



## Economic policies contributed to strong job creation in France from 2016 to 2019

From 2016 to 2019, the French economy experienced strong employment growth with the creation of over one million market sector jobs in the space of four years. Numerous reforms were implemented over the period which may have contributed to this dynamism: reductions in the cost of labour (the *crédit d'impôt pour la compétitivité et l'emploi* or CICE<sup>1</sup> in 2013 and the *pacte de responsabilité et de solidarité* or PRS<sup>2</sup> in 2015), the El Khomri Law in 2016, the executive orders on employment in 2017 and the Pénicaud Law in 2018. This article looks back at the effect of the decline in labour costs using the Banque de France's forecasting and simulation model for France (FR-BDF). Assuming these measures were fully financed, we estimate that the labour cost reductions brought about by the CICE-PRS led to the creation of nearly 240,000 out of the one million market sector jobs created between end-2015 and end-2019, i.e. 24% of total job creations. This estimate is significantly higher than those published this year by France Stratégie (100,000 jobs in its microeconomic estimate for 2013-16 and 160,000 in its macroeconomic estimate for 2013-17). The difference can mainly be explained by the extended timeframe covered in this article, from 2013 to 2019. This underlines the need to bear in mind that economic policies can take a long time to fully take effect.

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1.007 million

number of salaried jobs created in the market sector since end-2015

24%

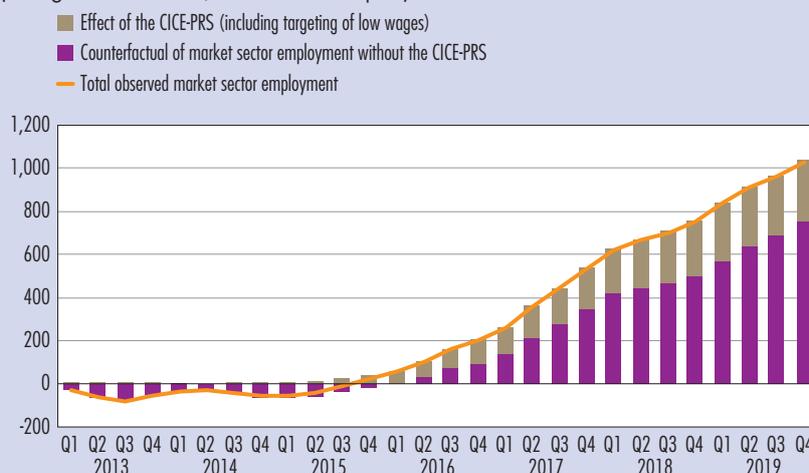
share of salaried jobs created in the market sector that can be attributed to the CICE and PRS between end-2015 and end-2019

240,000

number of salaried jobs created in the market sector thanks to the CICE and PRS between end-2015 and end-2019

### Effect of the reductions in social security contributions (CICE-PRS) on market sector salaried employment

(change vs. Q4 2012, in thousands of jobs)



Sources: INSEE national accounts; authors' calculations.

Note: CICE-PRS refers to the tax credit for competitiveness and employment (CICE) and the responsibility and solidarity pact (PRS).

1 Tax credit for competitiveness and employment.

2 Responsibility and solidarity pact.



### 1 Over one million salaried jobs created in the market sector in France between 2016 and 2019

The dynamics of job creation shifted at the end of 2015 (see Chart 1). The growth observed in non-market sector salaried employment (public sector jobs and subsidised contracts) since 2012 was replaced at end-2015 by a significant upswing in market sector salaried employment, while non-market sector salaried employment stagnated or even declined.

Over the period from end-2015 to end-2019, close to 90% of new job creations were concentrated in market sector salaried employment, i.e. 1.007 million new jobs. The pace of growth in market sector salaried employment observed over these four years has only been exceeded twice in the last 40 years: in the early 1990s and then in the early 2000s.

This sharp increase in market sector salaried employment coincides with the introduction of major policies to reduce labour costs (see Box 1).

