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Quarterly review

September 2021

Employment and Social developments in Europe

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With regularly updated data and charts downloadable here

The Employment and Social Developments Quarterly Review provides an in-depth description of recent labour market and social developments. It falls under the responsibility of the Directorate Employment and Social Governance of the Directorate-General for Employment, Social Affairs and Inclusion, and it is prepared by the Analysis and Statistics Unit. The main contributors for part I were F. De Franceschi, L. Moreau and L. Pappalardo. The main contributor for part II was G. Katay.

A wide range of information sources have been used to produce this report, including Eurostat statistics[1], reports and survey data from the Commission's Directorate-General for Economic and Financial Affairs.

Charts and tables are based on the latest available data at the time of publication, and include Eurostat data on national accounts (employment and GDP) for the second quarter of 2021 (2021 Q1), Eurostat data on the Labour Force Survey for the first quarter of 2021 (2021 Q1) and Eurostat data on monthly unemployment for July 2021. Data on which the report is based are the latest available as of 07/09/2021.

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[1] To access them, see [codes] mentioned under the charts, to be used with the Eurostat data search engine: https://ec.europa.eu/eurostat/web/main/home

Fuelled by the phasing out of lockdowns and other Covid-19 related restrictions, and facilitated by the extensive vaccination rate in Europe, the EU economy and labour market has started to recover. The EU is cushioning the economic and social impact of the coronavirus pandemic whilst making European economies and societies more sustainable, resilient and better prepared for the challenges and opportunities of the green and digital transitions. Employment grew, unemployment fell to almost pre-crisis rates, and economic operators are increasingly optimistic about the future. Also, the Summer Commission forecast projects that GDP in the EU will return to its pre-crisis level at the end of this year. Companies are matching the increase in the economic activity through measures like increasing working hours for their staff (which dropped considerably during the crisis in 2020), rather than by hiring workers. We are experiencing a significant increase in job shortages, with some firms struggling to find the right profiles to expand their workforce. We are still facing important risks, however, as the COVID-19 pandemic is still upon us with the spread of the Delta variant. Therefore, Member States have to continue to protect their citizens. Vaccination at the largest scale possible is the right response.

In this edition of the ESDE quarterly review, we focus on floods, a topic brought even closer to many of our hearts since the tragic events of last summer. Floods and other climate-related hazards are causing severe suffering and loss of life in the EU and beyond. These floods will most likely intensify because of the long-term increase in temperature and, as a consequence, more extreme weather conditions. This review's analytical section shows that water damages have a significant and persistent adverse effect specifically on European manufacturing firms as well as on European citizens.

Nicolas Schmit
Commissioner for Jobs and Social Rights

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Part I – Main economic and social developments[2]

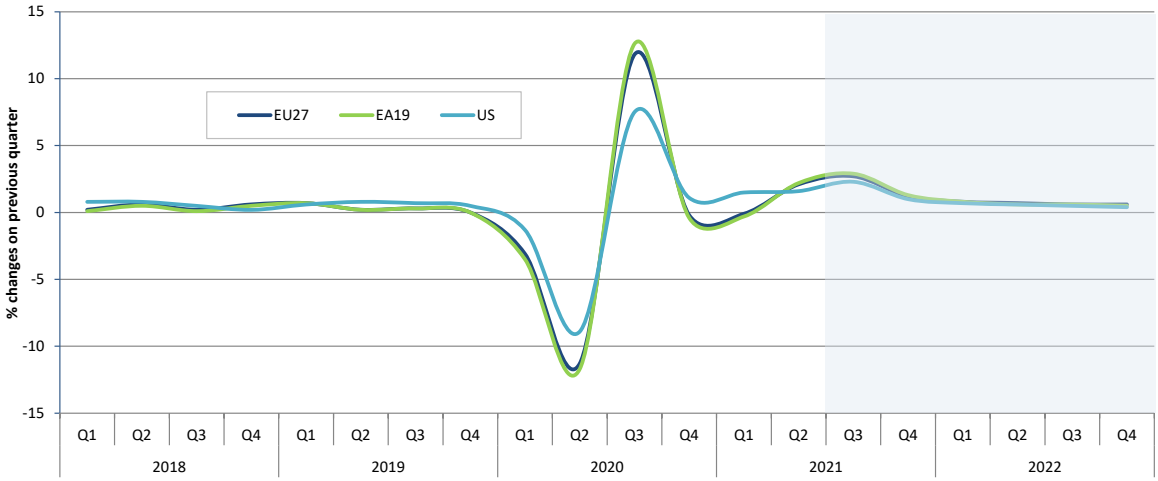
1. Macroeconomic outlook

Following the decline recorded in the first quarter of 2021, real GDP in the EU increased in the second quarter as Member States loosened the containment measures forced by the second wave of the COVID-19 pandemic and the vaccination campaigns have been successfully implemented reaching the target of vaccinating 70% of the adult population in August 2021. GDP grew by 2.1% in the EU and 2.2% in the euro area compared to the previous quarter. In comparison with the same quarter of 2020, which corresponds to the most critical period of the crisis, EU GDP recorded an increase of 13.8% (14.3% in the euro area). The US GDP rose by 1.6% compared to the first quarter of 2021, and by 12.2% compared with the same quarter of 2020. (Chart 1).

The Commission's Summer 2021 Economic Forecast, published on 7 July 2021, projects that the economy in the EU and the euro area will expand by 4.8% this year and 4.5% in 2022. Compared to the Spring forecast, the growth rate for 2021 is significantly higher in the EU (+0.6 pp) and the euro area (+0.5 pp), while for 2022 it is slightly higher in both areas (+0.1 pp). Real GDP is projected to return to its pre-crisis level in the last quarter of 2021 in both the EU and the euro area. For the euro area, this is one quarter earlier than estimated earlier in the Spring Forecast. The Recovery and Resilience Facility is expected to make a significant growth contribution.

In the first quarter of 2021, compared to the previous quarter, GDP increased in all Member States, but Malta (-0.5%) and Croatia (-0.2%). GDP grew the most in Ireland (+6.3%), Portugal, (+4.9%), Latvia (+4.4%) and Estonia (+4.3%). The impact of the COVID-19 pandemic on GDP among Member States is strongly asymmetric, and the speed of the recovery depends among other factors, on the different economic structures and the length and severity of the containment measures introduced.

Chart 1: Real GDP growth – EU, euro area and US, 2018-2021 and forecast until 2022



Source: Eurostat, National Accounts, seasonally and calendar adjusted data [namq_10_gdp, naidq_10_gdp]. European Commission Summer Forecast for 2021Q3 onwards except for US (Spring forecast)
Notes: Forecast is in the shaded area.

