

### What is the link between labour shortages and unemployment in France and in Europe?

In France, the proportion of businesses reporting a shortage of labour has increased sharply over the past three years, peaking in mid-2019 (21%). In other European countries too, labour shortages reached record levels in 2018 and 2019. Labour shortages and unemployment are two indicators of tension on the labour market which follow opposing trajectories in all countries: on average, a reduction of 1 point in the unemployment rate will be reflected in a 5 point increase in the proportion of businesses reporting labour shortages. But over the past three years, in all countries and particularly in France, shortages have increased much more rapidly than unemployment has fallen. Between 2007 and 2019, in France, the effective functioning of the labour market appears to have deteriorated, with both unemployment and labour shortages at higher level.

#### In mid-2019, the proportion of businesses reporting a shortage of labour was at its highest level

In the business tendency surveys for Q4 2019, 20% of businesses in France reported that their activity was being restricted by a lack of qualified labour. This proportion has increased significantly since 2017: at the end of 2016, only 10% of businesses reported "labour shortages."

In the service sector, the proportion of companies being held back by a lack of qualified labour increased from 8% in mid-2016 to almost 20% by mid-2019 (*Graph 1*). This is the highest level recorded since 2004 (when this series began), higher even than the figures for 2007, at the peak of the previous economic cycle. Labour shortages in the construction industry have also increased since mid-2016 and now stand at 40%, a level similar to that seen in the period 2006-2007. This sector is subject to striking contrasts: depending on the period, either a large number of companies report labour shortages (around 40%) or else very few companies complain of such problems (around 10%). The transition phases between the two are short. Finally, shortages have also been observed in the industrial sector, albeit to a lesser extent than other sectors: the proportion of companies being held back by a lack of labour was 15% in mid-2019, up from 8% in 2016.

Here again, the levels reported since 2017 are the highest since records began (2004).

The labour shortage indicator is strongly correlated with other forecasting indicators relating to employment, particularly those concerning "recruitment difficulties" or "unfilled job ratios" (see *Box 1*).

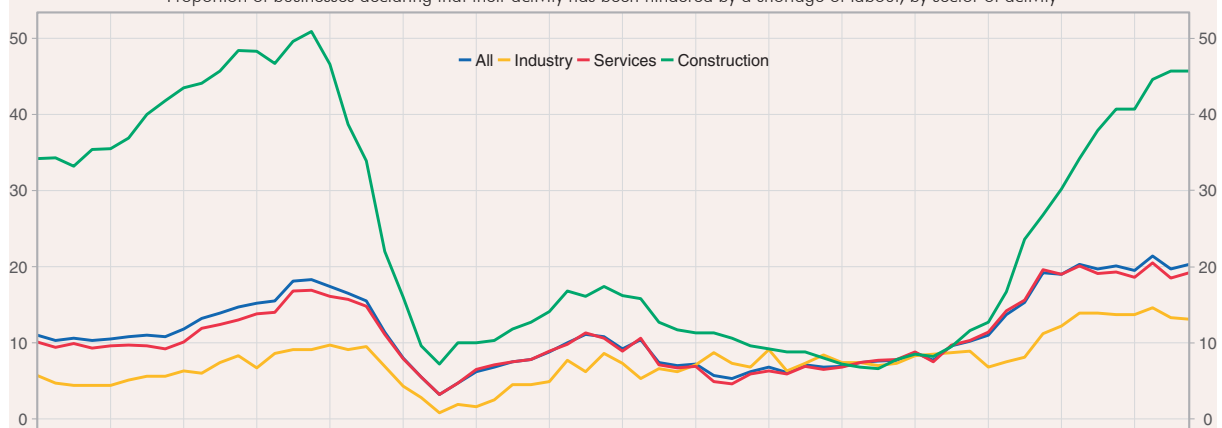
#### Unemployment and labour shortages: two measures of tension on the labour market

Labour shortages and unemployment are two measures of tension on the labour market. Labour shortages correspond to the demand for labour from businesses which is not being fulfilled by the labour force, while unemployment is the supply of labour going unused by businesses. As such, these two indicators follow opposing trajectories (*Graph 2*). When the outlook is favourable, the unemployment rate is low and businesses may be in a position to recruit but encounter difficulties in doing so. On the contrary, when the outlook is poor the unemployment rate is higher but businesses have less trouble recruiting when they need to.