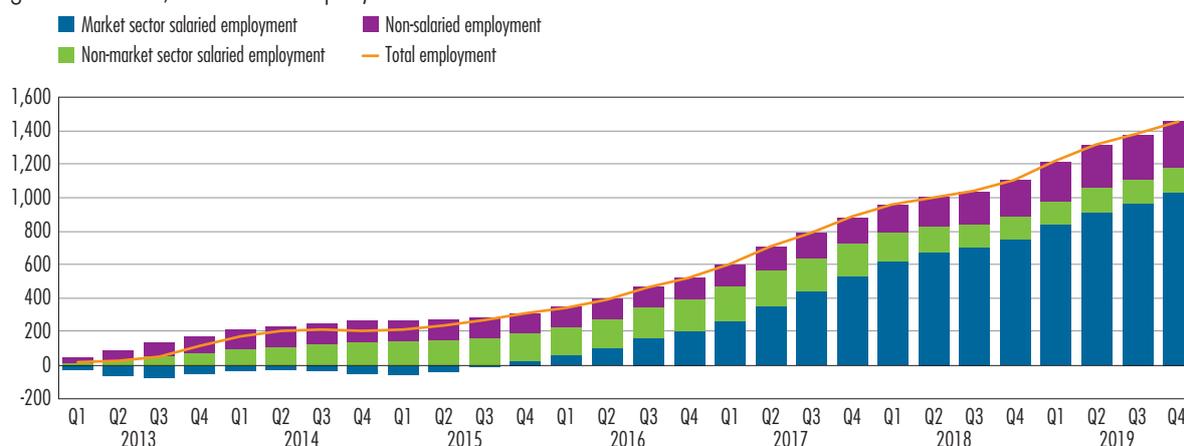
In this article, we examine the extent to which these policies can explain the French economy's strong performance in terms of employment growth.

### 2 The dynamics in market sector salaried employment are consistent with business activity and real labour costs

We based our analysis on the market sector salaried employment equation from the Banque de France's macroeconomic forecasting and simulation model for France (FR-BDF) – see Lemoine et al, 2019. Chart 2 breaks down the growth in market sector salaried employment according to the contribution of its different determinants in this equation: activity (market sector value added), the real cost of labour,<sup>1</sup> working hours<sup>2</sup> (see Box 2) and agents' expectations (see appendix). The rise in market sector salaried employment appears to be consistent with the trajectory of its determinants: the unexplained share of employment growth is small. As would logically be expected, the two main contributors are the real cost of labour from the beginning of 2016 onwards, and then activity, which clearly takes over as the main driver from mid-2017.

#### C1 Change in total employment, by worker category, over the period 2013-2019

(change vs. Q4 2012, in thousands of jobs)



Source: INSEE national accounts.

1 Specifically, the real cost of efficient labour, i.e. corrected for the efficiency (productivity trend) of labour. See Lemoine et al. (2019) for further details.

2 In the period 2012-19, average working hours per capita tended to fall slightly due to the rise in part-time work (Dares and INSEE, 2020). All other things being equal, this pushed demand for labour upwards.



### BOX 1

#### Labour cost reduction policies since 2013

The *crédit d'impôt pour la compétitivité et l'emploi* (CICE – tax credit for competitiveness and employment) was introduced on 1 January 2013. It consisted of a tax credit paid out in year A+1, calculated on the basis of wages paid in year A that were less than 2.5 times the SMIC (French minimum wage). The initial rate of 4% of total eligible payroll was increased to 6% on 1 January 2014 and to 7% on 1 January 2017, but was then reduced again to 6% on 1 January 2018. The *pacte de responsabilité et de solidarité* (PRS – responsibility and solidarity pact), introduced on 1 January 2015, waived employers' social security contributions on wages equal to or below the SMIC, and introduced a further cut to social security contributions applicable to wages less than 1.6 times the SMIC, and – as of 2016 – to wages less than 3.5 times the SMIC. The CICE was abrogated on 1 January 2019 and converted into a permanent reduction in employer social security contributions. These measures were financed by a rise in taxes (VAT and carbon tax), savings on the public sector wage bill, the freezing of welfare payments with the exception of minimum welfare benefits (*minima sociaux*), and savings in public expenditure.<sup>1</sup>

#### Evaluations of the impact of the CICE

The CICE is monitored by a dedicated committee attached to France Stratégie, and its impact has also been evaluated using a microeconomic approach by the TEPP<sup>2</sup> and LIEPP,<sup>3</sup> and using a macroeconomic approach by the *Observatoire français des conjonctures économiques* or OFCE (French Economic Observatory). The microeconomic approach is generally considered to be more robust at capturing the **direct** causal link between the reduction in labour costs and employment. However, it does not capture the **indirect** impacts linked notably to macroeconomic second-round effects, which is why it is useful to combine the two approaches.

