

Lavoro: partecipazione, dinamica e valutazione di politiche

Misura, metodi, modelli

Progetto anno 2003

Financial support to permanent jobs. The Italian case

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Working Paper n. 71, novembre 2005

Metodi e studi di valutazione degli effetti di politiche del lavoro, di aiuto alle imprese e di welfare

Cofinanziamento MIUR, anno 2003

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1. Introduction ♦

In the last few years, fixed-term contracts have taken centre stage in the economic debate on labour market reforms in Europe. The debate has mostly focused on two main features. The first one deals with the magnitude of the phenomenon: very rapidly, temporary jobs have become a major novelty in the European labour markets. Table 1 shows that in many OECD countries a sizeable share of employees worked under fixed-term contracts in the year 2000. In some countries (such as Ireland, UK, Luxembourg and Hungary) they still represent a small share, but in most cases they appear to account for at least 10 per cent of total employees; in a few countries these shares are even higher: 32.1 in Spain, 20.4 in both Portugal and Turkey. Only ten years earlier temporary work represented a much smaller fraction of employment.

The second feature originates from the observation that in several countries – such as Austria, the Czech Republic, Finland, France, Germany and Italy - a sizeable portion of newly created jobs in the 1990s took the form of fixed-term contracts (Table 1)

This rapid expansion has fuelled researchers' effort to understand the effects of fixed-term contracts on labour market outcomes. At this stage there is an unsettled dispute in the literature concerning their effectiveness. On the one hand it is suggested that, by introducing some form of flexibility into an otherwise highly regulated labour market, they tend to provide young workers with a stepping-stone towards permanent employment (Booth, Francesconi, and Frank 2002 for the UK; Contini, Pacelli and Villosio 2000 for the UK, Germany and Italy). On the other hand, there is increasing evidence that they might represent a “dead-end”, in that they further segment the labour market between insiders holding open-end contracts and outsiders who find themselves confined at the margins, trapped between repeated spells of unemployment and fixed-term contracts (Blanchard and Landier, 2002 for France; Güell, 2002 and Güell and Petrongolo, 2005; Amuedo-Dorantes, 2000 and 2001 for Spain; Istat, 2000 for Italy).

In its 2002 Employment Outlook, the OECD attempts to strike a fair balance suggesting that “Depending on the country considered, between one-third and two-thirds of temporary workers [including temporary work agency workers] move into a permanent job within a two-year time interval, suggesting considerable upward mobility. The other side of the coin is that up to one-fourth of temporary workers are unemployed when interviewed one and two years later, and employers provide significantly less training to temporary than to permanent workers” (OECD, 2002).

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This strand of literature however has remained silent regarding the recent spurring of policy maker intervention on fixed-term contracts trying to reduce their negative effects while retaining their positive aspects. According to the OECD (2002), governments have intervened both by setting restrictions on the adoption of temporary contracts (and the degree of employment protection accorded to “permanent” employees) and by establishing equal-treatment standards requiring employers to harmonize pay or fringe benefits between temporary and permanent employees, as well as by providing employers with incentives to either hire certain disadvantaged job-seekers on temporary jobs or move them into permanent positions.

Notwithstanding these legislative activities, best practices are yet to be found and there is substantial uncertainty about the best way to proceed, perhaps because of the lack of clear-cut evidence from empirical research. Therefore an evaluation of previous interventions in order to identify their possible pitfalls might be a useful tool to design appropriate policies which can avoid large dead-weight losses.

This paper is a contribution in this direction. We examine the effects of a generous tax credit which was granted by the Italian Government to firms choosing to hire workers under open-end rather than fixed-term contracts¹; in the intentions of the legislator, this financial incentive should have made profitable for firms to hire more people as permanent rather than temporary workers. We follow these original intentions and address two specific questions about the effects of the tax credit. On the one hand, we examine whether this new incentive did actually increase an average worker’s likelihood of being hired with an open-end contract. On the other hand, we investigate whether the probability change was homogenous across workers, i.e. whether it provided everybody with an additional opportunity of entering permanent employment or rather favoured only specific workforce groups.

Results seem to indicate that most of the financial support was wasted as dead-weight loss; while overall employment probability did not change significantly, there is some weak evidence that firms used this subsidy mainly to hire well-educated workers on a permanent basis; perhaps those who would have been hired with such contracts regardless of the subsidy, albeit after a short transition through temporary employment. Our estimates suggest that the subsidy did indeed increase the probability of being hired with an open-end contract but in a rather uneven

¹ As in others countries, in Italy fixed-term contracts have received a great deal of attention from policy-makers, business associations and unions. In the 1990s, the adoption of fixed-term contracts was encouraged by widening their scope and easing the regulatory burden; at the same time firms received incentives to transform temporary into permanent jobs. However, policy design was not always fully consistent and might have induced unwanted and non-trivial negative implications. In Spain this same strategy has been adopted since the second half of the 1990s with two important laws (Royal Decree 8/1997 and Royal Decree 9/1997), which reduced social security contributions and dismissal costs for employers who transformed temporary into permanent contracts (Amuedo-Dorantes 2000, 2001).

way across workers. The probability rose by almost 8.5 percentage points for workers holding at least an high-school degree who were previously working with a fixed-term “training contract”², and by about 11 percentage points for those unemployed with some previous working experience. The other groups, such as less educated workers or those out of the labour force, were basically unaffected. In the south the effect seems to be stronger as a consequence of the larger saving on labour cost due to higher per capita tax credit and lower wages. There is also some weak evidence of the fact that in this area the tax credit increased the chances of getting a job, either temporary or permanent, for better educated people.

The rest of the paper is organized as follows. Section 2 explains in some detail the nature of the tax credit provision introduced in Italy at the end of the year 2000. We focus our attention on the regulatory aspects, the size of the incentive and its actual usage. Section 3 presents the effects of the tax credit as predicted by a simple conceptual framework; section 4 is devoted to the description of the data used and to comment preliminary evidence. Section 5 sets up the statistical framework and discusses the results. Section 6 addresses the effect of the tax credit on overall employment, while section 7 concludes

2. The tax credit³

2.1 Regulation

Like many other OECD countries, Italy has attempted to reduce the negative effects of fixed-term contracts. The strategy adopted sought to increase the mobility out of fixed-term contracts by providing fiscal incentives to firms that either transform temporary into permanent positions or directly hire workers under open-end contracts. There are several examples of this strategy⁴. However, until the year 2000 these incentives were small and often targeted to particular areas, firm types or worker categories.

The seventh paragraph of the Italian Finance Law for the year 2001 (issued at the end of the year 2000) introduced a new hiring incentive in the form of a general, automatic and quite generous tax credit to all firms hiring workers with open-end contracts. In particular, the provision stated that, starting from October 2000, every firm (actually “employer”) hiring a new worker on a permanent basis would be rewarded with a tax credit of about €413 per month and per worker from the moment of hiring until the end of December 2003.

² A type of fixed-term contracts, which is particularly targeted to young job seekers; for more details, see Cipollone and Guelfi 2003.

³ This section heavily draws on Cipollone-De Maria-Guelfi, 2004.

