



Growth in Spanish labour demand: Evidence from online job postings

Labour demand in Spain appears to have weathered the effects of the pandemic, as evidenced by sustained growth in job postings, despite a more significant initial drop in hiring compared to other countries in 2020. This, together with other trends, appears to support part of the recent acceleration in Spanish wage growth, underpinning a solid forecast for employment and GDP growth in 2024 relative to other advanced economies.

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Abstract: Spain's labour demand has demonstrated resilience in the face of the pandemic, as job postings have sustained growth in line with their long-term upward trajectory through February 2024, despite the more significant drop in hiring witnessed at the start of the pandemic compared to other countries. Spanish job postings were up 50% from February 2020 to February 2024. Analysis supports a positive correlation between job posting growth and wage growth: occupations for which job postings have risen more strongly have, on average, seen greater

increases in advertised wages between 2019 and 2023. This suggests that at least a part of the recent acceleration in Spanish wage growth may be attributed to the surge in demand for new workers, with other factors, such as the bargaining power of workers and unions, particularly in the context of high inflation and minimum wage increases, likely also playing a significant role. Data from early 2024 indicate a decline in the total stock of job postings in Spain from their peak but the influx of new job postings has continued to rise, suggesting that many employers maintain

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optimism regarding the near-term economic outlook, as postings reflect hiring intentions. Moreover, job postings remain elevated, both in comparison to historical levels in Spain and current trends in other large European economies, where a gradual slowdown persists. These trends support a forecast for solid employment and GDP growth for Spain in 2024 relative to other advanced economies and serve as a key labour market indicator to monitor as the year unfolds.

Introduction

Employment in Spain has grown strongly in recent years. Between 2021 and 2023, employment grew by over one million, or 6%, with over 20 million in work by the end of 2023 (Eurostat, 2024). This is double the rate of growth for the euro area as whole over the same period, and reflects two factors. Firstly, the fall in employment during 2020 was larger, partly due to stricter lockdown policies, and employment therefore was starting from a lower base. Secondly, even before the pandemic, Spain was already experiencing a higher trend rate of employment growth, helping to close the employment rate gap with the rest of the euro area that had opened up during the Great Recession.

Alongside the rise in employment, there has been a notable surge in job vacancies and reported labour shortages by businesses. According to estimates from business surveys, vacancies soared to a record high of over 155,000 in the third quarter of 2023 (National Statistics Institute, 2024). Moreover, by

the close of 2023, 8% of businesses in the industrial sector, 13% in construction, and a historically high 23% in services, cited labour availability as a limiting factor for production (European Commission, 2024). Although these figures experienced a slight dip in early 2024, they remain significantly elevated compared to historical benchmarks.

These developments raise several questions. Are the labour shortages reported by businesses substantiated? Which job sectors have witnessed the most significant increases in demand for new employees? Have the rises in job vacancies been accompanied by corresponding increases in salaries to attract new hires? Furthermore, how do these trends stack up against those observed in other major euro-area economies?

In this article, we delve into Spanish labour market trends utilising online job posting data sourced from the platform Indeed. Online labour market data presents numerous advantages, notably its granularity, which enables the delineation of occupational and regional trends, as well as its timeliness (Adrjan and Lydon, 2019; Adrjan, 2023). These attributes allow us to provide a current snapshot of the labour market landscape, in contrast to official data, which often suffers from substantial lag times.

We use this rich data source to look at how demand for new workers has evolved in Spain in recent years. We begin with a brief overview of the Indeed data. We then describe trends in

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Spanish labour demand in the last five years using online job postings, comparing trends across countries and occupations. Spanish job postings rebounded strongly from the pandemic in line with their solid pre-pandemic growth trend, growing 50% from February 2020 to February 2024. While early 2024 shows a retrenchment in the stock of postings, with an 8% decline in the first two months of the year, the influx of new postings continues to grow, suggesting faster turnover of job openings this year. We find that these trends are correlated with businesses' reported hiring difficulties, which rose to historical levels in 2023 and began to ease in recent months. We describe the occupations where job postings have risen most strongly to shed light on the areas of the labour market experiencing the strongest demand for new workers. Finally, we highlight growth in advertised wages in job ads using the Indeed Wage Tracker. We find a strong correlation between postings and wages: occupations where job postings have risen more strongly have, on average, seen greater increases in advertised wages between 2019 and 2023.