Microeconomic studies have analysed the effects on employment, wages and investment, focusing on the period from 2013 to 2015. They all use an approach known as “double difference”, before and after the introduction of the CICE, and exploit differences in the intensity of firms' exposure to the measure. Although the TEPP and LIEPP have produced divergent estimates of the impact on employment, the monitoring committee finds that it created or safeguarded 100,000 jobs, primarily between 2014 and 2015. The committee agrees that the finding that the CICE had an upward impact on wages is robust, and underlines that it is difficult to find any significant effect on investment, which, in its view, is explained by the delays inherent in investment decisions.

The OFCE has carried out several ex-ante (Ducoudré et al., 2016) and ex-post (Ducoudré and Yol, 2018) macroeconomic evaluations of the CICE, using its forecasting model for the French economy, e-mod.fr. In particular, Ducoudré and Yol (2018) combine the macroeconomic approach (via simulation) with the TEPP's microeconomic estimates. The authors conclude that the CICE (with **partial financing**) created between 110,000 (low end of estimates) and 281,000 jobs (high end of estimates) between 2013 and 2015, and had an almost zero effect on GDP due to the fiscal financing of the measure.

In its most recent report, France Stratégie (2020) summarises the latest available microeconomic and macroeconomic estimates. The TEPP's microeconomic study concludes that 100,000 jobs were created between 2013 and 2016, excluding the macroeconomic second-round effects. The OFCE's macroeconomic study finds that 160,000 jobs were created, after financing, between 2013 and 2017 (and 400,000 jobs excluding the effects of financing).

1 The question of how the CICE-PRS was financed is complex, to the extent that it is difficult to define the counterfactual scenario, especially with regard to public spending. However, the structural balance can be seen to have improved over the period, which tends to confirm the assumption that the labour cost reductions were in large part financed.

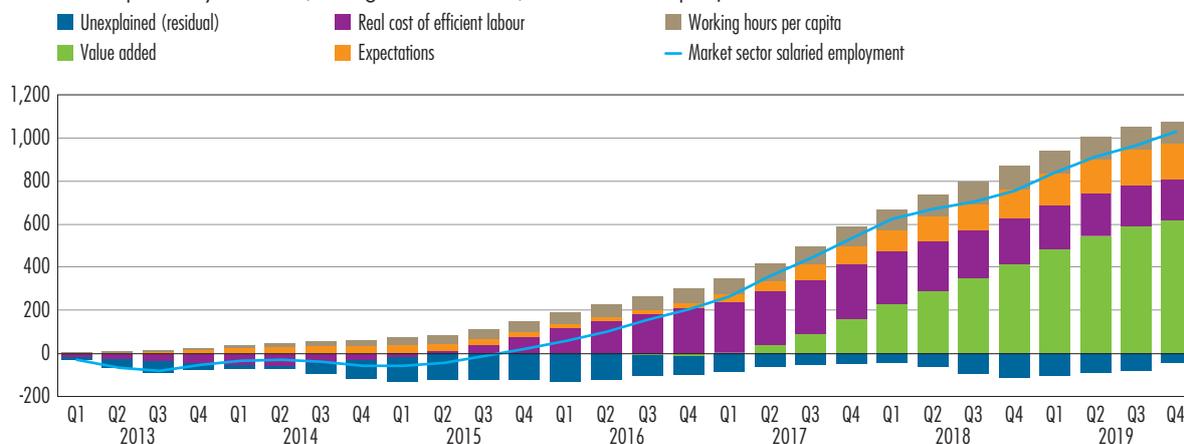
2 TEPP stands for *Travail, emploi et politiques publiques* (Work, Employment and Public Policy), and is a CNRS research federation (FR CNRS No. 3435).

3 LIEPP stands for *Laboratoire interdisciplinaire d'évaluation des politiques publiques* (Laboratory for the Interdisciplinary Evaluation of Public Policy), which is part of Sciences Po Paris.



## C2 Breakdown of growth in market sector salaried employment

(contribution of explanatory variables, change vs. Q4 2012, in thousands of jobs)



Sources: INSEE national accounts; authors' calculations.

Note: In Q4 2019, of the 1.030 million market sector salaried jobs created since Q4 2012, market sector value added made an accounting contribution of 620,000 jobs, the cost of labour (corrected for the efficiency trend) contributed 188,000 jobs, and expectations and working hours contributed 165,000 and 99,000 respectively. The unexplained part (i.e. the residual) made a negative contribution of -42,000 jobs.

