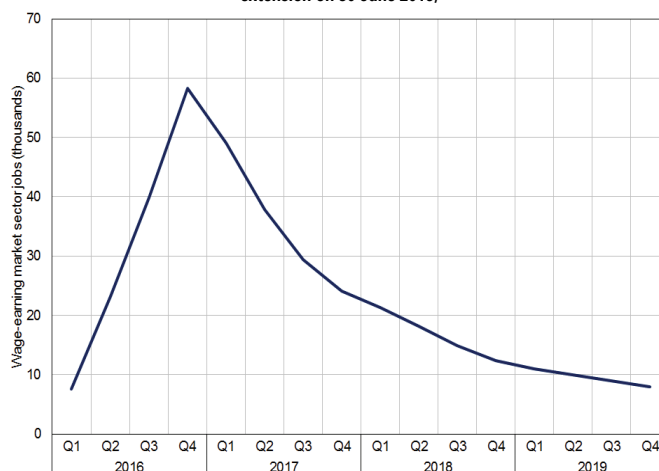


How effective are hiring subsidies for boosting employment?

- A hiring bonus reduces labour costs and increases employment levels. Such bonuses are in line with earlier measures to reduce labour costs implemented in France over the last 20 years, including cuts in social contribution rates, the Competitiveness and Employment Tax Credit and reduced Social contributions under the Responsibility and Solidarity Pact. Unlike the previous measures, the hiring bonus targets hiring directly, which means that it has an impact on flows of new jobs, rather than stocks of jobs. This type of targeting amplifies the short-term effectiveness of the measure in terms of job creation.
- Some hiring bonuses are limited to open-ended contracts or long fixed-term contracts (as is the case for Italy's 2014 Jobs Act or the "SME Hiring Bonus" measure implemented in France on 18 January 2016). These rules prevent greater segmentation of the labour market while boosting job creation.
- Hiring bonuses may be permanent measures, as is the case for many of the subsidies introduced by different American States in the 1990s, but they are usually temporary measures to provide cyclical support, which means that their impact on employment can be more rapid.
- More specifically, the temporary nature of the bonuses means they provide an incentive to create jobs immediately in uncertain economic times, rather than waiting for better days. The temporary nature of some of these hiring bonuses, such as America's 2010 Hire Act or France's 2009 "Zero Contributions for VSEs" measure, has recently led economists to examine the multiplier effect of these measures on employment levels, growth and prices. They have found that the impacts have been broader than those associated with conventional expenditure multipliers.
- The latest hiring bonus, implemented on 18 January 2016 could lead to 110,000 additional new hires in 2016. Even when the employment contract terminations occurring during the year are taken into account, as fixed-term contracts expire and open-ended contracts are terminated, the ultimate contribution to job creation will be significant. It was estimated at 60,000 additional new jobs by the end of the year, before the one-year extension of the bonus was announced on 30 June 2016.

Expected impact of the "SME Hiring Bonus" on employment (before the announcement of its extension on 30 June 2016)



Source: ACOSS, INSEE, calculations by the Directorate General of the Treasury.

1. A hiring bonus may have a short-term impact on employment and growth

1.1 The hiring bonus is a measure to reduce labour costs that is likely to have a major impact on employment, especially when it is targeted at low-wage jobs

A hiring bonus reduces the cost of wage-earning employment. In this respect, hiring bonuses have their place as part of a wide range of public policy tools, such as cuts in social contribution rates, tax credits based on wage bills and holding down minimum wage increases.

The reduction in labour costs resulting from a hiring bonus is likely to boost employers' demand for labour, either as a substitution for other factors of production

(capital) or as a result of relative competitiveness gains that make it possible to increase production levels¹. The impact of stronger demand for labour on employment will then depend on the sensitivity of supply to increased demand (see Charts 1 and 2 below).

If the increase in the demand for labour occurs in a market with a limited and inelastic labour supply, it could result in higher wages with relatively little additional employment (see Chart 1). On the other hand, when high unemployment means that the labour supply is likely to adjust to increased demand for labour, a decrease in labour costs will result in a larger increase in employment (see Chart 2).

