Climate: Trump blows hot and cold

By [Aurélien Saussay](#)

Donald Trump has thus once again respected one of his campaign promises. Nevertheless, the withdrawal of the United States from the Paris climate agreement is still not certain.

Some key figures in the US oil lobby, such as the Secretary of State, Rex Tillerson, who was former boss of Exxon-Mobil, along with its current CEO Darren Woods and the Governor of Texas, the leading oil producing state in the United States, are advising the President to keep the United States in the agreement — if only to influence the way it's applied.

This withdrawal is certainly not good news. But it does not constitute the catastrophe that some seem to fear.

At the international level, China immediately renewed its commitment by replacing the former Sino-US axis with a new Sino-European climate alliance.

Despite the importance of coal in China's energy mix, it has become the world's leading solar power producer, both in installed capacity as well as in the capacity to produce photovoltaic cells. China's leaders have no intention of turning their back on this technological shift, which places their country in an enviable position of technological and industrial leadership.

Moreover, beyond the global problem of climate change, for China the reduction of coal consumption is a critical issue in its local policy.

The fine particles emitted by the country's power stations are smothering its cities and significantly degrading the

inhabitants' quality of life. With environmental demands rising among the populace, it would be unthinkable to forego further efforts to reduce coal consumption.

The combined leadership of China and Europe should be enough to isolate Trump's position on the international stage and not jeopardize the participation of the other major emitting countries in the agreement. But the United States alone does still account for 15% of global emissions (compared with 30% for China and 9% for the European Union).

A complete renunciation of any climate policy at the domestic level would have a significant impact on the future trajectory of emissions.

The announcement by the governors of the states of California, New York and Washington of the creation of an Alliance for the Climate in the aftermath of the US withdrawal is in this respect rich in lessons.

First of all, it confirms that a large part of American climate policy is decided at the local level (state, even municipality).
It also reveals the great divergence between the American states in the face of climate change: other coastal states that are heavily involved in the energy transition like Massachussetts and Oregon could join this Alliance, which already accounts for more than one-third of US GDP.

Finally, it highlights how sharply divided the country is on the subject: a recent Pew Research Center survey indicates that nearly 60% of Americans want their country to stay in the Paris Agreement. Trump is actually almost as isolated within the United States as he is internationally.

The withdrawal from the Paris Agreement in the main represents a domestic policy decision for Trump. His announcement, which focused on the coal industry, is aimed primarily at his voters in Appalachia's mining country, who believe their survival is

threatened by the energy transition.

In the short term, however, it is much more the competition from shale gas that is threatening the US coal industry.

The new competitiveness of renewable energies, even without subsidies, condemns coal over the longer term: the leading producer of wind power in the United States is for instance Texas, which does not exactly arouse suspicion for its environmental sympathies.

Donald Trump has thus taken a risk in breaking the international process centred on the Paris agreement in an effort to revive a dying industry — with little hope of success. Fortunately, his international and domestic isolation should limit the scope of his decision.

The European Central Bank is readying the future

By [Christophe Blot](#) and [Paul Hubert](#)

At the press conference following the meeting of the ECB's Governing Council on Thursday, 8 June, Mario Draghi announced that the Bank's key interest rates would remain unchanged (0% for the main refinancing operations rate, a negative 0.40% for the deposit facility rate and 0.25% for the lending facility rate). In particular, Draghi gave some valuable insights into the future direction of the euro zone's monetary policy by changing its message. Whereas he had systematically stated that rates could be cut ("at lower levels"), he now stated

that they would be maintained at the "present level" for an "extended period of time" and "well past the horizon of our net asset purchases".

By announcing that there would be no further rate cuts, the ECB believes that the current monetary policy stance should enable it to achieve its objectives, and it is taking the first step towards a further tightening of monetary conditions. However, it should be noted that at the same time the ECB does not expect inflation to return to its 2% target by 2019. The Eurosystem's new macroeconomic projections published during the press conference foresee inflation at 1.5% in 2017, 1.3% in 2018 and 1.6% in 2019[1]. Although the recovery is continuing, inflation will remain below its target level for a period of at least three years, which justifies maintaining an expansionary monetary policy. By clarifying that the rates will not go up upon the termination of the net asset purchases[2], the ECB clearly intends to continue to support economic activity.

Then comes the matter of the date when the asset purchase programme will end. According to the current discourse, the purchases will continue until December 2017, but they could be extended if the ECB deems it necessary. What strategy will the ECB adopt after that? It is possible that the asset purchases will diminish gradually along the lines of what the Federal Reserve did in 2014 [3]. In this case, the end of quantitative easing would take a few more months. This is currently the most likely option, which would push off the interest rate hike until the end of 2018. It is possible, however, that announcements of a reduction in purchases could be made by year end, which could lead to winding up QE by early 2018. Whichever option is chosen, the ECB will undoubtedly take care to communicate its strategy in order to gradually shape expectations about the first rate rise.

However, while this is one important element in the strategy for the normalization of the euro zone's monetary policy, the

matter is not limited to the issue of rate rises. The ECB must also provide information about its intentions regarding its negative interest rate policy or about the moment it will decide to no longer satisfy all the requests for fixed-rate refinancing, as it has done since October 2008. Finally, it also needs to indicate the pace at which it plans to cut down the size of its balance sheet as the Federal Reserve has recently begun to do (see here). The ECB also needs to be transparent on these issues.

[1] These expectations have even been revised downwards since March 2017.

[2] Since April 2017, net asset purchases have come to 60 billion euros per month, compared with 80 billion in the months before that.

[3] The Federal Reserve spread out the reduction of its securities purchases from January to October.

Trends in labour force participation rates in Europe during the Great Recession: The role of demographics and job polarization

By Guillaume Allègre and Gregory Verdugo

In Europe as in the United States, employment fell

considerably during the Great Recession. Moreover, over the last few decades, the labour markets in both regions have been reshaped by the forces of automation and globalization. However, the response of labour force participation to these changes has varied from country to country. One of the most significant developments in the US labour market over the past decade has been the decline in labour force participation. Between 2004 and 2013, the labour force participation rate for the group aged 25 to 54 fell by 2.6 percentage points (from 83.8% to 81.1%), a decline that has persisted well beyond the end of the Great Recession. In the EU-15, on the other hand, the participation rate for this age group increased by 2 percentage points during the same period (from 83.7% to 85.6%), despite low growth and the persistence of high levels of unemployment.

What explains these differences on the two sides of the Atlantic? To answer this question, we examine here the determinants of the evolution of labour force participation over the last two decades in twelve European countries and compare this with the United States.

Consistent with previous work on the United States, we found that recent demographic shifts account for a substantial share of cross-country differences. The share of retired baby boomers increased more rapidly in the United States and triggered a sharper decline in participation rates there than in Europe. Over the past decade, the rate of increase in the number of higher education graduates was twice as high in Europe as in the United States, especially in southern Europe and in particular for women. Women with higher levels of education are more likely to join the workforce, and they have contributed dramatically to the rise in labour force participation in Europe.

However, these changes do not explain everything. For the population with a diploma below the level of the high school baccalaureate, men's labour force participation rates have

fallen in all countries. For women, they have increased rapidly, especially in the countries hit hardest by unemployment. In Spain, Greece and Italy, the participation rates for women with a diploma below the baccalaureate level rose by 12, 5.5 and 2 points, respectively, between 2007 and 2013, while these economies were in the midst of a deep recession.

To explain these facts, we investigated the role of changes in patterns of labour demand in recent decades and in particular during the Great Recession. We show that, as in the United States, job polarization (which denotes the reallocation of employment towards the lowest and highest paying occupations at the expense of intermediate professions) accelerated in Europe during the Great Recession (Figure 1). Due to the greater destruction of jobs in intermediate occupations, the recent polarization has been much more intense in Europe.

Figure 1. Changes in employment according to wage level, 2007-2013
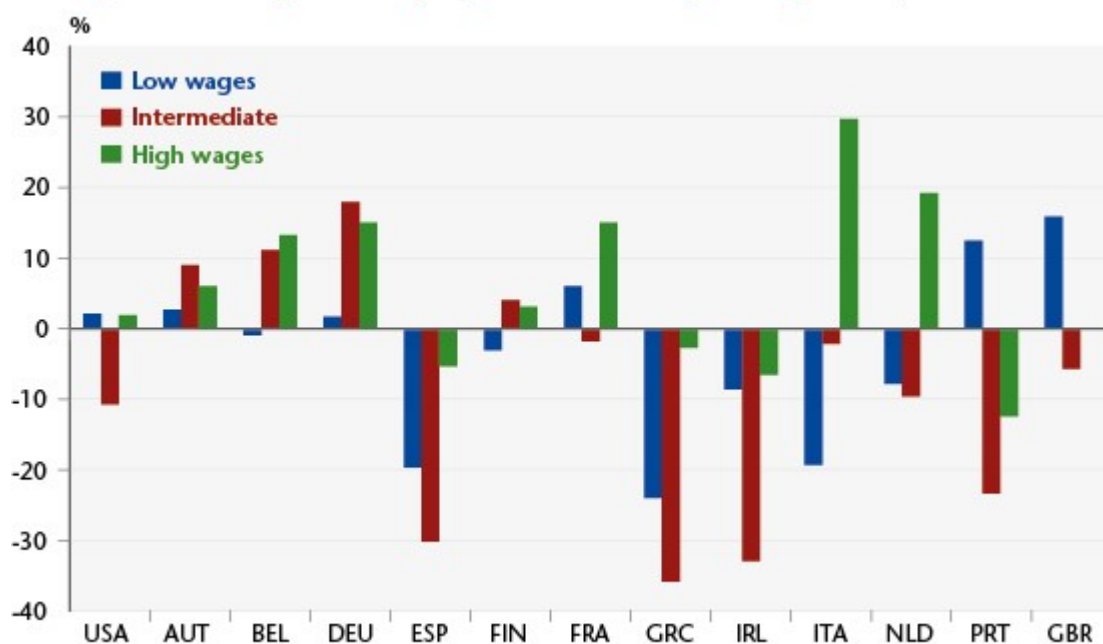
Source : EU-LFS, CPS (US).

Another important difference with the United States is that occupational segregation between men and women is more pronounced in Europe. The intermediate jobs that are rapidly disappearing are much more likely to employ male workers in

Europe, whereas the expansion of low-skilled occupations is disproportionately benefitting women (Figure 2). As a result, in Europe, more than in the United States, job polarization and the destruction of intermediate jobs has led to a decline in labour market opportunities for men that is more dramatic than the decline for women. We find that these asymmetric demand shocks between the genders accounted for most of the increase in labour force participation rates for women with the lowest educational levels during the Great Recession.

