European Commission

ISSN 2443-8049 (online)

European Business Cycle Indicators

4th Quarter 2018

TECHNICAL PAPER 029 | JANUARY 2019

EUROPEAN ECONOMY

Economic and Financial Affairs

European Economy Technical Papers are reports and data compiled by the staff of the European Commission's Directorate-General for Economic and Financial Affairs.

Authorised for publication by José Eduardo Leandro, Director for Policy, Strategy and Communication.

The Report is released every quarter of the year.

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This paper exists in English only and can be downloaded from
https://ec.europa.eu/info/publications/economic-and-financial-affairs-publications_en.

Luxembourg: Publications Office of the European Union, 2019

PDF ISBN 978-92-79-98827-1 ISSN 2443-8049 doi:10.2765/88665 KC-BF-19-001-EN-N

European Commission
Directorate-General for Economic and Financial Affairs

European Business Cycle Indicators

4th Quarter 2018

Special topic

- Reconstructing consistent historical business and consumer survey data for Ireland

This document is written by the staff of the Directorate-General for Economic and Financial Affairs, Directorate A for Policy, Strategy, Coordination and Communication, Unit A3 - Economic Situation, Forecasts, Business and Consumer Surveys (http://ec.europa.eu/info/business-economy-euro/indicators-statistics/economic-databases/business-and-consumer-surveys_en).

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OVERVIEW

Recent developments in survey indicators

- After moderate decreases in 2018-Q3, the euro-area (EA) and EU Economic Sentiment Indicators (ESI) posted more marked losses of -3.6 points in the fourth quarter. In both cases, the losses were particularly strong in December. At 107.6 (EU) and 107.3 (EA) points, both indicators are down to their lowest levels in about two years, though remaining well above their long-term averages of 100.

- EU and EA confidence weakened among consumers and managers in all business sectors, with the exception of the EU construction sector. Confidence declines were particularly strong among consumers, managers in the EA industry sector, and managers in the EU services and retail trade sectors.

- Among the seven largest EU economies, 2018-Q4 brought significant losses in France and Italy (both decreased by 3.5 points). Sentiment declined noticeably also in the UK (-2.8), Germany (-2.6), the Netherlands (-1.5) and Spain (-1.4). Only sentiment in Poland (+0.1) remained broadly stable.

- Capacity utilisation in manufacturing decreased in both the EA and the EU, by 0.3 and 0.5 percentage points (pp) compared to the last survey in July. Currently, capacity utilisation is at 83.9% (EA) and 83.4% (EU), i.e. still well above the two regions' respective long-term averages of around 81%. Capacity utilisation in services saw a 0.5pp-decrease in the EA and a 0.1pp-decrease in the EU. The current rates of 90.1% (EA) and 89.6% (EU) correspond to levels well above the series' long-term averages (calculated from 2011 onwards) of around 88.8%.

Results of the autumn 2018 EU Investment Survey in the manufacturing sector

The latest EU-wide Investment Survey was conducted in October-November 2018. The results indicate that euro-area and EU real manufacturing investment has risen in 2018 (by 5.0% and 4.5%, respectively) and is foreseen to increase further in 2019 (at rates of 4.5% and 3.8%, respectively). At country level, manufacturing managers assessed their investment in 2018 to have increased in Germany, Spain, the Netherlands and the UK, while managers in France and Italy estimated a decline and in Poland investments are expected at the same level as in 2017. For 2019, managers in Germany, Spain and the UK plan to further increase their investment. Investments are expected to increase also in France and in Poland, while managers in Italy foresee a further contraction. Also in the Netherlands, real investments are expected to decrease in 2019. The Investment Survey also provides information on the factors influencing investment (demand, financial resources, technical, other) and asks firms to assign their investments to four categories (replacement, extension, rationalisation, other (pollution control, safety, etc.)). Results for the EU, euro area and large Member States, broken down by main industrial groupings and size classes are reported.

Special topic: reconstructing consistent historical business and consumer survey data for Ireland

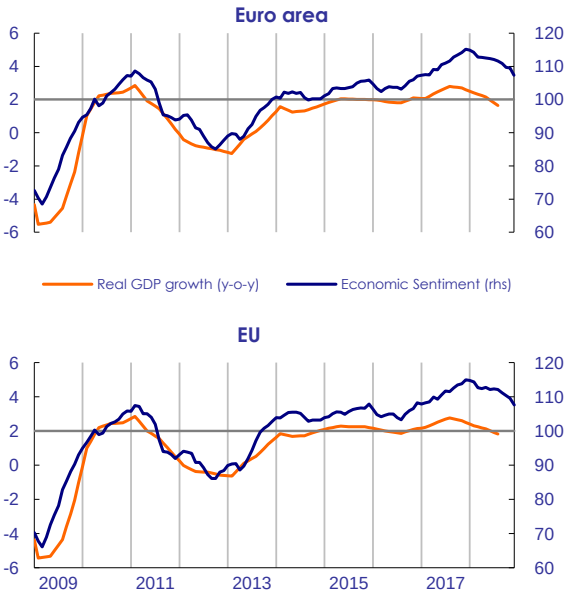
The collection of survey data in Ireland had seen a number of interruptions since the economic and financial crisis in 2008, leaving Ireland as the sole exception from the EU-wide coverage of the European Commission's Harmonised EU Programme of Business and Consumer Surveys (BCS). Since May 2016, a new Irish partner has been providing consistent and complete BCS data again, but the data have not yet been published due to the insufficient length of the time series. The special topic presents recent work to link these new data to previously collected data sets and bridge data gaps to create a set of coherent Irish business and consumer survey results since the 1980s, allowing for reliable time series analysis and business cycle monitoring. It outlines the econometric techniques used to restore the data and illustrates the quality of the resulting time series by means of their close co-movement with relevant statistical reference series. ***The new survey data for Ireland will be included for the first time in the flash release of the EU/euro area consumer confidence indicator on 23 January 2019 and be disseminated in detail with the full business and consumer survey results (Economic Sentiment Indicator) on 30 January 2019.***

1. RECENT DEVELOPMENTS IN SURVEY INDICATORS

1.1. EU and euro area

After moderate decreases in 2018-Q3, the Economic Sentiment Indicator (ESI) posted more marked losses of -3.6 points in both the euro area (EA) and the EU in the fourth quarter of 2018. In both cases, the losses were particularly strong in the last month of the year. At 107.6 (EU) and 107.3 (EA) points, both indicators are down to their lowest levels in about two years, though remaining well above their long-term averages of 100.

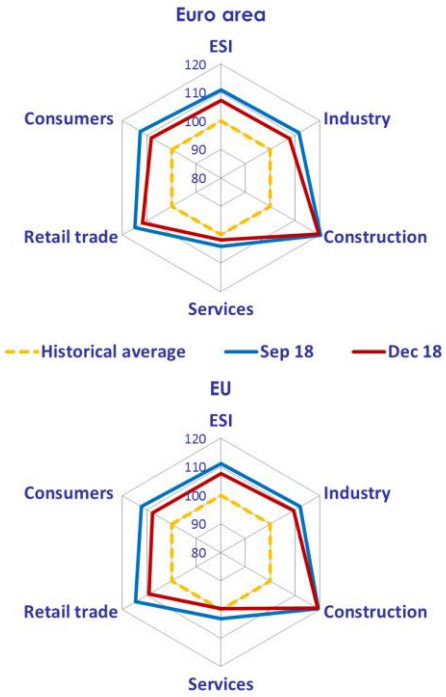
Graph 1.1.1: Economic Sentiment Indicator



Note: The horizontal line (rhs) marks the long-term average of the survey indicators. Confidence indicators are expressed in balances of opinion and hard data in y-o-y changes. If necessary, monthly frequency is obtained by linear interpolation of quarterly data.

In line with the ESI results, both Markit Economics' Composite PMI for the euro area and the Ifo Business Climate Index (for Germany) booked marked decreases in Q4.

Graph 1.1.2: Radar Charts



Note: A development away from the centre reflects an improvement of a given indicator. The ESI is computed with the following sector weights: industry 40%, services 30%, consumers 20%, construction 5%, retail trade 5%. Series are normalised to a mean of 100 and a standard deviation of 10. Historical averages are generally calculated from 1990q1. For more information on the radar charts see the Special Topic in the 2016q1 EBCI.

From a sectoral perspective, EU- and EA-confidence weakened among consumers and managers in all the sectors (see Graph 1.1.2). Only confidence in the EU construction sector remained broadly stable. Confidence declines were particularly strong among EU and EA consumers, EA managers in the industry sector, and EU managers in the services and retail trade sectors.

In terms of levels, EA and EU confidence indicators generally remain well above their respective long-term averages. Only the services confidence indicator has now fallen below its long-term average in the EU and is just above it in the EA.

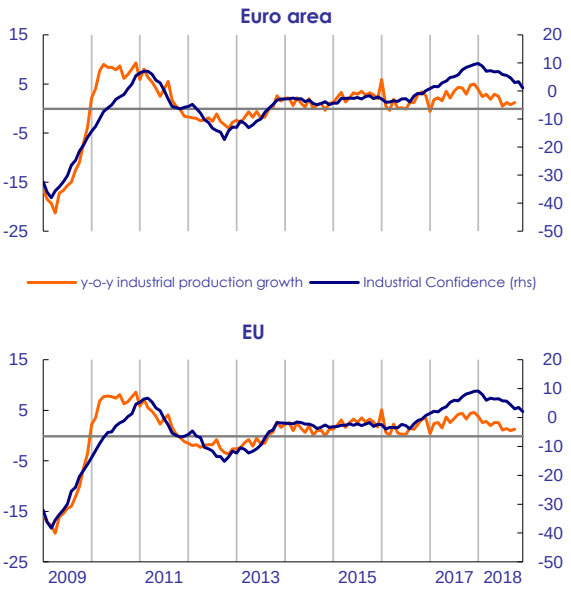
Focussing on the seven largest EU economies, 2018-Q4 brought significant losses in France

and Italy (both decreased by 3.5 points). Sentiment declined noticeably also in the UK (-2.8), Germany (-2.6), the Netherlands (-1.5) and Spain (-1.4). Only sentiment in Poland (+0.1) remained broadly stable.

Sector developments

Industry confidence continued the downward trend visible since the beginning of the year, which was only temporarily interrupted in 2018-Q2. The EA and EU indicators lost 3.6 and 2.4 points on the quarter. Despite the latest heavy losses, both indicators are still rather high by historical standards, as illustrated in Graph 1.1.3.

Graph 1.1.3: Industry Confidence indicator

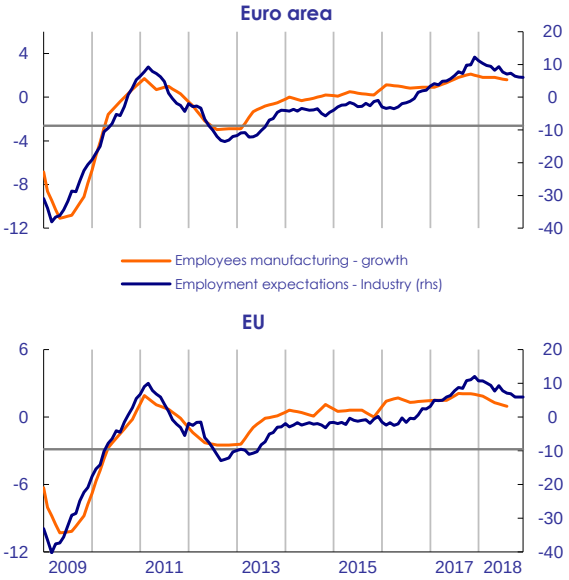


The drop in confidence resulted from negative developments in all components entering the indicator, i.e. managers' assessments of overall order books, where the losses were particularly important, the stocks of finished products and their production expectations.

Of the components not included in the confidence indicator, managers' appraisals of both export order books and past production worsened.

During 2018-Q4, selling price expectations picked up in the EA and remained broadly stable in the EU, while managers' employment expectations continued to cloud over in both areas (see Graph 1.1.4).

