worked in the reference week. For example, a person in employment but on leave during the reference week works 0 actual hours[3].

This approach is very practical when surveys are conducted on a continuous basis, but poses a problem when estimating employment and hours worked in annual surveys. The chosen method here consists of using, at the time of the transition from the annual survey to the continuous survey, a coefficient for the transition by end level of category (age, sex, type of household, education) of the difference between the actual annual hours worked observed in the continuous survey and the actual hours worked in the reference month of the annual survey. This makes it possible to obtain backcast series and to correct the break in the series that occurred in 2003 in France and in 2005 in Germany (see appendix A). The limitation of this approach is that it assumes that the deviation factor by category has not varied over the period during which the annual survey was used.

The case of Germany deserves a separate discussion. The gap between national accounts and the labour force survey is particularly wide, leading to particularly sensitive comparisons depending on the source used, to the extent that statisticians have questioned the ability of the employment survey to capture the number of hours worked. Thus, when we use national accounts, the number of hours worked in France and Germany appears to be very close, whereas the data from the employment surveys give a very different picture: the number of hours worked is much higher in Germany, as leave is probably underestimated (see Appendix A).

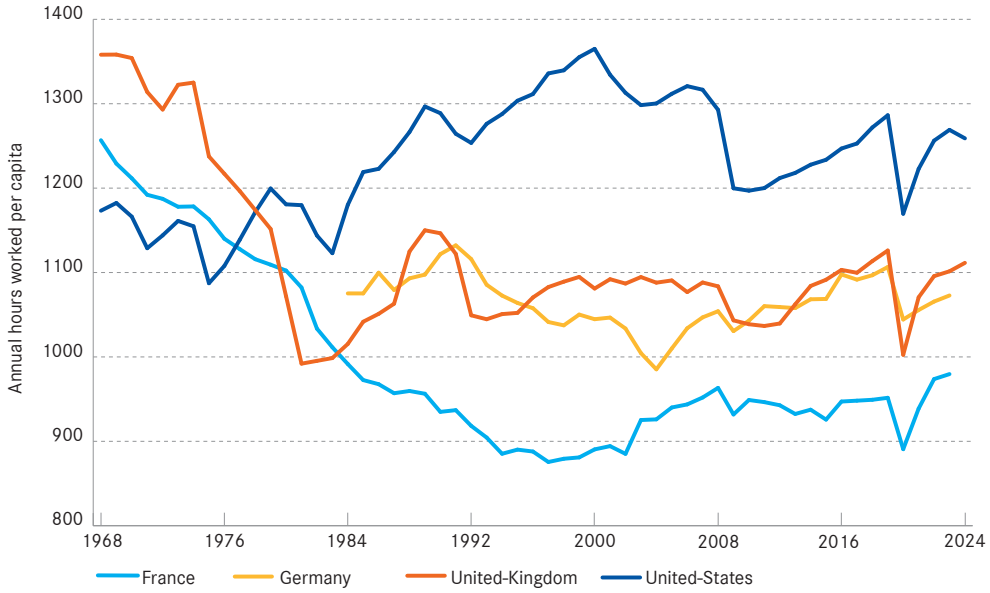
[3] The other classic methodological approach is to use usual hours and then deduct from them a measure of paid leave, sick leave, leave for other reasons and public holidays for each year.

Evolution of work over more than fifty years

Number of hours worked

Our first observation concerns changes in the number of hours worked per capita, estimated on the basis of the population aged 16-74. **Figure 1** shows this aggregate measure in the four countries studied since 1968. At the end of the 1960s, France and the UK were working significantly more hours than the USA, but the situation reversed from the end of the 1970s onwards. This sharp historical divergence led to a marked fall in the number of hours worked in France, reaching a low point in 1994 of around 900 hours per person per year. At the same date, the United States had 1,300 hours of work per person, compared with 1,050 in the UK and Germany. This considerable divergence occurred in barely 15 years. Since this low point, the number of hours worked has slowly risen in France to 990 hours in 2023, while it has fallen slightly in the United States (1,270 hours) and remained virtually stable in Germany (1,070 hours) and the United Kingdom (1,100 hours). The difference in the number of hours worked per person between France and the United States is 300 hours, and around 100 hours per year with the other two European countries.

Figure 1. Annual hours worked per capita (1968-2024)



Note: Average annual hours worked estimated for all person aged 16-74 year-olds.

Interpretation: In France in 2023, a person aged 16 to 74 will work an average of 980 hours per year. This is around 100 hours less than in Germany, where the average is 1,070 hours per capita, and in the UK, where the average is 1,100 hours. The United States is well ahead, with an average of 1,270 hours worked per capita.

Sources: Labour surveys (France, United Kingdom, Germany), population survey (United States).

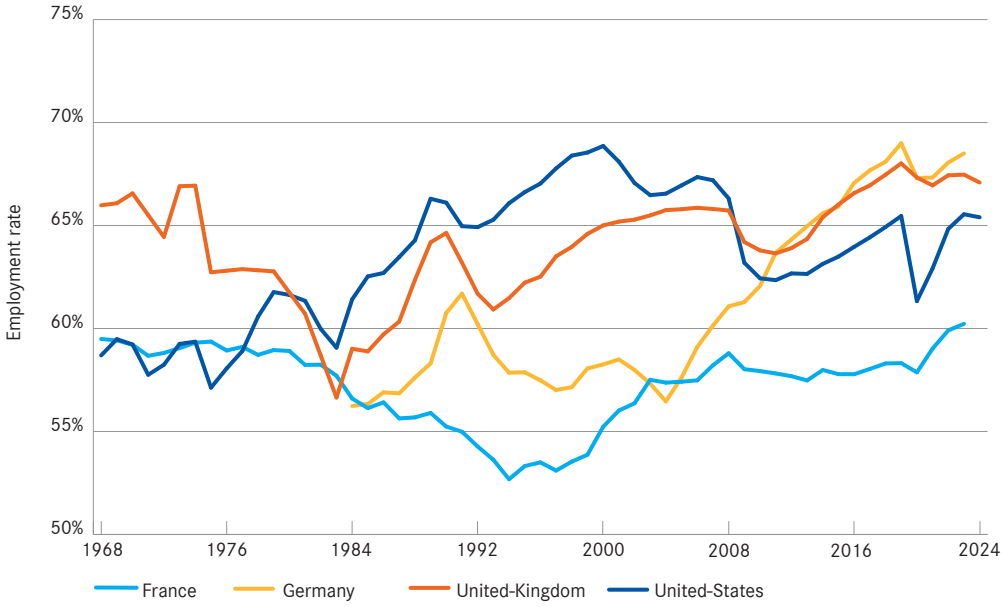
Finding 1. France has substantial scope for increasing the number of hours worked per capita, with 100 hours less than its German or British neighbours, and almost 300 hours less than the United States.

To understand this historical divergence in the total number of hours worked, we need to look again at the breakdown between the extensive margin (participation in the labour market) and the intensive margin (the number of hours worked by people in employment). **Figure 2a** shows the employment rate in these four countries since 1968. This is the least questionable measure in terms of international comparison, given the high degree of homogeneity of the questions asked in these surveys. The employment rate of the French population is relatively low, almost systematically lower than that of the other three countries. After falling sharply, it reached its lowest point – 53% – in 1993, then rose slowly to reach 60% in 2023, i.e. its level at the end of the 1960s, despite the sharp increase in women's participation in the labour market over the entire period. By contrast, the British and German employment rates have risen sharply, eventually overtaking the American rate to reach 67% and 68% respectively by the end of the period.

Figure 2b shows the intensive margin, i.e. the change in the number of hours worked by people in employment. There has been a downward trend in the number of hours worked per job in European countries. France experienced an earlier decline, but at the end of the period, Germany, the UK and France are very close, at around 1,650 hours per person in employment. The big difference here remains between the United States and Europe because, unlike the European countries, the United States has not seen a fall in the number of hours worked: since the late 1960s, the number of annual hours has fluctuated between 1,900 and 2,000 hours per person in employment, i.e. 300 hours more than in Europe.

Figure 2. Employment rate and annual hours worked per worker

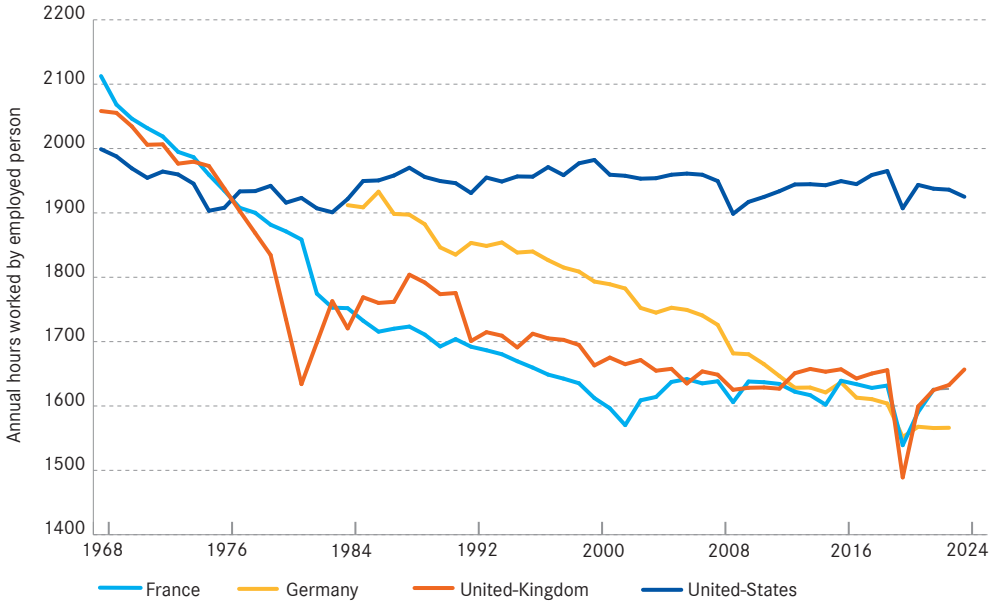
a. Employment rate (extensive margin)



Note: The employment rate corresponds to the proportion of the population aged 16-74 in employment.

Interpretation: In France, in 2023, the employment rate for 16-74 year-olds is 60%. This is lower than in the United States, the United Kingdom and Germany, where it ranged between 66% and 68%.

b. Annual hours worked per employed person (intensive margin)



Note: Average annual hours worked, estimated for all employed individuals aged 16-74.

Interpretation: If they are in employment, Germans, British and French people work roughly the same number of hours per year, around 1,600 hours. The United States stands out from the European countries, with more than 1,900 hours worked per employed person.

Sources: Labour surveys (France, UK, Germany), population surveys (US)

Gaps between countries in 2023

To summarise the French situation in 2023, **Figure 3a** shows the gap in the number of hours worked per person between France and the other three countries. **Figure 3b** breaks down this gap according to whether it is linked to a lower employment rate or a lower number of hours worked. The difference with Germany and the UK can be explained entirely by underemployment in France (100 fewer hours worked per capita per year). Contrary to widespread belief, it is not the number of hours worked by those in employment that explains the lower number of hours worked in France compared to its European neighbours, but rather the lower employment rate.

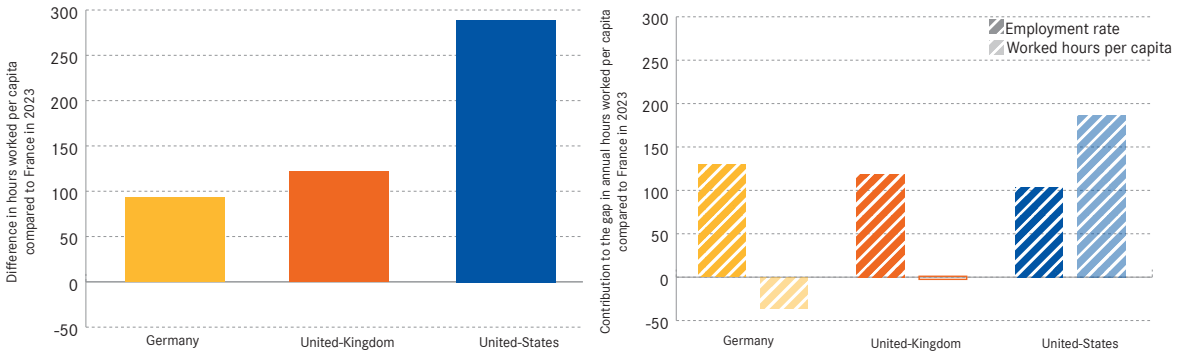
The comparison with the United States is of a different nature, leading to a marked difference with European countries in terms of the number of hours worked by people in employment: between 200 and 300 hours per person in employment compared with the United States. This difference can be explained by a higher number of weekly working hours and, above all, by fewer holidays.

