Fear of Unemployment in Europe

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Abstract
Unemployment is notoriously difficult to predict. In previous studies, once country and year fixed effects are added to panel estimates, few variables predict changes in unemployment rates. Using panel data for 29 European countries collected by the European Commission over 444 months between January 1985 and December 2021 in an unbalanced country*month panel of just over 10000 observations, we predict changes in the unemployment rate 12 months ahead. We do so using individuals' fears of unemployment, their perceptions of the economic situation and their own household's financial situation. Fear of unemployment predicts subsequent changes in unemployment 12 months later in the presence of country fixed effects and lagged unemployment. Business sentiment (industry fear of unemployment) is also predictive of unemployment 12 months later. The findings underscore the importance of the "economics of walking about". Using country-level panel data for 29 counties between 1985-2020 we also show that consumers' fear of unemployment lowers life satisfaction over and above the negative impact of the unemployment rate itself.

JEL Codes: J60; J64; J68.

Key words: unemployment, fear, business sentiment, life satisfaction, recession, COVID

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1. Introduction

"If this thing was so large how come nobody could forsee it?"
Queen Elizabeth II at the opening of LSE's New Academic Building, 6th November 2008

Professor Luis Garicano was reported to have responded: "*at every stage, someone was relying on somebody else and everyone thought they were doing the right thing*".[1] He was subsequently reported as saying: "*I think the main answer is that people were doing what they were paid to do, and behaved according to their incentives, but in many cases they were being paid to do the wrong things from society's perspective*."[2] Several economists followed up three months later in a letter to the Queen from members of the British Academy which concluded: "*In summary, Your Majesty, the failure to forsee the timing, extent and severity of the crisis and to head it off, while it had many causes, was principally a failure of the collective imagination of many bright people….to understand the risks to the system as a whole*."[3]

The Queen was subsequently 'doorstepped' four years later in a visit to the Bank of England by the Bank's financial policy expert Sujit Kapadia who suggested the Crash was due, in part, to City complacency and poor regulation. The Queen was reported to have replied: "*People got a bit lax…perhaps it is difficult to forsee [a financial crisis]*." Kapadia is reported to have agreed saying that crises were a bit like earthquakes and flu pandemics in being rare and difficult to predict.[4] Subsequent events seem to have borne out the point regarding pandemics. And it is standard in economics to characterize recessions in much the same way as Kapadia did, essentially as random shocks which, by construction, cannot be predicted. We argue here that this is a mistake. In our view the Great Recession was eminently predictable, while the COVID pandemic was not. However European economies were particularly vulnerable given the evidence that they were slowing from 2017-2020, as predicted by the qualitative data we present in this paper.

Several economists did in fact spot the Great Recession coming but were ignored.[5] It started in the US housing market in 2006 and spread, just as the Great Depression did (Knowlton, 2020). As we show below, early warning signs of the impending Great Recession were apparent in business and consumer surveys and Purchasing Manager Indices (PMI) with similar stories from around the globe, but only a very few policymakers were willing to take them at face value that they signaled an imminent recession (Blanchflower, 2008).

In recent years analysts seeking to predict economic slowdowns have turned to high-frequency qualitative survey data to capture the sentiments of labor market actors, consumers, suppliers and business agents. As we discuss in Section Two these data have been somewhat successful in predicting economic downturns, and rises in unemployment, suggesting they contain more information, or more timely information, than traditional data used to forecast economic outcomes. We argue that this is an instance of what Blanchflower (2007, 2021) termed "the economics of

[1] See, for example https://www.dailymail.co.uk/news/article-1083290/Its-awful--Why-did-coming--The-Queen-gives-verdict-global-credit-crunch.html
[2] https://www.theguardian.com/uk/2009/jul/26/monarchy-credit-crunch
[3] Letter dated 22nd July 2009 https://www.ma.imperial.ac.uk/~bin06/M3A22/queen-lse.pdf
[4] https://www.theguardian.com/uk/2012/dec/13/queen-financial-crisis-question
[5] Stephen Mihm, 'Dr Doom', Washington Post, August 15th, 2008.

walking about": economic actors on the ground who are close to economic transactions, possess more, or different, or more timely information than policy makers and statisticians operating 'on high' in centralized locations. By aggregating those perceptions to country-month or country-year means analysts are leveraging insights from "*the wisdom of crowds*" which, as Surowiecki (2005) noted, often produces more accurate assessments of situations than those offered by so-called 'experts'.

We contribute to this literature using panel data for 29 European countries - Austria; Belgium; Bulgaria; Croatia; Cyprus; Czechia; Denmark; Estonia; Finland; France; Germany; Greece; Hungary; Ireland; Italy; Latvia; Lithuania; Luxembourg; Malta; Netherlands; Poland; Portugal; Romania; Slovakia; Slovenia; Spain; Sweden; Turkey and the UK - 444 months between January 1985 and December 2021 to predict changes in the unemployment rate 12 months in advance based on individuals' fears of unemployment, their perceptions of the economic situation and their own household financial situation. These qualitative survey data of individuals' expectations about unemployment, perceptions of the economic situation, and their household finances are fairly highly correlated, and also tend to accord with employers' perceptions of their workers' employment prospects over the coming months (in manufacturing, construction, services and retail), and with consumer expectations. Nevertheless, all these metrics are independently statistically significant in predicting unemployment 12 months later.

We focus on individuals' fears of unemployment which predict subsequent changes in unemployment 12 months later in the presence of country fixed effects and lagged unemployment. Individuals' perceptions of the economic situation in the country and their own household finances also predict unemployment 12 months later. Business sentiment (industry fear of unemployment) is also predictive of unemployment 12 months later. Firms' views on what will happen to employment in the months ahead also play an independent role; the lower they are the higher is unemployment months ahead.

The implication is that these social survey data are informative in predicting economic downturns and should be used more extensively in forecasting. These findings underscore the importance of the "economics of walking about" and suggest that global recessions such as the Great Recession are not simply sudden random shocks to the economy. Rather, they unfold gradually and can be predicted in advance with the right data. Of course, the COVID outbreak was unforeseeable – although some commentators such as Bill Gates envisaged a pandemic at some point, they could not have foreseen the timing and nature of the COVID pandemic.[6] And yet, as we show below, the qualitative survey indicators predicted a downturn in the global economy in advance, even in the absence of the pandemic.

With hindsight it seems the 2008 Great Recession was eminently predictable, especially after its onset in the United States housing market in 2006 and more broadly throughout 2007. It spread in similar ways around the world. In retrospect, it is hard to see why, when we had the data, the economics profession missed it.

2. Forecasting Unemployment

[6] https://www.wsj.com/articles/bill-gates-coronavirus-vaccine-covid-19-11589207803?mod=tech_lead_pos2

There has been growing interest over time in incorporating qualitative measures into economic forecasts, particularly in relation to GDP, and less so in relation to unemployment, that we explore here.

The plethora of data available to forecast and nowcast unemployment rates means analysts have spent increasing amounts of time on what is the optimal set of indicators in maximising the accuracy of predictions. In their work Claveria and colleagues (Claveria et al., 2017; Claveria et al., 2019a; Claveria et al., 2019b) use evolutionary computation techniques (a sub-field of Artificial Intelligence) to optimise their unemployment expectations metrics, as well as showing that the degree of correspondence in unemployment expectations across consumers also contains information increasing the predictive power of models estimating unemployment rates (Claveria, 2019a; Claveria, 2019b).[7] There is also a very sophisticated literature, some of which is reviewed below, identifying the predictive power of models, usually based on out-of-sample prediction, accounting for serial correlation, the identification of structural breaks in series and other issues.

Berge and Jorda (2011) examine the impact of PMIs, the Conference Board's Index of ten Leading Indicators as well the Federal Reserve Bank of Philadelphia's Business Conditions Index, the Chicago Federal Reserve Bank's National Activity Index and a LexisNexis news-based index in determining NBCDC turning points from 1950 through 2010. They use a ROC (receiver operating characteristic) curve methodology to assess the predictive power of these metrics and find they have some predictive value, but that there are trade-offs between predicting upturns and downturns when it comes to reasonable false positive and negative rates.

Estrella and Mishkin (1998) focus on the predictive capacity of financial variables for US recessions (although their models do incorporate expectations data from the University of Michigan surveys). They find the financial variables are a useful supplement to those variables used in traditional forecasting.

Perhaps the most interesting paper to date is Lagerborg et al's (2020) which uses mass shootings in the USA as a shock to sentiment to examine whether such shocks to sentiment feed through in explaining turning points in business cycles. They find a causal impact of changes in sentiment on business cycle turning points in the USA where confidence is measured using the Michigan data - one of our two data sources for sentiment we use in this paper.

The Lagerborg et al (2020) paper is important in establishing the direct causal impact of changes in sentiment on the business cycle. However, this is one of two ways in which sentiment can be predictive of economic outcomes in future. The second – which we call *the economics of walking about* - is that economic actors on the ground possess information about economic trends, and thus the future, based on their knowledge of economic transactions that they and their networks participate in. In the economics of walking about sentiment captures information that is unobserved by forecasters. It does not require sentiment to have a causal impact, though of course it does not preclude the possibility that changes in sentiment may themselves causally impact business cycles.

[7] For further work examining the relative predictive power of economic sentiment metrics constructed in various ways see Gelper and Croux (2010).

Using pooled data from the EU's harmonized Business and Consumer Surveys - which we use below - Sorić et al. (2019) assess which sentiments are best able to predict consumers' unemployment expectations over the period 1998 to 2018. They find the major purchases and savings for the next 12 months are the survey variables with the highest predictive power for future unemployment while perceptions of the financial situation and price trends in the last 12 months are best at predicting current unemployment expectations. They also match in news about inflation, production and stock market movements to see how these predict unemployment expectations. They find individuals react asymmetrically to good and bad news: the response of consumers' unemployment expectations is stronger in relation to bad news.

Kirchgässner (1982, 2005) pointed to the value of qualitative data in predicting GDP growth using German data. Some work identifying the correlation between public sentiment and subsequent economic growth goes back even earlier (Noelle-Neumann, 1980; Steinbuch, 1980).[8]

In contrast to most EU countries, Germany saw no major increase in unemployment after the Great Recession. This seeming decoupling of the labor market from the business cycle prompted Hutter and Weber (2015) to forecast movements in Germany's unemployment rate using qualitative data from the CEOs of the Federal Employment Agency's (FEA) regional employment agencies. They find that the inclusion of CEO expectations about changes in unemployment in the coming three months substantially improved the accuracy of their out-of-sample predictions of the aggregate unemployment rate 1, 2, 3 and 6 months later relative to benchmark estimates without the qualitative survey information.

Intriguingly the authors note "*only few resources seem to be invested in searching and finding a leading indicator that directly aims at signaling unemployment changes in the short run. As a consequence, there is little literature on forecasting German unemployment*" (p. 3541). They cite Schanne et al. (2010) who use spatial GVAR models to forecast unemployment for the 176 German labor market districts, and Askitas and Zimmermann (2009) who propose using internet activity to forecast German unemployment. The latter is a particularly interesting idea during a pandemic when nobody was doing much walking about due to lockdowns.[9]

However, the accuracy rate of the CEO Agency predictions fell during the Great Recession because respondents were too pessimistic about unemployment prospects. The authors also test the predictive capacity of consumers' unemployment fears using the same EU European Business Cycle indicator series we discuss below which asks about expectations regarding changes in unemployment over the coming 12 months. This performs less well, but this is likely due to the focus on short-term forecasts. The authors note that other qualitative survey items, such as the IFO employment barometer perform well as a leading indicator for actual employment changes (Abberger, 2007).

Spain's economy witnessed a substantial and sustained increase in unemployment in the Great Recession, thus conforming to standard expectations as to what happens in the labour market when output plummets. Vincente et al. (2015) estimate models which predict monthly change in unemployment rates in Spain over the period 2004 to 2012. They incorporate an Employment

[8] We thank Klaus Zimmermann for bringing these references to our attention.
[9] The Economics of Walking About (EWA) became the Economics of Walking About the Internet (EWAI).

Confidence Indicator (ECI) based on industry regarding the current employment situation and expectations three months hence to capture the demand side of the labour market. To capture the supply side they include Google trends in searches for job vacancies. Their paper reviews the growing literature using Google search data to predict a variety of outcomes including house prices, inflation, tourist flows, and retail sales (see p.133). Both variables are statistically significant and improve the predictive power of their models.[10]

The United Kingdom also experienced a hike in unemployment in the Great Recession, although it was not as large as some had anticipated, in part because there was a slower job destruction rate than expected (Bryson and Forth, 2016). Smith (2016) argues that Google Trends data has an advantage over survey data in terms of its timeliness, with weekly information providing more options for short-term forecasting – or 'nowcasting'. He emphasises the importance of term selection and their aggregation in constructing good predictive models. He predicts three-month changes in the ILO definition of unemployment rates in the UK between 2007 and 2014 using a composite index based on terms around the word 'redundancy' to capture flows into unemployment, together with other Google terms. Smith's models also incorporate data from surveys of business and consumers including business employment expectations from the Bank of England's Agents Survey and consumer expectations regarding unemployment over the next 12 months.[11] The qualitative survey metrics perform well in predicting unemployment changes, as do some carefully chosen Google indicators, particularly during 2009-2012. However, predictions have been less accurate since 2012.

Blanchflower (2008) at the end of April 2008 examined qualitative data for the US and the UK and suggested that these were predictive of recession in both countries. As an example, he argued that "*the US seems to have moved into recession around the start of 2008*" and later "*developments in the UK are starting to look eerily similar to those in the US six months or so ago…. Generally, forecasters have tended to under-predict the depth and duration of cyclical slowdowns.*" The qualitative data included consumer confidence data from the University of Michigan and The Conference Board in the USA and the Nationwide Consumer Confidence index and three components of the EU Commission's consumer confidence surveys, conducted for them in the UK by GFK (https://www.gfk.com/en-gb/products/gfk-consumer-confidence-barometer).

The unemployment rate started rising in the US in June 2007 (Blanchflower and Bryson, 2022), in Germany in November 2008, in France in July 2008, in Italy in September 2008 and in the UK in May 2008, well after the rise in the fear series.[12] When we look at the predictive power of these fear variables below, we lag them twelve months in explaining the current unemployment rate, and they work well: more fear now, more unemployment later. Consumers' fear reflects the fear expressed by manufacturing employers regarding what their plans are for employment in the months ahead. Even after the collapse of Lehman Brothers in September 2008 policymakers

[10] The introduction of a structural break in March 2008 improves the estimation.
[11] The MIDAS regression methodology outlined on p. 275 seeks to handle the fact that the unemployment data are available monthly whereas the Google predictors are available weekly.
[12] For the EU the SA unemployment rate in 2008 was 7.2% in January, falling to 7.0% in March then rising to 7.2% from June to August; 7.3% in September; 7.4% in October and 7.9% in December. It peaked at 11.5% from January-May 2013. The fear of unemployment series started rising steadily from a low of 0.8 in July 2007 reaching 27 in September 2008 and a peak of 69 in March 2009.

seemed to have little idea what was happening in the labor market. Some even appealed to the Almighty.[13]

3. Data and Estimation

We adopt a relatively simple descriptive approach to establish the extent to which lagged expectations regarding economic conditions predict country-level unemployment rates (up to 12) months later. In doing so we distinguish the expectations of individuals and consumers from those of producers/employers.

We construct panel data for 29 countries for the period between January 1985 and December 2021 where the unit of observation is the country*month. Overall, we have 10,146 observations on the fear of unemployment.[14] We incorporate country and year fixed effects so that estimates capture the degree to which within-country variance in monthly unemployment rates reflects lagged expectations of economic actors regarding unemployment, general economic conditions, and one's own household finances. These expectations variables are not combined. Rather they are entered separately. In addition, we incorporate a lagged dependent variable.

As well as country pooled models we run separate country models to establish the relationship between survey expectations and subsequent unemployment rates for each country. The country fixed effects pick up the differences in home ownership and union membership rates as we do not have them by month and country.

As will be apparent from the description below, our survey expectations data items are ordinal, in keeping with much of the literature. We construct a metric which captures the balance between positive and negative expectations, as described further below. We use qualitative survey data from the Joint EU Harmonized Programme of Business and Consumer Surveys conducted by the European Commission (EC)[15] to compute individuals' and employers' expectations about economic prospects. Our major focus here is on the fear of unemployment (Blanchflower, 1991; Blanchflower and Shadforth, 2009) expressed not just by workers but based on a sample of working and non-working adults.

The question asked is:

Q1. How do you expect the number of people unemployed in this country to change over the next 12 months? The number will...

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[13] On September 28, 2008, the Governor of the Bank of England Lord Mervyn King was giving testimony to the Treasury Select Committee at the House of Commons and was asked a question on unemployment. **Q102 Mr Love:** "*On unemployment there have been some suggestions…that it may go up faster than the projections in the Inflation Report. Is that a worry to you? ….*
Mr King: *,,,, I do not think we really know what will happen to unemployment. At least, the Almighty has not vouchsafed to me the path of unemployment data over the next year."*
The unemployment rate went up over the next 12 months from 5.5% to 7.9%.
http://www.publications.parliament.uk/pa/cm200708/cmselect/cmtreasy/1033/8091107.htm

[14] We have observations on Montenegro (114); North Macedonia (128) and Albania (66) but do not use them as we do not have unemployment rates. We use the variable lagged twelve months which means we have 978- usable observations.

