



## MACROECONOMIC POLICY RESPONSES TO COVID-19

### SECTORAL REALLOCATION OF EURO AREA EMPLOYMENT AFTER THE COVID-19 SHOCK

By Ángel Luis Gómez

#### **Editors:**

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# Sectoral Reallocation of Euro Area Employment after the Covid-19 shock \*

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## Abstract

Reflecting the larger direct impact of the pandemic on more contact-intensive work, the COVID-19 shock has been highly asymmetric in its employment effects across sectors. The COVID-19 pandemic led to the sharpest contraction on record in total hours worked, while policy support in the form of job retention schemes helped to protect employment. The speed of recovery is noticeable in all sectors of the economy, although those who suffered the largest declines (trade, transportation and accommodation and food service, together with arts and entertainment), are still well below their pre-crisis level. In terms of job vacancies, recovery is much more generalised across sectors and those most affected by the pandemic are suffering noticeable labour shortages. This paper seeks to assess the extent of the reallocation shock for the euro area economy, focusing on its four biggest countries. The excess job reallocation rate calculated from the EU-LFS microdata for the aggregate of the four largest euro area economies decreased almost 2 pp in 2020, against the increases that firm-level data show for the United States and the United Kingdom. That development in the euro area was also very different to that observed in 2009, mainly due to a smaller increase in separations during the COVID-19 crisis. In the latter respect, the role played by the job retention schemes should be re-emphasised.

**JEL Codes:** E24, J63.

**Keywords:** COVID-19, sectoral employment, job reallocation, job-to-job transitions.

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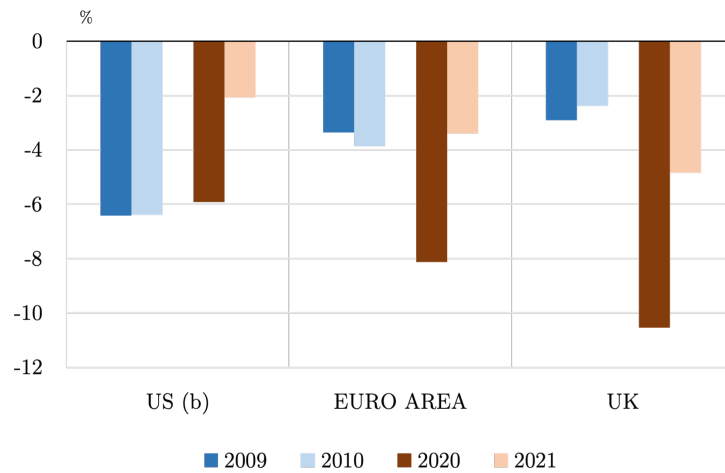
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# 1 Introduction

The COVID-19 pandemic has had a marked economic impact globally. This recession went together with a sharp deterioration in labour markets. Large worker dislocations took place in both advanced and emerging market and developing economies. Measures to contain the spread of the coronavirus severely limited activity in some sectors and total hours worked took a major hit. They dropped in 2020 by 8% in the euro area, slightly more than in the United States (Figure 1). Furthermore, and unlike the United States, that decline was more than double that of 2009 (the worst year of the Global Financial Crisis). The impact was even more severe in the United Kingdom.

Figure 1: Employment  
(Hours worked)  
Change from the year before the recession (a)



Notes: (a) 2008 in the financial crisis and 2019 in the COVID-19 crisis. (b) Private Sector. Sources: Bureau of Labor Statistics, Eurostat, Office for National Statistics and Banco de España.

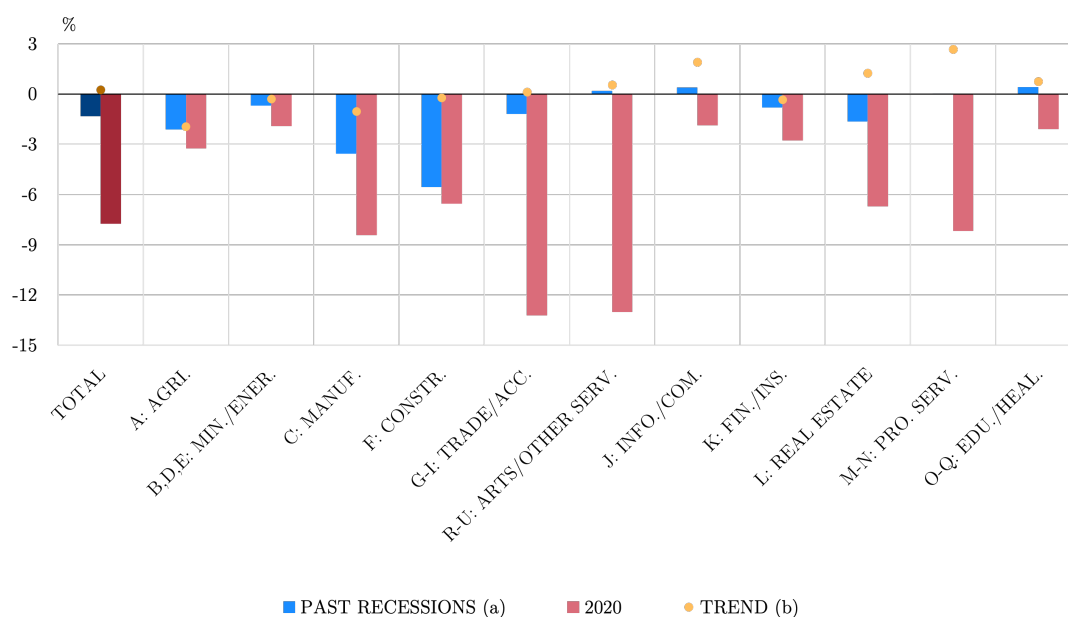
Despite its strong and quick recovery in 2021, the number of hours worked in the euro area was still over 3% lower than in 2019. Moreover, while the reduction of hours worked largely reflected higher unemployment in countries such as the United States and Canada, a fall in average hours played a bigger role in the euro area. Indeed, policy support in the form of job retention schemes helped to protect employment in many European countries. However, the euro area broad unemployment rate which takes into account inactive persons who were available for but were not seeking work and temporary lay-offs, exceeded 20% in 2020 (Gómez & Montero 2020).

Reflecting the larger direct impact of the pandemic on more contact-intensive work, the COVID-19 shock has been highly asymmetric in its employment effects across sectors.<sup>1</sup> The sharpest drops in euro area employment (measured as hours worked to take

<sup>1</sup>Barrot et al. (2021) estimate that the reduction in the active workforce due to the implementation of social distancing measures in the United States ranged from 4% to 97% across industries.

into account both the extensive and intensive margin adjustments) in 2020 were in the wholesale and retail trade, transportation, accommodation and food service, and arts and entertainment sectors (Figure 2). This contrasts with the previous two recessions (the Global Financial Crisis and the sovereign debt crisis), when the manufacturing and construction sectors were the most negatively impacted. The least affected sectors, such as information and communication and finance and insurance (apart from non-market services) were also among those who fared better in previous recessions, which seem to accelerate pre-existing structural trends of a shift in employment away from sectors more vulnerable to automation.

Figure 2: Sectoral Euro Area Employment Growth (Hours worked)



Notes: (a) 2008-2009 and 2012-2013 average. (b) 1996-2020 average. Sources: Eurostat and Banco de España.

Demographic differences in employment across sectors and occupations have likely contributed to differences in outcomes across groups in the current crisis. The decline in employment was strongest for temporary employees, the young and workers with low levels of education (Anderton et al. 2020). Sectoral reallocation of employment can have important consequences in terms of inequality.

In addition, pandemic-induced reallocations across occupations and sectors and the boost in the automation and digitalisation process may increase the labour market mismatch and generate upward pressures on wages. However, the sharp employment-intensive rebound in economic activity means that many workers will be rehired before their work skills have diminished. In any case, the question is whether, as the recovery progresses, demand will return to the same sectors where it fell, or whether there will be

permanent job losses in those sectors.

Regarding the extent of the COVID-19 reallocation shock, [Botelho et al. \(2020\)](#) argue that, given its exogenous nature, reallocation needs will be lower than with the global financial crisis, whose origin was purely economic. On the other hand, the [International Monetary Fund \(2021\)](#) points out that, historically, sectoral labour reallocation picks up during recessions, which seems to be the case for the COVID-19 recession as well. In general, job retention policies are the best option to address the temporary (but sometimes lengthy) disruption caused by an adverse pandemic shock, helping to maintain job matches and avoiding loss of accumulated human capital, as well as to prevent sharper rises in unemployment while the shock is occurring. However, reallocation may reflect efficient changes in employment following structural shifts caused by the pandemic—in that case those policies may hinder a sustainable recovery. In addition, there is evidence that reallocation of employment is associated with relevant net productivity gains, but that this hides very heterogeneous and large gross flows of workers.<sup>2</sup>

[Barrero et al. \(2021\)](#) find evidence that the COVID-19 pandemic is largely a reallocation shock to the U.S. economy and anticipate permanent job losses due to COVID-induced demand shifts, marginal firms that don't survive the pandemic and intra-industry reallocation triggered by the concerns about the transmission of infectious diseases.<sup>3</sup> Using annual company accounts and business survey data for the United Kingdom, [Anayi et al. \(2021\)](#) find that during the COVID pandemic job reallocation rose less than during the Global Financial Crisis and point to the role of furlough schemes in reducing the extent of employment reallocation.