Diagram 1 : Impact on employment of a measure to reduce labour costs when the labour supply is inelastic

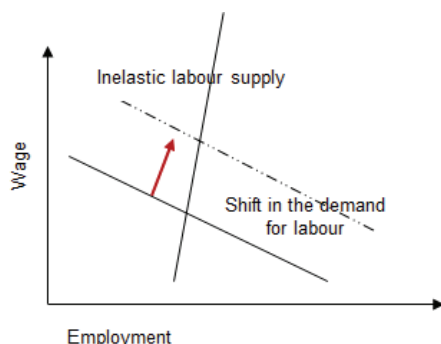
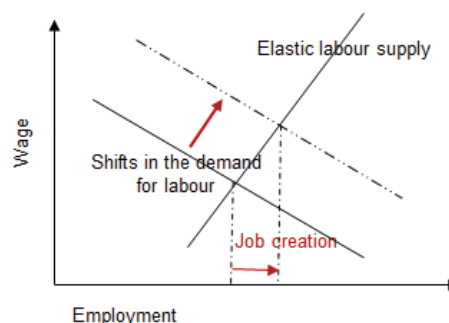


Diagram 2 : Impact on employment of a measure to reduce labour costs when the labour supply is elastic



Source: DG Trésor, illustrations.

Targeting cuts in labour costs on low-wage jobs, which concern the low-skilled individuals who are more exposed to the risk of unemployment, means that the measures target the labour market segments where employment is probably more sensitive to labour costs².

1.2 A temporary hiring bonus may have a more rapid impact on job creation than a cut in social contributions

Many across-the-board cuts in labour costs affect the stock of employment, whereas a hiring bonus affects only the flow of jobs. Consequently, in contrast to more broad-based measures to reduce labour costs, the hiring bonus does not benefit companies that do not hire new employees³. Therefore, the bonus has an immediate impact on hiring decisions. On the other hand, it has no impact on the stock of jobs and, more specifically, no impact on jobs that are not under threat from labour costs. This means that the windfall effects⁴ of such bonuses are limited in the short term.

Furthermore, there are ways to reduce the windfall effects of certain hiring bonus measures still further, such as making the bonus conditional on an actual increase in

employment levels (see Cahuc et al. (2014)⁵). On the other hand, the windfall effects would be larger in a strong economy that is creating jobs.

In a very uncertain economy, a temporary hiring bonus increases the opportunity cost of deferring new hires and could trigger an employer's decision to recruit, whereas, without the bonus, the decision may have been to wait.

The temporary nature of some hiring bonuses is therefore likely to make their impact on employment different from that of more permanent measures to reduce labour costs. In the case of a temporary measure, two distinct calendar effects can be seen. The limited eligibility period means that employers are likely to display opportunistic hiring patterns, deferring new hires until after the eligibility period starts (see Box 1) and bringing forward new hires anticipated for the following period so that they take place before the eligibility period ends. Consequently, employers adjust their hiring patterns rapidly, meaning that the measure is likely to have an impact on employment in the very short term (by the time the measure ends), unlike permanent measures, where the full impact on employment takes more time to be felt.

- (1) See Cahuc, P., S. Carcillo and A. Zylberberg (2014), "Labor Economics" - "Chapter 2 - Labor Demand", MIT Press, second edition.
- (2) Bock, S., P. Lissot and S. Ozil (2015), "Matis : une maquette d'évaluation des effets sur l'emploi de variations du coût du travail," *DG Trésor Working Papers*, No. 2015/03, March.
- (3) Bishop, J. (1981), "Employment in construction and distribution industries: The impact of the new jobs tax credit," *NBER, Studies in Labor Markets*, p. 209-246.
- (4) The bonus is paid to all companies that apply for it, even if they would have hired employees without the incentive provided. The windfall effect refers to the hiring bonuses paid for hires that would have taken place even without the bonus.
- (5) Cahuc, P., S. Carcillo and T. Le Barbanchon (2014), "Do hiring credits work in recessions? Evidence from France" *IZA DP* No. 8330, July.