### BOX 2

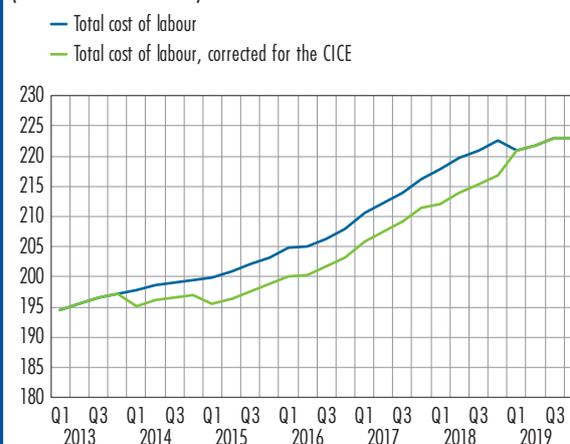
#### The cost of labour and the CICE

With the introduction of the CICE, the question of how to correctly measure the cost of labour in firms' labour demand equation has become considerably more complex. In this article, we have chosen to integrate the amount of the CICE credits into the cost of labour in the year they were actually paid, in line with the method used in the national accounts.

However, we have also neutralised the "double counting" effect of the CICE, caused by the fact that, in 2019, firms benefited from a cut to their social security contributions for 2019 following the conversion of the CICE into a permanent reduction in payroll taxes, as well as receiving the CICE tax credit for the year 2018. The CICE therefore appears in our measure of labour costs in 2014, and continues to be included up to the end of 2018.

#### Total cost of labour and the CICE

(current EUR billions)



Sources: INSEE national accounts; France Stratégie.  
Note: The total cost of labour is the sum of wages and all social security contributions paid by the employer and employee.



However, it is not possible to fully measure the real effects of labour cost reductions on employment simply by analysing these econometric contributions. Cuts to social security charges (CICE-PRS) are not solely reflected in the contribution of real labour costs, as the measures also have an impact on activity and prices. Therefore, to estimate the full impact of the measures, we need to construct a genuine counterfactual scenario where this aid is absent. In addition, the reforms (the El Khomri Law in 2016, the executive orders on employment in 2017 and the Pénicaud Law in 2018) may also have influenced the observed changes in activity and labour costs in ways that are difficult to quantify exactly as the underlying mechanisms are more diffuse. Therefore, in order to assess the effect of the CICE-PRS labour cost reduction policies, we carried out several counterfactual simulations using the FR-BDF model.

### 3 A counterfactual assessment of the labour cost reduction measures (CICE-PRS) according to how they were financed

In a first variant, we simulated the trajectory of our macroeconomic variables since the second quarter of 2014, cancelling out the reductions in labour costs brought about by the CICE (as well as by the conversion of the measure into a permanent cut in employer social security contributions in 2019) and by the PRS. However, this first variant does not take into account how the measures were financed; it therefore overestimates the impact of the CICE-PRS measures by implicitly incorporating a fiscal stimulus. If financing is not taken

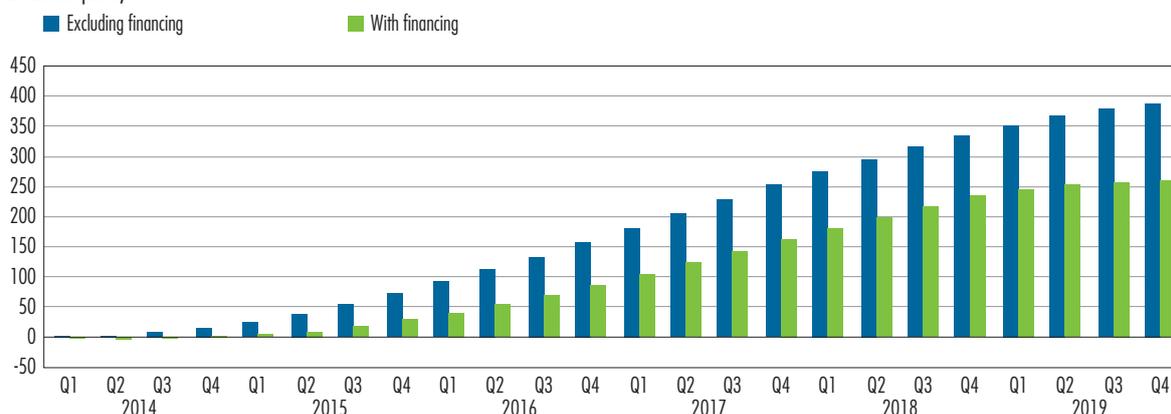
into account, the cumulative effect of the labour cost reduction measures leads to the creation of 390,000 market sector salaried jobs (see Chart 3).

