

Euro area: Inflation target will be achieved if unemployment continues to fall

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Executive summary

- The labor market in the euro area has been improving since 2013. Although the number of people in work exceeds 2008 levels, the number of unemployed is still over 3 million higher. This discrepancy is due to increased labor market participation as previously inactive people enter the workforce, be it as a result of improving job prospects, such as in Germany, or because the long recession has forced low-income households to look for earnings opportunities, as in Italy.
- Recent surveys indicate that labor demand remains high and the number of job vacancies is rising. Therefore, we expect the positive trend to continue well into 2018. However, a distinct rise in employment will probably be accompanied by a much smaller decline in unemployment.
- This recovery in the European labor market should, according to the Phillips curve, reinforce wage growth and make it easier for the European Central Bank to hit its inflation target of close to 2%.
- Recently, the link between unemployment and wage growth has been questioned, as falling unemployment has not led to an appreciable acceleration in wage growth. Our findings do not confirm the view that the Philips curve is defunct. Based on estimates for the period since 2001, we find that unemployment did have a significant negative influence on wage growth in euro area countries. The fact that the level of unemployment in the euro area has remained high can help to explain why wage growth is still sluggish (currently 1.6%).
- Assuming further falls in unemployment, our estimations predict euro area wage growth of 2.4% per employee by the end of 2019 and growth in unit labor costs of 1.5-2%. Such cost pressures would move the ECB's inflation target within reach and hence point to a normalization of monetary policy over the medium term.

The number of employed people in the euro area has risen by around 7 million since 2013, while unemployment has declined by approximately 4 million. These labor market improvements are fueling a recovery in confidence in the European currency union. Whether these trends continue is a fundamental question for the future of the eurozone. Politically, further improvements in job markets could counteract voter frustration and

populism risk in many countries. Economically, falling unemployment should, according to the so-called Phillips curve, reinforce wage pressure and make it easier for the European Central Bank to hit its inflation target of close to 2%. There are doubts, however, whether the Phillips curve – the inverse relationship between unemployment and wage growth – is still valid. We address this question in the second part of this analysis.

First, we have a detailed look at what has happened in European labor markets in recent years. Although in 2017 the number of people in work in the euro area has climbed back above 2008 levels, unemployment is still over 3 million higher than it was before the economic and financial market crisis. This discrepancy is due to the fact that the population active in the labor market - i.e. those employed plus those actively looking for work – has increased substantially. While the working-age population in the euro area (all people aged 15 to 64) has remained virtually constant since 2008, the activity rate (participation rate) has gone up. There are numerous reasons for this. First, there is a long-term trend towards increased labor force participation among women and older workers, due to changing cultural preferences, improved child care provision and pension reforms. Second, the participation rates are also affected by cyclical movements. Economic downturns tend to decrease participation by discouraging jobseekers, causing what is termed the ‘hidden reserve’ to grow. The euro crisis, however, has shown that the relationship between the economic cycle and participation in the labor market is not always straightforward. In the countries worst hit by the economic crisis, participation among the lowest income groups has risen sharply. Very low household incomes increase the pressure to search actively for work. Rising participation rates, in turn, mitigate wage pressures that usually build up in an improving labor market.

These euro area aggregates hide stark differences between countries, as the table below shows. It lists changes in employment for the largest countries in the euro area and those worst hit by the recession. The overall change in employment is directly linked to changes in unemployment, changes in the labor force participation and changes in the working-age population (demographics).

Labor Market 2008-2017 (in thousands)

	Euro area	Germany	France	Italy	Spain	Ireland	Portugal	Greece
Employed (15-64)								
2008	144,574	37,902	25,793	22,699	20,317	2,081	4,786	4,523
2017	145,000	40,750	26,450	22,360	18,620	2,010	4,440	3,660
Unemployed (15-64)								
2008	11,759	3,130	1,967	1,658	2,592	145	418	387
2017	15,200	1,650	2,910	2,960	4,000	140	500	1,070
Active (15-64)								
2008	156,333	41,032	27,759	24,357	22,909	2,226	5,203	4,910
2017	160,200	42,400	29,360	25,320	22,620	2,150	4,940	4,730
Population (15-64)								
2008	219,606	54,066	39,732	38,713	31,507	3,089	7,036	7,366
2017	219,065	54,408	40,898	38,767	30,445	3,033	6,669	6,915