Against this background, this paper seeks to assess the extent of this reallocation shock for the euro area economy, focusing on its four biggest countries (Germany, France, Italy and Spain). In this connection, Section 2 describes the aggregated evidence in terms of hours worked, job vacancies and workers in job retention schemes. Section 3 draws preliminary evidence from the European Union Labour Force Survey (EU-LFS) microdata. The paper concludes in Section 4 with a prospective on the use of alternative sources.

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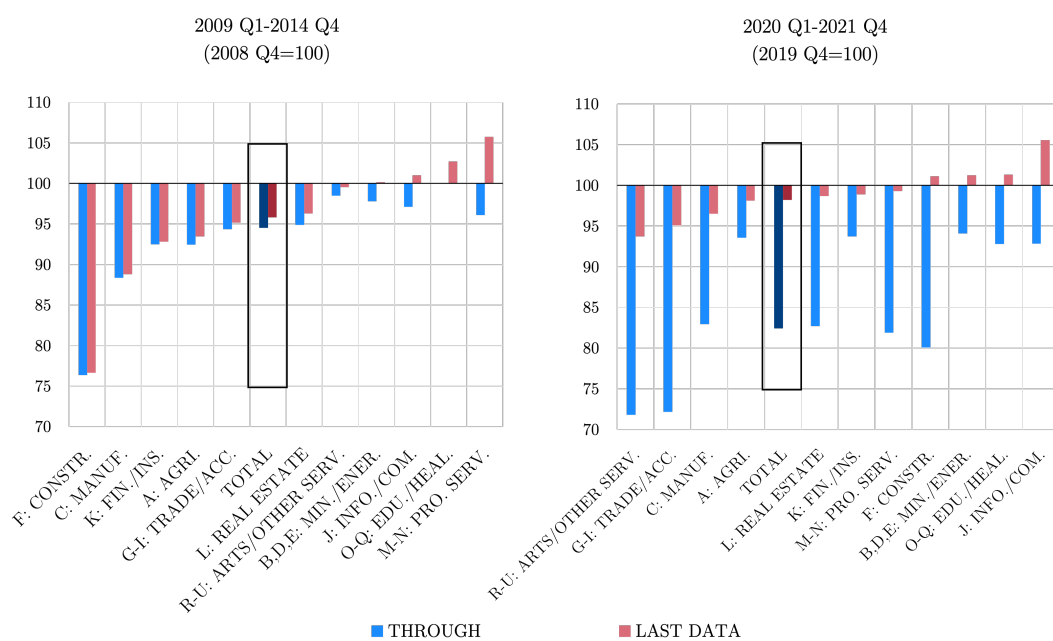
<sup>2</sup>[Albagli et al. \(2020\)](#), using an administrative matched employer-employee census for Chile, provide a characterization of the relationship between individual job transitions and the aggregate process of employment reallocation that increases productivity by moving workers towards more productive firms.

<sup>3</sup>Overall, it can be expected that some structural changes will take place as a consequence of changes in consumer preferences (shifting from services to goods) as well as the need to change the way in which production and consumption are carried out to take care for climate change issues and increased automation and digitalisation.

## 2 Developments in hours worked, vacancies and job retention schemes

The COVID-19 pandemic led to the sharpest contraction on record in employment and total hours worked in the euro area in the second quarter of 2020. Hours worked, which take into account the reduction both in the extensive and intensive margin, fell close to 20% below their pre-crisis level, against 5% in the previous recession (Figure 3). However, recovery is going much faster and hours worked in 2021 Q4 stood just slightly below those in 2019. While this high speed of recovery is noticeable in all sectors of the economy, those sectors that imply more physical contact, who suffered the largest declines (trade, transportation and accommodation and food service, together with arts and entertainment), are still around 5% below their pre-crisis level.<sup>4</sup> On the contrary, the construction sector, which was also hit hard by the crisis, has already exceeded its 2019 level.

Figure 3: Sectoral Euro Area Employment  
(Hours worked)



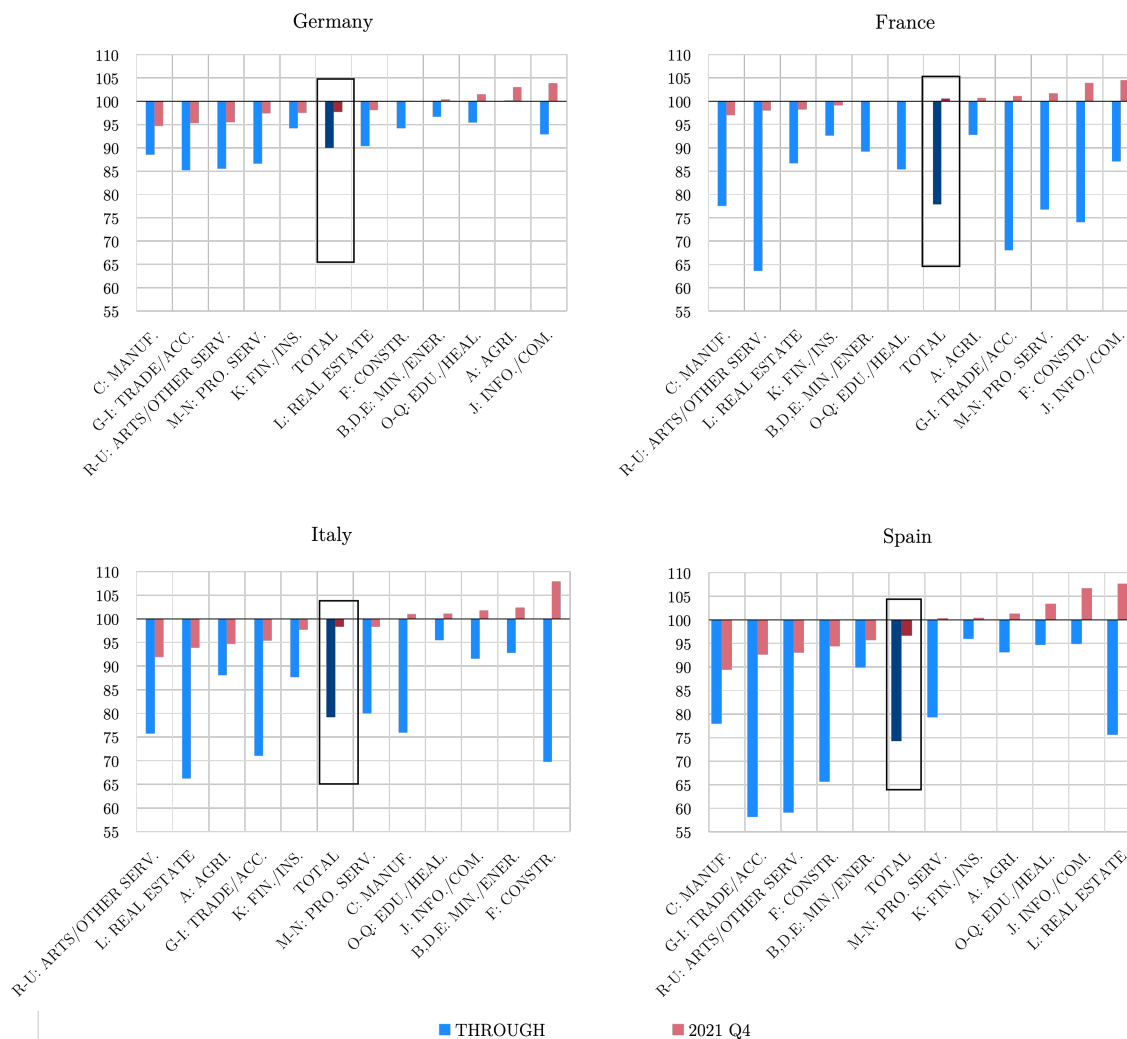
Sources: Eurostat and Banco de España.

Across the four biggest euro area countries, the sectoral pattern of the fall in hours worked in 2020 was quite similar, although the magnitude of the falls was much larger in Spain and smaller in Germany (Figure 4). The contact-intensive sectors (trade, transportation, accommodation and food service, and arts and entertainment) were the most

<sup>4</sup>This is relevant to anticipate the recovery in terms of job creation as one might expect other sectors will be creating new jobs in the coming years. In any case, at this stage, any precise diagnosis seems premature.

affected in the four countries, along with the real estate services in Italy. The recovery pattern is also quite similar to that of the euro area as a whole, although the real estate services in France and Italy, together with the construction sector in Spain are not recovering as fast. By contrast, the trade, transportation, accommodation and food service sectors in France and the manufacturing sector in Italy exceeded their 2019 level at the end of 2021.

