Massive tax credits, but very few employment effects: an *ex post* evaluation of the CICE in France[1]

Fabrice Gilles[†], Yannick L'Horty[‡], Ferhat Mihoubi[§], Xi Yang[**]

January 2017

Abstract

The *Crédit d'Impôt pour la Compétitivité et l'Emploi* (CICE) (tax credit for competitiveness and employment) is the most important employment measure of François Hollande's five-year term with regard to the total amount as well as the number of employees and the number of companies concerned. Representing an annual amount of more than 20 billion euros, i.e. almost two GDP percentage points, the amount of this tax credit is 6% of the payroll of all companies in 2014, for all wages that are equivalent to less than or equal to 2.5 minimum wages. To evaluate the effects of this measure, we use an identification according to intensity of treatment by comparing the job growth rate of companies that greatly benefited from the CICE to that of companies of the first quartile, while controlling for a large number of structural variables and instrumenting the apparent CICE rate by its simulated value before its implementation. Estimates are based on a balanced sample of more than 130,000 companies with five employees or more between 2009 and 2014. We found that the CICE has a positive but small effect on employment, payroll, and company margins, a negative effect on average salaries, but no effect on investment or productivity.

Keywords: treatment effect models, labour demand, tax and subsidies, public policy.

JEL Codes: C21, H25, J23, J38.

[1] This study has received financial support through a grant from France Stratégie (the French Center for Studies and Prospective Strategy). For their helpful comments, we would like to thank Philippe Askénazy, Rozenn Desplatz, Antoine Naboulet, Sébastien Roux, and Alain Trannoy, as well as participants in the thematic AFSE French Treasury and TEPP conferences where a previous version of this paper was presented. As usual, the authors remain responsible for the mistakes and inaccuracies presented in this paper.

[†]Fabrice GILLES, Université Lille 1, LEM-CNRS (UMR 9221) and TEPP-CNRS (FR 3435), fabrice.gilles@univ-lille1.fr .

[‡] Yannick L'HORTY, Université Paris-Est, ERUDITE (EA 437), UPEC, UPEM, and TEPP-CNRS (FR 3435), yannick.lhorty@u-pem.fr .

[§] Ferhat MIHOUBI, Université Paris-Est, ERUDITE (EA 437), UPEC, UPEM, and TEPP-CNRS (FR 3435), ferhat.mihoubi@u-pec.fr .

[**] Xi YANG, Université Paris-Ouest Nanterre La Défense, ECONOMIX (UMR 7235), n_yang319@hotmail.com

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I. Introduction

The *Crédit d'Impôt pour la Compétitivité et l'Emploi* (CICE) (tax credit for competitiveness and employment) is the most important employment measure of Francois Hollande's five-year term with regards to total amount as well as the number of employees and the number of companies concerned. It is a far-reaching measure, with a real cost of nearly 20 billion euros since 2014, i.e. nearly two GDP percentage points. As a rule, this massive general assistance can be used unconditionally. Companies have been given the freedom to choose among all possible target destinations, no strings attached.

The economic consequences of a tax credit that is both massive and mainly unconditional such as the CICE, *a fortiori* when it is of a variable amount depending on each company, are very difficult to establish. The CICE is a major corporate tax cut which results, from an accounting standpoint, in increased profit margins. This markup shock has modified transaction levels, relative prices in all markets, and the allocation of production factors in directions that cannot be established *a priori*. It involves multiple economic mechanisms at the microeconomic level of business decisions, as well as at the inter-sectoral and macroeconomic levels, according to a general equilibrium logic. From a strictly theoretical point of view, given the variety of these mechanisms, the impact of this type of measure is therefore largely undetermined. According to the principle of taxation impact, there is little connection between the taxable base of a compulsory levy and its actual consequences: the company that receives the credit is not necessarily the one that ultimately benefits from it.

Ex ante evaluations of the CICE are based on a great many assumptions about these different mechanisms, which limit their credibility. They lead to mixed outcomes. The first quantification carried out before the measure was even implemented predicted 150,000 jobs created within five years (Plane, 2012). Another quantification on the basis of a macro-simulation in 16 branches of activity led to an inter-sectoral effect of 120,000 jobs created or safeguarded (Ducoudré *et al.*, 2015). Micro-simulations conducted on company data by Hagneré and Legendre (2016) led to a projected creation or preserving of 261,000 jobs. According to these *ex ante* evaluations, the cost per job created or preserved would be between 65,000 and over 140,000 Euros. On average, these three evaluations considered that the CICE might well create (or preserve) nearly 180,000 jobs.

An *ex post* evaluation relies on fewer assumptions. The originality of the present article stems from its carrying out this type of evaluation based on a broad set of exhaustive micro-databases of various companies. We draw upon administrative sources made available by *Acoss-Urssaf* (the French Central Agency of Social Security Organizations, DGFIP (French Treasury Agency) and *Insee* (French national statistical agency). These accounting and tax data[6] cover 2009 to 2014.

This article evaluates the effects of the CICE on the basis of a balanced sample[7] of more than 130,000 companies with five or more employees, during the 2009 to 2014 period. The aim is to measure the effects of the CICE on two sets of variables, i.e. employment and wages, as well as on economic activity.

6 In addition to the endorsement of the *comité du secret statistique* (French committee on statistical confidentiality) and of data producing services, authorizations had to be obtained to merge these data with tax sources before they could be accessed within the framework of the Centre d'Accès Sécurisé à Distance (French secure remote access center).

7 We therefore limit the analysis to the effects of the CICE on perennial companies. It is clear that the CICE can also produce effects on the survival of companies, which may in turn have consequences on employment, wages, and competitiveness. These effects, through business demography, are therefore outside our field of observation, which is limited to the intensive margin.

II. The policy

As a result of the deterioration of corporate margins and the need to restore their competitiveness, as established in the report by Louis Gallois (2012), the CICE has been in force in France from January 1, 2013. This is a general measure benefiting all companies employing at least one employee and not belonging to the area of public administration. The amount of the tax reduction is calculated by applying a uniform rate on all gross wages equivalent to or less than 2.5 minimum wages (Smic), i.e. well above the 1.6 Smic threshold that applies to general exemptions from social security contributions (graphic 1). The reduction rate was initially 4% in 2013, before being increased to 6% from 2014, which corresponds to a maximum cost of more than €2,500 per employee per year.[8] The total amount of the tax credit differs according to the company, depending on the distribution of the salaries they pay. This is a far reaching measure, with a real cost of 11.2 billion euros in 2013, according to the monitoring committee report, i.e. a half GDP percentage point.[9] This amount is expected to reach €18.4 billion in 2014 according to the CICE monitoring committee. It will be raised to nearly 25 billion in 2017, i.e. more than two GDP percentage points. The measure is comparable in its scope to the general exemptions from social security contributions, with which it should merge by 2018, within the framework of the *pacte de responsabilité* (responsibility pact).