Graph 1.1.4: Employment - Industry Confidence indicator

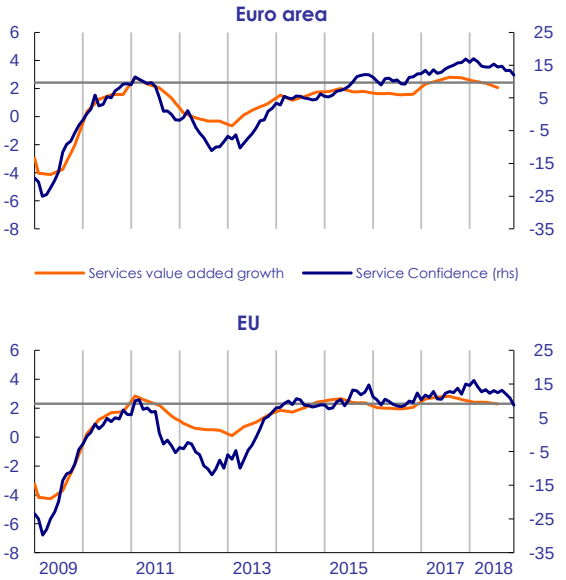


Among the seven largest EU Member States, industry confidence plummeted in Germany (-5.8) and saw more contained decreases in Italy (-2.4) and France (-1.8). Developments in Spain (-0.4) and the Netherlands (+0.5) were broadly flat, while confidence improved somewhat in Poland (+2.0) and the UK (+2.3).

According to the quarterly manufacturing survey (carried out in October), **capacity utilisation in manufacturing** decreased in both the EA and the EU by, respectively, 0.3 and 0.5 percentage points (pp) compared to the last survey wave in July. Currently, capacity utilisation is at 83.9% (EA) and 83.4% (EU), i.e. still well above the two regions' respective long-term averages of around 81%.

After a broadly stable third quarter, confidence in the **services sector** dropped in the fourth quarter of 2018 (-4.4 in the EU; -2.7 in the EA). While the EA indicator remained above its long-term average, the EU indicator is now just below it (see Graph 1.1.5).

Graph 1.1.5: Services Confidence indicator



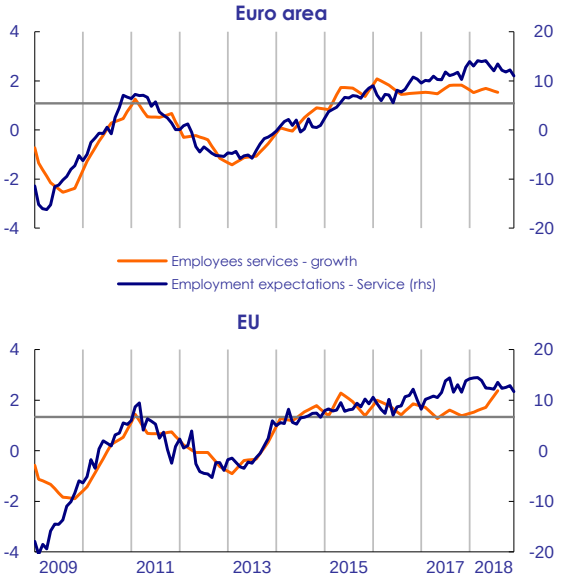
In both regions, the decline resulted from worsened assessments of all indicator components. Managers' assessment of the past business situation decreased markedly in both regions, while managers' views on past and expected demand worsened strongly in the EU, but more mildly so in the EA.

Employment expectations deteriorated slightly among services managers in the EA, while they remained broadly stable in the EU. In a longer perspective, in the EA, a mild downward trend in employment expectations is visible since the beginning of the year (see Graph 1.1.6). Meanwhile, after three quarters of sideways movement, EU/EA selling price expectations increased slightly in the last quarter of the year.

Focussing on the seven largest EU economies, services confidence plummeted in the UK (-13.0), posted marked falls in Spain (-5.7) and Italy (-5.3), and decreased more moderately in the Netherlands (-2.6) and Germany (-1.5). In France (-0.9) and Poland (-0.3) the indicator changed little over the quarter.

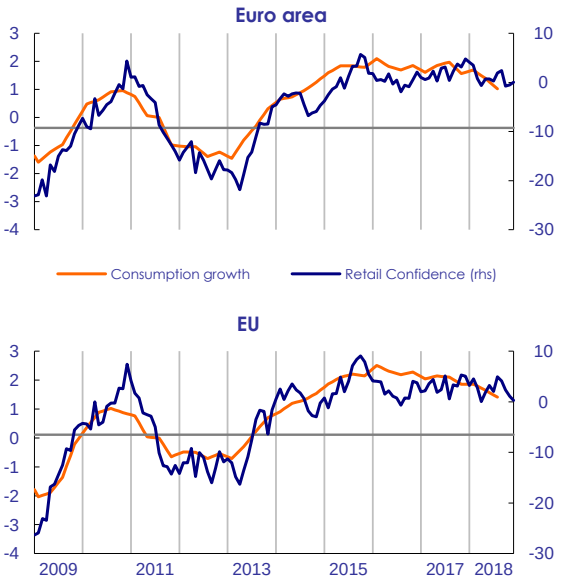
Capacity utilisation in services, as measured by the quarterly survey in October, saw a 0.5pp-decrease in the EA and a 0.1pp-decrease in the EU. The current rates of 90.1% (EA) and 89.6% (EU) correspond to levels well above the series' long-term averages (calculated from 2011 onwards) of around 88.8%.

Graph 1.1.6: Employment - Services Confidence indicator



Retail trade confidence worsened in 2018-Q4 by 2.4 points in the EA and 3.8 points in the EU. In a longer-term context, however, those developments mean a continuation of the indicators' see-sawing around a historically high, horizontal trend, which has characterised their evolution since late 2016/early 2017 (see Graph 1.1.7).

Graph 1.1.7: Retail Trade Confidence indicator



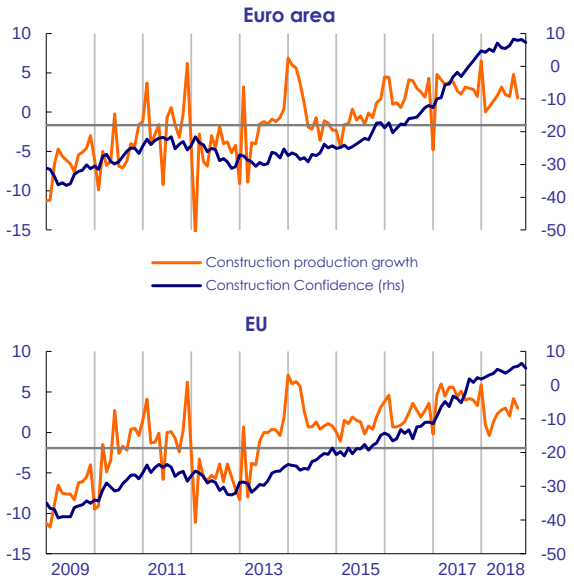
In both areas, the drop was driven by more pessimistic views on the past and future business situation, while managers' assessment of the level of stocks stayed broadly stable.

At the level of the seven largest EU economies, confidence fell sharply in the UK (-12.5), registered important decreases in France (-5.4)

and Germany (-3.3), and declined to a lesser extent in Italy (-1.8). By contrast, the indicator increased somewhat in Spain (+1.5) and Poland (+1.2) and remained practically unchanged in the Netherlands (-0.1).

The **construction confidence indicator** interrupted the recovery it had embarked upon in 2014 (see Graph 1.1.8). The indicator remained virtually unchanged in the EU (-0.3) and decreased slightly in the EA (-1.1). At component level, managers' views of order books remained virtually unchanged in both areas, while employment expectations were stable in the EU but decreased in the EA.

Graph 1.1.8: Construction Confidence indicator

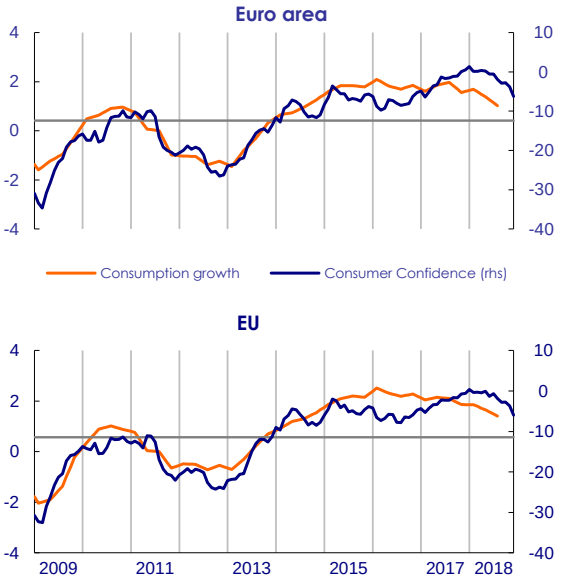


Among the seven largest EU economies, the indicator decreased strongly in Spain (-9.4) and the Netherlands (-5.3), while it remained (broadly) stable in France (0.0) and Italy (+0.4) and increased in Germany (+2.9), Poland (+1.9) and the UK (+2.5).

The decrease of **consumer confidence** in 2018-Q4 was more important than in previous quarters (-3.2 in the EU; -3.3 in the EA). Both indicators are nevertheless still at high levels by historic standards (see Graph 1.1.9).

All the four components of the sentiment indicators were down. In both regions consumers were much more pessimistic about unemployment expectations and, in particular, the future general economic situation in their respective countries. To a much lesser extent, consumers were also more negative about their future savings and their future personal financial situation.

Graph 1.1.9: Consumer Confidence indicator

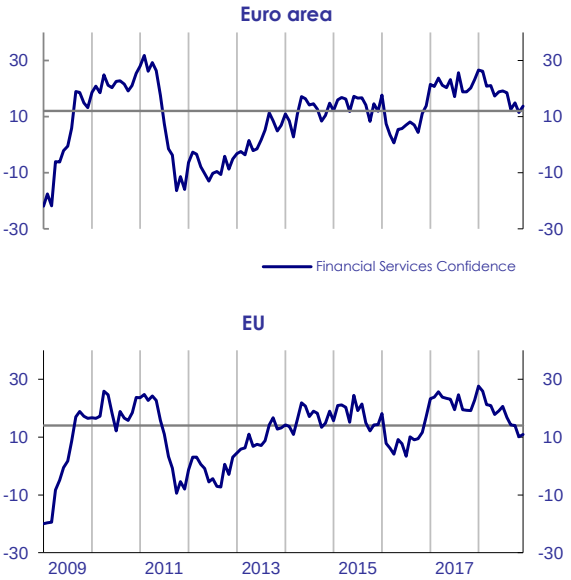


Five of the seven largest EU economies posted declining consumer confidence, notably France and the Netherlands, where sentiment plunged (respectively by 8.6 and 7.6 points), Italy (-3.9), Poland (-2.9) and the UK (-2.7). Confidence in Germany (-0.6) and Spain (-0.5) stayed broadly stable.

In 2018-Q4, confidence in the **financial services** sector (not included in the ESI) decreased in the EU (-3.3), while it improved in the EA (1.1). The drop in the EU brought the indicator below its long-term average, while the EA confidence indicator is just above it (see Graph 1.1.10).

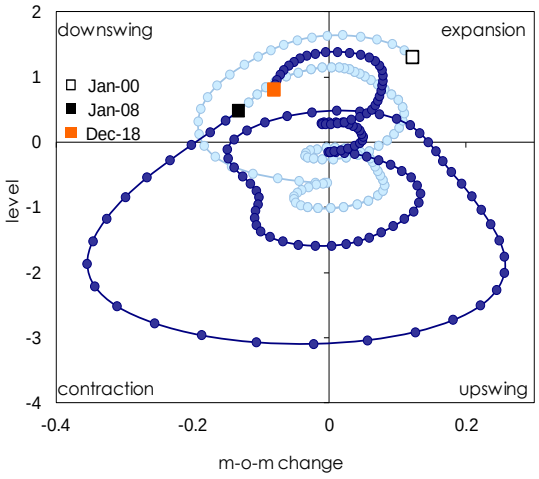
In both regions, managers were more negative about past demand as well as their demand expectations, while managers' views on the past business situation were broadly unchanged in the EU and improved markedly in the EA.