Figure 4: Sectoral Employment in the Four Biggest Euro Area Countries 2020Q1-2021Q4 (Hours worked, 2019Q4=100)



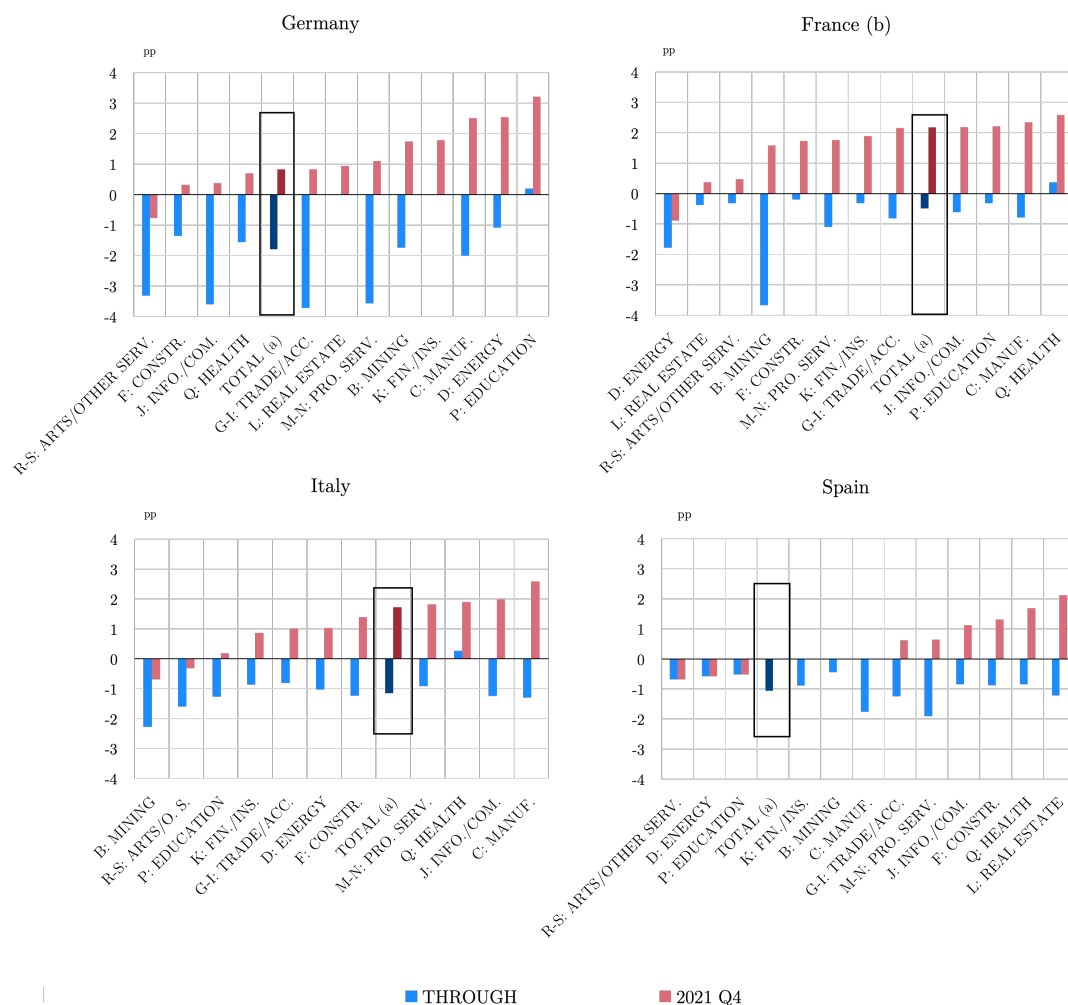
Sources: Eurostat and Banco de España.

In addition to past employment trends, vacancy data can provide a signal about the most immediate needs for reallocation of employment.<sup>5</sup> A job vacancy is defined as a paid post that is newly created, unoccupied, or about to become vacant for which the employer is taking active steps and is prepared to take further steps to find a suitable candidate from outside the enterprise concerned. Figure 5 depicts the levels in relation to

<sup>5</sup>This does not guarantee a causal relationship as larger job vacancies might reflect not only a relative scarcity of employees, but also lower posted wages relative to unemployment benefits, or worker preferences for jobs that don't put them at risk of contagion, for instance.

2019 of the vacancy rate in Germany, France, Italy and Spain, at the bottom of the crisis and the latest data.<sup>6</sup> The fall in job vacancy rate in 2020 was particularly marked in Germany. In general terms, sectoral heterogeneity during the crisis is not as pronounced as for employment (for instance, in Italy and Spain the vacancy rate in manufacturing fell more than in the trade, transportation and accommodation and food services).

Figure 5: Job Vacancy Rate in the Four Biggest Euro Area Countries 2020Q1-2021Q4 (Standardized data, change from 2019Q4=100)



Notes: (a) Industry, construction and services (except activities of households as employers and extra-territorial organisations and bodies). (b) Due to data availability, only firms with more than 10 employees are considered. Sources: Eurostat, European Commission and Banco de España.

The largest differences between the evolution of employment and vacancies are observed during the recovery. In 2021 Q4, the job vacancy rate has exceeded its pre-pandemic level not only in France, but also in Germany and Italy. Recovery is much more generalised across sectors and some of those most affected by the pandemic are suf-

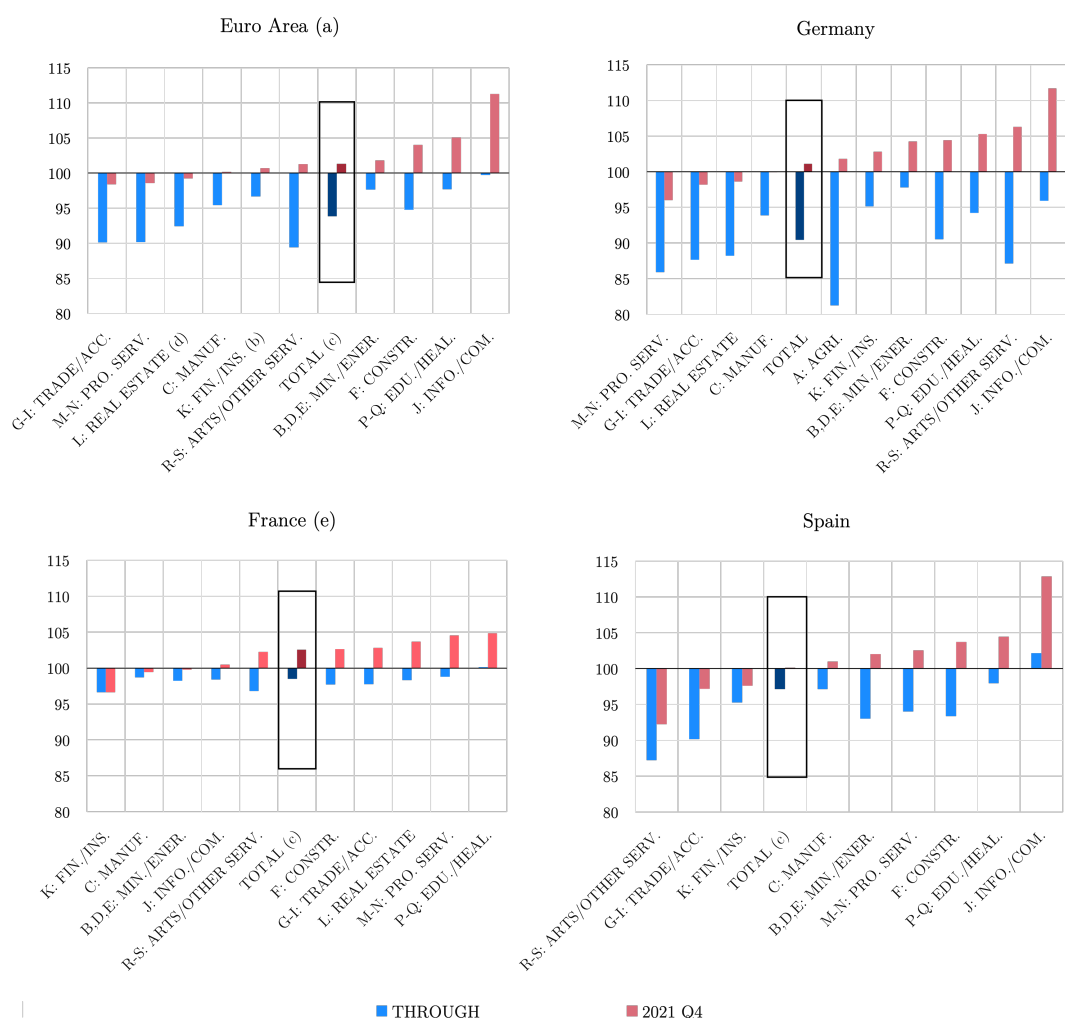
<sup>6</sup>The job vacancy rate is the number of job vacancies expressed as a percentage of the sum of the number of occupied posts and the number of job vacancies. The average level of the vacancy rate is very different across the four countries. To make these data more comparable they have been standardized.



fering labour shortages. That is the case of the trade, transportation and accommodation and food services, particularly in France. The manufacturing sector, which is one of the laggards in the employment recovery in Germany, France and Spain, is also experiencing greater labour shortages than before the crisis.