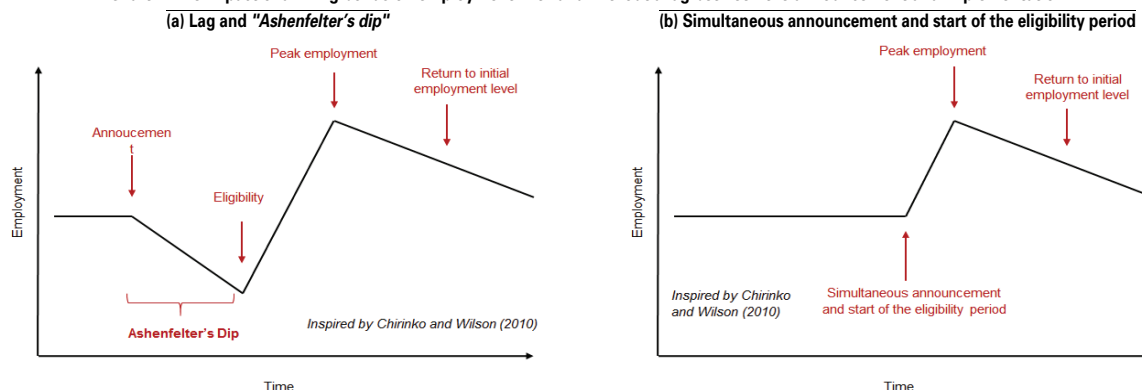
The check on windfall effects in the case of a temporary hiring bonus and its rapid impact mean that such measures create more jobs in the short-term than an

across-the-board cut in social contributions carrying the same fiscal cost.

Box 1: The element of surprise is key to limiting anticipation behaviours

Ashenfelter (1978)^a, while trying to estimate the impact of a training programme on the beneficiaries' income, became the first to identify the bias created by anticipation effects when there is a lag between the announcement of a measure and its actual implementation. In the same year^b, Ashenfelter also found optimising behaviour by companies in the case of a hiring bonus that was in force in the United States in 1977 and 1978: it was in the companies' interest to lower their employment levels in 1977 and then to increase them in 1978 in order to receive the bonus. This phenomenon came to be known as "Ashenfelter's Dip" and was observed in the behaviour of participants in many training and job support programmes. Chirinko and Wilson (2010)^c observed this anticipation effect using the available data on hiring bonuses implemented by many American States after 1990. They found that an anticipation period had a negative impact on employment before the measure is introduced and then a fairly large and rapid positive impact once the bonus comes into effect (see Charts 1(a) and (b)).

Chart 1: The impact of a hiring bonus on employment with and without a lag between the announcement and implementation



Source: Chirinko R. S. and Wilson D. J. (2010), "Job creation tax credits and job growth: whether, when, and where?", Federal Reserve Bank of San Francisco Working Paper, 25.

- a. Ashenfelter, O. (1978), "Estimating the Effects of Training Programs on Earnings", *The Review of Economics and Statistics*.
- b. Ashenfelter, O. (1978), "Evaluating the Effects of the Employment Tax Credit," in *Conference Report on Evaluating the 1977 Economic Stimulus Package*.
- c. Chirinko R. S. and D. J. Wilson (2010), "Job creation tax credits and job growth: whether, when, and where?" Federal Reserve Bank of San Francisco Working Paper, 25.

1.3 Without special rules, a hiring bonus may exacerbate segmentation between companies and between employees

There are two pitfalls for hiring bonuses: (i) a distortion of competition, if all the bonus does is to accelerate the growth of some companies; and (ii) an increase in employee turnover and greater incentives for all employers to prefer short-term contracts of employment, if no requirements are set regarding an increase in employment levels. This could lead to a two-track labour market. The incentives for short-term contracts are likely to lead to more hiring under fixed-term contracts, increasing the segmentation of the labour market between employees with fixed-term contracts and those with open-ended contracts.

A two-track labour market could dampen the prospects for growth and employees' well-being:

- When a large share of jobs come with fixed-term contracts, employment rates and unemployment rates are more sensitive to the business cycle. This could give rise to negative effects stemming from hysteresis⁶ that would hamper potential growth if the disruption of the

business cycle were prolonged.