The connection between labour shortages and unemployment can be measured by calculating a correlation coefficient between variations in the unemployment rate and in the proportion of companies reporting labour shortages (see *Box 2*). For France, over the period 2004-2016, this coefficient

#### 1 - Labour shortages have increased in all sectors

Proportion of businesses declaring that their activity has been hindered by a shortage of labour, by sector of activity



Note: For each sector, the results are weighted using the headcount of the companies surveyed; the series for all sectors is obtained by calculating an average weighted by the headcounts in the three sector-specific series.

Key: in Q4 2019, 46% of businesses in the construction sector reported that their activity had been hindered by a shortage of labour.

Source : Insee , enquêtes de conjoncture

## International developments

is  $-0.75$ , falling to  $-0.68$  if we extend the period to 2004-2019. In recent years (2017-2019), labour shortages have been considerably more dynamic than the unemployment rate would suggest, in light of the historical statistical link between their respective fluctuations. In the past, the opposing trajectories of these two indicators were largely symmetrical, with the exception of 2009 when labour shortages fell more sharply than the increase in unemployment implied.

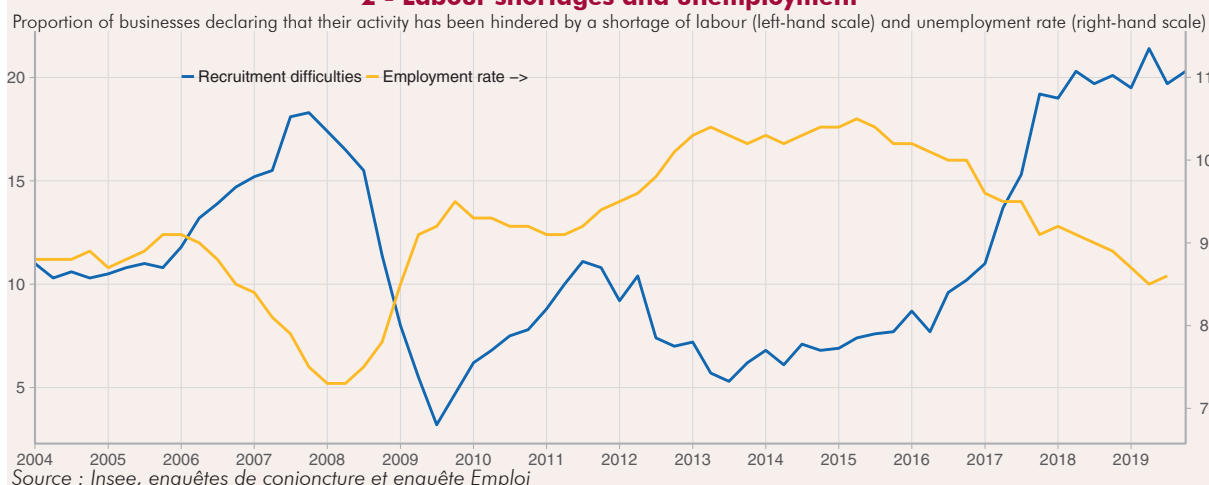
### Labour shortages have increased significantly since 2017 in all European countries

In France's principal European partners (Germany, Italy, United Kingdom, Spain, the Netherlands, Sweden, Belgium, Austria, Czech Republic), labour shortages have also increased significantly since 2016 (Graph 3). At the end of 2018 they were at the highest levels seen since 2004, except in Italy which experienced a bigger spike in 2007. The situation in Germany over the past 15 years is quite different from that seen in other European economies, particularly

between 2004 and 2010. In certain countries (Germany, Italy, Sweden, Czech Republic), shortages appear to have hit a tipping point and have begun to subside since the start of 2019. In France, as in the Netherlands, Austria and Belgium, they appear to have virtually stabilised since 2018.