Graph 1.1.10: Financial Services Confidence indicator



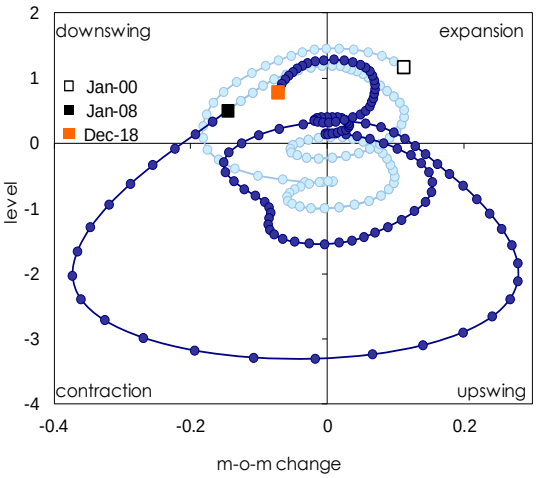
Reflecting the deterioration in overall sentiment in 2018-Q4, both the EA and EU **climate tracers** (see Annex for details) moved deeper into the downswing quadrant (see Graphs 1.1.11 and 1.1.12).

Graph 1.1.11: Euro area Climate Tracer

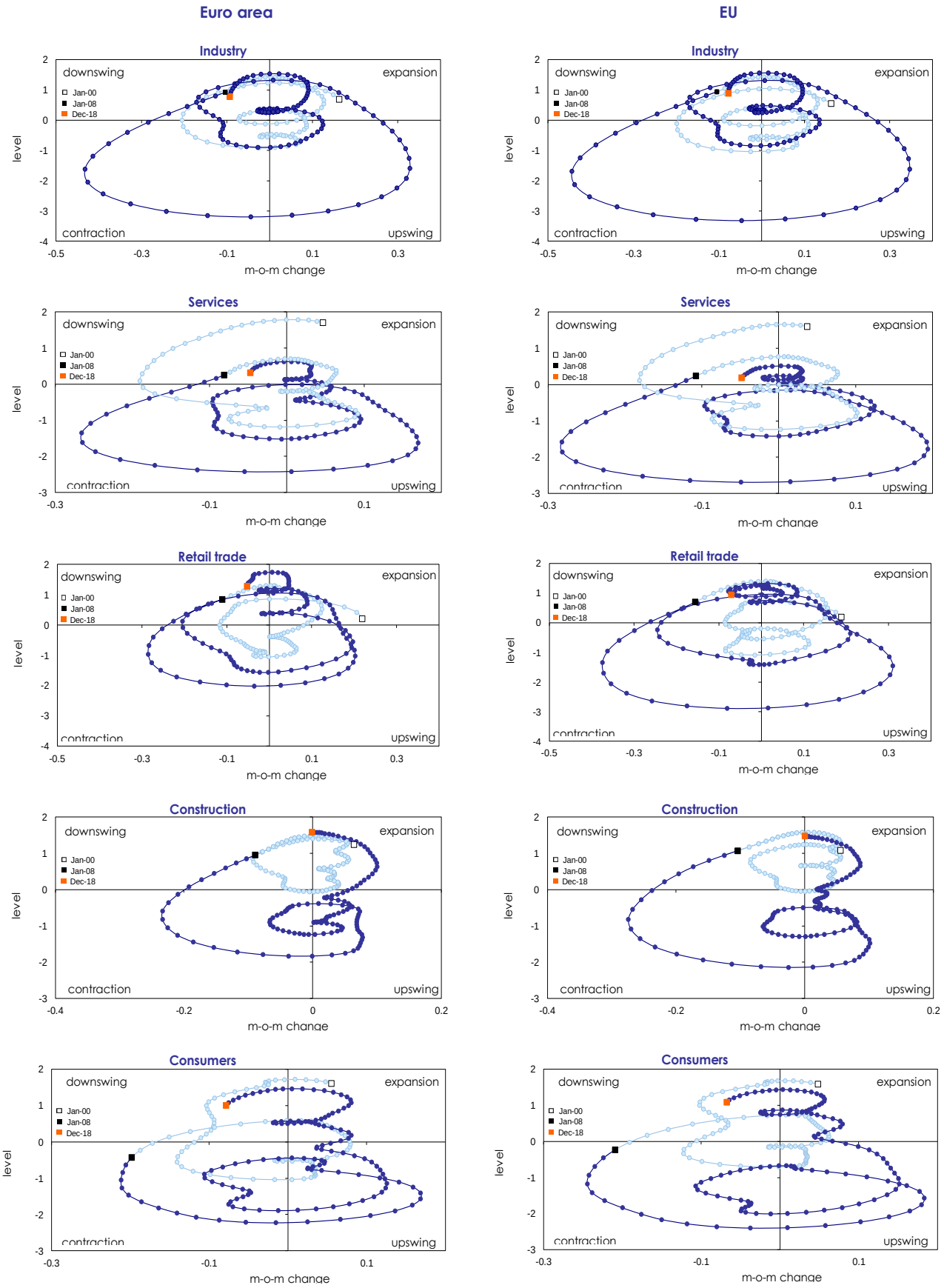


The sectoral climate tracers (see Graph 1.1.13) are in line with the overall tracers in so far as they all moved deeper into the downswing quadrant. The only exception is the EU/EA construction tracer, which is just at the intersection between the expansion and downswing areas.

Graph 1.1.12: EU Climate Tracer



Graph 1.1.13: Economic climate tracers across sectors

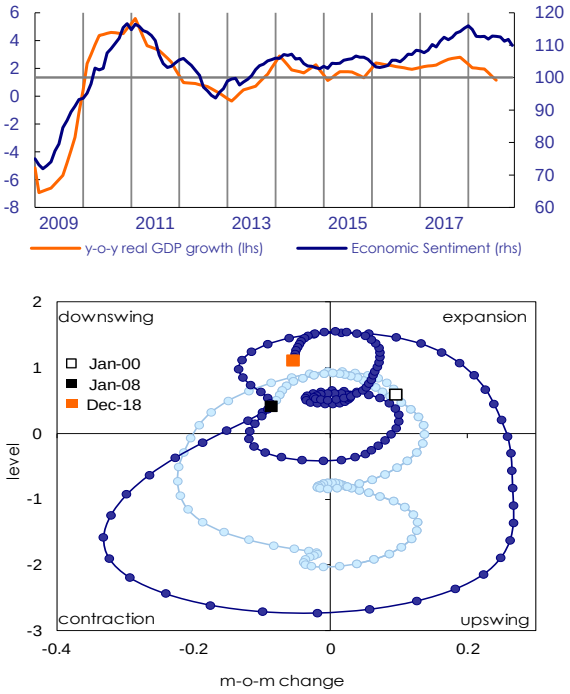


1.2. Selected Member States

2018-Q4 brought significant losses in economic sentiment in France and Italy (both decreased by 3.5 points). Sentiment declined noticeably also in the UK (-2.8), Germany (-2.6), the Netherlands (-1.5) and Spain (-1.4). Only sentiment in Poland (+0.1) remained broadly stable.

Sentiment in **Germany** worsened in 2018-Q4 (-2.6 points), resuming the downward movement visible in the beginning of the year. At 109.9 points, the indicator remained very comfortably above its long-term average of 100. In terms of the climate tracer (see Graph 1.2.1), the German economy went deeper into the downswing quadrant.

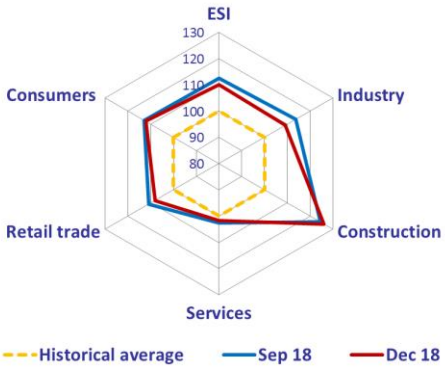
Graph 1.2.1: Economic Sentiment Indicator and Climate Tracer for Germany



From a sectoral perspective, confidence improved in 2018-Q4 only in the construction sector. Confidence weakened markedly in industry and retail trade, and, to a much lesser extent also in the services sector. By contrast, consumer morale remained broadly unchanged.

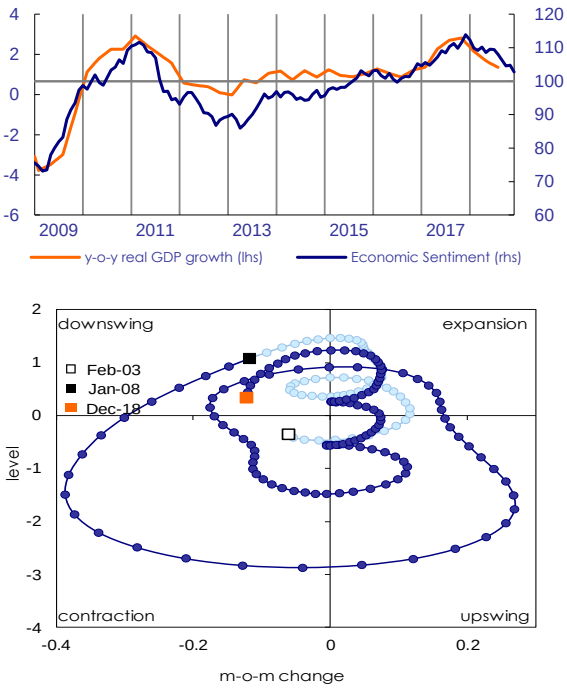
In line with the ESI, all sectoral confidence indicators, except for the one covering services, are at levels well in excess of their respective historical averages (see Graph 1.2.2). The level of confidence is particularly high in the German construction sector.

Graph 1.2.2: Radar Chart for Germany



Sentiment in **France** decreased further in 2018-Q4 (-3.5 points). The indicator has followed a broad downward trend throughout the year and the current level of the ESI of 102.8 points is approaching the long-term average of 100.

Graph 1.2.3: Economic Sentiment Indicator and Climate Tracer for France

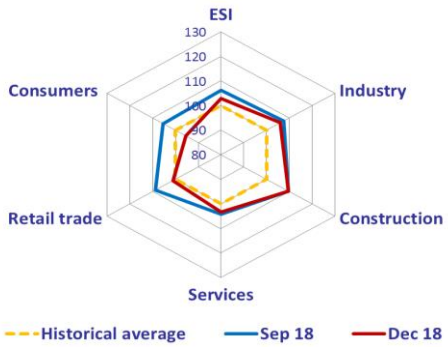


Weaker sentiment in Q4 also left its mark on the French climate tracer, which moved deeper into the downswing quadrant (see Graph 1.2.3).

A look at the French radar chart (see Graph 1.2.4) reveals downbeat sentiment to be caused by significant drops in confidence among retail

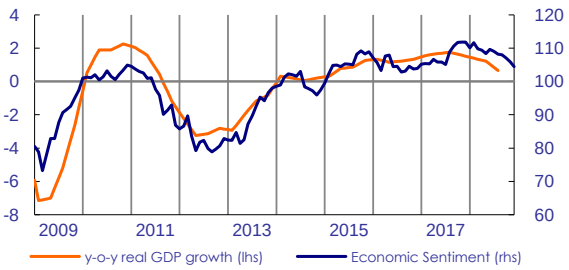
trade managers and consumers. Industry confidence weakened to a lesser extent, while services and construction confidence remained broadly stable in Q4. In terms of levels, sentiment continued to exceed its long-term average in industry, construction and services, while the retail trade confidence indicator is just above its long-term average and the consumer confidence indicator has now fallen below it.

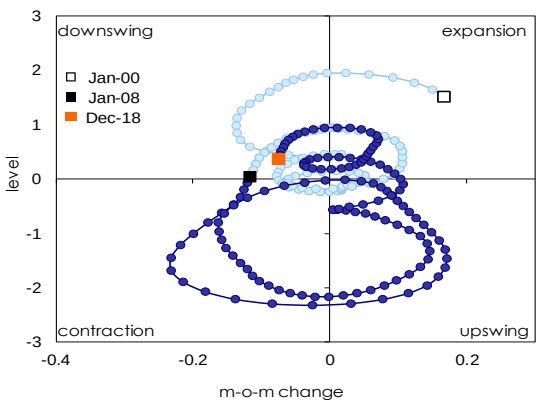
Graph 1.2.4: Radar Chart for France



Also the **Italian** ESI decreased markedly in 2018-Q3 (-3.5 points), accelerating the downward trend observed since the beginning of the year. Still, at 104.5 points, it remains above its long-term average of 100. The deterioration in sentiment sent the Italian climate tracer deeper into the downswing quadrant (see Graph 1.2.5).