- In addition, high employer turnover may reduce the incentive for employers to invest in training for their employees, thereby reducing investment in human capital and the long-term growth potential of the economy.
- Finally, problems finding permanent employment could also affect the ability of the individuals concerned to obtain housing loans or consumer loans, leading to a negative aggregate economic impact.

To fight this bias in favour of short-term contracts, some hiring bonus measures, such as the one implemented under Italy's 2014 Jobs Act, exclude all fixed-term contracts to promote open-ended contracts or else the conversion of fixed-term contracts into open-ended contracts with a view to reducing labour market segmentation.

Hiring bonuses may also come with a minimum contract term, which can suit two objectives: (i) increasing the impact on employment and growth by including certain fixed-term contracts, and (ii) reducing, or not exacerbating,

(6) Gali (2015), "Hysteresis and the European Unemployment Problem Revisited," NBER Working Paper No. 21430.

ting, labour market segmentation resulting from the eligibility of very short-term contracts.

1.4 A hiring bonus is an effective measure for stimulating growth

There is a great deal of literature on the impact of financing cuts in labour costs on growth and employment. In this context, the fact that hiring bonuses are usually temporary and they carry a fiscal cost means that they are classified as fiscal stimulus.

Campolmi et al. (2011)⁷ state that hiring bonuses provide an expenditure multiplier effect that is much greater than that of other public policy measures. Their analysis is based on macroeconomic models that incorporate labour market imperfections (incomplete information, friction and wage negotiations) and examine the impact of fiscal stimulus policies targeting the labour market, in comparison to fiscal stimulus measures that do not target the labour market.

In this context, hiring bonus measures not only reduce labour costs, they also reduce production costs, which increases consumption and growth. The stronger expenditure multiplier effect of a hiring bonus stems in part from the fact that the increase in the employment rate

resulting from the bonus also leads to an increase in tax revenue and reduced expenditure on unemployment insurance, which helps to finance the measures. This means that a hiring bonus, like other expenditure measures that boost growth, partially pays for itself. Faia et al. (2012)⁸ used the same analytical framework to show that measures that focus on job creation in general, such as the "Kurzarbeit" measure⁹ implemented in Germany, provide stronger expenditure multipliers than measures that are not targeted.

Recent research inspired by ex post assessment of hiring bonuses implemented in France (see Cahuc and Carcillo, below and, more specifically, in 2.2) and in the United States (see below and in 2.1) show that these measures are effective for creating jobs, but the economic literature is not unanimous on the matter. Kitao et al. (2010)¹⁰ use a theoretical model to find that, while hiring bonuses undeniably have a short-term impact on employment, they are likely to increase the unemployment rate in the long term, because of the fiscal cost of a measure that fails to create permanent employment. Meanwhile, Grijalva and Neumark (2013)¹¹ find that the American data show a limited impact of such measures on job creation.

2. France and other countries have implemented such hiring bonus measures on several occasions to stimulate growth and job creation in difficult economic times.

2.1 Similar measures in the United States and Italy supported the recovery of employment levels

A number of OECD countries¹² have already implemented hiring bonuses, which have primarily been temporary measures. Some of the most comparable measures include the New Jobs Tax Credit in 1977-1978 and the 2010 Hiring Incentives to Restore Employment (Hire) Act in the United States or the hiring bonus that has been in force in Italy since 1 January 2015.

The Carter administration implemented the New Jobs Tax Credit in 1977 and 1978 as part of a plan to support the American economy. The amount of the tax credit was determined using a complex calculation mechanism that capped the amount per employee at \$2,100 and the aggregate amount per employer at \$100,000. The distinguishing characteristic of the measure was the net job creation requirement, as measured by the increase in a company's headcount. Several ex-post assessments of the

programme (Perloff et al. (1979)¹³, Bishop (1991)¹⁴) showed that:

- The impact of the measure on employment was fairly strong, with some 400,000 additional jobs created in the United States in one year, which is equivalent to approximately one third of the jobs created over the period. Bishop estimated the cost per job, net of the increased revenue from corporate income tax, at about \$10,250 in 1978, which translates into approximately €30,000 per job in 2016. This is fairly close to the estimates for France's employment policies, particularly those that reduce social contributions across the board¹⁵.
- Employers' awareness of the measure has a decisive impact on their propensity to claim the bonus and hire new employees, ultimately influencing the effectiveness of the measure.