Online job posting data

Indeed, is the largest job site in the world and the second largest in Spain by the number of visitors. It hosts job listings posted directly by employers on the platform, as well as aggregates postings from various online sources. The dataset derived from employer and jobseeker interactions is substantial. In 2023, there were over 53,000 new job postings on average each month, accompanied by an

average of 7.6 million searches conducted on Indeed in Spain. This robust dataset provides insights into labour market activity. [1]

As with other private-sector, unstructured data sources, care must be taken when using and interpreting the online job posting data. A single job posting might represent multiple vacancies, and some job openings may not be visible online or captured by any single job platform. Nonetheless, aggregated posting data generally reflect overarching labour market patterns. In Adrjan and Lydon (2024), we conducted a comparative analysis of Indeed job posting data against data from representative statistical surveys across Spain and other countries. Specifically, we assessed the alignment of the sectoral and occupational composition of job postings with data from business and labour force surveys. Our findings indicated good alignment between online job postings from Indeed and official statistics. Although some disparities existed in the occupation and sector composition between online postings and traditional labour market data (varying by country), we showed, through re-weighting, that these differences did not significantly alter aggregate trends.

Job posting trends

Economists and policymakers closely monitor trends in job postings and vacancies for several reasons. First, they serve as crucial indicators of labour demand, offering insights into future employment trends. Second, they can act as early signals of wage pressures: heightened job openings coupled with low

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“ The substantial increase in job postings from February 2020 to February 2024 suggests the pandemic did little long lasting damage to labour demand in Spain. ”

unemployment often translate into intensified competition among employers, leading to upward wage adjustments. Third, tracking job postings helps identify potential mismatches between available positions and workforce skill sets, highlighting areas where education and training may be needed.

February 2020 levels, just prior to the onset of the COVID-19 pandemic. This substantial increase broadly echoes the pre-pandemic trend observed in job vacancy estimates from business surveys spanning 2015 to 2019. This suggests that the pandemic did little long-lasting damage to labour demand in Spain.

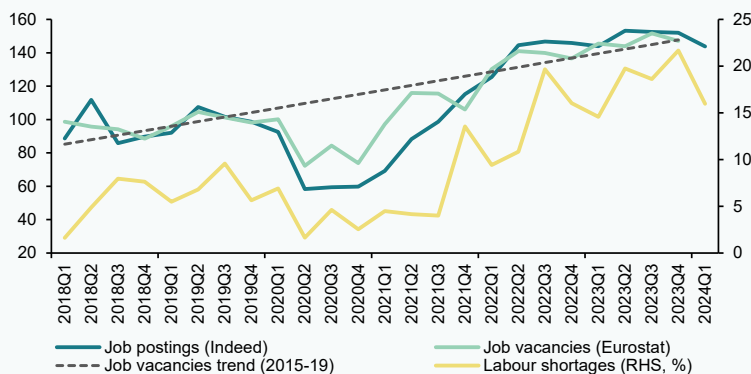
Indeed job postings closely mirror official data on aggregate Spanish job vacancies derived from quarterly business surveys, as well as reported labour shortages from surveys gauging whether labour availability constrains production. Exhibit 1 illustrates the close alignment of these three indicators in recent years. Notably, job postings offer timelier and more frequent data compared to vacancy estimates.

Until 2023, online job postings growth in Spain closely paralleled that of other euro area countries. Initially, there was a decline during the pandemic’s onset, followed by a robust rebound as the economy reopened (see Exhibit 2). However, in 2023, while most euro area countries experienced a deceleration in postings growth, Spain stood out as an exception, with growth actually accelerating during that year. This mirrors a similar disparity observed in employment growth in 2023: Spanish employment surged by 3.6%, contrasting with a mere 0.9% increase in the

By the end of February 2024, postings had surged by almost 50% relative to their

Exhibit 1 Online job postings (Indeed), job vacancies (Eurostat), and reported labour shortages (European Commission) – Spain