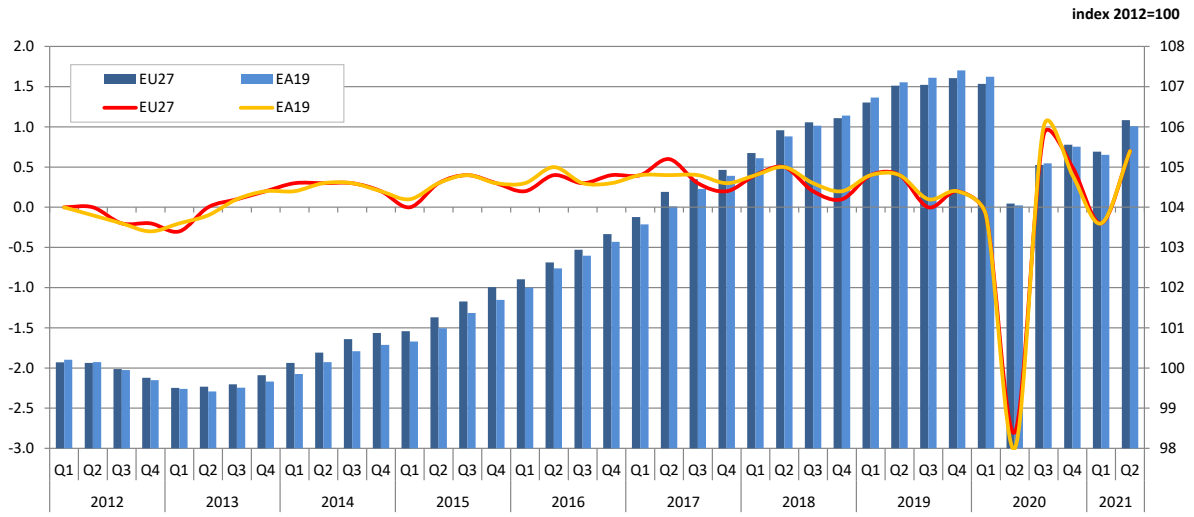
[2] Starting from 2021, Labour Force Survey (LFS) data is collected under the new Regulation (EU) 2019/1700. This Regulation has introduced methodological changes in the definition of the concepts of employment and unemployment. This methodological changes prevent a direct comparison between LFS indicators' data (including the employment rate, activity rate, quarterly unemployment and long-term unemployment rates, and labour slack indicators) from 2021 onwards with previous figures.

Click here to download chart.

2. Employment

Total employment increased in the second quarter of 2021, following a drop in the first quarter. Employment grew by 0.7% in both the EU and the euro area in the second quarter of 2021 compared to the previous one. Compared with the same period of the previous year, it increased by 1.9% (1.8% in the euro area). It is still, however, below the levels observed in the last quarter of 2019 (Chart 2). In the second quarter of 2021, 207.5 million people were in employment in the EU, and 159.0 million in the euro area. These levels are 1.5 million higher than in the first quarter of 2021 by respectively 1.5 million in the EU and 1.0 million in the euro area, but still below the peaks observed in the last quarter of 2019 (by 2.0 in the EU and 2.1 million in the euro area). The impact on employment of the slowdown of economic activity during the second wave was again cushioned by job-retention policy measures (e.g. short-time work and furlough schemes, temporary lay-offs) and by milder and more targeted containment measures.

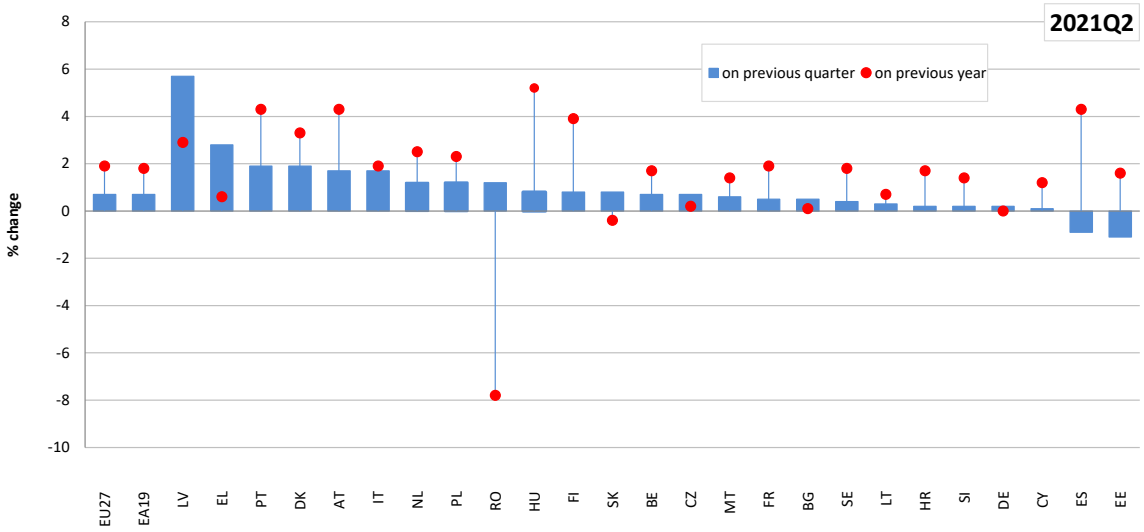
Chart 2: Employment level and employment growth – EU and euro area, 2012-2021



Source: Eurostat, National Accounts, seasonally and calendar adjusted data [namq_10_pe]
Note: Cumulative growth (bars, right-hand scale), % change on the previous quarter (lines, left-hand scale)
Click here to download chart.

In comparison to the first quarter of 2021, employment increased in all Member States but Estonia (-1.1%) and Spain (-0.9%). The strongest growth was recorded in Latvia (+5.7%), Greece (+2.8%), Denmark and Portugal (both +1.9%) (Chart 3).

Chart 3: Employment growth – EU, euro area and Member States



Source: Eurostat, National Accounts [namq_10_pe]. Data seasonally and calendar adjusted for q-on-q change, not seasonally adjusted for y-on-y change
Notes: Seasonal (no calendar) adjustment for q-on-q change for CZ, EL, FR, MT, PL, PT. No data for IE and LU
Click here to download chart.

In the second quarter or 2021, the number of hours worked started to rise again. The number of hours worked increased by 2.4% in the EU in the second quarter of 2021 in comparison to the previous quarter. Compared with the same quarter of the previous year, it grew by 17.0%, but it is still 2.7% lower than in the last quarter of 2019. This decrease, coupled with the increase in total employment, brought the quarterly number of hours worked per person employed to 390, about 3.7% below the level of the fourth quarter of 2019.

The employment rate (people aged 20 to 64 years) in the EU stood at 71.9% in the first quarter of 2021. It stood at 71.3% for the euro area in the same period. Differences among Member States are very large, with 22.8pp dividing the lowest rate (58.3% in Greece), and the highest one (81.0% in the Netherlands).

Temporary employment, about 22.8 million of people aged 15 to 64, represented 11.9% of total employment in the first quarter of 2021. Part-time employees were 33.9 million, or 17.8% of total employment.

The employment rate was considerably higher for men than for women, with a gender employment gap of 11.3pp (77.6% versus 66.3%). For people aged 25 to 54 the employment rate was 79.2%, while it was 59.6% for older workers (aged 55-64), and 31.2% for younger workers (aged 15 to 24). The employment rate for high-educated workers was 87.8%, 7.8pp higher than for medium-educated workers (80.0%, slightly higher than the total average), and 27.7pp higher than for low-educated ones.

In the EU, employment grew in all sectors except agriculture in the first quarter of 2021. Compared with the previous quarter, the sectors that recorded the strongest growth are "arts and entertainment and recreation, other service" (+1.9%), "information and communication services" (+1.8%) and "construction" (+1.6%). The industry sector grew at the lower rate of 0.4%.