Figure 2. Proportion of women according to wage level, 2007
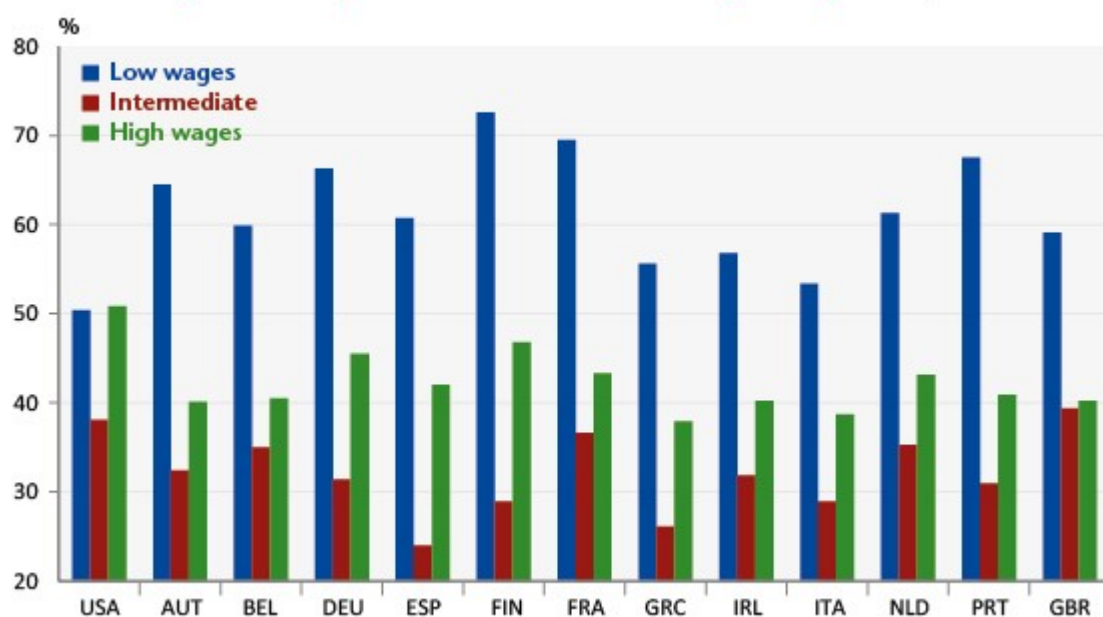

Source : EU-LFS, CPS (US).

For further information: Gregory Verdugo, Guillaume Allègre, "Labour Force Participation and Job Polarization: Evidence from Europe during the Great Recession", *Sciences Po OFCE Working Paper*, no. 16, 2017-05-10

What factors are behind the recent rise in long-term interest rates?

By [Christophe Blot](#), [Jérôme Creel](#), [Paul Hubert](#) and Fabien Labondance

Since the onset of the financial crisis, long-term sovereign interest rates in the euro zone have undergone major fluctuations and periods of great divergence between the member states, in particular between 2010 and 2013 (Figure 1). Long-term rates began to fall sharply after July 2012 and Mario Draghi's famous "whatever it takes". Despite the [implementation](#) and [expansion](#) of the Public Sector Purchase Programme (PSPP) in 2015, and although long-term sovereign interest rates remain at historically low levels, they have recently risen.

Figure 1: Long-term sovereign interest rates in the euro zone
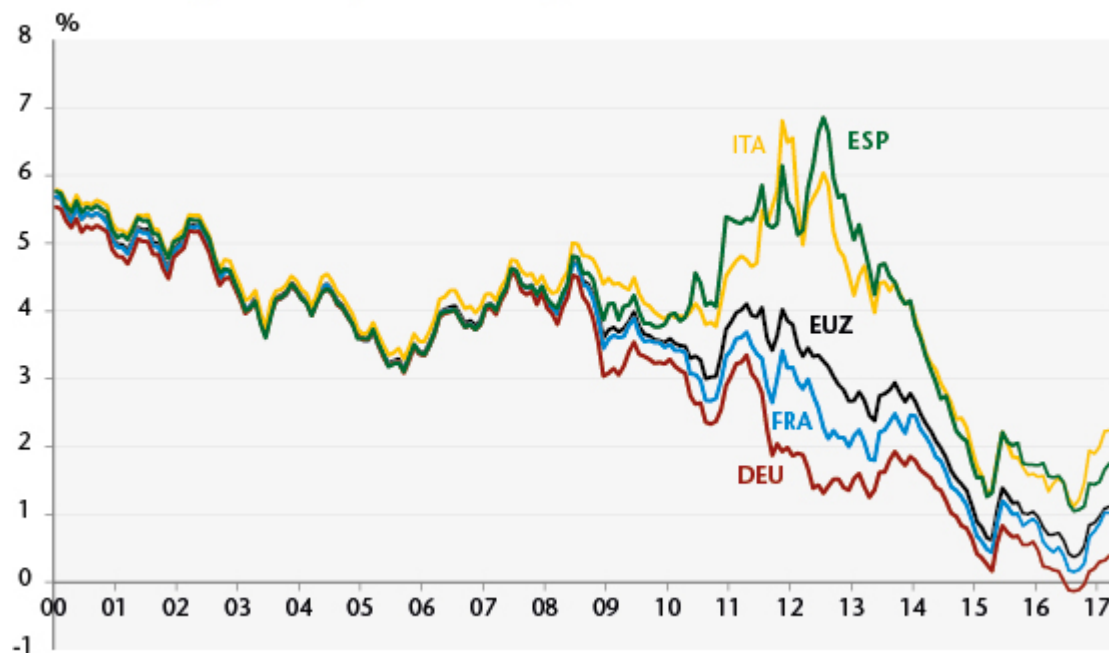
Source : European Central Bank.

There may be several ways of interpreting this recent rise in long-term sovereign interest rates in the euro zone. Given the

current economic and financial situation, it may be that this rise in long-term rates reflects the growth and expectations of [rising future growth](#) in the euro zone. Another factor could be that the euro zone bond markets are following the US markets: European rates could be rising as a result of rising US rates despite the [divergences](#) between the policy directions of the ECB and of the Fed. The impact of the Fed's monetary policy on interest rates in the euro zone would thus be stronger than the impact of the ECB's policy. It might also be possible that the recent rise is not in line with the zone's fundamentals, which would then jeopardize the recovery from the crisis by making debt reduction more difficult, as public and private debt remains high.

In a recent [study](#), we calculate the contributions of the different determinants of long-term interest rates and highlight the most important ones. Long-term interest rates can respond to private expectations of growth and inflation, to economic fundamentals and to monetary and fiscal policy, both domestic (in the euro zone) and foreign (for example, in the United States). The rates may also react to perceptions of different financial, political and economic risks[1]. Figure 2 shows the main factors that are positively and negatively affecting long-term interest rates in the euro zone over three different periods.

Between September 2013 and April 2015, the euro zone's long-term interest rate decreased by 2.3 percentage points. During this period, only expectations of GDP growth had a positive impact on interest rates, while all the other factors pushed rates down. In particular, the US long-term interest rate, inflation expectations, the reduction of sovereign risk and the ECB's unconventional policies all contributed to the decline in euro zone interest rates. Between June 2015 and August 2016, the further decline of about 1 percentage point was due mainly to two factors: the long-term interest rate and the expectations of GDP growth in the United States.

Between August 2016 and February 2017, long-term interest rates rose by 0.7 percentage point. While the ECB's asset purchase programme helped to reduce the interest rate, two factors combined to push it up. The first is the increase in long-term interest rates in the United States following the Fed's tightening of monetary policy. The second factor concerned political tensions in France, Italy and Spain, which led to a perception of political risk and higher sovereign risk. While the first factor may continue to push up interest rates in the euro zone, the second should drive them down given the results of the French presidential elections.

Figure 2: Contributions to changes in long-term sovereign rates in the euro zone
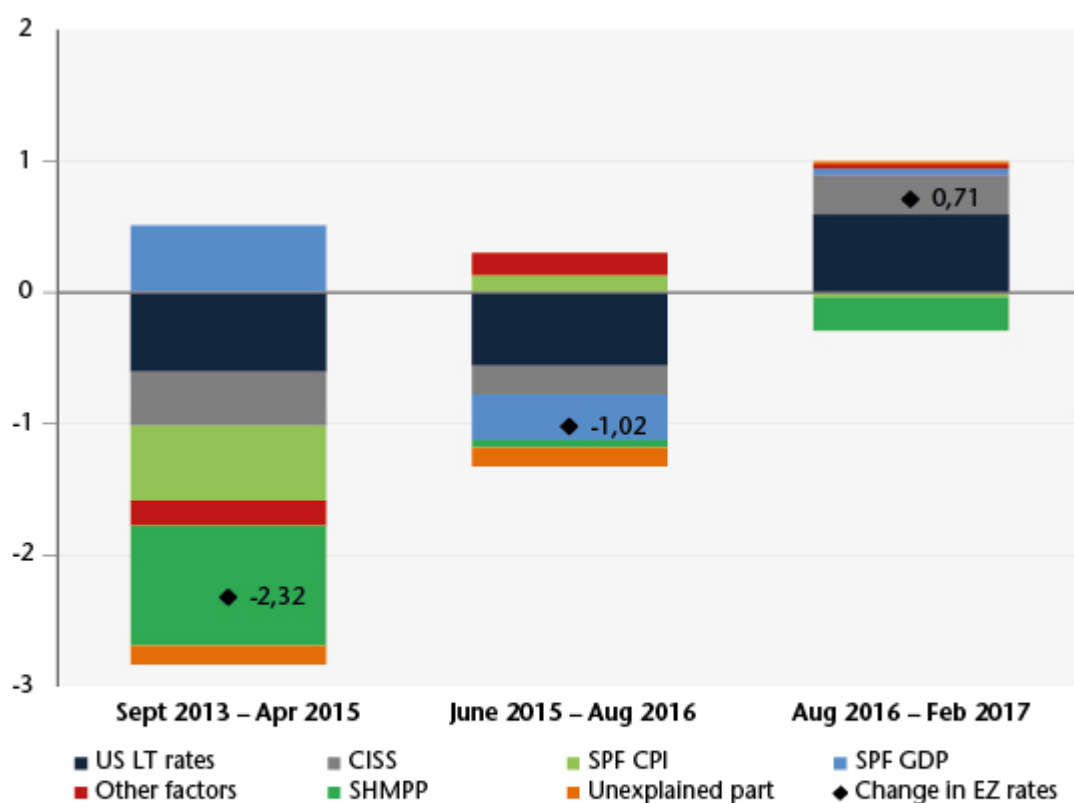
Note: SPF corresponds to the Survey of Professional Forecasters and measures private agent expectations of inflation (CPI – Consumer Price Index) and of GDP (Gross Domestic Product). The CISS (Composite Indictor of Systemic Stress) is an indicator of stress on the financial markets. The SHMPP (Securities Held for Monetary Policy Purposes), in the Weekly financial statements published by the ECB, measures the amount of purchases of bonds made by the ECB as part of its un-conventional policy.

Source: calculation OFCE.

[1] The estimate of the equation for the determination of long-term rates was calculated over the period January 1999 – February 2017 and accounts for 96% of the change in long-term

rates over the period. For details on the variables used and the parameters estimated, see the [study](#).

Where are we at in the euro zone credit cycle?

By [Christophe Blot](#) and [Paul Hubert](#)

In December 2016, the European Central Bank announced the continuation of its Quantitative Easing (QE) policy until December 2017. The continuing [economic recovery](#) in the euro zone and the renewal of inflation are now raising questions about the risks associated with this programme. On the one hand, isn't the pursuit of a highly expansionary monetary policy a source of financial instability? Conversely, a premature end to unconventional measures could undermine growth as well as the ECB's capacity to achieve its objectives. [Here](#), we study the dilemma facing the ECB [in French] based on an analysis of credit cycles and banking activity in the euro zone.