[15] https://ec.europa.eu/info/business-economy-euro/indicators-statistics/economic-databases/business-and-consumer-surveys_en

+ + increase sharply (PP)
+ increase slightly (P)
= remain the same (E)
− fall slightly (M)
− − fall sharply (MM)
DK (N)

Hence PP+P+E+M+MM+N=100. On the basis of the distribution of the various options for each question, aggregate balances are calculated for each question based on the proportions in each category. Balances are the difference between positive and negative answering options, measured as percentage points of total answers. The score is calculated as B = (PP + ½P) − (½M + MM) which means the scores can vary between -100 and +100.

We call this variable **the fear of unemployment**. At first glance one might think the fear of unemployment might be related to the feeling of job insecurity, especially if one adopts the insecurity metric proposed by Nickell et al. (2002) which is based on expectations of job loss and the costliness of job loss. Of course, only those in paid work can describe how secure they feel that work is, whereas all are able to speculate about possible changes in the number of unemployed in the country. It is the case that job insecurity moves cyclically (Manning and Mazeine, 2020) but in a conceptual way the metrics are quite different since perceptions of job insecurity are couched in terms of one's feelings about one's own prospects, whereas the fear of unemployment metric relates to the whole economy over the coming 12 months.

We use two further questions asked of individuals relating what they believed had happened to the economy over the previous two years:

Q2. How do you think the general economic situation in the country has changed over the past 12 months? It has...
+ + got a lot better
+ got a little better
= stayed the same
− got a little worse
− − got a lot worse
N don't know

Q3. How has the financial situation of your household changed over the last 12 months? It has...
+ + got a lot better
+ got a little better
= stayed the same
− got a little worse
− − got a lot worse
N don't know.

They are scored in a similar way to the fear of unemployment score and are constructed as a balance.

In addition, we use a data series provided in the Industry Business Confidence Survey, also conducted by the EU Commission, where employers are asked about their employment intentions.

Q4 How do you expect your firm's total employment to change over the next 3 months? It will...
+ increase (P)
= remain unchanged (E)
− decrease (M)
And the score is simply B = P – M

In what follows we include both the consumer fear of unemployment and the industry fear of unemployment along with the other confidence measures included in the consumer survey into a country*month file. We mapped into that file the country*month unemployment rate, which is our main dependent variable, taken from Eurostat (https://ec.europa.eu/eurostat/web/lfs/data/database).

We have 10,146 observations from consumers on the fear of unemployment variable available for 444 months for 37 years * 12 months from January 1985 through to December 2021. The data cover 29 countries in an unbalanced panel. We only have monthly unemployment rates for 9380 of these country*year cells. Initially the questions were asked in twelve countries – Belgium (427); Denmark (442); France (442); Germany (370); Greece (278); Ireland (443), Spain (425); Italy (441); Netherlands (443), Portugal (425); UK (432) and Finland (407), with the numbers in parentheses how many months of data are available for each where we have unemployment rates.

Other countries such as Austria (313); Cyprus (246), Luxembourg (238); Malta (228) and Sweden (314) joined the surveys later. As time moved on and more countries joined the EU the list of countries grew to also include the A10 Accession countries - Bulgaria (246); Estonia (261); Latvia (267); Lithuania (246), Poland (246); Hungary (310); Czech Republic (307); Slovenia (308), Slovakia (271) and Romania (228) plus Croatia (198) and Turkey (173).

The responses to the fear variable collapsed by year as an average of the twelve months, are reported in Appendix Tables 1-3.[16] Overall there are 9671 observations by country on the industry fear variable where unemployment rates are available.[17] Given we include 12-month lagged variables sample sizes are reduced further.

We also estimate life satisfaction equations which take a similar form to equation 1, but this time estimate annual within-country change in life satisfaction, with lagged life satisfaction as an independent variable alongside country unemployment rates and mean fear of unemployment. These estimates use 4-step life satisfaction Eurobarometer data from 33 countries taken from the

[16] Data is available through December 2021. The survey stopped at the end of 2020 in the UK after Brexit so there are no observations from January 2021 onwards. We don't have unemployment rates for Germany pre-1991; Belgium pre 1987; Estonia pre 2000 and Greece and Latvia pre 1998.
[17] The responses are the same as the consumer fear variable in some countries these are the exceptions: Austria (310); Bulgaria (262); Croatia (162); Cyprus (244); Czech Republic (322); Germany (292); Greece (283); Latvia (283); Lithuania (286), Luxembourg (442); Malta (228); Poland (298); Portugal (418); Romania (294); Slovakia (286); Spain (415); Sweden (383) and Turkey (177).

World Database of Happiness.[18] Where there are multiple surveys in a year, we averaged across them. We show for the first time that the fear of unemployment lowers wellbeing.

4. Results

4.1. Fear and unemployment

We now turn to a series of charts for Europe that set out the extent to which the various qualitative series appear to be predictive of unemployment. They are a precursor to the econometric analyses presented in the next section. What is striking is the consistency of the evidence by country and measure - whether it is from consumers or firms. All moved down together pre-2008. There is also some evidence that there was a rising fear of unemployment in Europe from around 2017 that predicted slowdown. This decline did not occur in the United States.

The role we find for the fear of unemployment matches that in our recent work for the United States (Blanchflower and Bryson, 2022a) where we also found a predictive role for fear of unemployment in an unemployment rate equation. Data was used from the University of Michigan Sentiment Index and the question used was

Q6. How about people out of work during the coming 12 months -- do you think there will be more unemployment than now, about the same or less?

The proportion saying 'more' was included as a control in a 515 observation, month*year, regression of the unemployment rate, together with unemployment twelve-month lagged along with a full set of month and year dummies for the period 1978-November 2021. A twelve-month lag on this fear variable was found to enter significantly positively.[19]

Charts 1-4 are the starting point for our analysis of the European fear of unemployment data, we focus on the four big EU economies, France, Germany, Italy and the UK. Recall, the fear variable asks people to predict what is going to happen to unemployment in the coming 12 months, so we are comparing people's predictions with the actual unemployment outturn 12 months later. As we show below in individual country regressions a twelve-month lagged fear variable enters significantly and positive in an unemployment equation in three of the four; the exception is Italy.

Chart 1 for the UK shows a steady rise in fear from around 1998 and then from early 2008. Also notable is the rise in the series from around the start of 2005 and the subsequent rise in unemployment from the end of 2014. Analogously, Chart 2 for Germany shows a pickup in the fear series at the end of 2018, predating a subsequent uptick in unemployment the next year. That is not so clear for Italy in Chart 3 which shows a marked drop in the unemployment rate in the spring of 2020 around COVID. The series for France in Chart 4 appears to track the data closely.

In Appendix Charts 1-8 we report more charts of fear plotted against the 12 months ahead unemployment rate for a further nine major EU countries – Austria; Belgium; Denmark; Finland; Ireland, Netherlands, Portugal, Spain and Sweden for which we have a relatively long span of

[18] Overview of Happiness Surveys using Measure type: 121C / 4-step verbal Life Satisfaction https://worlddatabaseofhappiness-archive.eur.nl/trendnat/framepage.htm

[19] The regression in their Table 7 was .5942 (18.87) unemployment $rate_{t-12}$ +.0535 (10.69) $feart_{-12}$ + .6916, with t-statistics in parentheses. Data is available from Table 30 here https://data.sca.isr.umich.edu/data-archive/mine.php

years of data on fear. They also suggest that rises in the fear of unemployment series are an earlier predictor of subsequent increases in the unemployment rate. We confirm that econometrically below.

The industry fear series is almost exactly the inverse image of consumer fear. The fear and industry fear series for the EU as a whole is plotted in Chart 5. In the industry series a negative score means less employment and hence higher unemployment. Remarkably the two series move very closely together. Consumers seem to know what firms are thinking. Both series show a worsening of job prospects in 2007, reaching low levels by April 2008 as recession starts unlike the GDP data. They both show increasing pessimism around the start of 2018 and prior to COVID which makes respondents even more pessimistic and then the series improves through 2021 as vaccines are distributed.

Next, we examine a couple of other monthly qualitative data series that are also available for the UK which include reports from the Bank of England's Agents (BOEA) as well as the Purchasing Manager Indicators (PMIs) from Markit. Chart 6 from the BOEA scores recruitment difficulties and employment intentions. Both had declined sharply by the start of 2008 and were declining again in 2018 before the pandemic hit.

Chart 7 performs a similar exercise but this time for the Employment PMIs, based on the reports of purchasing managers. Despite claims in the earlier literature that institutions might be to blame for high unemployment, what is striking is how similar the paths are again.

Of note is that both the BOEA and PMI series in the UK were at historic lows by the Spring of 2008, as were the consumer sentiment surveys. The fear of unemployment reached historic highs – low confidence and high fear of joblessness. In August 2008, for example, the unemployment rate had reached 9.8% which was just below its historic peaks reached in 1991 and 1992: the unemployment rate was in double digits. It was above 10% from September 1991 through January 1994. It reached a new peak of 8.4% in September 2011. The fear series were rising rapidly in many other EU countries through August 2008, a month before the fall of Lehman Brothers; such rises in the past had been predictive of rises in unemployment, as is clear, for example in Chart 4 for France, which shows a rise in fear in 2001 which is clearly predictive of a subsequent rise in the unemployment rate.

Taken together the charts provide very powerful descriptive evidence of the predictive power of these qualitative surveys. Now we turn to the econometrics.

4.2: Econometric analysis of unemployment rates

In this section we estimate unemployment equations. It should be said that it is hard to get anything to be significant in the presence of year and country/state fixed effects and a lagged dependent variable in such equations. In the US Blanchflower and Bryson (2021) found that union density was insignificant, while long lags, up to five years, on home ownership seemed especially important. Higher levels of home ownership reduced mobility, which in the US has halved over the last fifty years and hence raised unemployment. Spain and Greece have high levels of home ownership unemployment while Germany and Switzerland have low levels of both (Blanchflower and Oswald, 2008).

Table 2 reports estimates for country unemployment rates by month where the right-hand side variables include the unemployment rate lagged 12 months and a full set of country and year dummies (not reported). The 12-month lagged unemployment rate is positive and highly statistically significant with a coefficient of between .82 and .86 across all six models. The coefficient is nearly identical to the lagged unemployment coefficient reported in Nickell et al. (2005: Table 5) for OECD countries in the period 1966-1995.

We vary the qualitative survey controls across the columns. In the first column we include the fear of unemployment variable from consumers with no lag: it is positive and statistically significant with a t-statistic of over fifty. In column 2 it is replaced with the fear of unemployment with a twelve-month lag. The coefficient is a little smaller (.03 versus .04) but is positive and statistically significant. When they are entered together in model 3 both are statistically significant, with the contemporaneous rate having a coefficient twice the size of the twelve-month lagged fear coefficient.

Column four then adds consumer perceptions of how the economic situation changed in the previous 12 months along with the lagged fear variable. We identify it as lagged twelve months as it refers to the prior twelve-month period, as does the financial situation variable we use below. The coefficient is negative and statistically significant indicating that perceptions of a deteriorating economic situation predict future unemployment, over and above the fear of unemployment and lagged unemployment. Column 5 adds the industry fear variable lagged twelve-months and it is negative and significant and has little impact on the size or significance of the lagged fear variable.

Column 6 presents a model containing consumer and employer fear of unemployment lagged 12 months, alongside consumer perceptions of the economic situation lagged 12 months. The 12-month fear variable remains significant and positive, and the economic situation variable lagged 12 months is significant and negative once again as is the industry fear variable. Fear of unemployment reported by both consumers and industry representatives both predict unemployment twelve months ahead. The inclusion of the industry fear variable improves the fit of the equation and has little impact on the coefficients of the fear or economic sentiment variables, which appear to be orthogonal to each other. It is impressive how stable these results are to changes in specification.

We now move to Table 3 to experiment further with different specifications and other consumer sentiment variables. The dependent variable once again is the country month unemployment rate. Column 1 includes the industry fear variable in time t along with one in t-12 months plus the consumer fear variable in t-12 months. The two industry variables have significant and negative coefficients, and the fear variable is positive and highly significant. We then add two more consumer sentiment variables - one relating to the consumer's financial situation over the prior twelve months as well as the economic situation variable lagged. All coefficients are significant with expected signs. Worse financial situation higher fear of unemployment.

In Table 4 we report individual country results where the unemployment rate is regressed on a lagged dependent variable and year dummies plus the consumer fear variables. Equations include year and month dummies and a lagged dependent variable. The lagged fear variable is significant

and positive overall and in 22/29 countries. Exceptions are Belgium and Italy that had over 400 observations each as well as Bulgaria (n=234); Croatia (n=185); Greece (n=271), Malta (n=216) and Slovenia (n=296), that had relatively small sample sizes.

In part 1 of Table 5 we split the sample into three time periods, with the same controls as in column 2 of Table 2 for the periods 1985-1999, 2000-2008 and 2009-2021. The full regression results are reported in Data Appendix Table 3. Of note is that in all three periods the fear of unemployment is significant positive and in the first two periods the coefficients are around 0.29, rising to .034 in the post Great Recession period.

We decided to examine the data for the period prior to the failure of Lehman Brothers so re-estimated the unemployment equations in part 2 of the table for each of the nine major EU countries. In all but Belgium and Finland, the t-statistic on the fear variable was significant, although weakly so for Austria (t=1.73) and Italy (t=1.78). Of note is that by October 2008 fear was above its long run average in every country. These would have been useful indicators of a rise in the unemployment rate that was coming.

4.3 Life satisfaction and the fear of unemployment

Our final set of estimates in Table 6 examine whether the fear of unemployment impacts life satisfaction. The life satisfaction data is taken from the World Database of Happiness which aggregates data from the Eurobarometer survey series by year. It is based on a 4-step life satisfaction variable.

Q5. On the whole are you very satisfied (=4), fairly satisfied (=3), not very satisfied (=2) or not at all satisfied (=1) with the life you lead?

The variable is aggregated by country in each survey. Where there are multiple surveys in a year, we average them and then aggregate the responses into country*year cells. We then merge the unemployment rates by country and year onto the unbalanced panel file for the period 1975-2020. There are thus 850 country*year observations on 31 countries.[20] There are 35 observations for the major countries such as France, Germany, and the UK for the entire period 1985-2020 and smaller numbers for the A10 Accession countries such as Poland and Hungary, Malta and Cyrus and candidate countries such as Serbia and Montenegro. Finally, we merge on the fear of unemployment variable for the period 1985-2020, and now there are 723 observations in total. We include a lag on the life satisfaction variable which then leaves 708 observations

Table 6 reports the findings. In all three specifications a one-year lagged life satisfaction variable is included: this is positive and highly significant throughout. The first column is for the entire period 1975-2020 and has 820 observations and the lagged dependent variable has a coefficient of .7. The unemployment rate coefficient enters negatively in column 1 as found in Blanchflower,

[20] Observations across the 31 countries are as follows; Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Netherlands, UK=1985-2020; Portugal and Spain=1986-2020; Austria, Finland and Sweden=1997-2020; Luxembourg=2002-2020; Bulgaria, Czechia, Cyprus, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovenia, Slovakia=2005-2020; Turkey=2007-2020; Northern Macedonia=2009-2020; Montenegro=2012-2020 and Serbia=2014-2020.

Bell et al (2014) and El-Jahel, MacCullough and Shafiee (2021). The coefficients on the lagged life satisfaction and unemployment rates are largely unchanged in column 2 which restricts the period to 1985-2020. In column 3 the consumer fear variable lowers satisfaction over and above the happiness reducing effects of the unemployment rate itself. The unemployment rate coefficient drops by a third. We experimented with lags on the fear term and also included the industry fear term in levels and with lags, but they were never significant and were omitted.

So, fear of unemployment lowers life satisfaction over and above the impact of the unemployment rate.

5. Discussion and Conclusions

The analyses presented here indicate that the attitudes and expectations of economic actors – individuals in the labor market and the suppliers of goods and services – contain information that can help analysts predict economic downturns up to 12 months in advance. These data, that are readily collected in social surveys, purchasing manager surveys and by agents such as those working for the Bank of England, have a number of advantages over other survey series. First, they can be collected in real time and with high frequency (monthly in the data we present), thus providing timely insights into how economic actors are viewing the economy. At the time of writing, January 2022, the data from the EU Business and Consumer Surveys analyzed above is available through to December 2021.[21] Data is available monthly from consumers as well as from firms in construction, retail, services, and industry.

Second, these sentiment data permit country-level panel analyses. Because they are high-frequency, as are the unemployment data used as our dependent variable, we can estimate country-level models with greater degrees of freedom than estimates that are reliant on quarterly or annual data. The data have the advantage that they are timely and don't get revised.

Third, they are accurate at the time of data collection and are thus not subject to retrospective revision which plagues most macro-indicators. Fourth, these data on attitudes and expectations appear better able to predict economic downturns that other data series than standard economic variables like GDP or the unemployment rate. To emphasize just how powerful they can be, fear rose in all of our 29 European countries in the first half of 2008, as shown in Table 1, prior to the Great Recession Perhaps more surprising is the rise in the fear of unemployment prior to the outbreak of the COVID pandemic, suggesting recession may have been in the offing even in the absence of the pandemic. This was the case between 2018 and 2019 in 11 of our 17 Western European countries and 6 of our 11 Eastern European countries.