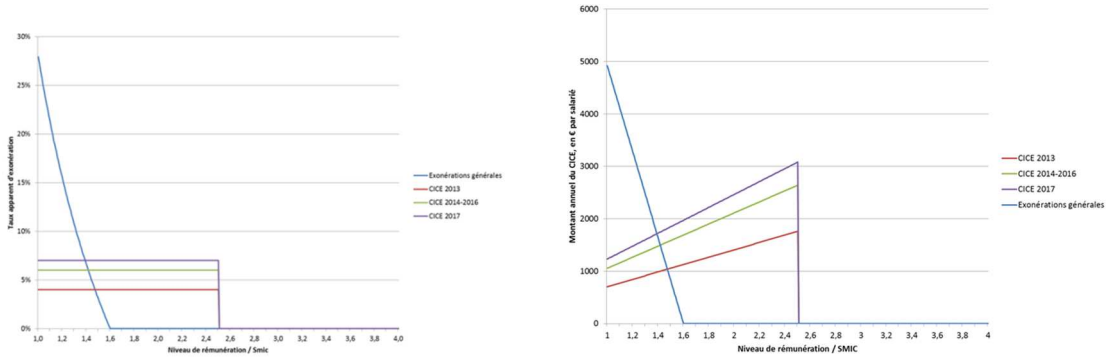
The scale of the CICE is particular. The assistance is uniform for all wages under the maximum limit of 2.5 Smic. It is therefore shaped like a staircase in a salary-exemption rate chart, with a very marked threshold effect around 2.5 Smic. Salaried workers paid above the threshold, corresponding to a gross monthly salary of a little over 3,500 euros, are not concerned by the measure. In 2016, a salary increase of 1 euro for an employee paid close to the threshold resulted in a loss of more than 2,500 euros in assistance for the employer. This is a general measure benefiting all companies employing at least one employee not belonging to the area of public administration. The total amount of the tax credit differs depending on the company, according to the distribution of the wages they pay. This scale is very different from the social security exemption scale, which is much more concentrated at the bottom of the wage distribution scale (chart).

8 According to the presidential announcements of the end of June 2016, the CICE should be increased to 7% in 2017, for an additional budgetary cost of approximately 4 billion euros, resulting in a total amount of approximately 25 billion euros, i.e. almost half of the amount of corporate income tax collected annually. It should subsequently be transformed into permanent relief from social security contributions as part of the stability pact. "*I want to realize the CICE's complete potential, which is now fully understood and appreciated by companies, in particular SMEs and VSEs, and which has quick effects on employment, investment, and purchasing power*," declared French President François Hollande to Journal *les Echos*, on June 29, 2016.

9 Companies located in French overseas departments benefit from a scale increased by 7.5% in 2013 and subsequently by 9%.

Figure 1. The scale of the CICE…

…as a percentage of salary **…in euros**



This massive and general assistance is not very focused with regard to its use. According to article 244 (C) of the General Tax Code, which defines the CICE, its focus is extremely wide-ranging. The objective is for companies to fund "*improvement of their competitiveness, including through investment, research, innovation, training, recruitment, exploring new markets, ecological and energy transition, and reconstituting their working capital."* Companies have been given the freedom to choose among all these targets. No conditions of use or controls have been imposed on them. The only restrictions are that the tax credit cannot *"finance an increase in the share of profits distributed, or increase the remuneration of persons exercising management functions in the company"*.

Once the cost is covered, companies are free to use the CICE for whatever purpose they see fit, without any follow-up mechanism determining the use that is actually made of it by the companies. The chronicle of how it is spent is complex and variable depending on the company. In 2013, the only companies that actually benefited from the CICE, as of that year, were those that used the pre-financing mechanism. These companies collected, as of 2013, non-negligible amounts which may have changed their economic behavior. In addition, those that did not spend it all could modify their economic behavior by taking this future collection into account. These factors complicate the evaluation.

III. Data and descriptive analysis

To complete this study, we have had access to a fully exhaustive set of administrative sources and survey data, which not only help identify the amount of the CICE credited to each company but also the multiple outcome and control variables enabling a proper evaluation. We first present the data sources before describing the restrictions we had to impose when they were matched in order to put together the sample used in our estimates.

Data sources and merging datasets

Our main work sample comes from matching four exhaustive sources: BRC, MVC, DADS, and FARE. The matching rate between the gross sources varies between 60% and 72% in terms of the number of companies and between 77% and 89% in terms of total payroll.[10] The level of this rate is generally quite satisfactory. In addition, the information available from the three

10 Some companies are not matched for the BRC (*Acoss-Urssaf*) because they are not present in FARE (*Insee*). These companies are mainly small (in 90% of cases they have fewer than five workers) and are from the "Specialized construction work," "Restoration," and "Services related to buildings and landscaping" business sectors. For FARE they concern "Head office activities" and "Specialized construction work."

sources, i.e. BRC, MVC, and DADS, on the amount of the CICE,[11] is quite consistent. The content of these sources and the variables used in this study are presented in Appendix 1.

For technical reasons, as well as due to the quality of the available data, we decided to restrict our field to a limited number of dimensions. In the final analysis, the reference field on which we have decided to work is that of all companies with five or more employees subject to the tax on companies, outside the public, agricultural, financial, insurance, and temporary work agency sectors. We also removed from the sample all companies presenting values among the lowest or highest 1% identified. We detail the reasons for this restriction in Appendix 2.

On the basis of these restrictions, we put together a balanced panel of firms covering the 2009 to 2014 period. Our final sample deals with 133,891 companies (BRC source). The characteristics of the companies resulting from this matching of the BRC-MVC-DADS-FARE files (number of companies, payroll, the CICE base, and CICE amount paid) for the selected field, before and after matching, are shown in Table 1.

Table 1. Matched and balanced databases

	Total payroll In billions of €	CICE base (<2.5 SMIC) In billions of €	Amount of the CICE In billions of €	Average total number of employees. In millions	Total number of employees on 31/12 in millions	Number of companies in thousands
Matched DADS-BRC-FARE databases	365.90	217.04	8.68	11.87	11.72	865.13
Deletions of inconsistent observations	310.96	189.90	7.60	9.94	9.87	673.59
Balanced panel of companies with 5 or more employees covering the 2009 to 2014 period	162.53	104.42	4.18	5.14	5.14	133.89

Sources: BRC (Acoss), DADS-FARE-(Insee), and MVC (DGFIP).
Field: All companies subject to corporate taxation, outside the public, agricultural, financial, insurance, and temporary work agency business sectors.

Descriptive statistics: beneficiaries of the CICE

The companies that have benefited most from the CICE (measured using the apparent CICE rate) are mainly small companies in the tertiary sector (75.6%), with fewer than 20 employees on average, gross sales of €2,234,000 in 2012, and relatively low capital intensity and export gross sales. Companies that benefit least have the opposite characteristics. Their average workforce is almost 50 employees, with gross sales of more than 15 million euros in 2012, capital intensity of more than €74,000 per employee, and a quarter of their gross sales coming from exports. They are less predominantly from the tertiary sector (64.4%).

Table 2 here – Descriptive statistics

The companies that benefit most are generally more financially fragile. Their profit margin is less than 15% compared to more than 20% for the companies that benefit least. The debt ratio exceeds 55% compared to 26.8% for those that benefit least and the financial levy rate is close

11 A significant control was carried out by the producing services upstream of this report.

to 9% compared to 6.6% for those that benefit least. Labor productivity is also lower in firms that benefit most.