Finding 2. The difference in the number of hours worked per capita compared with our European neighbours can be explained entirely by France's low employment rate and not by the average number of hours worked per person in employment.

Figure 3: Gap in annual hours worked per capita relative to France in 2023

a. Difference in hours worked per capita

b. Intensive and extensive margins for this gap

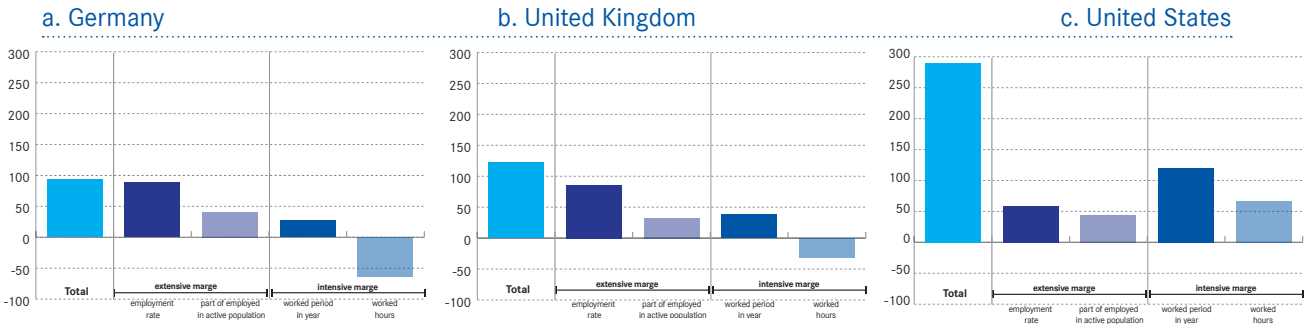


Note: Panel (a) shows the gap in annual hours worked per capita between a given country (Germany, UK, USA) and France in 2023. Panel (b) breaks down panel (a) into the contribution to this gap of the employment rate (dark hatched) and the hours worked by those in employment (light hatched).

Interpretation: In 2023, an American aged 16 to 74 worked on average 300 hours more than his French counterpart (column 3, panel a). Of this 300-hour difference, 200 hours can be explained by a greater number of hours worked by people in employment, and 100 hours by a higher employment rate.

Sources: Labour surveys (France, United Kingdom, Germany), population surveys (United States)

Figure 4: Contribution of the extensive and intensive margins to the gap in the number of hours worked per capita in 2023, compared with France



Note: The first column of each graph corresponds to the total difference in the number of hours worked per inhabitant aged 16 to 74 between France and a given country in 2023. This difference is then broken down into sub-groups. Columns 2 and 3 correspond to the contribution of the activity rate and the rate of people in employment to this difference in the number of total hours (extensive margin). Columns 4 and 5 represent the number of hours worked by people in employment (intensive margin). Column 4 corresponds to the contribution to the total difference of periods not unemployed by people in employment. Column 5 corresponds to the contribution to this gap of the difference in hours worked, over the weeks excluding holidays.

Interpretation: In 2023, the difference in the number of hours worked per capita (column 1) in France and the UK was 122 hours (panel b). The difference in activity rates (column 2) contributed 86 hours to this total gap.

Sources: Labour surveys (France, United Kingdom, Germany), population survey (United States).

Figure 4 breaks down the differences in the number of hours worked according to the components of the extensive and intensive margins. The differences in the number of hours worked between France and Germany and the UK are mainly explained by the activity rate. It is therefore the lower participation of the population in the labour market in France that explains these differences in the number of hours worked with its neighbours, and less so the unemployment rate.

Young and old on the labour market

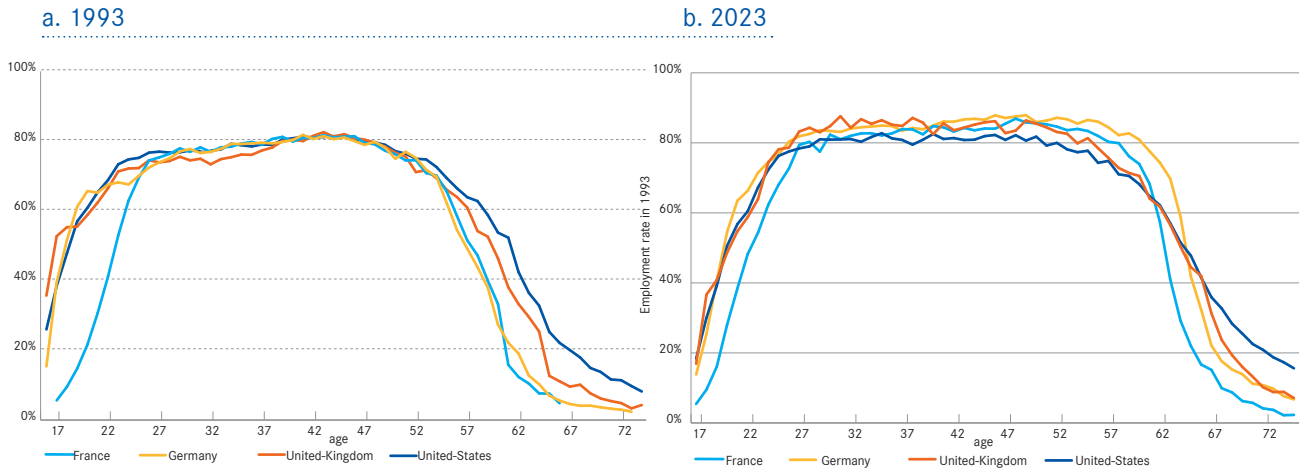
Two historical problems: young people and senior citizens

While the employment rate is the main reason for the gap between France and other European countries, it is important to identify which groups in the population are affected by this relative underemployment. France's two major problems in terms of employment are the low employment rates of young people and older people compared with our neighbours. These problems are historical: they date back to the late 1970s, and even the 1960s.

Figure 5 shows the distribution of employment rates by age in 1993 (panel a) and 2023 (panel b). It is immediately apparent that France does not have an underemployment problem at intermediate ages, between 30 and 54, with employment rates in this age bracket very close to those of other countries, and even slightly higher than the American employment rates in the most recent period. On the other hand, the employment rate for young people and senior citizens is significantly lower than in the other three countries. We can therefore refine the diagnosis of the previous section: the main problem of the low number of hours worked in France is essentially due to the low employment rate of young people and older people.

Finding 3. France's low employment rate is confined to the low employment rate of young people and older people. In the 30-54 age bracket, there is no observable difference in employment with the United States, Germany or the United Kingdom.

Figure 5: Employment rates by age in 1993 and 2023



Note: For each country, for a given age, we indicate the employment rate, defined as the proportion of its population in employment. Panel (a) corresponds to employment rates in 1993, panel (b) in 2023.

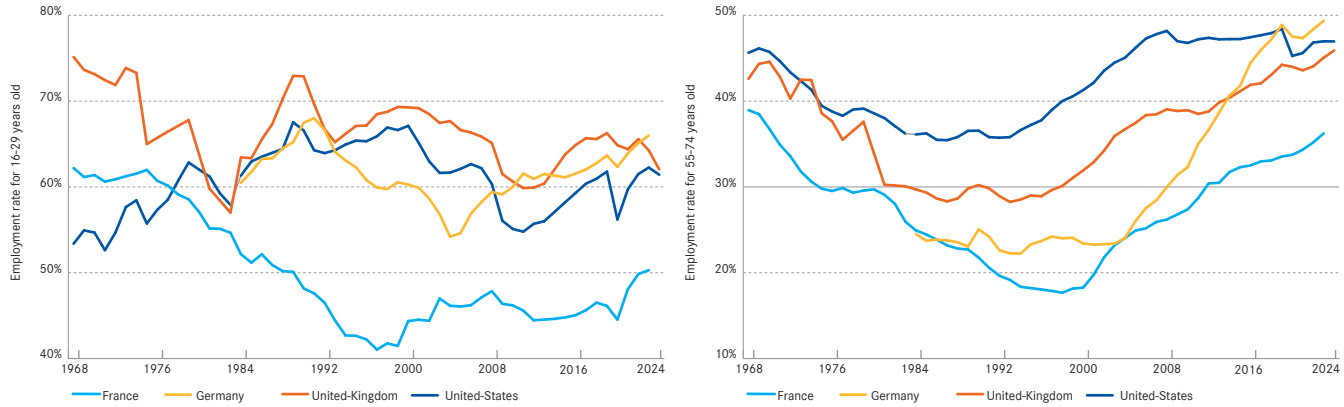
Interpretation: In 1993, France had a much lower employment rate for 16-24 year olds than the other three countries (panel a). The employment rate for 20-year-olds was 20% in France, compared with around 60% elsewhere.

Sources: Labour surveys (France, United Kingdom, Germany), population survey (United States).

Figure 6 shows the historical trend in the employment rate of young people and older people since 1968. It shows that the current low employment rates for these groups have not always been so, but that it is necessary to go back far enough in time for them to approach the rates in other countries. The employment rate for older people (aged 55-74, panel b) fell in France from 40% in 1968 to 21% in 1993. Since that low point, it has risen sharply to reach, by the end of the period, the rate seen at the end of the 1960s. But at the same time, the employment rate of older people in other countries was also rising, particularly in Germany, where it eventually overtook the American rate.

For young people (panel a), the fall in employment rates in the 1980s has never really been reversed. Although employment rates have risen by a few points since the low point in the 1990s, they remain 10 to 12 points below those in other countries.

Figure 6: Employment rates of young and seniors (1968-2024)



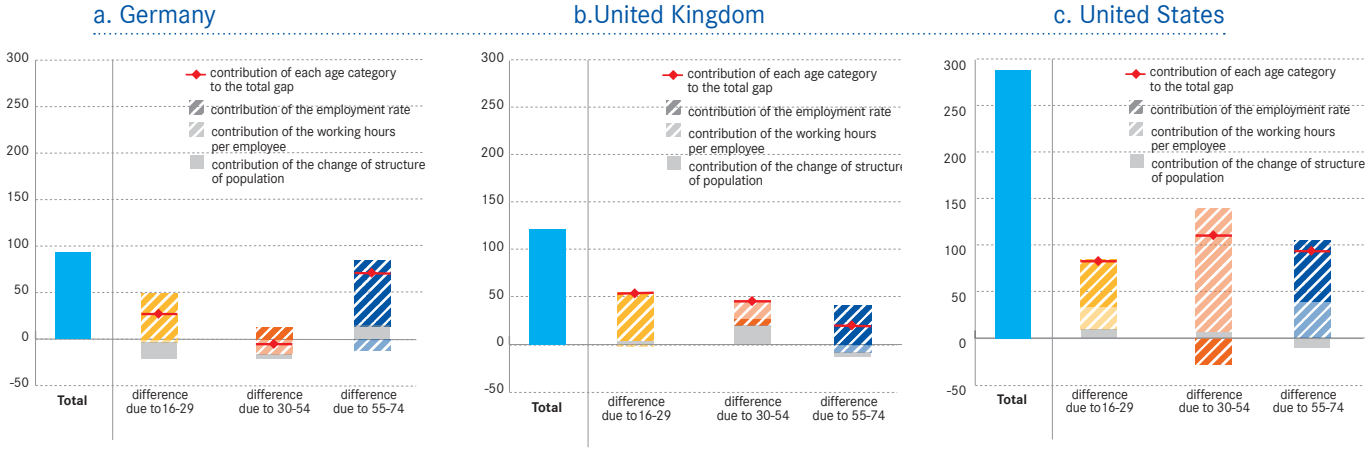
Note: The employment rate is defined as the proportion of these populations in employment. Panel (a) represents the employment rate of individuals aged 16 to 29, panel (b) that of individuals aged 55 to 74.

Interpretation: In France, the employment rate for young people (aged 16-29) has been well below that of other countries since the early 1980s. In 2023, the gap between France and its European neighbours (Germany and the UK) was between 12 and 15 percentage points smaller.

Sources: Labour surveys (France, United Kingdom, Germany), population survey (United States).

Figure 7 breaks down the difference in annual hours worked per capita in 2023 between France and each of the other three countries. The weight of the employment rate is essential in explaining the differences between the three countries. In the case of the United States, there is the additional effect of the number of hours worked per employed person.