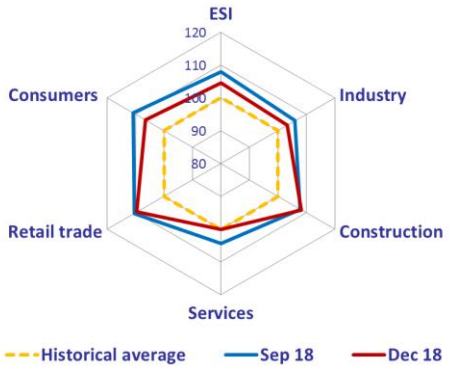
Graph 1.2.5: Economic Sentiment Indicator and Climate Tracer for Italy





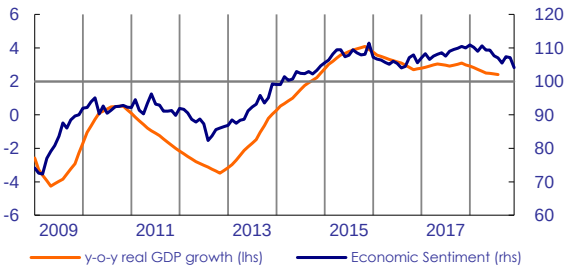
A look at the Italian radar chart (see Graph 1.2.6) shows confidence to have eased among consumers and in all the business sectors except for construction, where the indicator remained broadly unchanged. The decline was particularly strong in services and among consumers. The indicator in the services sector moved just below its long-term average.

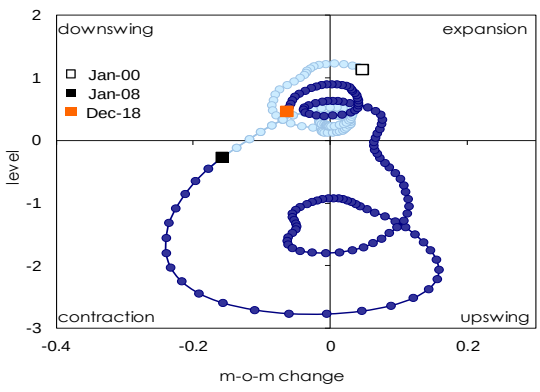
Graph 1.2.6: Radar Chart for Italy



Spanish sentiment diminished in 2018-Q4 (-1.4 points), continuing the downward trend that started in 2018-Q2. Coming in at 104.1 points, the ESI stayed above its long-term average of 100 though. Paralleling the ESI's slide, the Spanish climate tracer moved deeper into the downswing quadrant (see Graph 1.2.7).

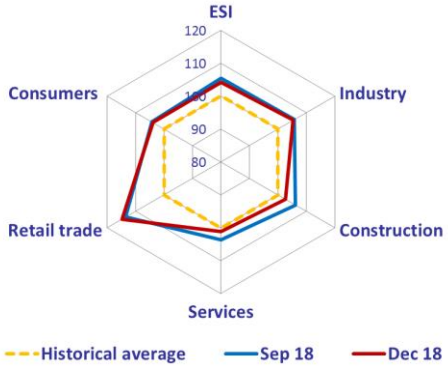
Graph 1.2.7: Economic Sentiment Indicator and Climate Tracer for Spain





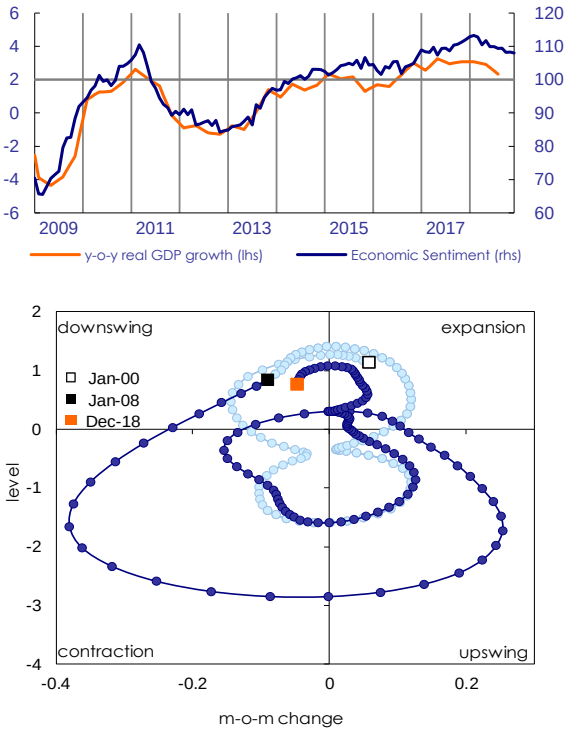
As highlighted in the radar-chart (see Graph 1.2.8), the decline in overall sentiment was mainly caused by strong decreases in confidence in the services and construction sectors, which were only partly offset by a modest increase in the retail trade sector. Confidence in industry and among consumers remained broadly unchanged. All confidence indicators remained above their long-term averages, but the services and construction indicators are now rather close to their respective averages.

Graph 1.2.8: Radar Chart for Spain



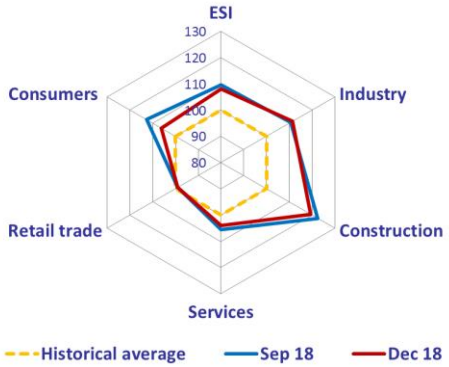
The **Dutch** sentiment decreased by 1.5 points in 2018-Q4. At 108.0 points, the indicator remains very high by historic standards (long-term average of 100). The slight deterioration in sentiment has edged the climate tracer somewhat deeper into the downswing quadrant (see Graph 1.2.9).

Graph 1.2.9: Economic Sentiment Indicator and Climate Tracer for the Netherlands



The Dutch radar chart (see Graph 1.2.10) shows confidence having reduced markedly in construction and among consumers. Confidence declined somewhat also in the services sector, while sentiment in the industry and retail trade sectors remained virtually unchanged. In terms of levels, confidence in all sectors is quite high by historic standards, with the exception of retail trade where the current confidence score corresponds roughly to the indicator's long-term average.

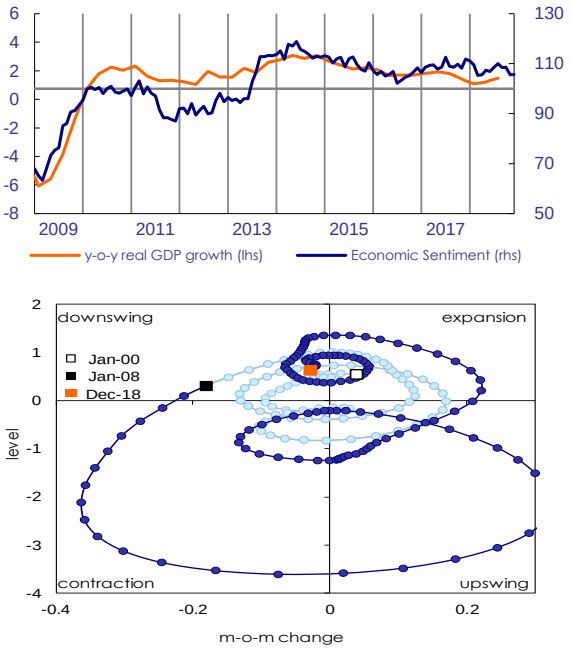
Graph 1.2.10: Radar Chart for the Netherlands



2018-Q4 saw sentiment in the **United Kingdom** decrease (-2.8 points), offsetting the positive developments registered in the two previous quarters. At 105.6 points, the indicator remains well above its long-term average of 100. In terms of the UK climate tracer, the

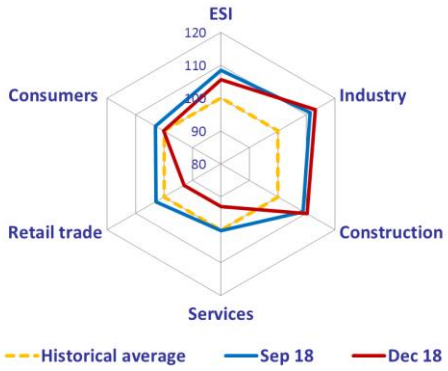
confidence fall has translated into a slight leftward movement, bringing the tracer somehow deeper into the downswing quadrant (see Graph 1.2.11).

Graph 1.2.11: Economic Sentiment Indicator and Climate Tracer for the United Kingdom



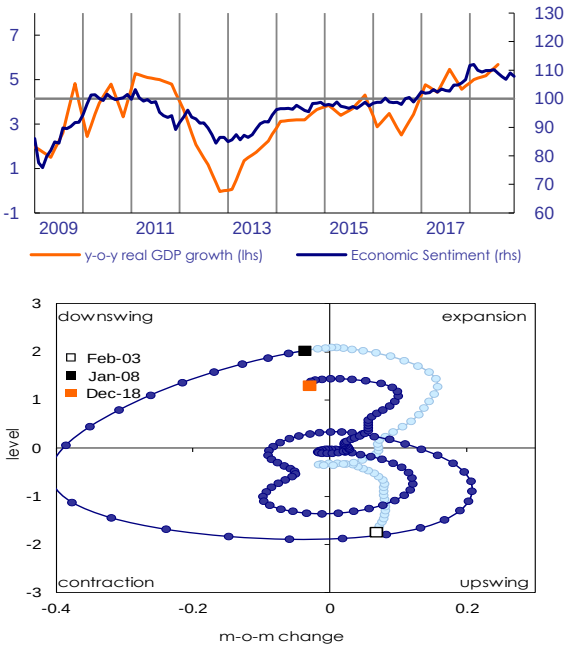
Focussing on sectoral developments (see Graph 1.2.12), confidence improved in industry and construction. Confidence in retail trade and services, by contrast, deteriorated significantly, and also clouded over among consumers. Compared to historic long-term averages, the current level of confidence in industry and construction is exceptionally high, contrasting with an average level among consumers, and well below-average levels in the retail trade and services sectors.

Graph 1.2.12: Radar Chart for the UK



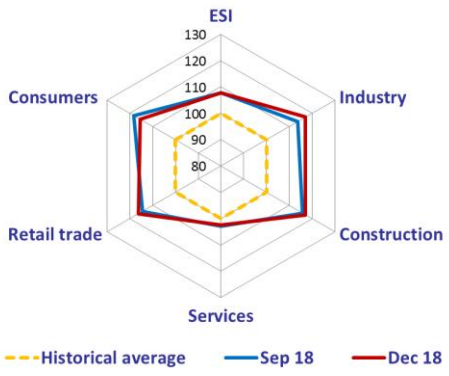
The **Polish** ESI remained virtually unchanged in 2018-Q4 (+0.1 points). At 107.8 points, the indicator remains comfortably above its long-term average of 100. The climate tracer remained relatively inert in the downswing quadrant (see Graph 1.2.13).

Graph 1.2.13: Economic Sentiment Indicator and Climate Tracer for Poland



As the Polish radar chart shows (see Graph 1.2.14), confidence weakened among consumers, while it improved in industry, retail trade and construction and remained broadly stable in the services sector. All the indicators remained above their respective long-term averages.

Graph 1.2.14: Radar Chart for Poland



2. RESULTS OF THE AUTUMN 2018 EU INVESTMENT SURVEY IN THE MANUFACTURING SECTOR

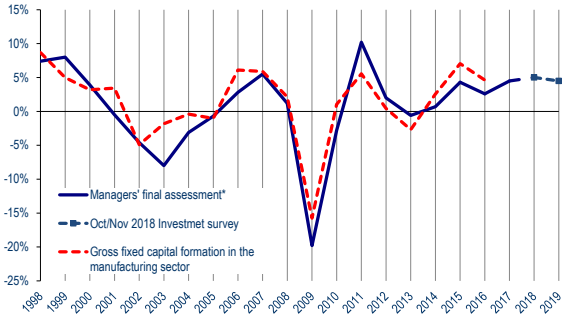
Developments in overall investment References

According to the latest Investment Survey carried out in October/November 2018, real manufacturing investment in the euro area is expected to have increased by 5.0% in 2018 compared with 2017. Concerning 2019, manufacturers expect investment to grow by +4.5%. Compared with the previous survey conducted in March/April 2018, managers revised their assessment for 2018 markedly downwards (by 2.0 pp). This corresponds to a typical pattern of revisions of investment plans over time. Over the past 20 years, the spring survey was on average overly optimistic and the autumn survey overly pessimistic compared to managers' 'ex-post assessment' of investment growth once the year in question is over.