Expectations about employment became very optimistic during the spring and summer of 2021. The Employment Expectations Indicator (EEI) [3] index reached in August a three-month average of about 112, a level last observed at the end of 2018. Expectations are particularly optimistic for the service and industry sectors, while signs of mild optimism are also visible for the retail sector. The European Commission's forecast, however, still considers that the economic recovery will not be rich in employment for the next two years, mainly since the

[3] The indicator is constructed as a weighted average of the employment expectations of managers in the four surveyed business sectors (industry, services, retail trade and construction).

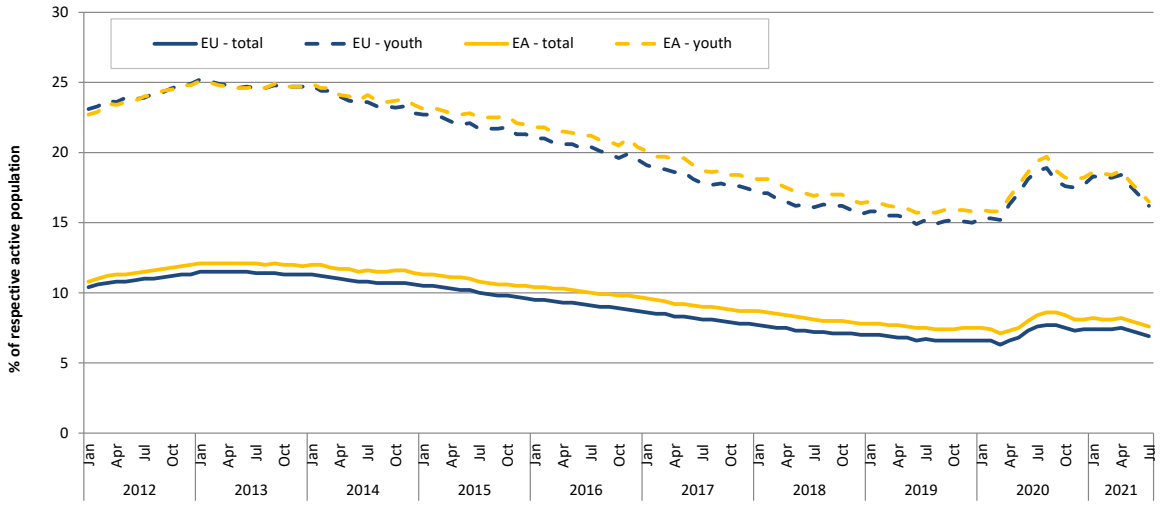
increase of economic activity is expected to be accompanied by an increase of below-average working hours rather than by hiring new people. Total employment in the EU is foreseen to remain stable in 2021 and grow by 1.0% in 2022.

3. Unemployment

The unemployment rate in both the EU and the euro area declined steadily between May and July 2021. In July 2021, it stood at 6.9% in the EU and 7.6% in the euro area, 0.8pp and 1pp, respectively, lower than recorded at the peak in August 2020. There were 14.6 million unemployed people in the EU and 12.3 million in the euro area in January 2021, 1.8 million and 1.7 million, respectively, less than in August 2020. The difference between the unemployment rate of women and men remained stable at about 0.8pp in the last months (7.3% for women versus 6.5% for men in July 2021) (Chart 4).

Unemployment declined in almost all Member States in recent months. In July 2021, the unemployment rate fell in 22 Member States compared with the previous month, and particularly in Cyprus (-3.0pp to 5.2%), Sweden (-1.0pp to 8.4%), and Spain (-0.7pp to 14.3%). It mildly increased in only 3 Member States, specifically in Hungary (+0.3pp to 4.3%), Romania (+0.1pp to 5.1%), and Finland (+0.1pp to 7.8%). On an annual basis, the unemployment rate decreased in all Member States, with the exception of Poland (stable at 3.4%) and Bulgaria (+0.7pp to 5.9%). The strongest falls were observed in Cyprus (-2.7pp to 5.2%), Denmark (-2.2 to 4.3%), and Greece (-2.2pp to 14.6%) (Chart 5).

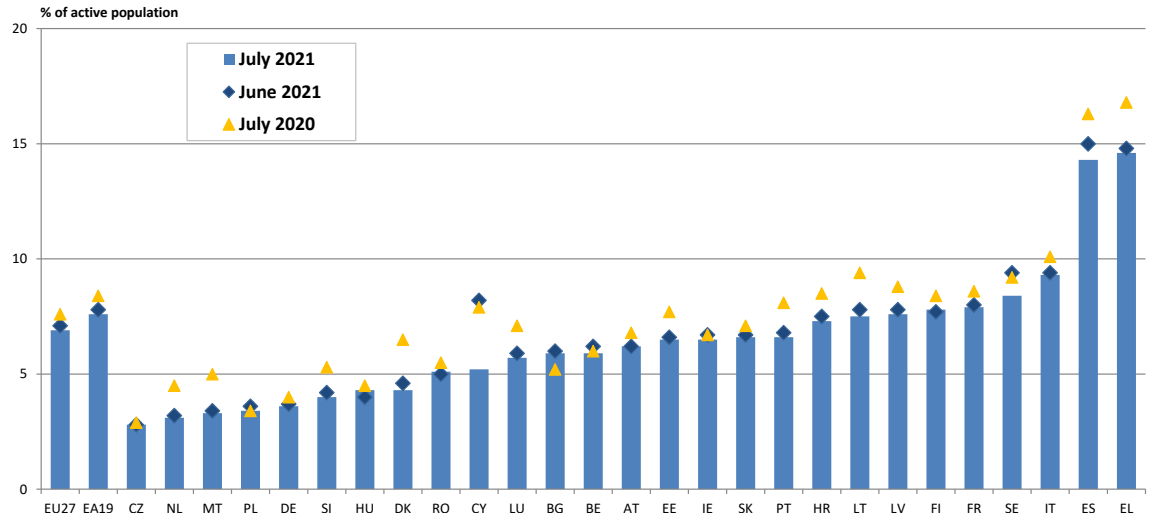
Chart 4: Unemployment rate and youth unemployment rate – EU and euro area



Source: Eurostat, series on unemployment [une_rt_m]. Seasonally-adjusted data.
Click here to download chart.

Youth unemployment also declined steadily in recent months in both the EU and the euro area. It stood at 16.2% in the EU and 16.5% in the euro area, down 2.7pp and 3.2pp, respectively, from the peaks recorded in August 2020. The evolution of the youth unemployment rate was similar for men and women, with a gap of 0.6pp in July 2021 (15.9% for young men and 16.5% for young women). The number of young unemployed people in the EU and in the euro area stood at 2.9 million and 2.3 million in July 2021, about 0.4 million lower than in August 2020.

Chart 5: Unemployment rates – EU, euro area and EU Member States



Source: Eurostat, series on unemployment [une_rt_m]. Seasonally adjusted data
Click here to download chart.

The youth unemployment rate decreased in July 2021 in most Member States on both a monthly and annual basis. It fell the most in Sweden (-2.6pp to 21.9%), Portugal (-1.9% to 23.5%), and Spain (-1.9% to 35.1%), while it rose most strongly in Greece (+7.9pp to 37.6%) and Hungary (+3.3pp to 16.8%). On an annual basis, the youth unemployment rate declined in 20 Member States, and in particular in Luxembourg (-7.5pp to 17.8%) and Sweden (-7.1pp to 21.9%), while it grew the most in Romania (+3.1pp to 21.3% - March 2021 data) and Hungary (+2.6% to 16.8%). Youth unemployment remains at alarming levels in some Member States, and in particular in Greece (37.6%), Spain (35.1%), and Italy (27.7%).