Figure 7: Contribution of each age group to the gap in annual hours worked per capita in 2023, relative to France



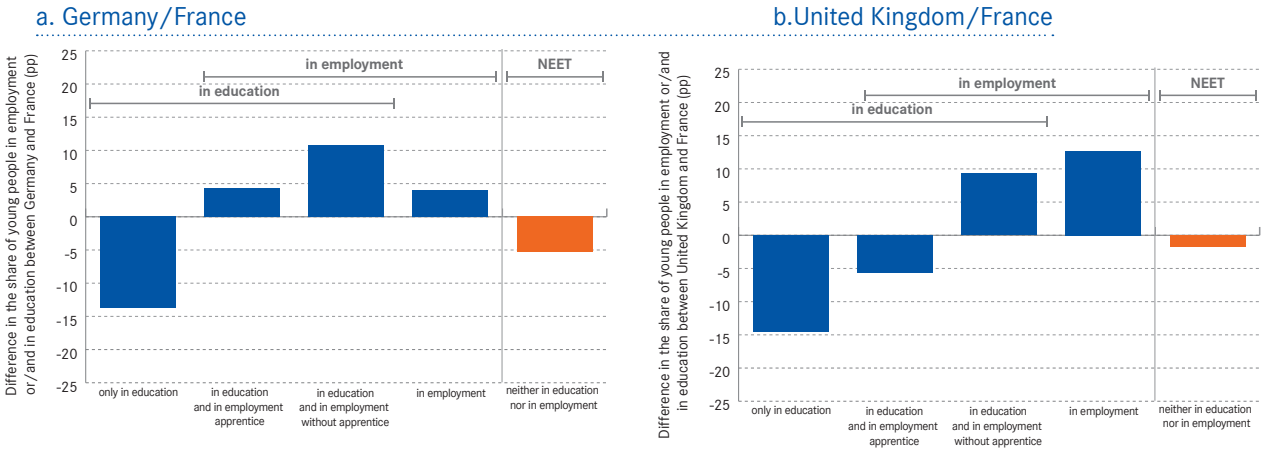
Note: In cyan, on the left, the average difference in annual hours worked per inhabitant aged 16 to 74 between a given country and France. This average difference is then broken down according to the contribution of each age category (16-29, 30-54, 55-74). The red horizontal line marks the average contribution of each age category to the total gap. For each age category, the hatches highlight the specific contribution of the employment rate (dark) and the number of hours worked in employment (light) to the total gap. The contribution of the difference in population structure, in terms of the demographic composition, is indicated by a grey bar.

Sources: Labour surveys (United Kingdom, Germany, France), population survey (United States).

Young people

The underemployment of young people in France raises questions: what are the causes? Initial work by Blundell et al (2011 and 2013) revealed that most of the employment gaps in this group were due to the labour market status of young people in education. Figure 8 measures, for 2023, the difference in the status of young people, depending on whether they are in employment or continuing their studies, between France and the UK and Germany. One striking fact emerges: there are more young people in education only in France; in our two neighbours, there are more young people in employment only, but also more young people in employment and studying. Germany has more young people on apprenticeships and therefore in employment. This is a well-known fact, but it is not the main explanation for the higher employment rate among young people: excluding apprenticeships, the employment rate among young Germans and British students is 10 points higher than the French rate. France is also characterised by a higher proportion of young people who are neither in employment nor in education or training, the so-called NEETs (Not in Education nor in Employment nor in Training). The gap with Germany is 5 points; it is less with the United Kingdom, which also has a high NEET rate.

Figure 8: Difference in the distribution of young people by employment and education status (2023)



Note: The youth population is divided into five sub-populations according to their study and employment status. The share of each sub-population (in %) in the youth population of each country is calculated. The graphs show the difference in weight of each sub-population (in percentage points) between a given country and France.

Interpretation: In Germany, the proportion of young people who are neither in education nor in employment is around 5 percentage points lower than in France.

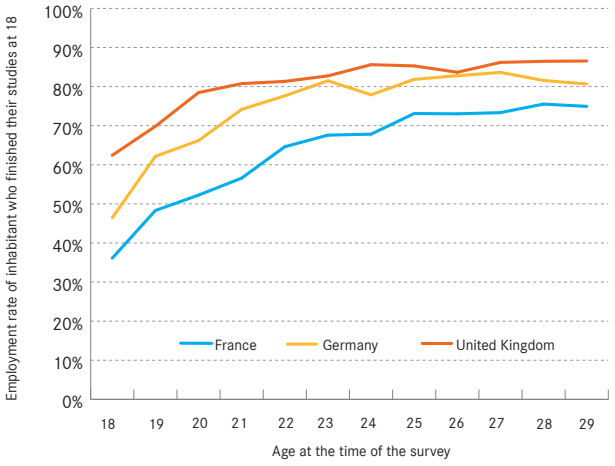
Sources: Labour surveys (France, UK, Germany).

To better understand the low employment rate of young people in France, it is useful to compare the integration of young people into the labour market on leaving the education system in these countries. **Figure 9** shows changes in the employment rate by age on leaving the education system (school-leaving age) in France, the UK and Germany. The striking fact is that young people in France take much longer to enter the labour market on leaving education than their counterparts in Germany and the UK. This is particularly true for early school leavers (leaving at 18), but also for school leavers with a few years of higher education (leaving at 20 or 22), and even for later school leavers (leaving at 24). Two years after leaving school, the employment rate of French people who finished their studies at the age of 18 is 15 percentage points lower than that of Germans, and almost 30 points lower than that of British people. Even for young people who leave the education system later with better qualifications, it takes 1 to 2 years longer to enter the labour market than for our European neighbours. The major problem for youth employment is therefore integration into the labour market.

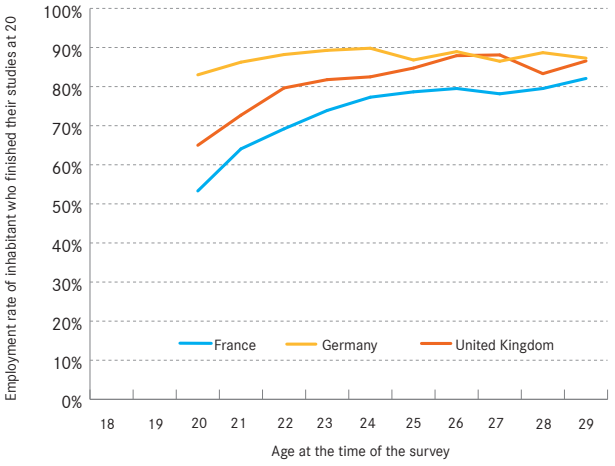
Finding 4. The professional integration of young people, particularly the low-skilled, is problematic in France. Two years after leaving school, young people leaving at the age of 18 have an employment rate that is 15 percentage points lower in France than in Germany and 30 percentage points lower than in the UK.

Figure 9: Integration of young people into the labour market

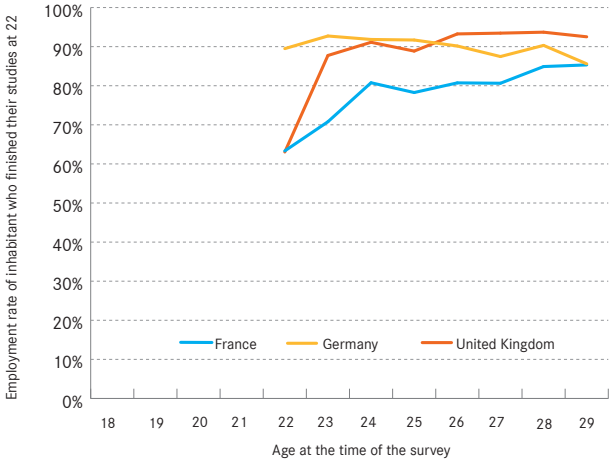
a. Young people who finished their studies at 18



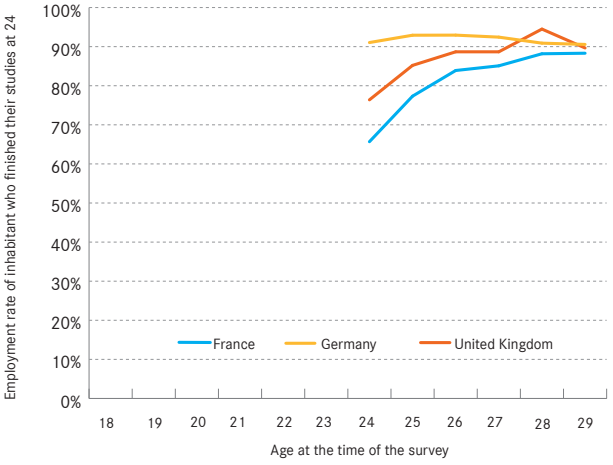
b.Young people who finished their studies at 20



c. Young people who have finished their studies at 22



d. Young people who finished their studies aged 24



Note: Employment rate of young people as a function of their age at the time of the survey and their school-leaving age (18, 20, 22 or 24) between 2018 and 2023.

Interpretation: In France (panel a), the employment rate for 19-year-olds who completed their studies at 18 is 48%.

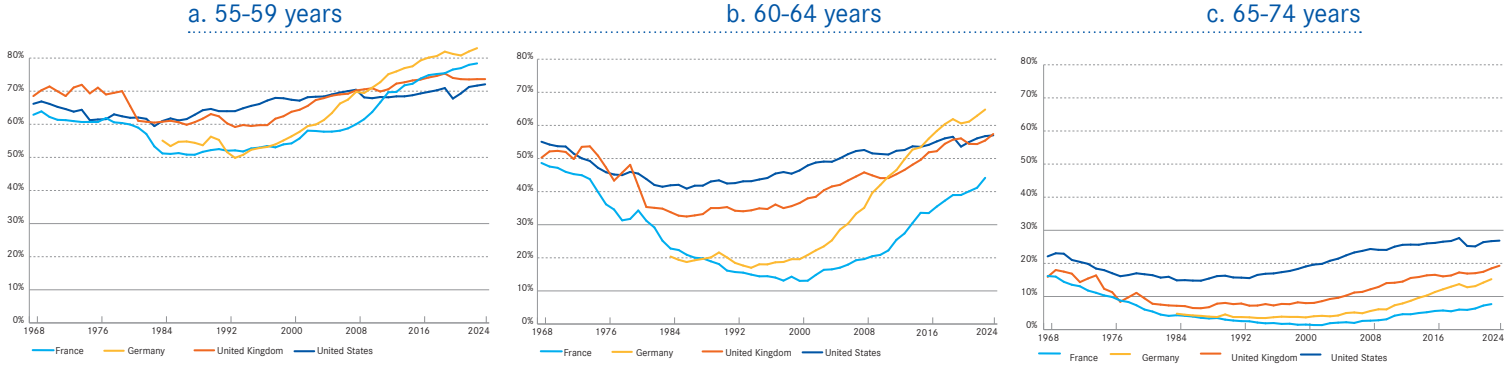
Sources: Labour surveys (France, UK, Germany).

Senior citizens

In order to gain a better understanding of changes in the employment rate of older workers, it is useful to break down changes in the employment rate of the over-55s by age. Figure 10 shows the change in the employment rate of 55-59 year olds, 60-64 year olds and 65-74 year olds. It can clearly be seen that the employment rate of young senior citizens (panel a) has followed a U-shaped pattern: it fell sharply in the early 1980s with the introduction of early retirement schemes from the age of 55 (a situation similar to that in Germany), but this situation reversed from the 2000s onwards when the early retirement schemes disappeared. Today, the employment rate of young French seniors exceeds that of the Americans and the British. Contrary to popular belief, or rather a belief that was true 20 years ago, the employment rate among 55-59 year olds is not particularly low in France. As the trend is still upwards, it is not unlikely that, in the next few years, it will rise to approach that of middle-aged workers.