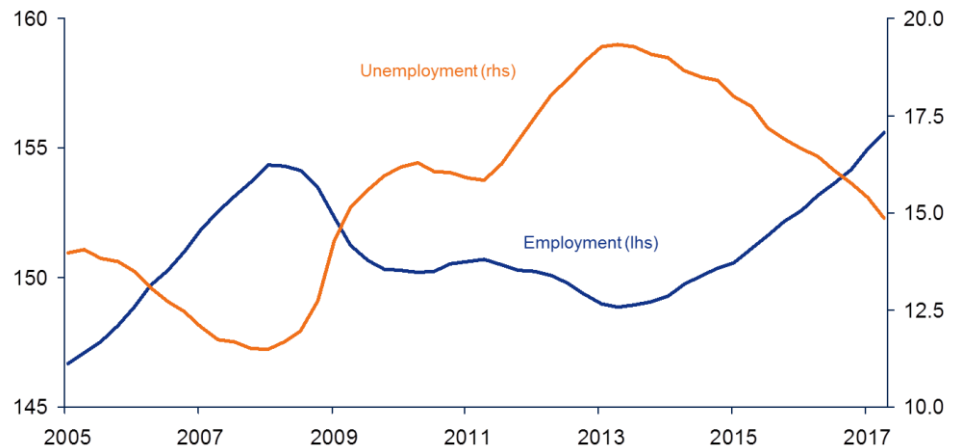
Sources: Eurostat, partly own projections for 2017.

- In Germany, the strong increase in employment over the past nine years has been accompanied by rising participation in the labor force and reduced unemployment. The working-age population has risen slightly.
- The total number of employed people in France is moderately higher in 2017 than it was in 2008. However, due to a sharp rise in labor force participation and an increase in the working-age population, unemployment is still 1 million higher than before the crisis.
- Employment in Italy is currently slightly lower than in 2008. However, labor market participation has increased substantially. The ongoing recession has probably increased pressure to participate actively in the labor market. Falling employment and rising participation have inevitably led to a surge in the unemployment rate.
- In Spain, employment has dropped sharply and is still 1.7 million lower than in 2008. Labor participation has fallen slightly, while the current unemployment rate is significantly higher. The working-age population has fallen substantially, largely as a result of emigration.
- In Ireland and Portugal, employment has fallen by 3.4% and 7.2% respectively, compared with 2008. Labor participation in both countries is now significantly lower, which is presumably due in part to discouragement among jobseekers and/or a limited supply of jobs. The working-age population declined slightly in Ireland and very significantly in Portugal, with emigration playing a significant role in both countries.
- Greece saw both a massive drop in employment and a massive rise in unemployment. The significant fall in labor participation is probably best explained by discouragement among jobseekers. Emigration has led to a severe contraction of the working-age population.

Given the trend toward rising participation, it is likely that the decline in unemployment will continue to lag behind the rate of employment growth. We considered what kind of macroeconomic conditions would be needed for the euro area to recover to the 2007/2008 unemployment rate of about 7.5% by 2020. Assuming a relatively static working-age population, an annual rise in employment of around 300,000 people will be needed just to keep unemployment constant. To reduce the unemployment rate from 9.1% in 2017 to its pre-crisis level in 2020, the number of people in work would have to rise by around 1.4 million (+0.9%) a year. This seems entirely realistic. Current productivity trends indicate that this rate of employment growth would be consistent with economic growth of around 1.5-2%. We consider the prospects for such growth rates to be good if the moderate upswing continues. We thus expect unemployment to be substantially lower in the euro area in 2020.

The next question is then how such improvements in the labor market will affect the wage-setting process, the associated costs and ultimately prices? Is it correct, as many economists argue, that the historical correlation between unemployment and wage growth – the original Phillips curve – no longer holds? This argument is based partly on the observation that falling unemployment in the euro area has not yet led to an acceleration in wage growth, and is bolstered by the fact that wage rises remain moderate even in low-unemployment countries such as Germany. It is important to bear in mind, however, that despite rising eurozone employment and a noticeable drop in eurozone unemployment, the *level* of unemployment is still unusually high.

Unemployment and employment in the euro area (in million)¹



¹ Both time series are seasonally adjusted. Employment covers all ages.

Source: Eurostat.

The Phillips curve

The Phillips curve describes the correlation between overall economic activity and (wage) inflation. Because it is a precise and transparent measure, the unemployment rate is frequently used as an indicator for the state of the economy as a whole. It is assumed that unemployment is negatively correlated with inflation, since low unemployment – that is, a pressurized labor market – boosts the negotiating strength of unions and employees and enables them to obtain higher wage agreements. Over the medium term, firms pass on the resultant higher costs to consumers, leading to a general rise in prices. The argument thus clearly proceeds from the economic situation to the price level, not vice versa.

The Phillips curve has been modified several times since it was first presented by Professor William Phillips in 1958. Regardless of its specific formulation, however, it has always been based on the link between macroeconomic activity and the price level. The most frequently used variant these days is the New Keynesian Phillips curve, which also incorporates inflation expectations. Because businesses cannot simply adjust prices at will and price adjustments also cause so-called menu costs, firms need to anticipate future inflation rates and set prices accordingly. If the majority of firms assume that inflation in the near future will be high, these expectations alone will therefore cause the general price level to rise (*ceteris paribus*). The prophecy is effectively self-fulfilling. However, there is no consensus on how exactly these expectations are formed or how they can be modeled. In addition to the common assumption of rational expectations (perfect anticipation by market participants of future inflation), an adaptive model is often used whereby expectations are formed in the light of wage and price changes in previous periods. This is a well-grounded and reasonable assumption, especially in collective bargaining. In the current academic debate, however, increasing attention is being paid to survey data as a direct representation of the economic mood.¹

As the Phillips curve is very intuitive and has been empirically stable for a long time, it has been regarded as a cornerstone of macroeconomics for decades. It also plays an important role in explaining transmission mechanisms in monetary policy. Recently, however, it has been thrown into doubt in both Europe and the US because inflation during the financial crisis was initially stable despite an ongoing recession; and then rose only slightly in spite of the economic recovery.