Turning to EU developments, manufacturing managers anticipate an increase of 4.5% for investment in 2018 (down from 5.7% in March/April) and expect another increase of 3.6% for 2019.

Graph 2.1 presents manufacturing managers' ex-post estimates of investment growth (surveyed in spring of the following year) along with an estimated euro-area series of Gross Fixed Capital Formation (GFCF) in the manufacturing sector. The two series co-move well together and the correlation between them is high at 0.91 (over the period 1998 to 2016).

Graph 2.1: Investment growth in the euro area (annual changes in %, in volumes)



*Mar/Apr year t surveys, managers' assessment of investment in year t-1.
Source: Commission services and authors' calculations.

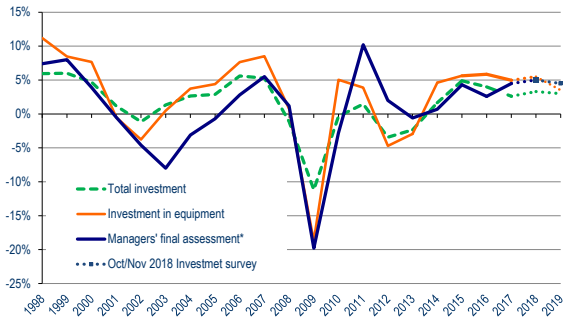
Graph 2.2 presents manufacturing managers' ex-post estimates of investment growth along with official Eurostat figures for total investment (GFCF) and equipment investment in the euro area,[1] as well as the respective Autumn Commission forecasts for these investment aggregates and the latest survey results for 2018 and 2019.

Generally, manufacturing managers' assessments co-move quite well with the outcomes of the two investment series; however, due to the imperfect conceptual match (manufacturing rather than total or equipment investment), the fit between the series is somewhat looser than with GFCF in the manufacturing sector. In particular between 2003 and 2006, manager's estimates from the survey are below the actual investment growth. Also, while the recovery in equipment investment dynamics in 2010 was stronger than manufacturing managers' estimate, for 2011 and 2012, the results from the Investment Survey were significantly above the official Eurostat

[1] These series are published by Eurostat also at EU and euro-are levels, including data up to 2017 (rather than 2016 as for the estimate presented above).

figures. Since 2013, results are broadly aligned again. Currently, manufacturing managers' views on 2018 (+5.0%) are in between the Commission's Autumn forecasts for total investment (+3.3%)[2] and investment in equipment (+5.5%). For 2019, manufacturing managers' expectations (+4.5%) are somewhat more optimistic than the Commission's Autumn forecasts for both total (+3.0%) and equipment investment (+3.5%).

Graph 2.2: Investment growth in the euro area (annual changes in %, in volumes)



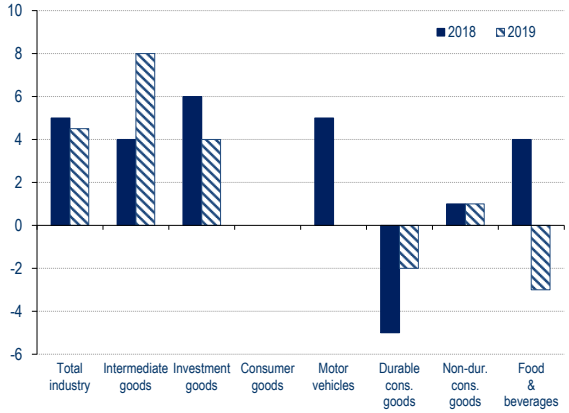
Note: Total and equipment investment data for 2018 and 2019 are Commission's Autumn 2018 forecasts.
*Mar/Apr year t surveys, managers' assessment of investment in year t-1.
Source: Commission services.

Investment dynamics by sectors in the euro area

The sectoral breakdown of the survey (see Graph 2.3) shows that for 2018 only managers in the consumer goods sector reported unchanged real investment compared with 2017, while the other sectors posted strong increases (+4.0% in intermediate goods and +6.0% in investment goods). Focussing on the drivers inside these broad sectors, the stable situation in the consumer goods sector is due to a decrease among firms producing durable consumption goods, which was offset by a slight increase in the much larger non-durables sector. Managers in the sub-sector "food and beverages" reported a particularly strong increase in investment. Within the investment goods sector the branch 'manufacturing of motor vehicles' reports a broadly commensurate, solid increase in investment in 2018. Managers' replies to the question on the factors influencing their investment (see below) show that 'other factors' – such as the policy of the public authorities – became much more stimulating since 2017 than in previous years in the motor vehicle branch. This suggests that important investment has been made to comply with more stringent emission regulations.

For 2019, managers in the intermediate and investment sectors expect to markedly increase their investment (by 8.0% and 4.0%, respectively), while managers in the consumer goods sector expect real investment to again remain stable at 2018 levels. At sub-sector level, managers in the motor vehicle expect unchanged investment compared to 2018, while managers in the non-durable consumer goods sector expect a further slight increase. A decrease is expected for durable consumer goods and "food and beverages".

Graph 2.3: Surveyed change of investments in the euro area by sectors (annual % changes)



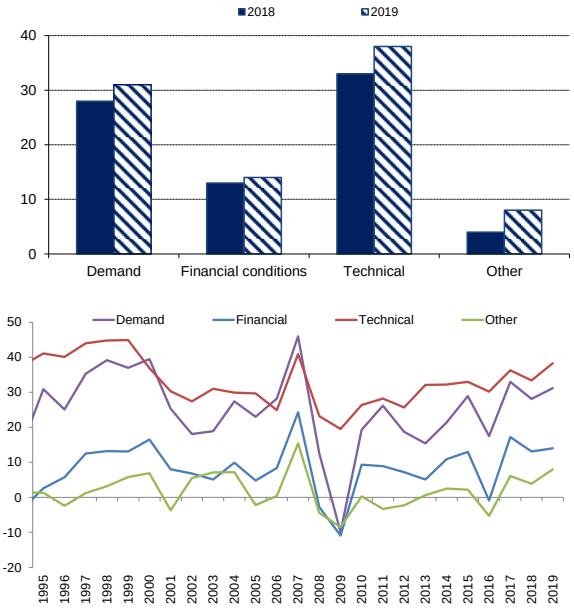
Source: Commission services.

Factors influencing investments

The autumn Investment Survey also provides information on the factors influencing investment, namely: demand, financial resources (availability and cost of financing, opportunity costs of investment, etc.), technical (e.g. technological developments and the availability of labour) and other factors (e.g. policy measures, taxation and the possibility of moving production abroad).

[2] Available data for total investment in the first three quarters of 2018 indicate annual growth rates of +3.2% for both the EA and the EU.

Graph 2.4: Factors influencing investment in the euro area (balance statistic*)



*Balances are the weighted averages of the percentages of answers describing each factor as 'very stimulating' (coefficient 1), 'stimulating' (0.5), 'limiting' (-0.5) and 'very limiting' (-1).
Source: Commission services.

For both 2018 and 2019, all factors are reported as distinctly stimulating investment in the euro area (see Graph 2.4). In a long-term perspective, it is interesting to notice that the assessment of all the factors is now close to or at pre-crisis levels. Overall, the investment climate appears around its healthiest since 2007.

Investment structure

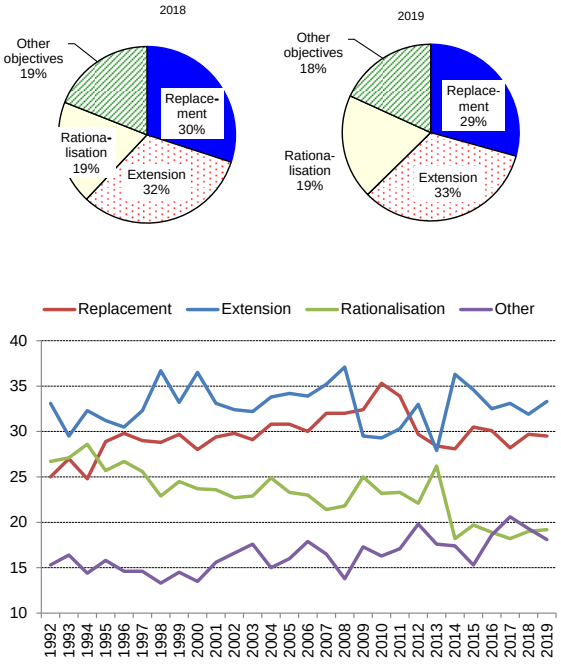
In order to get a more granular picture of the structure of investments, firms are also asked to assign their investments to four categories: replacement of worn-out plant or equipment, extension of production capacity, investment designed to streamline production (rationalisation), and other investment objectives (pollution control, safety, etc.).

In times of economic upswings, one would expect that investments are more geared towards the extension of production capacity than during downturns, where they are likely focused on replacement of worn-out equipment and/or rationalisation. It can indeed be shown that the relative share of investments that firms report as serving extension purposes is positively correlated with the growth rate in Gross Fixed Capital Formation.

Graph 2.5 shows that some 32% of overall investment in 2018 was dedicated to the extension of production sites. This is 1 percentage point lower than what was reported in the autumn 2017 survey for investment in 2017. For 2019, the share of extension investment is currently expected to slightly increase again to 33%. It is interesting to note that - contrary to the period 2009-2011 when companies invested mainly to replace worn-out plant or equipment - investments in the euro area are again mainly made for the purpose of extension of production capacity.

The share of investment dedicated to replacement and rationalisation increased in 2018 compared to 2017, by 2 and 1 percentage points respectively. Their share is expected to stay roughly constant in 2019.

Graph 2.5: Investment structure in the euro area (percentage of total investment)



Source: Commission services.

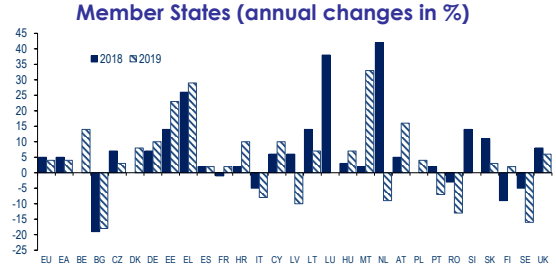
Developments by country

At country level, managers in most countries reported an increase in real investment for both 2018 and 2019 (see Graph 2.6). However, even after five years of EU recovery, there are still six countries in which managers reported a decline in investments for 2018. Concerning the two largest economies reporting negative investment growth (Italy and France), it has to be noted that in France all 'factors influencing

investment' are assessed as supportive in 2018; against this background, managers' quantitative assessment might be expected to be revised up in the next survey. In the case of Italy, the historic records of managers' assessment of investment growth in the autumn survey show a persistent negative bias compared to hard data and should thus not necessarily be taken at face value.

The graphs in the annex to this section compare large Member States' investment survey results to the Commission's Autumn forecasts for GFCF and equipment investment.

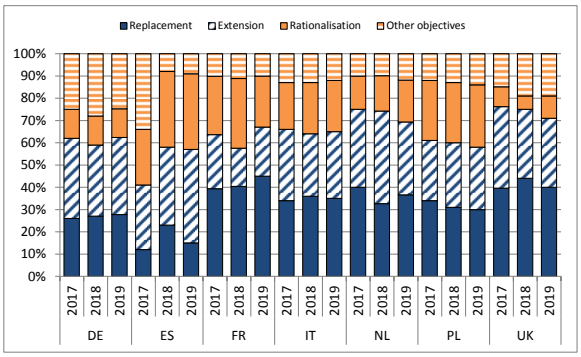
Graph 2.6: Surveyed change of investments in the EU Member States (annual changes in %)



Source: Commission services.