⁴ For example, the incentives to transform “training contracts” (see previous footnote) into permanent ones or the tax credit for small firms hiring permanent workers in economically depressed areas

For workers in the southern regions of the country, this monthly amount raised to about €620. Thus, for a worker hired in October 2000 in the South and retained until December 2003 each firm could receive about € 24,200⁵. Eligibility criteria look quite mild. A worker was eligible if she/he was at least 25 years of age, provided she/he did not hold a permanent position in the 24 months preceding her/his hiring. A firm was eligible if the newly hired worker raised the overall level of permanent employment - at the firm level - above the average recorded between October 1999 and September 2000. The tax credit could be claimed against any kind of taxes, such as income tax, social security contributions, value-added tax. Furthermore, it could be passed on to different fiscal years and can be cumulated with other existing incentives. Finally, unlike previous similar measures, no other restrictions apply (e.g. disadvantaged areas, firm size thresholds, specific sectors, etc.).

2.2 Magnitude

The contribution provided by this subsidy looks quite generous. Figure 1 shows the percentage reduction in per-capita labour costs due to the tax credit (using data for the year 2000) by sector and geographical area. This reduction is variable because the tax credit is a fixed amount that only increases for southern workers, while the average labour cost differs across both sectors and geographical areas. The evidence shows a labour cost reduction which ranges from 9.3 per cent in the banking sector in the central and northern regions to almost 60 per cent in the agricultural sector in the South. On average, in the private non-farm sector the reduction amounts to about 30 per cent in the South and 16 per cent in the central and northern regions. These estimates understate the effect of the tax credit because labour cost data refer to an average worker, while the correct reference should be the labour cost of a new young worker, which is usually below the average. It should be mentioned, however, that national accounts also include estimates of the labour cost in the underground economy, which is very likely smaller than the legal labour cost for a new entrant; however, this effect only attenuates underestimation.

⁵ This general rule was in force until an important regulatory change was suddenly introduced in the summer of 2002. Indeed, in July 2002 the Italian Government introduced a ceiling of about 652 million euros for the resources available for the new employment bonus. Since this ceiling had already been reached at the beginning of July, the tax credit was suspended. At the end of September 2002, the Government intervened again on this issue. It was decided that firms would have received a tax credit up to a given ceiling of employment growth and that all credits due for the period July-December 2002 should be claimed in 2003 and by instalments. The regulation of the subsidy for the hires taking place during the year 2003 were left instead to the new Financial Law, which simply extended the new September rules to the year 2003 for all firms already benefiting from the tax credit. Moreover it prolonged the functioning of the employment bonus up to 2006 though reducing significantly the granted monthly amounts

2.3 Usage

The new tax credit seems to have been very successful in 2001 and even more so in 2002. We have two sources of information about the actual usage of this new instrument. The first source is the Italian Labour Force Survey (LFS), which provides data on the number of newly hired employees, distinguishing between open-end and fixed-term contracts. Figure 2 reports the quarterly absolute growth in total employees by type of contract with respect to the corresponding period of the previous year. It suggests that in January 2001⁶ - i.e. the first survey since the new tax credit came into force - fixed-term contracts stopped increasing, having been the only source of payroll employment growth since 1993; in October 2001 the number of fixed-term contracts was smaller than one year earlier. However a slow-down had already occurred in the year 2000, although most of it was due to a strong labour demand which turned the labour market into a seller's market, especially in the northern regions, thereby allowing workers to negotiate hires with open-end contracts. In 2001, open-end contracts went up and fully compensated the slow down in fixed-term contracts. This was the largest increase in permanent employment since 1993 and looks quite remarkable given the sharp slow-down in economic activity in 2001 (the growth in value-added in the private sector fell from 4.2 to 2.5 per cent between 2000 and 2001). The resurgence of open-end contracts also characterised the year 2002, when they represented about 86 per cent of the overall increase in dependent employment. However, the graph also shows that starting from April 2002 the progressive worsening of labour market conditions was accompanied by a reappearance of fixed-term contracts

The second source of information is represented by the figures collected by the Ministry of Finance (and reported by the Ministry of Labour⁷), to assess the amount of revenues lost through the tax credit. Figure 3 shows these forgone revenues as a share of total social security contributions and the corresponding number of workers involved in 2001 and in the first five months of 2002. Between January and December 2001, the monthly flow of forgone revenues increased from zero to more than 0.7 per cent of the monthly flow of social contributions. This involved almost 221,000 workers in November 2001, i.e. about 1.4 per cent of total employees. The phenomenon looks even stronger in 2002: in May 2002, monthly flows of forgone revenues reached about 1.1 per cent of social security contributions, involving about 273,000 workers (1.8 per cent of total employees). These figures suggest the tax credit has been a great success, far

⁶ Up to the first quarter of 2004 Italian Labour Force Surveys were conducted in the first weeks of January, April, July, and October, respectively. Thereafter the survey is conducted every week even though the results are released on a quarterly basis.

⁷ See Ministero del Lavoro e delle Politiche Sociali (2002).

beyond the 83,000 workers initially foreseen for the entire subsidized period, i.e. October 2000-December 2003⁸.

3. A simple conceptual framework

We set up a simple conceptual framework to discern whether the tax credit could achieve the results it was designed for. In particular, we addressed two questions: i) Does the tax credit increase the probability of being hired as permanent workers? ii) If so, will all workers equally benefit from the tax credit regardless of their observable characteristics? The model suggests this is not the case. It shows indeed that the best workers (in terms of their observable characteristics) will most probably be hired with open-end contracts. These workers are those the firm would have most likely hired on a permanent basis even without the subsidy, perhaps after a period of temporary employment. At the same time, less able workers would not be affected by the new tax credit.

3.1 Setting

Assume that workers' productivity (p) is unknown *ex ante* to both firms and workers. Both know the probability distribution ($f(p)$) and recognize that people with better personal characteristics (higher education) have higher expected productivity performances. Firms must offer workers either a fixed-term or an open-end contract at a fixed wage (w). Firms and workers live for two periods. If the firm offers a worker a fixed-term contract in the first period, it can fire or retain her/him at no cost at the beginning of the second period. If it fires the worker in the second period, the corresponding job remains vacant. However, when a worker is offered a fixed-term job there exists a positive probability (Q) that s/he is not going to accept this position (maybe because s/he gets an open-end contract elsewhere). We assume that this probability increases with the expected productivity ($Q(E(p))$, $Q' > 0$). If the firm chooses instead to offer a worker an open-end contract in the first period, it has to pay a firing cost (c) if it decides to dismiss her/him at the beginning of the second period. However, open-end contracts are subsidized at rate K . If the worker is fired in the second period, the corresponding job remains uncovered. Wages are exogenously given to firms.

3.2 The value of contracts

In order to decide which contract to offer to each worker, firms need to compute the value of both contracts.

When offering a fixed-term contract, firm's expected profits are given by:

$$(1) \quad E\pi_{FIX} = (1 - Q(E(p))) * \{ (E(p) - w) + P(p \geq w) [E(p | p \geq w) - w] \}$$

⁸ See Bank of Italy (2001).

$$= (1 - Q(E(p))) * \left\{ (E(p) - w) + \int_w (p - w) f(p) dp \right\}$$

that is, the sum of first and second period expected profits provided that the worker accepts the offer and s/he is retained in the second period (this will occur if her/his productivity turns out to be higher than the corresponding wage). The expected value of offering a fixed-term contract increases with expected productivity, while workers whose expected productivity level appears below a given p_{min} (defined as $E\pi_{FIX}(E(p_{min}))=0$) are not going to be hired.