2019=100



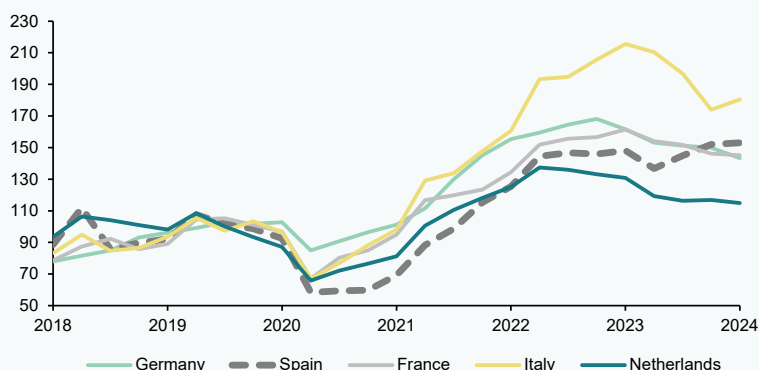
Note: Data are not seasonally adjusted. The pre-pandemic trend is a linear trend from 2015Q1 to 2019Q4.

Sources: Indeed and Eurostat.

Exhibit 2

Online job postings for euro area countries (Indeed)

2019=100



Note: Data are seasonally adjusted and aggregated to quarterly averages. Data for the first quarter of 2024 is for January and February only.

Source: Indeed.

rest of the euro area, according to data from Eurostat.

Recent trends indicate a slight downturn in Spanish job postings. From 1 January to 1 March 2024, postings experienced an 8.3% decrease on a seasonally adjusted basis. While unadjusted postings remained relatively stable (falling just 0.3% during the same period), it is worth noting that the early months of the year typically witness a surge in postings as employers gear up hiring efforts after the seasonal lull around the turn of the year.

However, this decline does not necessarily signify a negative outlook for hiring. New job postings, defined as those less than 7 days old, continued to climb in January and February 2024 on a seasonally adjusted basis, reaching 55% above their pre-pandemic level in February, marking a historic high in the

series. The increasing influx of new postings coupled with a declining total posting stock suggests a quicker turnover of postings, rather than a substantial reduction in hiring activity.

It is difficult to predict whether Spanish postings will decline in 2024, aligning with the trend observed in other euro area countries over the past year, or if they will resume their growth trajectory to match historical patterns. Nevertheless, this remains a critical trend to monitor as it is likely to impact employment growth in 2024.

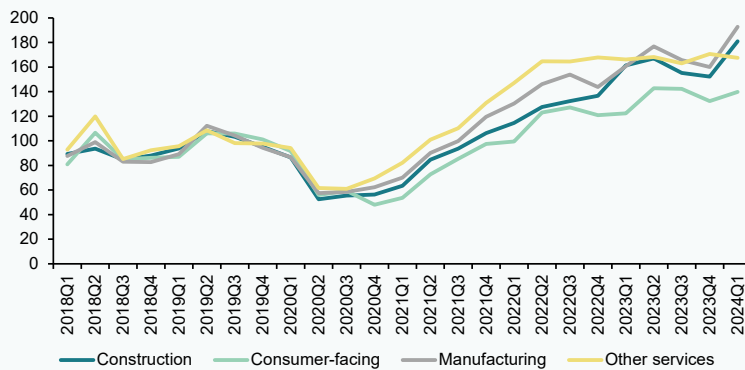
Which occupations are fuelling this robust labour demand? Analysing the composition of job postings provides insights into the occupations experiencing the highest demand for new hires. To assess broad trends, we classified Indeed's occupations into four main categories: construction, manufacturing,

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Exhibit 3

Online job postings (Indeed) by sector. Percentage change since February 2020



Notes: Data are seasonally adjusted. Categories correspond to occupations. Consumer-facing services are an unweighted average of the following Indeed occupational categories: Arts & Entertainment, Beauty & Wellness, Childcare, Cleaning & Sanitation, Customer Service, Driving, Food Preparation & Service, Hospitality & Tourism, Loading & Stocking, Personal Care & Home Health, Retail, Sales, Security & Public Safety, Sports. Other services are an unweighted average of all other service categories.

Source: Indeed.

consumer-facing services, and other services. Consumer-facing services encompass occupations in Arts & Entertainment, Beauty & Wellness, Childcare, Cleaning & Sanitation, Customer Service, Driving, Food Preparation & Service, Hospitality & Tourism, Loading & Stocking, Personal Care & Home Health, Retail, Sales, Security & Public Safety, and Sports.