The wage earners of these companies are mainly employees and blue collar workers. The share of intermediate professions and executives is quite low. The average wage is lower than in companies that have benefited least from the CICE. The annual average is a little over €20,000 among these companies, compared with more than double this amount in the 25% of companies that benefit least.

The share of women and those under 30 years of age is the highest, while the share of those over 50 is the lowest. Workers most frequently have fixed-term contracts (CDD) and are employed on a part-time basis. Conversely, the companies that have benefited least from the CICE are those that employ the most managers and employees over 50, where the share of women is lowest, and where the proportion of contracts of indeterminate duration (CDI) and of full-time employees is the highest.

These differences in composition have been shown to exist in both 2013 and 2014, using the apparent CICE rate as the treatment variable. They refer to the effects of the 2.5 Smic threshold in attributing the CICE and suggest that it is important to control all these variables in estimates.

III. Identification strategy

The CICE is a general measure with a very broad salary base that has not been tested and has applied to all companies in France since 2013. It is therefore impossible to assemble a control group of companies, i.e. of firms that would not have been affected by the treatment (only 6% of companies have not benefited at all from the CICE and these companies have very specific characteristics). It therefore seems impossible to come up with a satisfactory counterfactual.

But a second characteristic of the CICE can make it possible to overcome this difficulty. The CICE is a general measure but it is also a targeted measure, i.e. on wages below 2.5 Smic. While it affects all companies, it does not affect them all with the same intensity. Some companies will benefit greatly from the CICE, while others will only marginally benefit from it. A company that pays low wages will benefit from the maximum tax credit rate (its apparent CICE rate will be 6% in 2014) while a company that includes a significant proportion of employees paid over 2.5 Smic will benefit less from the measure. At its lowest, the apparent CICE rate is zero for companies that do not include any employees paid less than 2.5 Smic. It should be noted that the 2.5 Smic threshold is a high wage distribution threshold. According to data published by INSEE and coming from the DADS, this threshold is between the 8th and 9th decile of wage distribution.

Identification by intensity of treatment

These differences in exposure to the treatment are entirely due to a single factor: differences in wage structure and more precisely the share of wages below 2.5 Smic. In each company, the apparent CICE rate, linking the amount of the CICE with the payroll, is yielded in accounting terms by multiplying the maximum CICE rate (for example 4% in 2013) by the sum of salaries below 2.5 Smic (wage earners *i*) in relation to the total payroll (the sum of salaries below 2.5 Smic (wage earners *i*) and above 2.5 Smic (employees *j*)):

$$T_{CICE} = \overline{T_{CICE}} * \frac{\sum w_i}{\sum w_i + \sum w_j}$$

$$\text{With } \overline{T_{CICE}} = \ 0.04 \ in \ 2013; 0.06 \ in \ 2014$$

It is therefore conceivable to use these variations in the intensity of treatment for evaluation purposes. To do so, it suffices to carry out a partition within companies by creating different classes of exposure to the treatment. Following the methodology proposed in Florens *and alii* (2008), the evaluation is based on the difference in the intensity of the treatment rather than whether the treatment is applied. This approach has been successfully used to evaluate general exemptions from social security contributions resembling the CICE, i.e. measures that are general, massive, and unconditional (Bunel *et al.* 2009 and 2012). This is the approach used in the present article.

The problem with this approach is that the companies benefiting most from the CICE do not have the same characteristics as those benefiting only a little. A control group composed of companies that have least benefited from the CICE is not the result of random selection and is not spontaneously a good counterfactual. It mainly brings together high-wage companies that are unique from the point of view of all the determinants of employment, wages, and competitiveness.

In this study, we carried out parametric estimates by regressing the relative variation from our outcome variables on treatment indicators, taking into account the initial level of our outcome variables in the control variables. We considered a wide range of control variables by combining management indicators derived from FARE taxation data and indicators on employment structure from the DADS. This approach is equivalent to a difference-in-difference evaluation with multiple intensities of treatment and control for the observables characterizing the economic situation of companies prior to implementing the CICE. To the extent that the dependent variables of our equations are growth rates (i.e. dimensionless indicators), our regressions are weighted by an indicator that is consistent with the outcome variable.

An additional difficulty lies in the potential existence of an endogeneity bias. In the case of the CICE, the wage structure completely determines intensity of exposure to the treatment. However, it is also determined by the outcome variables that interest us: employment, wages, and competitiveness. For example, one can expect that a highly competitive company creates many jobs and more frequently pays high wages. It will then have little exposure to the CICE. It is important to consider this potential bias to evaluate a causal effect of the treatment. The instrumental variables method serves as a resource to overcome these difficulties.
To control for treatment endogeneity, we combine difference-in-difference with instrumental variable methods. From a large number of potential instruments among all the variables from our databases, we finally chose the simulated values of the apparent CICE rate for 2013 and 2014 on the basis of data from the years prior to the establishment of the CICE (2009-2012), following the method used in Auten and Carroll (1999).

Econometric specifications

We consider the framework of methods to evaluate the effects of a treatment (the CICE) on different outcome variables (employment, wages (as well as their categorizing based on socio-professional categories, age, type of contract, and so on) and the activity variables of the company).

First, we consider the following equation for company i:

$$\ln(Y_{it}) = \alpha_0 + \alpha I(t) + \beta T_{it} + \gamma X_{it} + \varepsilon_{it} \quad (1)$$

The dependent variable of the model is the logarithm of the outcome variable Y_{it} observed on *t* date, with T_{it} referring to the treatment variable. X_{it} refers to a set of observable control variables (variables that are potentially correlated with the outcome and treatment variable). $I(t)$ is a time dummy. ε_{it} represents the error term that is written as $\varepsilon_{it} = v_i + u_{it}$, in which v_i is an individual unobserved fixed effect differentiating companies and is potentially correlated with X_{it} , while u_{it} is a random term that is independent of the control variables.

In order to estimate the effect of the CICE on the variables of interest, we differentiate the equation (1):

$$\Delta\ln(Y_{it}) = \alpha + \beta \Delta T_{it} + \gamma \Delta X_{it} + \epsilon_{it} \text{ with } \epsilon_{it} = \Delta\varepsilon_{it} = \Delta u_{it} \quad (2)$$

where: $\Delta X_{it} = X_{it} - X_{it-1}$ and $\Delta T_{it} = T_{it} - T_{it-1}$ and for 2013 $\Delta T_{it} = T_{it}$ insofar as $T_{it-1} = 0$. $\Delta\ln(Y_{it}) = \ln(Y_{it}) - \ln(Y_{it-1})$ which is approximately equal to the growth rate of the outcome variable.