When offering an open-end contract, firm's expected profits are given by:

$$(2) \quad E\pi_{OPEN} = K + (E(p) - w) + P(p \geq w - c)[E(p | p \geq w - c) - w] - P(p < w - c)c$$

$$= K + (E(p) - w) + \int_{w-c} (p - w) f(p) dp - P(p < w - c)c$$

which differs from expression (1) because of the subsidy K , the expected firing cost (c) and the smaller cut-off productivity level due to the existence of firing costs (firms are willing to retain workers even if their productivity lies below the paid wage as long as they save on firing costs).

3.3 Which contract for which worker?

In order to optimally allocate each contract to each type of worker, firms compare the profits expected from each of the two contracts:

$$(3) \quad E\pi_{OPEN} - E\pi_{FIX} = K - \int_{-\infty}^w \min(w - p, c) f(p) dp + Q[E(p)] \left\{ (E(p) - w) + \int_w (p - w) f(p) dp \right\}$$

This equation shows, on the one hand, that even without the tax credit ($K=0$) both contracts can co-exist in the economy (provided that the quit rate is not trivial)⁹, on the other hand that the introduction of the subsidy increases the share of open-end contracts. Both these implications square with the evidence shown in the previous section.

However the crucial point is to verify which worker will be hired under which contract. Our intuition suggests that better educated workers (i.e. with higher expected productivity) will be offered open-end contracts because they have a lower probability of being fired and a higher probability of quitting the firm if offered a fixed-term job. In other words, we want to show that the expected profit difference between open-end and fixed-term contracts tends to increase with worker's expected productivity. Formally, we need to verify that the RHS of equation (3) is larger for higher values of $E(p)$. If this intuition is correct, then firms tend to offer open-end

⁹ Open-end contracts will be offered to those workers for whom $Q[E(p)] \left\{ (E(p) - w) + \int_w (p - w) f(p) dp \right\} > \int_{-\infty}^w \min(w - p, c) f(p) dp$ and $E\pi_{OPEN} > 0$; fixed-term contracts will be offered to those for whom $Q[E(p)] \left\{ (E(p) - w) + \int_w (p - w) f(p) dp \right\} < \int_{-\infty}^w \min(w - p, c) f(p) dp$ and $E\pi_{FIX} > 0$.

contracts to better educated workers and the introduction of the subsidy reinforces this preference.

To illustrate this point we evaluate equation (3) in the case of two workers, differing with each other in their expected productivity. To be formal, let $g(p)$ and $f(p)$ be the productivity distributions of the two workers such that $g(p)=f(p-s)$, that is $g(p)$ is simply the f distribution shifted up by s which is also the shift in the expected values¹⁰. We need to show that the difference between the two contracts is larger when evaluated under $g(p)$ rather than under $f(p)$, so that firms will prefer to offer open-end contracts to expectedly more productive workers. First notice that ¹¹

$$(4) \quad Q[E_f(p)] \left\{ (E_f(p) - w) + \int_w^w (p - w) f(p) dp \right\} \leq Q[E_g(p)] \left\{ (E_g(p) - w) + \int_w^w (p - w) g(p) dp \right\}$$

Therefore we only need to show that $\int_{-\infty}^w \min(w - p, c) g(p) dp \leq \int_{-\infty}^w \min(w - p, c) f(p) dp$.

This inequality is also true because

$$(5) \quad \int_{-\infty}^w \min(w - p, c) g(p) dp \leq \int_{-\infty}^w \min(w - p, c) f(p) dp$$

$$(6) \quad \int_{-\infty}^w \min(w - p, c) f(p - s) dp \leq \int_{-\infty}^w \min(w - p, c) f(p) dp$$

and

$$(7) \quad \int_{-\infty}^{w-s} \min(w - x - s, c) f(x) dx \leq \int_{-\infty}^{w-s} \min(w - p, c) f(p) dp + \int_{w-s}^w \min(w - p, c) f(p) dp$$

Indeed, the second term in the RHS of (7) is positive, while the first term is equal or greater than the LHS.

Thus there are workers, whose expected productivity makes firms indifferent between offering a fixed-term or an open-end contract. Workers with expected productivity below this threshold are offered fixed-term contracts, while workers whose expected productivity lies above it are going to be hired open-end. The cut-off level of expected productivity declines with the subsidy. This implies that the tax credit increases the chances of getting a permanent job for the best educated people who would be hired with temporary contracts in the absence of public financial support.

¹⁰ $\int_{-\infty}^{+\infty} p g(p) dp = \int_{-\infty}^{+\infty} p f(p - s) dp = \int_{-\infty}^{+\infty} (p + s) f(x) dx = \int_{-\infty}^{+\infty} p f(p) dp + s = E_f(p) + s$ where we used a change of variable

¹¹ In we set $E_f(p) = \int p f(p) dp$, the inequality follows from the fact that $Q[E_f(p)] \leq Q[E_g(p)]$, $(E_f(p) - w) \leq (E_g(p) - w)$ by assumption and $\int_w^w (p - w) f(p) dp \leq \int_w^w (p - w) g(p) dp$ by the same argument shown

in footnote 10.

Firms do not choose randomly among workers, but select those whose price (in terms of expected firing costs) turns out to be lower.

4. Data description and preliminary evidence

In order to verify these implications, we resorted to the longitudinal files of the Italian Labour Force Survey. These files link the information of the April waves of the survey collected in two subsequent years for individuals present in both waves. For the period April 1994-April 2002¹², we retained only workers aged 20-30¹³, who in April of year t-1 did not hold a permanent job. We also excluded from the sample people holding jobs in the farm or public sector¹⁴.

These selection rules leave us with a number of observations that range from a low of 7500 in 2002 to a high of 9300 in 1996 (Table 2). On average female represent 54 per cent of the sample; since people eventually end up working in a permanent position as they age, our sample shrinks for older cohorts. About 40 per cent of the sample completed only compulsory school (“scuola media”); graduates from high-school represent an additional 56 per cent while college graduates are only 4 per cent. Thus in our sample less educated people are fewer than in the population of the same age group (that also includes people working in a permanent job in period t-1). This characteristic depends on the fact that at the age of the interview less educated workers have had at least 5 years to find a permanent job, as they conclude junior high school around age 14. Only 27 per cent of the sample is working at the time of the interview : 9 per cent in permanent positions, 6 per cent in temporary jobs and about 12 per cent as self-employed. Unemployment accounts for 20 per cent of the sample and the remaining 53 per cent is out of the labour force.

On average the probability of transiting to a permanent job has been about 9 per cent in the whole 1993-2002 period. The probability of moving from temporary to permanent jobs has been about 40 per cent. For unemployed people this chance has been about 9 per cent, marginally higher compared to self-employed, and about twice as much the probability of those out of the labour force. A coarse look at the figure suggests that these transition probabilities seem to have increased in the biennium 2001-2002, when the tax credit was in force. However a rise can be detected also in the year 2000 when the business cycle picked and might have involved all workers and not only those eligible for the tax credit. A clearer picture is provided in Table 3, where we reported the transition probabilities towards permanent positions by age group (20-24

¹² We excluded the 2003 wave as the tax credit regulation was substantially modified in the summer of 2002.