The situation is very different when we look at the employment rate of 60-64 year olds (panel b). The decline began earlier, in the early 1970s. The proliferation of early retirement schemes, which offered guaranteed resources and very high replacement rates for people leaving the workforce at 60, had a considerable effect on accelerating the fall in the employment rate among older people. The pension reform of 1983 merely consolidated an already well-advanced phenomenon of early exit from the labour market. The low point was reached in the early 2000s, with an employment rate gap of over 30 points with the United States and 20 points with the United Kingdom. The employment rate of 60-64 year-olds then gradually rose again under the impact of pension reforms that pushed back the full retirement age beyond 60 or affected the age at which entitlements are acquired[4]. It is worth noting that Germany, which was in a similar situation to France in terms of the underemployment of older people, has seen an even more spectacular turnaround, with an employment rate of 60-64 year olds that exceeds 60% and the American and British rates. It should be borne in mind that some of the pension reforms have not yet had any effect on the participation of older people in the labour market after the age of 62 (for example, the gradual introduction of the increase in the social contribution period). This implies that the employment rates of older people between the ages of 60 and 64 are likely to continue to rise in the years ahead (projections by the Conseil d'Orientation des Retraites indicate an increase in the average retirement age from 62 to 64 by 2035).

Figure 10. Employment rate of older people by age category (1968-2024)



Note: The employment rate is defined as the proportion of these populations in employment. Panel a corresponds to the employment rate of individuals aged 55 to 59, panel (b) to that of individuals aged 60 to 64 and panel (c) to that of individuals aged 65 to 74.

Interpretation: Since the 2000s, the employment rate of older people has increased in France. In 2023, the employment rate for 55-59 year-olds (panel a) will be 78%, higher than in the UK (74%) and the US (72%), but still lower than in Germany (83%).

Sources: Labour surveys (France, United Kingdom, Germany), population survey (United States).

Dynamics of work in France over the last twenty years

The work situation at both ends of the age pyramid, i.e. among young people and older people, is the main cause of the discrepancies currently observed in the total number of hours worked in France compared with our neighbours. But this observation masks significant heterogeneous dynamics between the other demographic sub-groups, by gender or by level of qualification, for example.

[4] See for example Bozio A., Rabaté S., Tô M. and Tréguier J. (2025): «Financial Incentives and Labor Force Participation of Older Workers: Evidence from France», in Börsch-Supan and Coile (eds.) Social Security Programs and Retirement around the World: The Effects of Reforms on Retirement Behavior, *NBER International Social Security*, Chicago University Press.

Focusing on these dynamics allows us to: 1) analyse changes in the labour market integration of specific sub-groups and 2) better identify the presence of potential 'pools' of working hours among these sub-groups.

Dynamic decompositions: methodology

We look at trends over the last twenty years (2003 to 2023) and compare these trends between countries. We divide the population into demographic subgroups based on three main categories: age, gender and level of education. To understand changes in the total number of hours worked, we want to isolate the structural factors in the labour dynamics specific to each sub-group. Among the strong structural trends affecting the labour markets of all the developed economies, we focus on two: the ageing of the population, on the one hand, and the rise in the level of education, on the other.

Box 1 details the methodology used to carry out our decompositions. Graphs 11 and 12 show the main results of these breakdowns. The first graph focuses on changes by age and gender groups, while the second breaks down changes by age and education groups.

Box 1. Decomposition methodology

The change in the number of annual working hours H between t - i and t can be broken down into two effects:

$$H_t - H_{t-i} = S_t + \Delta_t$$

S_t: a structural effect which captures demographic changes (e.g. the proportion of older people in the working population);

Δ_t: a behavioural effect that captures changes in the number of hours per capita within each group (for example, the number of hours worked by women has increased since 2003).

If j is a category (for example, women aged 30-54), and qjtis the proportion of this category j in the population in t, then the number of hours per inhabitant recovered from all the population sub-groups is written as :

$$H_t = \sum_{j=1}^{j} q_{jt} H_{jt}$$

We measure the change in the number of hours worked due to the behaviour of category j between t - i and t, keeping the structure of the population constant at date t - i :

$$\Delta_{jt} = q_{jt-i} (H_{jt} - H_{jt-i})$$

Finally, the total change is given by :

$$\Delta_t = \sum_{j=1}^{j} \Delta_{jt}$$

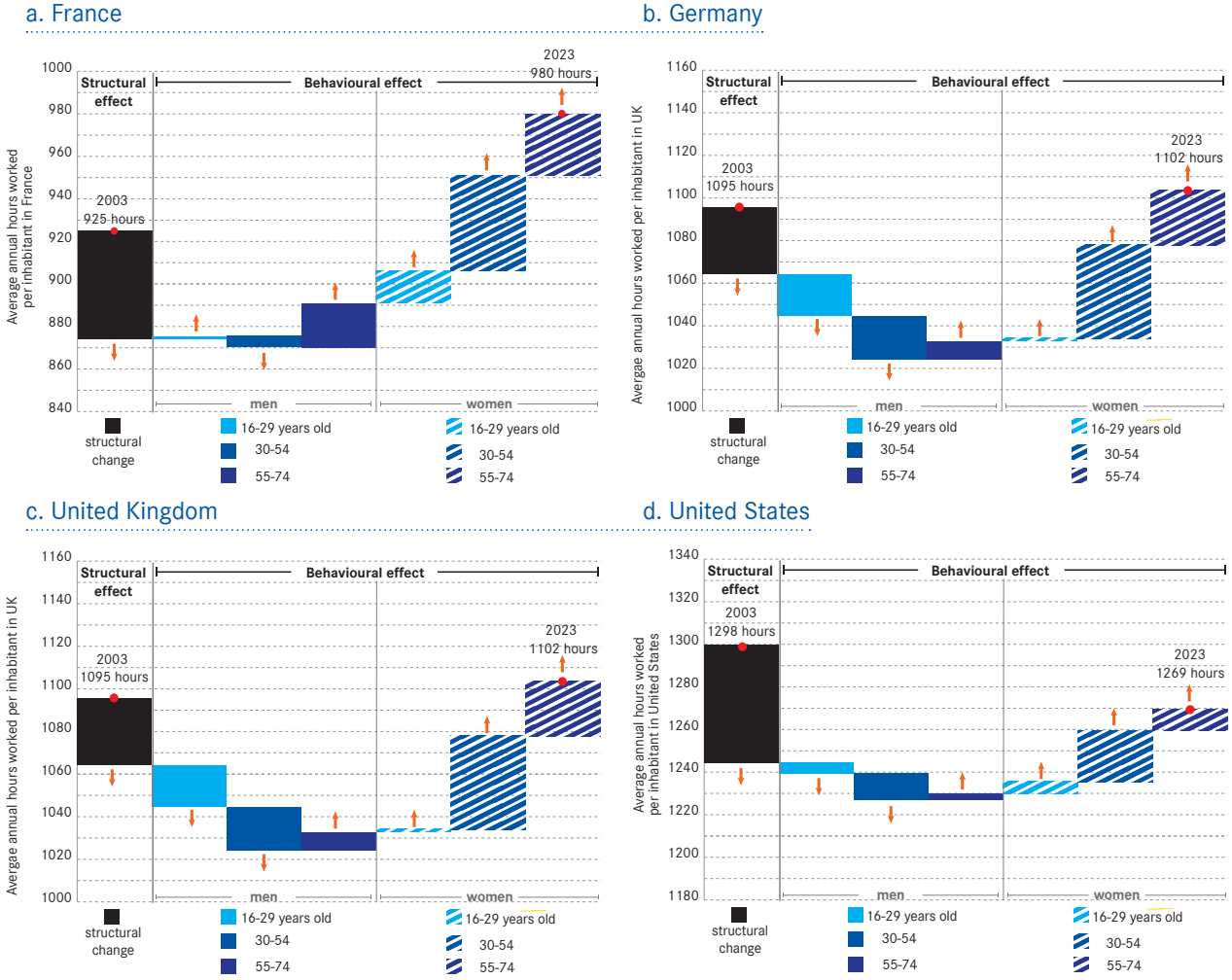
Structural changes: the role of education and an ageing population

In **Figures 11 and 12**, we start with the total number of hours worked in 2003 and show the contribution of the various groups and structural factors to the total change up to 2023 in the form of a «cascade» chart, ordering the various contributions from left to right. A bar descending in relation to the previous bar indicates a negative contribution to the number of hours. A rising bar indicates a positive contribution. Here we consider the number of hours worked per inhabitant without distinguishing whether these vary as a result of the employment rate or the average number of hours worked by people in employment.

Overall, in France, the total number of hours worked has increased over the last twenty years, rising from 925 hours on average to 980 hours for the entire population aged 16-74. This is also the case in Germany, where the average number of hours worked has risen from 1,005 to 1,070. In the UK, on the other hand, the number has remained stable at around 1,100 hours. It has fallen in the United States, but remains high, at around 1,270 hours on average.

Figure 11 shows that the ageing of the population, assuming no change in behaviour, has a strong negative structural impact on the number of hours worked per capita in all countries. This is the first black bar on the graph. This is due to the fact that the share of 55-74 year-olds in the total population has increased significantly in all countries. As 55-74 year-olds work fewer hours in total than 16-55 year-olds, this structurally pulls down the total hours worked in the population. In France, ageing, assuming no change in behaviour, is responsible for a structural fall of around 5% in the number of hours worked over the last 20 years. This structural effect is stronger than in Germany or the UK because, in France, the number of hours worked by the over-55s is significantly lower than in the rest of the population.

Figure 11. Contribution of structural and behavioural change to total hours worked by age and gender



Note: The population is divided into 6 sub-populations according to sex and age. Age is in shades of blue and women are in hatched blue. The graphs begin with the average number of hours worked per inhabitant in 2003 (first red dot, left). From this average, we subtract the structural change in the population (in black) which is responsible for a fall in hours worked in all countries between 2003 and 2023. We then subtract or add the categories of the population causing reductions (represented by a downward arrow) or increases (upward arrows) in the average number of hours worked between 2003 and 2023, starting with men and ending with women. And so on, until we reach the average number of hours worked in 2023 (second red dot, right).

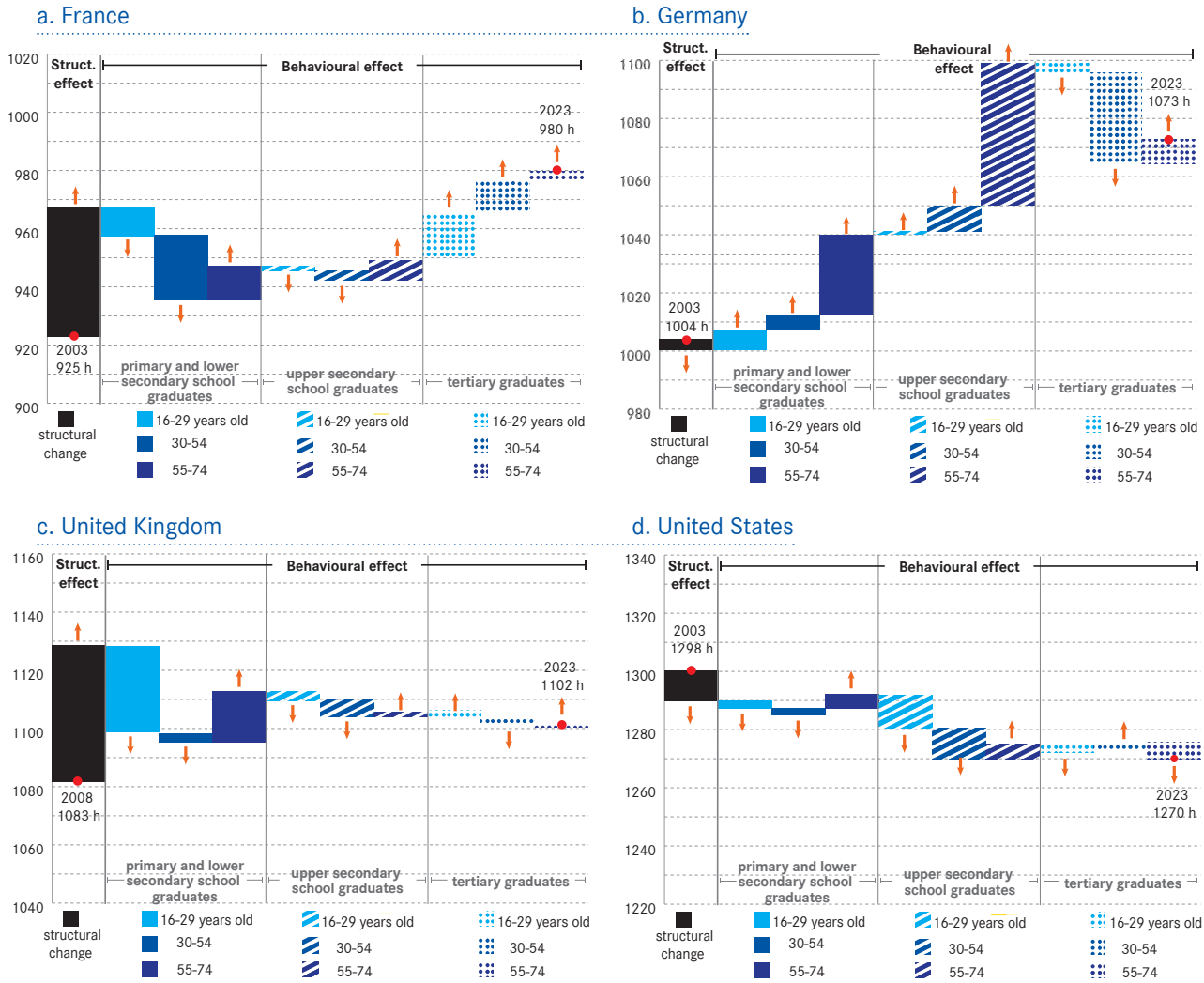
Reading: In Germany, women aged 16-29 have contributed to an increase of 5.6 average annual hours worked per capita between 2003 and 2023.