To take into account job vacancies together with occupied posts moderates substantially the magnitude of the decline of the hours worked in 2020, but hardly reduces the sectoral dispersion of recovery paths in the euro area (Figure 6). In contrast to the developments of the hours worked, the recovery of the arts and other services sector in Germany and the manufacturing and construction sectors in Spain are noteworthy.

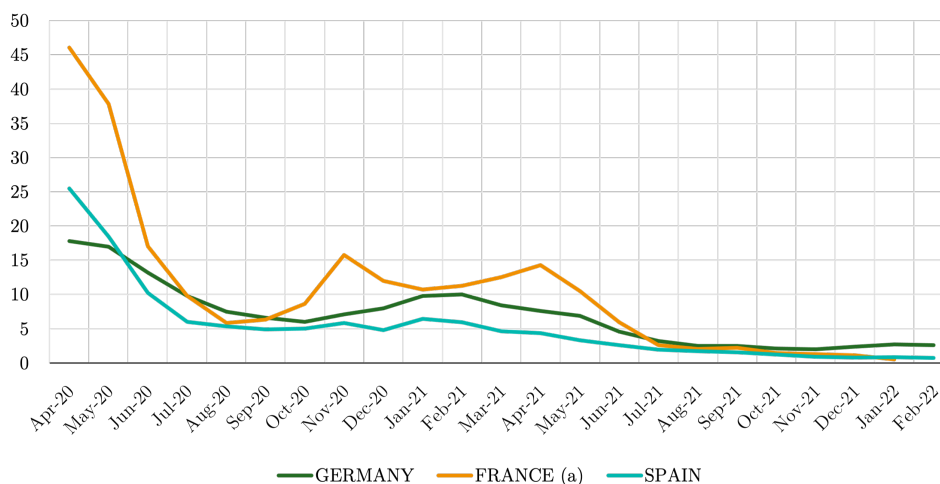
Figure 6: Sectoral Job (Occupied Posts and Job Vacancies) in the Euro Area 2020Q1-2021Q4 (2019Q4=100)



*Notes:* (a) France, Italy, Austria, Ireland, Estonia and Malta are excluded. (b) In addition to (a), Finland is excluded. (c) Industry, construction and services (except activities of households as employers and extra-territorial organisations and bodies). (d) In addition to (a), Spain, Finland, Portugal and Slovenia are excluded. (e) Due to data availability, only firms with more than 10 employees are considered. *Sources:* Eurostat and Banco de España.

In April 2020, when lockdown measures to contain the spread of COVID-19 were in place in most euro area countries, job retention schemes reached unprecedented levels.<sup>7</sup> Therefore, they play an important role in explaining labour market developments in this period. The share of employees on short-time work exceeded 17% in Germany, 45% in France and 25% in Spain (see Figure 7). Subsequently, its incidence has been oscillating with successive waves of the pandemic and the associated restrictions. According to the latest available data, referring to February 2022 in Germany and Spain, and January in France, their incidence has decreased to around 3% in Germany and below 1% in France and Spain. While its use during the first wave of the pandemic was fairly widespread by sector, although in any case higher than in the accommodation and food service sector, then it was much more focused on this sector (see Table 2). Currently, it is applied to about 20% of employment in the sector in Germany, against around 3% in France and Spain. This gap between countries is due to differences in the incidence of the last pandemic wave and the containment measures taken.

Figure 7: Percentage of Employees Under Job Retention Schemes



*Notes:* (a) Last available data: January 2022. *Sources:* Ifo Institute, Ministry of Labour of France, Ministry of Inclusion, Social Security and Migrations of Spain and Banco de España.

<sup>7</sup>The main features of job retention schemes in the four biggest euro area countries are summarized in Table 1.

Table 1: Job Retention Schemes in the Four Biggest Euro Area Countries, 2020-2021

	<b>Germany</b>	<b>France</b>	<b>Italy</b>	<b>Spain</b>
Type of Scheme (a)	STW scheme, up to 100% working time reduction.	STW scheme, working time reduction up to 50% (standard)/40% (special).	Normal STW scheme, 0-100% reduction.	FS, full-time and part-time.
			Temporary Covid-19 STW scheme, 0-100% reduction.	
Adjustment to the crisis	Eligibility: temporary agency workers and impact; duration; level; employer support higher (insurance contributions covered); incentives for training.	Eligibility: wider categories of employees; 40% working time reduction.	Eligibility widened: pandemic emergency; simplified procedure; suspension of dismissals on economic grounds.	Introduction of two types of extraordinary support subschemes: based on force major and on economic, technical, organisational and production related reasons arising because of Covid-19.
Adjustments during the crisis	Increase in level of support; from June 2021 full coverage of security contributions by state only if workers receive training.	Reduction of level and subsidy to employers of standard STW scheme; a long-term scheme introduced (APLD): longer duration; co-payment by employers.		In September 2020 introduction of a third sub-scheme each with different reductions of social security contributions for employers; simplification, expansion of sectoral coverage.
Eligibility criteria for companies	Economic difficulties 10% of the workforce affected by loss of at least 10% of gross pay.	Economic difficulties. Closure/restrictions because of government decisions.		Closure/restrictions because of government decisions. Selected sectors.
Level of generosity of support from the employees' perspective	60-87% net wage.	70% gross wage (approximately 84% net wage).	80% gross wage.	50-70% gross wage.
Variation in level of generosity of support from the employees' perspective	Depending on duration of STW support and children. 1-3 months: 60/67%. 4-6 months: 70/77%. More than 6 months: 80/87%.			Depends on the duration: 70% for the first six months; 50% from the seventh month onwards.

*Notes:* (a) FS: furlough scheme (benefit to employees for hours not worked, allowing companies to temporarily lay off parts of their workforce. STW: short-time work (support to companies to finance hours not worked). (b) Source for average wage in May 2020: OECD (2021). *Sources:* ETUI survey of job retention schemes (Drahokoupil & Müller 2021).

Table 1: Job Retention Schemes in the Four Biggest Euro Area Countries, 2020-2021  
(cont.)

	Germany	France	Italy	Spain
Cap (absolute) in support from the employees' perspective	Maximum gross wage to be taken into account €7,100 in western Germany and €6,700 in eastern Germany. Actual maximum amount paid as percentage of net wage depends on: original gross wage, duration of STW support, tax bracket, children, extent of working time reduction. The maximum amount possible is therefore approximately €3,900.	Maximum gross wage to be taken into account: 4.5 times the minimum wage 03-12/2020: €6,927.39. Maximum amount payable: €4,849,17. Minimum amount: minimum wage.	Cap depends on monthly gross wage: Below €2,159.48: €939.99. Above €2,159.48: €1,129.66.	Depends on number of children: 0 child: €1,098.09. 1 child: €1,254.96. 2 children or more: €1,411.83.
Cap as a percentage of the average wage (b)	€4,349: 89%	€3,046: 159%	€2,633: 36-43%	€2,295: 48-62%
Part of employees' JRS support covered by company	None – 100% covered by the Federal Employment Agency	For standard scheme: fully covered by the state and the Unemployment Insurance Scheme. For APLD introduced in 06/2020: employer has to cover 10% of the employees' 70% wage support and the Unemployment Insurance Scheme covers the remaining 60%.	Normal Scheme: none – 100% covered by the Wage Guarantee Fund (WGF) Covid Scheme: 03-07/2020: none – 100% covered by the WGF 08-12/2020: special contribution of employers to WGF depending on the loss of revenue: Below 20% loss of revenue: 9% of wages for hours not worked. No loss of revenue: 18% of wages for hours not worked.	None – 100% covered by the state.
Coverage of social security contributions (SSC)	For 03-12/2020 Federal Employment Agency covers 100% of employers' SSC for hours not worked.	SSC paid only for the time worked	Normal scheme: covered by the fund Covid Scheme: not paid when on STW scheme	The employer receives a certain reduction, which depends on company size and the reason for STW: the reduction varies between 75 and 100.%

*Notes:* (a) FS: furlough scheme (benefit to employees for hours not worked, allowing companies to temporarily lay off parts of their workforce. STW: short-time work (support to companies to finance hours not worked). (b) Source for average wage in May 2020: OECD (2021). *Sources:* ETUI survey of job retention schemes (Drahokoupil & Müller 2021).