The ECB's announcement gives us two signals about the direction of monetary policy. On the one hand, by delaying the end date of QE, the ECB is implicitly announcing that the normalization of monetary policy, in particular a hike in its key rate, will not take place before early 2018. The ECB will thus continue its expansionary policy of increasing the size of its balance sheet. On the other hand, the reduction in monthly purchases is also a sign that it is toning down its expansionary character. The announcement is similar to the "tapering" that began in January 2014 by the US Federal

Reserve. Purchases of securities were cut back gradually, until they actually stopped at the end of October 2016.

The undeniably expansionary nature of monetary policy in the euro zone suggests that the ECB still considers it necessary to implement a stimulus in order to achieve its ultimate monetary policy objectives. The first of these is price stability, which is defined as inflation that is lower than but close to 2% per year. There are no signs of either runaway inflation or growth [1] [2]. The securities buyback programme should help to consolidate growth and push inflation towards the 2% target. At the same time, the liquidity issued by the central bank in its securities purchase programmes and the low level of interest rates (short and long term) are fuelling fears that monetary stability might have an adverse effect on financial stability[3].

The result leaves the ECB facing a dilemma. Putting a premature end to quantitative easing could keep the euro zone in a state of low inflation and low growth. Unnecessarily prolonging QE, while the US Federal Reserve has begun normalizing its monetary policy, could create a risk of financial instability, resulting in an uncontrolled surge in asset prices, credit, and more broadly the risk taken on by the financial system.

We assess this dual risk using indicators on the activity of the banking system of the euro zone as a whole and of the countries that make it up. Credit, whether granted to households or to non-financial enterprises, is central to bank assets and often at the heart of risks to financial instability[4]. Here we propose extending the analysis to the size of the balance sheet and to total loans granted — including credit to other monetary and financial institutions — which makes it possible to measure the risk associated with the banking system as a whole[5].

These different variables are related either to GDP, which

makes it possible to capture the disconnection between banking activity and real activity, or to the capital and reserves of the banking system, which makes it possible to capture the leverage effect, i.e. the capacity of the system to absorb losses. Here we focus on quantities rather than prices, using indicators such as the ratio of credit granted on equity and the ratio of credit received on income. These are central to reflecting the transmission of monetary policy and to assessing the risk of financial instability.

Figure. Credit in the euro zone
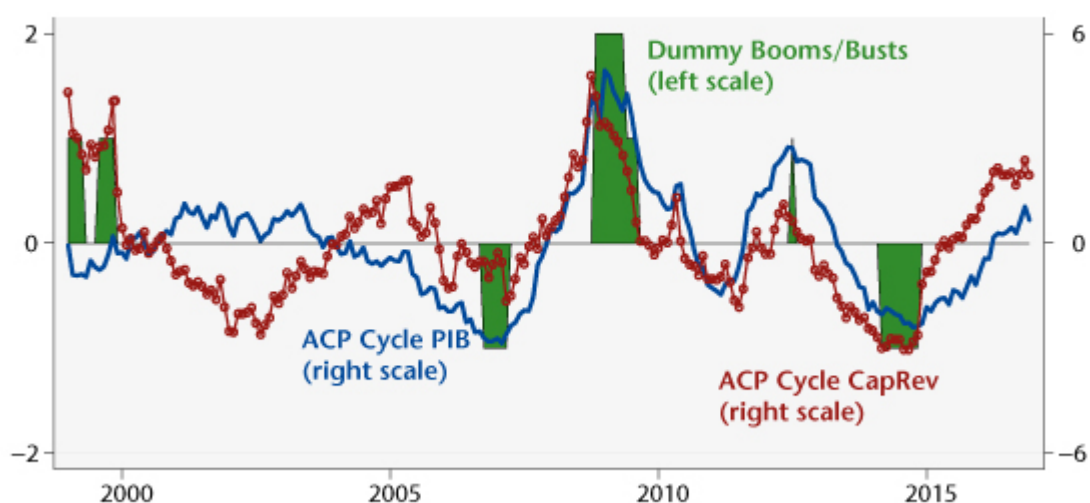
Sources : Blot and Herbert (2017) and ECB data.

The graph shows the changes in the credit cycle, relative to GDP (blue line) and relative to the capital and reserves of the banking system (red line) [6]. The green areas indicate periods when credit deviates significantly above or below its long-term trend. In general, the analysis of credit and of the size of the banking system's balance sheet points to a recovery in activity but it does not suggest either a credit boom or an excessive contraction in the euro zone in the recent period. While credit is evolving in a relatively more favorable direction relative to its trend in France and Germany, the cycle does not indicate an excessive increase. The Netherlands and Spain are distinguished by a low level of credit relative to GDP. For the Netherlands, this trend is confirmed by the indicators relative to the banking system's

capital and reserves, while in Spain, outstanding loans relative to capital and reserves are at a historically high level, suggesting an excessive level of risk-taking given the economic situation.

[1] Translation errorDespite the recent rebound in inflation, which is largely linked to the rise in oil prices and inflation expectations, inflationary pressures are still moderate, and getting inflation back to the 2% target is not sufficiently sure to warrant a change in the direction of monetary policy.

[2] Unemployment is still high, fuelling deflation.

[3] A recent analysis by Borio and Zabai (2016) of the effectiveness of unconventional monetary policy suggests that its effectiveness could decrease even as the risks involved increase. The role of asset prices has been studied by Andrade et al. (2016), showing that asset prices had reacted, as expected, following the measures taken by the ECB, and by Blot et al. (2017) on an assessment of the risk of bubbles.

[4] See Jorda *et al.*, 2013 and 2015.

[5] Translation errorThe Basel III legislation is based on risk indicators calculated at the level of banking establishments, while our approach is based on macroeconomic indicators.

[6] Translation errorThese cycles are obtained using a principal component analysis (PCA) of several types of trend / cycle breakdowns: the Hodrick-Prescott filter, the Christiano-Fitzgerald filter, and the moving average.

Is the recovery on the right path?

Analysis and Forecasting Department

This text is based on the 2016-2018 outlook for the world economy and the euro zone, a full version of which is available here [in French].

The growth figures for 2016 have confirmed the picture of a global recovery that is gradually becoming more general. In the euro zone, which up to now had lagged behind, growth has reached 1.7%, driven in particular by strong momentum in Spain, Ireland, the Netherlands and Germany. The air pocket that troubled US growth at the start of the year translated into slower GDP growth in 2016 than in 2015 (1.6% vs. 2.6%), but unemployment has continued to decline, to below the 5% threshold. The developing countries, which in 2015 were hit by the slowdown in the Chinese economy and in world trade, picked up steam, gaining 0.2 point (to 3.9%) in 2016.

With GDP growing at nearly 3%, the world economy thus seems resilient, and the economic situation appears less gloomy than was feared 18 months ago — the negative factors have turned out to be less virulent than expected. The Chinese economy's shift towards a growth model based on domestic demand has led not to its abrupt landing but to a controlled slowdown based on the implementation of public policies to prop up growth. Even though the sustainability of Greece's debt has still not been resolved, the crisis that erupted in the summer of 2015 did not result in the disruption of the monetary union, and the election of Emmanuel Macron to the presidency of the French Republic has calmed fears that the euro zone would break up. While the question of Brexit is still on the table, the fact remains that until now the shock has not had the catastrophic effect some had forecast.

This pattern is expected to continue in 2017 and 2018 as a result of monetary policies that will continue to boost economic activity in the industrialized countries and somewhat scaled down fiscal efforts. US fiscal policy should become even more expansionary, allowing for a rebound in growth, which should once again surpass 2% in 2018. While oil prices have recently risen, they are not expected to soar, which will limit the negative impact on household purchasing power and business margins. The rise should even revive the previously moribund rate of inflation, thereby lowering the deflationary risk that has hovered over the euro zone. Pressure on the European Central Bank to put an end to unconventional measures could mount rather quickly.

Although the recovery process is consolidating and becoming more widespread, output in most of the developed economies is still lagging behind in 2016, as is illustrated by the gap in output from the potential level, which is still negative (Figure). This situation, which contrasts sharply with the past cyclical behavior of economies as GDP swung back towards its potential, raises questions about the causes for the breakdown in the growth path that has been going on for almost ten years now. One initial element in an explanation could be the weakening of potential GDP. This could be the result of the scale of the crisis, which would have affected the level and / or growth of the supply capacity of the economies due to the destruction of production capacity, the slowdown in the spread of technological progress and the de-skilling of the unemployed.

A second factor would be the chronic insufficiency of demand, which would keep the output gap in negative territory in most countries. The difficulty in once again establishing a trajectory for demand that is capable of reducing underemployment is related to the excessive indebtedness of private agents prior to the recession. Faced with swelling liabilities, economic agents have been forced to cut their

spending to shed debt and restore their wealth. In a situation like this, unemployment or underemployment should continue to fall, but this will take place more slowly than in previous recovery phrases. Ten years after the start of the Great Recession, the global economy has thus still not resolved the macroeconomic and social imbalances generated by the crisis. The recovery is therefore well under way, but it is still not fast enough.

Figure: Output gaps in 2016

Difference from potential GDP, In %
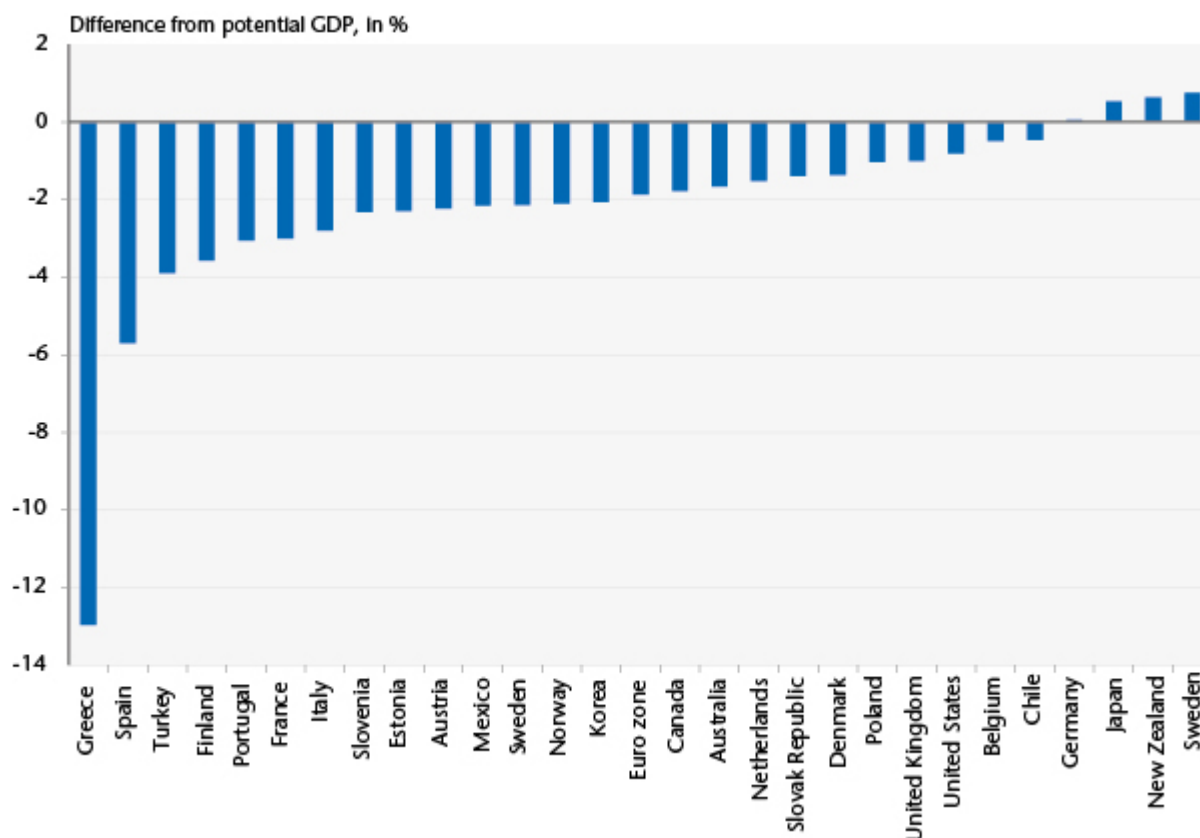
Sources : OECD, *Economic Outlook*, November 2016, OFCE Calculations.