Fifth, it is remarkable how similar the story is across countries as well as data series. The charts showing EU consumers opinion track closely that of the Bank of England's agents, as well as the

[21] Business and Consumer Surveys Time Series https://ec.europa.eu/info/business-economy-euro/indicators-statistics/economic-databases/business-and-consumer-surveys/download-business-and-consumer-survey-data/time-series_en
The December 2021 data were released on 21st December 2021
https://ec.europa.eu/info/sites/default/files/flash_consumer_2021_12_en.pdf

Purchasing Mangers' Indices. An unexplored question of course that arises is why do ordinary people know what is coming?[22] Especially when economic forecasters seem not to?

Despite the broad-based declines in qualitative data across almost all Western countries by the summer of 2008, central banks were seemingly unaware that the US entered recession in December 2007 and most other countries had done so in the second quarter of 2008 (Blanchflower and Bryson, 2022). Of particular concern is the fact that, not only was there a good deal of data from external sources, such as consumer and business sentiment indicators but they had their own internal sources that were flashing red. But they were ignored.

Appendix A shows a statement by the MPC of the Bank of England on August 8th 2008, along with the Economics of Walking About reports by the Bank of England's Agents Survey from the same month. The latter reported rapid slowing in the economy apparently unrecognized by the MPC. Despite evidence of slowing of the economy the MPC was principally focused on controlling inflation, which peaked at 5.2% in September 2008 falling to 1.1% a year later: Q22008 GDP growth was -0.5%. The EWA had it right.

Lehman Brothers failed on September 15h 2008 and at a Special Meeting on 8th October 2008 the MPC along with the world's six major central banks - the Bank of Canada, the European Central Bank, the US Federal Reserve, Sveriges Riksbank, the Swiss National Bank and the Bank of Japan - cut rates by 50 bp on October 5th, 2008 after RBS had to be rescued.

The fear of unemployment in the UK had reached 51.5 in September 2008, which was the highest score since 1993 when unemployment rates were in double digits.[23] The June 2008 reading in the University of Michigan Survey of 60% reporting they thought unemployment would be more in twelve months, tied for second highest since the survey started in January 1978. It was the highest reading in 28 years.[24]

Although, in this paper we have simply run regressions on country-month observations incorporating a lagged dependent variable and country fixed effects to isolate the correlation between lagged expectations and economic attitudes and subsequent unemployment rates, these data could be used readily to make out-of-sample predictions which are more common in forecasting.

The rise in unemployment in 2008 was clearly forecastable. Either way, it seems sensible to add analyses of these data to the portfolio of options available to economic analysts to help identify economic trouble ahead. Even so, not all economists are convinced that this is what economics is about. Recently Jan Vlieghe, an external member of the Bank of England's Monetary Policy Committee (MPC), maintained economists and policymakers should not be expected to spot turning points:

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[22] It has always been important for economists to think seriously about the wellbeing of the man or woman on the Clapham omnibus but now it seems we need to take seriously what he or she says. Beth Staiger, wife of our Dartmouth colleague Doug Staiger explained it well to us. "*People know when things are getting bad.*" This paper suggests that she is right and they do.

[23] 57.5=Nov-92; 56.5=Feb-93; 56=Dec-92; 55.6=Feb-91; 55.6=Oct-92 50.9=Jan-91; 49.8=Aug-08.

[24] 72%=June 1980; and 64%=November 199090.

> *"I have previously argued, as have countless others, that the usefulness of policymakers (or macroeconomists more generally) should not be measured by their ability to forecast recessions, in the same way that the usefulness of doctors is not measured by their ability to forecast heart attacks. Instead, the usefulness of policymakers lies in their response to a recession when it is happening, and their understanding of general risk factors beforehand, just as the usefulness of a doctor lies in her treatment of a heart attack once it is happening, and her prescriptions for a healthy lifestyle to reduce the risk of a heart attack beforehand."*[25]

This is clearly not the case: doctors do try to predict heart attacks. Indeed, the above is not an accurate characterization of what medical doctors do.[26] Contrary to Vlieghe's assertion, doctors have developed protocols expressly intended to predict individual patients' probability of heart attack. For example, the QRISK protocol is filled out by doctors to predict a patient's risk score for a heart attack.[27] A score over twenty suggests the patient should take statins and stop smoking. These individualized risk probabilities are used to target treatment on the 'right' individuals (Hippisley-Cox et al., 2008). We argue that economists should harness the information available in these surveys to predict economic downturns and, in particular, rising unemployment. It would be progress if economists acted like doctors.

We argue here that qualitative surveys allow us to do just that. They gave very early indication of the coming of the Great Recession if commentators had only been watching. The turns in the fear of unemployment series appears also to give early warnings of changes in the unemployment rate to come. This is true in the vast majority of EU countries and, as we showed in Blanchflower and Bryson, 2022b) in the United States, Economists should be measured by their ability to model unemployment.

[25] https://www.niesr.ac.uk/sites/default/files/files/GertjanVlieghe_Blanchflower%20book%20review_11%20June%202019.pdf

[26] See for example https://www.cdc.gov/heartdisease/risk_factors.htm and http://www.cvriskcalculator.com/ and https://www.mayoclinichealthsystem.org/locations/cannon-falls/services-and-treatments/cardiology/heart-disease-risk-calculator

[27] The latest version of QRISK is here: https://www.qrisk.org/

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Table 1. Fear of unemployment in 28 countries by month in 2008.

Month	**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**
Austria	1	2	2	*-1*	5	8	11	19	18	31	50	57
Belgium	4	3	*-1*	5	9	7	16	18	20	44	63	70
Bulgaria	7	11	7	10	4	10	9	6	*3*	14	39	56
Croatia	9	10	15	*6*	12	18	14	16	15	20	28	43
Cyprus	37	36	35	36	*29*	33	33	33	30	38	47	55
Czechia	2	*-2*	*-2*	2	*1*	*1*	5	14	11	37	45	58
Denmark	3	6	*5*	13	11	16	23	17	21	37	41	46
Estonia	*10*	18	20	23	34	28	32	35	38	50	56	61
Finland	5	14	4	2	3	*2*	12	10	16	33	52	60
France	*7*	11	15	10	12	*10*	18	26	29	56	62	68
Germany	6	11	11	*0*	2	3	9	23	20	24	39	56
Greece	44	41	45	44	45	*35*	52	50	47	59	63	73
Hungary	47	46	49	48	47	46	44	*42*	44	64	73	81
Ireland	47	53	50	59	*36*	46	52	54	46	67	71	73
Italy	19	23	24	23	*15*	*15*	26	25	26	33	43	50
Latvia	*4*	8	11	22	22	26	28	35	40	51	62	75
Lithuania	*-23*	-21	-18	-14	-3	4	12	24	24	40	53	71
Luxembourg	19	22	20	18	18	*16*	22	22	25	44	54	66
Malta	-4	-3	-13	-11	*0*	2	5	7	3	16	30	24
Netherlands	*-11*	-5	-5	-2	-4	-1	0	6	11	27	47	64
Poland	-12	-17	-14	*-17*	*-17*	-11	-10	-8	-6	2	13	24
Portugal	50	48	*44*	46	49	50	54	44	*38*	53	64	66
Romania	18	20	14	13	*11*	14	13	12	15	14	48	60
Slovakia	*-14*	-9	-6	-10	-8	-15	-10	-9	-6	0	49	52
Slovenia	8	11	15	*5*	12	7	13	15	11	17	53	61
Spain	25	28	*24*	31	39	44	52	46	56	63	67	71
Sweden	*-3*	7	7	12	17	23	27	34	36	59	65	67
Turkey	*21*	32	36	38	40	39	36	30	36	43	52	51
UK	*28*	30	29	35	31	38	48	50	52	60	66	71

Table 2. Unemployment and the fear of unemployment, Jan 1985- November 2021.

$Fear_t$	.0380 (52.51)		.0292 (36.21)			
$Fear_{t-12}$		.0297 (38.55)	.0162 (19.91)	.0150 (19.37)	.0215 (24.84)	.0086 (10.24)
Industry $Fear_{t-12}$					-.0269 (19.98)	-.0225 (18.34)
Economic $situation_{t-12}$				-.0303 (44.70)		-.0293 (43.19)
Unempt $rate_{t-12}$	.8896 (218.16)	.8331 (190.88)	.8604 (207.57)	.8315 (210.61)	.8242 (190.02)	.8236 (209.05)
_cons	-.3818	.2442	.0413	-.1014	.3503	-.0289
Adjusted R^2	.9358	.9301	.9390	.9428	.9331	.9448
N	9,273	9,011	9,011	9,001	8,803	8,793

Table 3. Unemployment rate equations and fear of unemployment with more specifications includes year and month dummies.

$Fear_t$				.0294 (36.74)	.0135 (13.51)	.0101 (9.61)
$Fear_{t-12}$	.0217 (26.08)	.0105 (12.90)	.0072 (8.80)	.0078 (8.80)	.0043 (5.12)	.0064 (7.48)
Industry $fear_t$	-.0333 (27.52)					-.0129 (10.22)
Industry $fear_{t-12}$	-.0152 (11.19)	-.0211 (17.31)	-.0207 (17.30)	-.0273 (21.80)	-.0220 (18.52)	-.0176 (13.97)
Financial $situation_{t-12}$		-.0603 (45.31)	-.0391 (22.60)		-.0399 (23.34)	-.0403 (23.65)
Economic $situation_{t-12}$			-.0164 (18.71)		-.0083 (7.90)	-.0071 (6.74)
Unempt $rate_{t-12}$	.8337 (199.68)	.7588 (182.29)	.7815 (183.53)	.8517 (207.46)	.7934 (184.28)	.7936 (185.40)
_cons	-.1165	.6516	.3333	-.2912	.1460	.1234
Adjusted R^2	.9384	.9458	.9479	.9420	.9489	.9495
N	8,803	8793	8,793	8,803	8,793	8,793

Notes: Equations include a full set of year, country and month dummies. T-statistics in parentheses.

Table 4. Unemployment regressions by country, 1985-2021

	Unemployment Rate $_{t-12}$	Fear$_{t-12}$	Mean of fear$_t$	N
All	.8330 (190.62)	.0299 (38.97)*	22.56	9,050
Austria	-.3384 (5.43)	.0107 (4.62)*	23.16	301
Belgium	.2174 (4.03)	.0023 (1.26)	26.63	415
Bulgaria	.4351 (7.03)	.0085 (1.75)	27.07	234
Croatia	.5151 (7.06)	-.0071 (1.23)	28.60	185
Cyprus	.1287 (1.62)	.0155 (2.41)*	32.90	233
Czechia	.1926 (3.27)	.0181 (6.08)*	24.24	295
Denmark	.1032 (2.12)	.0108 (4.68)*	6.14	430
Estonia	-.0476 (0.81)	.0654 (9.40)*	20.94	249
Finland	.3869 (7.84)	.0088 (2.51)*	9.67	395
France	.0167 (0.32)	.0035 (2.88)*	30.34	430
Germany	.4029 (7.92)	.0036 (2.79)*	28.80	358
Greece	.6139 (10.58)	-.0039 (0.87)	45.19	271
Hungary	.3694 (6.39)	.0049 (2.15)*	28.04	298
Ireland	.4174 (8.50)	.0080 (2.44)*	17.91	431
Italy	.1365 (2,54)	.0036 (1.28)	28.60	429
Latvia	-.0257 (0.42)	.0649 (8.54)*	20.40	255
Lithuania	.1414 (2.65)	.0558 (10.71)*	11.96	234
Luxembourg	.1739 (2.41)	-.0062 (2.59)*	28.84	226
Malta	.0245 (0.34)	-.0022 (0.77)	5.77	216
Netherlands	.3017 (6.484)	.0068 (6.12)*	13.34	431
Poland	.3313 (5.46)	.0109 (3.31)*	19.20	234
Portugal	.3471 (7.05)	.0072 (2.53)*	31.30	413
Romania	-.2244 (3.04)	.0078 (2.18)*	35.46	228
Slovakia	-.0342 (0.58)	.0194 (5.78)*	18.36	259
Slovenia	.0514 (0.79)	-.0003 (0.10)	25.22	296
Spain	.4800 (10.33)	.0098 (2.55)*	18.20	413
Sweden	-.0157 (0.28)	.0159 (7.79)*	10.89	302
Turkey	-.4112 (4.66)	.0316 (3.15)*	27.11	161
UK	.3469 (6.78)	.0094 (5.10)*	23.35	426

Notes: all equations include a full set of year and month dummies and the 'all' equation includes country dummies also. * significant and positive fear coefficient (t>2). T-statistics in parentheses.

Table 5. Disaggregated Unemployment Rate Equations, January 1985- December 2021.
All

	1985-2021	1985-1999	2000-2008	2009-2021
$Fear_{t-12}$	.0297 (38.55)	.0292 (21.21)	.0278 (21.72)	.0343 (28.20)
Unempt $rate_{t-12}$	.8332 (190.88)	.8427 (78.69)	.7261 (65.10)	.7234 (87.16)
_cons	.2442	.6424	.6424	2.4486
Adjusted R^2	.9301	.9588	.9417	.9292
N	9011	1894	2678	4439

2 Unemployment equations January 1985-September 2008 (n>=140)

	$Fear_{t-12}$	Unempt $rate_{t-12}$	N	Fear	Unempt rate
				October 2008	
Austria	.0061 (1.73)	-.3191 (2.79)	143	31 [23]	4.3
Belgium	.0030 (1.02)	.3051 (4.23)	257	44 [26]	7.4
Denmark	.0079 (2.71)	.1944 (3.21)	272	37 [8]	3.8
Finland	.0050 (0.94)	.5383 (9.21)	236	33 [4]	6.7
France	.2875 (4.32)	.0031 (2.21)	272	56 [29]	7.5
Germany	.4914 (6.65)	.0054 (2.19)	200	24 [31]	7.0
Ireland	,0107 (3.71)	.3041 (4.43)	272	67 [21]	7.8
Italy	.0044 (1.78)	.3439 (5.67)	272	33 [28]	6.9
Netherlands	.0091 (8.25)	.5795 (13.03)	272	27 [10]	3.6
Portugal	.0114 (4.03)	.3194 (5.41)	255	53 [31]	8.9
Spain	.0256 (5.94)	.4553 (7.56)	255	63 [18]	12.0
Sweden	.0127 (3.37)	.0554 (0.65)	143	59 [8]	6.4
UK	.0094 (4.18)	.3999 (6.78)	272	60 [21]	6.0

Notes: figures in square parentheses the average of fear from January 1985-September 2008. Spain and Portugal, June 1986-September 2008; Austria October 1995-September 2008; Finland November 1987-September 2008.

Table 6. Country*year cell life satisfaction, unemployment and fear of unemployment

	1975-2020	1985-2020	1985-2020
$Life_{t-1}$	.7099 (30.00)	.7010 (27.72)	.7584 (31.71)
Unemployment $rate_t$	-.0061 (4.86)	-.0063 (4.59)	-.0043 (3.51)
Fear score*100			-.0791 (3.48)
Belgium	.0242 (1.45)	.0264 (1.43)	.0292 (1.76)
Bulgaria	-.2034 (6.66)	-.2072 (6.50)	-.1591 (5.73)
Czechia	-.0316 (1.31)	-.0300 (1.19)	-.0219 (1.01)
Denmark	.1510 (7.64)	.1587 (7.22)	.1221 (5.64)
Estonia	-.0607 (2.45)	-.0597 (2.33)	-.0567 (2.53)
Finland	.0591 (2.83)	.0643 (2.95)	.0448 (2.27)
France	-.0436 (2.58)	-.0293 (1.55)	-.0134 (0.81)
Germany	-.0177 (1.10)	-.0163 (0.90)	-.0023 (0.14)
Greece	-.1204 (5.67)	-.1233 (5.43)	-.0819 (4.14)
Ireland	.0579 (3.28)	.0652 (3.32)	.0525 (2.92)
Italy	-.0714 (3.98)	-.0626 (3.17)	-.0430 (2.52)
Latvia	-.0541 (2.11)	-.0536 (2.02)	-.0454 (1.98)
Lithuania	-.0714 (2.78)	-.0712 (2.68)	-.0611 (2.65)
Macedonia	-.0222 (0.63)	-.0202 (0.54)	-.0497 (1.51)
Malta	.0010 (0.04)	.0043 (0.18)	-.0097 (0.44)
Montenegro	-.1335 (4.08)	-.1317 (3.88)	-.0562 (1.83)
Netherlands	.0925 (5.33)	.0937 (4.84)	.0752 (4.06)
Poland	-.0280 (1.15)	-.0262 (1.04)	-.0257 (1.17)
Portugal	-.1298 (6.13)	-.1304 (5.91)	-.0928 (4.84)
Romania	-.1563 (5.54)	-.1586 (5.40)	-.1133 (4.45)
Serbia	-.1268 (3.29)	-.1284 (3.21)	-.1179 (3.38)
Slovakia	-.0406 (1.61)	-.0393 (1.50)	-.0383 (1.69)
Slovenia	.0086 (0.36)	.0120 (0.49)	.0128 (0.60)
Spain	.0337 (1.50)	.0382 (1.62)	.0250 (1.20)
Sweden	.0966 (4.48)	.1030 (4.57)	.0762 (3.66)
Turkey	-.0831 (3.21)	-.0821 (3.06)	-.0720 (3.05)
UK	.0393 (2.42)	.0453 (2.47)	.0429 (2.54)
Year dummies	43	34	34
_cons	.9213	.9439	.7579
Adjusted R^2	.9300	.9272	.9465
N	820	736	708

Excluded Austria- Iceland and Norway also included in columns 1 and 2.
https://ec.europa.eu/eurostat/web/lfs/data/database source of monthly unemployment rate and World Database of Happiness for life satisfaction data. T-statistics in parentheses.