¹ Coibion and Gorodnichenko (2015), Slobodyan and Wouters (2017)

This is often explained in terms of “anchored expectations”.² In other words, years of stable inflation and the high credibility of central banks caused expectations to fixate on the 2% inflation target, and stick to it despite protracted weakness in the economy. Another explanation postulates a weaker correlation between economic performance and price changes. The growing competition caused by increasing globalization, automatization and international value chains, for instance, might limit upward pressure on wages even at the top of the economic cycle.³ More recent literature, however, concludes that while the relationship between cyclical activity and price rises may well have weakened, the fundamental correlation still exists.⁴

In the section below, we investigated whether and to what extent movements in compensation per employee in the euro area and individual eurozone countries can be explained in terms of the unemployment rate and adaptive inflation expectations, i.e. by a very basic Phillips curve. We find that since 2001, unemployment has had a significant negative influence on wage growth in all major countries in the euro area as well as in those that were worst hit by the crisis. This result also applies to the euro area as a whole. The estimated coefficient is statistically significant and implies that a 1 percentage point drop in the unemployment rate leads to an increase in wage growth of around 0.3 percentage points. Although this correlation confirms that wages do not react strongly to a fall in unemployment, the Phillips curve is by no means dead and in fact goes a long way toward explaining the variations in wage growth since 2001. Further, we find that wages in France and Greece react much more forcefully to changing unemployment than the euro area average.

Wage Phillips curve in the euro area. Dependent variable: wage growth¹⁾

	Euro area	Germany	France	Italy	Spain	Ireland	Portugal	Greece
constant	4.08*** (0.43)	4.13*** (0.35)	7.28*** (1.63)	6.32*** (1.43)	5.08*** (1.13)	5.43*** (1.14)	7.28** (2.74)	15.93*** (2.50)
Backw.-looking infl. expect. ²⁾	0.28*** (0.06)	0.02 (0.12)	0.23 (0.22)	-0.24 (0.26)	0.31 (0.21)	0.64*** (0.20)	-0.16 (0.34)	-1.05** (0.41)
unempl. rate	-0.27*** (0.04)	-0.34*** (0.04)	-0.58*** (0.15)	-0.46*** (0.12)	-0.22*** (0.05)	-0.44*** (0.11)	-0.48** (0.23)	-0.75*** (0.11)
observations	66	66	66	66	66	65	66	66
R-squared	0.72	0.59	0.52	0.28	0.60	0.75	0.36	0.46

¹⁾ As yoy-change (in %). Regression from 2001Q1 to 2017Q2. Newey-West standard errors in parentheses. Statistically significant estimated coefficients are marked with asterisks(***p<0.01, **p<0.05, *p<0.1).

²⁾ Backward-looking inflation expectations are formed by an average of the past four inflation rates (yoy).

Sources: Thomson Reuters Datastream, own calculations.

While the correlation between unemployment and wages is clear, it is much harder to pin down the role of adaptive inflation expectations in the wage-setting process. A significant positive influence can only be seen in the euro area as a whole and in Ireland.

² Bernanke (2010), Christelis et al. (2017)

³ Auer et al. (2017)

⁴ Ciccarelli and Osbat (2017), Coibion and Gorodnichenko (2015), Laseen and Sanjani (2016), Oinonen and Paloviita (2014)

Finally, we come to the implications for monetary policy. In the second quarter of 2017, compensation per employee in the euro area was 1.6% higher than a year earlier. Assuming labor productivity growth of 0.5% (in line with recent trends), this implies growth in unit labor costs of around 1%. Even if we assume a slight expansion of profit margins, this 1% rise in costs would make the European Central Bank's inflation target of close to 2% hard to achieve – unless foreign trade (currency values, commodity prices) or other specific factors (changes in taxation, food prices) significantly add to inflationary pressure.

We do not expect wage pressure to remain so low, however. Based on our growth forecast of about 2% for the euro area over the next two to three years and our expectation of lower unemployment, the Phillips curve model predicts a noticeable upward trend in wages. At the end of 2019, year-on-year growth in compensation per employee is expected to be 2.4%, i.e. almost 1 percentage point higher than it is now. Combined with fairly low productivity growth, this would result in unit labor cost growth of 1.5%-2% - and thus cost pressure in line with the ECB's inflation target. The ECB's argument for maintaining a highly expansionary monetary policy would then lose force. In the medium term, therefore, we have good reasons to expect a normalization of monetary policy.

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