However, some companies have benefited more from the CICE than others. Moreover, the effect of the CICE can vary depending on the benefit generated by the treatment. To take into account the non-linearity of the effect of the treatment, indicators are introduced for different treatment intensity in equation (2):

$$\Delta\ln(Y_{it}) = \alpha + \sum_{j=2}^{j=J} \beta_j I_j(\Delta T_{it}) + \gamma \Delta X_{it} + \epsilon_{it} \text{ with } \epsilon_{it} = \Delta\varepsilon_{it} = \Delta u_{it} \quad (3)$$

In which $I_j(T_{it})$, *j=1,…J (with J=4)* is a set of dummies corresponding to quartiles of the degree of benefit from the CICE.

Then, to avoid simultaneity between the controls and the dependent variable, we controlled for past variations in X_{it}, i.e. for ΔX_{it-1}, rather than considering current values, ΔX_{it} . As this may not be enough, we add levels X_{it-1} and also Y_{it-1}. In addition, a set of dummies is introduced to take into account sectoral effects or those related to company size in *t-1*:

$$\Delta\ln(Y_{it}) = \alpha + \sum_{j=1}^{j=J} \beta_j I_j(\Delta T_{it}) + \gamma_0 Y_{it-1} + \gamma \Delta X_{it-1} + \delta X_{it-1} + \sum_{k=1}^{k=K} \delta_k size_{ik} + \sum_{l=1}^{l=L} \delta_l sector_{il} + \epsilon_{it} \quad (4)$$

Thus, for 2013, we use the information from 2011-2013 and the estimated equation is

$$\Delta \ln(Y_{i2013}) = \alpha + \sum_{j=2}^{j=J} \beta_j I_j(T_{i2013}) + \gamma_0 Y_{i2012} + \gamma \Delta X_{i2012} + \delta X_{i2012} + \sum_{k=2}^{k=K} \delta_k size_{ik,2012} + \sum_{l=2}^{l=L} \delta_l sector_{il,2012} + \epsilon_{i2013}$$

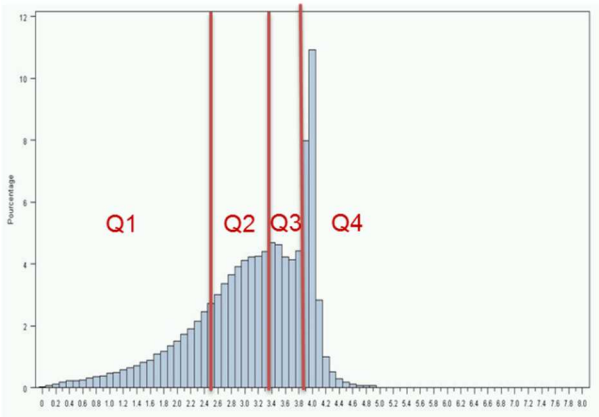
In which: $\Delta X_{i2012} = X_{i2012} - X_{i2011}$ and $\Delta \ln(Y_{i2013}) = Y_{i2013} - Y_{i2012}$.

For 2014, we consider the same equation, but to estimate the effect of the CICE variation perceived in 2014 on the evolution of employment between 2013 and 2014. To avoid other endogeneity problems, exactly the same controls are considered as for the equation estimated in 2013 (level of the *Xs* in 2012 and variation of the *Xs* between 2011 and 2012). Finally, a last estimate is considered to estimate the effect of the average CICE rate over 2013 and 2014 (variation of the CICE rate between 2013-2014 and 2012 on the evolution of the outcome variable between 2012 and 2014).

Treatment variable

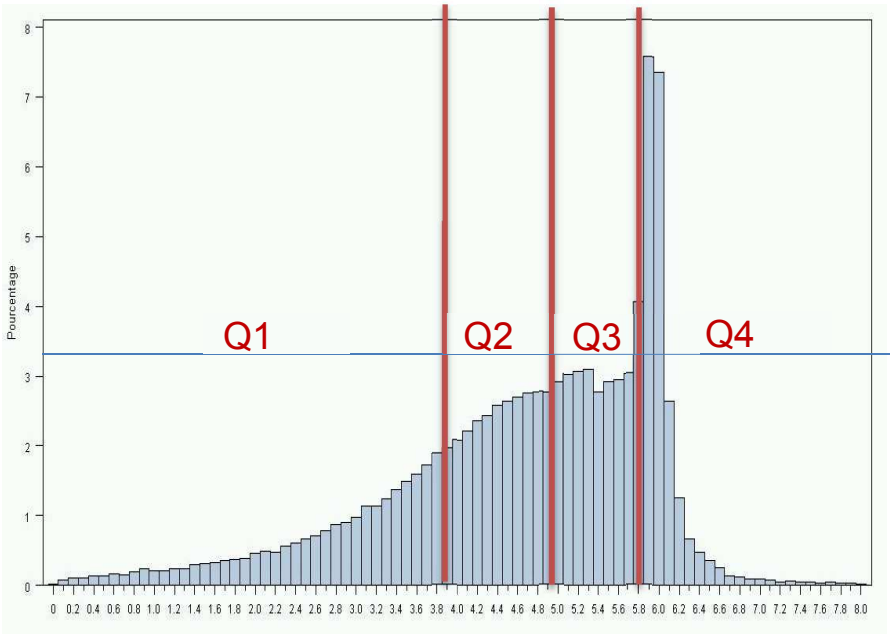
The apparent rate of the CICE tax credit relates the amount of CICE from the MVC database to the gross wage bill from the DADS. Its distribution is shown in Figure 2. The average is 2.57% in 2013 and 3.82% in 2014. The median is 3.26 in 2013 and 4.09 in 2014. There is a mass point at the rate of 4% where companies that have no employees paid above 2.5 Smic are located. We distinguish between companies based on how much they have benefited from the CICE by creating four groups composed of the same number of companies from those that benefit least from the CICE to those that benefit most, thus establishing four different classes of companies.

Figure 2. Density of the apparent CICE ratio in 2013.



Sources: BRC (Acoss), DADS-FARE (Insee), and MVC (Dgfip).
Field: Balanced panel of 133,890 companies with 5 or more employees during the 2009-2014 period.

Figure 2. Density of the apparent CICE ratio in 2014.



Sources: BRC (Acoss), DADS-FARE (Insee), and MVC (Dgfip).
Field: Balanced panel of 133,890 companies with 5 or more employees during the 2009-2014 period.

Outcome variables

Two indicators were chosen to measure the evolution of employment: the growth rate of the average company workforce over the year, and the workforce at the end of the year (i.e. the 31 of December). We consider three kind of comparisons: between 2012 and 2013, between 2013 and 2014, or between 2012 and 2014. To measure the impact on wages, we focus on the increase in average wages in the company and in the total payroll. It should be noted that that the average salaries in the company are affected by composition effects, in terms of changes in the structure of employment, which distinguishes them from individual wages. These outcomes are completed by evaluating the impact of the CICE on the evolution of individual wages. To evaluate the effects of the CICE on the company's activity, we have taken into account the evolution of gross sales, of added value, of the gross operating surplus, of net income, of profit margins and of return rate, as well as of apparent labor productivity. In the same way, we also measure the effects of the CICE on profit margins, on economic viability, or on the investment rate.