Unemployment expectations, as measured by the EU Business and Consumer Surveys (BCS), improved dramatically during last spring and summer, and got back to levels last recorded at the end of 2019. According to the Commission's forecast, the unemployment rate should increase to 7.6% in 2021 before dropping to 7.0% in 2022. The foreseen rise in 2021 is due to the gradual return to the labour force, partly as unemployed, of some of the workers dismissed during the crisis that did not look for jobs due to discouragement. The sustained economic recovery should then be able to bring down unemployment again in 2022.

4. Long-term unemployment and additional potential labour force

The activity rate in the first quarter of 2021 stood at 72.9% for both the EU and the euro area. Differences across Member States are very large. Italy and Greece displayed the lowest rates (63.3% and 63.6% respectively), about 20pp lower than the highest ones (83.8% in the Netherlands, and 82.2% for Sweden). The differences between the activity rates of men and women was 10.7pp (78.3% versus 67.6% respectively).

The indicators of labour market slack[4] showed that the total unmet demand for work in the EU in the first quarter of 2021 was 15.6% of the extended labour force. Unemployment was the largest component, representing 7.3% of the extended labour force, while the proportion of people available to work but not seeking a job workers in the EU stood at 4.5%. The proportion of part-time workers who would like to work more (also called "underemployed") was 3.0%, while the rate of "seeking but not available for work" was 0.8% of the extended labour force.

[4] These indicators measure the whole potential demand for employment: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Labour_market_slack_-_unmet_need_for_employment_-_quarterly_statistics

The share of people aged 15-29 who are neither in employment nor in education or training (NEET) was 13.8% in both the EU and the euro area. The highest rate was observed in Italy (24.4%), with Romania and Greece also above 20% (at 21.6% and 20.4% respectively). The NEET rate was the lowest in Sweden (7.0%) and Luxembourg (8.3%). Differences between men and women were considerable, with the rate for women 2.7pp higher than the one for men (15.2% and 12.5% respectively).

Long-term unemployment, which captures people in unemployment for a period spanning over a year or more, stood at 2.8% in the EU and 3.2% in the euro area. It spanned among Member States from 0.7% in Malta and Czechia to 10.0% in Greece. It was 0.3pp higher for women (2.9%) than for men (2.6%). The very long-term unemployment rate, which captures people in unemployment for at least two years, was 1.4% in the EU and 1.7% in the euro area.

5. Labour demand

In the second quarter of 2021, the level of the unmet labour demand, as expressed by the job vacancy rate[5], was at 2.0% in the EU. This represents an increase of 0.1pp compared to the first quarter of 2021 and of 0.3pp compared to the same quarter in 2020. In the euro area, this indicator was at 2.1%, 0.1pp higher compared to the previous quarter, and 0.4pp compared to one year ago. The labour shortage indicator[6], a sentiment indicator in the manufacturing sector, continued to sharply increase in the third quarter of 2021 reaching 20.6% - the highest level since the beginning of the series (+7.6pp compared to the previous quarter, and +13.5pp compared to one year before) - after having dropped from the first quarter of 2020 (13.9%) in the second (8.7%) and the third quarters (7.1%, lowest level since the second quarter of 2015) as a consequence of the COVID-19 crisis. Among Member States, in the third quarter of 2021, the labour shortage indicator ranged from 0.4% in Cyprus to 47.4% in Malta.

Labour shortages began to rise in the first quarter of 2021, while unemployment continued its increasing trend started one year before as shown by the Beveridge curve, which plots the unemployment rate against the labour shortage indicator. In the first quarter of 2021, the unemployment rate in the EU stood at 7.7% (+0.4pp compared to the previous quarter and +1.1 compared to the same quarter of the previous year). Before the COVID-19 crisis and until the third quarter of 2020, the Beveridge curve (Chart 6) took a direction towards a decrease in labour shortages, driven by the health crisis, which led to reduced employers' needs in terms of workforce and, in turn, to a decrease in the number of new contracts or hours worked, and in an increase in unemployment. However, monthly data show that the unemployment rate was rather stable during the last months of 2020 and until April 2021, before starting to decrease in May (see section 3).

[5] The Job Vacancy rate is the number of job vacancies divided by the sum of occupied posts and job vacancies. Only 7 countries have available data for the fourth quarter. At national level, in the last available quarter, the job vacancy rate ranged from 0.4% in Greece (third quarter) to 5.0% in Czechia (fourth quarter).
[6] The indicator presented here is published as part of the EU Business and Consumer Surveys. It reflects to what extent businesses see the availability of labour as a factor that limits production.

Chart 6: Beveridge curve 2008-2021 – EU

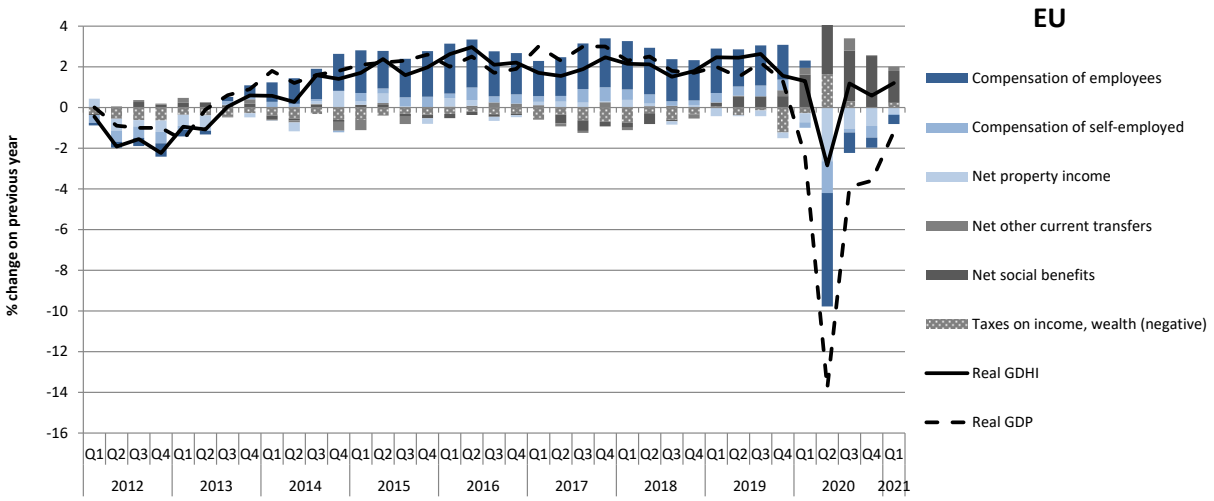
Source: Eurostat, LFS and European Commission, EU Business and Consumer Surveys [une_rt_q, ei_bsin_q_r2]. Data seasonally adjusted.
Note: Labour Shortage Indicator (LSI), derived from EU business survey results (% of manufacturing firms pointing to labour shortage as a factor limiting production).
Click here to download chart.