¹³ These workers are those who are usually mostly involved in transitions into permanent positions from non employment or from temporary jobs.

and 25-30, i.e. non-eligible and eligible groups) and year (1994-2000 and 2001-2002, i.e. before and after the tax credit was in force). The first four columns present the average transition probabilities observed in the period 1994-2000 and 2001-2002 for non-eligible and eligible cohorts, respectively. In the fifth and sixth columns we computed the differences between eligible and non-eligible groups in the sub-periods. Finally, in the last column we report the change in these differences between the period 2001-2002 and 1994-2000 that might be interpreted as the causal effect of the tax credit on the transition probabilities. The rows of the table refer to several population groups selected according to their initial labour market status and level of education.

The first row refers to all individuals who, at the beginning of each year, were not holding a permanent position. In the period 1994-2000 their chances of transiting to a permanent position was 8.5 per cent if they were between 20 and 24 years of age, 9.0 per cent if they were between 25 and 29. In the period 2001-2002 these chances increased to 9.3 and to 11.3 respectively. The causal effect of the tax credit on the probability of getting a permanent job is 1.5 (column “g”), and is computed as the change in the difference between eligible and not eligible groups after (1.9 per cent, column “f”) and before (0.5 per cent, column “e”) the introduction of the tax credit. The size of the effect is about the same across different schooling levels but only for more educated people it can be considered different from zero.

The aggregate result seems to be driven by the transition for more educated people, which is positive for all groups but people out of the labour force. However only for unemployed people the effect seems to be estimated with sufficient precision and amounts to an increase of 3.6 percentage points in the probability of getting a permanent job. In contrast, the other groups do not seem to be affected.

However, these preliminary results might be distorted by the potential correlation between the eligibility status and some other confounding factors. In order to control for these potential biases we turn to the econometric analysis.

5. The effects of the subsidy on the probability of being hired with an open-end contract

5.1 Empirical specification and identification strategy

In this section we use a simple econometric model to evaluate whether the subsidy exerted any causal effect on the probability of being permanently hired. The two questions addressed are: 1) Did the subsidy increase the probability of being hired with an open-end contract? 2) Was the effect stronger for people with higher probability of accessing lasting jobs (even without the

¹⁴ To be precise we excluded sectors (“branca di attività economica”) coded “01” and “10” in the LFS. The public sector was excluded because the tax credit did not apply; the farm sector because of its peculiarity

subsidy)? The econometric specification adopted is a simple linear probability model, in which the probability of being hired with an open-end contract depends on age, education, gender, region of residence, year dummies, initial labour market condition, a dummy that indicates the eligibility status and several interactions among these variables.. The statistical model is :

$$(8) P_{it} = \beta_0 + \beta_1 E_{it} * SL_{it} + \beta_2 E_{it} * SH_{it} + g(X_{it}, S_{it}, A_{it}, Y_{it}, IC_{it}) + \varepsilon_{it}$$

Where P_{it} is a dummy variable which takes value 1 if individual i in year t is working as a permanent worker, and 0 otherwise; E_{it} is a dummy that takes value 1 if s/he is eligible in year t , SL_{it} takes value 1 if s/he has at most a junior high-school degree (“diploma di scuola media”), SH_{it} takes value 1 if s/he has at least a high-school degree (“diploma di scuola secondaria superiore), and $g(X_{it}, S_{it}, A_{it}, Y_{it}, IC_{it})$ is a function of the vector X_{it} of her/his demographic characteristics (gender and region of residence), schooling S_{it} , age (A_{it}), year dummies (Y_{it}) and initial condition on the labour market (IC_{it}).

The value of the coefficients β_1 and β_2 provides an answer to question 1, as they measure the average additional effect of being eligible for the subsidy on the probability of being hired with a permanent contract. An answer to question 2 is instead provided by the comparison between the two coefficients: if they are equal, the effect of the tax credit is homogenous across education group; if $\beta_1 > \beta_2$, the effect is stronger for less educated people; if $\beta_1 < \beta_2$, the effect is stronger for more educated people.

On the basis of our conceptual framework we expect both coefficients to be positive with $\beta_1 < \beta_2$, implying that the subsidy increased the chances of being hired with an open-end contract and to a greater extent among more educated people.

We estimated the above model with a “diff in diff” estimator which identifies the effect of the subsidy as the change occurred after the year 2000 (that is after the tax credit was introduced) with respect to a previous years in the difference between the share of open-end contracts among the workers eligible for the tax credit and the analogous measure for those excluded from this provision. According to the law that regulates the subsidy, starting from October 2000 all people older than 24 were potentially eligible for the tax credit provided they did not hold a permanent position in the 24 months preceding their hiring. The function $g(X_{it}, S_{it}, A_{it}, Y_{it}, IC_{it})$ has been specified by including in the regression a full set of dummies for region, gender, age, school level, year, initial labor market condition and the interaction between year and school, school and age, school and geographical area.

5.2 Results.

The estimates of the two coefficients β_1 and β_2 for all types of transitions are reported in Table 4, which is organised into eight columns. The first four columns refer to the whole country, while the last four ones focus on the southern regions which have been obtained by estimating an equation like (8) allowing for an interaction between eligibility status, schooling and a south dummy. We include this interaction because the percentage reduction in the labour cost due to the tax credit was larger in the south because the provision was more generous (about 620 euros instead of 413) and wages were lower.

Let us look first to the results for the whole country. Overall there seems to be no effect of the tax credit on transition probabilities, especially for low educated workers. For those with more years of school there is some sign of a positive effect but the precision of the estimates is insufficient to consider the coefficient different than zero. Actually the point estimate would have suggested a strong effect as it implies a rise of 0.8 percentage points over an average transition probability for the period of about 9 per cent. It is interesting to note that this effect is only marginally lower than what we found in Table 3 with the simplest possible “diff in diff” estimator.

The lack of tax credit effects on the transition from temporary to permanent jobs depends on the aggregation of effects that vary considerably depending on the schooling level and the type of temporary job the worker was involved in as initial position. Better educated workers involved in training contracts benefited from the tax credit as their transition probabilities increased by 8.5 percentage points over the average of 44.6 for the whole period. This effect is estimated with a precision sufficient to reject at a 10 percent confidence level the hypothesis that it is equal to zero. For less educated people involved in the same type of contract the effect of the tax credit is basically nil. In contrast, there is some imprecisely estimated evidence that the effect might have been negative especially for better educated people involved in other types of temporary jobs which, unlike training contracts, do not provide a stepping stone towards more stable positions.

A clearer pattern can be detected for transitions out of unemployment. Here we found a strong and positive impact for those unemployed workers who had some previous working experience and lost their job. Their chances to find a new and permanent job increased by 7.4 and 11 percentage points depending on their level of education. These are very large effects as the average transition probabilities over the whole period 1994-2002 for this group were 16 and 19 per cent, depending on the schooling level. People entering unemployment without previous work experience did not enjoy any effect because of the tax credit.