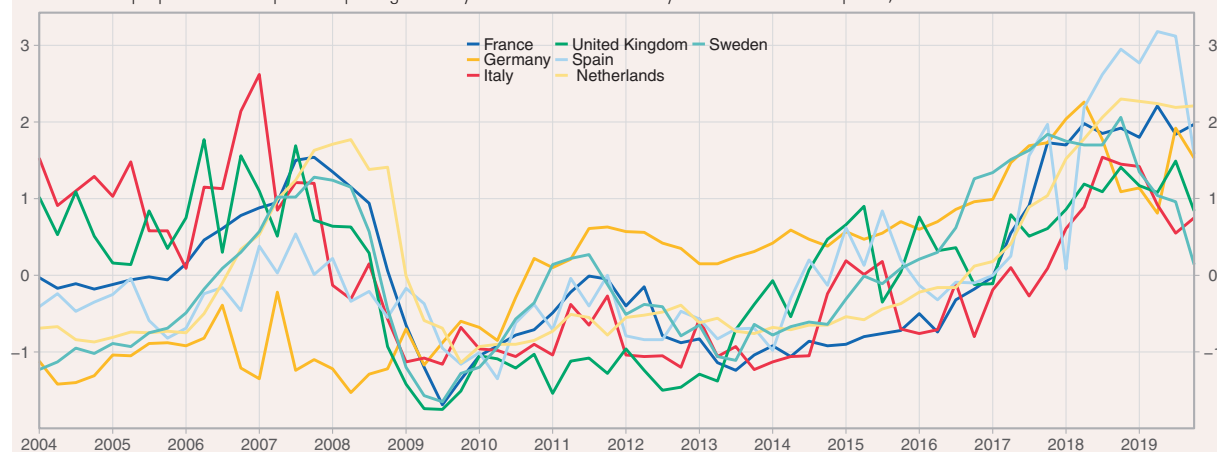
In all of these countries, the unemployment rate and proportion of labour shortages tend to follow contrasting trajectories (Graph 4). The connection between labour shortages and unemployment is fairly strong in most economies for the period 2004-2016, except Italy and Spain. As in the French scenario, this link seems to become weaker when the more recent period is taken into account (2004-2019). Ultimately, in the majority of countries, when unemployment rises by one percentage point the proportion of companies reporting labour shortages falls by an average of 5 percentage points (Box 2).

### 2 - Labour shortages and unemployment



### 3 - Labour shortages have increased sharply across Europe since 2017

proportion of companies reporting that they are limited in their activity due to a lack of manpower, centred and reduced data



## The French situation is fairly atypical in terms of the extent of shortages reported in 2019

Among those countries in which the connection seems sufficiently strong (Sweden, the Netherlands, Germany, Austria and the Czech Republic), labour shortages have risen more sharply in recent times than the variation in unemployment figures would suggest. In Belgium the opposite is true, since shortages have increased very little while unemployment has fallen significantly. In the United Kingdom, the connection between labour shortages and unemployment has not changed in recent months. Although France is not the only country where labour shortages have increased