Control variables

By merging several exhaustive administrative sources it is possible to consider a large number of control variables in the estimates, and this seems necessary given the differences between the characteristics of the companies that benefit most from the CICE and the others. We have therefore considered a wide range of control variables by combining management indicators from the FARE and indicators on the structure of employment from the DADS. Box 1 provides details on the control variables we have considered.

Box 1. Control variables

For each outcome variable in relative variation, a control is carried out by the initial level of the variable in 2012.
Sector of activity (NAF 2008), in 88 positions.
Company sizes categories (11 classes) from the BRC on 31/12/2012.

Taken from the FARE (year 2012): Initial value of the profit margin (in 2012), as well as of return rate, productivity, capital intensity, share of exports in gross sales, investment rate, debt ratio, and financial levy rate.
Taken from the DADS (year 2012): The share of women, workers, employees, intermediate professions, executives, engineers and technicians in R&D; the share of persons under 30 years of age and 50 and over; the share of CDIs, CDDs, and persons working on a full-time basis.
For all the aforementioned time-varying variables, we finally consider as control variables their variations between 2011 and 2012.

Estimation techniques

We use three methods, all of which correspond to difference-in-differences with instrumental variables methods. Our reference estimate is a cross section regression of the growth rate of each outcome variable on the treatment variable taking into account many control variables. To these estimates, we added results provided by cross section semi parametric estimators, which rely, by using the approach of Frölich and Lechner (2015), which combines matching and instrumental variables. Each company that is benefiting from the CICE is compared to its nearest neighbor in Q1 (see also Frölich, 2007). In a third set of estimates, we used the panel dimension of our data (for 2011-2014) by introducing the control variable coefficients to be varied each year. In practice, only the workforce segments have time varying coefficients that vary over time.

IV. Results

For each outcome variable, we give the values of the estimated coefficients for each treatment quartile and the associated P-Value. We only comment on coefficients significant at the 5% threshold. We also give the values of corresponding elasticities which indicate the effect of one CICE percentage point on the outcome variable, in percentage points. Each table also displays the outcomes of three tests of the instruments' quality: an over-identification test that focuses on the intensity of the correlation between the instrument and the outcome variable; a weak instrument test that measures the degree of correlation between the instrument and the treatment variable; and an endogeneity test that evaluates the potential effect of the outcome variable on the treatment. The expected configuration for these three tests is rejection/non-rejection/rejection of the null hypothesis. Finally, in order to test the robustness of our results, we use, as much as possible, different statistical sources and different evaluation methods (parametric and semi-parametric cross section estimations; panel parametric estimations).

Effects on employment

With regard to employment, we have two indicators: persons employed as of December 31 and average employment during the year. These two indicators can be measured in three sources: the BRC, the FARE, and the DADS. In total, we can estimate six effects for each company quartile. Findings are provided for two years, i.e. 2013 and 2014.[12]

We find significant and positive effects of the CICE on employment, but only for the quartile of companies that benefit most, i.e. those whose apparent rate is at its maximum, with values of 4% in 2013 and 6% in 2014. It will be recalled that the companies benefiting most are primarily small companies in the tertiary sector (75.6%), with fewer than 20 employees on average.

[12] Detailed results for each year are available on request.

For the three sources, these outcomes only concern the average workforce and not employment on 31/12. This difference may be due to the fact that employment at the end of the year is a less reliable indicator to measure the evolution of employment as it is sensitive to seasonal activity.

Considering the results provided by cross section parametric estimates (Table 2), a simple calculation indicates about 80,000 jobs created or saved.[13] On average, in 2013 and 2014, each CICE percentage point in the companies that benefit most apparently resulted in some 20,000 jobs created or saved (between 13,000 and 25,500 jobs according to the sources). In total, an estimated 100,000 jobs were created or saved during the 2013-2014 period.

Table 2. The effects on employment – Parametric estimate – 2013 and 2014

2013 and 2014		Average workforce			Workforce on 31/12		
		BRC	FARE	DADS	BRC	FARE	DADS
Coefficients	Q2	-1.241 (0.297)	0.763 (0.530)	0.662 (0.559)	-0.394 (0.724)	-2.604 (0.209)	-1.185 (0.552)
	Q3	-0.148 (0.929)	-1.357 (0.332)	-0.351 (0.805)	0.85 (0.519)	2.462 (0.480)	3.399 (0.318)
	Q4	**2.197 (0.037)**	**3.542 (0.005)**	**4.285 (0.000)**	-1.888 (0.085)	-0.866 (0.537)	0.342 (0.676)
Elasticities	Q2	-0.78	0.48	0.42	-0.25	-1.64	-0.75
	Q3	-0.06	-0.58	-0.15	0.37	1.06	1.47
	Q4	**0.75**	**1.20**	**1.46**	-0.64	-0.29	0.12
Tests	endogeneity (*)	rejected	rejected	rejected	rejected	rejected	rejected
	overidentification (**)	not rejected	rejected	not rejected	not rejected	not rejected	not rejected
	weak instruments (***)	rejected	rejected	rejected	rejected	rejected	rejected

Sources: BRC (Acoss), DADS-FARE (Insee), and MVC (Dgfip).
Field: Balanced panel of 133,890 companies with 5 or more workers during the 2009-2014 period.
Notes: Treatment variable: apparent CICE rate. (*) H0: (exogeneity of the treatment). (**) H0: (instruments not correlated with the error term). (***) H0: (instruments not correlated with the treatment). Instruments: treatment quartiles simulated by using the previous eligible payrolls (2010 and 2011). Outcome variables are expressed as growth rates. In bold: significant coefficients, valid instruments (tests) of 5%.
Reading: In 2013, companies in the second quartile of the distribution of apparent CICE rates had a growth rate of their average workforce of 0.982 points below that of the first quartile. This coefficient is derived from an estimate by instrumental variables taking into account all control variables. The p-values are given in brackets. Elasticities are the ratios of estimated coefficient to the value corresponding to the average spread of the apparent rate between the 2nd and 1st quartile of the distribution of the apparent rates. For 2013, the average levels of apparent CICE rates are 1.43 in the first quartile, 2.99 in the second, 3.53 in the third, and 4 in the last.

The semi-parametric estimates with instrumental variables are provided in Appendix 1, Table 9. The coefficients for 2013 and 2014 are once again significant and positive, for all indicators, with higher absolute values than in the parametric case. The average value of all significant elasticities is 1.82, which corresponds by rule of three to 32,000 jobs created or saved per CICE percentage point, i.e. more than one and a half times the result found in the case of the

[13] For example, in 2013, the average of the significant elasticities is 1.16. The fourth quartile includes 25% of companies but they are smaller and account for only 12.5% of all 14 million salaried jobs in the market sectors in France. The CICE rate is 4%. The number of jobs created or saved (or preserved) is therefore 1.16 x 12.5% x 14 million x 4% = 81,200.

parametric regression. This is how the figure of 156,000 jobs created or saved on average during the 2013-2014 period has been reached.