Sources: Labour surveys (France, United Kingdom, Germany), population survey (United States).

But in the face of this negative structural effect of ageing, the upward trend in the level of education, assuming no change in behaviour, has had a very strong positive impact on the number of hours worked per capita (**Figure 12**). This impact is all the more marked in France because the average level of education in the 16-74 age group has risen rapidly and, above all, because the level of hours worked by the least qualified is low compared with the rest of the population. As the first black bar in graph 12 shows, the structural effect of growth in the average level of education is so strong in France that it completely erases the negative effect of ageing, and even reverses it significantly. The same phenomenon can be observed in Germany, but not in the United States or the United Kingdom, where the structural effects of ageing and education are more or less equal and offset each other.

Changes in the age and education structure of the population have therefore had divergent but overall positive effects on the number of hours worked. These structural effects are linked to changes in the weights in the total population of different socio-demographic sub-groups whose number of hours worked differs. Alongside these structural effects, changes in the work behaviour of each of these sub-groups have also had significant consequences on changes in the amount of work used in France.

Figure 12. Contribution of structural and behavioural change to the evolution of hours worked, by age and level of education



Note: The population is divided into 9 sub-populations based on education level and age. Age is shaded blue and each level of qualification is represented by a different fill. The graphs begin with the average number of hours worked per capita in 2003 or 2008 for the UK (first red dot, left). To this average, we subtract or add the structural change in the population (in black). We then subtract or add the categories of the population leading to reductions (represented by a downward arrow) or increases (upward arrows) in the average number of hours worked between 2003 and 2023, starting with primary and lower secondary school graduates (up to the end of collège in France), then upper secondary school graduates, and ending with tertiary graduates. All the way to the average number of hours worked in 2023 (second red dot, right).

Reading: In France, 30-54 year-olds with tertiary qualifications are responsible for an increase of 10.7 average annual hours worked per capita between 2003 and 2023, while primary school graduates of the same age reduce the average by 22.3 hours...

Sources: Labour surveys (France, United Kingdom, Germany), population survey (United States).

Three major changes are worth highlighting in France:

- A sharp rise in the number of hours worked by older workers
- A sharp rise in the number of hours worked by women
- Sharp fall in the number of hours worked by low-skilled workers

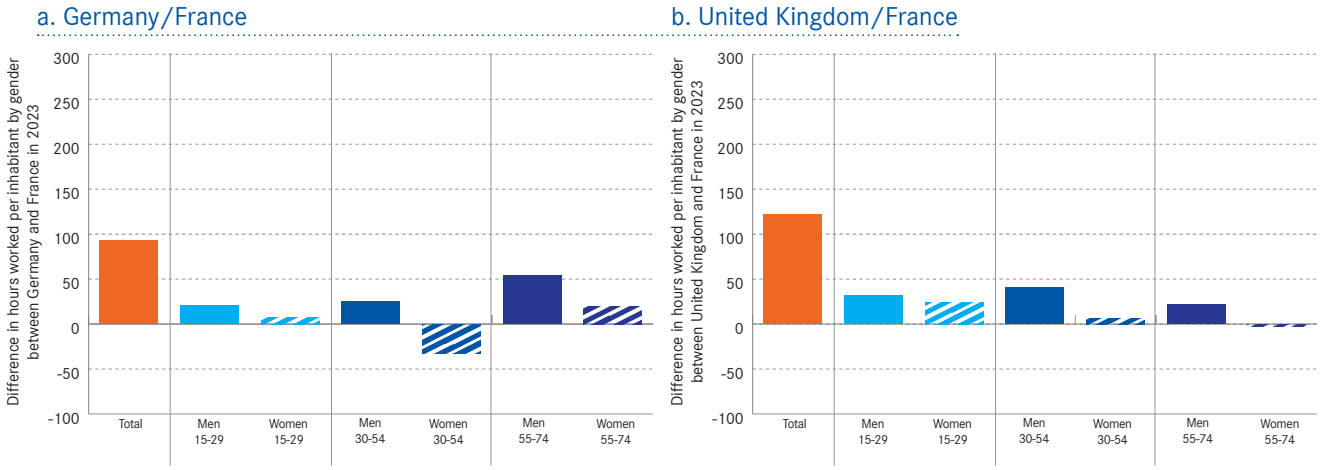
The strong growth in the number of hours worked by senior citizens is undeniably the main driver of the growth in the quantity of work in France over the last twenty years: it has contributed to increasing the average number of hours worked by almost 50 hours per inhabitant, or more than 5%. This strong growth can be observed for both sexes (chart 11) and for every level of education (chart 12). It is particularly marked among the least qualified senior citizens. The growth in the number of hours worked by senior citizens is a phenomenon that can be found everywhere, in the United Kingdom, the United States and Germany. It should be noted that in Germany, this growth has been particularly strong, fuelled by the spectacular rise in the employment rate of senior citizens and contributing to an increase of more than 100 hours (i.e. almost 10%) in the number of hours per capita. In France, the negative structural effect of ageing and the positive effect of the rise in employment among older people have almost offset each other over the last twenty years. The contribution of senior citizens to the increase in the average number of hours worked per capita is therefore only slightly negative: there are many more senior citizens than there were twenty years ago, but they work more than they did twenty years ago.

It should be noted that the growth in the proportion of the population aged 55-74 will continue, but at a much slower rate over the next ten years. Consequently, if the growth in the number of hours worked by senior citizens continues at the same rate, their overall contribution should become positive in the years ahead. By comparison, the increase in the number of hours worked by older workers has been much more modest in the United States, and has not offset the negative structural effect of ageing. In Germany, on the other hand, the rise in the employment rate of older workers has been so strong that its positive contribution has been more than twice as strong as the negative structural contribution of ageing.

Women: a contribution that is running out of steam

The group that has made the greatest positive contribution is undoubtedly women. Their total contribution is equivalent to an increase of more than 10% in the average number of hours per capita, which is considerable. And although a similar trend can be seen in other countries, the increase in female employment in France is remarkable and more pronounced than elsewhere.

Figure 13. Contribution of each age and gender category to the gap in hours worked compared with France (2023)



Note: The graphs above break down the difference in the number of hours worked by the 16-74 age group between Germany (panel a), or the UK (panel b), and France, according to the relative contributions of population sub-groups. The sub-groups are defined by gender and age category (16-29, 30-54, 55-74). **Interpretation**: In 2023, the difference in average hours worked per capita between the UK and France is mainly due to the contribution of older workers (dark blue), and more particularly men. In Germany, it is mainly men who are widening the gap with France (solid columns), and the older they are, the greater the gap.

Sources: Labour surveys (France, UK, Germany).

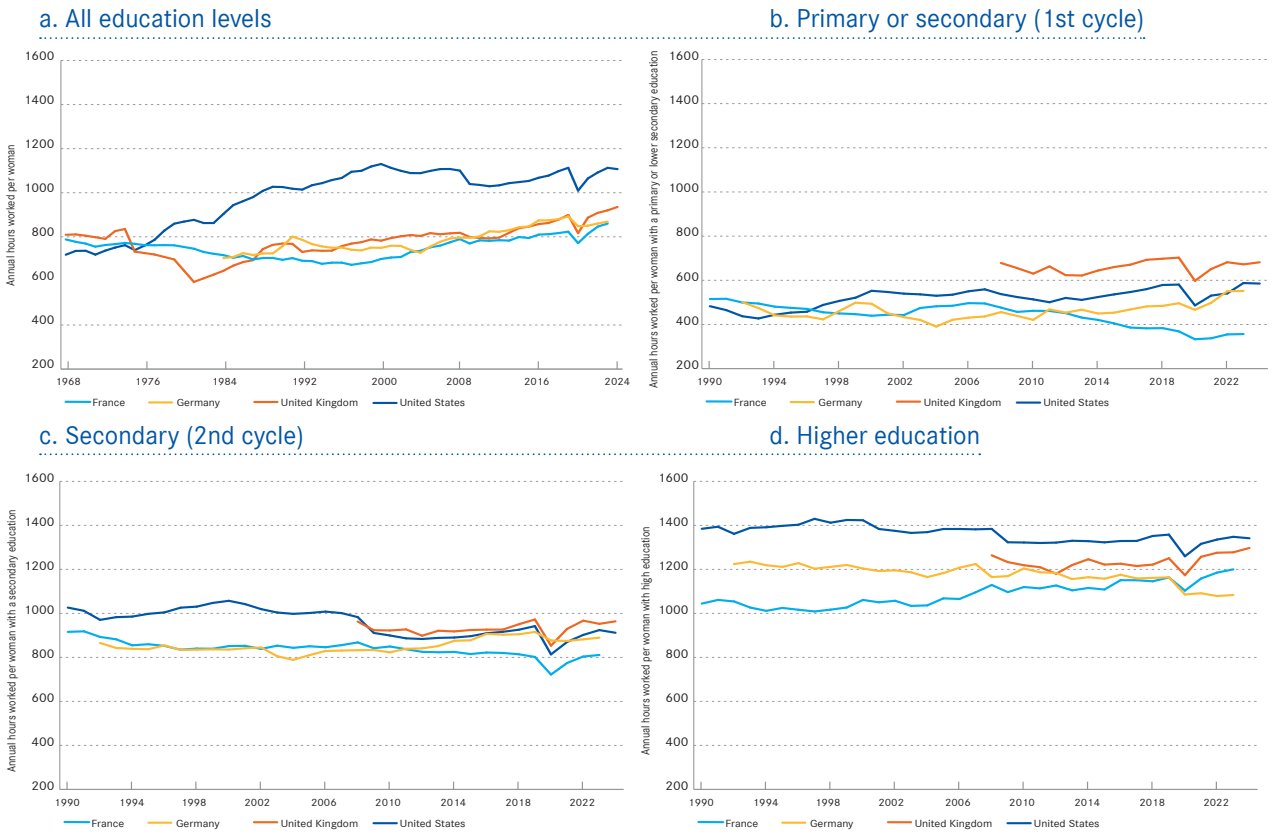
If we look at the differences in the number of hours worked in 2023 (**figure 13**), French women are much closer to their British counterparts than are men. And while women aged 16-29 and 55+ continue to work slightly fewer hours than their German counterparts (mainly due to their lower employment rates), women aged 30-54 work more hours in France than in Germany. This difference is mainly due to the intensive margin: French women work more hours as soon as they are in employment, and this phenomenon is particularly marked among women aged 30 to 54.

Over the last twenty years, the increase in the number of hours worked by women is largely explained by the very rapid rise in their level of education compared to men. **Figure 14** shows that there has been relatively little change in women's labour supply behaviour by level of education. However, the difference in the number of hours worked per level of education is very marked: women with less than secondary education work on average less than 400 hours a year, whereas women with higher education work more than 1,200 hours a year, i.e. three times as many. In other words, the increase in women's employment has been driven mainly by a structural movement linked to the growth in their level of education, with a sharp rise in the proportion of women with tertiary qualifications, whose annual number of hours worked is higher. Whatever the level of education, women's labour supply behaviour is relatively stable.

One final point is worth highlighting. While women have been the driving force behind the growth in the number of hours worked in recent years, this engine is running out of steam. After rising sharply between 1990 and 2010, the number of hours worked by women has stagnated for the last fifteen years or so. It remains more than 20% lower than that of men today. As a CAE Note[5] points out, this gap can be explained by women's lower participation in the labour market, more frequent career breaks and more frequent recourse to part-time work. And almost 80% of this gap is due to drastic changes in mothers' labour supply behaviour when they have children.