We therefore constructed a second variant that incorporates a few simplifying assumptions regarding the financing of the labour cost reduction measures. Our aim was not to provide a precise assessment of how they were actually financed, which is beyond the scope of this article, but merely to give a first-order approximation of their effect. We therefore adopted the ad hoc assumption that the CICE and PRS were entirely financed as follows (with a neutral ex-ante impact on the government deficit): two-fifths by increases in indirect taxation (VAT, ecological taxation), two-fifths by cuts in welfare benefits and in the public sector wage bill, and one-fifth by reductions in real government consumption, i.e. a breakdown that is more or less in line with the announcements made at the time the PRS was launched. Taking this financing into account reduces the scale of the job creations as the mechanical “fiscal stimulus” effect of an unfunded policy is cancelled out (see above).

According to our simulations, the CICE-PRS measures created a cumulative total of 260,000 market sector salaried jobs between end-2012 and end-2019 if the financing of the measures is taken into account (see Chart 3). The financing of the measures therefore reduces by about one-third the effect of the cuts to labour costs alone. The effects of the CICE-PRS labour cost reductions on employment accelerated from end-2015 onwards: 230,000 jobs are estimated to have been created over the four years from 2016 to 2019.

#### C3 Effects of the reductions in social security contributions (CICE-PRS) on market sector salaried employment

(thousands of jobs)



Sources: INSEE national accounts; authors' calculations.



### 4 The elasticity of labour demand and the targeting of the reductions at low wages

The previous estimates depend crucially on the elasticity of employment to its cost in firms' labour demand equation. In the FR-BDF model, this elasticity is estimated at  $-0.53$ . This is a fairly common result in macroeconomic models of the French economy: for example, in the Mésange model used by the *Direction générale du Trésor* (French Treasury) and INSEE, the elasticity is  $-0.44$  (Bardaji et al., 2017), while in the e-mod.fr model used by the *Observatoire français des conjonctures économiques* (OFCE – French Economic Observatory) it is  $-0.3$  (Ducoudré et al., 2016). This average "aggregate" elasticity corresponds to the impact on employment of a uniform shock to labour costs.

In practice, however, the elasticity of employment to labour cost shocks may vary according to how the cuts in labour costs are targeted. The microeconomic literature tends to show that this elasticity can be very high, sometimes greater than 1 (see, for example, Crépon and Desplatz, 2001, and Bunel et al., 2009). Based on the French Treasury's estimates by income decile (Bock et al., 2015), we estimated that the compositional effects linked to the targeting of the CICE-PRS at low wages increase the aggregate elasticity of labour demand to  $-0.65$ . We then constructed a third

counterfactual simulation in which the elasticity of substitution in the FR-BDF model was set at  $-0.65$ , and deduced the effects on employment of the targeting of the measures from the difference between this result and that obtained with an elasticity of  $-0.53$ . Targeting the CICE-PRS measures at low wages is thus estimated to have led to the creation of about 20,000 additional salaried jobs in the market sector by end-2019.

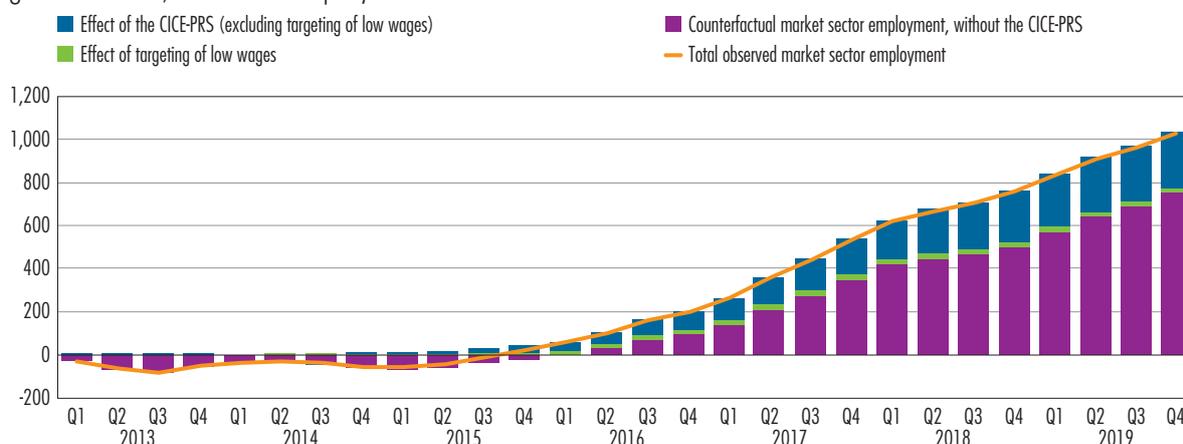
### 5 Summary: the impact on employment growth of economic policies aimed at cutting labour costs