For people out of the labour force the tax credit did not alter the chance of entering a permanent position, regardless of their schooling level and initial condition.

In the south the tax credit seems to have had a stronger impact. For both low and highly educated workers the chances of transiting into a permanent job increased by 1 percentage point, that is a very large effect compared to average transition probabilities of about 5 per cent. However, the precision of these estimates is very poor, and insufficient to make both coefficients statistically different from zero.

The pattern of the effects resemble closely what we observed for the whole country as far as the transition out of temporary jobs and unemployment is concerned. In contrast, for people not in the labour force, especially those with better education whose main activity was different from either studying or taking care of houses, the chances of transiting into a permanent job increased by 5.5 percentage points, about twice as much to the average of the whole period. One potential reason for this surprising result is that in the South the statistical boundaries between unemployment and out of the labour force are very feeble (Brandolini et al., 2006).

5. Extensions : The effects on the probability of being hired

The tax credit was originally designed to avoid temporary jobs to become a dead-end for many workers. Yet it provided a large reduction in the labour cost for newly hired people that might well have influenced employers' decision about both the number and composition of their hires.

In this section we address this additional issue and evaluate whether the tax credit influenced the transition probabilities of finding a job as an employee for people whose initial labour market status was unemployed or out of the labour force. Again, we want to differentiate the effect between more and less educated workers. We use the same statistical framework of the previous section by estimating

$$(9) P_{it} = \beta_0 + \beta_1 E_{it} * SL_{it} + \beta_2 E_{it} * SH_{it} + g(X_{it}, S_{it}, A_{it}, Y_{it}, IC_{it}) + \varepsilon_{it}$$

where P_{it} is in turn the probability of transiting from not holding any job to holding any, a permanent or a temporary job as an employee. The equation has the same set of controls as equation (8), the only difference being that the reference population (i.e. the population at risk) is the sum of people who at time t-1 were either unemployed or out of the labour force.

Results are presented in Table 5, which has the same structure of Table 4 but without the rows referring to temporary employment and self-employed (which are now excluded from the reference population). For each initial labour market status we reported the effect of the tax credit on the probability of transiting to either any, permanent or temporary jobs.

As far as the whole country is concerned, the tax credit does not appear to have increased the chances of finding a job for the least educated workers. For those holding at least a high-school degree, there is a positive effect of about 1 percentage point, which is a large effect since the average transition probability to employment in the period was about 10 per cent. The effect is driven by the probability of moving to a permanent job. No additional effect comes from temporary positions. However, the precision of the estimate is still far below what is needed to be statistically confident that there is a non-zero effect. In contrast, the tax credit seems to have improved the chances of finding a job in the southern regions, for both less and more educated workers. The chances have raised by about 2 percentage points, almost doubling the average probability. In this case the larger opportunity of finding a job is equally shared by permanent and temporary positions, although the precision of this latter effect is poor. This result is interesting because it suggests that in the south the tax credit might have generated an income effect by reducing the wage bill of those hired with permanent contracts. The positive effect of the tax credit on temporary contracts can be due to the fact that they benefited from this income effect more than they suffered from the substitution effect.

In contrast, we found clear signs of substitution for those transiting from unemployment with previous working experience. Both in the aggregate and in the South, the larger opportunities of finding a permanent job are almost fully counterbalanced by the lower chances of getting a permanent job. However we cannot disentangle whether this is a demand or a supply effect.

Well-educated people who were initially out of the labour force and whose main activity was taking care of houses did enjoy larger employment opportunities as temporary workers both in the North and in the South, possibly because of less stringent rationing. Moreover, in the South larger employment opportunities affected people who were out of the labour force and were not identifiable as students nor as housewives. In a companion paper we have shown that there is a correlation at the regional level between the size of this effect and the share of workers in the underground economy (Cipollone et al, 2004). Yet it is well possible that this is a genuine rise because the tax credit considerably reduced the labour cost in the south. The cut was larger compared to the rest of the country because in the South per-capita bonus was larger while average wage levels were lower.

7. Conclusions

In this paper we examine the effects of a new regulatory provision put forward in Italy at the end of the year 2000 in order to foster employment with open-end rather than fixed-term contracts. Two basic questions have been addressed, namely whether the new incentive created additional opportunities of entering permanent jobs, and whether these chances have been available for every worker or rather limited to specific groups.

Our analytical and empirical framework is not specific to the Italian case and might prove useful for analyzing similar programmes that have been adopted in many other European countries to foster hiring into permanent rather than temporary employment.

Results seem to indicate that most of the financial support was wasted as dead-weight loss; while overall employment probability did not change significantly, there is some weak evidence that firms used this subsidy mainly to hire well-educated workers on a permanent basis; perhaps those who would have been hired with such contracts regardless of the subsidy, albeit after a short transition through temporary employment. Our estimates suggest that the subsidy did indeed increase the probability of being hired with an open-end contract but in a rather uneven way across workers. The probability rose by almost 8.5 percentage points for workers holding at least a high-school degree who were previously working with a temporary training contract, and by about 11 percentage points for those unemployed with some previous working experience. These are very large effects as the average transition probabilities for the whole period were about 40 and 10 per cent from temporary jobs and unemployment respectively. In the south the effect seems to be stronger as a consequence of the larger saving on labour cost due to a higher per-capita tax credit and lower wages. There is also some weak evidence that in this area the tax credit increased the chances of getting a job for better educated people.

Tables and figures

Table 1

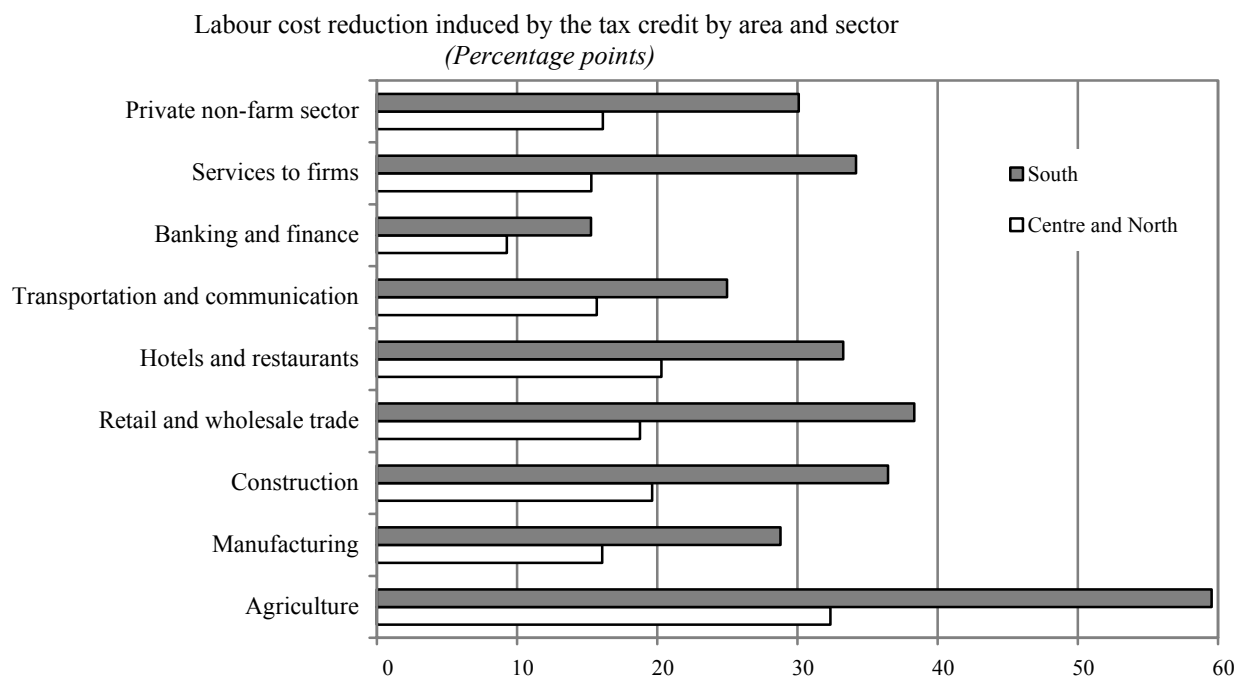
Fixed-term contracts in OECD countries; share and contribution to employment growth 1990-2000
(Percentage points)