Exhibit 3 shows that construction and manufacturing postings have shown the most significant growth in recent years, ending at 109% and 123%, respectively, above the pre-pandemic benchmark level of 1 February 2020. This growth is followed by other services (up 78%) and consumer-facing services (up 52%). Importantly, postings in each of these categories remain well above their pre-

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“ Although acceleration in wage growth started later in Spain than in the rest of the euro area, it peaked higher, reaching 6.3% in Spain compared to 5.2% for the euro area. ”

pandemic levels, indicating sustained demand for new workers.

The granularity of online job posting data means that we can also measure posting growth in more detailed occupational categories. We plot this data and correlate it with wage growth in the next section.

Wage growth

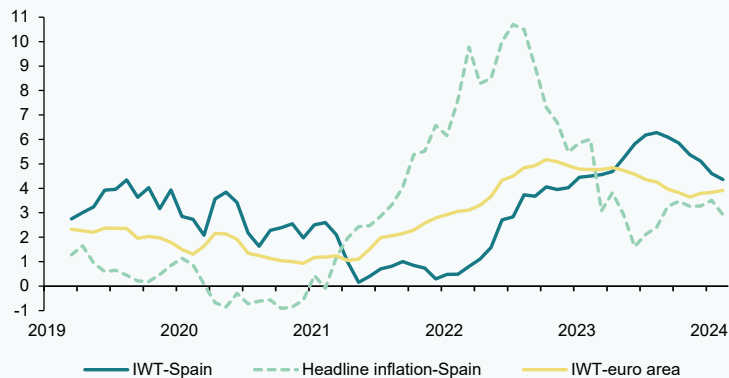
If increasing job posting volumes indicate heightened demand for new hires, it is likely that they are associated with elevated wage growth as employers offer higher pay to attract candidates. In this section, we demonstrate that this correlation does exist by examining the trends in advertised wages in Spain in recent years. We also highlight the similarities and disparities in wage trends across countries and occupations.

We use the Indeed Wage Tracker developed by Adrjan and Lydon (2024) as a timely indicator of wage growth momentum based on data collected from millions of job ads in Europe. The Indeed Wage Tracker is widely used by central banks (Bank of England, 2023; Lane, 2023; Powell, 2023), as it benchmarks well against official data published by Eurostat and other sources such as the ECB’s negotiated wage tracker or Caixabank’s indicator of salary deposits (Mestres Domènech, 2022).

Exhibit 4 shows that wage growth surged in both Spain and the euro area following the pandemic, reaching rates surpassing those before the pandemic. Although this acceleration started later in Spain than in the rest of the euro area—in mid-2022 rather than late 2021—it peaked higher, reaching 6.3% in Spain compared to 5.2% for the euro area.

Exhibit 4

Indeed Wage Tracker for Spain and the euro area, Annual % change in advertised wages in job postings

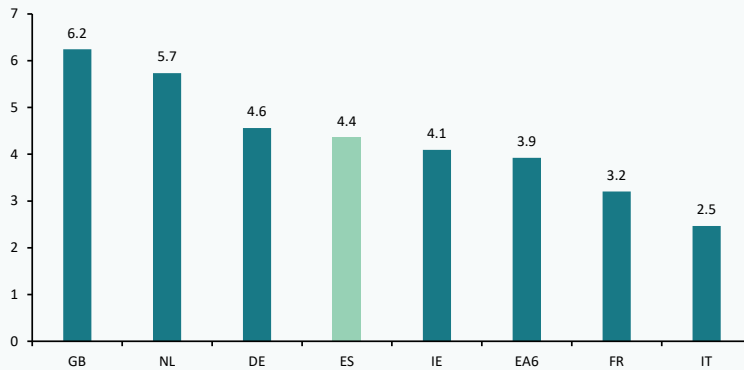


Notes: The Indeed Wage Tracker data are monthly median year-on-year growth rates in advertised wages across job title-salary type-region combinations. The euro area series is an employment-weighted average of France, Germany, Italy, Ireland, the Netherlands, and Spain.

Source: Indeed.

Exhibit 5

**Indeed Wage Tracker for selected European countries: February 2024.
Annual % change in advertised wages**



Notes: The Indeed Wage Tracker data are monthly median year-on-year growth rates in advertised wages across job title-salary type-region combinations. The euro area series is an employment-weighted average of France, Germany, Italy, Ireland, the Netherlands, and Spain.

Source: Indeed.