The panel estimates[14] are reported in Appendix II (Table 16); they also indicate a positive effect on employment only in companies that have benefited most from the CICE. This effect was significant in 2013 and in 2014. These panel estimates also suggest a fairly clear increase in such effects between the two years, with an average elasticity of 0.87 in 2013 compared to 5.51 in 2014. According to these estimates, a mere 15,000 jobs were created per CICE point in 2013 compared to 96,000 in 2014. In 2013, it would appear that more than 60,000 jobs were created or saved, and more than 190,000 in 2014. On average, during the 2013-2014 period, some 126,000 jobs were thus created or saved.

The outcomes in the tables concern actively employed individuals. Complementarily, Table 3 presents outcomes regarding hours of work. First of all, we show that the CICE had a positive effect on the total number of hours worked, still only for the quartile of companies that benefit most, i.e. those that benefited from the full CICE rate, in 2013 as in 2014. The following table then reveals that there is no perceptible effect on hours worked per capita, that is, on the average working hours.

Table 3. Effects on hours worked - Parametric estimates.

2-A Total hours worked		2013	Δ2014	2013 and 2014
Coefficients	Q2	1.11 (0.132)	0.352 (0.894)	1.569 (0.375)
	Q3	-1.525 (0.091)	4.473 (0.341)	0.7 (0.809)
	Q4	**3.719 (0.000)**	0.067 (0.986)	**5.039 (0.000)**
Elasticities	Q2	0.85	0.50	0.99
	Q3	-0.81	4.47	0.30
	Q4	**1.56**	0.05	**1.71**
Tests	endogeneity (*)	rejected	not rejected	rejected
	overidentification (**)	not rejected	not rejected	not rejected
	weak instruments (***)	rejected	not rejected	rejected

Hours worked per capita		2013	Δ2014	2013 and 2014
Coefficients	Q2	0.297 (0.495)	-0.933 (0.691)	-0.145 (0.907)
	Q3	0.502 (0.339)	4.93 (0.247)	3.151 (0.158)
	Q4	0.63 (0.103)	-2.405 (0.480)	0.761 (0.142)
Elasticities	Q2	0.23	-1.33	-0,09
	Q3	0.27	4.93	136
	Q4	0.26	-1.81	0.26

[14] In the panel estimates of Appendix II, the instruments are the simulated CICE rates for 2011 and 2012. We also ran these regressions with simulated rates for 2010 and 2011, with almost identical outcomes.

Tests	endogeneity (*)	rejected	not rejected	not rejected
	overidentification (**)	not rejected	not rejected	not rejected
	weak instruments (***)	rejected	not rejected	rejected

Sources: BRC (Acoss), DADS-FARE (Insee), and MVC (Dgfip).
Field: Balanced panel of 133,890 companies with 5 or more workers during the 2009-2014 period.
Notes: Treatment variable: apparent CICE rate. (*) H0: (exogeneity of the treatment). (**) H0: (instruments not correlated with the error term). (***) H0: (instruments not correlated with the treatment). Instruments: treatment quartiles simulated by using previous eligible payrolls (2010 and 2011). Outcome variables are expressed as growth rates. In bold: significant coefficients, valid instruments (tests) of 5%.

These outcomes were confirmed by the semi-parametric estimates presented in Appendix 1 (Table 10). The effect is positive on hours worked, but only for the quartile of companies most exposed to the treatment. The same applies to the panel estimates in Appendix II (Table 17). The positive effect on hours worked is thus a robust outcome for all estimation techniques.

Table 4 Effects on employment structure - Parametric estimate – 2013 and 2014

2013 and 2014		Blue Collar Workers	Employees	Intermediate professions	Executives	Eng. R&D	Tec. R&D	CDI	CDD	Full-time workers	Women	- 30 years of age	+ 49 years of age
Coefficients	Q2	3.322	1.172	-0.347	**-6.411**	3.019	-9.232	0.326	9.220	1.395	-1.378	-2.474	**4.201**
		(0.098)	(0.645)	(0.876)	**(0.014)**	(0.666)	(0.986)	(0.813)	(0.150)	(0.262)	(0.586)	(0.413)	**(0.026)**
	Q3	3.658	4.140	3.543	3.402	-10.710	-6.078	-1.336	5.434	-2.554	-2.121	0.130	-1.412
		(0.112)	(0.349)	(0.260)	(0.392)	(0.123)	(0.556)	(0.452)	(0.413)	(0.074)	(0.497)	(0.970)	(0.447)
	Q4	**7.198**	**7.937**	-3.056	**-24.843**	-11.021	-7.375	**5.466**	**15.936**	**4.318**	1.316	0.977	**9.142**
		(0.004)	**(0.029)**	(0.285)	**(0.000)**	(0.356)	(0.697)	**(0.000)**	**(0.003)**	**(0.001)**	(0.527)	(0.697)	**(0.000)**
Elasticities	Q2	2.09	0.74	-0.22	**-4.03**	1.90	-5.81	0.21	5.80	0.88	-0.87	-1.56	**2.64**
	Q3	1.58	1.78	1.53	1.47	-4.62	-2.62	-0.58	2.34	-1.10	-0.91	0.06	-0.61
	Q4	**2.45**	**2.70**	-1.04	**-8.45**	-3.75	-2.51	**1.86**	**5.42**	**1.47**	0.45	0.33	**3.11**
Tests	endogeneity (*)	rejected	not rejected	rejected	rejected	n/a	n/a	rejected	not rejected	rejected	rejected	rejected	rejected
	overidentification (**)	not rejected	not rejected	not rejected	not rejected	n/a	n/a	not rejected	not rejected	not rejected	not rejected	not rejected	not rejected
	weak instruments (***)	rejected	rejected	rejected	rejected	*rejected*	*rejected*	rejected	rejected	rejected	rejected	rejected	*rejected*

Sources: BRC (Acoss), DADS-FARE (Insee), and MVC (Dgfip).
Field: balanced panel of 133,890 companies with 5 or more workers during the 2009-2014 period.
Notes: Treatment variable: apparent CICE rate. (*) H0: (exogeneity of the treatment). (**) H0: (instruments not correlated with the error term). (***) H0: (instruments not correlated with the treatment). Instruments: treatment quartiles simulated by using previous eligible payrolls (2010 and 2011). Dependent variables are expressed as growth rates. In bold: significant coefficients, valid instruments (tests) of 5%.

As Table 4 focuses on employment structure, it is possible to determine what type of job benefited from the CICE. It may be noted beforehand that in the companies benefiting most from the CICE, wage earners are mainly employees and blue-collar workers. The share of intermediate professions and managers is quite low. The most significant effects are a positive impact on the jobs of workers and employees for all types of full-time contracts – thus benefiting senior employees – but only in companies in the fourth quartile, i.e. those who received the maximum CICE rate. The employment of managers was negatively impacted, both in this quartile and also in the second quartile.

The semi-parametric estimates in Appendix 1 (Table 11) produce slightly different outcomes. They lead to negative findings for employees in Q2 and positive effects for intermediate professions and blue-collar workers in Q4 (Table 11). They robustly point to negative employment effects for executives and positive ones for the employment of blue-collar workers in Q4.