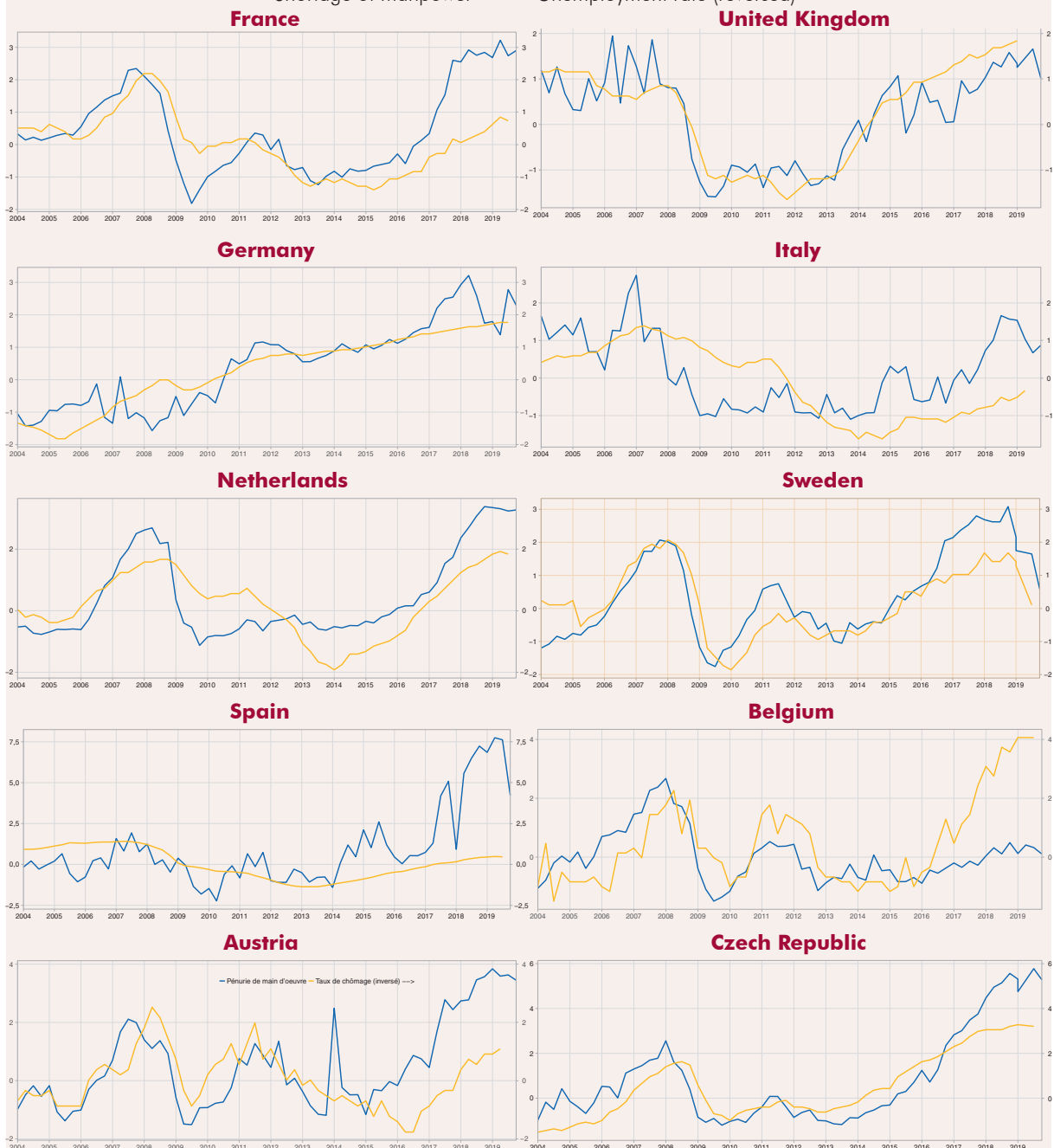
significantly recently, it is the country where the disconnect with the trajectory of the unemployment rate appears to be most pronounced. Since 2018, according to the business tendency surveys, a lack of skilled labour is the main barrier to recruitment reported by companies, far outstripping economic uncertainty, the cost of labour or regulatory concerns (see *Focus article in the Conjoncture in France* issue of December 2018).

## The effective functioning of the labour market has deteriorated in Italy and France since the crisis

### 4 - Unemployment rate and labour shortages by country

Centred and reduced series for 2004-2016, inverted unemployment rate

■ Shortage of manpower ■ Unemployment rate (reversed)



Focus : France, Germany, Italy, United Kingdom, Spain, Netherlands, Sweden, Belgium, Austria, Czech Republic.

Source : Eurostat, calculs Insee

## International developments

It is possible to portray this phenomenon for each country using a graph where the x axis represents the rate of unemployment and the y axis represents labour shortages between 2004 and 2019 (Graph 5). This is essentially a pseudo-Beveridge curve, where the proportion of companies reporting labour shortages stands in for the rate of jobs going unfilled. Direct comparisons between countries should be handled with care: the average level of labour shortages varies significantly from one country to the next. However,

we can easily compare the temporal dynamics at play. For a given country, the closer the trajectory tends towards its point of origin, the more effectively the labour market is functioning, with unemployment and recruitment difficulties both at low levels. In 2019, for example, the French labour market appears to be functioning less effectively than it was in 2007, with both unemployment and labour shortages at higher levels than they were during the last cyclical peak. ■