	Employment growth contributions			Share of temp jobs in payroll employment	
	Temp jobs	Permanent jobs	Total	1990	2000
Austria (4)	2.0	-0.9	1.1	6.0	7.9
Belgium	5.3	12.4	17.7	5.3	9.0
Canada (6)	2.3	7.0	9.3	11.3	12.5
Czech Republic (2)	2.4	-5.4	-2.9	5.5	9.3
Denmark	-0.1	5.0	4.8	10.8	10.2
Finland (1)	4.4	2.7	7.1	13.2	16.5
France	5.9	3.9	9.9	10.4	14.5
Germany (1)	2.4	-4.5	-2.1	10.3	12.6
Greece	-1.0	19.5	18.5	16.6	13.1
Hungary (6)	2.2	5.5	7.7	5.6	7.0
Iceland (1)	38.3	-20.8	17.5	14.7	45.3
Ireland	-1.6	48.9	47.4	8.5	4.4
Italy	4.8	-6.0	-1.2	5.2	10.1
Japan	3.8	7.6	11.4	10.6	12.9
Luxembourg	0.6	16.6	17.2	3.6	3.7
Mexico (4)	3.0	24.2	27.2	23.1	20.5
Netherlands	9.9	15.2	25.1	7.6	13.8
Norway (5)	-2.8	10.8	8.0	12.9	9.3
Portugal	3.9	4.8	8.7	18.3	20.4
Slovak Republic (3)	1.8	-2.2	-0.4	2.9	4.9
Spain	10.2	14.4	24.7	29.8	32.1
Sweden (4)	1.7	5.0	6.6	12.4	14.6
Switzerland (1)	-1.4	0.8	-0.5	13.0	11.7
Turkey	14.1	25.8	39.9	14.4	20.4
United Kingdom	1.9	4.6	6.5	5.2	6.7

Source: OECD Employment Outlook, 2002.

(1) 1991-2000; (2) 1993-2000; (3) 1994-2000; (4) 1995-2000; (5) 1996-2000; (6) 1997-2000.

Figure 1

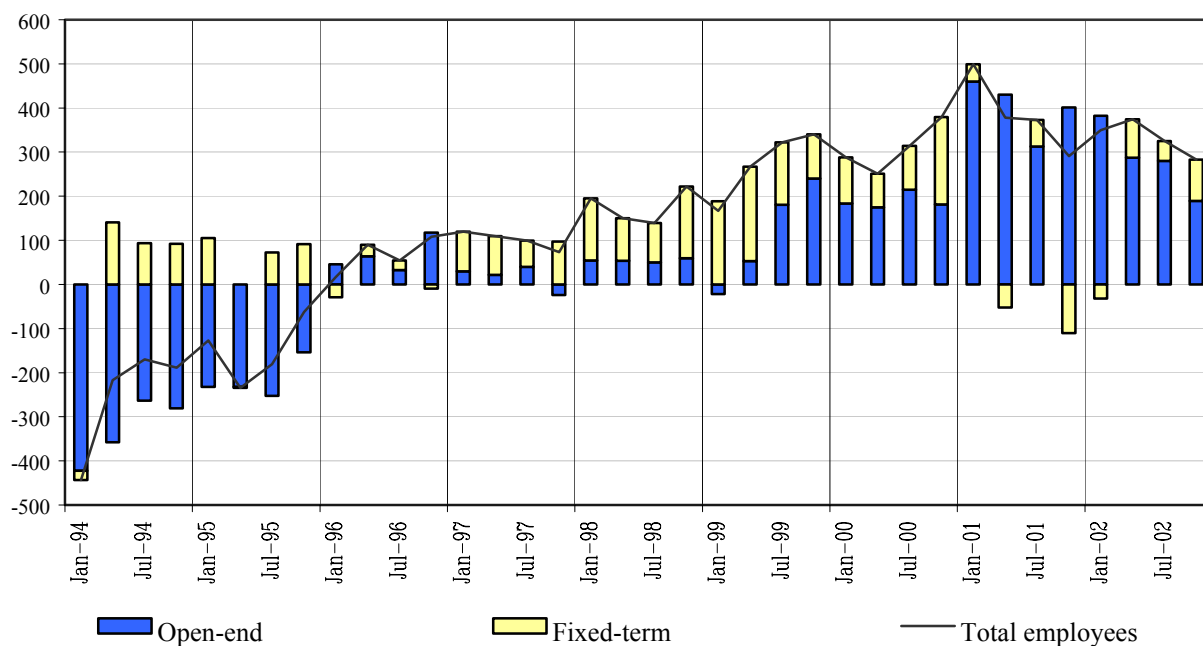


Source: Own calculations on Istat data.

Figure 2

Employment by type of labour contract

(Changes, in '000, on the corresponding quarter)

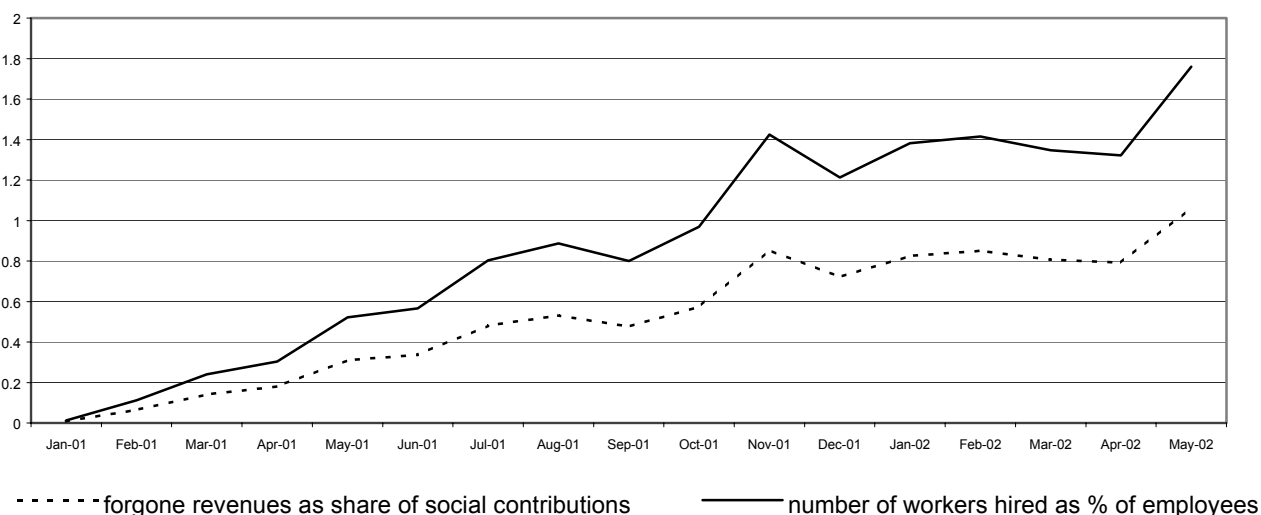


Source: Own calculations on Istat data .