Beyond the unemployment rate. An international comparison

since the crisis

By [Bruno Ducoudré](#) and [Pierre Madec](#)

[According to figures from the French statistics institute (INSEE) published on 12 May 2017](#), non-agricultural commercial employment in France increased (+0.3%) in the first quarter of 2017 for the eighth consecutive quarter. Employment rose by 198,300 in one year. Despite the improvement on the jobs front experienced since 2015, the impact of the crisis is still lingering.

Since 2008, employment trends have differed significantly within the OECD countries. Unemployment rates in the United States, Germany and the United Kingdom are now once again close to those seen before the onset of the crisis, while the rates in France, Italy and particularly Spain still exceed their pre-crisis levels. Changes in unemployment reflect the gap between changes in the active population and changes in employment. An improvement in unemployment could therefore mask less favourable developments in the labour market, in terms of employment behaviour (changes in the labour force participation rate and the "unemployment halo") or an increase in precarious employment (involuntary part-time work, etc.). In this paper we take another look at the contribution of changes in participation rates and in working time duration relative to changes in unemployment rates and to a broader measure of the unemployment rate that encompasses the "halo of unemployment" and involuntary part-time work.

Unemployment rates are marked by the crisis and reforms

With the exception of the United States, employment rates have changed considerably since 2008. In France, Italy and Spain, the employment rate for 15-24 year-olds and for those under age 55 more generally has fallen sharply (Figure 1). Between the first quarter of 2008 and the last quarter of 2016, the

employment rate for 18-24 year-olds fell by 19 percentage points in Spain, by more than 8 percentage points in Italy and by almost 4 percentage points in France, while at the same time the unemployment rates in these countries rose by 9, 5 and 3 percentage points respectively. The poor state of the economy in these countries, accompanied by negative or weak job creation, has hit young people entering the labour market hard. Conversely, over this same nine-year period, the employment rate of individuals aged 55 to 64 increased in all the above countries. In France, as a result of successive pension reforms and the [elimination of the job search exemption](), the employment rate of older workers increased by 12.3 percentage points in nine years to 50% in Q4 2016. In Italy, even though the labour market worsened, the employment rate of 55-64 year-olds has risen by almost 18 percentage points.

Figure 1. Change in employment rate by age between Q1 2008 and Q4 2016
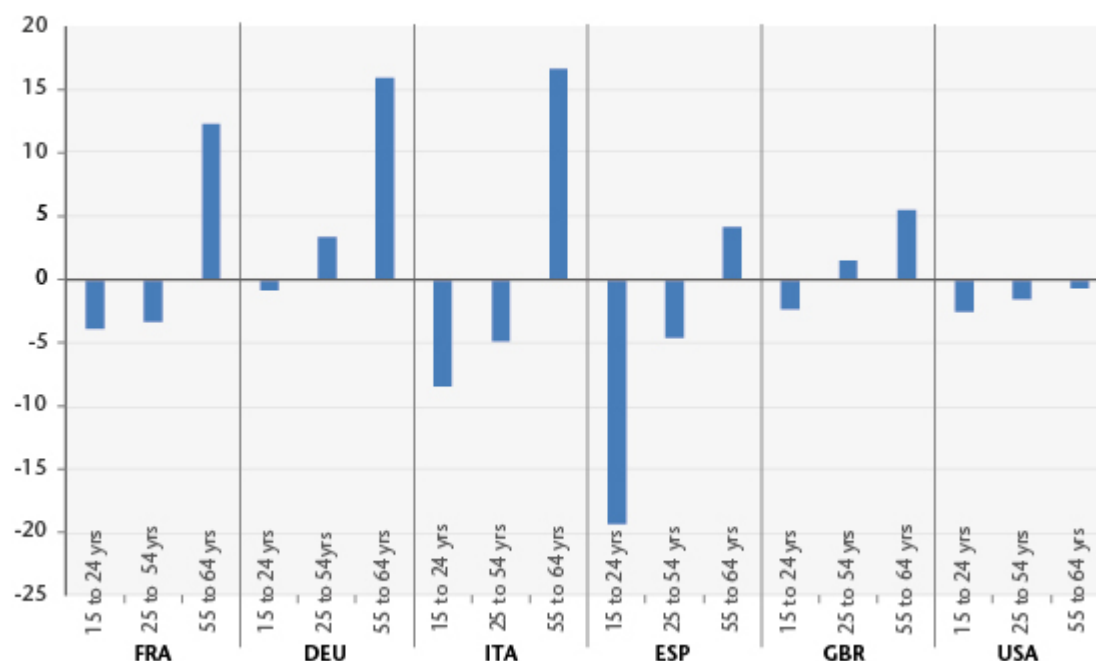
Sources: OECD, OFCE calculations.

A sharp impact of the participation rate on unemployment, offset by a reduction in working time

During the course of the crisis, most European countries reduced the actual working hours to a greater or lesser extent

by means of partial unemployment schemes, the reduction of overtime and the use of time-savings accounts, but also through the expansion of part-time work (particularly in Italy and Spain), including involuntary part-time work. On the other hand, the favourable trend in unemployment in the US (Table 1) is explained partly by a significant decline in the labour force participation rate of people aged 15 to 64 (Table 2). The rate in the last quarter of 2016 was 73.1%, i.e. 2.4 points less than at the beginning of 2007.

Table 1. Change in ILO unemployment rate (in % points)

	Q1 2007 – Q4 2011	Q1 2012 – Q4 2016	Q1 2007 – Q4 2016
DEU	-3,4	-1,7	-5,1
ESP	14,6	-4,2	10,3
FRA	0,9	0,7	1,6
ITA	3,1	2,7	5,8
GBR	2,9	-3,6	-0,7
USA	4,1	-3,8	0,4

Source: National accounts, OFCE calculations.

Table 2. Change in the participation rate (in % points)

	Q1 2007 – Q4 2011	Q1 2012 – Q4 2016	Q1 2007 – Q4 2016
DEU	2,1	0,6	2,8
ESP	2,5	0,0	2,5
FRA	0,6	1,2	1,8
ITA	0,5	2,7	3,2
GBR	0,2	1,7	1,9
USA	-2,3	-0,2	-2,4

Sources: National accounts, OFCE calculations.

Assuming that a one percentage point increase in the labour force participation rate leads, holding employment constant, to a 1 percentage point increase in the unemployment rate, it is possible to measure the impact of these adjustments (working hours and participation rate) on unemployment, by calculating an unemployment rate at constant employment and controlling for these adjustments. Except in the United States, all the countries studied saw a greater increase in their labour force (employed + unemployed) than in the general population, owing, among other things, to pension reforms.

Mechanically, absent job creation, this demographic growth has the effect of increasing the unemployment rate of the countries concerned.

If the labour force participation rate remained at its 2007 level, the unemployment rate would fall by 1.7 percentage points in France, 2.8 percentage points in Italy and 1.8 percentage points in the United Kingdom (Table 3). On the other hand, without the large contraction in the US labour force, the unemployment rate would have been at least 2.3 percentage points higher than in 2016. It also seems that Germany experienced a significant decline in the level of its unemployment (-5.1 points), even though the participation rate rose by 2.8 percentage points. For an unchanged employment rate, the German unemployment rate would be 1.3% (Figure 2).

As regards working hours, the lessons seem quite different. It seems that if working time had been maintained in all the countries at its pre-crisis level, the unemployment rate would be higher by 3.4 points in Germany, 3.1 points in Italy and 1.5 points in France. In Spain and the United Kingdom, working time has changed very little since the crisis. By controlling for working time, the unemployment rate changes in line with what was observed in these two countries. Finally, without adjusting for working time, the unemployment rate in the United States would be 1 point lower.

Table 3. Difference between the unemployment rate seen at Q4 2016 and the unemployment rate in case of .... (in % points)

	...keeping working time at its 2007 level	... keeping the participation rate at its 2007 level	...keeping working time and the participation rate at their 2007 levels
DEU	-2,6	3,4	0,9
ESP	-2,2	0,3	-1,9
FRA	-1,7	1,5	-0,2
ITA	-2,8	3,1	0,3
GBR	-1,8	0,3	-1,5
USA	2,3	-1,0	1,3

Sources: National accounts, OECD, OFCE calculations.

Note that this trend towards a reduction in working hours is an old one. Indeed, since the end of the 1990s, all the countries studied have experienced large reductions in working time. In Germany, this decline averaged 0.5% per year between 1998 and 2008. In France, the transition to the 35-hour work week resulted in a similar decrease (-0.6% per year) over that period. Overall, between 1998 and 2008, working hours were down 5% in Germany, 6% in France, 4% in Italy, 3% in the United Kingdom and the United States, and 2% in Spain.