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- (7) Compolmi, A., E. Faia and R. Winkler (2011), "Fiscal calculus and the labor market," B. E. *Journal of Macroeconomics*, 11(1), p.38. ISSN 2194-6116.
- (8) Faia, E., W. Lechthaler and C. Merkl (2012), "Fiscal Stimulus and Labor Market Policies in Europe," *LASER Discussion papers* - Paper No. 68, October.
- (9) Public financing measure for short-time working implemented in Germany following the 2008-2009 crisis, see Fréhaud, P., (2012), "Short-time working schemes in France and Germany: how do they differ?," *Trésor-Economics* No. 107, November.
- (10) Kitao, S., A. Sahi and J. Song (2010), "Subsidizing Job Creation in the Great Recession," Federal Reserve Bank of New York, Staff Report No. 451, May.
- (11) Grijalva, D. and D. Neumark (2013), "The employment effects of State hiring credits during and after the Great Recession," NBER Working Papers No. 18928, March.
- (12) For a review of the measures implemented in Europe, see the European Commission, "Stimulating job demand: the design of effective hiring subsidies in Europe," 2014.
- (13) Perloff, Jeffrey M. and Michael L. Watcher (1979), "The New Jobs Tax Credit: an evaluation of the 1977-78 Wage Subsidy Program," *AER*.
- (14) Bishop, John H. (1981), "Employment in Construction and Distribution Industries: The Impact of the New Jobs Tax Credit," Cornell University, *Articles and Chapters*, ILR Collection.
- (15) Ourliac, B. and C. Nouveau (2012), "Reduced rate employers' social security contributions on low ages in France, 1993-2009," *Trésor-Economics* No. 97, January. It should be noted that, in this work, the labour cost is the gross cost and not the cost net of the increase in tax revenue, as is the case in Bishop's work.

A more recent federal hiring bonus was implemented in the United States under the 2010 Hire Act to facilitate hiring of the long-term unemployed. According to the American Treasury, 3.2 billion hires were eligible for the bonus. Farooq and Kugler (2015)¹⁶ estimate that the bonus increased the employment level by 1.6 percentage points. They also note that there are no statistics on the take-up rate, but it might be quite low, as is the case for other measures of this type in the United States. This specifically American pattern may be linked to the administrative complexity and/or employers' low awareness of federal subsidies. It may explain why Grijalva and Neumark (2013)¹⁷ estimated the employment impact of various hiring bonuses implemented in the United States as significant, but small.

In Italy, employers who hire new employees under open-ended contracts or who convert fixed-term contracts into open-ended contracts have been granted exemptions from social contributions since 1 January 2015. The exemptions will be phased out by 2018. The exemption may be as much as €8,060 in the first year, which corresponds to a total exemption from social contributions on the average Italian wage, which stands at some €24,000 per year.

The 2015 draft budgetary plan¹⁸ assessed the net cost of the measure at €1.9bn in 2015, with a cumulative total cost of €5bn by the end of 2017. However, the estimate was subject to revision and should be revised upwards as a result of the large numbers of open-ended contracts signed in 2015 (nearly 850,000 contracts). Sestito and Viviano (2015)¹⁹ estimate that the exemption on new jobs under open-ended contracts may have made a direct positive contribution of 0.15 percentage points to wage-earning employment under open-ended contracts in the market sector in the first half of 2015.

2.2 France has already experimented with several hiring bonus measures targeting small businesses

France has implemented three types of hiring subsidies over the last 25 years and all of them have targeted very small enterprises.

An exemption from employers' social contributions on the first employee hired was in effect from 1989 to 2001. It was limited to open-ended contracts or fixed-term contracts for 12 months or more. One million hires benefited from the exemption over 13 years. In a review of the measure²⁰, the Directorate for the Coordination of Research, Studies and Statistics (DARES) estimated that one out of ten exemptions resulted in net job creation. The review is based on four surveys of employers benefi-

ting from the exemption. Many of the employers reported that the hire would have taken place even without the government subsidy. The impact on employment is similar to the estimated impact of subsidised employment contracts in the market sector.