The structure of investment in 2018 varies across countries (see Graph 2.7). Investment has predominantly served extension purposes in Germany, Spain and the Netherlands. In France, Italy, Poland and the UK investment has been driven mainly by replacement needs. While the picture remains broadly the same for 2019, the share of extension investment is expected to increase in Spain. On the other hand, the share of investment for replacement needs increases further in France and becomes the predominant reason of investment in the Netherlands.

Graph 2.7: Structure of investments in the big Member States in 2017, 2018 and 2019 (share in %)

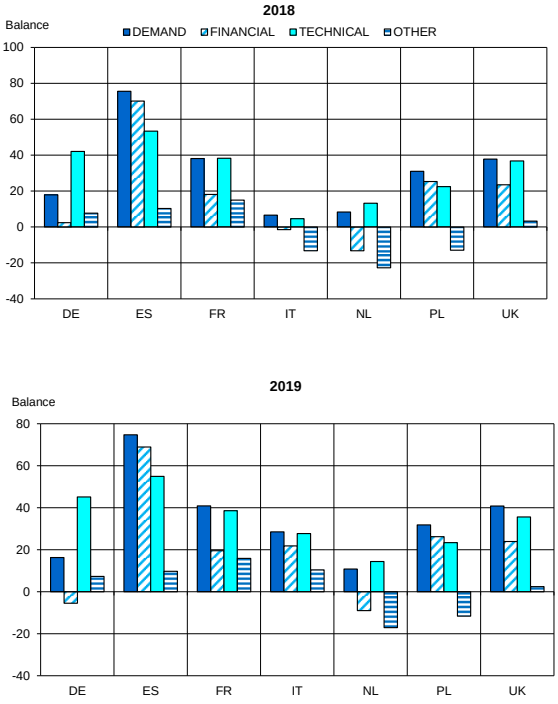


Source: Commission services.

Graph 2.8 shows which factors are stimulating or limiting investment in the largest Member States in 2018 and 2019. The most interesting are arguably the demand and financial factors. Demand seems to have exerted a stimulating effect on investment in all seven largest EU Member States, most notably in Spain. Also financial conditions are reported to have promoted investment activity in most of the seven countries, the exceptions being, in 2018, the Netherlands and Italy where financial conditions are assed to be a limiting factor. In 2019, financial conditions are expected to become a limiting factor in Germany as well. While this may appear counterintuitive considering the still record-low interest rates, it should be borne in mind that the survey question on financial conditions asks respondents to not only consider the availability (and costs) of credits, but also the attractiveness (i.e. opportunity costs) of alternative, financial investments.

The described patterns change very little for 2019. The main exception is Italy, where all the factors become very supportive of investment. These positive expectations for 2019 may relativise to some extent the earlier finding that Italian managers currently expect investments to decline further in real terms in 2019.

Graph 2.8: Factors influencing investment decisions in large EU Member States in 2018 and 2019 (balance statistic)



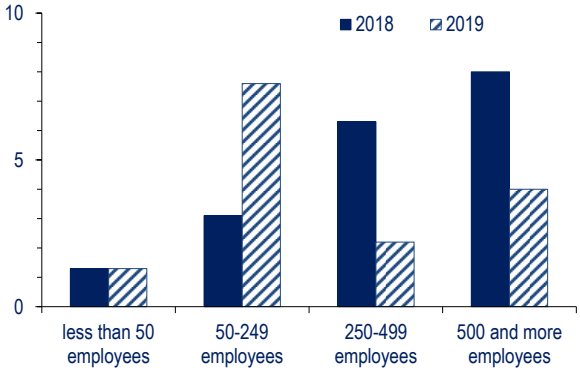
Notes: see Graph 2.4
Source: Commission services.

A closer look at developments in investment by enterprise size

According to the survey, firms of all size classes of enterprises experienced an expansion in real investment in 2018, the rise being particularly important among the large and very large enterprises (employing 250 or more persons). By contrast, small firms (employing up to 50 people) experienced only a small increase of 1% (see Graph 2.9). This is in line with what emerges from the latest version of the ECB's access-to-finance survey[3] . According to this survey, results point to positive investment growth in 2018 for all size categories of enterprises, but generally lower growth rates are observed for firms up to 50 employees.

For 2019, the prospects are better for medium enterprises, which project to further increase their investments by 8%, while managers in large and very large firms expect a lower increase in their investment (by 2% and 4%, respectively) and small firms expect another 1% increase. It has to be noted, however, that compared with their final 'ex post' assessment, small enterprises tend to revise upward their first assessment of investment for the next year.

Graph 2.9: Surveyed change of investments in the euro area by company size (annual % changes)



Source: Commission services.

Conclusions

The results from the autumn Investment Survey in the manufacturing sector indicate that euro-area and EU real investment has risen in 2018 and is foreseen to increase at a slightly lower rate in 2019. While the rate expected for the euro area in 2018 (5.0%) falls within the range of the Commission's Autumn forecasts for total (+3.3%) and equipment investment (+5.5%), manufacturing managers' expectations for 2019 (+4.5%) are above the Commission's Autumn forecast for both total and equipment investment.

Of the investments reported for 2018, some 32% were dedicated to the extension of production sites, which is a type of investment particularly prevalent in times of economic upswings. This means a minor decrease compared to 2017. For 2019, the share of extension investment is expected to edge up again by one percentage point, to a level that corresponds to the along-term average since 1992.

Turning to the factors influencing investment, all the factors (i.e. demand, financial conditions, technical and other factors) were reported to

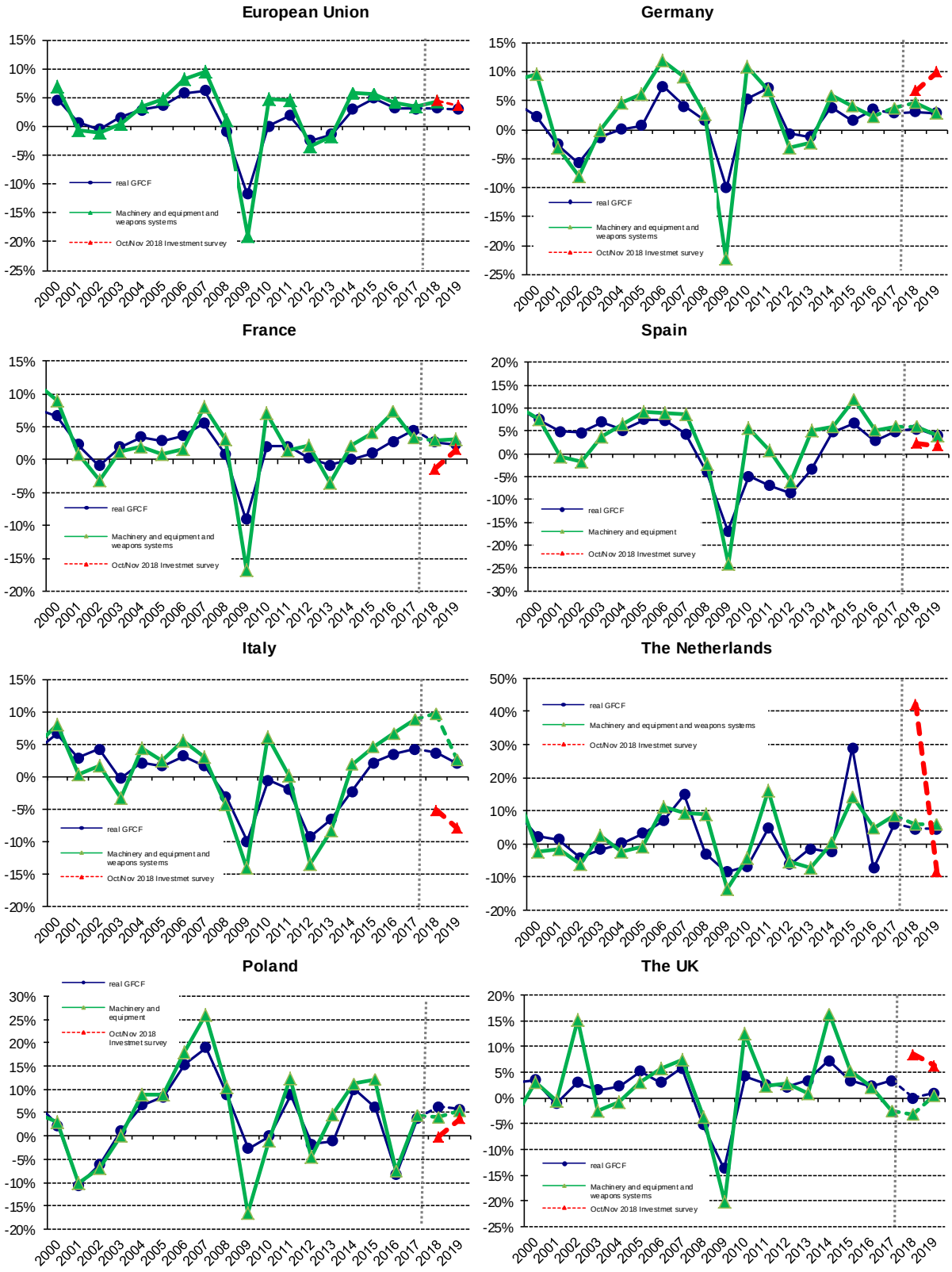
[3] For further details see: https://www.ecb.europa.eu/stats/ecb_surveys/safe/html/index.en.html

have had a stimulating effect in 2018 and to continue to play a positive role in 2019.

From a sectoral perspective, the picture for both 2018 and 2019 is rather positive for the investment and intermediate goods sectors, while managers in the consumer goods sector expect stagnant real investment at 2017 levels.

At the country level, managers in most countries reported an increase in real investment for both 2018 and 2019; the number of Member States where managers expect a decline in investment picks up slightly from six in 2018 to seven in 2019.

Annex to section 2



3. SPECIAL TOPIC: RECONSTRUCTING CONSISTENT HISTORICAL BUSINESS AND CONSUMER SURVEY DATA FOR IRELAND

The Harmonised EU Programme of Business and Consumer Surveys (BCS) covers all EU Member States and Candidate Countries, allowing for direct comparisons of business cycle developments across countries and the derivation of consistent European aggregates. For many years, Ireland has been the only exception from the EU-wide coverage, after the European Commission's long-standing BCS partner, the Economic and Social Research Institute (ESRI), ended the cooperation in May 2008. Despite considerable efforts, it proved very difficult to find a new partner institute collecting survey data for Ireland, resulting in the exceptional situation of missing BCS data for the country for long periods. Bits and pieces of data were collected in certain sectors for certain periods, being difficult however to reconcile with previously collected data. Only in May 2016 a stable partnership comprising all five sectoral surveys could be reinstalled with the Bank of Ireland (BoI). In May 2019, three years of data will be available, which is the minimum for seasonal adjustment and the minimum length as from which DG ECFIN of the European Commission publishes newly collected data. However, for meaningful business cycle analysis, much longer time series are needed to be able to assess the current situation against historical developments, not least in the country surveillance work of DG ECFIN.

In order to (re-)create a consistent set of survey data for Ireland across the four business sectors (industry, services, retail trade, building) and consumers, an effort was made to link the data collected in 2016-18 with the historical data-sets using econometric techniques. For the business surveys, data is generally missing between May 2008 and April 2011 and May 2012 and April 2016. Consumer survey data is partially missing between May 2008 and April 2009 and May 2015 to April 2016. In all cases, the available partial data sets (from different data providers) appear to feature different long-term averages, thereby requiring level shifts to make the data comparable in time.

The Commission strived to restore almost all monthly survey questions (23 business and 11 consumer survey questions).[4] Moreover, given its importance in gauging the business cycle and, more specifically, in complementing the assessment of the output gap, the quarterly question on capacity utilisation in industry has also been included in the exercise. The work focusses on restoring non-seasonally adjusted data, such that seasonal adjustment can be consistently applied to the reconstructed series subsequently.

Obviously, it is impossible to generate 'true' data for the missing periods; all recreated data derive from certain assumptions about the co-movement with other data, which can be disputed. With this limitation clearly in mind, the aim of this special topic is to describe the employed techniques, in order to create maximum transparency about the underlying assumptions and techniques.[5]

The new survey data for Ireland will be included for the first time in the flash release of the EU/euro area consumer confidence indicator on 23 January 2019 and be disseminated in detail with the full business and consumer survey results (Economic Sentiment Indicator) on 30 January 2019.