Chart 1. UK Fear and the Unemployment Rate 12 Months Ahead.

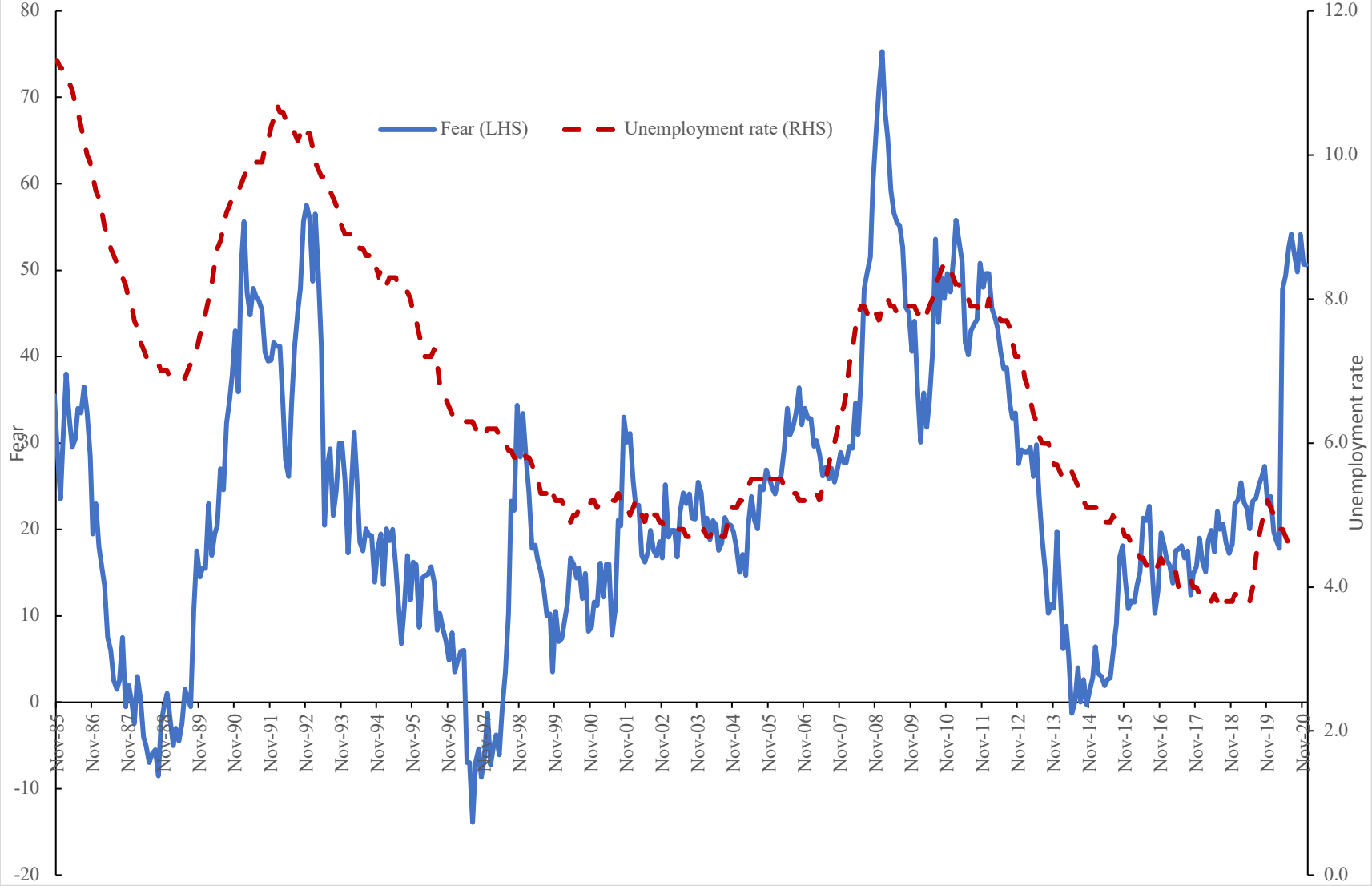


Chart 2. Germany Fear and the Unemployment Rate 12 Months Ahead

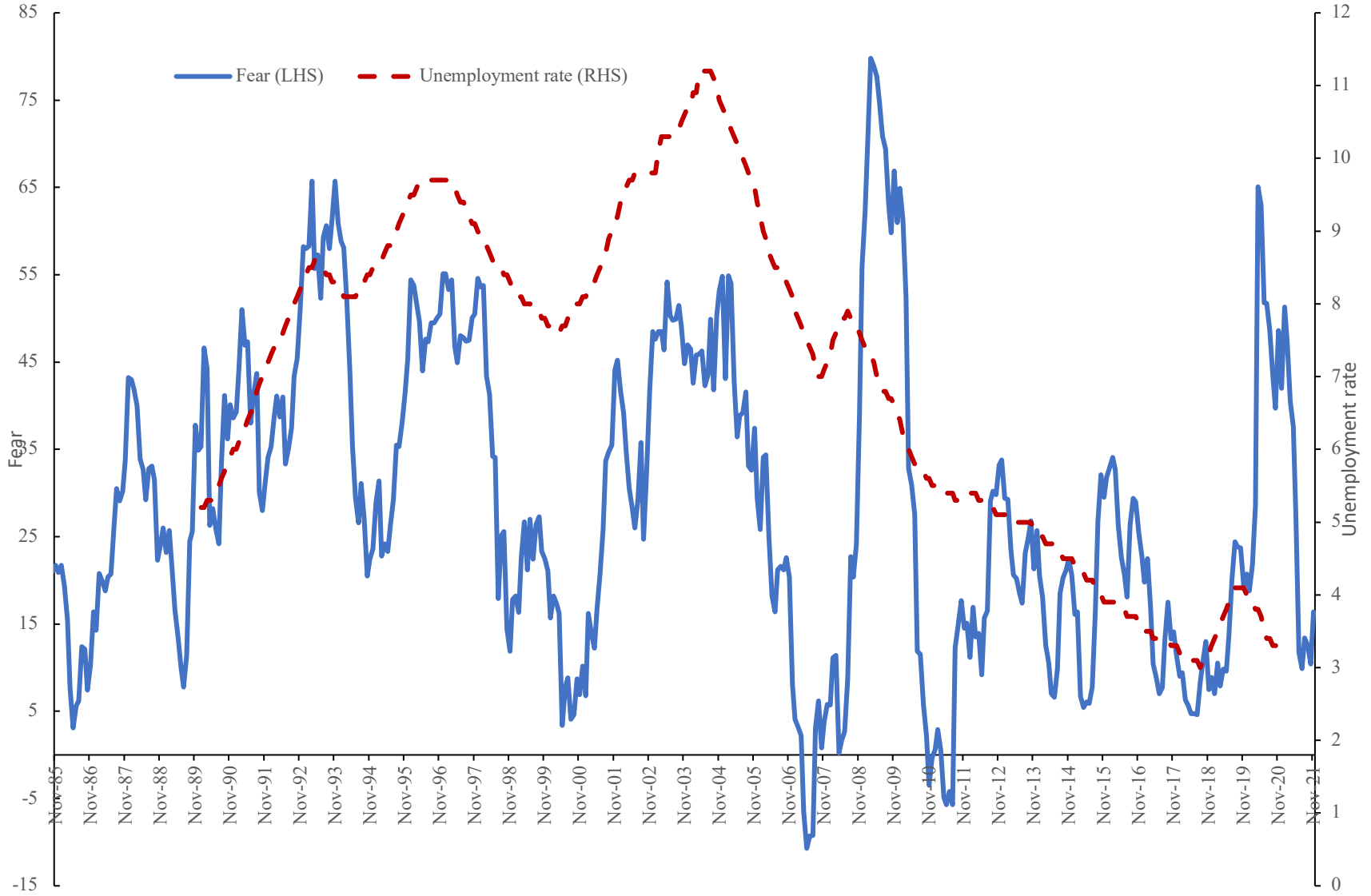


Chart 3. Italy Fear and Unemployment Rate 12 Months Ahead.

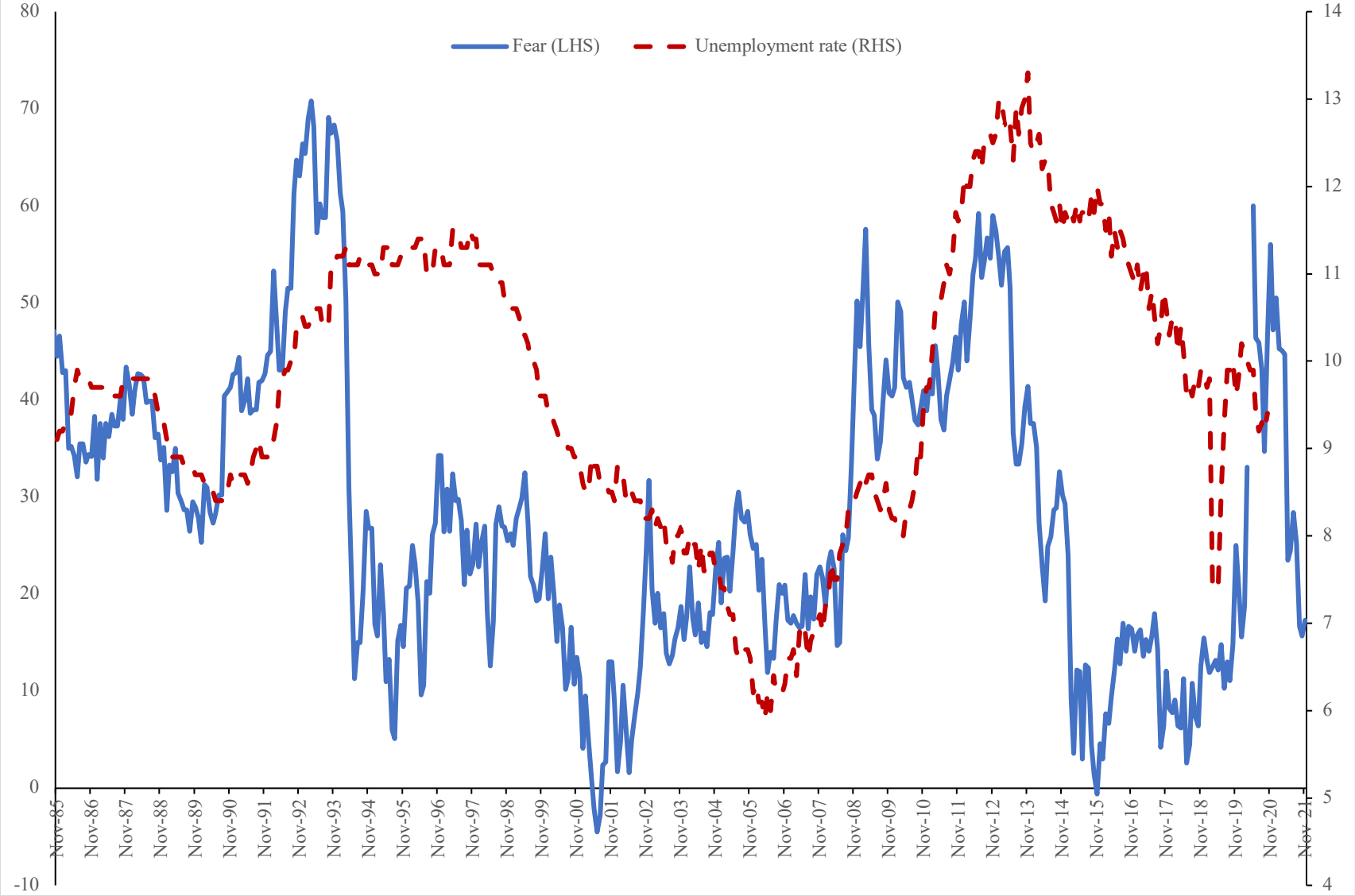


Chart 4. France Fear and Unemployment Rate 12 Months Ahead

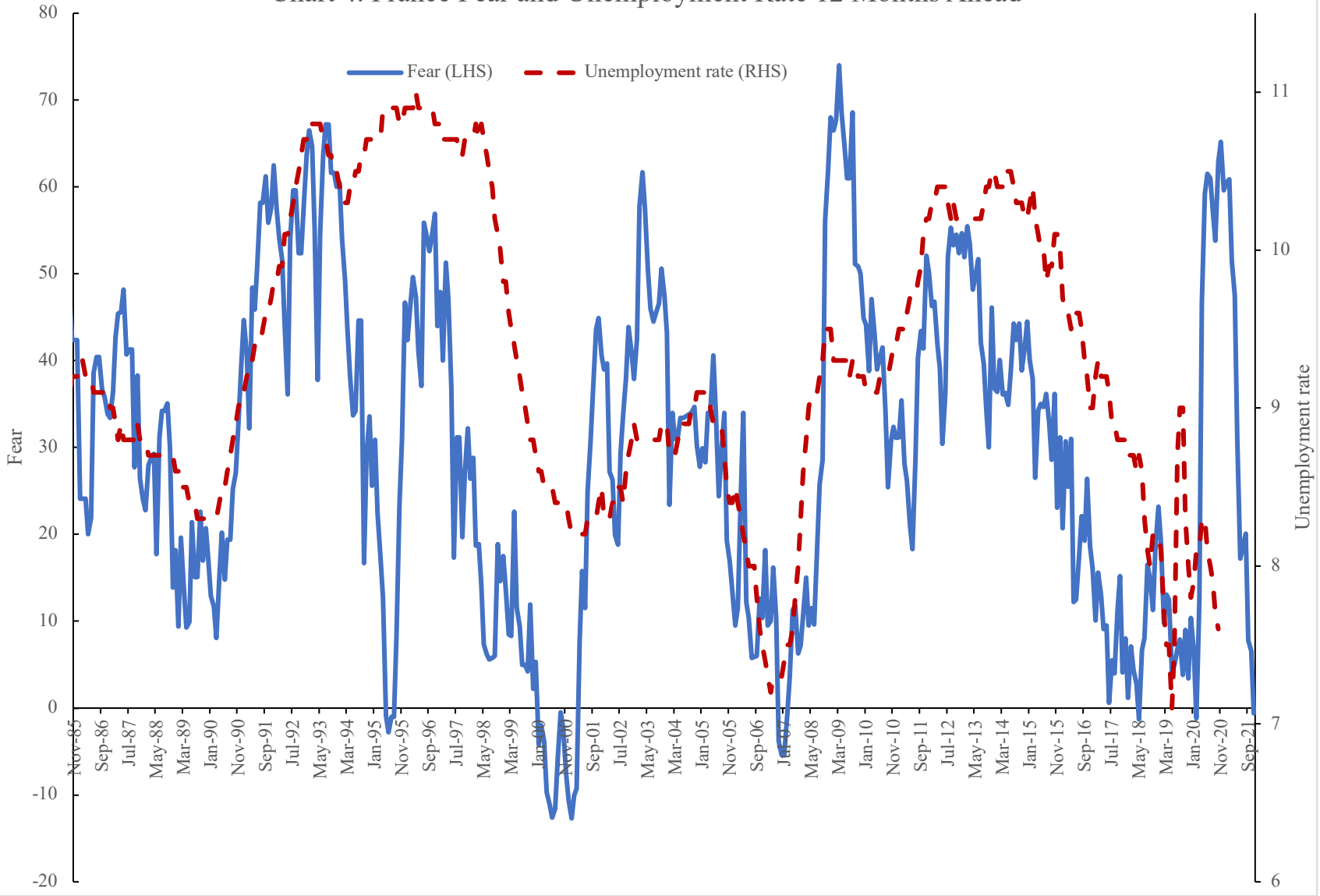
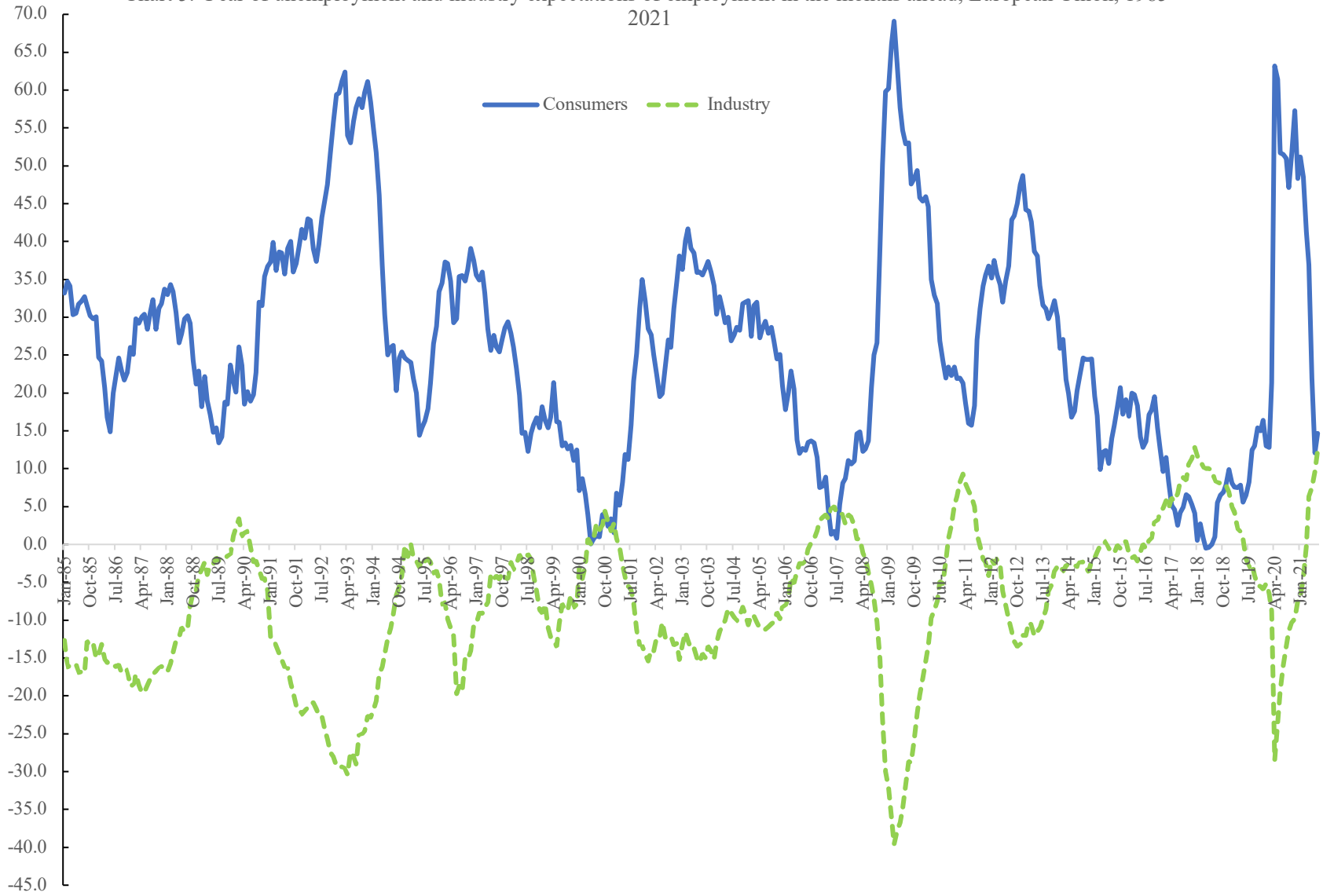