In the fourth quarter of 2020, transition rates were close to the ones before the COVID-19 crisis in the second quarter of 2020. At EU level (excluding Germany and Malta), compared to the third quarter of 2020, the rate of people aged 15-74 transitioning towards inactivity was increasing for those in unemployment (24.4%, +3.6pp compared to the previous quarter) and stable for those in employment (2.3%). The rates were decreasing for the people back to work from unemployment (21.3%, -0.9pp compared to the previous quarter) or from inactivity (3.4%, -1.2pp). Finally, 96.2% of the people in employment in the third quarter of 2020 were still working in the fourth quarter (stable).

6. Income and financial situation of households

In the first quarter of 2021, the financial situation of households continued to recover in the EU after the drop in the second quarter of 2020 that took place after a rise of 27 consecutive quarters and was the first decline since the second quarter of 2013. The real gross disposable income of households per capita (real GDHI) was 1.2% higher in the first quarter of 2021 compared to the previous one. At the same time, compensation of employees continued to contribute negatively (-0.4%) to GDHI although in a lesser extent than in the three previous quarters. Compensation of the self-employed (-0.1%) and income from property also continued to decrease (-0.3%). Income losses were mitigated by redistributive policies, as shown by the improvement of the GDHI that continued to be driven by a positive contribution of net social benefits until the first quarter of 2021 (+1.6%, +2.5% in the previous quarter and +5.5% in the second quarter of 2020). Contrary to the real GDHI, the fall of the real GDP did not stop, despite a smaller negative growth rate (-1.2%, -3.6% in the previous quarter, and -13.8% in the second quarter of 2020 (Chart 7).

Chart 7: Real GDP growth, real GDHI growth and its main components, 2012-2021



Source: Eurostat, National Accounts, unadjusted data [namq_10_gdp, nasq_10_nf_tr] (DG EMPL calculations)
Note: GDHI EU aggregate for Member States for which data are available, GDP for EU.
Click here to download chart.

The change in real GDHI per capita year-over-year was very diverse among Member States with available information. In the first quarter of 2021, the real GDHI per capita[7] increased on a yearly basis in some Member States, with the highest spikes recorded in Greece (+7.2 points), Hungary (+5.2 points), Denmark (+3.9 points), Slovenia (+3.8 points) and Czechia (+3.0 points)[8]. Ireland, the Netherlands and Italy had positive developments too. Seven EU countries had a moderate decrease in GDHI ranging from -0.3 point (Poland) to -2.3 points (Finland)[9]. Only Portugal had a strong negative developments (-21.5 points).

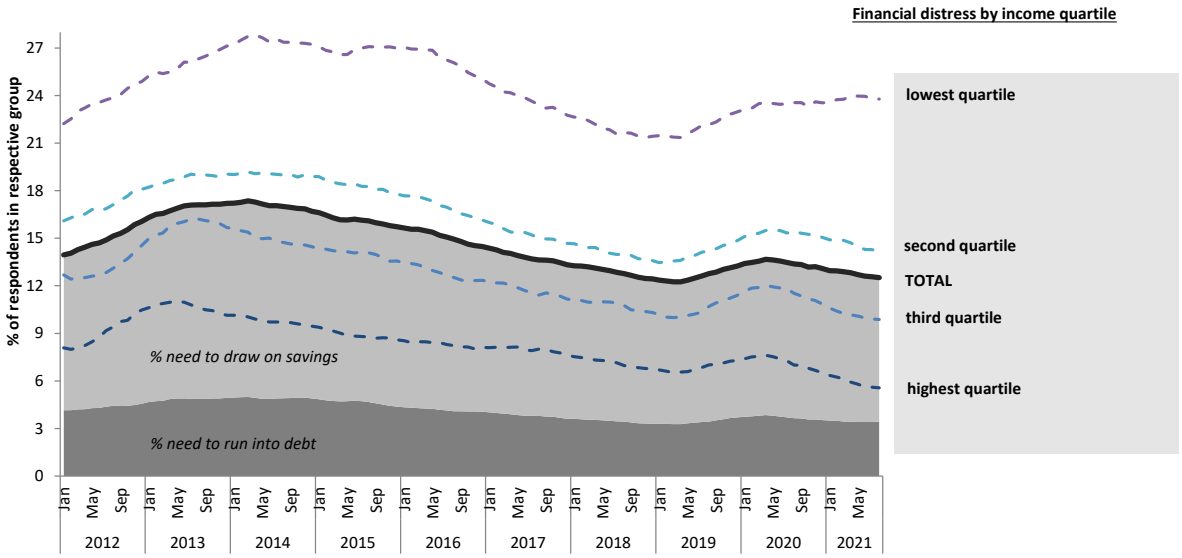
The proportion of people reporting financial distress slightly decreased between the April 2020 peak at 13.7% and August 2021, reaching 12.5%. Reported financial distress[10] is defined as the need to draw on savings or to run into debt to cover current expenditures, based on personal perceptions. This result can be counter-intuitive when put side-by-side with the sharp fall in real GDHI in 2020 Q2[11]. Against this background, there are two trends that could explain the reduction of the share of financially distressed households: a lower expenditure and a higher saving rate. First, the data shows that in the fourth quarter of 2020 the household final consumption expenditure continued to fall year-over-year (-7.0%, -7.5pp in the euro area compared to one year before) after the sudden drop in the second quarter of the same year. At the same time, the household saving rate was 6.6pp higher compared to the same period one year ago (+7.1pp in the euro area).[12;13] In August 2021, 9.1% of the population (-0.7pp compared to the peak in April 2020) declared the need to draw on savings or to run into debt (3.4%; -0.4pp) (Chart 8).

Financial distress continued to decrease for the wealthiest households, while it remained stable at a high level for those on low incomes. In August 2021, this indicator reached 23.8% for the lowest quartile of incomes, in contrast with 5.6% for the wealthiest quartile. The second quartile was at 14.1% and the third one was at 9.9%. The decrease was more pronounced for the most affluent households. The third and the fourth quartiles reported both a drop in financial distress of -2.1pp, compared to the peak in April 2020, while it increased by 0.2pp for the lowest quartile at the same time.

[7] Index 2012 = 100.
[8] Considering that the data are not seasonally adjusted these figures can change from quarter to quarter.
[9] France: latest available data = fourth quarter of 2020..
[10] For details on Business and Consumer Surveys, including consumer survey's question on the current financial situation of households, see http://ec.europa.eu/economy_finance/db_indicators/surveys/index_en.htm
[11] GDHI started to recover in the third quarter of 2020 with an increase of 1.2%.
[12] Non-seasonally adjusted data.
[13] Eurostat (2021), *Impact of Covid-19 crisis on non-financial corporation and household accounts*, https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Impact_of_Covid-19_crisis_on_non-financial_corporation_and_household_accounts

Reported financial distress decreased for the lowest income quartile in the majority of EU countries, but a large diversity in levels and trends persists. In the second quarter of 2021, and on a yearly basis, financial distress increased in several countries for the poorest households, especially in Sweden (+6.4pp; at 14.2%), Spain (+5.3pp; at 36.1%) and Germany (+3.0pp; at 17.6%). Spain was the country with the highest overall share of people reporting financial distress (36.1%; +5.3pp), followed by Hungary (32.4%; -1.3pp), France (30.6%; +1.7pp) and Slovakia (30.4%; +1.3pp), all above 30.0%[14]. The strongest decreases were recorded in Bulgaria (-12.9pp; at 10.5%), Belgium (-8.3pp; at 17.8%), the Netherlands (-7.7pp; at 19.6%), Malta (-6.8pp; at 17.7%), Latvia (-5.3pp; at 17.5%), Croatia (-4.5pp; at 23.0%), Greece (-4.3 at 13.2%) and Poland (-3.4pp; at 23.0%). Estonia remained at very low levels of financial distress (1.3%; -1.2pp). The only other country recording a share of financial distress below 10% for the lowest income quartile was Luxembourg (8.8%; -2.2pp).