Table 2: Percentage of Employees under Job Retention Schemes  
April 2020 - February 2022 (a)

		Germany		France		Spain	
		Peak	February 2022	Peak	January 2022	Peak	February 2022
	TOTAL (b)	17.8	2.6	46.0	0.5	25.5	0.8
I:	Accommodation and food services	62.7	22.8	84.2	3.3	85.4	3.4
G:	Trade	22.8	5.3	50.6	0.3	36.9	0.8
C:	Manufacturing	29.2	2.5	46.2	0.7	22.6	0.7
N:	Administrative activities and auxiliary services (c)	18.8	2.5	-	-	-	-
H:	Transport	17.8	1.8	43.8	0.3	22.8	1.1
M:	Professional services (c)	19.5	1.2	42.6	0.4	17.8	0.9
F:	Construction	7.9	0.8	71.5	0.2	18.9	0.2
J:	Information and communications	12.9	0.7	26.5	0.2	11.0	0.3
O-Q:	Education and Health	-	-	24.6	0.2	8.6	0.1
L:	Real estate services	-	-	37.3	0.2	28.6	0.7
K:	Financial and insurance services	-	-	14.6	0.1	3.4	0.5
B,D,E:	Mining and energy	-	-	21.5	0.1	8.7	0.0
R-S:	Arts and other personal services	-	-	71.0	1.1	51.2	1.76
	Other sectors (d)	8.1	0.7	-	-	-	-

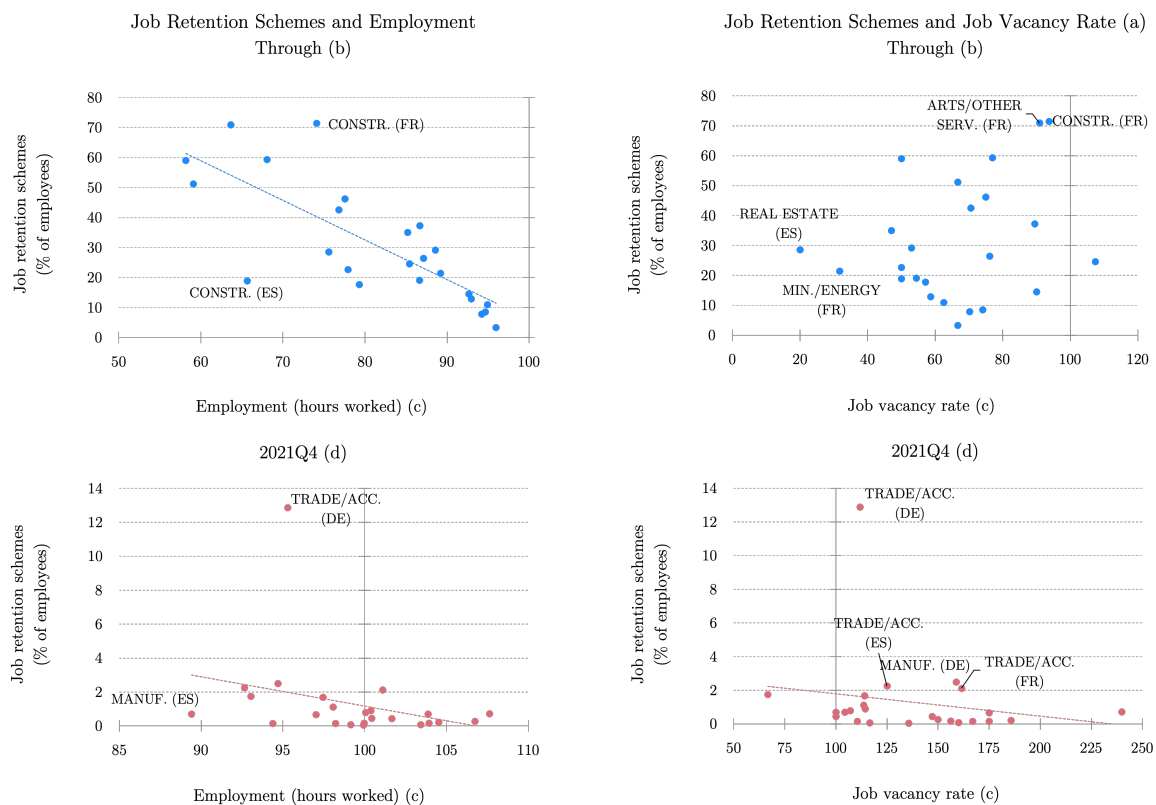
*Notes:* (a) For France, January 2022. (b) Agriculture is excluded. (c) For France and Spain, professional services include administrative activities and auxiliary services. (d) Agriculture, mining and energy, financial and insurance services, real estate services, public administration, education, health, arts and other personal services. *Sources:* Ifo Institute, Ministry of Labour of France, Ministry of Inclusion, Social Security and Migrations of Spain and Banco de España.

The gradual reduction of the number of employees under job retention schemes has gone hand in hand with the recovery of hours worked, which points to a reintegration of these employees to their former jobs. Nevertheless, some sectors (such as the construction sector in Spain) suffered a disproportionate loss of worked hours, in the light of its take-up of this measures (Figure 8, top left panel). The opposite happened in that sector in France during the crisis and in the trade, transportation, accommodation and food service sectors in Germany, during the ongoing recovery (Figure 8, bottom left panel).

One could also assume a negative relationship between the percentage of employees under job retention schemes and the job vacancy rate. However, during the crisis there were also sectors with relatively high levels of both variables, such as the arts and entertainment and the construction sector in France (Figure 8, top right panel). This situation has become more frequent during the recovery. The sectors with the highest share of workers in job retention schemes (trade, transportation and accommodation and food

services in the three countries and manufacturing in Germany) show at the same time high vacancy rates which could be indicative of a certain mismatch (Figure 8, bottom right panel).

Figure 8: Job Retention Schemes, Sectoral Employment and Labour Shortages in Germany, France and Spain (2020Q1-2021Q4)



*Notes:* (a) Due to data availability, for France only firms with more than 10 employees are considered. (b) Peak for Job Retention Schemes. (c) 2019=100. (d) December 2021 for Job Retention Schemes. *Sources:* Eurostat, Ifo Institute, Ministry of Labour of France, Ministry of Inclusion, Social Security and Migrations of Spain and Banco de España.

### 3 Labour market transitions and sectoral job reallocation

This section aims to give some quantitative indication of the eventual reallocation shock triggered by the COVID-19 crisis in the euro area labour markets, focusing on the four biggest countries. In order to do so, employment flows from the worker perspective are computed and compared with those provided at an aggregate level. Then, a standard measure of employment reallocation, namely, the excess reallocation rate is computed.

Finally, this measure is analysed both from a time perspective and in terms of the contributions of the different types of flows that make up the indicator. Preliminary results, based on incomplete information and available only for 2020, do not suggest an increase in sectoral reallocation that year. This could be largely due to the effect of job retention schemes.

Employment reallocation can be defined as the number of persons who currently have a different job or employment status than they had in the previous period (Davis & Haltiwanger 1992). In this paper, those transitions are calculated from the EU-LFS data, that are available in a harmonized way for all 19 euro area countries. The EU-LFS is a quarterly household sample survey carried out in the Member States of the European Union (EU).<sup>8</sup> It is the main source of information about the situation and trends on the labour market in the EU. It provides population estimates for the main labour market characteristics, such as employment, unemployment, people outside the labour force, hours of work, occupation, economic activity and other labour related variables, as well as important socio-demographic characteristics, such as sex, age, education, household characteristics and regions of residence. The overall accuracy of the EU-LFS is considered as high, given its a relatively large sample size. The achieved quarterly sample in all participating countries concerns about 1.7 million individuals (EU: 1.4 million), corresponding to around 0.33 of the total population.

The EU-LFS aggregated data on labour market transitions published by Eurostat do not provide job-to-job transitions and do not give a breakdown of employment flows by sector. Therefore, individual microdata are used, though they are released with a delay of almost one year<sup>9</sup>. In addition, they do not contain the information which would allow tracking people across waves, so the paper mainly draws on the annual retrospective information, available since 2008. As the quarterly variables of length of service and time out of work do not also allow to identify job-to-job transitions, EU-LFS microdata provide just annual transitions, hiding intra-annual dynamics. Furthermore, the sectoral information is available just at a single-digit disaggregation level and the analysis of transitions from employment retention schemes is not feasible. The main variables used are the following:

Variable Name	Description
WSTAT1Y	Situation with regard to activity one year before the survey
ILOSTAT	International Labour Organisation work status
STARTIME	Time since person started to work
NACE1D	Economic activity (coded 1 digit)
NACE1DY1D	Economic activity one year before survey (coded 1 digit)