Exhibit 5 depicts the most recent data as of February 2024, showing that annual growth in advertised wages in Spain decreased to 4.4%. Nevertheless, this rate exceeded the euro area average of 3.9%. Comparatively, wage growth was lower in Ireland (4.1%), France (3.2%), and Italy (2.5%), while it was higher in Germany (4.6%) and the Netherlands (5.7%). Beyond the euro area, the UK, another major European economy we monitor, maintained a high wage growth rate of 6.2%.

Across all countries, wage growth remains elevated above pre-pandemic levels, a trend consistent with both the surge in job postings and the impact of persistent high inflation. However, in most of the countries we track, wage growth has receded from its peaks in 2023, paralleling the easing of job postings and reported labour shortages from their respective maxima.

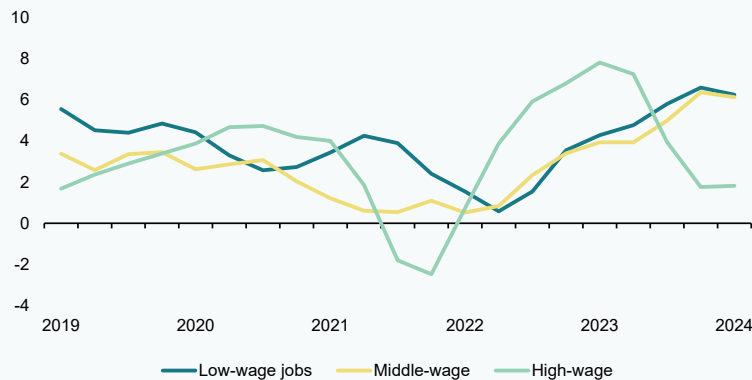
How does the growth in advertised wages vary across different occupations? To address this question, we first examine variations in wage growth for low-, middle-, and high-wage jobs. We classify a job as “low-wage” if it falls within the bottom third of occupations by wage level in Spanish job postings on Indeed during 2018 and 2019. Similarly, “middle-wage” and “high-wage” occupations represent the middle and top third of occupations by wage, respectively. We use the pre-pandemic wage distribution to discern the differing effects of the pandemic and the subsequent recovery.

Exhibit 6 shows that wage growth in high-wage occupations experienced an early surge in the first half of 2022, followed by low- and middle-wage occupations in the latter half of the same year. Although wage growth in high-wage occupations has since retreated to around 2%, it remains above 6% for low-

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Exhibit 6

Indeed Wage Tracker by low-, middle- and high-wage jobs. Annual % change in advertised wages in Spain (nominal)



Notes: Jobs in the bottom-third of the distribution of advertised wages in 2018-19 are classified as "low-wage". "Middle-wage" jobs are the middle-third, and "High-wage" the top-third of jobs by wage level. Nominal wage growth, unadjusted for inflation.

Source: Indeed.

and middle-wage occupations. In essence, the most recent data from our tracker in Spain indicate that current high wage growth rates are driven by low- and middle-wage occupations. In the next section, we show that these are the occupations witnessing the highest demand for new hires, while many high-wage, professional, traditionally office-based occupations have seen a decline in postings.

Bringing it all together: Correlation between posting growth and wage growth

In this section, we delve deeper into the analysis, examining which specific occupations within the broad wage categories outlined earlier have experienced the most significant wage growth in recent years, and to what extent this growth correlates with job posting increases. It is important to note

that job postings represent a real variable, unaffected by inflation. To make a meaningful comparison, we therefore adjust the nominal growth in advertised wages from the Indeed Wage Tracker to account for consumer price inflation. This adjustment provides insights into changes in purchasing power, offering a more accurate comparison for job posting growth trends.

In nominal terms, the growth in advertised wages has been robust in recent years, as demonstrated by Exhibits 4, 5, and 6. However, in real terms, wage growth was initially sluggish in response to the post-pandemic recovery, before gaining momentum more noticeably in 2023, coinciding with moderating inflation.

Table 1, however, reveals that certain occupations witnessed rapid wage growth

“ Occupations where job postings have risen more strongly have, on average, seen greater increases in advertised wages. ”

Table 1

Cumulative real growth in advertised wages 2019 Q1-2024 Q1. Top-three occupational categories by wage tier

Percentage

Low-wage jobs		Middle-wage jobs		High-wage jobs	
Hospitality and tourism	25	Nursing	8	Engineers	5
Personal care and home health	18	Construction	4	Software	1
Cleaning and sanitation	13	Accounting	1	Logistics	-2

Note: Data for 2024 Q1 is for January and February only. Cumulative growth in advertised wages in the table is real, that is, nominal growth less the cumulative change in headline HICP price index from 2019 Q1 to 2024 Q1 (Jan/Feb only), equal to +18%.