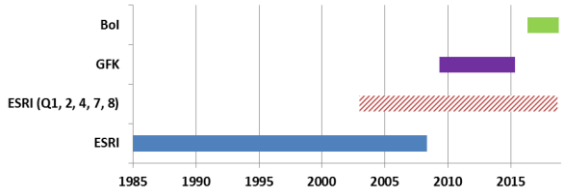
[4] Only the monthly questions Q10 of the Consumer survey (good moment to save?) and Q2 of the construction survey (factors limiting production) could not be restored.

[5] A more detailed note presenting the methodology and results series by series is available at https://ec.europa.eu/info/files/restoration-consistent-business-and-consumer-survey-data-ireland_en

Consumer survey

For the consumer surveys, three historical BCS data sets are available (see Graph 1): ESRI provided all BCS questions as a partner institute from January 1985 to April 2008; moreover, since 2015 it has provided (free of charge, but with a one-month time lag) data for questions 1, 2, 4, 7 and 8 going back to January 2003. Over the 5½-year overlapping period, these five series are practically identical to the original ESRI source. After a marginal adjustment, they can thus be used directly to extend the series. GFK UK provided data for Ireland as a partner institute from May 2009 to April 2015, and the Bank of Ireland (BoI) is the Commission's current partner institute (since May 2016). In order to limit the number of different sources used in the process, GFK data is used only for questions 11 and 12, for which relying on the sole exploitation of the two ESRI and the BoI data sets did not deliver satisfactory results. Not using the GFK data in the reconstruction process of the remaining questions has the advantage that they can be used as an ex-post reasonableness check of the generated data.

Graph 1: available datasets for the consumer survey



The general idea for the restoration of consistent consumer survey series is first to extend the old ESRI data series with the available information on other series up to April 2017. In a second step, if required, the series are adjusted in level so that the average of the first common year with BoI (between May 2016 and April 2017) matches.[6] In a last step, BoI data series are used (without any adjustment or modification) from May 2016. In this way, new observations sent by BoI every month can be added without further adjustment (save seasonal adjustment, which is performed on the complete restored time series).

For questions 11 and 12, an intermediate step is required, notably the inclusion of GFK data series. After extending the ESRI series, both GFK series and the reconstructed series are aligned so that the averages of the first common year of the two series (between May 2009 and April 2010) match. Then, the extended series values are replaced with GFK values from May 2010 to April 2015 and, finally, both series are again aligned on the last common year (between May 2014 and April 2015), to ensure a smooth transition in May 2015, between the end of the GFK series and the remaining part of the extended ESRI series.

For the other questions, although GFK data was not used directly, it can be used for an ex-post assessment of the reconstruction process. The reconstructed series show high correlations with GFK series over the common sample (see Table 1). Correlation is below 0.8 for questions 6 and 9 only, where GFK series show a range of values which seems too wide to match the volatility of ESRI's series. In addition, correlation of the confidence indicators computed with the reconstructed series and GFK series is very high, at 0.97.

[6] A level shift can be required to align all series, in order to ensure that their long term developments are consistent. Indeed, survey balances should be interpreted relative to their long term average, and it cannot be assured that series coming from different providers would have the same long term average over comparable samples. For instance in the industry sector, BoI readings for industry question 1 (assessment of past production) are above the highest point ever registered by ESRI between 1985 and 2008. Since there is no reason to think that production growth in 2017 is faster than at any time between 1985 and 2008, a level shift is required to align the series.

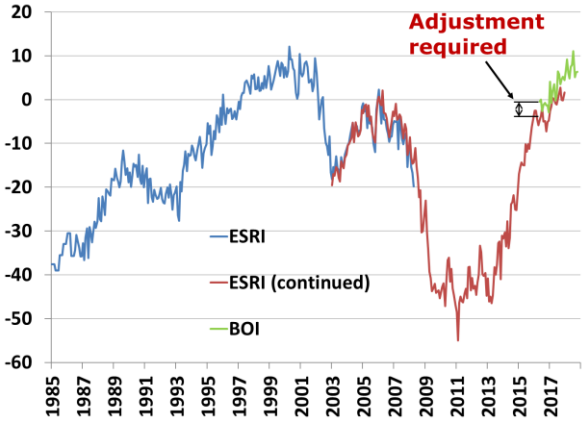
Table 1: correlation of the reconstructed series and GFK series (May 2009-April 2015)

Question	Question theme	Correlation
COF	Confidence indicator	0.97
1	Past financial situation	0.90
2	Future financial situation	0.89
3	Past general economic situation	0.95
4	Future general economic situation	0.96
5	Past consumer prices	0.91
6	Future consumer prices	0.60
7	Future unemployment	0.95
8	Right moment to make major purchases	0.80
9	Spending on major purchases	0.48

Example 1: consumer question 1

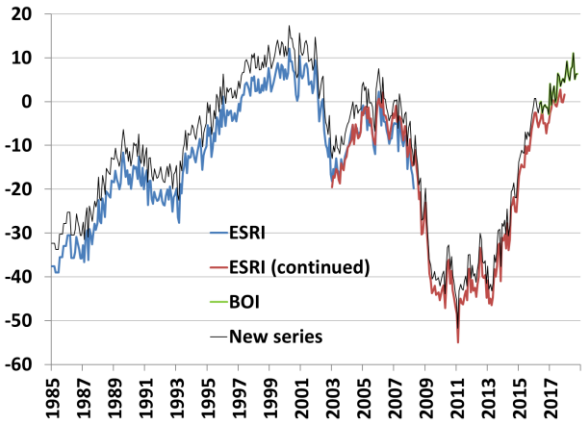
Question 1 (assessment of households' past financial situation)[7] can be used as an illustration of the underlying methodology used in the reconstruction of the series. As shown in Graph 2, three series are used in this case: the historical ESRI series (up to April 2008, blue line), the continued ESRI series (from January 2003, red line) and the current series from BoI (since May 2016, green line). While it is rather straightforward to extend the historical ESRI series with the new one, more work is necessary to match ESRI series with BoI series. Indeed, a level shift appears in 2016 between the current ESRI series and the BoI series, thus requiring an adjustment.

Graph 2: available series for consumer question 1



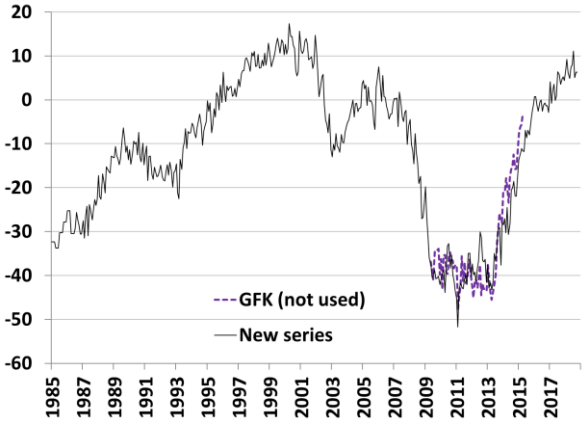
Therefore, both ESRI series are shifted in level to align the reconstructed series with the series provided by BoI (see the reconstructed series in black on Graph 3, slightly shifted from the red and blue lines, and aligned with the green line).

Graph 3: reconstructed series for consumer question 1



Finally, Graph 4 shows the comparison of the reconstructed series and the GFK series. Although they come from different providers, the similarity is striking and the correlation between the two series is quite high, at 0.90.

Graph 4: reconstructed series for consumer question 1 and GFK series

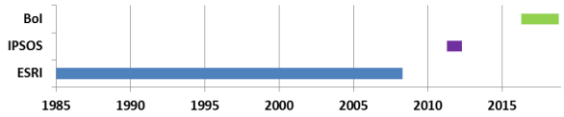


[7] See the User Guide to the Joint Harmonised EU BCS Programme for a list of all questions: https://ec.europa.eu/info/files/user-guide-joint-harmonised-eu-programme-business-and-consumer-surveys_en

Business surveys

For all business surveys, three BCS data sets are available (see Graph 5): ESRI (up to April 2008), IPSOS (from May/June 2011 to April 2012), and BoI (since May 2016). The general idea for business surveys is similar to the consumer survey approach: first ESRI series are extended based on available information from other sources and then the series are adjusted in level. In a last step, BoI data series are used (without any adjustment or modification) from May 2016.

Graph 5: available datasets for the business surveys



In the first step, the gaps are filled with reconstructed series. The main idea is to use Partial least squares regressions (PLS) in order to reconstruct missing data.[8] First a model is estimated with PLS, with the respective survey question as dependent variable and an explanatory dataset that is tailored to the target variable, over a historical sample including all available data up to April 2008. Then, the model is applied to the explanatory data from May 2008 onwards, to simulate the out-of-sample fitted values that are used in the next step. In cases where the estimation sample is too short (because relevant explanatory variables get available rather late - industrial producer prices, for instance, are only available since 2005), or where quarterly series are included in the dataset (which appears to deteriorate the PLS estimation), the PLS-approach had to be discarded. Instead, missing data are generated as the simple average of conceptually close series. These series are rescaled so that their averages and standard deviations match those of the survey question over the historical sample up to 2008.

Once a consistent series is reconstructed (either as the out-of-sample fit of a PLS model or as the average of similar series), it is slightly shifted to make sure that its average between May 2007 and April 2008 matches exactly that of ESRI's data in that period, in order to ensure a smooth transition between the two series.

In a second step, IPSOS data are included for the period 2011/12, provided they do not display excessive volatility.[9] After extending the ESRI series, both IPSOS series and the reconstructed series are aligned so that the average of the common year of the two series (between May 2011 and April 2012) matches. Then, values in the reconstructed series are replaced with all available IPSOS values.

In a third step, the reconstructed series are adjusted in level to ensure a smooth transition to the BoI data from May 2016 onwards. The necessary level shift is computed as the average difference between May 2016 and April 2017 of the BoI series and the reconstructed series. In all cases, it is the reconstructed series which are shifted to the level of the BoI series, rather than the opposite, since this ensures that no further adjustments of the series will be needed when new data, collected by the BoI, become available.

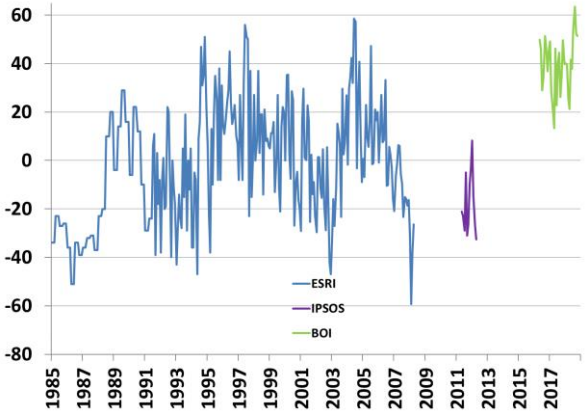
Example 2: construction question 1

Question 1 from the construction survey (assessment of past activity) is used as a second illustration of the underlying methodology to reconstruct the series. As shown in Graph 6, three series are used in this case: the historical ESRI series (up to April 2008, blue line), IPSOS series (from May 2011 to April 2012, purple line) and the current series from BoI (since May 2016, green line).

[8] PLS is particularly well suited for datasets which are very large and/or feature many collinear time-series and aims at extracting factors from the dataset such that the covariance between the factors and the target series is maximised. In the present cases, the dataset is not that large but includes series that are highly collinear.

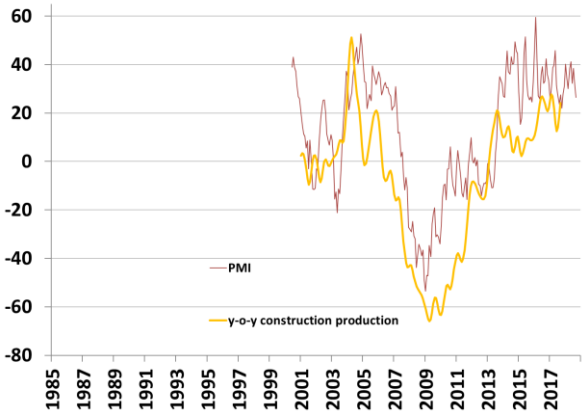
[9] Practically, IPSOS series are included for reconstructing series in industry, services and construction, but not in retail trade.