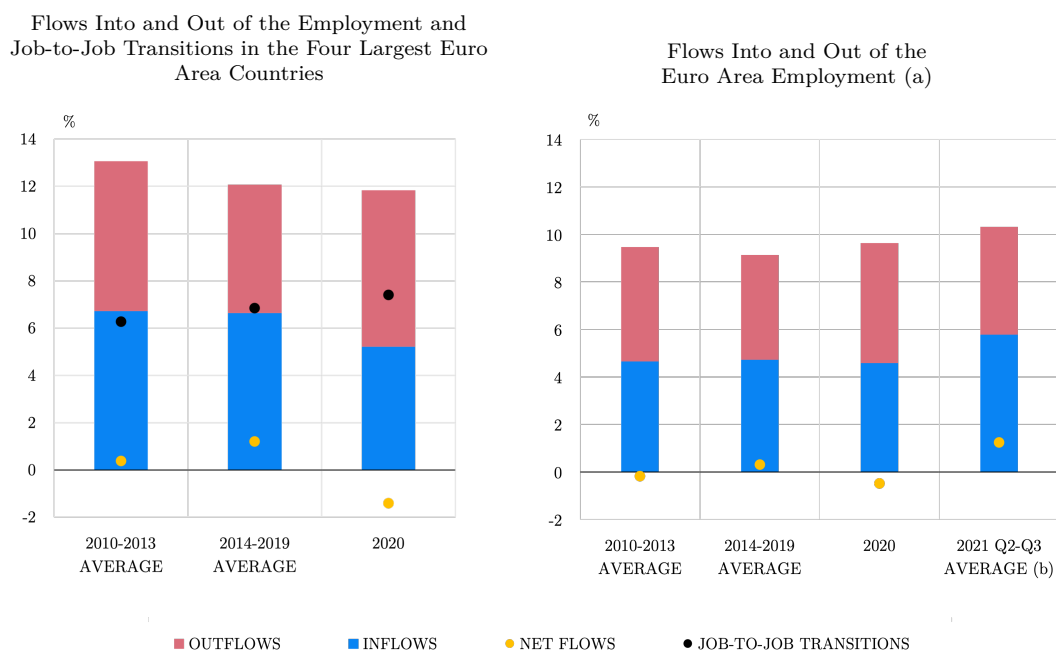
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<sup>8</sup>As well as EFTA countries (except for Liechtenstein) and Candidate Countries (Montenegro, North Macedonia, Serbia and Turkey).

<sup>9</sup>The 2020 microdata have been released in November 2021.

Figure 9 depicts in its left panel the three components of employment reallocation calculated from the microdata in the aggregate of the four largest euro area economies (EA-4): outflows (flows from employment to unemployment or inactivity), inflows (flows from unemployment or inactivity to employment) and job-to-job transitions. Net flows (inflows minus outflows) are also depicted. The average job reallocation rate for 2020 in the EA-4 was close to 20%, dominating the destruction flow, which led to a negative net flow.<sup>10</sup> The right panel shows the employment transitions for 15 euro area countries calculated from aggregated data.<sup>11</sup> According to both datasets, inflows to (outflows of) employment were in 2020 lower (higher) than in the previous recessionary or expansionary periods. The aggregated data available for 2021 anticipate higher inflows and lower outflows. Overall, and coupled with expected higher job-to-job transitions, this would lead to an increase in employment reallocation in 2021.

Figure 9: Employment Flows in the Euro Area



Notes: (a) Except Belgium, Germany, Luxembourg and Malta, due to availability of data. Percentage of total employment. (b) Available data for 2021. Sources: Eurostat and Banco de España.

Following Davis & Haltiwanger (1992), this paper measures gross employment flows in the standard way. Hiring is equal to getting of new jobs and separations is equal to the terminations of the participant's employment relationship with his/her employer. The sum of these two gives a measure for job reallocation and the difference yields the net employment growth rate. If we take the difference between the gross job reallocation

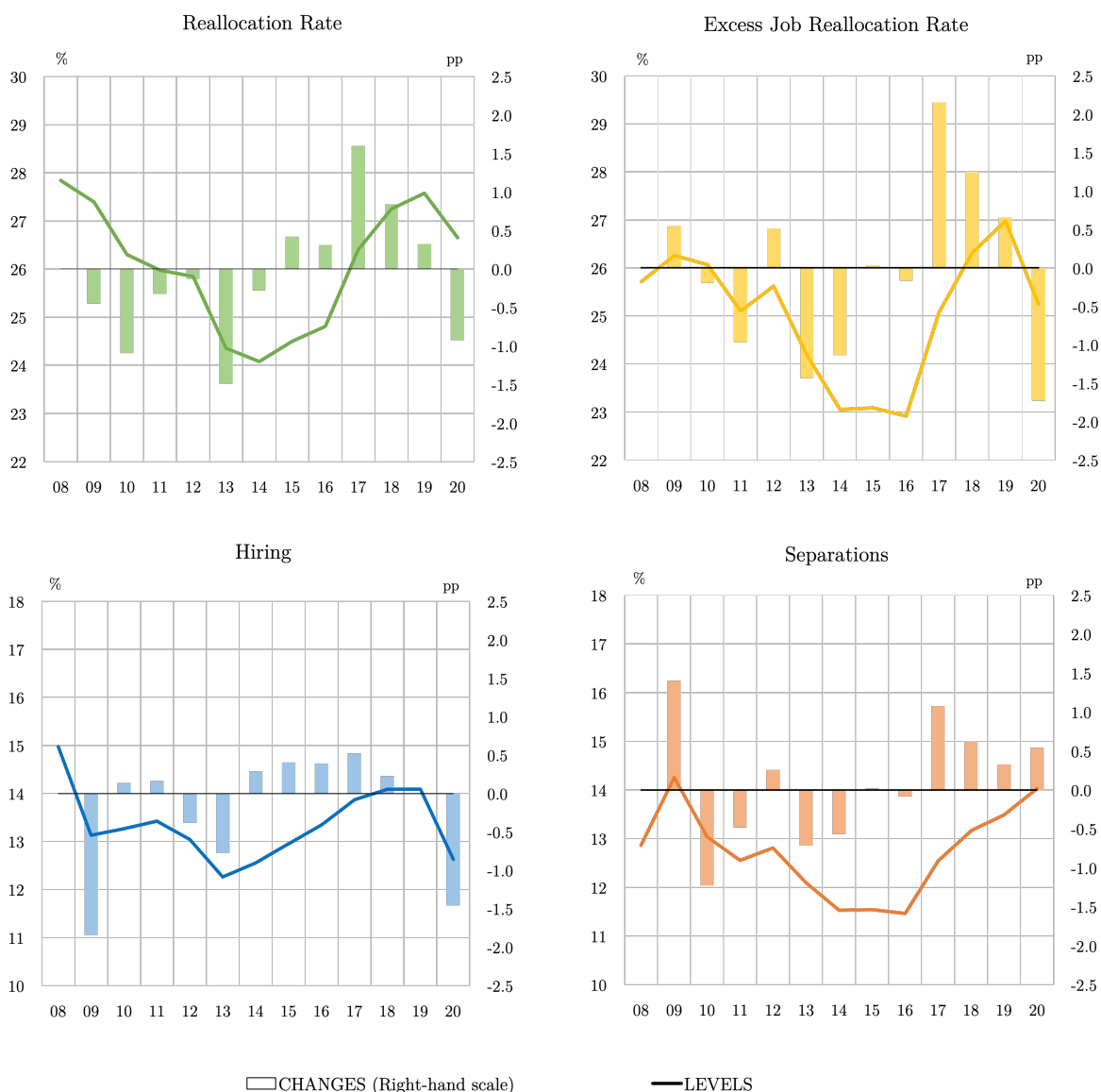
<sup>10</sup>In 2020, the number of job entries and exits from employment is about 12% of total employment, to which job-to-job transitions (almost 8%) must be added, giving a total of almost 20%.

<sup>11</sup>The main difference between the two subsets of euro area countries is that the second one does not include Germany, whose aggregated data before 2021 are not available.



rate and the absolute value of the net employment growth rate, we obtain a measure for excess job reallocation. Such a measure tells us how much job churning is taking place after having accounted for the job reallocation that is needed to accommodate a given aggregate employment growth rate (see also [De Loecker & Konings \(2006\)](#)). The excess job reallocation rate for the EA-4 aggregate decreased almost 2 pp in 2020 (Figure 10, right top panel), somewhat more than the reallocation rate (left top panel). This development was very different to that observed in 2009, mainly due to a smaller increase in separations during the COVID-19 crisis (bottom panels). In the latter respect, the role played by the job retention schemes should be re-emphasised.

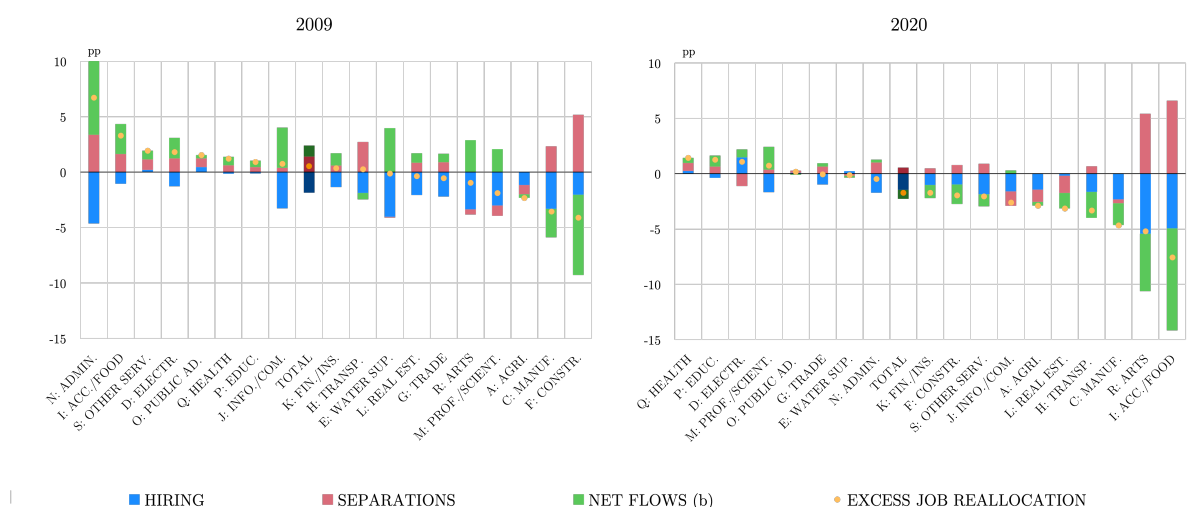
Figure 10: Employment Reallocation Rate in the 4 Largest Euro Area Countries (Percentage of employment)



Sources: Eurostat and Banco de España.