Finding 5. Over the last twenty years, the rise in women's employment has increased the average number of hours worked per capita by more than 10%, mainly as a result of the rise in their level of education. But this engine of growth is running out of steam and is now stagnating.

Figure 14. Hours worked by women, by level of education



Note: Average number of hours worked per year, estimated for all women aged 16-74, at a given level of education.

Interpretation: Since the end of the 1990s, the average number of annual hours worked by all women, across all education levels, has increased in France, Germany and the UK, but remains well below than in the United States (panel a). In 2023, a woman aged 16 to 74 with a primary or lower secondary education will work an average of 356 hours in France, compared with 552 hours in Germany, 588 hours in the USA and 672 hours in the UK (panel b).

Sources: Labour surveys (United Kingdom, Germany, France), population survey (United States)

[5] Auriol E., Landais C., Roussille N. (2024): «Égalité hommes-femmes: une question d'équité, un impératif économique», *Les Notes du CAE* n° 83, November.

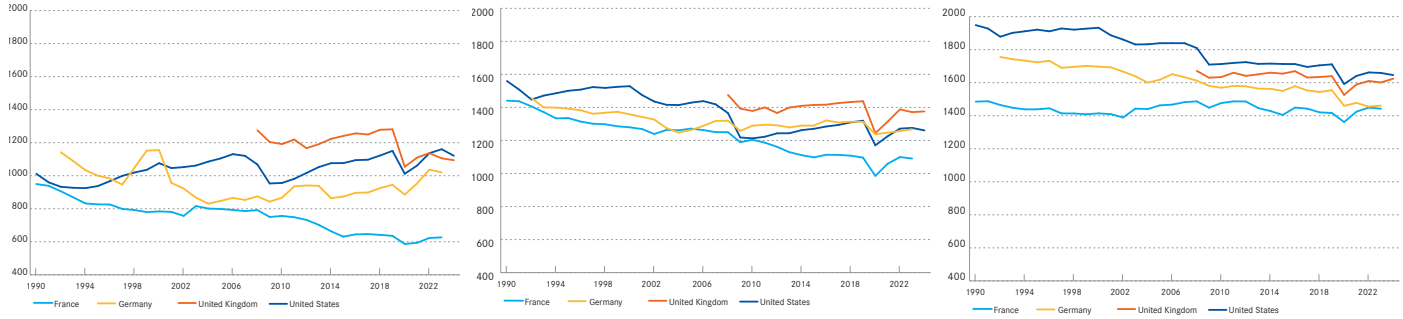
The collapse of low-skilled work

In terms of trends, one final point deserves attention. Figure 11 highlights the negative contribution of men under 55 (and especially those aged 30-54) in all countries. In France, this trend is less marked than elsewhere, but masks very wide variations by level of qualification. Growth in the number of hours worked in France is mainly driven by the most highly qualified. On the other hand, the least qualified under-55s in France (and the UK) made a strongly negative contribution (**Figure 12**). This trend is particularly pronounced among men

Figure 15 shows that the total number of hours worked by low-skilled workers has plummeted. The number of hours worked by low-skilled men has fallen by 40% in 30 years! Men aged 16 to 74 with a primary or lower secondary education now work an average of less than 600 hours a year, compared with more than 1,400 hours (i.e. more than twice as many) for men with tertiary qualifications. This trend is all the more spectacular in that it is highly specific to France.

Figure 15. Hours worked by men, by level of education

a. Primary or secondary (1st cycle) b. Secondary (2nd cycle) c. Higher education



Note: Average number of hours worked per year, estimated for all men aged 16-74, at a given level of education.

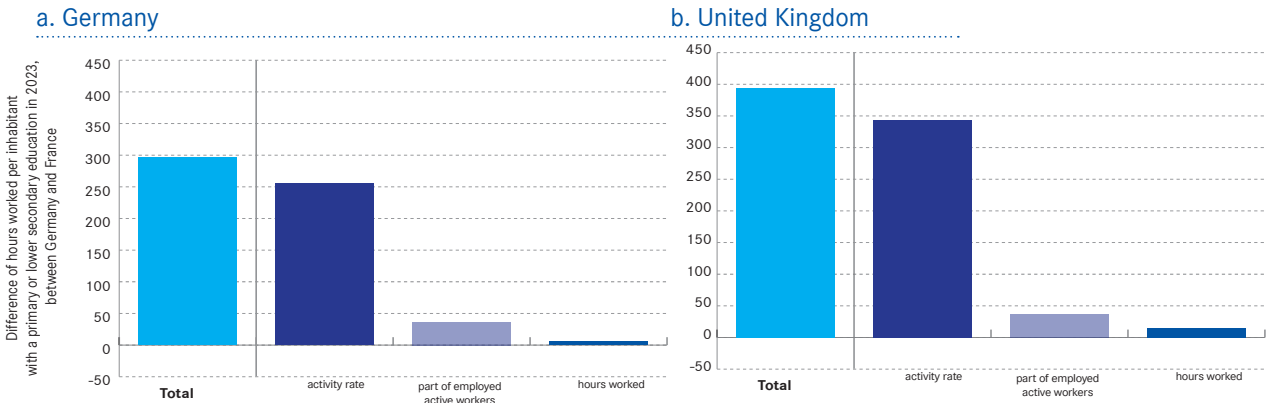
Interpretation: In France, across all education levels, men work fewer hours on average than in other countries. In 2023, a man aged between 16 and 74 with a primary or lower secondary qualification would work an average of 627 hours in France, compared with 1,020 hours in Germany, 1,105 hours in the UK and 1,160 hours in the US.

Sources: Labour surveys (United Kingdom, Germany, France), population survey (United States)

It is important to specify that the sharp decline in the number of hours worked by the least qualified is not an artefact linked to age composition effects. It is true that the average age in the population of the least qualified rises sharply over the period, as the average level of education in the population rises. But we find a sharp fall in the number of hours worked by the least qualified, even after controlling for age effects. **Figure 16** breaks down the differences in the number of hours worked among primary and lower secondary school graduates. It shows that the difference is almost entirely due to differences in activity rates. The least qualified are therefore far removed from the labour market in France, and this is evident for both men and women.

Finding 6. The total number of hours worked by the low-skilled has fallen by 40% in 30 years. This trend is very specific to France and is not due to age composition effects. This trend is driven by activity rates among the least qualified, which have plummeted for both men and women, pointing to an increasing distance between these groups and the labour market.

Figure 16. Gap of hours worked by primary and lower secondary school graduates compared with France (2023)



Note: The first column corresponds to the difference in the average number of hours worked by primary school graduates aged 16 to 74 between Germany (panel a) or the UK (panel b) and France in 2023. This gap is then broken down: columns 2 and 3 correspond respectively to the contribution of the participation rate and the employment rate to this gap in the total number of hours. This is the extensive margin. Column 4 corresponds to the contribution of the number of hours worked by people in employment to the total gap. This is the intensive margin.

Interpretation: In 2023, low-skilled people worked on average 400 hours more in the UK and 300 hours more in Germany than in France. In both countries, the difference in the number of hours is mainly explained by a significant difference in the activity rate (column 2). The differences in the proportion of people in employment (column 3) and the number of hours worked by people in employment (column 4) are minimal.

Sources: Labour surveys (France, United Kingdom, Germany).

What are the implications for public policy?

Our disaggregated approach to changes in the number of hours worked enables us to identify the sources of increased work and the related fiscal externalities. Our six findings help to clarify priorities in terms of public policy.

Employment versus hours worked

The problem in France concerns the employment rate (extensive margin) and not the number of hours worked per employed person (intensive margin). Focusing the debate on policies aimed at the intensive margin of labour, such as reducing days off, deregulating working hours or taxing overtime, therefore seems irrelevant. Similarly, within the extensive margin, differences in employment rates are largely explained by differences in labour market participation and much less by differences in unemployment rates. Priority should therefore be given to policies that encourage participation rather than policies that focus exclusively on further reducing the unemployment rate.

Employment rates: young and old

The differences in employment rates between France and its neighbours are entirely explained by two groups: young people and older people. Above all, the contribution of young people to differences in the average number of hours worked per capita has become as significant as that of older people, and will tend to supplant it in the coming years. The issue of youth employment rates must therefore become a public policy priority. This means rethinking the organisation of educational pathways, making NEETs an absolute priority and reviewing all policies for integrating young people into the labour market.

As far as older people are concerned, France has caught up with other countries in the 55-59 age group, which now has a higher employment rate than the United States or the United Kingdom. For the 60-64 age group, there is still a substantial gap, which is slowly closing as a result of past pensions reforms (raising the age of entitlement, followed by the “Touraine” reform), but remains substantially lower than the employment rate of our neighbours. Employment of people aged 65 and over, which has increased in most other countries through the rise in skilled employment, remains very much in the minority in France. Increasing employment in this category is not the same as increasing employment in the 55-64 age group, because at 65 and over, health deteriorates much more rapidly. The cost of keeping this age group in work is rising sharply and very unevenly. This calls for reforms that effectively target those who are most likely to continue working and least vulnerable[6].

[6] Giupponi G. Seibold A. (2024): «Rethinking pension reform», *CEPR press.*

Women

The gap in the number of hours worked between men and women, while narrowing, remains high. And convergence between men and women on the labour market seems to have stagnated over the last fifteen years. As a CAE Note[7] reminds us, the reservoir in terms of total employment is considerable. And the economic and social gains from a better allocation of talent within the economy are of the highest order. The heart of the problem remains the very strong negative impact of the arrival of children on women's career paths. Only an ambitious cocktail of public policies, detailed in the Note, may remedy this. Given the importance of this labour pool, this should be a public policy priority.

The least qualified

Another worrying finding is that work among the low-skilled is collapsing, which has an impact on total employment, but also in terms of integration and social cohesion. We believe it is crucial to put this issue at the top of the list of priorities for public action. And, first and foremost, it is important to encourage any research likely to provide a more in-depth diagnosis of the causes of this collapse, which is still sorely lacking. Our analyses do, however, highlight a number of points that deserve attention in terms of public policy. Firstly, the timing of this collapse suggests that, a priori, the fundamental problem does not stem from the level of labour costs or the level of the minimum wage. The fall has essentially been recorded over the last fifteen years, a period in which differences in the cost of less skilled labour have narrowed considerably with Germany or the UK (continuation of policies to reduce social contributions in France, rise in relative minimum wages in Germany and the UK, etc.). Nor is the problem probably linked to the generosity of unemployment benefit in France: as we have shown, the differences are almost entirely explained by the low level of the activity rate of the least skilled, and not by unemployment rate differentials. We therefore need to look more closely at the high proportion of NEETs, their poor integration and the discrimination that keeps them away from the labour market. We also need to look at sectoral policies and the determinants of demand for low-skilled labour.

Conclusion: methodological elements for a necessary inventory of employment policies

The descriptive exercise we have carried out, which consists of disaggregating the total labour supply in order to understand its structure and trends, seems to us to be essential for the implementation of a full employment strategy. This is because such an exercise enables us to identify the labour pools, i.e. the groups that have scope for increasing their labour supply or that are facing particularly powerful frictions.

It is now imperative to review the policies likely to affect the work of these groups, this potential for employment. But this inventory must be carried out methodically, in order to effectively guide public decision-making. France spends significantly more than its neighbours on employment, training and labour market policies, with rather mixed results. It is therefore crucial to have a clear evaluation framework to determine which public policy lever to activate as a priority. From this point of view, two elements are essential, which are often lacking in the conduct of our employment policies.

Firstly, we need to know precisely the total fiscal effect of each policy. And this total effect does not depend solely on the mechanical cost of the policy, but on all the behavioural effects generated which, by affecting total labour, will produce fiscal externalities of varying degrees of strength. Measuring the elasticity of labour supply (and demand) to each of these policies is therefore essential, and this requires rigorous scientific assessments of the causal effects of these policies on behaviour and equilibrium in the labour market.

Secondly, we need to be able to measure the social cost or benefit of these policies for the people targeted. Indeed, a policy choice guided solely by maximising fiscal externalities would not be wise. This social benefit will depend on the value of the policy for the recipients. It may be positive and high if the target groups have a strong desire to work and face barriers to accessing the labour market. It can be negative if it is very costly for the individuals targeted to increase their labour supply or if the policy consists of reducing transfers that are highly valued by their recipients.

In the coming months, the Conseil d'analyse économique will be producing additional analyses to this Focus, with the specific aim of quantifying the fiscal externalities and social benefits of various employment, training and labour market support policies.