A similar subsidy was created as part of the "Everything for Jobs in Small and Medium-Sized Enterprises" plan of 9 June 2015. The €4,000 subsidy was paid quarterly over 2 years for the first employee hired by a company between 9 June 2015 and 8 June 2016. It applied to employees with open-ended contracts or fixed-term contracts for 12 months or more, with no cap on wages. In January 2016, the measure was extended until 31 December 2016 and it now applies to fixed-term contracts for 6 months or more.

Another example of a targeted measure is the "Zero Contributions for VSEs" measure in the 2009-2010 stimulus plan. It was originally supposed to last for one year, but it was extended for 6 months until the middle of 2010. The subsidy took the form of a total exemption from employers' contributions on minimum-wage jobs (or 12% of the gross wage), with diminishing exemptions for jobs paying up to 1.6 times the minimum wage for new hires under open-ended contracts or fixed-term contracts for one month or more in companies with up to 10 employees. The measure applied to more than one million hires in 430,000 companies for a cost of €820m²¹.

Cahuc, Carcillo and Le Barbanchon (2014, see note 5) assessed the "Zero Contributions for VSEs" measure. Since employers did not anticipate the measure (see Box 1), the authors used a difference of differences estimation method to compare changes in employment in two groups of companies: companies with 6 to 9 employees, which were eligible for the measure, and companies with 10 to 14 employees, which were not eligible.

They found that the growth of employment in the first group was significantly higher than it was in the second group. They estimated that the elasticity of hiring to lower labour costs resulting from the measure was nearly 4. According to these authors, the very high level of elasticity stems from the temporary nature of the measure, the fact that it targeted unskilled workers in a context with a high minimum wage and high unemployment, and the fact that the measure applied only to new hires. The impact on employment would be felt very rapidly, within three months of the introduction of the measure. The authors estimated that 84% of the eligible hires benefited from the windfall effect.

(16) Farooq, A. and A. Kugler (2015), "What factors contributed to changes in employment during and after the Great Recession," *IZA Journal of Labor Policy*.

(17) Grijalva, D. and D. Neumark (2013), "The employment effects of State hiring credits during and after the Great Recession," *NBER Working Papers* No. 18928, March.

(18) Annex to Italy's 2015 Budget Act, based on the database of the National Statistics Institute (INPS) and calculations by the Italian government.

(19) Sestito, P. and E. Viviano (2015), "Hiring Incentives and/or firing cost reduction? Evaluating the impact of the 2015 policies on the Italian labour market," Preliminary Version.

(20) Dares (2002), "L'exonération pour l'embauche d'un premier salarié : bilan rétrospectif," Premières informations et Premières synthèses, December.

(21) Source: Pôle emploi.

In a newer version of their work²², they estimate that, had the measure been permanent, the labour cost elasticity of hiring would have been 4 times less than the observed level, meaning that it would have been close to unity (see

Box 3). They stress that permanent hiring bonus measures, such as the ones regularly implemented in the United States, are less effective than temporary measures.

3. An *ex-ante* assessment of the "SME Hiring Bonus" measure

3.1 "SME Hiring Bonus": a temporary measure targeting low-wage jobs in SMEs

The "SME Hiring Bonus" measure is an extension and expansion of the bonus for employers hiring a first employee under the 2015 "Everything for Jobs in Very Small, Small and Medium-Sized Enterprises" Plan. It takes the form of a lump-sum subsidy of €2,000 per year that is paid quarterly over two years, in proportion to the number of hours worked. It applies to new hires with open-ended contracts or fixed-term contracts for 6 months or more in companies with up to 250 employees. The subsidy is managed by the Services and Payment Agency (ASP).

It applies to hiring of employees earning between 1 and 1.3 times the minimum wage (or gross wages of €9.67 to €12.57 per hour worked²³). Therefore, the measure targets low-wage jobs more narrowly than the across-the-board cuts to contributions that apply to jobs paying up to 1.6 times the minimum wage. It serves the objective of supporting lasting employment for the least skilled workers.