The panel estimates in Appendix 2 (Table 18) confirm this negative outcome for the employment of executives and positive one for the employment of workers in Q4, in both 2013 and 2014. They also confirm the positive impact as regards employees and workers in the companies that benefit most from the CICE. The effect on intermediate professions is less robust: it is positive in 2014 for companies in Q3 and negative for those in Q4. These panel estimates also find a positive effect on short- and long-term contracts, on full-time jobs, and on jobs for people under 30 (in 2013 only), as well as for those over 50, in companies in Q4.

Effects on wages

The results regarding wages appear to vary depending on data sources and indicators. For 2013 and 2014, we find rather negative or insignificant effects on average wages, both for average wages per capita and average hourly wages, for the companies that benefit least from the CICE (Q2). But the effects are on the positive side for the companies that benefit most, in two of the three available sources.

Table 5. The effects on average wages in the company - Parametric estimate -2013 and 2014

2013 and 2014		Average annual salary per capita			Average hourly wage
		BRC	FARE	DADS	DADS
Coefficients	Q2	-0.775 (0.647)	-2.441 (0.163)	**-4.188** **(0.008)**	**-3.081** **(0.000)**
	Q3	-0.591 (0.809)	1.169 (0.514)	0.656 (0.810)	-1.313 (0.084)
	Q4	**2.504** **(0.016)**	**2.120** **(0.076)**	-1.445 (0.163)	-1.301 (0.063)
Elasticities	Q2	-0.49	-1.54	**-2.63**	**-1.94**
	Q3	-0.25	0.50	0.28	-0.57
	Q4	**0.85**	**0.72**	-0.49	-0.44
Tests	endogeneity (*)	rejected	rejected	rejected	rejected
	overidentification (**)	not rejected	not rejected	not rejected	not rejected
	weak instruments (***)	rejected	rejected	rejected	rejected

Sources: BRC (Acoss), DADS-FARE (Insee), and MVC (Dgfip).
Field: Balanced panel of 133,890 companies with 5 or more workers during the 2009-2014 period.
Notes: Treatment variable: apparent CICE rate. (*) H0: (exogeneity of the treatment). (**) H0: (instruments not correlated with the error term). (***) H0: (instruments not correlated with the treatment). Instruments: treatment quartiles simulated by using previous eligible payrolls (2010 and 2011). Dependent variables are expressed as growth rates. In bold: significant coefficients, valid instruments (tests) of 5%.

In the semi-parametric regressions of Appendix 1, the effects on annual average salaries or hourly wages are consistently negative when significant (Table 12). This is the case for almost all indicators for the companies that benefit most from the CICE (Q4).

The panel estimates of Appendix 2 (Table 19) also lead to negative results on average salaries. This is the case in 2013 in the DADS for companies in Q2, for salary per capita, as well as for the hourly wage. This is also the case in 2014 in the FARE and the DADS for companies in Q2 and in the BRC for those in Q4. Only one significant coefficient is positive, which is the effect on hourly wages for companies in Q4 in 2013.

If we look at individual hourly wages by wage earner category, the effects of the CICE on wages once again seems mixed. There is a rather negative effect on hourly wage formation in companies that do not benefit much (Table 6) and a positive effect on hourly wages of managers in companies that benefit most. The effects on wages therefore appear to be differentiated according to employee categories, years, and how much the company benefits from the CICE.

Comparable results emerge in Table 13 in the appendix, on the basis of semi-parametric estimates. The effects on individual hourly wages emerge as negative for employees in companies in Q3 and positive for executives of companies in Q4, in 2013, as well as for all of 2013 and 2014.

The positive effect for executives in companies in Q4 is confirmed in 2013 with panel estimates as well as the negative effect observed on wage growth in companies that do not benefit much from the CICE (Q2) (Appendix 2, Table 20).

Table 6. Effects on individual hourly wages - Parametric estimates -2013 and 2014.

2013 and 2014	Individual hourly wage

		All	Blue-collar Workers	Employees	Intermediate professions	Executives
Coefficients	Q2	**-6.110**	1.996	-0.204	**-6.106**	-3.109
		(0.002)	(0.818)	(0.973)	**(0.037)**	(0.303)
	Q3	-3.002	8.307	5.759	-0.982	2,435
		(0.116)	(0.308)	(0.305)	(0.736)	(0.448)
	Q4	-0.572	3.058	12.030	4.609	**11.233**
		(0.725)	(0.822)	(0.420)	(0.284)	**(0.000)**
Elasticities	Q2	**-3.84**	1.26	-0.13	**-3.84**	-1.96
	Q3	-1.29	3.58	2.48	-0.42	1.05
	Q4	-0.19	1.04	4.09	1.57	**3.82**
Tests	endogeneity (*)	rejected	rejected	not rejected	rejected	rejected
	overidentification (**)	not rejected	not rejected	not rejected	not rejected	not rejected
	weak instruments (***)	rejected	rejected	rejected	rejected	rejected

Sources: BRC (Acoss), DADS-FARE (Insee), and MVC (Dgfip).
Field: Balanced panel of 133,890 companies with 5 or more workers during the 2009-2014 period.
Notes: Treatment variable: apparent CICE rate. (*) H0: (exogeneity of the treatment). (**) H0: (instruments not correlated with the error term). (***) H0: (instruments not correlated with the treatment). Instruments: treatment quartiles simulated by using previous eligible payrolls (2010 and 2011). Outcome variables are expressed as growth rates. In bold: significant coefficients, valid instruments (tests) of 5%.

The effects on payroll, which combine the effects on employment and wages, are more clear-cut. The effect appears to be positive, but only for the last quartile (Table 7).

Table 7. Effects on payroll - Parametric estimate -2013 and 2014

2013 and 2014		Payroll		
		BRC	FARE	DADS
Coefficients	Q2	0.886	-0.573	1.504
		(0.487)	(0.711)	(0.257)
	Q3	2.200	0.497	2.361
		(0.283)	(0.810)	(0.254)
	Q4	**5.798**	**4.160**	**6.682**
		(0.000)	**(0.001)**	**(0.000)**
Elasticities	Q2	0.56	-0.36	0.95
	Q3	0.95	0.21	1.02
	Q4	**1.97**	**1.41**	**2.27**
Tests	endogeneity (*)	not rejected	not rejected	not rejected
	overidentification (**)	not rejected	rejected	not rejected
	weak instruments (***)	rejected	rejected	rejected

Sources: BRC (Acoss), DADS-FARE (Insee), and MVC (Dgfip).
Field: Balanced panel of 133,890 companies with 5 or more workers during the 2009-2014 period.
Notes: Treatment variable: apparent CICE rate. (*) H0: (exogeneity of the treatment). (**) H0: (instruments not correlated with the error term). (***) H0: (instruments not correlated with the treatment). Instruments: treatment quartiles simulated by using previous eligible payrolls (2010 and 2011). Outcome variables are expressed as growth rates. In bold: significant coefficients, valid instruments (tests) of 5%.

There is also a positive effect on payroll with semi-parametric estimates for 2013 and 2014 (Table 14 in Appendix 1), but it is more pronounced in 2014 than in 2013, consistent with previous employment findings. The same kind of results are found considering the panel

estimates (Table 21 in Appendix 2). The positive effect on payroll is in the quartile of companies that benefit most, and is more pronounced in 2014 than in 2013.