Chart 5. Fear of unemployment and industry expectations of employment in the months ahead, European Union, 1985-2021



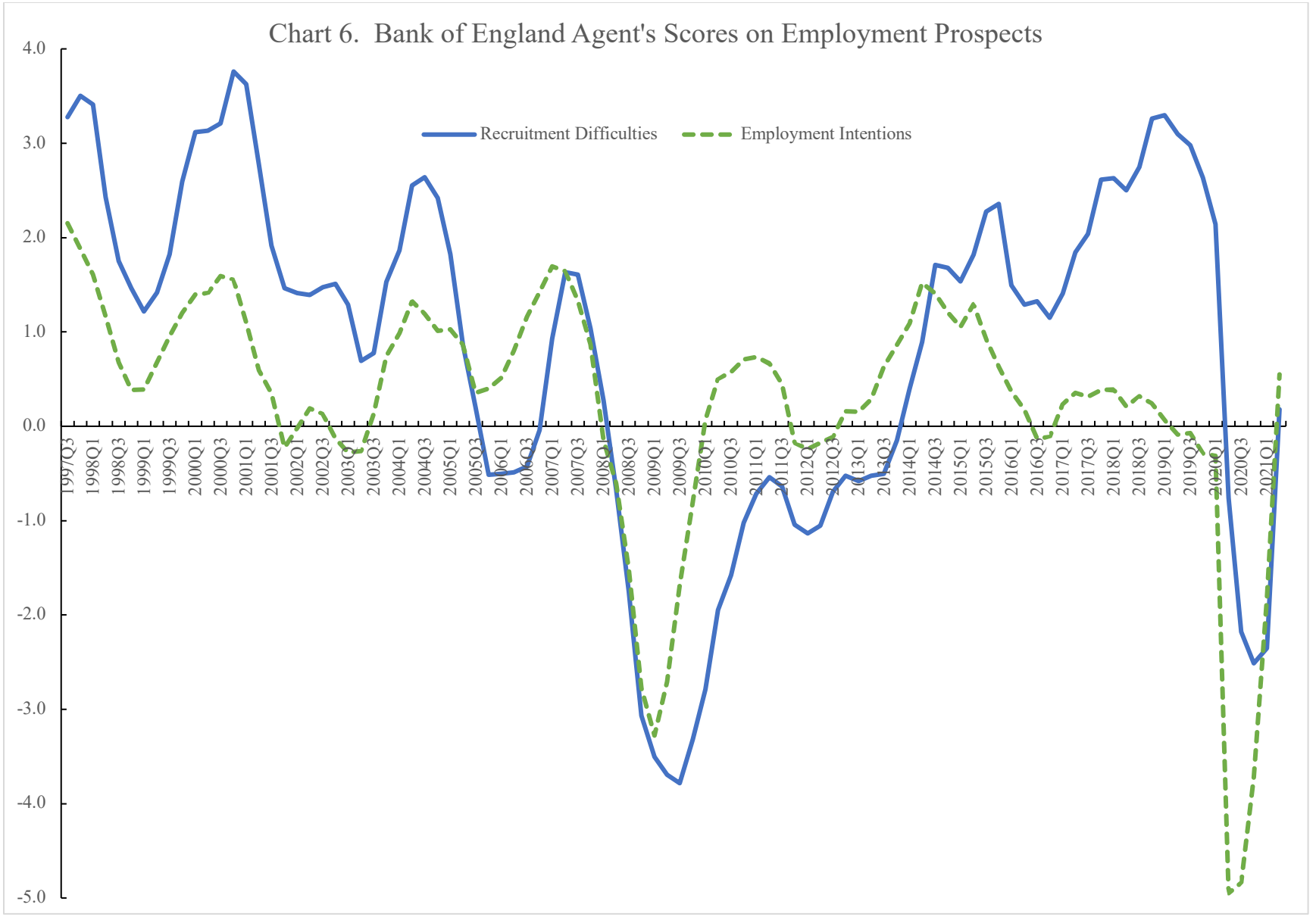


Chart 6. Bank of England Agent's Scores on Employment Prospects
Recruitment Difficulties
Employment Intentions
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
-4.0
-5.0
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1998Q3
1999Q1
1999Q3
2000Q1
2000Q3
2001Q1
2001Q3
2002Q1
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2003Q1
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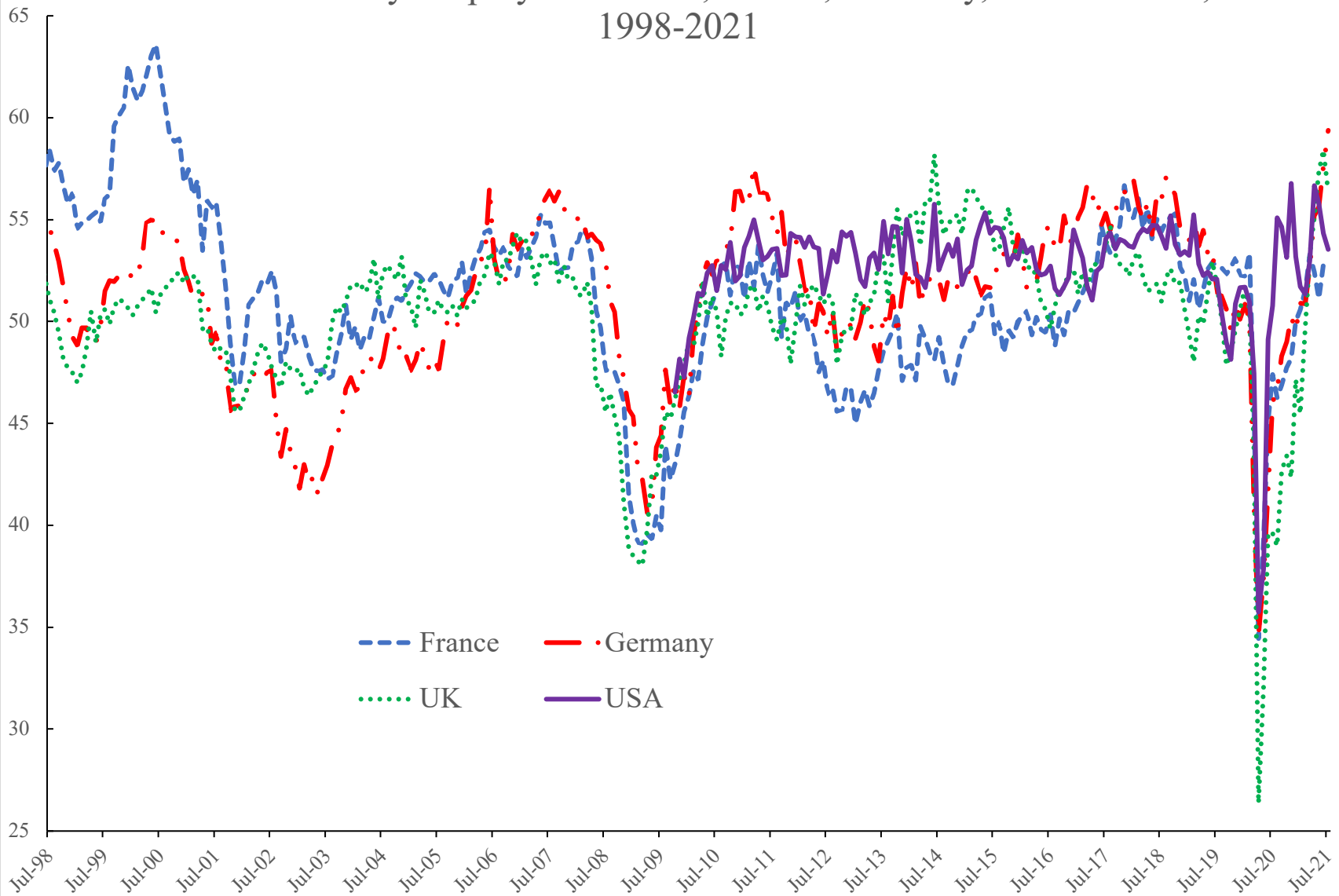
2015Q3
2016Q1
2016Q3
2017Q1
2017Q3
2018Q1
2018Q3
2019Q1
2019Q3
2020Q1
2020Q3
2021Q1

Chart 7. Monthly Employment PMIs, France, Germany, UK and USA, 1998-2021



Appendix A.

1) MPC Minutes August 8th 2008

https://www.bankofengland.co.uk/-/media/boe/files/minutes/2008/minutes-august-2008.pdf?la=en&hash=2D16D0F903280E22C840755DDB63832E76689945

31. "UK Q2 GDP growth had been estimated at 0.2%, although subsequent industrial production data for June had been weaker than embodied in the GDP estimate. Overall the economy had slowed by more than previous data had suggested. Surveys of output in July had suggested that growth was continuing to ebb. Consumer confidence had weakened further and, despite a robust Q2 figure, retail sales appeared to be slowing on a range of indicators. House prices had fallen sharply in July and loan approvals had fallen to a further low in June. The labour market had also eased. (para 31)

38.. Given the current stance of monetary policy and the prospective weakness in the economy, the resulting increase in spare capacity should bear down on inflation. That would help to counter the risk of high inflation in the near-term becoming embedded in inflation expectations, and to bring inflation back to the target. There would, however, still be significant risks to the inflation outlook.

39. Most members of the Committee judged that the current stance of monetary policy was broadly appropriate and that Bank Rate should be maintained at 5% this month."

2) Bank of England Agents, Survey, August 2008

https://www.bankofengland.co.uk/-/media/boe/files/agents-summary/2008/august-2008.pdf?la=en&hash=E2E6946167A9E49080878074DFA8D31F57E047B2

- The Agents' score for business services output fell sharply in July, its largest monthly decline for nearly seven years

- Agents' scores for investment intentions declined. The score for the service sector fell to its lowest level since the series began in 1997.

- Consumption growth eased further, reflecting weakness in demand for consumer services.

- The slowdown in housing demand continued.

- The score for construction output fell further in July. The sharp fall in housing starts that had began around Easter had yet to have its maximum impact on output, and some Agencies expected further score reductions in the months ahead.

- Capacity constraints in manufacturing and services declined.

- Labour demand continued to weaken in July, particularly in construction and housing-related services. Many firms were looking to reduce the volume of labour inputs as product demand slowed.

Data Appendix Table 1. Consumer Fear by country by year, 1985-2021

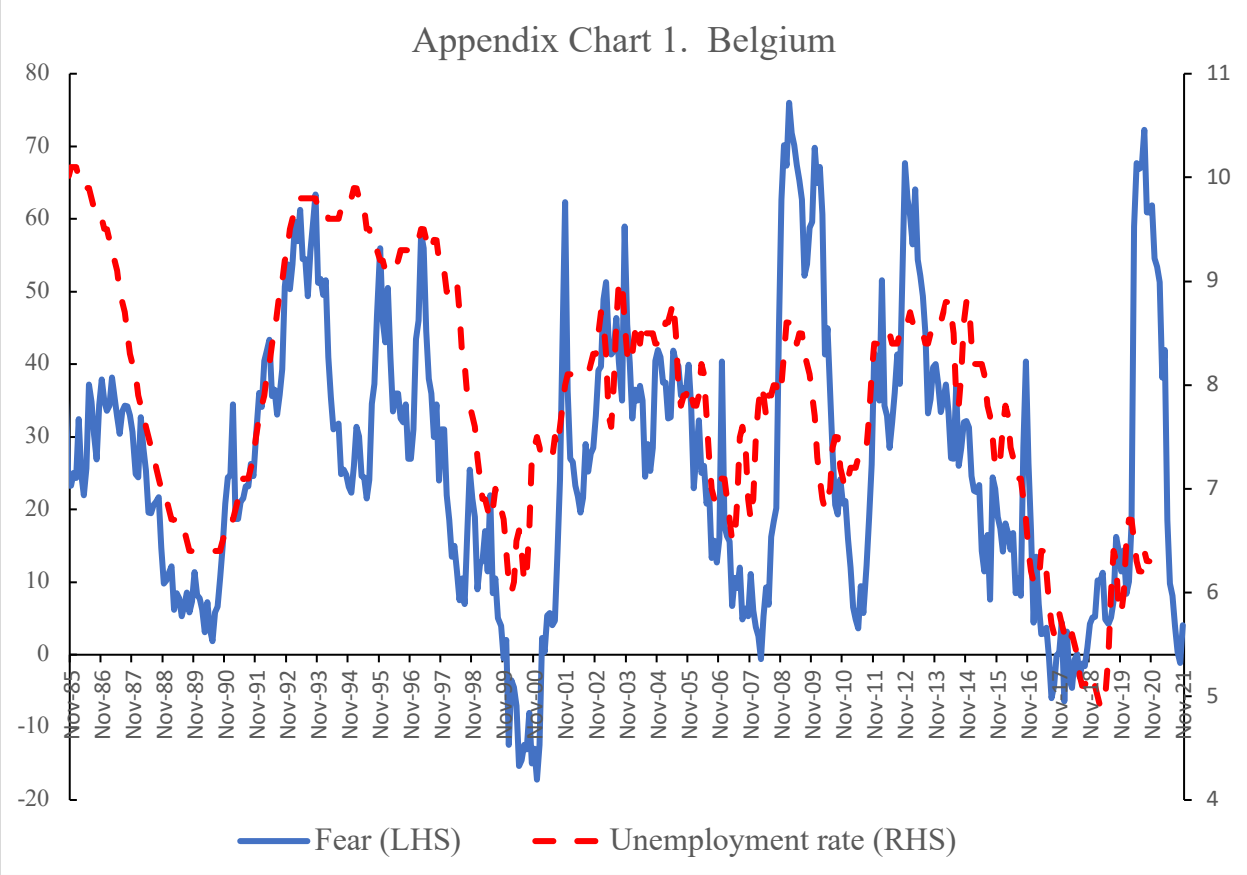
	UK	Belgium	Denmark	Germany	Ireland	Greece	Spain	France	Italy	Netherlands	Portugal	Finland
1985	34	33	-4	23	46	12		47	44	-3		
1986	31	30	1	11	43	25	23	31	36	-10	21	
1987	6	33	27	26	43	31	27	38	38	5	12	14
1988	-3	21	33	33	32	22	18	27	39	10	8	9
1989	4	8	28	21	17	19	7	16	30	-2	3	-6
1990	28	9	23	35	14	35	14	20	33	5	3	7
1991	46	25	26	40	42	44	26	51	41	19	9	33
1992	42	41	31	42	48	49	49	54	53	27	25	10
1993	34	56	27	59	41	40	57	60	65	61	61	19
1994	20	33	-3	36	24	40	30	37	31	31	55	-12
1995	15	34	-13	32	17	48	21	16	15	14	46	-10
1996	11	35	0	50	10	47	16	49	23	9	49	-4
1997	-3	39	-11	50	-13	49	7	34	27	-9	16	-14
1998	11	16	-8	31	-18	55	2	14	24	-15	23	-15
1999	15	10	8	23	-23	51	-1	9	25	-9	15	-13
2000	12	-11	-5	10	-20	35	-1	-7	16	-20	11	-11
2001	19	16	3	25	16	42	10	19	4	12	18	8
2002	20	27	8	34	34	37	20	33	11	31	43	14
2003	22	44	25	49	42	50	14	49	17	56	60	23
2004	20	34	10	47	15	38	12	32	19	35	50	20
2005	22	37	-1	40	11	44	11	28	25	18	50	13
2006	31	23	-12	22	12	41	10	13	18	-10	45	7
2007	28	10	-8	-1	33	35	12	5	19	-16	43	-2
2008	45	22	20	17	54	50	46	27	27	11	51	18
2009	55	65	31	70	63	63	42	61	43	61	64	43
2010	42	37	5	25	38	84	27	37	42	23	56	11
2011	48	16	5	5	32	88	20	35	42	18	65	16
2012	38	43	10	21	25	82	44	47	54	53	72	31
2013	21	47	1	23	11	75	31	45	44	54	57	32
2014	4	32	-9	16	-8	48	4	40	29	19	17	32
2015	8	19	-11	17	-16	46	-9	33	8	4	10	29
2016	16	18	1	27	-12	62	-3	21	12	5	5	16
2017	16	2	-9	14	-12	51	-7	9	13	-23	-13	-6
2018	19	-1	-9	8	-12	30	-1	9	8	-26	-11	-8
2019	24	10	1	16	7	7	13	9	14	-7	-1	6
2020	43	51	15	44	26	52	48	45	41	52	53	29
2021		21	-7	25	-4	46	19	29	31	11	31	5
Mean	23	27	6	29	18	45	18	31	29	14	31	10