Figure 2. Unemployment rate...
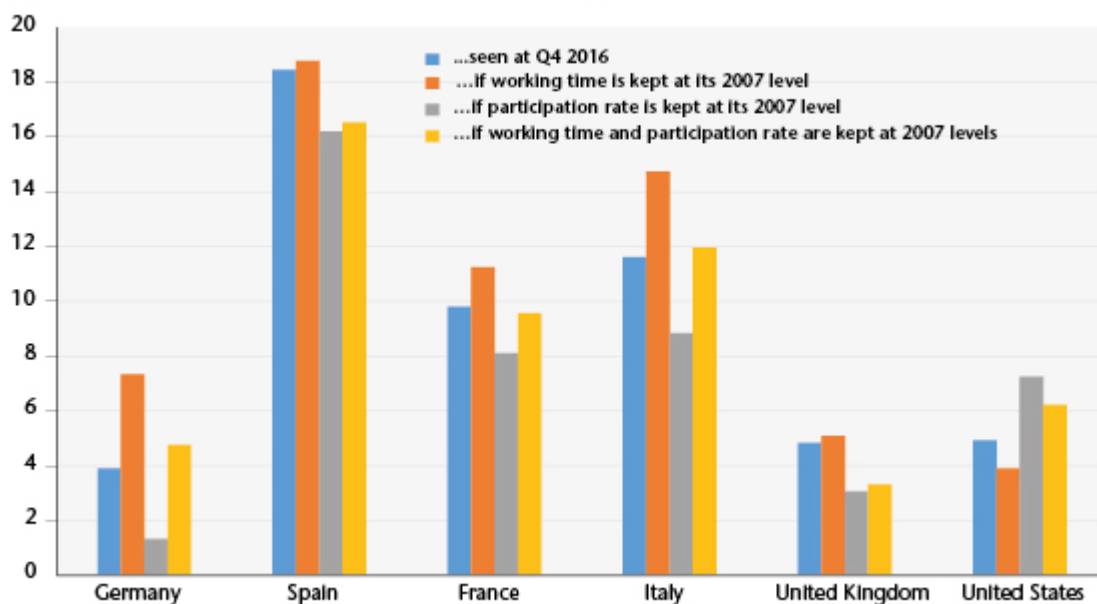
*Sources:* National accounts, OECD, OFCE calculations.

Beyond the "unemployment rate"

In addition to obscuring the dynamics affecting the labour market, the ILO's (International Labour Organization) strict definition of unemployment does not take into account situations on the margins of unemployment. So people who wish to work but are considered inactive in the ILO sense, either because they are not quickly available for work (in under two weeks) or because they are not actively seeking employment, form what is called a "halo" of unemployment.

The OECD's databases can be used to integrate into the unemployed category people who are excluded by the ILO definition. Figure 3 shows for the years 2008, 2011 and 2016

the observed unemployment rate, to which are added, first, people who are employed and declare that they want to work more, and second, individuals who are inactive but want to work and are available to do so. In Germany, the United Kingdom and the United States, changes in these various measures seem to be in line with a clear improvement in the labour market situation. On the other hand, between 2008 and 2011, France and Italy experienced an increase in their unemployment rates, especially from 2011 to 2016, both in the ILO's strict sense of the term and in a broader sense. In Italy, the ILO unemployment rate increased by 3.4 percentage points between 2011 and 2016. At the same time, underemployment rose by 3.2 percentage points and the proportion of individuals maintaining a "marginal relationship" with employment by 1 percentage point. Ultimately, in Italy, the unemployment rate including some of the jobseekers excluded from the ILO definition came to 26.5% in 2016, more than double the ILO unemployment rate. In France, because of a lower level of unemployment, these differences are less significant. Despite this, between 2011 and 2016, underemployment increased by 2.4 points while unemployment in the strict sense grew "only" by 1 percentage point. In Spain, although there was notable improvement in ILO unemployment over the period (-3 points between 2011 and 2016), underemployment continued to grow strongly (+1.5 points). By 2016, Spain's ILO unemployment rate was 7 percentage points higher than it was in 2008. By including jobseekers excluded from the ILO measure, this difference comes to 11.0 percentage points.

Figure 3. Unemployment rate at Q4 2016…
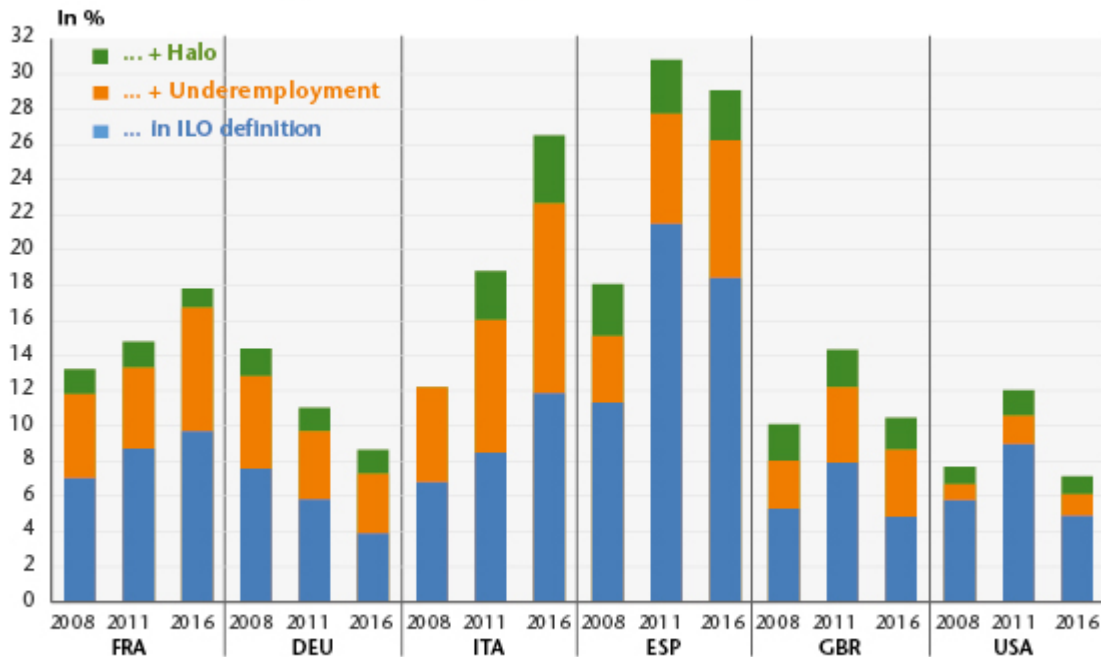
Note : For 2016, as all the data were not available, we assume that the "halo" changed in line with 2015.
Sources : OCDE, calculs OFCE.

The reduction of the US Fed's balance sheet: When, at what pace and with what impact?
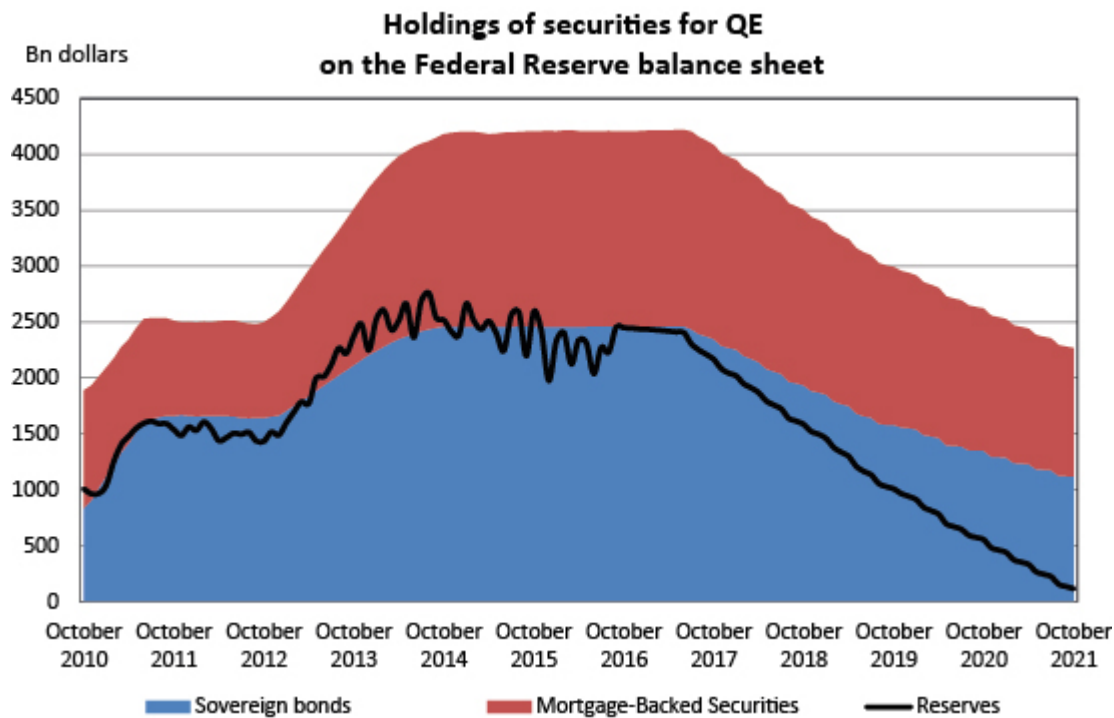
By Paul Hubert

US monetary policy began to tighten in December 2015, with the Fed's key rate moving from a target range of 0 — 0.25% to 0.75 — 1% in 15 months. To complement its monetary policy, the Fed also manages the size of its balance sheet, which is a result of programmes to purchase financial stock (also called quantitative easing programmes). The Fed's balance sheet now comes to 4,400 billion dollars (26% of GDP), compared with 900 billion dollars in August 2008 (6% of GDP). The improvement in the economic situation in the United States and the potential

[risks](#) associated with QE pose questions about the timing, pace and consequences of the normalization of this unconventional tool.

The [minutes](#) of the meeting of the Monetary Policy Committee ([FOMC](#)) on 14 and 15 March 2017 provide some answers: the Fed's procedure for reducing the balance sheet calls for not reinvesting the proceeds of securities arriving at maturity. Today, at a time when the QE programmes have not been active since [October 2014](#) and the Fed is no longer creating money to buy securities, it is continuing to hold the size of its balance sheet constant by reinvesting the amounts of securities reaching maturity. The FOMC is to stop this policy of reinvestment "later this year" [\[1\]](#) and as a consequence begin to reduce the size of its balance sheet.

In accordance with the [principles for policy normalization](#) published in September 2014 and December 2015, the Fed will not sell the securities it holds, thus on the financial markets it will not modify the equilibrium situation on the stocks but only on the flows. Uncertainty remains as to the rate at which the non-reinvestment will be carried out, depending on the securities concerned by the non-reinvestment and the desired final size of the Fed's balance sheet.

A reading of the minutes of the March meeting also indicates that "participants generally preferred to phase out or cease reinvestments of both Treasury securities and agency MBS". In January 2017, the Fed's economists published in *[FEDS Notes](#)* a simulation of the size of the Fed's balance sheet based on the assumptions set out above. Assuming that non-reinvestment begins in October 2017, and using their data on the assets portfolio held by the Fed, the following graph was developed.

**Holdings of securities for QE
on the Federal Reserve balance sheet**

Bn dollars

Sovereign bonds — Mortgage-Backed Securities — Reserves

These projections show that a non-reinvestment policy implies that the balance sheet will shrink by about 600 billion dollars a year up to October 2019, by 400 billion in the third year and by 300 billion in the fourth year. Treasury bonds will decline by 1.2 trillion dollars while holdings of MBS fall by USD 600 billion[2]. Based on these assumptions, the level of the reserves will be 100 billion dollars in October 2021, i.e. their pre-crisis level, and the Fed will have an equivalent amount of Treasury and MBS debt at that time (approximately 1,100 billion each). The question arises as to the size of the balance sheet that the central bank wishes to return to: the nominal pre-crisis amount, the amount expressed as a share of pre-crisis GDP, or a higher level (with its holding of securities serving its goals of macroeconomic stabilization and financial stability [3])? By not responding explicitly to this question, the Fed is giving itself the possibility both to adjust its target according to the reaction of the market and to take time to decide what size to target if it wishes to use this instrument on an ongoing basis.