Chart 8: Reported financial distress by income quartile – EU, 2012-2021



Source: European Commission, Business and Consumer Surveys, unadjusted data, 12-month moving average (DG EMPL calculations).
Note: Lines show the long-term averages for financial distress for the population as a whole and for households in the four income quartiles. The overall share of adults reporting having to draw on savings and having to run into debt are shown respectively by the light grey and dark grey areas, which together represent total financial distress.
Click here to download chart.

[14] In the fourth quarter of 2012, the share of population in financial distress was above 30.0% in ten countries.

Part II – Thematic focus

Resilience to floods in Europe[15]

In July 2021, several EU Member States were affected by severe floods caused by heavy rain fall. The deadliest floods occurred in Germany, where at least 183 citizens lost their lives in the floods. Officials confirmed so far 133 deaths in the worst-affected German region, Rhineland-Palatinate.[16] Another 47 people were reported dead in North Rhine-Westphalia,[17] and at least three additional people died in Baden-Württemberg, Bavaria, and Saxony.[18] In Belgium, the official death toll was 38 victims.[19] The floods have hit mainly the Walloon region, where 209 out of the 262 municipalities have been affected. Additional fatalities were reported in Romania (2), Italy (1) and Austria (1).[20] In addition to the deceased victims, many people were injured or traumatized.

The material damage in the affected regions is also substantial. For instance, a first major inventory ten days after the flood in Rhineland-Palatinate documents more than 3 000 damaged buildings, of which at least 467 were completely destroyed, and at least 179 kilometres of traffic routes completely or partially destroyed by the floods.[21] In Wallonia, the list of damages include 23 920 flooded buildings (out of which 357 are irreparable, and another 3 216 are partially destroyed), 185 sports facilities, 203 tourist operators, 53 campsites, 119 schools, 265 regional or municipal bridges, 2 550 hectares of agricultural land, and about 12 000 flooded cars.[22] In terms of property damage, the total insured losses in Europe caused by the floods is estimated between 2 and 3 billion euros, but the overall losses could be much higher.[23] It is currently estimated that roughly only one third of the destruction of natural hazards is covered by insurance.

These material damages also have potentially long-lasting impacts on peoples' lives in flood affected areas, as their homes and villages are at least partly destroyed and the rebuilding process of destroyed homes and infrastructure is often a long endeavour. Households' difficulties are further aggravated if their property is uninsured against flood risk, in particular for low-income households. In Belgium, where standard residential property insurance policies are automatically extended to cover flood risk (except for high-risk properties), the insurance penetration is much higher, exceeding 75%. In Germany, the share of households with insurance coverage against natural disaster (an optional add-on to residential property insurance) is estimated at only 38%, despite being available to households in more than 99% of the country.[24] Uninsured property damages can easily push low-income households into poverty. Furthermore, the recently published 2021 Strategic Foresight Report of the Commission shows that currently only 30% of economic losses in the EU caused by extreme weather events are insured.[25]

[15] This part of the report summarizes the work carried out by Serena Fatica (European Commission, Joint Research Centre), Gábor Kátay (European Commission, DG for Employment, Social Affairs and Inclusion), and Michela Rancan (Università Politecnica delle Marche): Floods and firms: vulnerabilities and resilience to natural disasters in Europe, JRC Working Paper, forthcoming.

[16] (https://hochwasser-ahr.rlp.de/de/aktuelle-lage/zahlen-und-fakten/. Retrieved on 01/09/2021.

[17] Newspaper Süddeutsche Zeitung, 31/07/2021, https://www.sueddeutsche.de/panorama/hochwasser-aktuell-ahr-abwasser-klaeranlagen-1.5358212,

[18] https://www.swr.de/swraktuell/baden-wuerttemberg/heilbronn/suche-vermisster-jagst-widdern-100.html; https://www.infranken.de/ueberregional/bayern/hochwasser-in-bayern-weitere-fluten-oder-vorsichtiges-aufatmen-so-ist-die-aktuelle-lage-art-5247068; https://www.tag24.de/nachrichten/regionales/erzgebirge-nachrichten/mann-von-sturzflut-mitgerissen-nun-gibt-es-traurige-gewissheit-2055074. Retrieved on 01/09/2021.

[19] https://www.vrt.be/vrtnws/fr/2021/07/29/le-corps-d-un-homme-trouve-a-trooz-le-bilan-des-inondations-pas/. Retrieved on 01/09/2021.

[20] Source: Wikipedia. https://en.wikipedia.org/wiki/2021_European_floods#cite_note-rainews-deaths-3. Retrieved on 01/09/2021.

[21] Südwestrundfunk. July 26, 2021,https://www.swr.de/swraktuell/rheinland-pfalz/flut-in-ahrweiler-so-gross-ist-der-schaden-104.html. Accessed on 01/09/2021.

[22] Presentation of the Secretary General of the Public Service of Wallonia and special commissioner in charge of the reconstruction , Sylvie Marique, at the Walloon Parliament on 10/09/2021. https://www.parlement-wallonie.be/pwpages?p=youtube-player&idpw=23645&live=1

[23] https://www.reuters.com/business/environment/berenberg-sees-2-3-bln-reinsurance-losses-european-floods-2021-07-19/