Effects on the economic activity of companies

Measurement of the effects of the CICE on the economic activity of companies is dependent on the manner in which companies actually recorded the tax credit in their accounts. There were a number of accounting possibilities at their disposal: as a deduction of personnel expenses, which increases the gross operating surplus without affecting added value; as a subsidy or operating revenue, which increases the gross operating surplus and added value by the same amount; or by deducting it from the corporate tax, which is neutral for both added value and the gross operating surplus. This variety in the manner of accounting for the CICE is an argument for multiplying the indicators tracing the evolution of profit margins and the profitability of companies. This is done in Table 8 where we not only observe the effect of the CICE on gross operating surplus but also on net income.

The effect appears to be negative on the gross sales of companies that benefit least (Table 7). It is positive on corporate earnings in the third quartile and on the gross operating surplus of companies in the fourth quartile. There is no noticeable effect on investment or productivity. No effect on dividends appears either.

Table 15 in Appendix 1 completes these results by considering semi-parametric estimates. Once again, there are intermittent indications of positive effects on company accounts, with a positive effect on the gross operating surplus of companies in Q3. There are also positive effects on corporate gross sales in Q4. The same applies to added value. These regressions do not lead to results in terms of investment and dividends.

Table 22 in Appendix 2 presents the equivalent results for panel estimates. We find positive effects on corporate earnings in Q3 in 2013 but a negative effect on the gross operating surplus. There is also a positive effect in 2013 for companies in Q4 as regards added value and profits. These estimates also indicate a negative effect on corporate gross sales in Q2 in 2014.

Whatever the chosen estimation method, we find no impact in 2013 and 2014 of the CICE on investment, productivity, profit margin, and return rate.

Table 8. Effects on the activity of companies - Parametric estimates -2013 and 2014.

2013-2014		Gross sales	AV	GOS[(1)]	Accounting result[(1)]	Profit margin[(1)]	Return rate[(1)]	Investment	Productivity[(1)]	Dividends[(1)]
Coefficients	Q2	**-3.546**	-0.725	31.071	109.346	0.02533	0.04580	-18.230	2.025	-31.843
		(0.044)	(0.717)	(0.594)	(0.130)	(0.553)	(0.307)	(0.324)	(0.538)	(0.493)
	Q3	-0.679	-1.011	-82.412	**402.765**	0.10723	0.00800	-3.016	-2.306	-13.037
		(0.780)	(0.682)	(0.100)	**(0.017)**	(0.213)	(0.865)	(0.892)	(0.410)	(0.801)
	Q4	-0.714	2.389	**174.087**	-176.731	0.0761	-0.03645	-14.928	1.822	-73.178
		(0.689)	(0.156)	**(0.029)**	(0.385)	(0.907)	(0.499)	(0.379)	(0.077)	(0.267)
Elasticities	Q2	**-2.23**	-0.46					-11.47		
	Q3	-0.29	-0.44					-1.30		
	Q4	-0.24	0.81					-5.08		
Tests	endogeneity (*)	rejected	not rejected	rejected	not rejected	not rejected	not rejected	not rejected	rejected	not rejected
	overidentification (**)	not rejected	not rejected	not rejected	not rejected	not rejected	not rejected	not rejected	not rejected	not rejected
	weak instruments (***)	rejected	rejected	rejected	rejected	rejected	rejected	rejected	rejected	rejected

Sources: BRC (Acoss), DADS-FARE (Insee), and MVC (Dgfip).
Field: Balanced panel of 133,890 companies with 5 or more workers during the 2009-2014 period.
Notes: Treatment variable: apparent CICE rate. (*) H0: (exogeneity of the treatment). (**) H0: (instruments not correlated with the error term). (***) H0: (instruments not correlated with the treatment). Instruments: treatment quartiles simulated by using previous eligible payrolls (2010 and 2011). Outcome variables are expressed as growth rates. In bold: significant coefficients, valid instruments (tests) of 5%.
(1) In absolute variation. Elasticities were not calculated for these variables.

Conclusion

The *Crédit d'Impôt pour la Compétitivité et l'Emploi* (tax credit for competitiveness and employment) constitutes a major reform both in terms of the fight against unemployment and of assistance for companies. Starting from an initial amount of more than 10 billion euros in 2013, the first year of implementation, this assistance reached almost 20 billion euros each year between 2014 and 2016, before being raised to nearly 25 billion in 2017, i.e. more than two GDP percentage points.

The CICE is a massive and general form of assistance which is not very focused with regard to its use. Our empirical approach has been designed to enable us to reproduce this potential diversity in how the CICE is used by companies. First, we study a broad spectrum of potential uses since we are interested in a wide variety of outcome variables, including employment, wages, and many indicators of the economic activity of companies. Second, we evaluate the results by differentiating from the onset several classes of companies, depending on how much they have benefited from the CICE, without assuming that practices were the same in all cases. We also differentiate the results according to years, so as to be able to reproduce differences according to periods. Finally, we also apply multiple data sources, indicators for each variable, and estimation techniques in order to find robust effects in all these dimensions. We complete the year by year parametric regressions with panel estimates, while also using semi-parametric estimates that combine matching and instrumental variables.

Overall, we find fairly mixed results depending on the variables considered. We have detected effects for many variables, but when we detect a significant result, it is most often specific to a given year, a particular company class, or a specific indicator. These contrasts undoubtedly reflect the variety of uses of the CICE by companies. There were clearly neither one or two very dominant responses to the implementation of the CICE but instead a wide variety of reactions specific to each company.

However we also find some robust results, which are confirmed independently from the data, periods, and investigation methods. The first of these results concerns employment. We find a positive effect on average employment, payroll, and the volume of hours worked, limited to companies that benefited from the maximum CICE rate, which are, three times out of four, companies in the tertiary sector with fewer than twenty employees. This positive but weak effect in terms of its magnitude is accompanied by a change in the structure of employment, with an increase in employee and worker employment, and a decline in managerial employment.

The second result is on corporate margins. We find a positive effect on a number of indicators of profitability and outcomes, with differences according to company class, years, and indicators, which undoubtedly illustrate the diversity of the CICE accounting methods in corporate accounts.

A third result concerns the absence of a "robust" effect of the CICE on investment, productivity, or dividends. It will be interesting to verify the stability of this result in the data for 2015.

The effect on individual wages is much less clear. It appears to have been rather negative in 2013, in particular for workers of companies that benefit least from the CICE, and positive in 2014, mainly for managers in the companies that benefit most from the CICE (suggesting some sort of annuity sharing mechanism). Managers have therefore seen both their employment situation deteriorate and their remuneration improve as a result of the CICE.

These results suggest that company practices have been different according to the intensity of benefit from the CICE. In companies that benefited only slightly (those in Q2), the effects were

not very noticeable and the main economic behaviors were not strongly affected. In companies that benefited a little more (belonging to Q3), it is mainly company treasuries that benefited from it, with a favorable effect on outcomes. In companies that benefited most from the CICE (Q4), we note effects on employment, both in level and in structure, on wages, in particular those of managers, and on added value and profits.

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Appendices

To be added