The subsidy represents some 11.4% of the gross wage of a minimum-wage employee and can be combined with existing measures to cut labour costs (across-the-board cuts, Competitiveness and Employment Tax Credit and Responsibility and Solidarity Pact). The subsidy is the equivalent to an exemption from all remaining employers' contributions on minimum-wage jobs for companies that are also eligible for the Responsibility and Solidarity Pact and the Competitiveness and Employment Tax Credit.

The subsidy is a temporary measure²⁴, which means it is a cyclical measure to support employment during an economic recovery.

3.2 The fiscal cost is estimated at approximately €2bn spread over 2016, 2017 and 2018

The assessment of the fiscal cost of the measure requires an estimate of the number of eligible new hires (see Box 2), as well as assumptions about the take-up rate, the period over which the subsidy is paid (depending on the actual duration of the contracts) and the incidence of part-time employment.

Based on these assumptions, the gross fiscal cost of the measure could stand at approximately €2bn over 3 years (cost without an extension of the eligibility period into 2017). The net cost could be much lower because of positive effect that the measure is expected to have on growth.

The early data suggest that the measure has stimulated hiring for the targeted jobs. In the summer of 2016, the Services and Payment Agency (ASP) received 500,000 applications for the subsidy. According to the Central Social Security Agency (ACOSS)²⁵, hiring was particularly brisk in the first quarter for the eligible contracts and companies: new hires with fixed-term contracts for 6 months or more increased by 12.4% in the first quarter (quarter-on-quarter) in the case of companies with 20 to 249 employees, compared to 7.2% for companies with 250 or more employees, which are not eligible for the measure. There is also a significant difference in the increase in jobs with open-ended contracts, which rose by 3.8% for companies with 20 to 249 employees, compared to 2.2% for companies with 250 or more employees. If the pattern does not continue as markedly in the second quarter, it could be the result of a slowdown after the surge in hiring seen in the first quarter, according to ACOSS.

Box 2: Estimating the beneficiary population

Estimating the population of potential beneficiaries of the subsidy requires the use of different data sources on the number of new employees hired and wage levels:

- Advance hiring notifications (DPAEs) provide a measure of hiring by companies. The notifications are mandatory and companies must file them with the Central Social Security Agency (ACOSS) in the week preceding any new hire. This source reveals that companies with fewer than 250 employees hired some 3 million new employees under open-ended contracts or fixed-term contracts for 6 months or more.
- Hires of new employees earning less than 1.3 times the minimum wage are approximated from the annual payroll declarations (DADS) by measuring the wages of jobs created in 2013. According to this definition, nearly half of the new jobs under fixed-term contracts for 6 months or more and open-ended contracts paid wages of less than 1.3 times the minimum wage in companies with fewer than 250 employees. The concentration of newly hired employees at the minimum wage level stems from the fact that people making their first entry into the labour market and workers who have held a series of short-term jobs are over-represented in the hiring flows and these employees generally earn the lowest wages.

Given the start of the scheme in mid-January 2016, the total number of eligible new hires in 2016 should be about 1.4 million.

(22) Cahuc, P., S. Carcillo and T. Le Barbanchon (2016), "The Effectiveness of Hiring Credits," Working Paper, Mimeo École Polytechnique, May.

(23) Or between €1,466 and €1,907 gross wages per month for a full-time employee.

(24) The new hires must be effective before 31 December 2017 to be eligible for the subsidy. Before the extension was announced, the eligibility period ran until the end of 2016.

(25) "Les embauches de plus d'un mois se tassent au deuxième trimestre 2016 mais restent sur un niveau élevé," ACOSS Stat No. 234, July 2016.

Box 3: Higher short-term elasticity, depending on the duration of jobs and the employee turnover rate

Two main assumptions underpin the calculation of the labour cost elasticity of employment in the case of a hiring bonus. The first assumption is that the employers' hiring decision is based on a calculation of the reduction in labour costs spread over the length of employment. In the case of a new employee hired under an open-ended contract for a minimum-wage job, a subsidy of 2,000 represents 11.4% of the gross annual wages. However, the "SME Hiring Bonus" only represents 7.5% of gross wages for such new employees when aggregate wages paid over the term of an open-ended contract are considered^a. The equivalent calculation is made for fixed-term contracts.