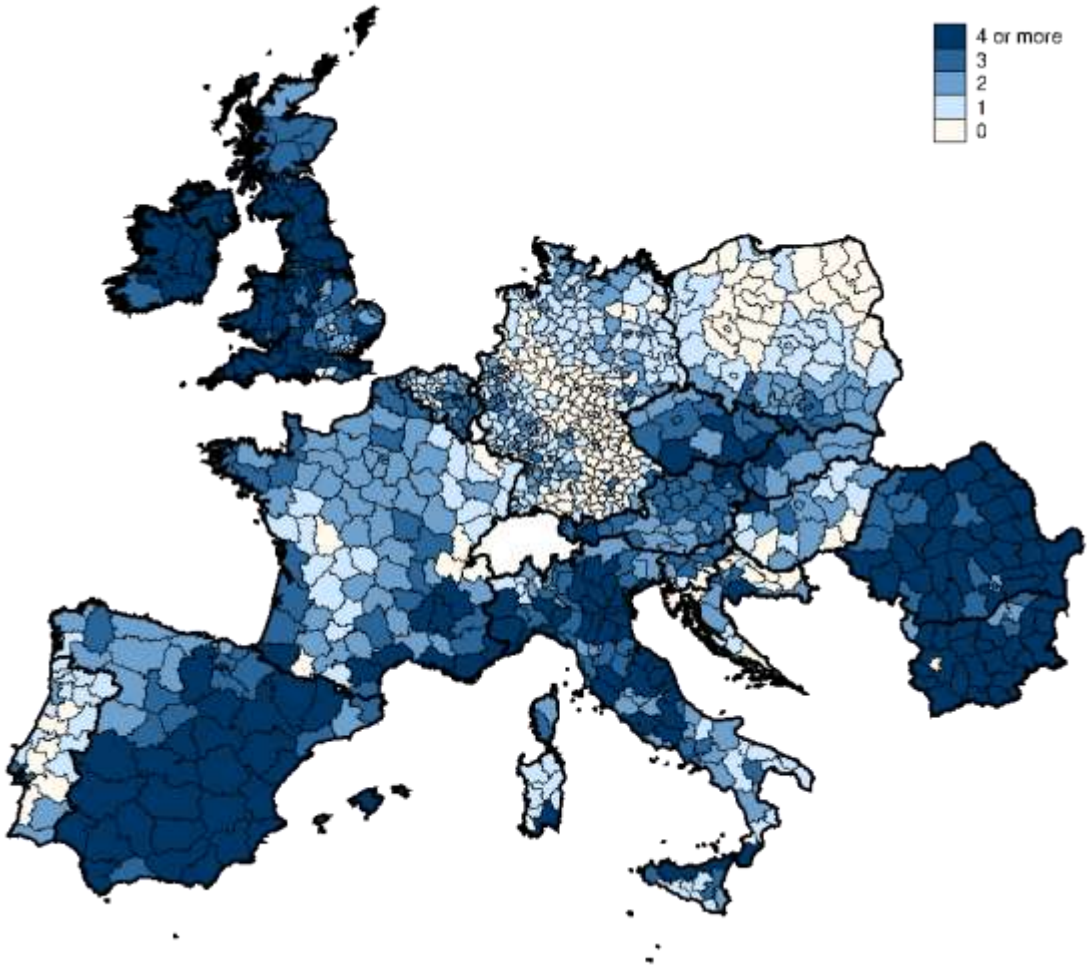
[24] OECD (2016)

[25] Communication from the Commission to the European Parliament and the Council: 2021 Strategic Foresight Report – The EU's capacity and freedom to act. COM(2021) 750.

The recent European floods fit into a longer-term trend with increasing average air temperatures and consequently more extreme weather conditions. The past three decades were already among the most flood-rich periods in Europe in the past five hundred years, and this period differs from other flood-rich periods in terms of its extent, air temperatures and flood seasonality. While previous flood-rich periods were associated with relatively lower average air temperatures (about 0.2–0.3°C), global warming with increasing air temperatures (about 1.4°C warmer than the previous inter-flood period) is one of the main drivers of the current flood-rich period.[26] Long-term projections from climate models suggest that, in a scenario with inaction against a 3°C increase in temperature in 2100, almost half a million people in Europe would be exposed to river flooding each year, or nearly three times the number at present.[27]

A recent study that investigates the dynamic impacts of floods on European manufacturing firms during the 2007-2018 period shows that, **overall, about 78% of the NUTS3 regions in the selected countries have been hit at least once by a flood between 2007 and 2018, and about 66% of the regions have been deluged more than once. On average, EU regions are exposed to floods every 3 years**.[28] In some regions, floods are so frequent that they represent the norm rather than the exception.

Chart 9: Frequency of floods between 2007 and 2018 in selected European countries



Source: Fatica *et al.* (2021).

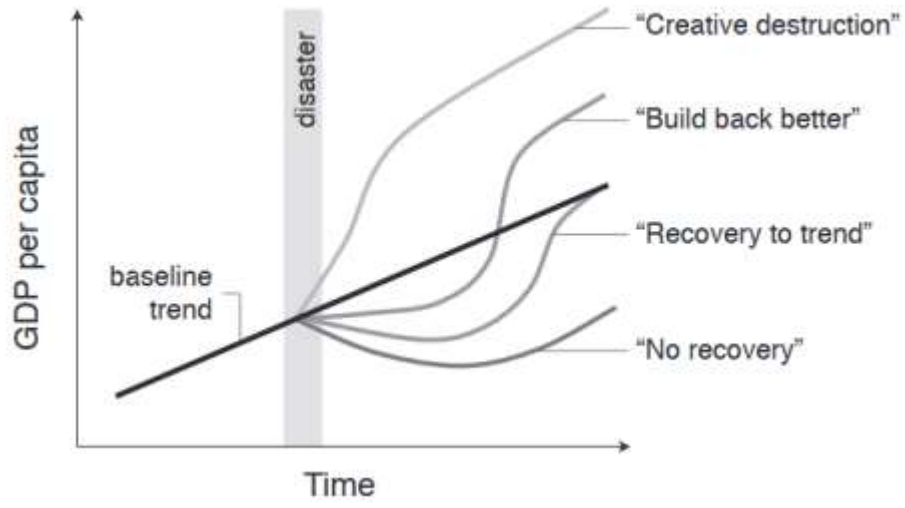
Chart 9 shows the geographical distribution of floods in Europe during this period, with darker blue colours indicating a higher frequency of flood events in the region. Floods have become particularly frequent in the

[26] Blöschl *et al.*, 2020.
[27] Feyen *et al.*, 2020.
[28] Fatica *et al.*, 2021

Mediterranean basin area, where enhanced evaporation and convective activity have been increasing the frequency of autumn floods during the past few decades. In the Atlantic region, in particular in the UK and in Ireland, the seasonal shift of winter storms has resulted in more frequent winter floods. The seasonality of the floods has also become more pronounced in Central Europe, where earlier snowmelt and fewer ice-jam floods have shifted the dominant flood season towards the summer.

While the immediate economic and human losses caused by floods are considerable and continue to rise in many parts of the world, the medium- and longer-term impacts of floods remain ambiguous in the empirical literature. Hsiang and Jina (2014) summarise four common hypotheses on how economic activity might evolve following natural disasters (Chart 10). In the "no recovery" scenario, natural disasters have a permanent negative economic and social impact because the various recovery mechanisms cannot outweigh the direct negative effect of losing capital. The "recovery to trend" hypothesis assumes that income will eventually converge back to its pre-disaster level. The "build back better" hypothesis argues that following an initial negative impact, the gradual replacement of lost assets with modern units has a positive net effect in the long-run. Finally, under the "creative destruction" hypothesis, natural disasters may even stimulate the economy because the impacted regions attract new investment as they gradually replace lost assets, or because the natural disaster stimulates innovation. More analysis will be necessary in order to categorise the overall evolution of economic activity after various flood events in Europe, assess the related social and employment impacts and evaluate the effectiveness of mitigation and adaptation policy responses put in place.

Chart 10:Hypotheses on the evolution of economic activity following a natural disaster



Source: Hsiang and Jina (2014).

A recent empirical study by Fatica *et al.* (2021) contributes to our understanding of the short- and long-run effects of floods by estimating the dynamic impact of floods on European manufacturing firms. Chart 11 shows the evolution of five performance indicators up to 8 years after the event.[29]

[29] The dynamic impact of floods is estimated using local projection (LP) technique. The LP method consists of sequentially regressing the cumulative change in the outcome variable of interest - such as firms' total assets, sales, etc. - between one year before the flood and h = {0,...,8} years after the flood on a treatment dummy indicating that the firm is impacted by a flood in a given year. The regressions also control for a set of predetermined firm characteristics, region- and industry-specific fixed effects, the cyclical position of the economy, and all other floods that occurred before the current event or between the current disaster and the horizon of interest (h). The sequence of the estimated parameters of the treatment dummy at horizons h = {0,...,8} represents the impulse response of the average firm to an average flood, i.e. the average path of the outcome variable of the impacted firms relative to the other firms unaffected by the flood. See Fatica *et al.* (2021) for additional methodological details.