**Labour cost reduction policies are estimated to have created 240,000 salaried jobs in the market sector between 2016 and 2019**

In total, the CICE-PRS cuts to social security contributions are estimated to have accounted for almost 25% of the one million new salaried jobs created in the market sector (1.007 million) since end-2015, i.e. approximately 240,000 jobs – and 280,000 since 2012 (see Chart 4). The impact of the CICE-PRS measures thus appears to have gradually escalated over time and was ultimately somewhat delayed, which may explain the results obtained in analyses that only cover the period up to 2015 (see Box 1 above). Moreover, our results are in line with the latest microeconomic and macroeconomic

#### C4 Effect on employment of the CICE-PRS cuts to labour costs, with targeting of low wages

(change vs. Q4 2012, in thousands of jobs)



Sources: INSEE national accounts; authors' calculations.

Note: The chart breaks down the change in total observed market sector employment (orange line) versus Q4 2012, into the contribution of the CICE-PRS excluding the targeting of low wages (blue area), the impact of the targeting of the labour cost reductions at low wages (green area) and the change in counterfactual employment without the economic policies (purple area).



estimations carried out by the *Travail, emploi et politiques publiques* research federation (TEPP, or the Theory and Evaluation of Public Policies) and the OFCE for France Stratégie, which conclude that 100,000 and 160,000 jobs had been created respectively at end-2016 and end-2017 (see Box 1 above). Over the same periods, we estimate that the CICE-PRS measures created 110,000 and 188,000 jobs respectively at end-2016 and end-2017, after taking into account their financing and the effect of their targeting at low wages (see Chart 4).

### The macroeconomic second-round effects created by the CICE-PRS gradually become predominant in driving job creations

Table 1 details the contributions to the change in market sector salaried employment of the four explanatory factors, for each of the two components of the employment policy: (i) the CICE-PRS's financed reduction in labour costs; and (ii) the targeting of the measures at low wages.

The table shows the mechanisms via which labour cost reduction policies are transmitted, and the impact linked to macroeconomic second-round effects. In our variants, more than half of the market sector salaried job creations attributable to labour cost reduction policies stem from levels of activity and agents' expectations, and not from the change in real labour costs. In particular, since the fourth quarter of 2015, the effects of the cost reductions on employment have been transmitted almost entirely via market sector value added.<sup>3</sup>

Thus, the CICE-PRS cuts to labour costs are not transmitted solely via the direct impact of labour costs on firms' demand for labour, but also via second-round effects on activity and employment. To illustrate this, Chart 5 shows the long-term target for market sector salaried employment towards which effective employment gradually converges, and the different contributions to this target. Initially, it is the cuts to labour costs that push the target upwards. The contribution of market sector

### T1 Contributions to market sector salaried job creation of each phase of the CICE-PRS, up to Q4 2019

(thousands of jobs)

	Market sector salaried employment	Market sector value added	Real cost of efficient labour	Contributions Working hours per capita	Expectations	Residual
<b>Total change</b>						
since Q4 2012	1,030	620	188	99	165	-42
since Q4 2015	1,007	623	111	52	142	80
<b>Effect of CICE-PRS (with financing) (1)</b>						
since Q4 2012	260	186	112	0	-40	0
since Q4 2015	230	210	1	0	19	0
<b>Effect of targeting of low wages (2)</b>						
since Q4 2012	20	1	18	0	1	0
since Q4 2015	7	1	-8	0	14	0
<b>Total effect (1) + (2)</b>						
since Q4 2012	280	187	130	0	-39	0
since Q4 2015	237	211	-7	0	33	0
<b>% of total change</b>						
since Q4 2012	27%	18%	13%	0%	-4%	0%
since Q4 2015	24%	21%	-1%	0%	3%	0%

Sources: INSEE annual national accounts; authors' calculations.