The economic and financial impact of a decline this large in the size of the balance sheet could be limited. While private expectations about these changes in the size and composition of the Fed's balance sheet should affect financial conditions, modifying the balance of supply and demand for financial securities, the various announcements related to this policy normalization have not had any impact as yet. Following the publication of the minutes of the last meetings of the FOMC and of the *FEDS Notes* describing this reduction policy, there was no reaction in interest rates or the exchange rate for the dollar or on the stock markets. Either the financial markets have not taken this information on board (because it has gone unnoticed or is not credible) or it has already been incorporated into asset prices and future expectations.

In other words, it does not seem that the coming reduction in the size of the balance sheet, if it is done on the basis of the mechanisms communicated, will tighten monetary and financial conditions beyond what is expected from the future increases in interest rates, monetary policy's conventional instrument[4]. If this proves to be the case, normalization would indeed live up to its name. Applied to the euro zone, this would tend to show that an ultra-expansionary monetary policy is not irreversible.

[1] More specifically: " Provided that the economy continued to perform about as expected, most participants … judged that a change to the Committee's reinvestment policy would likely be appropriate later this year."

[2] Assuming that the US government's net borrowing requirements will be about 300 billion dollars a year over these four years, the decline in the Federal Reserve's demand for government securities will be on a similar order of magnitude.

[3] This issue has been extensively debated in the academic literature since the implementation of the QE programmes; see among others [Curdia and Woodford (2011)](#), [Bernanke (2016)](#), [Reis (2017)](#).

[4] While the reduction in the balance sheet should theoretically mainly affect long-term interest rates, the lack of a response coupled with recent increases in short-term interest rates may result in flattening the yield curve in the United States, and thus reduce the banks' intermediation margin.

Leave the euro?

By [Christophe Blot](#), [Jérôme Creel](#), [Bruno Ducoudré](#), [Paul Hubert](#), [Xavier Ragot](#), [Raul Sampognaro](#), [Francesco Saraceno](#), and [Xavier Timbeau](#)

Evaluating the impact of France leaving the euro zone ("Frexit") is tricky, as many channels for doing this exist and the effects are uncertain. However, given that this proposal is being advanced in the more general debate over the costs and benefits of membership in the European Union and the euro, it is useful to discuss and estimate what is involved.

There is little consensus about the many points involved in an analysis of the issue of membership in the euro. On the one hand, the benefits linked to the single currency 18 years after its creation are not viewed as completely obvious; on the other, it is not evident that the monetary zone has become less heterogeneous, and, possibly linked to that, the current account imbalances built up in the first decade of the euro zone's existence, which have grown since then due to the consequences of the 2008 global financial crisis, are putting

constraints on economic policy.

The dissolution of Europe's monetary union would be an unprecedented event, not only for the member states but also from the point of view of the history of monetary unions. Not that there have been no experiences of dissolution — [Rose](2007) counted 69 cases of withdrawal from a monetary union since the end of the Second World War — but in many respects these experiences offer little if any basis for comparison ([Blot & Saraceno, 2014](#)). Nor do they reveal any empirical patterns that could inform us about the possible misfortunes or chances of success that a break-up of the euro zone might have.

However, the reference to past episodes is not the only tool with which the economist can carry out an analysis of a break-up of the euro zone. It is indeed possible to highlight the mechanisms that would be at work if the monetary union project in Europe were to be wound up. There are numerous possible pathways to a break-up of the euro zone, and any analysis of the costs and benefits must be interpreted with the utmost caution, since in addition to uncertainty about any quantitative assessment of what is involved, there is also the issue of what scenario an exit would create. In these circumstances, a departure from the euro zone cannot necessarily be understood solely from the point of view of its impact on exchange rates or its financial effects. It is very likely that an exit would be accompanied by the implementation of alternative economic policies. The analysis carried out here does not enter this territory, but merely explains the macroeconomic mechanisms at work in the event of a break-up of the euro zone, without detailing the reaction of economic policy or second-round effects.

The central hypothesis adopted here is that involving a complete break-up of the monetary union, and not the simple departure of France alone. Indeed, if France, the second-largest euro zone economy, were to exit, the very existence of

the monetary zone would be called into question. The devaluation of the French franc against the southern Europe countries remaining in the euro zone would destabilize their economies and push them out of the scaled-down euro zone. We do not deal here with all the technical elements related to how a break-up would be organized [1] – launching the circulation of new currencies, liquidation of the ECB and termination of the TARGET system, etc. – but rather on an analysis of the macroeconomic effects [2]. Two types of effects would then be at work. First, the dissolution of the European monetary union would de facto lead to a return to national currencies, and therefore to a devaluation or revaluation of the currencies of the euro zone countries vis-à-vis not only their euro zone partners but also non-euro zone countries. Second, the redenomination of assets and liabilities now denominated in euros and the prospect of exchange movements would have financial effects that we analyze in the light of past financial crises. Our scenario is therefore for a contained crisis.

A unilateral exit from the euro zone by France and the ensuing break-up of the euro zone exclude a scenario for a common currency where strong cooperation between the old member states would help to maintain a high level of exchange stability and effectively continue the economic status quo. There is little likelihood of a scenario like this, since it would lead to not using the margins of maneuver opened up by the exit and to maintaining the much-denounced and presumed straitjacket. The crisis would be contained in that the most violent effects would be reduced by coordinated policies. This would mean exchange movements that are rapid and substantial, but which stabilize over a time horizon of a few quarters [3]. We assume, furthermore, that each country pursues its own interest without special co-operation.

I – A summary of the economic mechanisms at work

The gains expected from leaving the euro zone

In the first place, leaving the euro zone would mean that the exchange rates between the currencies of the countries that compose it could once again vary against each other. Given this, the question arises of the value at which the exchange rates of these currencies will tend to converge. The expected gains would be, on the one hand, an improvement in competitiveness due to the devaluation of the franc. A devaluation would lead to imported inflation in the short term, before increasing purchasing power and spurring growth. The second gain involves the possibility of defining a monetary and fiscal policy that is differentiated by country, and therefore more appropriate to France's situation.

An exit from the euro zone would also make it possible to set tariffs less favorable to imports from other countries, and thus more favorable to producers on the national territory, but which would also affect consumer prices and thus consumer purchasing power[4].

The costs of leaving the euro zone

France's exit from the euro zone would lead to the departure of other countries, which would see their currencies depreciate against the franc, especially the southern European countries. The net effect on competitiveness may prove ambiguous.

A Frexit would lead to currency movements, which would translate into a return of transaction costs on currency exchanges between euro zone countries. Moreover, the break-up of the euro zone would also lead to a redenomination of assets and debts in the national currency. Beyond the legal aspects, these balance sheet effects would impoverish agents who hold assets denominated in a depreciating currency or debts re-denominated in an appreciating currency (and enrich those in the reverse situation). Uncertainties about balance sheet effects, particularly for financial intermediaries and banks, could be expected to lead to a period experiencing a sharp

downturn in lending.

How much additional autonomy would be acquired for monetary policy is uncertain at present. Indeed, it is difficult to conceive of a monetary policy that is much more expansionary than the ECB's policy of negative rates and security redemptions [5]. The Banque de France could, of course, buy back the national public debt by creating money, but, in light of the low current interest rates on French sovereign debt, it is not clear that this would lead to significant gains [6]. It should be noted that a persistent current account deficit would need to be financed by external savings and that this external constraint could affect monetary policy, for example by requiring an increase in short-term and long-term interest rates that could impose capital controls by the government.

Finally, the introduction of trade protectionism would obviously lead to retaliation by the aggrieved partners, which would hurt French exports. The overall net effect on world trade would be negative, with no gain at the national level.

II – The impact on exchange rates and competitiveness

A Frexit would not lead to strong gains in competitiveness. We simulated the effect of a Frexit in the following way:

1. We assume that a Frexit would lead to a rapid disintegration of the euro zone;

1. We then use our estimates of long-run equilibrium exchange rates presented in Chapter 4 of the *2017 iAGS Report*. It appears that the equilibrium parity for the new franc would correspond to an actual effective devaluation of 3.6% compared to the current level of the euro. This is a real change, once it has been corrected for the effects of inflation and is effective, that is, taking into account exchange rate fluctuations in relation to different trading partners, possibly in the opposite direction. The new franc would be devalued

relative to the German currency, but would appreciate relative to the Spanish currency;

2. Using the empirical estimates of exchange rate adjustments (Cavallo et al., 2005), we determine a short-term exchange rate trajectory. Our estimate is for a 13.7% depreciation of France's effective exchange rate with respect to the other euro zone countries, and an appreciation of 8.6% with respect to the countries that do not belong to the euro zone.

Using simulations with the emod.fr model, we estimate a modest increase in competitiveness. The effect on GDP would be close to 0 in the first year and 0.4% after three years. These figures are low and refer to a scenario without any readjustment within the euro zone. If we consider the possibility of a gradual adjustment within the euro zone (based on the mechanisms, for example, referred to in *iAGS 2016*), the potential gain would be even lower. Once again it is possible to envisage that the monetary policy conducted by the Banque de France would seek to devalue the French currency more strongly than that of its competitors. But in such a scheme, it is very likely that the latter will in turn wish to preserve their competitiveness and engage in a policy of competitive devaluations.

III – The financial impact: The effects of the banking crises

The dissolution of the euro zone and the return to national currencies would have significant repercussions for the national banking and financial systems through their international business, and it would bring about a return of exchange rate risk within the euro zone. We first assess the risks that the collapse of the euro zone would have for the banking system. The mechanisms at work are likely to provoke a banking crisis, which could have a high cost for economic activity.

The return to national currencies in a financially integrated

space would necessarily entail a major upheaval for the financial system. These effects would not be comparable to those observed at the time the euro was adopted. Indeed, as [Villemot et Durand (2017)](#) have shown, potentially the balance sheet effects would be significant for a low coordination scenario.

The balance sheet effects could be reduced if there were international coordination when leaving the euro. Such co-ordination would make it possible to distribute the ECB's assets and liabilities in a coherent way, notably within the framework of TARGET 2. However, it's difficult to assume a significant level of coordination when leaving the eurozone, and it is illusory to believe that the difficulties in achieving coordination will lessen. On the contrary, they are likely to increase in a climate of instability instead of one with a shared destiny. As a result, the scenario we use for leaving the euro zone excludes the establishment of a new financial or monetary architecture.

The risk of a banking or financial crisis is central to understanding the impact of the break-up of the euro zone. The impacts would pass through three main channels. The first involves a flight of deposits and savings and the distress liquidation of financial assets. The second is related to the effects of currency misalignments on banks' balance sheets and insurers. The third concerns the sovereign risk that would affect either the public debt and its financing, or if this debt were subject to uncontrolled monetization, the return of intense external pressure. The economic literature includes recent efforts (notably Rogoff and Reinhart, Borio, Schularik, the IMF) to try to evaluate banking or financial crises. It should be clarified at the outset that this literature does not deal with the dissolutions of monetary unions. In the various banking crises recorded since the 1970s by Laeven and Valencia (2010 and 2012), there is no mention of a crisis linked to the dissolution of a monetary union. Nevertheless,

the financial dynamics in play in the event of the break-up of the euro zone would be, as mentioned above, risk factors for a banking or financial crisis.