Figure 3

Tax credit usage: evidence from fiscal data from January 2001 to May 2002

(Revenues figures are flows, workers figures are stocks)



Source: Own calculations on Ministero del Lavoro e delle Politiche Sociali (2002) and Istat.

Table 2

Basic characteristics of the sample (Percentage points)									
	1994	1995	1996	1997	1998	1999	2000	2001	2002
<i>By gender</i>									
Males	45.1	45.0	46.8	45.6	44.4	46.4	47.0	46.7	47.0
Females	54.9	55.0	53.2	54.4	55.6	53.6	53.0	53.3	53.0
<i>Age</i>									
20	12.2	11.5	11.7	10.8	10.4	10.7	9.8	10.9	10.3
21	11.2	11.1	11.7	11.3	10.4	10.4	10.3	9.7	10.1
22	10.4	10.6	10.7	10.7	10.3	10.2	10.1	9.9	9.9
23	9.9	9.3	9.4	9.7	10.1	9.4	9.9	10.1	9.1
24	8.4	9.2	8.2	9.0	9.8	9.4	9.6	8.6	9.0
25	8.0	8.2	8.7	8.9	8.5	9.3	9.3	8.4	9.4
26	7.7	8.3	8.3	8.6	8.5	8.5	8.7	9.5	8.9
27	8.1	7.7	7.7	8.0	7.8	7.9	8.4	8.3	8.5
28	8.0	7.8	7.7	7.2	7.9	7.9	7.9	8.2	8.5
29	8.0	7.4	7.4	7.3	7.7	7.8	7.5	8.0	7.8
30	8.2	8.9	8.5	8.6	8.6	8.3	8.5	8.4	8.4
<i>Schooling level</i>									
Lower secondary school or less	47.0	44.0	42.1	41.8	39.6	37.3	34.5	34.7	32.4
High-school	49.9	52.3	54.0	54.3	56.3	58.3	60.5	60.5	61.6
College	3.1	3.6	3.9	3.8	4.2	4.3	5.0	4.7	6.0
<i>Sector</i>									
Manufacturing	30.0	33.3	34.9	31.9	32.2	31.7	29.0	28.8	26.9
Construction	16.3	14.1	14.0	14.3	14.2	12.4	12.1	10.7	10.7
Services	53.7	52.6	51.1	53.8	53.6	55.9	58.9	60.5	62.5
<i>Labour market status</i>									
Open-end contracts	8.2	8.3	8.9	8.1	8.6	8.7	9.5	10.6	10.1
Fixed-term contracts	4.7	4.6	5.3	5.6	6.0	6.6	6.8	7.3	7.5
Self-employed	13.6	11.7	12.2	12.0	11.8	11.3	11.2	11.4	12.0
Unemployed	20.0	20.5	20.6	21.4	20.6	21.0	20.1	18.3	17.5
Out of labour force	53.5	54.8	53.0	52.9	53.0	52.4	52.4	52.3	52.9
<i>Transitions probabilities to permanent positions from:</i>									
All transaction	0.08	0.09	0.09	0.08	0.09	0.09	0.09	0.11	0.10
Fixed-term contracts	0.34	0.43	0.39	0.38	0.38	0.39	0.42	0.44	0.40
Self-employed	0.09	0.08	0.07	0.09	0.07	0.08	0.09	0.09	0.09
Unemployed	0.09	0.12	0.12	0.09	0.11	0.10	0.08	0.09	0.09
Out of labour force	0.05	0.04	0.05	0.04	0.05	0.05	0.05	0.06	0.05
Number of observations	8,904	8,143	9,270	9,113	9,028	8,710	8,449	7,776	7,461

Sources: Authors' calculation on Labour Force Survey data.

Table 3

Transition probabilities to permanent positions by period, age group, eligibility status and initial conditions
(Standard error in italic unless otherwise specified)

	1994-2000		2001-2002		1994-2000	2001-2002	Difference in differences ¹ (g=f-e)
	Non eligible (20-24)	Eligible (25-35)	Non eligible (20-24)	Eligible (25-35)	Eligible-non Eligible ¹	Eligible-non Eligible ¹	
	(a)	(b)	(c)	(d)	(e=b-a)	(f=b-a)	
From any status	0.085 <i>0.002</i>	0.090 <i>0.002</i>	0.093 <i>0.003</i>	0.113 <i>0.003</i>	0.005 <i>2.10</i>	0.019 <i>4.26</i>	0.015 <i>2.84</i>
Less than HS	0.102 <i>0.003</i>	0.080 <i>0.003</i>	0.110 <i>0.006</i>	0.100 <i>0.005</i>	-0.022 <i>-5.93</i>	-0.010 <i>-1.20</i>	0.012 <i>1.37</i>
HS or more	0.075 <i>0.002</i>	0.099 <i>0.002</i>	0.086 <i>0.004</i>	0.120 <i>0.004</i>	0.024 <i>7.80</i>	0.034 <i>6.15</i>	0.011 <i>1.67</i>
From temporary job	0.405 <i>0.011</i>	0.379 <i>0.010</i>	0.435 <i>0.019</i>	0.415 <i>0.016</i>	-0.025 <i>-1.68</i>	-0.020 <i>-0.79</i>	0.005 <i>0.19</i>
Less than HS	0.406 <i>0.018</i>	0.370 <i>0.017</i>	0.507 <i>0.037</i>	0.426 <i>0.029</i>	-0.036 <i>-1.46</i>	-0.081 <i>-1.74</i>	-0.045 <i>-0.85</i>
HS or more	0.404 <i>0.014</i>	0.385 <i>0.013</i>	0.407 <i>0.023</i>	0.409 <i>0.020</i>	-0.019 <i>-1.01</i>	0.002 <i>0.07</i>	0.021 <i>0.60</i>
From self-employment	0.088 <i>0.007</i>	0.080 <i>0.004</i>	0.090 <i>0.014</i>	0.095 <i>0.007</i>	-0.007 <i>-0.94</i>	0.005 <i>0.29</i>	0.012 <i>0.67</i>
Less than HS	0.091 <i>0.009</i>	0.072 <i>0.005</i>	0.119 <i>0.021</i>	0.095 <i>0.011</i>	-0.019 <i>-1.82</i>	-0.024 <i>-0.98</i>	-0.005 <i>-0.18</i>
HS or more	0.083 <i>0.010</i>	0.088 <i>0.005</i>	0.070 <i>0.019</i>	0.095 <i>0.009</i>	0.005 <i>0.43</i>	0.025 <i>1.19</i>	0.020 <i>0.84</i>
From unemployment	0.101 <i>0.004</i>	0.105 <i>0.004</i>	0.069 <i>0.008</i>	0.109 <i>0.007</i>	0.005 <i>0.87</i>	0.040 <i>3.68</i>	0.036 <i>2.94</i>
Less than HS	0.105 <i>0.006</i>	0.102 <i>0.006</i>	0.074 <i>0.013</i>	0.103 <i>0.012</i>	-0.003 <i>-0.42</i>	0.029 <i>1.64</i>	0.033 <i>1.67</i>
HS or more	0.097 <i>0.005</i>	0.108 <i>0.005</i>	0.066 <i>0.010</i>	0.113 <i>0.009</i>	0.011 <i>1.56</i>	0.047 <i>3.40</i>	0.036 <i>2.34</i>
From out of labour force	0.049 <i>0.002</i>	0.045 <i>0.002</i>	0.056 <i>0.003</i>	0.055 <i>0.003</i>	-0.004 <i>-1.70</i>	-0.001 <i>-0.32</i>	0.002 <i>0.49</i>
Less than HS	0.071 <i>0.003</i>	0.040 <i>0.003</i>	0.074 <i>0.006</i>	0.039 <i>0.006</i>	-0.031 <i>-8.09</i>	-0.035 <i>-4.20</i>	-0.004 <i>-0.45</i>
HS or more	0.037 <i>0.002</i>	0.050 <i>0.002</i>	0.049 <i>0.003</i>	0.064 <i>0.004</i>	0.013 <i>4.41</i>	0.015 <i>2.84</i>	0.002 <i>0.36</i>