Note: The figures in thousands may not add up to the totals shown due to rounding. By construction, the contribution of the variations in working hours and in the residual is zero.

<sup>3</sup> The negative contribution of the real cost of labour can be explained by the impact of the decline in the value added deflator which dampened the fall in the nominal cost of labour (see Chart 5).



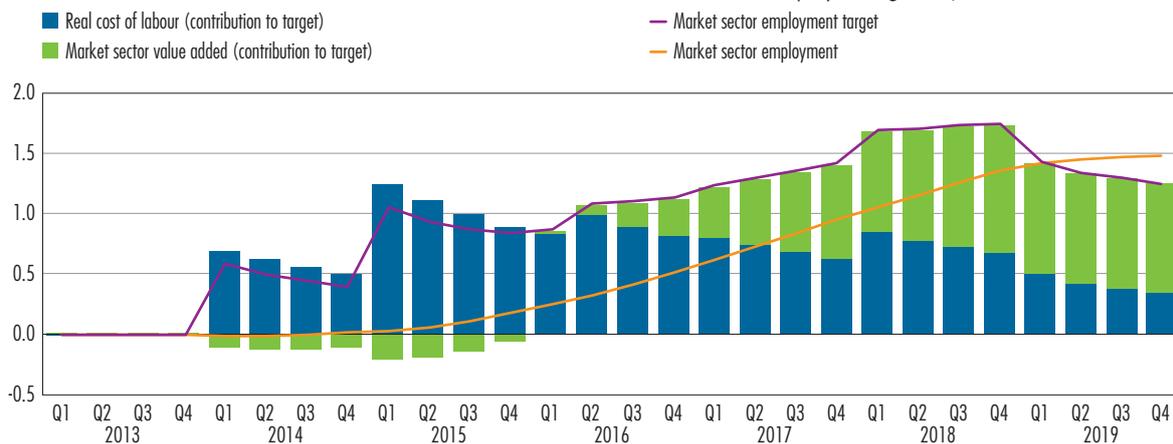
value added is even slightly negative in 2014 and 2015, reflecting the effects of the financing of the labour cost cuts. But the reductions in labour costs are also transmitted gradually to prices, leading to an improvement in the economy's price competitiveness which in turn fuels a rise in demand and activity. However, these latter rises also push up prices and wages, which gradually reduces the size of the reduction in real labour costs and hence its direct measured impact. In our analysis, the activity

channel, via the improvement in competitiveness, becomes dominant as of end-2017.

This illustrates the importance of the **indirect** effects of the cuts to social security contributions on economic activity and, in turn, on employment, which can only be captured using a macroeconomic approach, as opposed to a microeconomic approach.

### C5 Direct and indirect effects of the CICE-PRS reductions in labour costs (with financing)

(% deviation of the variables from the counterfactual scenario for market sector salaried employment growth)



Sources: INSEE national accounts, authors' calculations.

Note: The market sector employment target is the equilibrium of firms' demand for labour in a monopolistically competitive market (Lemoine et al., 2019). The blue and green bars add up to the total effect on the market sector salaried employment target. Thus, in Q4 2018, the cumulative effect of the CICE-PRS measures (with financing) on the employment target is estimated to be +1.7%, of which +1 percentage point is via the impact on value added and +0.7 percentage point via the impact on the real cost of labour. The cumulative impact on effective market sector salaried employment is estimated to be +1.4%.



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## Appendix

### Agents' expectations in the FR-BDF model

In the version of FR-BDF model used, which is also the version used in the Banque de France's forecasts, agents' expectations are constructed using a satellite VAR (vector autoregression) model, called E-SAT, which summarises the economy in a reduced form (for a detailed presentation of the formation of expectations in FR-BDF, see Lemoine et al., 2019).

Agents form their expectations on the basis of a series of variables that describe synthetically the state and dynamics of the French and euro area economies in

$t-1$  (size of the output gap, levels of inflation and of short-term interest rates), but also on the basis of specific variables – in the equation for firms' demand for labour, this variable is firms' target for market sector salaried employment.

Given the autoregressive nature of expectations, a shock to the determinants of employment (activity, labour costs, etc.) is gradually integrated into the dynamics of labour demand as agents come to "consider" it as permanent. This leads overall to dampening mechanisms.

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