Data Appendix Table 4. Consumer Fear, 1992-2021

	Austria	Estonia	Czechia	Latvia	Hungary	Slovenia	Slovakia	Sweden
1992		72						
1993		72		49	43			
1994		43		40	19			
1995	38	25	25	32	42			5
1996	46	26	24	34	35	32		24
1997	39	35	49	32	24	30		10
1998	32	30	55	30	10	29		-3
1999	19	52	62	30	23	24	54	-2
2000	2	47	43	22	25	13	36	-19
2001	15	37	14	14	22	12	32	19
2002	21	21	27	17	14	28	32	13
2003	31	19	40	17	37	31	22	24
2004	30	11	30	16	31	29	6	22
2005	31	3	15	7	35	35	0	19
2006	17	-17	6	-5	42	20	-4	-1
2007	-3	-7	3	-4	53	11	-12	-18
2008	17	34	14	32	53	19	1	29
2009	52	47	45	66	71	54	53	39
2010	14	5	26	27	29	43	22	-10
2011	10	0	29	13	37	39	29	2
2012	27	9	40	11	42	44	36	25
2013	27	1	36	8	27	43	33	17
2014	34	5	17	8	14	28	13	1
2015	42	13	8	8	17	13	8	17
2016	43	17	4	14	11	9	-2	16
2017	12	6	0	10	4	-5	-5	3
2018	-2	2	0	6	1	-5	-8	2
2019	8	6	10	6	-2	7	2	19
2020	27	34	42	29	32	45	47	36
2021	3	21	27	25	23	29	37	-2
Mean	24	21	24	20	28	25	18	11

Data Appendix Table 2. Consumer Fear, 2001-2021

	Albania	Bulgaria	Croatia	Cyprus	Lithuania	Luxembourg	Malta	Poland	Romania	Montenegro	Macedonia	Turkey
2001	15		33	37			55					
2002	26		32	24	25	15	52	32				
2003	20		33	7	40	12	42	44				
2004	15		41	-5	36	24	22	43				
2005	15	26	46	-15	34	24	16	31				
2006	17	19	46	-26	34	19	1	37				
2007	9	10	41	-27	21	5	-14	31			19	
2008	15	17	37	12	29	5	-6	16			38	
2009	57	55	56	73	62	31	38	21		36	32	
2010	48	56	52	45	33	29	22	70		22	23	
2011	42	40	55	17	29	27	26	71		22	11	
2012	48	50	64	17	45	24	36	53	29	15	12	
2013	40	41	65	11	43	1	34	44	26	4	14	
2014	35	40	33	13	34	-2	21	46	10	3	23	
2015	28	18	14	7	23	-10	13	37	9	1	32	
2016	-1	22	13	-6	5	8	-13	4	23	8	-1	29
2017	-4	19	9	-11	6	-1	-18	-3	23	13	-1	29
2018	0	14	-1	-12	5	-3	-30	-6	18	14	1	29
2019	4	15	-1	-7	3	10	-24	-2	19	10	-5	42
2020	19	38	32	47	29	49	14	39	16	25	16	41
2021	21	29	24	33	21	26	-12	28		18	20	32
Mean	5	27	27	33	12	29	6	19	35	16	6	27


Appendix Chart 1. Belgium
80
70
60
50
40
30
20
10
0
-10
-20
11
10
9
8
7
6
5
4
Nov-85
Nov-86
Nov-87
Nov-88
Nov-89
Nov-90
Nov-91
Nov-92
Nov-93
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Nov-95
Nov-96
Nov-97
Nov-98
Nov-99
Nov-00
Nov-01
Nov-02
Nov-03
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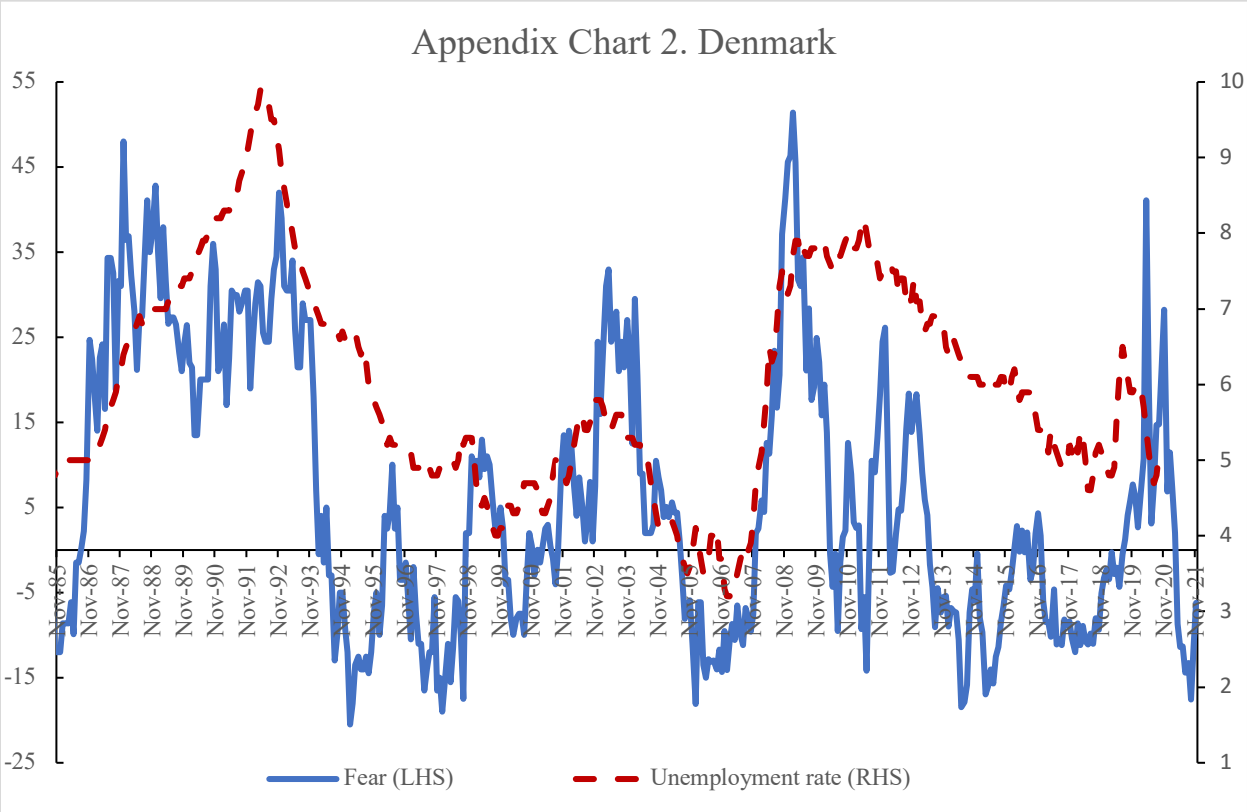
Nov-20
Nov-21
Fear (LHS)
Unemployment rate (RHS)


Appendix Chart 2. Denmark
55
45
35
25
15
5
-5
-15
-25
10
9
8
7
6
5
4
3
2
1
Nov-85
Nov-86
Nov-87
Nov-88
Nov-89
Nov-90
Nov-91
Nov-92
Nov-93
Nov-94
Nov-95
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Nov-97
Nov-98
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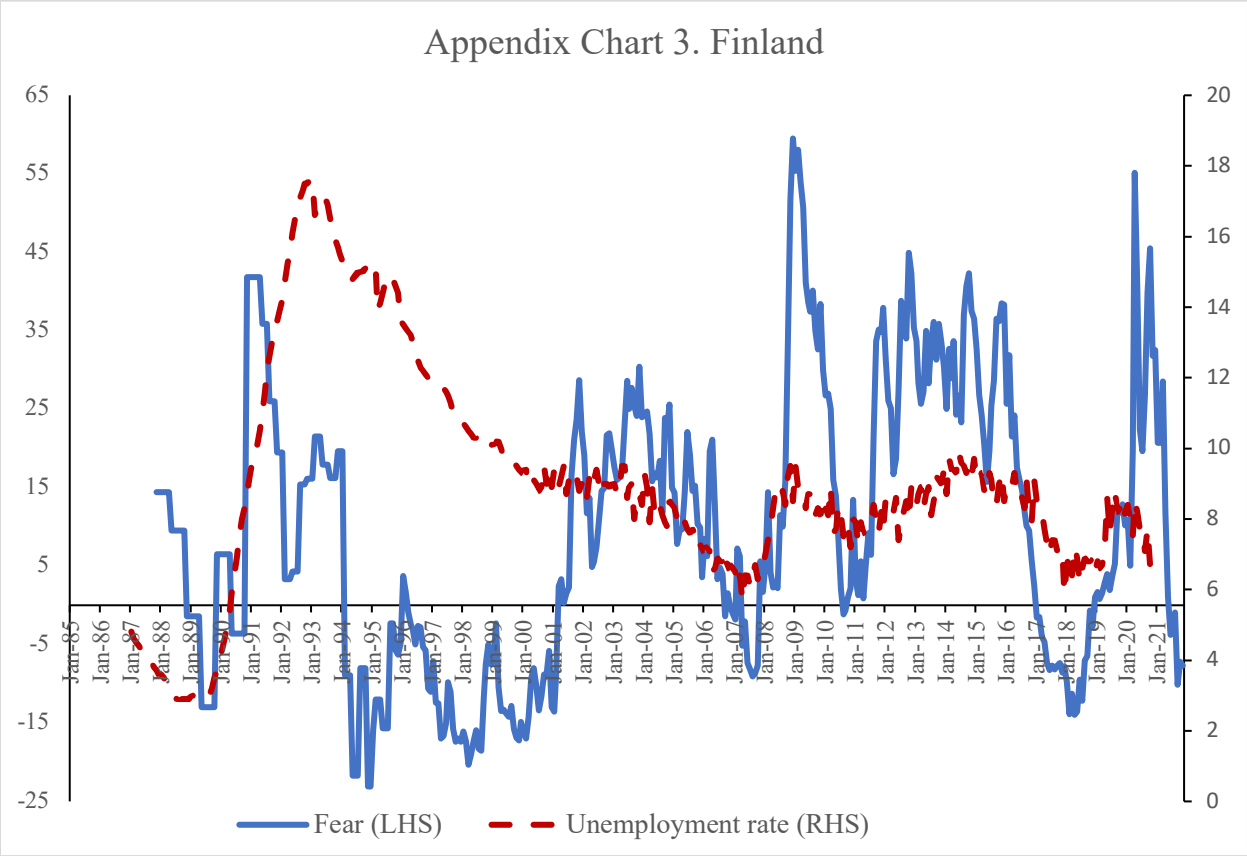
Nov-20
Nov-21
Fear (LHS)
Unemployment rate (RHS)


Appendix Chart 3. Finland
65
55
45
35
25
15
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-5
-15
-25
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18
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10
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6
4
2
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Jan-85
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Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
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Jan-01
Jan-02
Jan-03
Jan-04
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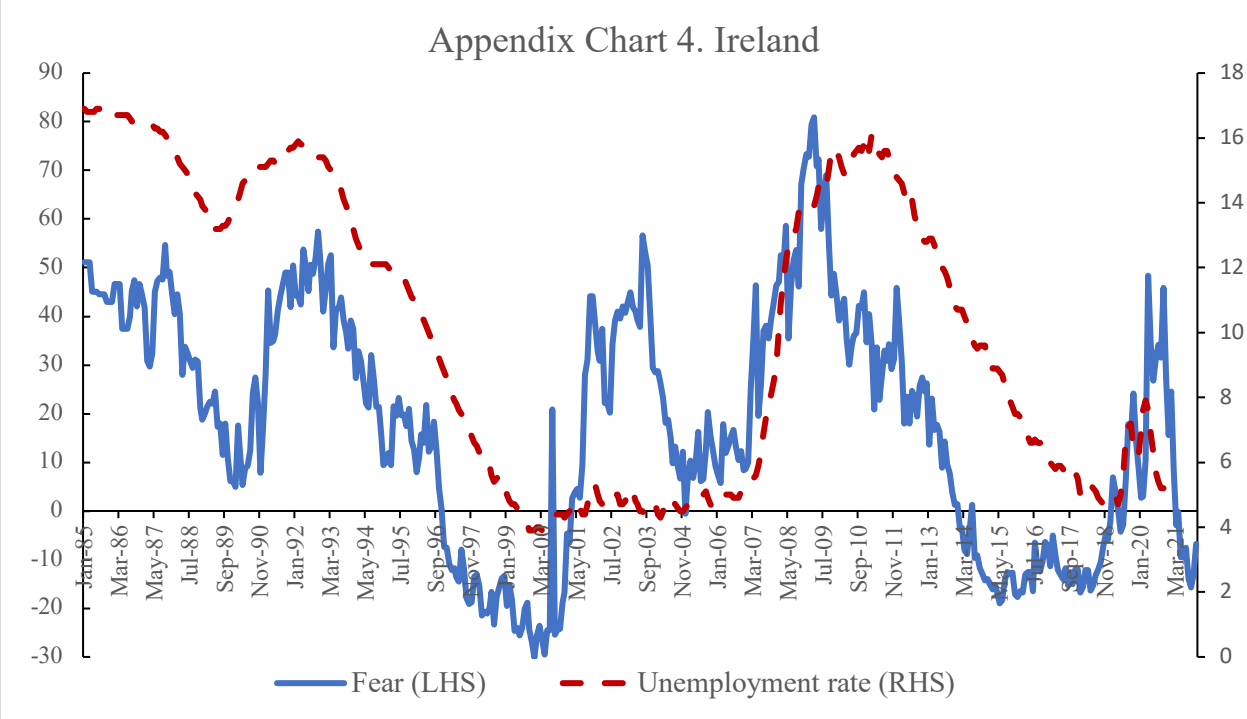
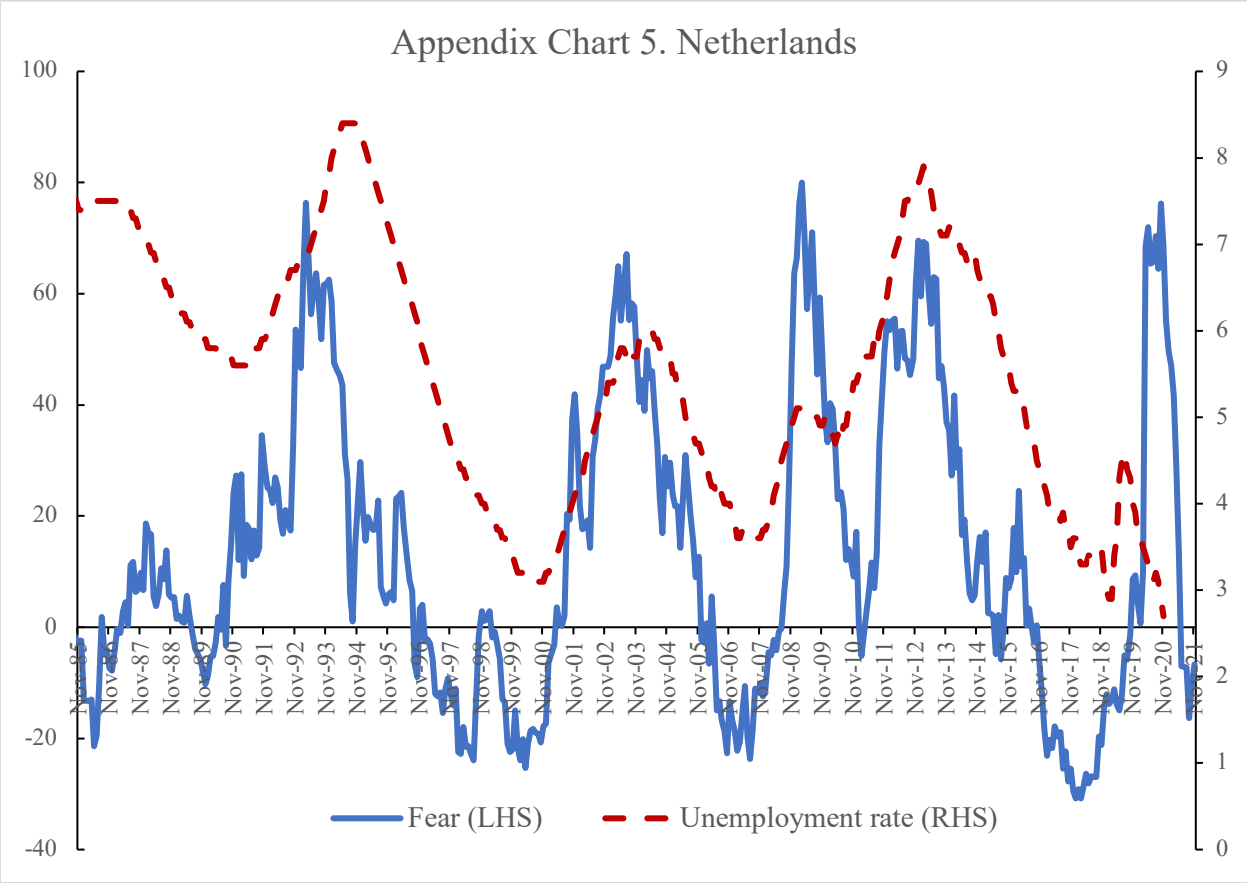
Jan-20
Jan-21
Fear (LHS)
Unemployment rate (RHS)