Graph 6: available series for construction question 1



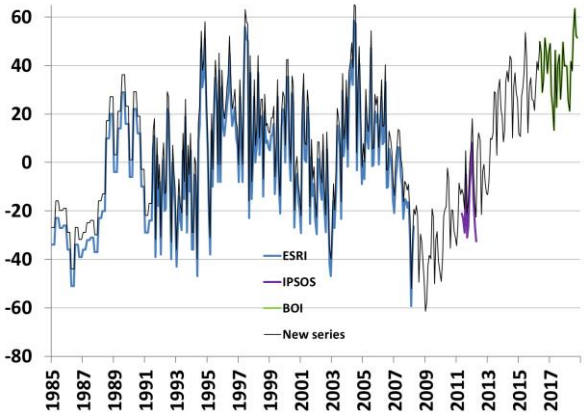
In addition, three series are used to reconstruct econometrically the missing parts in between: the first one is the reconstructed question 3 from the consumer survey (assessment of past general economic situation), while the two others come from external data providers (see Graph 7): Markit's construction PMI (total activity) and the year-on-year growth rate of construction production, as released by the Irish Central Statistical Office.

Graph 7: external series used to reconstruct construction question 1



The three series are then combined into a PLS model, as described earlier, and the resulting series is used to extend the original ESRI series. It is then slightly shifted upwards so that the reconstructed series is aligned with the BoI series. Finally, the IPSOS values are used to replace the simulated values in 2011/2012. The reconstructed series is shown in Graph 8 (black line).

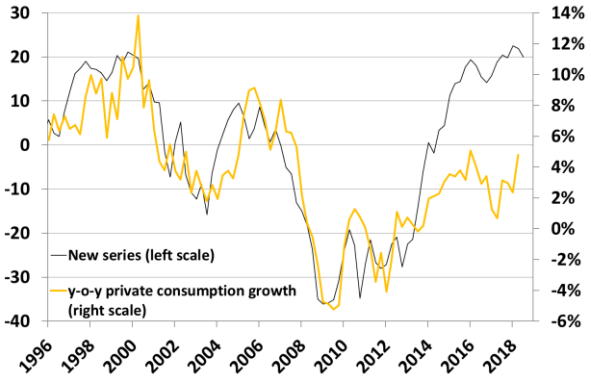
Graph 8: reconstructed series for construction question 1



Resulting confidence indicators

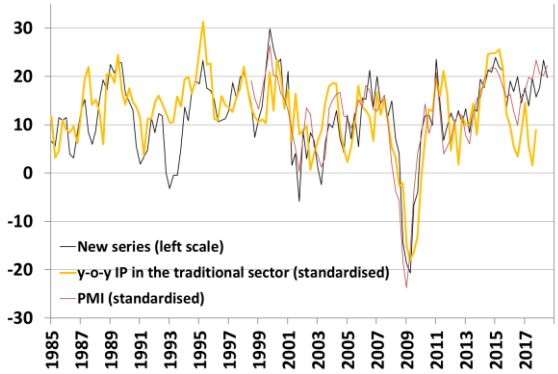
The individual reconstructed series are then aggregated into sectoral confidence indicators. Graph 9 presents the resulting consumer confidence indicator (quarterly average), together with the year-on-year growth rate of private consumption expenditures. The series show parallel developments, except for the period 2013-2015, when confidence improved faster than consumption growth. This particularity does not seem to point to an issue within the reconstruction process, as it is mirrored by both the ESRI (continued questions) and GFK datasets for Ireland.

Graph 9: reconstructed consumer confidence indicator (quarterly, NSA)

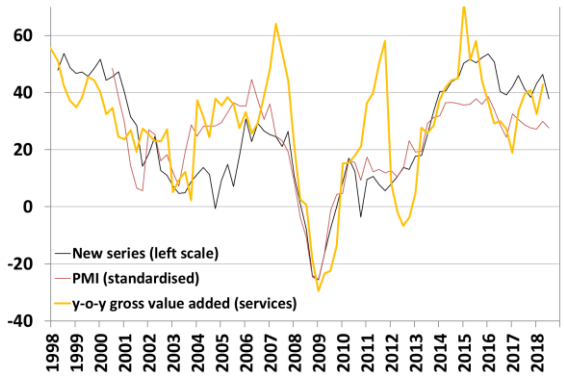


Graphs 10 to 13 show the reconstructed business confidence indicators (black lines), together with the growth rate of the corresponding reference series (yellow lines) and the closest PMI indicator from Markit on sectoral activity (red lines).

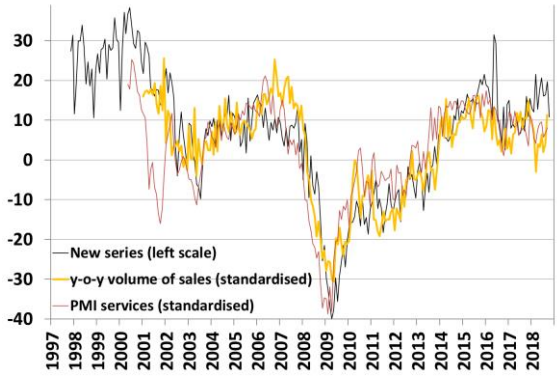
Graph 10: reconstructed industry confidence indicator (quarterly, NSA)



Graph 11: reconstructed services confidence indicator (quarterly, NSA)

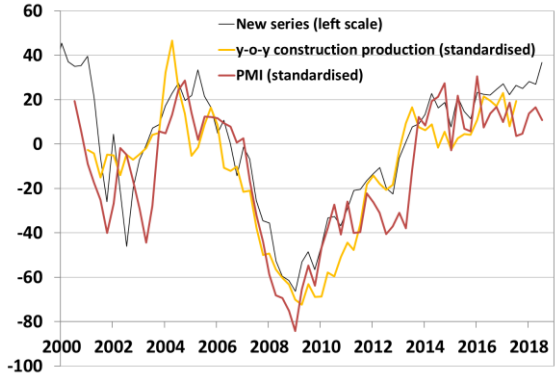


Graph 12: reconstructed retail trade confidence indicator (NSA)



In all four business sectors, the reconstructed confidence indicators show parallel developments with the reference series and the corresponding PMI series. This suggests that the reconstructed indicators, and the underlying individual component series, are valid indicators of sectoral developments in the Irish economy.

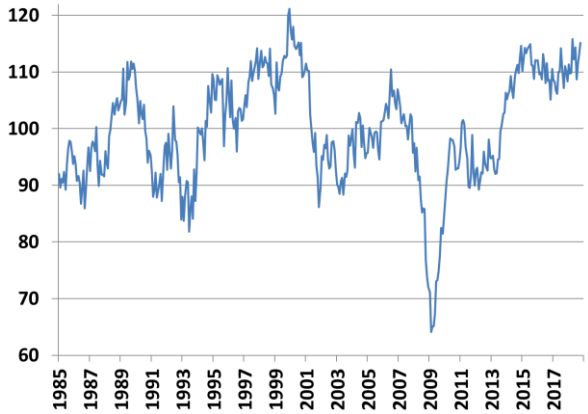
Graph 13: reconstructed construction confidence indicator (quarterly, NSA)



Economic sentiment indicator

After seasonal adjustment of the reconstructed individual questions, they can be aggregated into a consistent Economic sentiment indicator (ESI) for Ireland from 1985 onwards.[10] This monthly series is presented in Graph 14.

Graph 14: reconstructed Economic sentiment indicator for Ireland (monthly, SA)

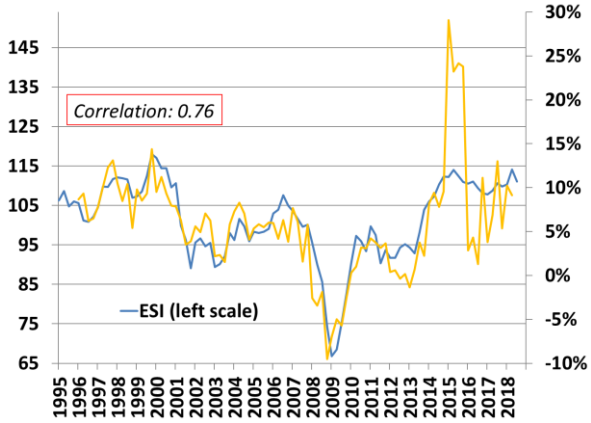


Graph 15 compares the quarterly average of the ESI to the year-on-year growth rate of quarterly GDP. Correlation between the two series is quite high at 0.76, a level similar to that for Germany or the United-Kingdom, even though the Irish GDP shows atypically high growth rates in 2015-2016. In annual terms, the correlation of ESI with GDP growth reaches

[10] For the composition of the ESI, see the User Guide to the Joint Harmonised EU BCS Programme: https://ec.europa.eu/info/files/user-guide-joint-harmonised-eu-programme-business-and-consumer-surveys_en

0.78, and with growth in modified GNI[11] 0.80. Overall, this suggests that the reconstructed series underlying the restored ESI for Ireland are valid indicators of the Irish business cycle.

Graph 15: reconstructed ESI and y-o-y growth rate of GDP (quarterly, SA)



The new survey data for Ireland will be included for the first time in the flash release of the EU/euro area consumer confidence indicator on 23 January 2019 and be disseminated in detail with the full business and consumer survey results (Economic Sentiment Indicator) on 30 January 2019.

[11] The modified GNI, released by the Central Statistics Office (CSO) is designed to exclude globalisation effects that are disproportionally impacting the measurement of the size of the Irish economy, see https://www.cso.ie/en/releasesandpublications/ep/p-nie/nie2017/mgni/

ANNEX

Reference series

Confidence indicators	Reference series from Eurostat, via Ecowin (volume/year-on-year growth rates)
Total economy (ESI)	GDP, seasonally- and calendar-adjusted
Industry	Industrial production, working day-adjusted
Services	Gross value added for the private services sector, seasonally- and calendar-adjusted
Consumption	Household and NPISH final consumption expenditure, seasonally- and calendar-adjusted
Retail	Household and NPISH final consumption expenditure, seasonally- and calendar-adjusted
Building	Production index for building and civil engineering, trend-cycle component

Economic Sentiment Indicator

The economic sentiment indicator (ESI) is a weighted average of the balances of replies to selected questions addressed to firms and consumers in five sectors covered by the EU Business and Consumer Surveys Programme. The sectors covered are industry (weight 40 %), services (30 %), consumers (20 %), retail (5 %) and construction (5 %).
Balances are constructed as the difference between the percentages of respondents giving positive and negative replies. EU and euro-area aggregates are calculated on the basis of the national results and seasonally adjusted. The ESI is scaled to a long-term mean of 100 and a standard deviation of 10. Thus, values above 100 indicate above-average economic sentiment and vice versa. Further details on the construction of the ESI can be found here.
Long time series (ESI and confidence indices) are available here.

Economic Climate Tracer

The economic climate tracer is a two-stage procedure. The first stage consists of building economic climate indicators, based on principal component analyses of balance series (s.a.) from five surveys. The input series are as follows: industry: five of the monthly survey questions (employment and selling-price expectations are excluded); services: all five monthly questions; consumers: nine questions (price-related questions and the question about the current financial situation are excluded); retail: all five monthly questions; building: all four monthly questions. The economic climate indicator (ECI) is a weighted average of the five sector climate indicators. The sector weights are equal to those underlying the Economic Sentiment Indicator (ESI, see above).
In the second stage, all climate indicators are smoothed using the HP filter in order to eliminate short-term fluctuations of a period of less than 18 months. The smoothed series are then normalised (zero mean and unit standard deviation). The resulting series are plotted against their first differences. The four quadrants of the graph, corresponding to the four business cycle phases, are crossed in an anti-clockwise movement and can be described as: above average and increasing (top right, 'expansion'), above average but decreasing (top left, 'downswing'), below average and decreasing (bottom left, 'contraction') and below average but increasing (bottom right, 'upswing'). Cyclical peaks are positioned in the top centre of the graph and troughs in the bottom centre. In order to make the graphs more readable, two colours have been used for the tracer. The darker line shows developments in the current cycle, which in the EU and euro area roughly started in January 2008.

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