Moreover, the economic literature on currency crises has pointed to the link with banking crises (Kaminsky and Reinhart, 1999). The collapse of a monetary union in reality reflects a crisis situation for the exchange rate system, which leads to revaluations and devaluations with the over-adjustment of exchange rates, as highlighted in the previous section. The reference to the cost of banking crises thus illustrates the potentially negative effects of exiting the euro zone. However, it should be remembered that these costs correspond to an overall assessment of banking crises that does not make it possible to identify precisely the mechanisms through which the financial shock is propagated into the real economy — an assessment that would involve identifying the impact of rising risk premiums and the effect of credit rationing, where it is much more difficult to determine the uncertainty. An analysis by Bricongne et al. (2010) of the various channels through which the 2007-2008 financial crisis was transmitted suggests that a significant amount remains unexplained. Also, in the absence of a more detailed analysis, we make the assumption that the historical experiences of banking crisis are the main quantitative element that can be used to get close to the eventual negative impact — via the financial effects — of a break-up of the euro zone.

Laeven and Valencia (2012) analysed 147 banking crises in developed and emerging countries over the last few decades (1970-2011). They calculated the losses in production as the three-year cumulative loss of actual GDP relative to trend GDP [7]. For the developed countries, the cumulative loss of growth was on average 33 GDP points. During these three crisis years, the public debt increased on average by 21 GDP points (partly due to bank recapitalizations), the central bank's balance sheet increased by 8 GDP points, and the level of non-

performing loans increased by 4 percentage points. It should be noted that there was a high degree of heterogeneity in the cost of the crises, depending on the crisis and country in question. For example, the authors' assessment of the cost of the 2008 banking crisis in terms of growth following the bankruptcy of Lehman Brothers was 31 GDP points for the United States and 23 GDP points for the euro zone as a whole. Hoggarth, Reis and Saporta (2002) conducted a similar study and sought to provide robust assessments of trend GDP. They noted cumulative production losses during crisis periods ranging from 13 to 20 GDP points, depending on the indicator chosen. However, these estimates of the cost of banking crises are to be taken with caution, since they are based on numerous assumptions, in particular on the trajectories that countries would have followed in the absence of a crisis.

IV – The gains from monetary autonomy

The gains from an alternative monetary policy would depend on the new direction taken by a monetary policy that remains to be defined and that will determine the conditions for financing the economy. Such a policy would probably be ultra-accommodative due to the financial and banking instability generated by the balance sheet effects.

Evaluations of the contribution of financial conditions in France from 2014 to 2018, however, suggest that these are not the most important factor explaining the sluggishness of economic activity. Over this period, the contribution of financial and monetary conditions to GDP growth is between -0.1 and 0.2 points [8]. There is thus little gain to be expected from a new ultra-accommodative monetary policy (independently of the effects on exchange rates discussed in the first section or the impact of external pressure).

Conclusion

This text has attempted to outline the possible consequences

of a Frexit, without going into too detailed and therefore perilous quantification.

1. Contrary to what is sometimes advanced, there is little to be expected in terms of competitiveness or manoeuvring room for short-term monetary policy;
2. The main cost would come from the banking or financial crisis arising from balance sheet effects, particularly given the context of a disorderly exit.

At this stage of the analysis, it is difficult to identify the potential positive economic effects of a Frexit, while the risks of a negative impact due to financial effects seem to be very significant.

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[1] These points are to a large extent discussed in *Capital Economics* (2012).

[2] It is difficult to develop a long-term counterfactual scenario in the case of exiting the euro. We therefore focus on the short- and medium-term effects of possible transitions.

[3] We implicitly eliminate the scenario of a currency war where each country would try to gain competitiveness by devaluations that would permanently lead us away from convergence towards a real equilibrium exchange rate.

[4] The introduction of tariffs like this calls for leaving the European Union. Without developing this analysis here, it is very likely that leaving the euro zone would lead to leaving the European Union. There have been assessments of the EU's contribution to intra-European trade and growth that we are not using here in our short-term approach.

[5] Through its quantitative easing program, the ECB essentially purchases sovereign debt bonds, including French debt securities. In February 2017, the outstanding securities held by the ECB under this programme (PSPP) amounted to € 1,457.6 billion. Breaking down the purchases based on the share of the ECB's capital subscribed by the central banks of the member states, the fraction of French debt securities exceeds 200 billion euros.

[6] Getting free from the constraints of the Stability and Growth Pact could be a gain in itself. This assumes that the

constraints of the SGP go beyond simply the sustainability of the public debt demand.

[7] These evaluations show, however, that there is a high degree of heterogeneity in the assessed costs depending on the country in question.

[8] https://www.ofce.sciences-po.fr/pdf/documents/prev/prev1016/france.pdf

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Universal basic income: An ambition to be financed

By [Pierre Madec](#) and [Xavier Timbeau](#)

This evaluation of Universal Basic Income (UBI), the flagship proposal of French presidential candidate Benoît Hamon, highlights a potentially important impact of the measure on the living standards of the least well-off households and on inequalities in living standards. If implemented, a universal basic income would have the effect of making France one of the most egalitarian countries in the European Union. In return, the "net" cost of the programme could be high, around 45 to 50 billion euros. Given the measure's cost, financing it through an income tax reform could make the French socio-fiscal system even more redistributive, but would lead to a considerable increase in the marginal tax rates borne by the wealthiest households.

By making it one of the flagship proposals of his election programme for the presidency, Benoît Hamon has revived the debate around a universal basic income (UBI). It is a radical project, the subject of numerous controversies (see, for

example, Allègre and Sterdyniak, 2017), so the quantification of the programme is needed. Starting from Benoît Hamon's proposal, which has been significantly modified in recent weeks, we attempt here, using a number of important assumptions (total or partial individualization, dependence on other social benefits) to make an initial evaluation. The idea here is neither to enter into the debate as to whether the modalities of application chosen are relevant, such as the exclusion of pensioners, nor to judge how close the proposal in its present form comes to an ideal of universality. Rather the aim is to avoid this type of debate and to qualify and quantify the effects of the implementation of the UBI as proposed by the presidential candidate.

The latest version of the first step in the Universal Basic Income can be summarized as follows: "A basic income corresponds to a rise in net income that starts at 600 euros for people without resources and then disappears at 1.9 times the minimum wage (SMIC)."

Put like this, the proposal is for a differential allocation making it possible not to give rise to an artificial tax increase among those whose income situation is not changed by the universal income.

For married couples, the programme is not automatically individualized since it would still be possible to choose to maintain joint taxation. Couples with a family quotient that is less than the potential amount of the UBI should choose individualization. This is the case for couples with low incomes and not much income differential. Conversely, couples for whom the family quotient provides a bigger advantage than the basic income should choose to stick with joint taxation[1]. This would be the case for couples in which one of the individuals has a very high income and the other has no income[2].

For the most modest households the UBI replaces the RSA

(income supplement for the working poor) and the Prime d'activité (working tax credit), and the calculation of social benefits (housing and family allowances, disabled adult allowance, scholarships, etc.) is not modified, as their amounts are included in the resources used to calculate the universal income.

In the general framework, for all tax households whose gross resources are less than 1.9 times the SMIC, i.e. 2,800 euros gross per month, the UBI is equal to the difference between the base amount of 600 euros per month (7,200 euros per year) and 27.4% of the tax household's gross resources. For non-taxable households, the UBI is considered a tax on negative income. For taxable households with gross resources of between 1.5 and 1.9 times the SMIC (3.8 SMIC in the case of a married couple), the UBI reduces the income tax due, thereby increasing the household's disposable income, with this additional income cancelling out at 1.9 SMIC. The measure's cost to the public finances for these households therefore corresponds to the difference between the amount of the UBI and the income tax currently paid. For tax households with gross resources of more than 1.9 times the gross SMIC (3.8 SMIC for married couples), the current system applies and there is no gain (Figure 1).

Formally, the monthly amount of UBI received by a tax household composed of a single adult and with resources of less than 1.9 times the gross SMIC is based on the following formula:

UBI = 600 − 0.274 x *GR*

GR, gross resources, corresponds to the gross taxable income, as defined in the tax code, of the tax household, increased by a factor of 1.33 used to approximate the conversion between taxable income and gross resources including charges and contributions, the tax base for the calculation of the UBI. In the case of a married couple, the UBI is calculated as

follows, since the UBI as proposed is not then individualized:

UBI = [600 − 0.274 x *GR*/2] x 2

In order to measure the measure's redistributive impact, we have drawn on the micro-simulation model of the DREES and INSEE known as *INES* ([3] see the box). As the last operational version of the model dates from 2015, the results presented must be interpreted In line with the legislation of 2015. In fact, measures such as the Prime d'activité credit, introduced in 2016, are not taken into account, in contrast to the Prime pour l'emploi in-work tax credit (PPE).

Figure 1. Amounts of UBI and advantages conferred in shares of SMIC for a tax household composed of one adult
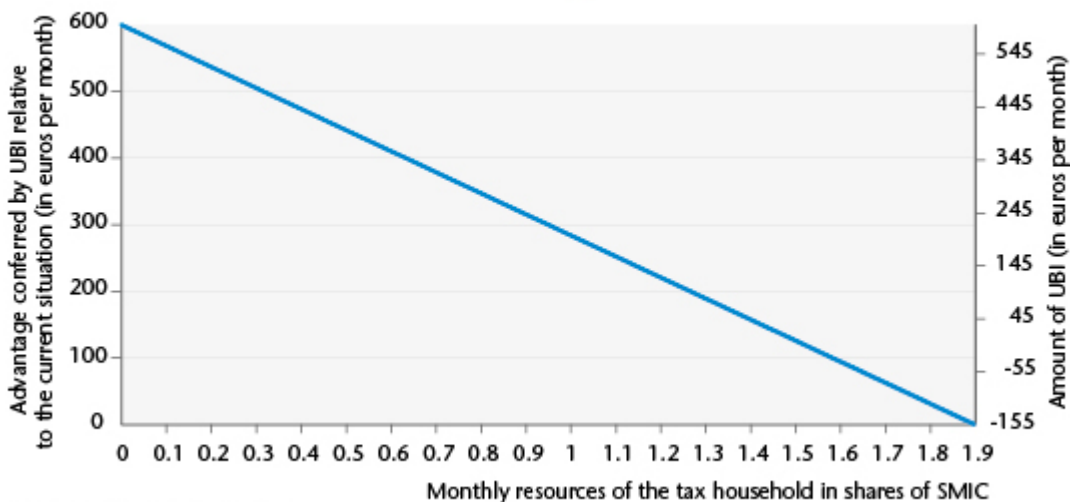
Source: Authors' calculations.

As of January 2018, people over age 18 who are still reported in their parents' tax household and who are UBI eligible must leave their parents' tax household in order to benefit from the UBI. It should be noted that this case is not dealt with in our evaluation, given the complexity of taking into account transfers between parents and children when they are not in the same tax household. We will therefore focus on households in which the reference person was aged between 18 and 64, i.e. 20 million households out of the 28.3 million total households in France, as the rest, pensioners, are not eligible for the measure.