[7] Auriol E. et al (2024): *op. cit.*

Box 2. Impact of changes in the number of hours worked per capita on GDP and hourly productivity

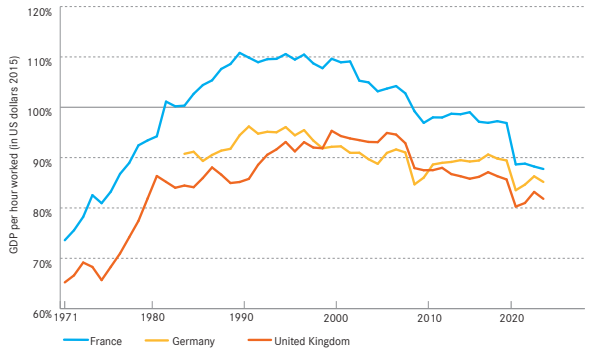
The objective of full employment, which consists of reducing the gap in the number of hours worked with our neighbours, is often presented as a contribution to growth. This is partly problematic. For sure, eliminating frictions or inefficiencies that prevent the proper allocation of talent is useful for potential growth. But, ultimately, working has a cost. Adding more work to the economy to increase GDP is therefore not very useful from the point of view of well-being. What counts is GDP per hour worked, i.e. hourly labour productivity. With this in mind, it is important to remember a few key messages. Firstly, hourly productivity remains high in France, whether we take the total number of hours worked from national accounts or from employment surveys. French productivity is around 10% lower than in the United States, but similar to German productivity and higher than British productivity.

On the other hand, there has been a marked slowdown in the relative productivity of France, the UK and Germany since the 2000s. This is partly explained by the effect of the sharp narrowing of the gap in the number of hours worked between the United States and Europe. These differences peaked in the early 2000s, when Americans worked almost 450 hours more than the French. They have narrowed considerably since then: the difference is now just 300 hours. As the elasticity of GDP to the number of hours worked is clearly less than 1, growth in the number of hours worked tends to reduce hourly productivity. On our data, we estimate this elasticity at around 0.5, which is particularly lowa. Such a low elasticity suggests that 'marginal' hours are significantly less productive than other hours. This may be due to the fact that people on the margins of employment (older workers, the less skilled, etc.) have lower than average productivity. This is a point to bear in mind, because the objective of increasing the number of hours worked will inevitably have the effect of reducing relative hourly productivity in France.

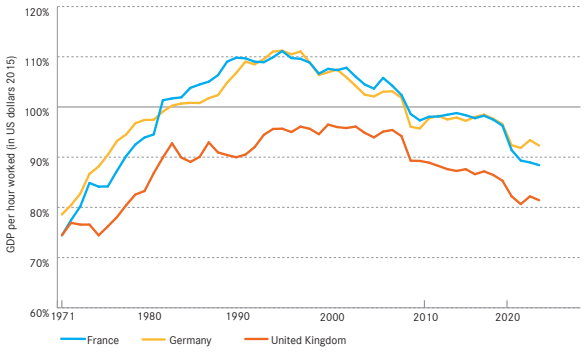
Finally, it should be noted that the fall in European productivity relative to the United States since 2000 cannot be explained simply and entirely by the mechanical effect of the relative increase in the number of hours worked in Europe. This fall in productivity has other causes, analysed in a Note by the CAE band in a Joint Statement by the Franco-German Council of Economic Experts c, which require appropriate public policy responses, focusing in particular on the acquisition of human capital.

GDP per hour worked relative to the United States

a. Labour survey



b. National accounts



Note: Panels a and b show changes in the ratios between GDP per hour worked in European countries and GDP per hour worked in the United States. The measure of GDP used in panels a and b is in dollars, at constant prices and purchasing power parity. The measure of the number of hours worked used in panel (a) comes from employment surveys. The measure used in panel (b) comes from national accounts.

Interpretation: In 2023, using the number of hours worked from employment surveys (panel a), the hourly productivity of France, Germany and the United Kingdom is lower than that of the United States, at 88%, 85% and 82% respectively of its hourly productivity. In the same year, using the national accounts measure of hours worked (panel b), the relative hourly productivity of France and the UK remained at around 88% and 82% respectively, but that of Germany rose to 92%.

Sources: Measurement of hours worked in panel (a): labour surveys (France, Germany, United Kingdom), population survey (United States). Measurement of hours worked from panel (b): national accounts (France, United States, United Kingdom, Germany). Measurement of GDP: OECD (France, United States, United Kingdom, Germany).

[a] It should be noted, however, that this estimate is essentially correlational and should therefore be treated with caution.

[b] Guadalupe M. Jaravel X., Philippon T., Sraer D. (2022): «Cap sur le capital humain pour renouer avec la croissance de la productivité», *Les Notes du CAE* n° 75, Septembee.

[c] Franco-German Council of Economic Experts (2024): «Strengthening the European Union's capital markets», *Joint Statement* no. 2, July.

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Appendices

A. Measuring the number of hours worked in employment surveys

Seasonal adjustments to annual surveys

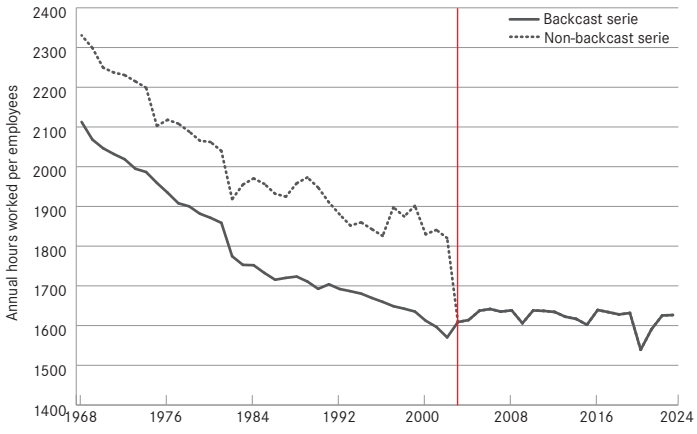
For France, we use a correction estimated in Blundell et al. 2013. The authors had a preliminary (pilot) sample of the continuous employment survey for 2002 as well as data from the annual survey for the same year. Thus, for 2002, they were able to estimate the average number of hours worked by population subgroups in both the continuous and annual surveys. The groups are defined by status (employed or self-employed), age, sex, marital status and number of children. The authors then define an adjustment factor at group level defined by the ratio of the number of hours as recovered in the continuous survey and in the annual survey. This factor is applied to the annual survey data. In addition to this treatment, the data are also corrected by an annual correction factor.

For Germany, we do not have an average number of hours worked by population sub-groups in both the continuous survey and the annual survey. For each sub-group, we therefore calculate a correction factor corresponding to the average number of hours worked in 2005 (continuous survey) divided by the average number of hours worked in 2004 (annual survey). We then apply this correction factor to the hours worked in the sub-group for all the years prior to 2005 (changeover to the continuous survey). The subgroups are defined by age, gender and status (employee or self-employed). It is not possible to group the population more finely, by including household composition for example, as these variables are not available for all data prior to 2004.

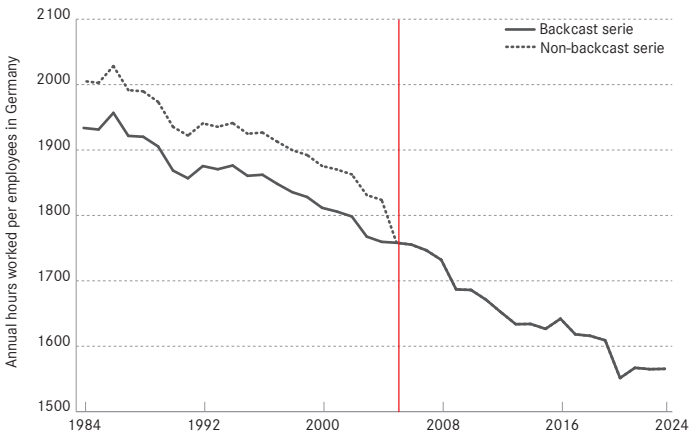
In the case of the United States and the United Kingdom, the switch to a continuous survey has caused few problems of seasonality, so we are not correcting their respective series.

Graph A. Raw and backcast series

1. France



2. Germany



Note: Non-backcast series (dotted lines) correspond to raw series. The backcast series (solid lines) correspond to the series transformed to take account of seasonal variations in the annual surveys prior to 2003 for France and 2005 for Germany, using the method described above. The backcas series are those used in all the analyses.

Sources: Labour surveys (France, Germany).

The specific case of German data

An in-depth examination conducted by Insee and Destatis comparing French and German data in 2014, focusing on full-time employees, highlighted a significant under-reporting of absences in Germany due to ordinary leave and public holidays: the leave reported in Germany is in fact much lower than that provided for by national legislation and collective agreements, which is hardly plausible even if there may be a phenomenon of non-use at the margin.

This initial work led to the formation of a Europe-wide working group to seek solutions for greater harmonisation in the collection of data on working time. This has led in particular to an overhaul of the survey questionnaire, which has be

implemented from 2021. The problem is not confined to Germany alone, as the work of European statisticians[8] has shown: the dispersion of differences between normal working hours and actual working hours during the reference week for full-time employees is so great from one country to another that it cannot be explained by differences in national legislation on leave and public holidays alone, and is indicative of a data quality problem.

A large part of the problem may stem from the under-reporting of absences over the whole of the reference week: this is why Eurostat has so far chosen to publish data on actual working hours only for people working at least one hour during the reference week (people declared absent over the whole of the reference week are excluded). This is a point to bear in mind when we break down the France/Germany and France/United Kingdom differences in hours worked per capita: the proportion of the year not in work (which corresponds to all weeks in which at least one hour was worked) is certainly overestimated for Germany and the United Kingdom compared with France. Despite the redesign of the questionnaire in 2021, it seems that under-reporting of holidays persists in Germany.

B. Comparison with OECD data

The OECD also publishes data on the annual number of hours worked per person (in employment). These are used to calculate labour productivity, which corresponds to the ratio of GDP to the number of hours worked. Most often, these are data from national accounts, which draw on several sources in which the employment survey may play a secondary role: the aim is not only to comply with the scope of economic activity covered by national accounts (cross-border workers, inclusion of non-ordinary households, etc.), but also to understand actual working hours using several sources such as company data and administrative data to measure contractual working hours and the various factors that increase (overtime) or decrease (leave, sick leave, etc.) working hours. France and Germany use this method to compile the data in their national accounts, which are used as they are by the OECD, even though the sources used are not of the same nature.

In the case of the United Kingdom, the OECD makes its own estimate because, in the British national accounts, the number of hours worked is essentially measured on the basis of the employment survey, without adjustments. To correct for reporting bias, the OECD uses the usual working hours measured by the employment survey and makes adjustments to take account of overtime and absences (statutory leave, sick leave, etc.).[9]

Because of the different methods of calculating actual working hours in each country and the disparity in the sources used, the OECD considers that the international comparability of data on annual working hours is not guaranteed and that they should be used primarily for analyses of evolutions.

Despite these problems of comparability, it is interesting to study for each country the evolution of the number of hours worked measured in the two series, the employment survey and the OECD data. The following conclusions can be drawn for the four countries: the OECD series is systematically lower than that of the employment survey, and the gap between the two series is relatively stable over time.