The average impact of past floods in the selected European countries between 2007 and 2018 on firms' total assets is about 3%, and on sales is about 5%. Although the impact of the flood on total assets and sales is not statistically significant after 7 years, the impulse responses do not show clear sign of recovery even after 8 years.

While adjusting more sluggishly and somewhat to a lesser extent, employment follows a similar pattern following the third year after the flood. The sluggish adjustment of employment is likely to be the consequence of adjustment costs, such as severance pay, the activity of the trade unions, or legal impediments to dismissal. Firms' incentive to retain their employees (labour hoarding) can also be explained by the sunk costs associated with previous human capital investments in employees, and the cost of future hiring and training if the shock is perceived as temporary. Finally, labour hoarding can also be encouraged by state intervention, such as subsidised working time reductions or other forms of compensation for workers' income losses.

As a consequence of the decrease in firms' activity and the sluggish reaction of employment, firms' labour productivity is also deteriorated. **Productivity starts to recover three years after the flood** with the decrease in the number of employees, **and eventually reaches its pre-flood level after about six years**. On the other hand, **average wages in the impacted firms do not seem to fully recover even after 8 years**.

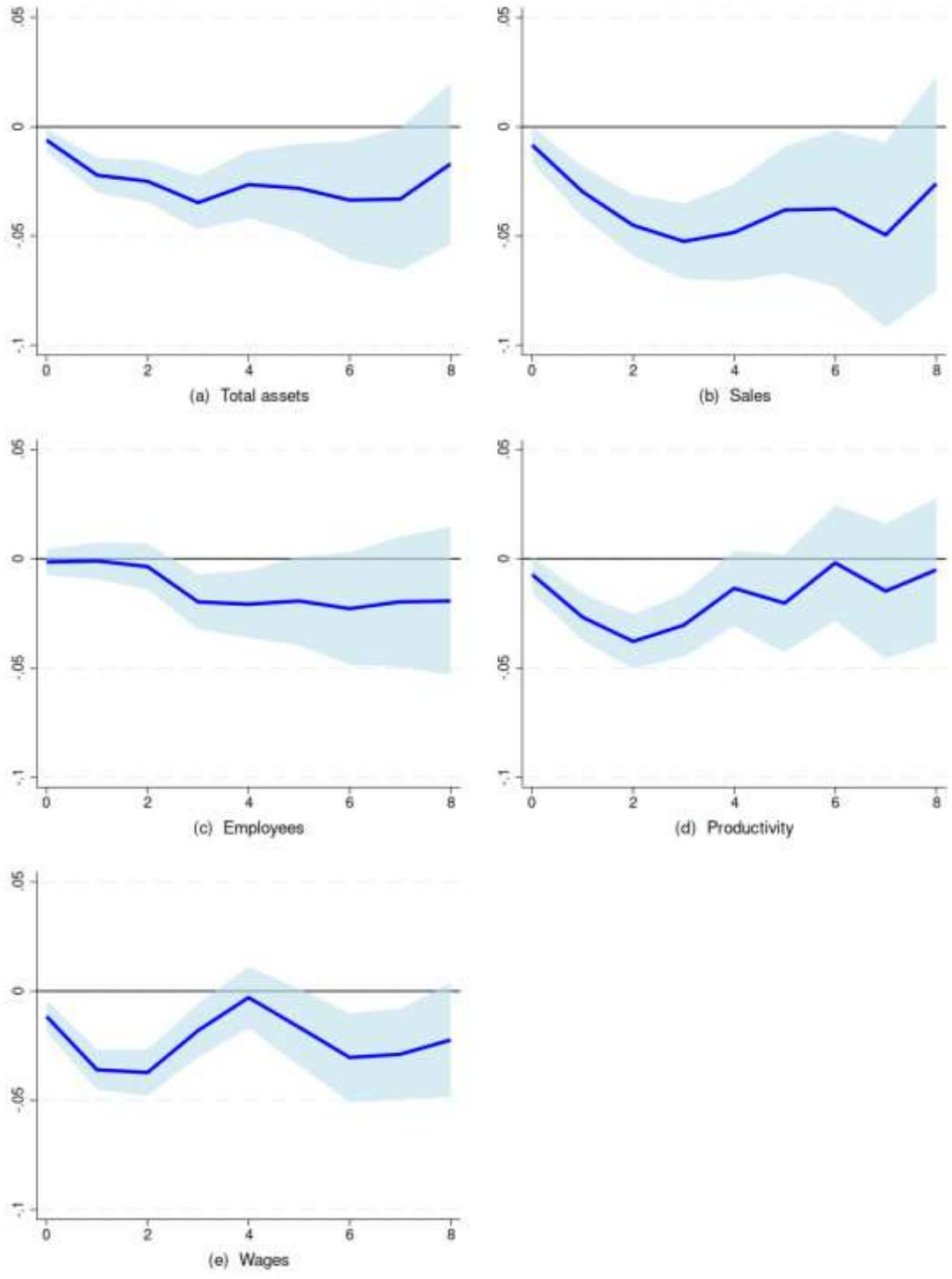
Overall, water damages have a significant and persistent adverse effect on firms' performance and employees' wages. Furthermore, Fatica *et al.* (2021) show that bigger floods have an even more damaging impact: when only major European floods are taken into account, the adverse effect on total assets reaches -7.3% the following year after the shock. Firms start to slowly recover after two years. Six years after the event, the impact of the flood on firms' total assets is about -3%.[30]

Finally, **the frequency of water hazards suggests significant compound effects from repeated floods with potentially disruptive economic and social consequences for regions and local communities that are hit repeatedly.** In the future, the climate change is likely to amplify both the strength and the frequency of floods. The adverse economic and social impacts of the floods are thus likely to increase even further. To face these challenges, the Commission adopted a new EU Strategy on Adaptation to Climate Change.[31] The strategy aims to support both the private sector and local administrations to identify climate-related risks, to enhance adaptive capacity, strengthen resilience, and reduce vulnerability to climate change.

[30] Major floods are defined based on the flood intensity classification in Blöschl *et al.* (2020). Events classified as "great flood" and "extraordinary flood" are matched with the corresponding NUTS3 region for each year. In this analysis, the LP regressions include both a treatment dummy indicating that the firm is impacted by a major flood in a given year, and a similar dummy indicating the occurrence of "other floods" (notable floods, minor floods, and floods with no information on intensity). See Fatica *et al.* (2021) for details.

[31] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of Regions: Forging a climate-resilient Europe - the new EU Strategy on Adaptation to Climate Change. COM(2021) 82.

Chart 11:Impact of an average flood on firms' performance and employment



Source: Fatica et al. (2021).
Notes: The X-axes correspond to the number of years after the flood events (h). The blue lines indicate the estimated impacts of the flood on the outcome variable h years after the event, and the light blue areas are the corresponding 95% confidence intervals.

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Annexes

1) Quarterly recurrent Excel file with main charts
2) Excel files with charts per Member State and for the EU and euro area
    i. Real GDP growth, real GDHI growth, employment growth and unemployment rates
    ii. Real GDP growth, employment growth, real GDHI growth and its main components
    iii. Employment growth by sectors
    iv. Beveridge curves

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