Appendix Chart 4. Ireland
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
18
16
14
12
10
8
6
4
2
0
Jan-85
Mar-86
May-87
Jul-88
Sep-89
Nov-90
Jan-92
Mar-93
May-94
Jul-95
Sep-96
Nov-97
Jan-99
Mar-00
May-01
Jul-02
Sep-03
Nov-04
Jan-06
Mar-07
May-08
Jul-09
Sep-10
Nov-11
Jan-13
Mar-14
May-15
Jul-16
Sep-17
Nov-18
Jan-20
Mar-21
Fear (LHS)
Unemployment rate (RHS)


Appendix Chart 5. Netherlands
100
80
60
40
20
0
-20
-40
9
8
7
6
5
4
3
2
1
0
Nov-85
Nov-86
Nov-87
Nov-88
Nov-89
Nov-90
Nov-91
Nov-92
Nov-93
Nov-94
Nov-95
Nov-96
Nov-97
Nov-98
Nov-99
Nov-00
Nov-01
Nov-02
Nov-03
Nov-04
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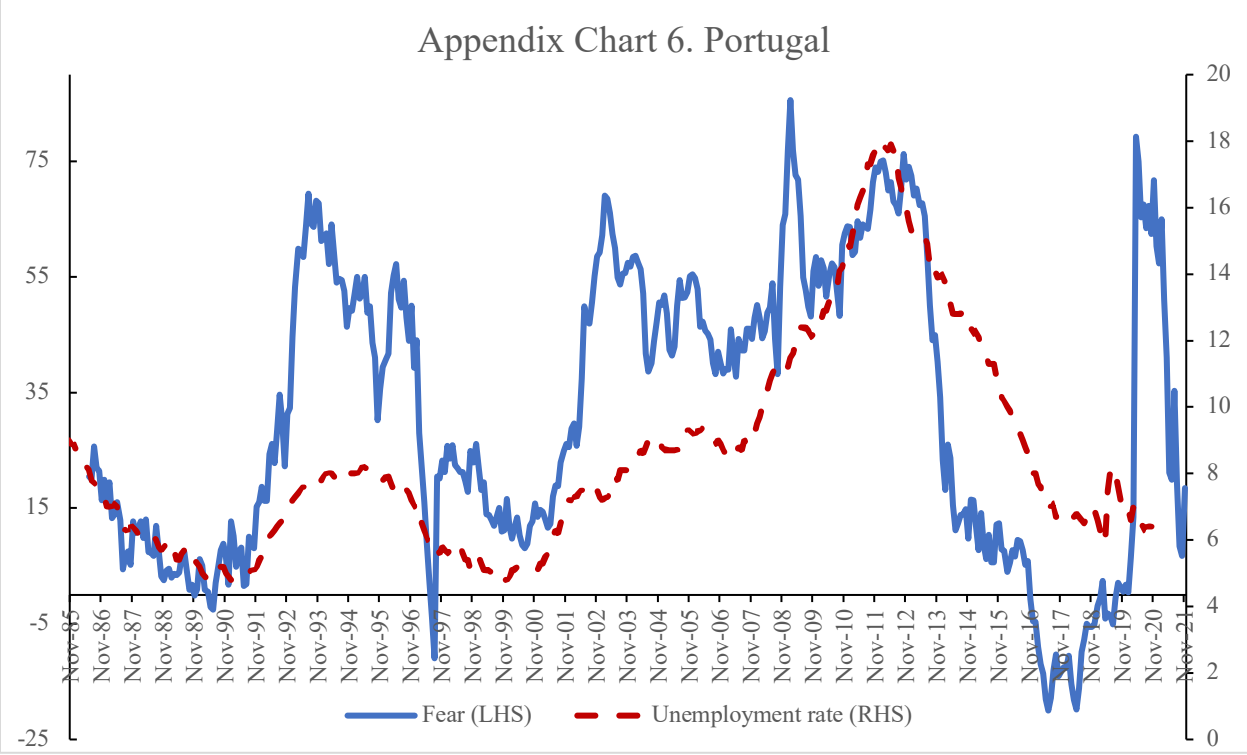
Nov-19
Nov-20
Nov-21
Fear (LHS)
Unemployment rate (RHS)


Appendix Chart 6. Portugal
75
55
35
15
-5
-25
20
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16
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12
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8
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4
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0
Nov-85
Nov-86
Nov-87
Nov-88
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Nov-90
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Nov-93
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Nov-95
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Nov-98
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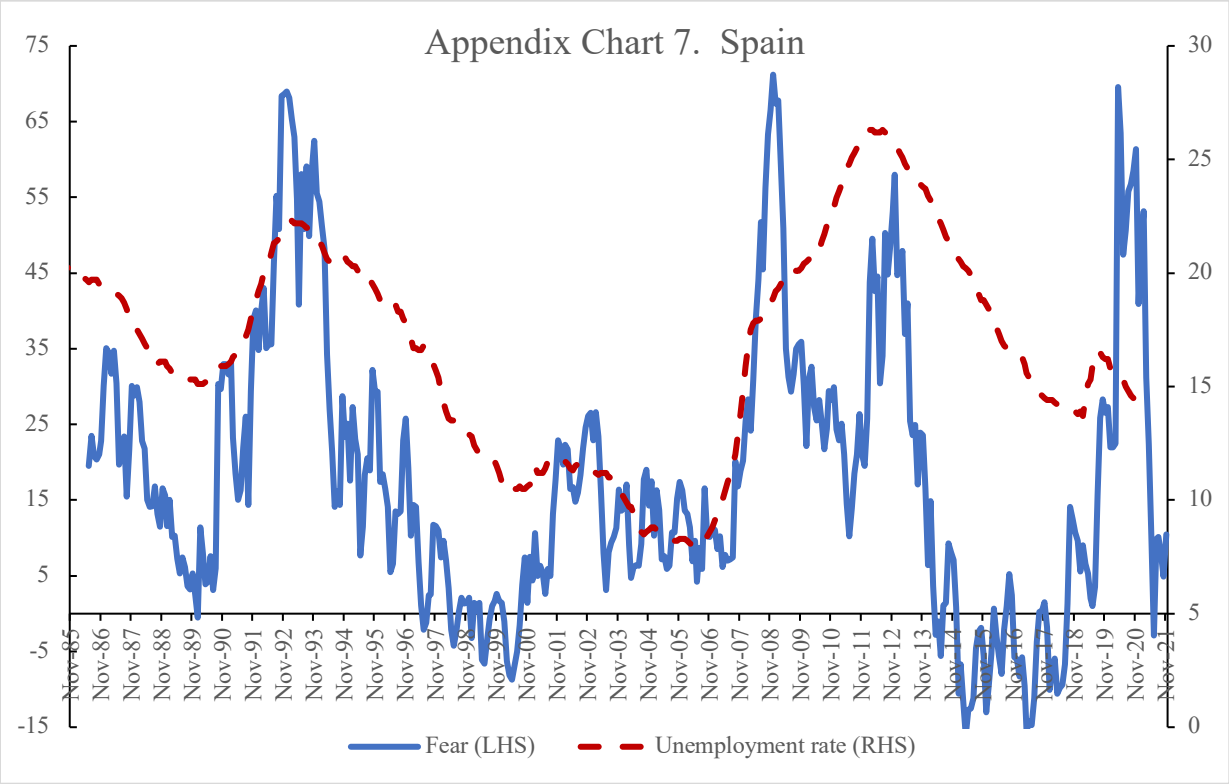
Nov-19
Nov-20
Nov-21
Fear (LHS)
Unemployment rate (RHS)


Appendix Chart 7. Spain
75
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55
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35
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15
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-5
-15
30
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20
15
10
5
0
Nov-85
Nov-86
Nov-87
Nov-88
Nov-89
Nov-90
Nov-91
Nov-92
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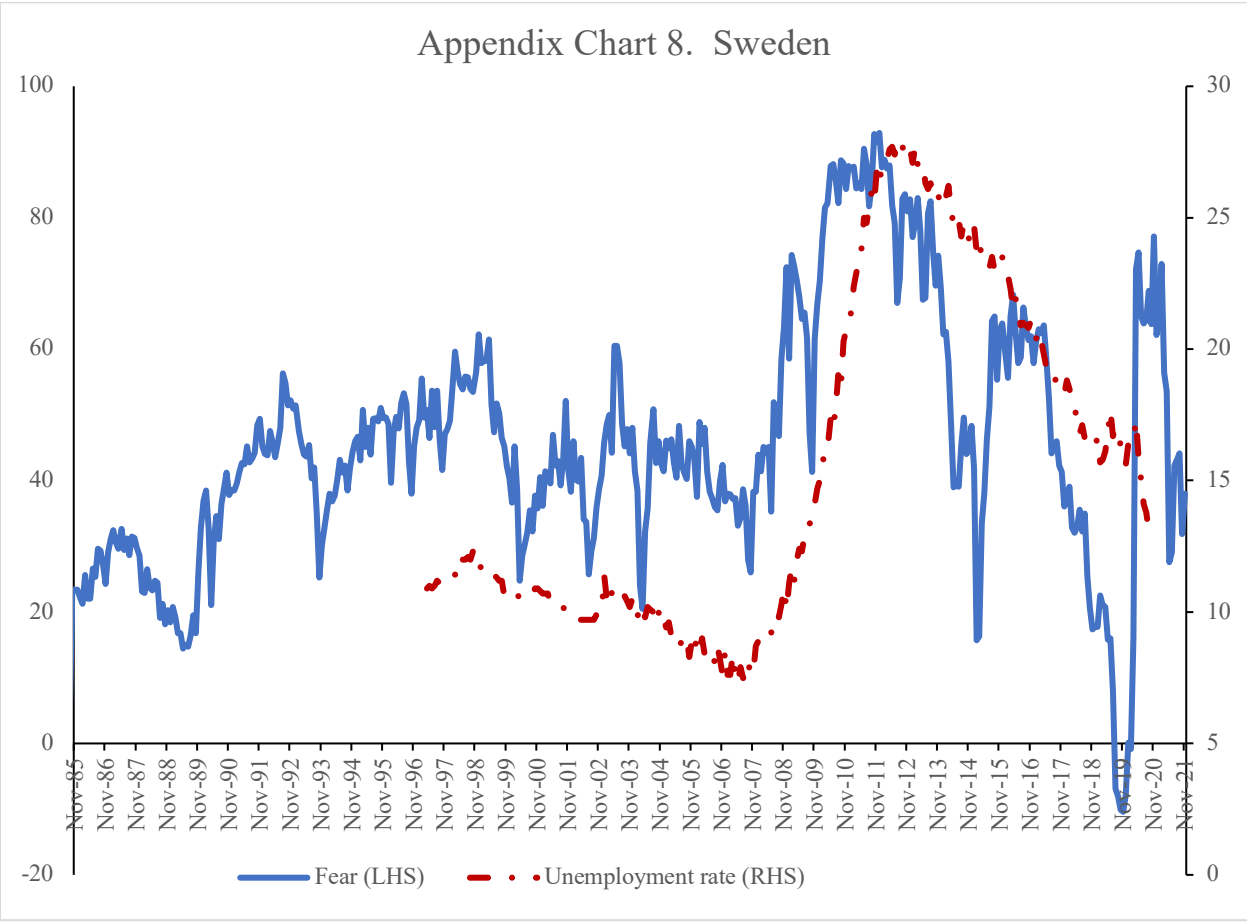
Nov-08
Nov-09
Nov-10
Nov-11
Nov-12
Nov-13
Nov-14
Nov-15
Nov-16
Nov-17
Nov-18
Nov-19
Nov-20
Nov-21
Fear (LHS)
Unemployment rate (RHS)