Figure 11 depicts the annual change in excess job reallocation rate by sector and in its three components: hiring, separations and net flows. The largest declines in excess reallocation in 2020 took place in the accommodation and food services and arts and entertainment sectors, while just the non-market services, and the electricity and professional and scientific activities sectors increased their rates. Compared to the global financial crisis, just the construction sector experienced a lower drop in its excess reallocation rate in the COVID-19 crisis, due mainly to its slower acceleration in the fall in net employment.

Figure 11: Excess Job Reallocation Rate in the Four Largest Euro Area Countries (a)  
Annual Change and Contributions  
(percentage points of employment)



*Notes:* (a) The excess job reallocation rate measures how much job churning is taking place after having accounted for the job reallocation (hiring plus separations) that is needed to accommodate a given aggregate employment growth rate. (b) Annual change in the absolute value of the difference between hiring and separations. *Sources:* Eurostat and Banco de España.

By country, France and Spain show the biggest drops in excess reallocation rate in 2020 (Table 3). The fall of more than 15 pp in the French sectors of arts and accommodation and food services are remarkable. A noticeable difference between them is that separations in the latter decreased, a feature not observed in the same sector of the other three countries. Furthermore, a decrease in separations is observed in many other sectors in France, which is consistent with the higher take-up of job retention schemes in this country.

Table 3: Excess Job Reallocation Rate in 2020 (a)  
Annual Change and Contributions  
(percentage points of employment)

	Germany				France			
	Hiring (1)	Separations (2)	Net flows (b) (3)	Excess Job Reallocation (4) = (1)+(2)+(3)	Hiring (1)	Separations (2)	Net flows (b) (3)	Excess Job Reallocation (4) = (1)+(2)+(3)
TOTAL	-0.8	-0.1	0.8	-0.1	-1.7	-0.5	-1.2	-3.4
A: Agriculture, forestry and fishing	-0.2	-0.7	-0.5	-1.5	-0.4	-0.9	0.5	-0.9
B: Mining and energy	-0.3	-2.0	1.6	-0.7	0.3	-11.9	12.2	0.6
C: Manufacturing	-2.2	-1.0	-0.5	-3.7	-2.5	0.3	-2.8	-5.0
D: Electricity, gas, steam and air conditioning supply	3.3	-0.5	-3.9	-1.1	-1.1	-1.6	0.5	-2.2
E: Water supply sewerage, waste management and remediation	1.5	1.3	-0.2	2.5	1.1	-5.5	1.9	-2.5
F: Construction	0.2	-0.1	-0.1	-0.1	-2.5	1.2	-3.7	-4.9
G: Trade	0.0	0.1	-1.2	-1.1	-2.1	-0.8	2.2	-0.7
H: Transportation and storage	-1.6	0.4	-2.0	-3.3	-1.3	-2.2	0.9	-2.5
I: Accommodation and food services	-2.2	0.8	3.0	1.6	-9.4	-6.1	-3.3	-18.8
J: Information and communications	-0.5	0.4	0.9	0.7	-2.7	-6.6	3.8	-5.4
K: Financial and insurance	-0.1	-0.6	0.5	-0.2	-2.0	2.9	0.0	0.9
L: Real estate	-0.4	0.6	0.9	1.1	1.2	-4.7	0.8	-2.6
M: Professional and scientific activities	0.0	1.5	1.4	3.0	-3.6	0.4	4.0	0.8
N: Administrative and auxiliary services	0.3	2.7	0.1	3.1	-2.2	-4.7	-2.4	-9.2
O: Public administration	0.6	1.4	0.7	2.7	-0.1	-0.9	0.8	-0.1
P: Education	-0.7	-0.7	0.0	-1.5	-0.2	1.5	-1.5	-0.1
Q: Human health and social work	0.2	0.8	0.5	1.5	0.6	0.2	0.4	1.2
R: Arts, entertainment and recreation	-3.3	2.2	2.0	1.0	-8.3	2.6	-10.9	-16.6
S: Other services	0.4	0.8	0.4	1.7	-4.4	1.9	-0.9	-3.5

*Notes:* (a) The excess job reallocation rate measures how much job churning is taking place after having accounted for the job reallocation (hiring plus separations) that is needed to accommodate a given aggregate employment growth rate. (b) Annual change in the absolute value of the difference between hiring and separations. *Sources:* Eurostat and Banco de España.

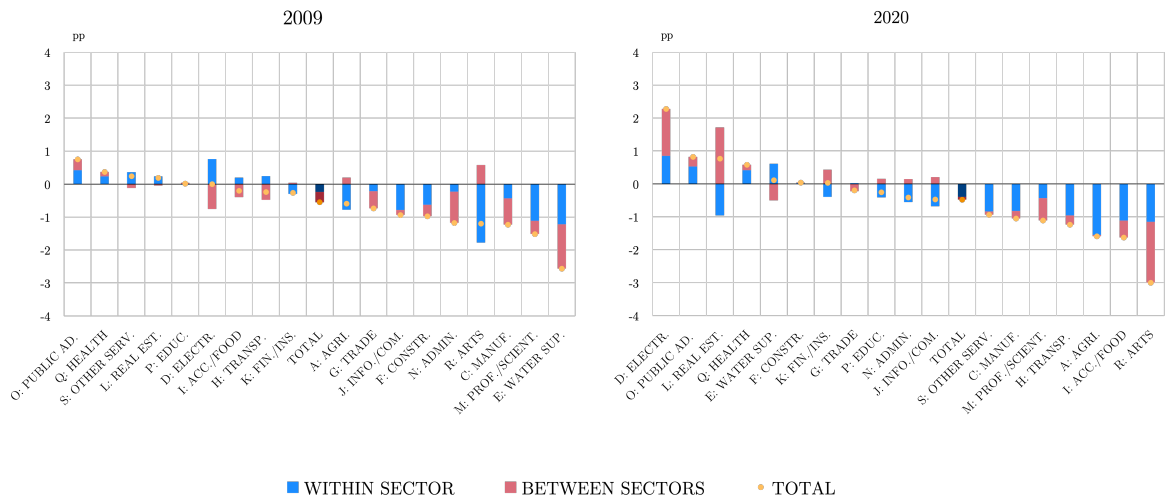
Table 3: Excess Job Reallocation Rate in 2020 (a) (cont.)  
Annual Change and Contributions  
(percentage points of employment)

	Italy				Spain			
	Hiring	Separations	Net flows (b)	Excess Job Reallocation (4) = (1)+(2)+(3)	Hiring	Separations	Net flows (b)	Excess Job Reallocation (4) = (1)+(2)+(3)
	(1)	(2)	(3)		(1)	(2)	(3)	
TOTAL	-1.2	1.2	-0.9	-0.8	-2.8	2.5	-2.6	-2.9
A: Agriculture, forestry and fishing	-0.7	0.2	-0.9	-1.3	-3.5	-2.6	-0.9	-7.0
B: Mining and energy	-0.8	-0.3	-0.5	-1.6	2.5	11.2	-8.7	5.0
C: Manufacturing	-2.2	0.3	-0.5	-2.4	-2.6	0.3	-2.9	-5.2
D: Electricity, gas, steam and air conditioning supply	0.7	-0.5	1.2	1.3	0.7	-2.3	-3.0	-4.5
E: Water supply sewerage, waste management and remediation	-1.3	-0.3	1.0	-0.6	-0.8	4.3	-5.1	-1.5
F: Construction	-0.8	-0.5	0.3	-1.0	-1.8	2.7	-1.6	-0.8
G: Trade	-1.0	0.7	-1.0	-1.2	-1.6	3.0	-3.5	-2.1
H: Transportation and storage	-1.0	1.1	0.0	0.0	-2.9	4.9	-3.9	-1.8
I: Accommodation and food services	-4.5	9.4	-8.3	-3.3	-5.2	17.0	-18.1	-6.4
J: Information and communications	-0.8	1.0	1.8	2.0	-4.3	-1.1	3.1	-2.3
K: Financial and insurance	-0.9	-1.1	0.2	-1.8	-2.0	0.3	-2.3	-4.0
L: Real estate	-0.2	2.2	0.2	2.2	-3.1	-1.2	1.1	-3.2
M: Professional and scientific activities	-1.4	0.1	1.5	0.2	-3.0	-1.8	0.5	-4.4
N: Administrative and auxiliary services	-1.6	2.3	0.2	0.9	-5.3	2.4	-1.8	-4.7
O: Public administration	0.4	1.4	-1.1	0.8	-1.6	-1.7	0.2	-3.1
P: Education	1.0	1.3	-0.3	1.9	-1.4	1.4	0.6	0.6
Q: Human health and social work	0.1	0.8	0.7	1.5	-0.3	1.8	2.1	3.6
R: Arts, entertainment and recreation	-0.8	8.3	-5.8	1.8	-8.6	11.0	-5.6	-3.2
S: Other services	-0.9	1.6	-2.5	-1.7	-5.3	-0.4	-4.1	-9.8

*Notes:* (a) The excess job reallocation rate measures how much job churning is taking place after having accounted for the job reallocation (hiring plus separations) that is needed to accommodate a given aggregate employment growth rate. (b) Annual change in the absolute value of the difference between hiring and separations. *Sources:* Eurostat and Banco de España.