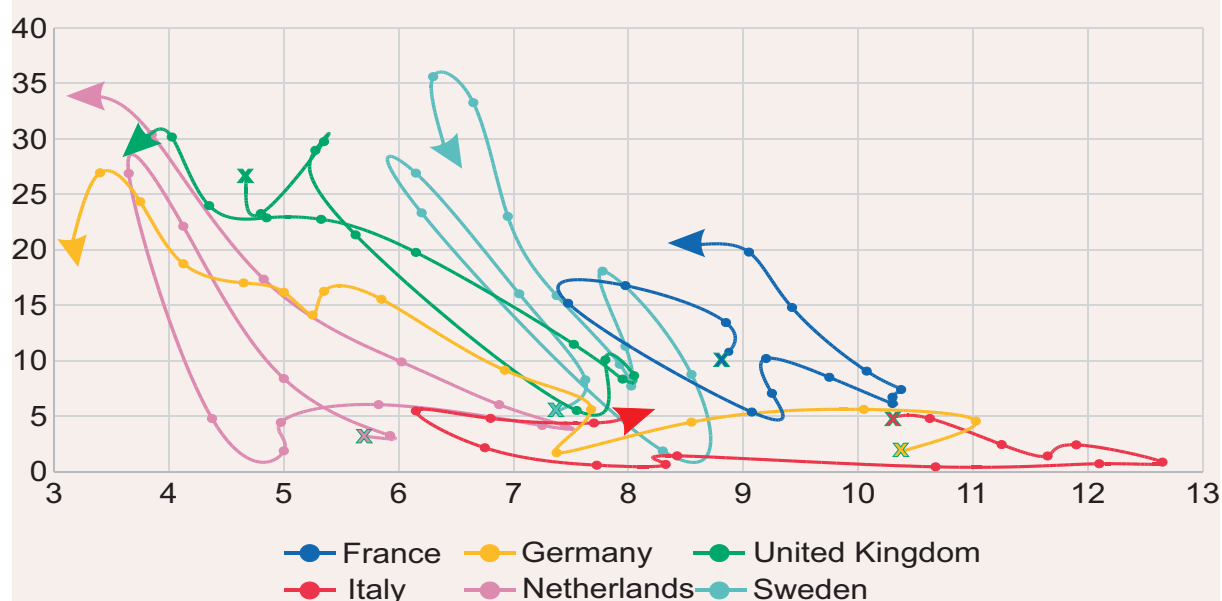
### Bibliography

**Insee**, "At the end of 2018, companies were pointing to the lack of qualified workforce as the main barrier to hiring, even more so than at the start of 2017", *Conjoncture in France*, December 2018, p. 61-63.

**Insee**, "The unemployment rate decreased by 0.2 points in Q2 2019", *Informations rapides*, August 2019. ■

### 5 - Beveridge curves, combined fluctuations of unemployment rates and labour shortages in selected European countries between 2004 and 2019

National trajectories for combined variation in the unemployment rate (x axis) and proportion of businesses reporting labour shortages (y axis)



Note: each data point represents a year. The arrow indicates the temporal progression from 2004 to 2019. Spain is not shown here: with an unemployment rate which exceeded 25% in 2013, it would distort the whole graph and the other countries included here. On this graph, Spain's trajectory would look similar to that of Italy.

Champ : France, Germany, Italy, United Kingdom, Netherlands, Sweden.

Source : Eurostat, calculs Insee.

## Box 1

### Labour shortages, recruitment difficulties and the rate of unfilled jobs: similar trajectories

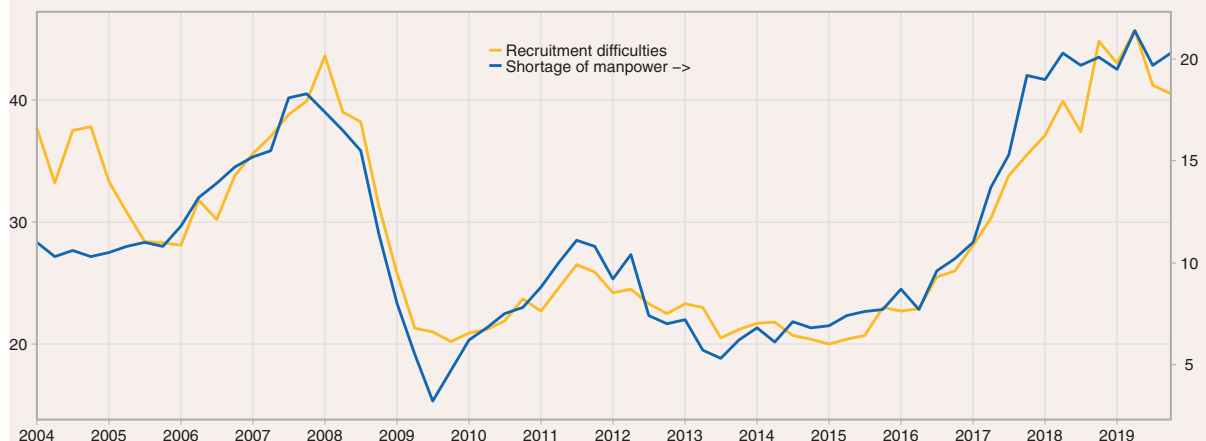
The labour shortage indicator is defined as the proportion of businesses reporting, in the INSEE's business tendency surveys, that they are unable to develop their activity as they would wish on account of a lack of manpower. Labour shortage indicators are established on a sectoral basis, one for industry (output restricted), one for services (activity restricted) and one for construction (activity restricted). The labour shortage indicator for all sectors is an aggregation of these three sub-indicators (industry, services, construction), weighted by the headcount of each sector.