This method assumes that employers have no preference for a bonus paid in full at the start of the contract over a bonus paid continuously over the entire term of the contract. However, employers probably prefer full payment of the subsidy upon signature of the contract, since it reduces the uncertainty stemming from payment of the subsidy over time.

The second underlying assumption is that, if a hiring subsidy were renewed indefinitely, it would have the same impact on the stock of jobs as a permanent measure to cut labour costs by a comparable amount. This assumption links the labour cost elasticity of employment in terms of hiring flows and the elasticity under a permanent measure affecting the stock of jobs.

This is the reasoning behind the assessment by Cahuc et al. (2016, pending publication, see note 23). The authors link the elasticity ϵ under a policy measure affecting the stock of jobs to the elasticity ϵ_σ under a policy measure affecting hiring flows only:

$$\epsilon = \eta \cdot \epsilon_\sigma$$

Where η denotes the proportion of employees eligible for the bonus (which is inversely proportional to the mean duration of the contracts). As long as $\eta < 1$, the elasticity of hiring flows is greater than the elasticity of the stock of jobs. If the bonus measure is extended and affects the whole stock of jobs, the effectiveness of the bonus measure is eventually similar to a measure affecting the stock of jobs. In the Matis model (see the DG Treasury working paper cited above), the labour cost elasticity of employment used for the stock of jobs has three main characteristics: it is close to unity for low-skilled employees (0.9 for minimum-wage employees), its absolute value decreases as wages increase up to twice the minimum wage, and its mean level is 0.5.

For minimum-wage jobs, this method puts the cost elasticity of hiring at approximately 1.2, decreasing as the wage level increases. It should be noted that this elasticity is the short-term elasticity, which reflects the impact of a very rapidly implemented hiring bonus. The short-term elasticity under a hiring bonus measure is greater than the elasticity obtained from a permanent measure targeting low-wage jobs. In the case of a permanent measure, the Directorate General of the Treasury's Mésange model^b estimates that only some 30% of the ultimate impact of the measure results in job creation after the first year.

- a. We assume that the subsidy is received over the entire term of the contract (less than 2 years) for 50% of the new hires with open-ended contracts, which does correspond to a cost cut equal to 11.4% of wages, "More than one-third of open-ended contracts are terminated in less than one year," Dares-Analyses, January 2015. When contract durations are greater than 2 years, the same report by the Directorate for the Coordination of Research, Studies and Statistics (DARES) makes it possible to classify them by duration up to 5 years. Open-ended contracts are deemed to have a mean duration of 5 years.
- b. Klein, C. and O. Simon (2010), "Le modèle Mésange nouvelle version réestimée en base 2000," Directorate General of the Treasury and Economic Policy *Working Paper*, No. 2010/02 - March, page 69.

3.3 The "SME Hiring Bonus" measure could create 60,000 jobs by the end of 2016 (estimate made before the extension of the measure was announced)

The application of specific elasticities (see Box 3) to hiring flows expected to benefit from the "SME Hiring Bonus" produces hiring of an additional 110,000 employees over 2016. The impact on hiring should be about 10% of eligible new hires, which is similar to the impact that the Directorate for the Coordination of Research, Studies and Statistics (DARES) (2001) estimated for the bonus for hiring a first employee. This is a conservative estimate, since the impact on hiring is less than the impact cited by Cahuc et al. (2014, see note 5) in the case of the "Zero Contributions for VSEs" measure.

The impact on the stock of jobs at the end of 2016 must incorporate the gradual attrition of the jobs created. Some of the jobs created through the bonus will expire or be terminated before the end of the year. Attrition is substantial in the first year following the signature of employment contracts. According to the DARES data, some 35% of open-ended contracts are terminated in the first year. According to the declarations filed with the Central Social Security Agency (ACOSS), 73% of fixed-term contracts for 6 months or more last for less than one year. Depending on the attrition assumptions for each type of contract, wage-earning employment should be up by 60,000 jobs at the end of 2016 versus its level without the bonus. Ultimately, the impact on the stock of jobs will be cancelled out in five years' time because the bonus is a temporary measure.

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