Appendix Chart 8. Sweden
100
80
60
40
20
0
-20
30
25
20
15
10
5
0
Nov-85
Nov-86
Nov-87
Nov-88
Nov-89
Nov-90
Nov-91
Nov-92
Nov-93
Nov-94
Nov-95
Nov-96
Nov-97
Nov-98
Nov-99
Nov-00
Nov-01
Nov-02
Nov-03
Nov-04
Nov-05
Nov-06
Nov-07
Nov-08
Nov-09
Nov-10
Nov-11
Nov-12
Nov-13
Nov-14
Nov-15
Nov-16
Nov-17
Nov-18
Nov-19
Nov-20
Nov-21
Fear (LHS)
Unemployment rate (RHS)

```
regr urate urate12 fear12 i.year i.month i.country if year<2000

      Source |       SS           df       MS      Number of obs   =     1,894
-------------+----------------------------------   F(43, 1850)     =   1001.01
       Model |  26967.1522        43  627.143074   Prob > F        =    0.0000
    Residual |  1159.04744     1,850  .626512127   R-squared       =    0.9588
-------------+----------------------------------   Adj R-squared   =    0.9578
       Total |  28126.1996     1,893   14.858003   Root MSE        =    .79153

------------------------------------------------------------------------------
       urate | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
     urate12 |   .8426739   .0107085    78.69   0.000     .8216718     .863676
      fear12 |   .0291945   .0013763    21.21   0.000     .0264953    .0318937
             |
        year |
        1987 |   .2425184   .1244298     1.95   0.051    -.0015192     .486556
        1988 |  -.2028433    .121447    -1.67   0.095    -.4410309    .0353443
        1989 |  -.5514551   .1202173    -4.59   0.000     -.787231   -.3156792
        1990 |  -.1387386   .1226234    -1.13   0.258    -.3792334    .1017561
        1991 |   .7488085   .1227547     6.10   0.000     .5080561    .9895609
        1992 |   .8215508   .1198062     6.86   0.000     .5865813     1.05652
        1993 |   1.238822   .1189116    10.42   0.000     1.005607    1.472037
        1994 |  -.1235743   .1208325    -1.02   0.307    -.3605567    .1134082
        1995 |  -.0930294   .1177783    -0.79   0.430    -.3240218    .1379629
        1996 |   .2304338   .1168648     1.97   0.049      .001233    .4596346
        1997 |  -.3205464   .1133962    -2.83   0.005    -.5429443   -.0981486
        1998 |  -.2613528   .1149146    -2.27   0.023    -.4867287    -.035977
        1999 |  -.3438805   .1176511    -2.92   0.004    -.5746233   -.1131376
             |
       month |
           2 |  -.0543236   .0903668    -0.60   0.548    -.2315552    .1229081
           3 |   -.018382   .0902167    -0.20   0.839    -.1953192    .1585552
           4 |   .0407847   .0897124     0.45   0.649    -.1351636    .2167329
           5 |    .088872   .0900085     0.99   0.324    -.0876569     .265401
           6 |   .0888357   .0897644     0.99   0.322    -.0872144    .2648859
           7 |   .0675484   .0895336     0.75   0.451    -.1080491    .2431459
           8 |   .0426647   .0896507     0.48   0.634    -.1331626    .2184919
           9 |   .0390858   .0896462     0.44   0.663    -.1367326    .2149041
          10 |   .0013525   .0892784     0.02   0.988    -.1737444    .1764495
          11 |  -.0340446    .089413    -0.38   0.703    -.2094057    .1413165
          12 |  -.0442256    .089414    -0.49   0.621    -.2195885    .1311372
             |
     country |
     Belgium |  -.0774557   .0899119    -0.86   0.389    -.2537951    .0988837
    Czechia  |    .410167   .1566959     2.62   0.009     .1028476    .7174863
     Denmark |   .1661557   .0899489     1.85   0.065    -.0102563    .3425678
     Germany |   -.089927   .1078709    -0.83   0.405    -.3014885    .1216345
     Ireland |   .2546134   .1018287     2.50   0.012      .054902    .4543247
      Greece |   1.112465    .287752     3.87   0.000     .5481122    1.676818
       Spain |    1.28173   .1364273     9.39   0.000     1.014163    1.549298
      France |   .1621292   .0890561     1.82   0.069    -.0125318    .3367903
       Italy |   .2593822   .0893002     2.90   0.004     .0842425    .4345219
      Latvia |   1.161925   .3416058     3.40   0.001     .4919513    1.831898
     Hungary |  -.2649052   .1507169    -1.76   0.079    -.5604984     .030688
Netherlands  |    .042377    .089536     0.47   0.636    -.1332253    .2179793
     Austria |  -.6518684    .158229    -4.12   0.000    -.9621946   -.3415421
    Portugal |  -.3962976   .0925081    -4.28   0.000    -.5777288   -.2148664
    Slovenia |   .3825523   .1574757     2.43   0.015     .0737035    .6914011
     Finland |   1.694304    .098424    17.21   0.000      1.50127    1.887338
      Sweden |   .2659769   .1444953     1.84   0.066    -.0174141    .5493678
             |
       _cons |    .337737   .1625512     2.08   0.038      .018934      .65654
------------------------------------------------------------------------------

. regr urate urate12 fear12 i.year i.month i.country if year>=2000 & year<2009

      Source |       SS           df       MS      Number of obs   =     2,678
-------------+----------------------------------   F(49, 2628)     =    883.23
       Model |  28193.8039        49  575.383754   Prob > F        =    0.0000
```

```
    Residual |  1712.02772     2,628  .651456514   R-squared       =    0.9428
-------------+----------------------------------   Adj R-squared   =    0.9417
       Total |  29905.8317     2,677  11.1713977   Root MSE        =    .80713

------------------------------------------------------------------------------
           urate | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
-----------------+------------------------------------------------------------
         urate12 |   .7260817   .0111527    65.10   0.000     .7042126    .7479507
          fear12 |   .0278552   .0012826    21.72   0.000     .0253402    .0303703
                 |
            year |
            2001 |   .4027691   .0786153     5.12   0.000      .248615    .5569232
            2002 |   .5454935   .0754015     7.23   0.000     .3976411    .6933459
            2003 |    .475428    .075222     6.32   0.000     .3279276    .6229283
            2004 |   .4045331   .0771619     5.24   0.000     .2532289    .5558374
            2005 |   .0920475   .0744613     1.24   0.217    -.0539612    .2380563
            2006 |  -.3809683    .074317    -5.13   0.000    -.5266942   -.2352425
            2007 |  -.4392648    .074773    -5.87   0.000    -.5858848   -.2926448
            2008 |     .29472   .0772102     3.82   0.000      .143321    .4461189
                 |
           month |
               2 |   -.048859   .0774214    -0.63   0.528     -.200672     .102954
               3 |  -.0450432   .0774226    -0.58   0.561    -.1968586    .1067722
               4 |  -.0289063   .0772389    -0.37   0.708    -.1803615     .122549
               5 |    .031513   .0767589     0.41   0.681    -.1190011     .182027
               6 |   .0645411   .0767835     0.84   0.401    -.0860211    .2151033
               7 |   .0573353   .0765962     0.75   0.454    -.0928597    .2075302
               8 |   .0588479   .0766862     0.77   0.443    -.0915236    .2092194
               9 |   .0571126   .0767736     0.74   0.457    -.0934302    .2076554
              10 |   .0233986   .0766292     0.31   0.760    -.1268611    .1736583
              11 |   .0317782   .0767533     0.41   0.679    -.1187248    .1822811
              12 |   .0816287   .0767598     1.06   0.288     -.068887    .2321445
                 |
         country |
         Belgium |   .5662237    .113482     4.99   0.000     .3437005    .7887469
        Bulgaria |   .0631251   .1478568     0.43   0.669    -.2268024    .3530525
         Czechia |   .1173646   .1173688     1.00   0.317    -.1127799    .3475092
         Denmark |   .2209891   .1118275     1.98   0.048     .0017103     .440268
         Germany |   .7846307   .1171882     6.70   0.000     .5548403    1.014421
         Estonia |   .3255028   .1264532     2.57   0.010     .0775448    .5734608
         Ireland |   .2234371     .11017     2.03   0.043     .0074083    .4394659
          Greece |   .3619881   .1206869     3.00   0.003      .125337    .5986392
           Spain |    1.56675   .1291788    12.13   0.000     1.313448    1.820053
          France |   .7009948   .1170447     5.99   0.000     .4714857    .9305038
         Croatia |   .5760891   .1818911     3.17   0.002     .2194248    .9327535
           Italy |    .557032    .116321     4.79   0.000      .328942     .785122
          Cyprus |  -.7029784    .122081    -5.76   0.000     -.942363   -.4635938
          Latvia |   1.008145   .1361832     7.40   0.000     .7411078    1.275182
       Lithuania |   .4057697   .1417249     2.86   0.004     .1278659    .6836734
      Luxembourg |  -.1128506   .1246229    -0.91   0.365    -.3572194    .1315183
         Hungary |      .1757   .1107768     1.59   0.113    -.0415185    .3929186
           Malta |   .4936286   .1323167     3.73   0.000     .2341731     .753084
     Netherlands |   .0375424   .1104836     0.34   0.734    -.1791012     .254186
         Austria |   .0417393   .1099034     0.38   0.704    -.1737666    .2572452
          Poland |     1.4146   .1784356     7.93   0.000     1.064712    1.764489
        Portugal |   .4433841    .112053     3.96   0.000     .2236629    .6631052
         Romania |  -.0221941   .1218899    -0.18   0.856    -.2612039    .2168158
        Slovenia |  -.0477519   .1104517    -0.43   0.666     -.264333    .1688292
Slovak Republic |   2.399565   .1718661    13.96   0.000     2.062559    2.736572
         Finland |   .9703876   .1209197     8.03   0.000      .73328    1.207495
          Sweden |   .7381923   .1134416     6.51   0.000     .5157484    .9606362
          Turkey |   2.109246   .3053816     6.91   0.000     1.510434    2.708059
                 |
           _cons |   .6424011   .1241122     5.18   0.000     .3990335    .8857687
------------------------------------------------------------------------------

. regr urate urate12 fear12 i.year i.month i.country if year>=2000 & year<2009

      Source |       SS           df       MS      Number of obs   =     2,678
-------------+----------------------------------   F(49, 2628)     =    883.23
       Model |  28193.8039        49  575.383754   Prob > F        =    0.0000
```

```
    Residual |  1712.02772     2,628  .651456514   R-squared       =    0.9428
-------------+----------------------------------   Adj R-squared   =    0.9417
       Total |  29905.8317     2,677  11.1713977   Root MSE        =    .80713

------------------------------------------------------------------------------
           urate | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
-----------------+------------------------------------------------------------
         urate12 |   .7260817   .0111527    65.10   0.000     .7042126    .7479507
          fear12 |   .0278552   .0012826    21.72   0.000     .0253402    .0303703
                 |
            year |
            2001 |   .4027691   .0786153     5.12   0.000      .248615    .5569232
            2002 |   .5454935   .0754015     7.23   0.000     .3976411    .6933459
            2003 |    .475428    .075222     6.32   0.000     .3279276    .6229283
            2004 |   .4045331   .0771619     5.24   0.000     .2532289    .5558374
            2005 |   .0920475   .0744613     1.24   0.217    -.0539612    .2380563
            2006 |  -.3809683    .074317    -5.13   0.000    -.5266942   -.2352425
            2007 |  -.4392648    .074773    -5.87   0.000    -.5858848   -.2926448
            2008 |     .29472   .0772102     3.82   0.000      .143321    .4461189
                 |
           month |
               2 |   -.048859   .0774214    -0.63   0.528     -.200672     .102954
               3 |  -.0450432   .0774226    -0.58   0.561    -.1968586    .1067722
               4 |  -.0289063   .0772389    -0.37   0.708    -.1803615     .122549
               5 |    .031513   .0767589     0.41   0.681    -.1190011     .182027
               6 |   .0645411   .0767835     0.84   0.401    -.0860211    .2151033
               7 |   .0573353   .0765962     0.75   0.454    -.0928597    .2075302
               8 |   .0588479   .0766862     0.77   0.443    -.0915236    .2092194
               9 |   .0571126   .0767736     0.74   0.457    -.0934302    .2076554
              10 |   .0233986   .0766292     0.31   0.760    -.1268611    .1736583
              11 |   .0317782   .0767533     0.41   0.679    -.1187248    .1822811
              12 |   .0816287   .0767598     1.06   0.288     -.068887    .2321445
                 |
         country |
         Belgium |   .5662237    .113482     4.99   0.000     .3437005    .7887469
        Bulgaria |   .0631251   .1478568     0.43   0.669    -.2268024    .3530525
         Czechia |   .1173646   .1173688     1.00   0.317    -.1127799    .3475092
         Denmark |   .2209891   .1118275     1.98   0.048     .0017103     .440268
         Germany |   .7846307   .1171882     6.70   0.000     .5548403    1.014421
         Estonia |   .3255028   .1264532     2.57   0.010     .0775448    .5734608
         Ireland |   .2234371     .11017     2.03   0.043     .0074083    .4394659
          Greece |   .3619881   .1206869     3.00   0.003      .125337    .5986392
           Spain |    1.56675   .1291788    12.13   0.000     1.313448    1.820053
          France |   .7009948   .1170447     5.99   0.000     .4714857    .9305038
         Croatia |   .5760891   .1818911     3.17   0.002     .2194248    .9327535
           Italy |    .557032    .116321     4.79   0.000      .328942     .785122
          Cyprus |  -.7029784    .122081    -5.76   0.000     -.942363   -.4635938
          Latvia |   1.008145   .1361832     7.40   0.000     .7411078    1.275182
       Lithuania |   .4057697   .1417249     2.86   0.004     .1278659    .6836734
      Luxembourg |  -.1128506   .1246229    -0.91   0.365    -.3572194    .1315183
         Hungary |      .1757   .1107768     1.59   0.113    -.0415185    .3929186
           Malta |   .4936286   .1323167     3.73   0.000     .2341731     .753084
     Netherlands |   .0375424   .1104836     0.34   0.734    -.1791012     .254186
         Austria |   .0417393   .1099034     0.38   0.704    -.1737666    .2572452
          Poland |    1.4146   .1784356     7.93   0.000     1.064712    1.764489
        Portugal |   .4433841    .112053     3.96   0.000     .2236629    .6631052
         Romania |  -.0221941   .1218899    -0.18   0.856    -.2612039    .2168158
        Slovenia |  -.0477519   .1104517    -0.43   0.666     -.264333    .1688292
Slovak Republic |   2.399565   .1718661    13.96   0.000     2.062559    2.736572
         Finland |   .9703876   .1209197     8.03   0.000      .73328    1.207495
          Sweden |   .7381923   .1134416     6.51   0.000     .5157484    .9606362
          Turkey |   2.109246   .3053816     6.91   0.000     1.510434    2.708059
                 |
           _cons |   .6424011   .1241122     5.18   0.000     .3990335    .8857687
------------------------------------------------------------------------------.
regr urate urate12 fear12 i.year i.month i.country

      Source |       SS           df       MS      Number of obs   =     9,011
-------------+----------------------------------   F(76, 8934)     =   1577.64
       Model |  143131.626         76  1883.31086   Prob > F        =    0.0000
    Residual |   10665.005     8,934  1.19375475   R-squared       =    0.9307
```

```
-------------+----------------------------------   Adj R-squared   =    0.9301
       Total |  153796.631     9,010  17.0695484   Root MSE        =    1.0926

------------------------------------------------------------------------------
       urate | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
     urate12 |   .8331378   .0043647   190.88   0.000      .824582    .8416936
      fear12 |   .0297444   .0007716    38.55   0.000     .0282318    .0312569
             |
        year |
        1987 |   .1982404   .1710411     1.16   0.246    -.1370395    .5335202
        1988 |  -.2774809   .1667446    -1.66   0.096    -.6043385    .0493767
        1989 |  -.5409995   .1637122    -3.30   0.001     -.861913   -.2200861
        1990 |  -.1308267   .1642242    -0.80   0.426    -.4527439    .1910905
        1991 |   .7490812   .1641199     4.56   0.000     .4273685    1.070794
        1992 |   .8286676   .1611773     5.14   0.000     .5127231    1.144612
        1993 |   1.253078   .1610902     7.78   0.000     .9373038    1.568851
        1994 |  -.1008321   .1615164    -0.62   0.532    -.4174412    .2157771
        1995 |  -.0553128   .1608046    -0.34   0.731    -.3705266    .2599011
        1996 |   .3004388   .1577186     1.90   0.057    -.0087257    .6096034
        1997 |  -.2815609   .1523676    -1.85   0.065    -.5802364    .0171146
        1998 |  -.2189368   .1524632    -1.44   0.151    -.5177997    .0799262
        1999 |   -.300543   .1521791    -1.97   0.048    -.5988491    -.002237
        2000 |  -.4039554   .1514581    -2.67   0.008     -.700848   -.1070628
        2001 |   .0536269   .1510567     0.36   0.723     -.242479    .3497328
        2002 |   .1146956   .1465667     0.78   0.434    -.1726087    .4019999
        2003 |   .0260229   .1447408     0.18   0.857    -.2577022    .3097481
        2004 |  -.0460849   .1443765    -0.32   0.750    -.3290959    .2369261
        2005 |  -.3524834   .1443504    -2.44   0.015    -.6354433   -.0695235
        2006 |  -.7854335   .1442427    -5.45   0.000    -1.068182   -.5026847
        2007 |  -.7394773   .1447652    -5.11   0.000     -1.02325   -.4557043
        2008 |   .1288264   .1452864     0.89   0.375    -.1559683     .413621
        2009 |   2.270666   .1445659    15.71   0.000     1.987284    2.554048
        2010 |   .3911417   .1447193     2.70   0.007     .1074587    .6748247
        2011 |  -.0017804    .143239    -0.01   0.990    -.2825617    .2790009
        2012 |   .8607648   .1432319     6.01   0.000     .5799975    1.141532
        2013 |   .3980818   .1432742     2.78   0.005     .1172315    .6789322
        2014 |  -.3343903   .1431548    -2.34   0.020    -.6150066   -.0537741
        2015 |  -.2968375   .1434046    -2.07   0.038    -.5779434   -.0157316
        2016 |  -.3416325   .1437883    -2.38   0.018    -.6234905   -.0597745
        2017 |  -.5657146   .1440785    -3.93   0.000    -.8481415   -.2832878
        2018 |   -.458655   .1451234    -3.16   0.002    -.7431302   -.1741799
        2019 |  -.0029115   .1458652    -0.02   0.984    -.2888408    .2830177
        2020 |   .9228275   .1458081     6.33   0.000     .6370101    1.208645
        2021 |  -.7131047   .1480519    -4.82   0.000     -1.00332    -.422889
             |
       month |
           2 |  -.0337124   .0565771    -0.60   0.551    -.1446166    .0771917
           3 |  -.0171986    .056555    -0.30   0.761    -.1280594    .0936622
           4 |   -.009722    .056481    -0.17   0.863    -.1204378    .1009938
           5 |   .0420424   .0563822     0.75   0.456    -.0684797    .1525644
           6 |   .0556197   .0563661     0.99   0.324    -.0548708    .1661101
           7 |   .0277252   .0562924     0.49   0.622    -.0826208    .1380711
           8 |  -.0009453   .0563211    -0.02   0.987    -.1113475     .109457
           9 |  -.0180619   .0563369    -0.32   0.749    -.1284951    .0923712
          10 |  -.0753753   .0562906    -1.34   0.181    -.1857178    .0349673
          11 |  -.0756742   .0567912    -1.33   0.183     -.186998    .0356497
          12 |  -.0783229   .0568899    -1.38   0.169    -.1898402    .0331944
             |
     country |
     Belgium |   .1536259   .0758957     2.02   0.043     .0048528    .3023989
    Bulgaria |   -.142003   .0913919    -1.55   0.120    -.3211521     .037146
     Czechia |  -.0631428   .0845637    -0.75   0.455     -.228907    .1026214
     Denmark |   .5039115   .0760709     6.62   0.000     .3547951    .6530279
     Germany |  -.0375053   .0791881    -0.47   0.636    -.1927322    .1177216
     Estonia |   .4446258    .089444     4.97   0.000     .2692951    .6199565
     Ireland |   .6085994   .0765644     7.95   0.000     .4585156    .7586832
      Greece |   1.014343   .0957677    10.59   0.000     .8266164     1.20207
       Spain |   1.842583   .0875817    21.04   0.000     1.670903    2.014264
      France |   .3576137   .0757461     4.72   0.000     .2091339    .5060935
     Croatia |   .6082015   .1004898     6.05   0.000     .4112185    .8051845
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          Italy  |   .5261934   .0759533     6.93   0.000     .3773075    .6750794
         Cyprus  |   .3235207   .0907431     3.57   0.000     .1456433    .5013981
         Latvia  |   .8866969   .0917904     9.66   0.000     .7067666    1.066627
      Lithuania  |   .6394531   .0924118     6.92   0.000     .4583047    .8206015
     Luxembourg  |  -.0821801   .0916193    -0.90   0.370    -.2617751    .0974148
        Hungary  |  -.0526162   .0837194    -0.63   0.530    -.2167254    .1114929
          Malta  |   .3185457   .0934249     3.41   0.001     .1354115    .5016799
    Netherlands  |   .1329791   .0754346     1.76   0.078    -.0148901    .2808483
        Austria  |   .0175767   .0835338     0.21   0.833    -.1461687    .1813221
         Poland  |   .1558766   .0921496     1.69   0.091    -.0247578    .3365111
       Portugal  |   .1698848   .0763708     2.22   0.026     .0201806     .319589
        Romania  |  -.4394605   .0931826    -4.72   0.000    -.6221199   -.2568011
       Slovenia  |   .1297388   .0837733     1.55   0.121    -.0344761    .2939536
Slovak Republic  |    .957093   .0925001    10.35   0.000     .7757715    1.138415
        Finland  |   1.053229   .0783425    13.44   0.000     .8996593    1.206798
         Sweden  |   .6675658    .083675     7.98   0.000     .5035435     .831588
         Turkey  |   .8221988   .1042428     7.89   0.000     .6178591    1.026539
                 |
          _cons  |   .2441922   .1490514     1.64   0.101    -.0479828    .5363672
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