These labour shortage indicators are harmonised at the European level, allowing for more accurate comparisons between countries than those permitted by similar indicators such as recruitment difficulties (proportion of companies reporting difficulties with recruitment, derived from the INSEE business tendency surveys) or the number of unfilled jobs (positions which are open or about to become open, and for which efforts are actively being made to recruit candidates from outside the organisation, figures derived from the Acemo surveys conducted by DARES).

Furthermore, labour shortages are more of an obstacle than recruitment difficulties: a difficult recruitment process need not necessarily inhibit a company's activity. These two indicators thus operate at different levels, with the proportion of companies reporting recruitment difficulties fluctuating at around 30%, an average rate twice as high as the proportion of companies complaining of labour shortages (averaging at around 15%). Nevertheless, the two are highly correlated (*Graph*). In France, the rate of unfilled posts also follows a relatively similar trajectory. As with recruitment difficulties, unfilled posts need not necessarily represent an obstacle to activity. ■

### Recruitment difficulties and labour shortages in France followed very similar trajectories between 2004 and 2019

Proportion of businesses indicating that their activity has been hindered by a lack of manpower (labour shortage), and the proportion reporting difficulties recruiting sufficient staff (recruitment difficulties).  
In % of companies



How to read it: In Q4 2019, 41% of companies surveyed reported recruitment difficulties, while 20% indicated that their activity was being hindered by a lack of sufficient manpower.

Source : enquêtes de conjoncture, Insee

### Box 2

#### An estimate of the econometric link between labour shortages and unemployment

The statistical connection between labour shortages and unemployment can be quantified. In France, and for other European nations where data are available, the correlation between the proportion of businesses reporting labour shortages and the unemployment rate, both considered in terms of quarterly variation, is first calculated for the period 2004 - 2016 and then for 2004 - 2019. The same variations are also subjected to regression analysis based on the variations in the unemployment rate («  $\Delta p\acute{e}nurie = \alpha + \beta \cdot \Delta txchom + \varepsilon$  ») over the period 2004-2019. In order to create homogeneous indicators in terms of their volatility, the labour shortage series is smoothed in advance (using a centred moving average of order 3). In most European countries the labour shortage series shows much greater fluctuation than the unemployment rate, which artificially undermines the correlation between the two series in terms of structural differences.

According to these correlations, France and Sweden are the two countries in which the labour shortage indicator and the unemployment rate are most closely connected, while at the other end of the spectrum Spain and Italy are the countries in which these two indicators are least correlated. Furthermore, in many countries the connection between labour shortages and unemployment is weaker if we take the period 2017-2019 into consideration. Finally, for the majority of countries, the constant value of this model is null and the coefficient  $\beta$  is close to  $-5$  (generally between  $-4$  and  $-6$ ), which means that a one percent increase in unemployment will, on average, be reflected in a 5 percent decrease in the proportion of businesses declaring labour shortages. ■

**Table - Correlations and modelling results for variations in labour shortages and the unemployment rate, by observation period (2004-2016 or 2004-2019) and by country**

	Corrélations		Quarterly differences		
	2004-2016	2004-2019	R <sup>2</sup>	Beta	Constante
France	-75%	-68%	46%	-3,6	0,1
Suède	-65%	-65%	42%	-5,9	0,3
Rép. Tchèque	-57%	-54%	30%	-2,1	0,2
Belgique	-54%	-51%	26%	-6,0	-0,1
Allemagne	-54%	-31%	10%	-4,0	0,0
Pays-Bas	-52%	-58%	33%	-5,2	0,2
Royaume-Uni	-52%	-53%	26%	-4,7	0,0
Autriche	-41%	-44%	16%	-4,1	0,2
Espagne	-22%	-32 %	5%		
Italie	-20%	-25%	6%		

Note: the delta model (FORUMULE) is estimated for 2004-2019. For Austria and Belgium, the unemployment rate was also smoothed using a centred moving average of order 3, in order to reduce the volatility. For Germany, the period was restricted to 2010-2016 because structural reforms introduced between 2004 and 2009 had a marked effect on the German labour market. For Spain and Italy, the modelling quality is too weak and the parameters of the model (Beta and Constant) are therefore not presented here.