Job-to-job transitions account for almost 60% of the excess reallocation rate. In 2020 they decreased by 0.5% of total employment in the EA-4 (Figure 12). This reduction was similar to that of 2009, but much more concentrated in their within sector component, which accounts for more than two thirds of total. Contrary to 2009, all the sectors in which job-to-job transitions fell in 2020, this was mainly due to within sector transitions, except for the arts and professional and scientific services sectors. In the opposite direction, the electricity and real estate sectors, in which job-to-job transitions increased in 2020, this was mainly due to transitions between sectors.

Figure 12: Job-to-Job Transitions in the Four Largest Euro Area Countries  
Annual Change and Contributions by Sector of Destination  
(Percentage points of employment)



Sources: Eurostat and Banco de España.

France and Spain were again the countries in which job-to-job transitions declined the most in 2020 (Table 4). The largest drops took place in the French sectors of arts and accommodation and food services (particularly due to the within sector component in both of them). However, the transitions between sectors were the main driver of the reduction of job-to-job transitions in the arts sector in Germany and Spain. On the contrary, the transitions between sectors increased markedly in the real estate sector in France and Spain and in the electricity sector in Germany and Spain. In the latter, these transitions made a major contribution to the highest rise in job-to-job transitions among the four largest euro area countries.

Table 4: Job-to-job Transitions in 2020  
Annual Change and Contributions by Sector of Destination  
(percentage points of employment)

		Germany			France		
		Within sector	Between sectors	Total	Within sector	Between sectors	Total
	TOTAL	-0.4	0.2	-0.1	-0.3	-0.4	-0.7
A:	Agriculture, forestry and fishing	-0.7	-0.2	-0.9	-1.6	0.0	-1.6
B:	Mining and energy	0.9	0.0	0.9	-4.0	-0.9	-4.9
C:	Manufacturing	-1.2	0.0	-1.2	-0.6	-0.2	-0.9
D:	Electricity, gas, steam and air conditioning supply	0.7	2.3	3.1	0.5	-0.9	-0.4
E:	Water supply sewerage, waste management and remediation	1.6	1.4	2.9	0.4	-3.9	-3.5
F:	Construction	0.3	0.6	0.9	0.0	-0.3	-0.4
G:	Trade	0.3	0.2	0.4	0.3	-1.5	-1.3
H:	Transportation and storage	-1.4	0.0	-1.4	-0.4	-0.2	-0.6
I:	Accommodation and food services	-1.2	-0.1	-1.3	-4.1	-1.4	-5.5
J:	Information and com- munications	-0.4	0.3	-0.1	-0.4	-0.3	-0.7
K:	Financial and insur- ance	-0.2	0.8	0.5	-0.3	0.4	0.1
L:	Real estate	0.4	-0.2	0.2	-2.2	2.9	0.7
M:	Professional and scien- tific activities	-0.1	0.4	0.4	-0.5	-2.5	-3.0
N:	Administrative and auxiliary services	0.6	0.3	0.9	-0.9	0.7	-0.2
O:	Public administration	1.1	0.3	1.4	0.2	0.6	0.8
P:	Education	-0.8	0.6	-0.2	-0.4	-0.1	-0.4
Q:	Human health and so- cial work	0.6	0.0	0.6	0.6	0.4	1.0
R:	Arts, entertainment and recreation	0.1	-1.4	-1.3	-4.4	-2.0	-6.4
S:	Other services	-1.5	1.8	0.3	1.6	-4.6	-3.0

Sources: Eurostat and Banco de España.

Table 4: Job-to-job Transitions in 2020 (cont.)  
Annual Change and Contributions by Sector of Destination  
(percentage points of employment)

		Italy			Spain		
		Within	Between	Total	Within	Between	Total
		sector	sectors		sector	sectors	
	TOTAL	-0.3	0.0	-0.3	-0.6	-0.4	-1.0
A:	Agriculture, forestry and fishing	-0.4	0.3	-0.1	-3.2	-0.3	-3.4
B:	Mining and energy	-0.2	1.6	1.4	2.3	2.1	4.3
C:	Manufacturing	-0.8	-0.3	-1.0	-0.1	-0.6	-0.7
D:	Electricity, gas, steam and air conditioning supply	-0.7	0.6	-0.1	3.1	4.2	7.4
E:	Water supply sewerage, waste management and remediation	-0.3	-0.1	-0.4	0.4	0.0	0.3
F:	Construction	-0.1	0.3	0.3	0.3	-1.3	-1.1
G:	Trade	0.1	0.0	0.1	-0.5	0.2	-0.3
H:	Transportation and storage	-0.6	-0.2	-0.8	-0.9	-1.1	-2.0
I:	Accommodation and food services	-0.5	-0.5	-1.0	0.5	-0.5	0.0
J:	Information and communications	-0.2	0.4	0.2	-2.9	0.4	-2.5
K:	Financial and insurance	-0.8	-0.1	-0.9	-0.5	0.1	-0.5
L:	Real estate	0.2	0.3	0.5	-3.7	4.0	0.3
M:	Professional and scientific activities	-0.3	-0.1	-0.4	-0.9	-1.3	-2.2
N:	Administrative and auxiliary services	-0.6	0.0	-0.6	-1.3	-1.2	-2.5
O:	Public administration	0.1	0.3	0.3	-0.3	-0.3	-0.6
P:	Education	0.3	0.5	0.8	-0.5	-0.7	-1.2
Q:	Human health and social work	0.0	0.1	0.1	0.2	0.0	0.2
R:	Arts, entertainment and recreation	1.9	-1.9	0.0	-1.5	-2.2	-3.7
S:	Other services	-0.4	-0.2	-0.6	-3.8	1.7	-2.1

Sources: Eurostat and Banco de España.

## 4 Conclusion

The COVID-19 shock has been highly asymmetric in its employment effects across sectors. In terms of total hours worked, the speed of recovery is noticeable in all sectors of the economy, although those who suffered the largest declines (trade, transportation and accommodation and food service, together with arts and entertainment), are still around 5% below their pre-crisis level in the euro area economy. Looking at job vacancies, recovery is much more generalised across sectors and those most affected by the pandemic are suffering noticeable labour shortages.

Policy support in the form of job retention schemes have helped to protect employment. The gradual reduction of the number of employees under such schemes once the restrictions associated with the pandemic were loosened has gone hand in hand with the recovery of hours worked, which points to a reintegration of these employees to their former jobs. However, the two sectors with the highest share of workers in job retention schemes (manufacturing in Germany and trade, transportation and accommodation and food services in France) show at the same time high vacancy rates which could be indicative of a certain mismatch.

The excess job reallocation rate calculated from the EU-LFS microdata for the aggregate of the four largest euro area economies decreased almost 2 pp in 2020, against the increases that firm-level data show for the United States and the United Kingdom.<sup>12</sup> That development in the euro area was also very different to that observed in 2009, mainly due to a smaller increase in separations during the COVID-19 crisis. In the latter respect, the role played by the job retention schemes should be re-emphasised. Job-to-job transitions account for almost 60% of the excess allocation rate. Its reduction in 2020 was similar to that of 2009, but much more concentrated in their within sector component.

Nevertheless, the EU-LFS microdata, from which these calculations are derived, should be taken with caution as they provide just annual transitions and with a one-year delay. The aggregated data available for 2021 anticipate higher inflows and lower outflows. Overall, and coupled with expected higher job-to-job transitions, this could lead to an increase in employment reallocation in 2021. In this respect, it is worth emphasising the need to look to more detailed and timely information, such as that provided by the national LFS microdata and administrative registers, together with higher frequency data. Such an analysis could provide results that would make it possible to explore the policy implications, in particular those referred to sectoral aspects.

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<sup>12</sup>See [Barrot et al. \(2021\)](#) and [Anayi et al. \(2021\)](#).



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