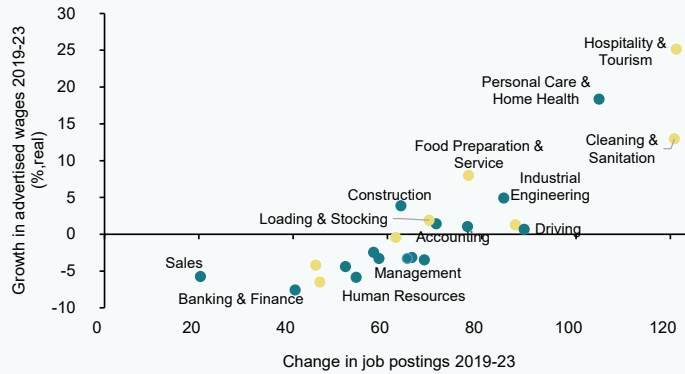
Source: Indeed.

even after adjusting for inflation. Within each of the wage tiers depicted in Exhibit 6, we identify the top three occupational categories by *real* (inflation-adjusted) growth in advertised wages from 2019 Q1 to Q1 2024. Each of these categories experienced cumulative wage growth surpassing the cumulative growth in the price level over the same period, which stood at 18%.

In their analysis of US inflation dynamics in recent years, Bernanke and Blanchard (2023) highlighted the surge in job openings as a driver of upward wage pressure, particularly when coupled with a low unemployment rate and low levels of quits. Exhibit 7 indicates that comparable dynamics are at work Spain. It presents a simple scatter plot with the change in advertised wages by occupation from 2019

Exhibit 7

Real growth in advertised wages (y-axis) and job postings (x-axis). Percentage change 2019-2023



Notes: Real growth is the nominal growth in advertised wages over 2019-23, less the cumulative change in headline HICP price level, 18% (Eurostat). Jobs shown in yellow are those with the highest proportion of job postings in 2019 within 10% of the minimum wage in that year.

Source: Indeed.

to 2023 plotted against the change in job postings during the same timeframe. There is a positive correlation: occupations where job postings have risen more strongly have, on average, seen greater increases in advertised wages.

Certainly, the growth in postings is unlikely to be the sole driver behind wage increases. For example, during the same period, the minimum wage in Spain rose 20%, from 900 euros per month at the start of 2019 to 1,080 euros per month in 2023. To gauge the probable impact, Exhibit 7 highlights the occupations with the highest proportion of postings advertising wages within 10% of the minimum wage in 2019 (yellow markers in the exhibit). Some (but not all) of these occupations were among those experiencing the highest real wage growth, indicating that minimum wages may have contributed to elevating the average wage growth rate for some occupations.

Conclusion

Labour demand in Spain appears to have resiliently weathered the pandemic's effects, as job postings have sustained growth in line with their long-term upward trajectory through February 2024, despite the more significant drop in hiring witnessed during the pandemic in Spain compared to other countries. Our analysis reveals a positive correlation between Spanish posting growth and wage growth, implying that at least a portion of the recent acceleration in wage growth might be attributed to the surge in demand for new workers. Other factors such as the bargaining power of workers and unions, particularly in the context of high inflation and minimum wage increases, likely also played a significant role.

As of early 2024, trends indicate a decline in the total stock of job postings in Spain from their peak, but the influx of new job postings has continued to rise. This suggests that many employers maintain optimism regarding the near-term economic outlook, as postings reflect hiring intentions and a view on the value of the worker-firm match. Moreover, job postings remain elevated, both in comparison to historical levels in Spain and current trends

in most other European countries, where a gradual slowdown persists. These trends support a forecast for solid employment and GDP growth for Spain in 2024 relative to other advanced economies and serve as key labour market indicators to monitor as the year unfolds.

Notes

[1] Aggregated data series, such as the Indeed Job Postings Index and the Indeed Wage Tracker, are available for download from the Indeed Data Portal (<https://data.indeed.com>) and the FRED database (<https://fred.stlouisfed.org>), covering several major advanced economies, including Spain.

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