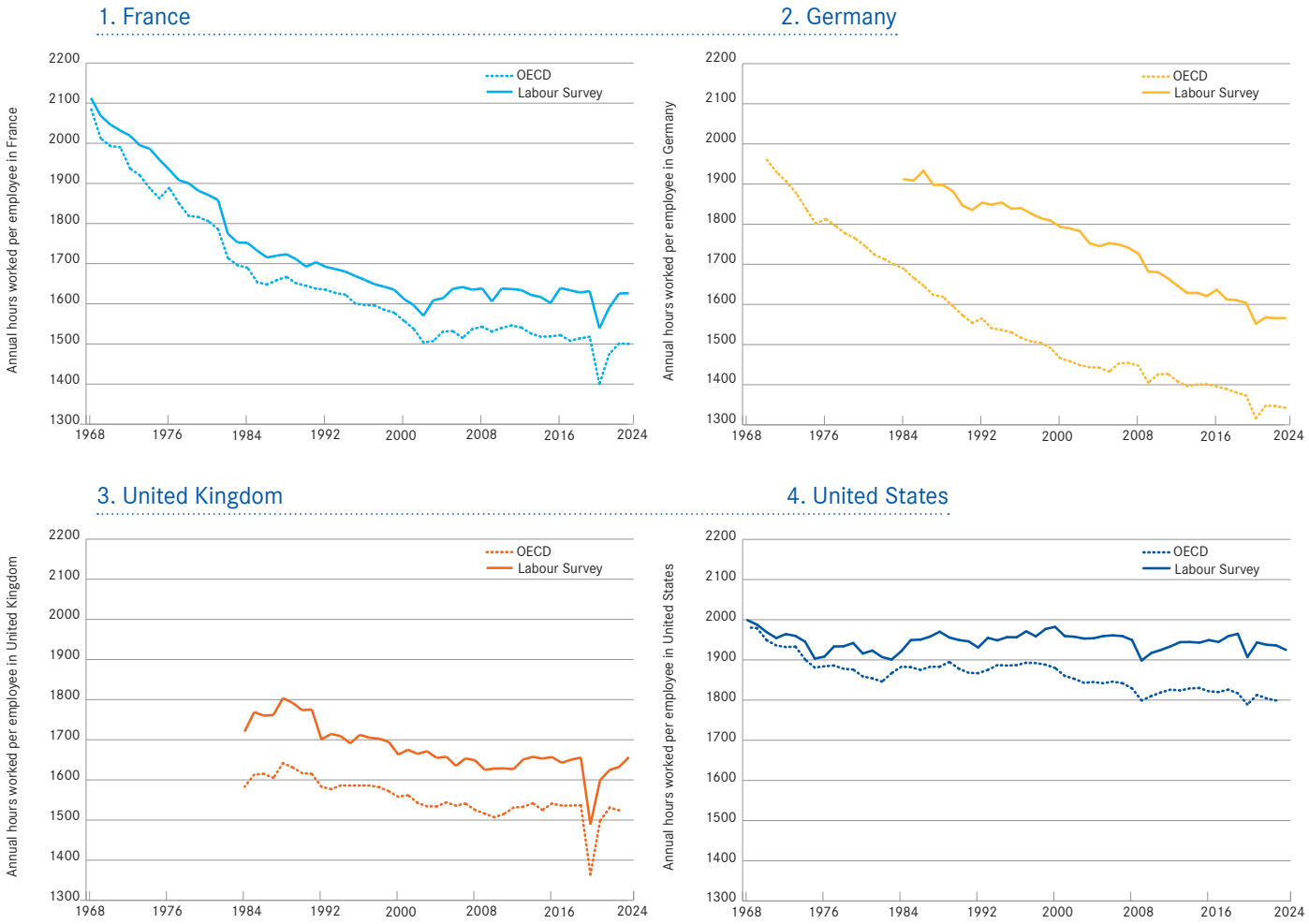
The gap between the OECD series and the employment survey is particularly large for Germany, which highlights the more acute problem of under-reporting of leave. The fact that the gap between the Labour Force Survey and the OECD will barely narrow from 2021, when the new Labour Force Survey questionnaire is adopted, which in the German case is supposed to contribute to better measurement of absences, suggests that the problems identified have not yet been resolved[10]. This problem also seems to exist in the case of the United Kingdom, but to a much lesser extent.

[8] See the 2018 Eurostat report.

[9] See the OECD's 2018 report on international productivity gaps.

[10] See the latest publication from the Rexecode institute, which details, based on EU-LFS data, the transition from normal working hours to actual working hours for full-time employees for the year 2023: the number of absences for leave and public holidays is still much lower than would be expected under current legislation.

Graph B. Comparison of hours worked per employed person between OECD and labour survey sources



Note: Average hours worked estimated for all individuals aged 16-74.
Sources: Labour surveys (France, UK, Germany), OECD.

C. Decomposition method

Breakdown by margins of contribution to the labour market

Let H(i) be the average number of hours worked per capita in country i. The total difference in the number of hours worked per capita between this country and France is written: $H_i - H_{FR}$.

If p(e) (i)and h(e) (i)are respectively the employment rate of country i and the average number of hours worked per employed person, then the average number of hours worked per capita can be rewritten as :

$$H_i = p_i^e \times h_i^e$$

In fact, only those in employment make a positive contribution to the average number of hours worked per capita.

So we can rewrite the initial difference and show the two margins of contribution to the labour market: the extensive margin – the employment rate – and the intensive margin – the number of hours worked by people in employment.

$$H_i - H_{FR} = p_i^e \times h_i^e - p_{FR}^e \times h_{FR}^e$$

$$= (p_i^e - p_{FR}^e) \times h_i^e + (h_i^e - h_{FR}^e) \times p_{FR}^e$$

Where the first term corresponds to the contribution of the employment rate gap to the total gap, and where the second term corresponds to the contribution of the gap in the number of hours worked per person in employment to the total gap.

This breakdown can be refined by rewriting the number of hours worked per inhabitant to show the activity rate, as in graph 16, or even the time excluding holidays and the hours worked over the weeks excluding holidays, as in graph 4.

Breakdown by contribution of population sub-groups

Another way of breaking down the average gap in hours worked per capita between a given country and France, $H_i - H_{FR}$, is to consider the contribution of population sub-groups to this gap.

If we break down the total population into N population sub-groups, for example into age categories, then we can rewrite the average number of hours worked per inhabitant as a weighted average recovered from these N sub-groups:

$$H_i = \sum p_{i,n} \times H_{i,n}$$

Where pi,n corresponds to the weight of sub-group n in the total population of country i, for example the share of 16-29 year olds in the total population of country i, and $H_{i,n}$ the average number of hours worked per inhabitant of sub-group n, for example the number of hours worked by 16-29 year olds in country i.

The aggregate difference can be rewritten as the sum of differences by subgroup:

$$H_i - H_{FR} = \sum (p_{i,n} \times H_{i,n} - p_{FR,n} \times H_{FR,n})$$

The term in brackets corresponds to the contribution of sub-group n to the total variance. Note that for each population sub-group, this contribution can be broken down into two elements:

- a difference linked to the structure of the population (the greater or lesser proportion of each sub-group in the population), for a given work behaviour;
- a gap linked to the different working behaviours of the population sub-group n between countries, at a given size. To visualise this, here is the associated formula:

$$p_{i,n} \times H_{i,n} - p_{FR,n} \times H_{FR,n} = (p_{i,n} - p_{FR,n}) \times H_{i,n} + (H_{i,n} - H_{FR,n}) \times p_{FR,n}$$

Where the first term corresponds to the contribution of the difference in population structure and the second to the contribution of work behaviour.

This is shown in chart 7, where the grey bars show the gap driven by a different age structure between the UK, Germany and the US relative to France. Working behaviour is then broken down according to the intensive and extensive margins of the sub-section above.

D. International comparisons of education levels

The analysis of international qualification levels is based on the ISCED classification, which establishes a correspondence between national qualifications in order to ensure homogeneity between different education systems. In this study, three categories of qualifications are distinguished for the purposes of international comparison:

Primary or secondary level (fist cycle)

It covers levels of education up to the end of lower secondary education. In France, it goes up to the brevet des collèges. The equivalent of the brevet des collèges in the UK is the GCSE (General Certificate of Secondary Education). In Germany and the United States, this category stops at levels 10 and 9 respectively.

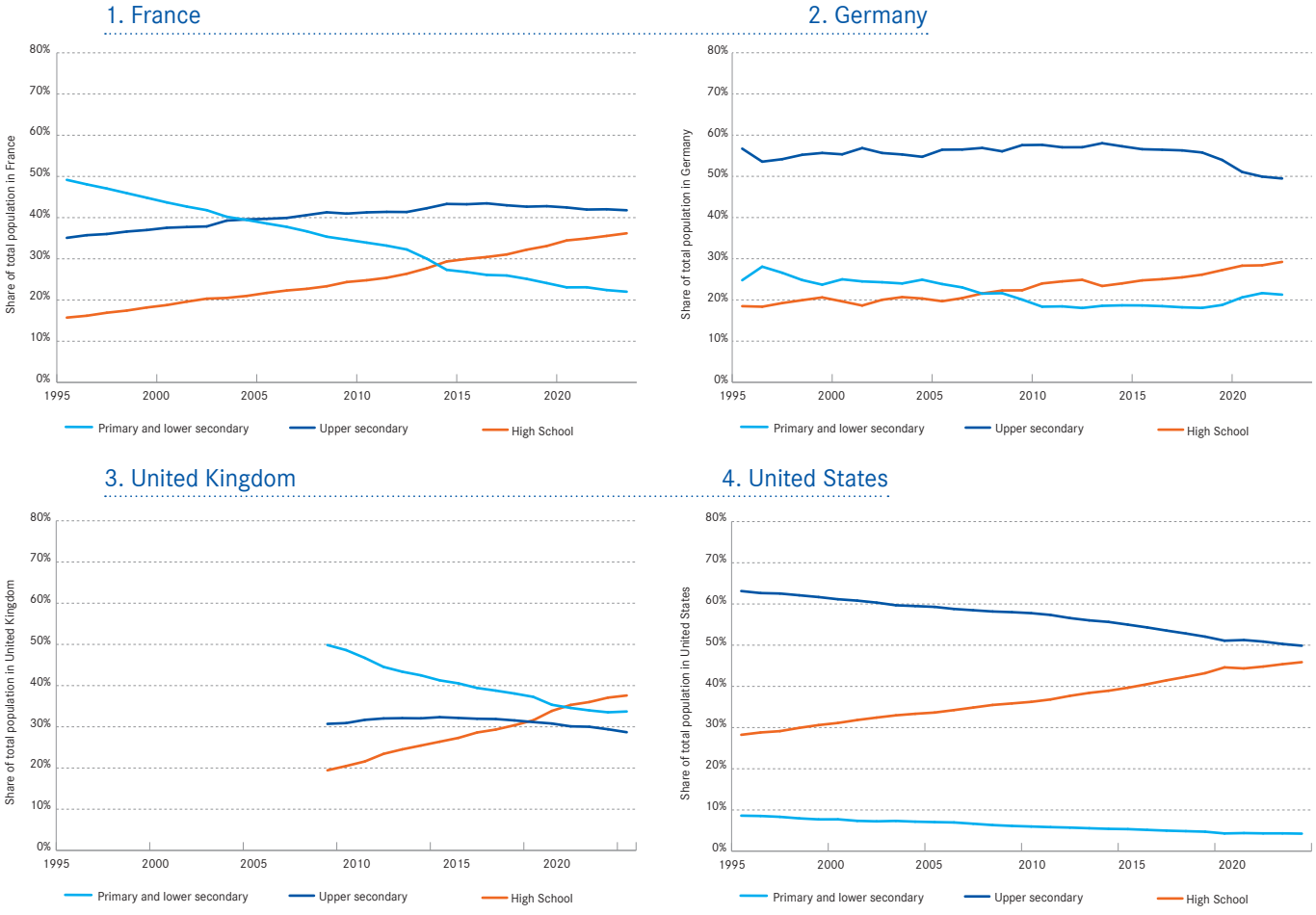
Secondary level (second cycle)

It encompasses levels of education relating to upper secondary education. In France, it therefore includes general, technological and vocational baccalaureates, as well as CAPs and BEPs. In the United Kingdom, it includes the 'A/AS Levels' for 'Advanced Level' and 'Advanced Subsidiary Level', which are diplomas equivalent to the baccalauréat. In the United States, it includes the GED (General Educational Development) and the High School Diploma, which are equivalent qualifications to the baccalauréat. In Germany, this level corresponds to grades 10 to 13.

The top level

It refers to all higher education courses. In France, it includes the DUT, the BTS, the licence, the master's degree and the doctorate (and equivalent courses). In the United Kingdom and the United States, it includes the Bachelor's degree, the Master's degree and the PhD (Doctor of Philosophy). In the United Kingdom and the United States, the HND (Higher National Diploma) and the Associate degree are the equivalent of the French BAC+2 DUT. In the United States, there is also the Professional School Degree, which is a doctoral-level qualification geared towards vocational training, unlike the PhD, which is more geared towards academic research. In Germany, the higher level also includes university studies, with the equivalents of bachelor's degrees, master's degrees and so on.

Figure D. Share of the population with each level of education



Note: Share of each level of education in the total population, over time.
Sources: Labour surveys (France, United Kingdom, Germany), population survey (United States).

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Contact Presse Hélène Spoladore
helene.spoladore@cae-eco.fr – Tél. : 01 42 75 77 47

TSA 20727, 75334 PARIS Cedex 07 – Téléphone : 01 42 75 76 84 – @CAEinfo – www.cae-eco.fr