The UBI has been modelled as an additional line in the calculation of income tax, with the amount of UBI being subtracted, subject to conditions of age, resources and marital status explained above, from the latter.

Subject to these assumptions, the UBI should benefit 11.6 million households in which the reference person is aged 18 to 64, at a gross cost of around 51 billion euros, i.e. an average of 4,400 euros per year and per beneficiary household.

The gross cost is not the cost to the public purse. Indeed, the implementation of the UBI would de facto lead to the elimination of the base RSA income supplement and the Prime d'activité tax credit from the tax-benefit system. In 2016, these two programmes had a fiscal cost of close to 15 billion euros (10 billion euros for the RSA and 5 billion for the Prime d'activité). Moreover, the interactions between universal income and these other social benefits are not yet completely set out in Benoît Hamon's proposal[4]. If the amount received from UBI were to be taken into account for the calculation of the other social benefits, the amounts paid for these would fall significantly. The gross cost of universal income would remain unchanged, but savings could be realized on social benefits.

We assume here that the amount received in social benefits by the household is taken into account for the final calculation. In other words, we subtract from the amount of UBI received by the household 27.4% of the total amount of social benefits received in cash (housing and family allowance, scholarships, disabled adult allowance, etc., i.e. 32 billion euros per year for potential UBI beneficiaries). While including the benefits in the calculation of the amount of UBI is complicated by the structure of the microsimulation model, it is possible to estimate the reduction in the overall amount of UBI paid by taking into account total social benefits, about 6 billion euros.

If this option is chosen — which we assume in the absence of further clarification — UBI's "net" cost, excluding the 18-25 year-olds fiscally reporting under their parents, would be on the order of 30 billion euros, which is close to the amount declared by the candidate, to which, once again, it will be necessary to add the amount owed to individuals between the ages of 18 and 24 who are currently reported fiscally by their parents. In 2015, of the 5.2 million individuals aged 18 to 24, 1.7 million were fiscally independent of their parents. The additional gross cost if no 18-24 year-olds were included on their parents' tax statements would therefore be on the order of 25 billion euros, from which should be subtracted 27.4% of the scholarships (0.115 billion euros per year) and housing benefits paid (1.4 billion euros per year), as well as the tax benefits currently enjoyed by the parents of the said individuals (benefit of up to 1,500 euros per year and per child, to a maximum of 5.2 billion if all households are at the ceiling).

The measure, which is targeted at low-income households and not funded by an increase in household taxation or a decrease in social benefits, would have a positive impact on the bottom of the distribution of living standards (Figure 2) [5].

On average, households in the first decile of living standards should see their standard of living rise by 257 euros per month per consumption unit, i.e. a 38% increase in their average standard of living. The gain for households in the second decile should be roughly half as much, i.e. 137 euros per month per consumption unit, which represents a 13% increase in their average standard of living.

Figure 2. Average monthly gains by consumption unit and living standards decile
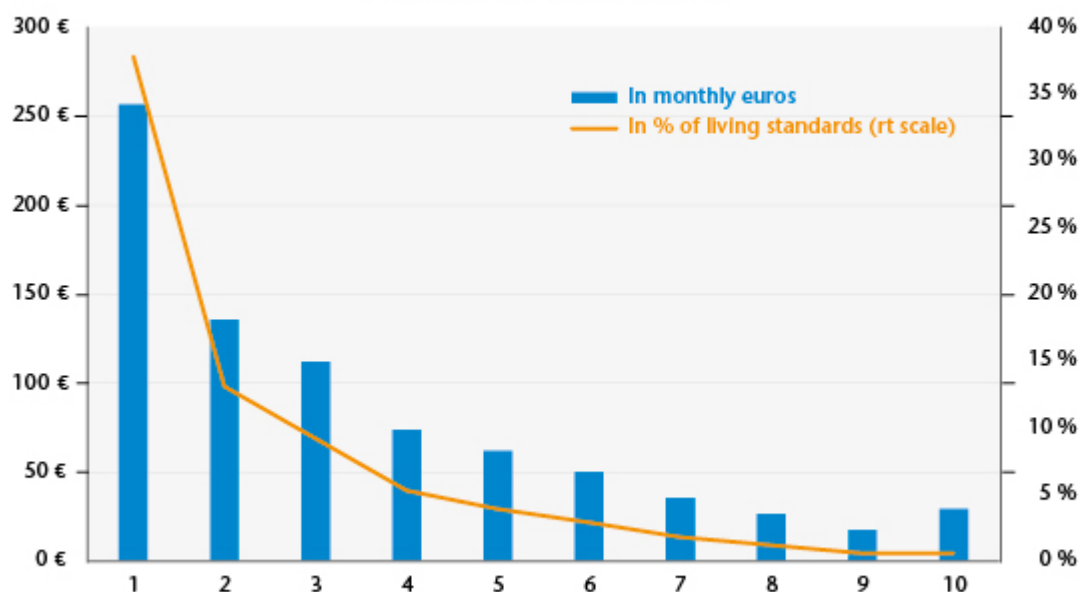
Source: INSEE Tax and revenue [Revenus fiscaux et sociaux] survey 2013 (updated 2015); Drees, Ines 2015 model, Authors' calculations.

Given that, unlike many benefits, the UBI is allocated not to households but to *tax* households, some members (not taxed jointly but cohabiting as unmarried couples not in PACS civil partnerships) of some households in the upper deciles of the distribution of living standards should receive the UBI (and the highest decile more than the ninth decile due to a composition effect). In other words, there are tax households with low gross incomes among households with high living standards[6].

Based on these assumptions, the median standard of living would be raised by 3.6%, and the poverty rate, i.e. the share of French households with resources under 60% of the median level, i.e. about 1,000 euros / month / consumption unit, would come to 8.5%, versus 13.4% at present. The median standard of living of the poorest households — those with a standard of living below the poverty line — would rise by 11%. The intensity of poverty, measured as the relative gap between the median standard of living of the poor and the poverty line, would also fall by a third, from 17% today to 11%.

Finally, the Gini coefficient of living standards, an

indicator of inequality, would be reduced by 0.04 to a level of 0.26, thus moving France from a median situation in terms of the Gini at the European level to being among the least unequal countries – the European median of the Gini in 2015 was 0.30 (and the lowest 0.25).

Excluding the young people (aged 18-24) reported on their parents' taxes, the net cost of the UBI would be on the order of 30 billion euros. By adding them, subject to a more detailed assessment, the net cost would be on the order of 49 billion. This is a long way from the 400 billion once bandied about, but it is still not negligible[7]. If the UBI were to be financed by a reform of personal taxation, this would lead to a considerable increase in the marginal rates of the highest deciles of the income distribution. Note that personal income tax brings in 74 billion euros annually. Another tax base, such as wealth, could also be used, but this would lead to a significant hike in wealth taxes. Property taxes and the ISF wealth tax currently bring in a little less than 30 billion euros. Moreover, the redistributive effects of the UBI – which are significant, in our assessment – would be amplified by an increase in taxation that is already progressive.

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Box: The *Ines* micro-simulation model (Sources: INSEE, DREES)

Ines is the acronym for "Insee-Drees", the two organizations that are jointly developing the model. The model is based on the INSEE's Tax and Social Revenue surveys (ERFS), which include several hundred details on each individual and accurate and reliable data on income taken from tax returns. It can be used to simulate all recent legislative years using more recent ERFS years.

The model is used to carry out studies at annual intervals,

but it is also used for in-depth studies in order to inform the economic and social debate in the areas of monetary redistribution, taxation and social protection. Finally, it is sometimes used to aid reflection in response to specific requests from various high government councils, supervisory ministries or control bodies (IGF financial inspectorate, Court of Auditors [*Cour des comptes*], Igas social inspectorate).

The *Ines* model simulates:

— **Social charges and direct taxes:** social contributions, CSG wealth tax, CRDS debt contribution and income tax (including the Prime pour l'emploi credit);

— **Social benefits** other than those corresponding to replacement income: personal aid for housing; the main social minima: the Revenu de solidarité active (RSA) income supplement; the Disabled adult allowance (AAH) and its complements; pension supplements and the Supplementary disability allowance (ASI); family benefits: the Family allowance (AF), the Family complement, the Back-to-school allowance (ARS) and high school scholarships, the Young child benefit (Paje) and its complements (Free choice of activity complement — CLCA — and Free choice of childcare complement — CMG), public subsidies for childcare in collective and family kindergartens, the Family support allowance (ASF) and the Disabled child education allowance (AEEH); and the Prime d'activité credit.

The main omissions relate to local taxes and subsidies (property tax, for example) and the Solidarity tax on wealth (IS). Retirement pensions, unemployment benefits and housing tax are not simulated but are presented in the data. Indirect levies are strictly speaking also outside the scope of the *Ines* model. The model simulates, using ranges, the different benefits to which each household is entitled and the taxes and levies that it has to pay. *Ines* draws on the INSEE's [Tax and

[Social Revenue surveys (ERFS)](#), which bring together socio-demographic information from the Employment Survey, administrative information from the CNAF, the CNAV and the CCMSA, and details of the income reported to the tax authorities for the calculation of income tax.

Ines is a so-called "static" model: it does not take into account any changes in household behaviour, for example in terms of birth rates or labour market participation, which could be induced by changes in tax-benefit law. Since 1996, the model has been updated annually during the summer in order to simulate the most recent legislation and cover the preceding year. For example, in the summer of 2016, *Ines* was updated to simulate the legislation for 2015. Based on these updates, the INSEE and DREES teams contribute annually to the INSEE's *Social Portrait,* in which they analyse the redistributive balance sheet for the tax and benefit measures enacted during the preceding year. The latest publication is entitled "Tax and benefit reforms in 2015 are leading to a slight redistribution from the richest 30% to the rest of the population" ([André, Biotteau, Cazenave, Fontaine, Sicsic, Sireyjol](#)).

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[1] Recall that the family quotient gives entitlement to a maximum tax reduction of 30,000 euros per year. The abolition of the family quotient would yield 5.5 billion euros (HCF, 2011) but would cost all the UBI paid to partners with a lower income who have chosen individualization.

[2] We have chosen not to take into account these tax optimization mechanisms within households, but it is understood that this means the evaluation proposed for the cost of the measure is underestimated.

[3] The source code and documentation for the *INES* micro-

simulation model was opened to the public in June 2016 (https://adullact.net/projects/ines-libre). We have been using the 2015 open access version since 1 October 2016.

[4] In particular, the use of a micro-simulation model such as *INES* makes it possible to explore the consequences of different choices that can be made about the situation of the persons covered, the net redistribution effected and what has to be financed. A change in the rules for allocating or calculating a social benefit can have significant impacts on the net cost and the redistributive effects.

[5] The proposed measure significantly alters the distribution of living standards. Due to this, some households see their membership in a decile of living standards change positively or negatively. The deciles are maintained here at their pre-reform level.

[6] By way of illustration, the average age of the reference persons in households in the upper decile of the standard of living benefiting from the UBI is over 55. It can thus be assumed that these households are home to young adults who are fiscally independent but have few resources.

[7] The evaluation presented here is called "static". It therefore does not take into consideration any possible changes in individual behaviour with respect to employment due to the impact of this measure.