1) In bracket t-statistics

Table 4

The effect of the tax credit on transition probabilities to permanent jobs¹.

	Italy				South			
	Eligible with low level of education		Eligible with high level of education		Eligible with low level of education		Eligible with high level of education	
	Coefficients	t-student	Coefficients	t-student	Coefficients	t-student	Coefficients	t-student
All transactions	0.003	0.315	0.008	1.172	0.010	1.043	0.010	1.397
From temporary position	-0.038	-0.674	0.021	0.545	-0.015	-0.232	0.047	0.935
Training contracts	-0.044	-0.535	0.085	1.665	-0.026	-0.222	0.096	1.320
Other	-0.088	-1.092	-0.076	-1.280	-0.065	-0.766	-0.032	-0.447
From self-employment	-0.008	-0.249	0.018	0.769	0.007	0.180	-0.002	-0.076
From unemployment	0.021	1.063	0.030	1.873	0.012	0.605	0.028	1.696
Lost a job	0.074	1.687	0.110	2.342	0.045	1.002	0.098	1.937
New entrants	0.001	0.054	0.017	1.020	-0.001	-0.075	0.017	1.028
Out of labour force	-0.004	-0.423	0.002	0.307	0.011	1.073	0.010	1.227
Students	0.001	0.066	-0.002	-0.211	0.004	0.186	-0.008	-1.018
Housewives	0.000	-0.005	-0.023	-0.910	0.006	0.646	-0.017	-0.645
Others	-0.018	-0.709	0.004	0.149	0.024	0.879	0.055	2.020

¹ Estimates of equation (8) in the main text; t-statistic computed using robust standard errors. Regressions include a full set of dummies for region, gender, age, school level, year, initial labour market conditions and interaction between year and school, school and age, school and geographical area.

The effect of the tax credit on transition probabilities to employment from unemployment and out of the labour force ¹.

Initial labour market condition	Transition to :	Italy				South			
		Eligible with low level of education		Eligible with high level of education		Eligible with low level of education		Eligible with high level of education	
		Coefficients	t-student	Coefficients	t-student	Coefficients	t-student	Coefficients	t-student
Unemployment or out of the labour force	Any job	0.00	0.08	0.01	1.38	0.02	1.66	0.02	2.03
	Permanent job	0.00	0.42	0.01	1.10	0.01	1.38	0.01	1.56
	Temporary job	0.00	-0.41	0.00	0.73	0.01	0.84	0.01	1.20
From unemployment	Any job	0.03	1.39	0.02	0.84	0.02	0.88	0.02	1.17
	Permanent job	0.02	1.06	0.03	1.87	0.01	0.60	0.03	1.70
	Temporary job	0.01	0.78	-0.01	-0.82	0.01	0.59	0.00	-0.18
Lost a job	Any job	0.11	2.12	0.01	0.11	0.05	0.88	0.02	0.36
	Permanent job	0.07	1.69	0.11	2.34	0.05	1.00	0.10	1.94
	Temporary job	0.04	1.03	-0.10	-2.13	0.00	0.09	-0.08	-1.48
New entrants	Any job	0.00	0.00	0.03	1.21	0.01	0.44	0.03	1.42
	Permanent job	0.00	0.05	0.02	1.02	0.00	-0.08	0.02	1.03
	Temporary job	0.00	-0.07	0.01	0.59	0.01	0.78	0.01	0.89
Out of labour force	Any job	-0.01	-1.12	0.01	0.94	0.02	1.18	0.02	1.62
	Permanent job	0.00	-0.42	0.00	0.31	0.01	1.07	0.01	1.23
	Temporary job	-0.01	-1.21	0.01	1.10	0.00	0.49	0.01	1.02
Students	Any job	-0.02	-1.07	0.00	-0.02	0.00	-0.09	-0.01	-1.08
	Permanent job	0.00	0.07	0.00	-0.21	0.00	0.19	-0.01	-1.02
	Temporary job	-0.03	-1.94	0.00	0.23	-0.01	-0.50	0.00	-0.44
Housewives	Any job	-0.01	-0.90	0.01	0.18	0.00	-0.20	0.01	0.48
	Permanent job	0.00	0.00	-0.02	-0.91	0.01	0.65	-0.02	-0.65
	Temporary job	-0.01	-1.35	0.03	2.11	-0.01	-1.07	0.03	2.17
Others	Any job	-0.01	-0.18	0.01	0.52	0.05	1.72	0.08	2.50
	Permanent job	-0.02	-0.71	0.00	0.15	0.02	0.88	0.05	2.02
	Temporary job	0.01	0.72	0.01	0.58	0.03	1.55	0.02	1.20

¹ Estimates of equation (9) in the main text; t-statistic computed using robust standard errors. Regressions include a full set of dummies for region, gender, age, school level, year, initial labour market conditions and interaction between year and school, school and age, school and geographical area.

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Financial support to permanent jobs. The Italian case

Summary

In the past decade fixed-term contracts have been widely used to ease the regulatory burden in several European labour markets. Because there is some concern that they might be a dead-end for many worker, policy makers have intervened to increase transitions from fixed-term to open-end contracts. The effects of these interventions have not been thoroughly studied. This paper is a contribution to fill the gap. We look at a recent Italian policy designed to foster hiring with open-end rather than with fixed-term contracts. Our results seem to indicate that most of the financial support was wasted because of the large dead-weight loss associated to the program. There some weak evidence that better educated worker benefited from the introduction of the tax credit, especially in the south .

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