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## Targeted wage subsidies and firm performance<sup> $\star$ </sup>

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#### ABSTRACT

This paper studies how targeted wage subsidies affect the performance of the recruiting firms. Using Swedish administrative data from the period 1998–2008, we show that treated firms substantially outperform other recruiting firms after hiring through subsidies, despite identical pre-treatment performance levels and trends in a wide set of key dimensions. The pattern is less clear from 2007 onwards, after a reform removed the involvement of caseworkers from the subsidy approval process. Overall, our results suggest that targeted employment subsidies can have large positive effects on post-match outcomes of the hiring firms, at least if the policy environment allows for pre-screening by caseworkers.

#### 1. Introduction

Targeted wage subsidies that reduce part of the wage costs for private firms hiring unemployed workers are an integral part of active labor market policies (ALMP) in most Western countries. The main objective is to help disadvantaged workers find jobs, and most studies tend to find that the policy tool is very efficient in this dimension (for surveys see, e.g., Card et al., 2010; Card et al., 2015 and Kluve, 2010). Despite these positive estimates, policy prescriptions tend to be cautious because of concerns regarding demand side responses (see e.g. Neumark, 2013). These concerns include crowding out of unsubsidized hires and fears that wage subsidies allocate workers to unproductive firms that are able to hire and compete on the market only due to the subsidies. Yet, there exists very little systematic evidence on the characteristics of the firms that hire with targeted subsidies, and on the impact the subsidies have on these firms.

In this paper, we make three distinct additions to the literature: we document the extent to which the characteristics of subsidized firms differ from those of other recruiting firms, we describe the extent to which key firm-level outcomes change due to the subsidies, and we analyze whether these patterns depend on the degree of caseworker discretion when subsidies are allocated. Together, this provides new empirical evidence on key concerns regarding wage-subsidy distortions. The results also provide some novel (and rare) evidence on how ALMPs affect the allocation of workers across firms, an issue that has received much recent attention within the wider labor-economic literature (see e.g. Card et al., 2018; Card et al., 2013; Song et al., 2015).

Our analysis uses detailed Swedish administrative data on workers and firms in order to study the impact of targeted wage subsidies. We start from spell data on unemployed workers and the subsidies they receive and link this information to a matched employeremployee database which allows us to follow the employing firms over time. Data from business registers provides information on profits, sales, wage sums, value added and investments for the same firms.

Our analysis compares firms recruiting through subsidies (defined as treated) to other observably identical firms. We focus on small- and medium-sized firms throughout in order for the subsidies to be of a nontrivial magnitude relative to firm-performance measures. For the causal analysis, we compare treated firms to firms that hire unemployed workers without using subsidies. We adjust for pre-existing differences in firm size and separations, sum of wages paid and average workers' characteristics by matching on observable pre-treatment levels in these dimensions. We show that, after matching, the treated and matched controls have identical pre-treatment trends (which we do not match on). Furthermore, both pre-treatment trends and levels are remarkably similar in key dimensions that we do not match on, most notably productivity and profits. We find no evidence that the subsidies are allocated to low-performing firms. The pre-hire performance of the subsidized firms is remarkably similar to that of other recruiting firms, despite the fact that the subsidized hires (by design) have much longer pre-match unem-

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ployment spells. The main difference between the two groups of firms is that subsidized firms are smaller. But in terms of productivity, profits and staff composition, similarities in both levels and trends are striking.

We analyze two very different policy systems. Between 1998 and 2006 all targeted wage subsidies in Sweden needed to be approved by a caseworker at the public employment office. The caseworkers could also propose suitable employer–employee matches (see e.g. Lundin, 2004). This staff-selection scheme is contrasted to a new rules-selection system introduced in 2007, which granted all employers that hired an eligible long-term unemployed worker the right to receive a wage subsidy, thus substantially reducing the role of caseworkers in the allocation of the subsidies.

In the regime where caseworkers pre-approved subsidized matches, treated firms substantially outperform the comparison firms *after* the treatment, both in terms of the number of employees and in terms of various production measures, despite having identical pre-match trajectories. This pattern is persistent and it does not come at the cost of decreased productivity per worker. That is, in this system, the subsidies are clearly associated with positive changes in firm performance. In the second system, when long-term unemployed are entitled to subsidies without caseworker approval, the results are less clear. We find no corresponding change in firm size and productivity measures among surviving firms. This would suggest larger crowding-out effects and more windfall gains. On the other hand, the subsidies have a clear positive effect on firms' survival rates in the rules selection regime.

We show that the difference between systems is not due to differences in the hired workers' characteristics. If anything, caseworkers target more vulnerable workers and detailed controls for worker characteristics does not change the conclusion. Further evidence suggests that business cycle conditions and/or the increasing share of immigrant workers are unlikely explanations for the differences between systems. A possible hypothesis for the different findings is instead that caseworkers act as gatekeepers guarding against both displacement of non-subsidized jobs and windfall gains, and screening against firms on the margin of exit. As a corroborate of this hypothesis, we show results indicating that caseworkers guard against an overallocation of subsidies to firms with poor internal expectations about future performance. This exercise uses data on investments which (in line with standard investment theory) we interpret as a forward-looking variable capturing the firm's own expectations about future performance and we find that investments are lower for treated firms in the rules-selection scheme but not in the staffselection scheme.

Our paper is related to several strands of the existing literature. In a recent paper, Cahuc et al. (2016) use a French reform in 2008 to study the effectiveness of hiring credits. Firms with fewer than 10 employees that hire a worker with a wage less than 1.6 times the minimum wage were eligible for the credit. The main result is of a strong and immediate employment effects of the credits. Using experimental variation, Crépon et al. (2013) find that a job placement assistance program in France displaces employment of non-treated unemployed individuals searching for jobs in the same area as the treated workers. In our paper, we find evidence of a different type of displacement, namely that of nonsubsidized workers already employed in the firms hiring with the subsidies. Kangasharju (2007) uses Finnish data that links firms and workers, and finds that employment subsidies in Finland increased the firms' payroll by more than the size of the subsidy. Other studies on displacement effects include those that have used surveys of employers. For instance, Bishop and Montgomery (1993) survey more than 3500 private employers in the US and conclude that at least 70% of the tax credits granted to employers are payments for workers who would have been hired in the absence of any subsidy. In a similar vein, Calmfors et al. (2002) discuss Swedish survey-based evidence. Andersson et al. (2016) evaluate a training program in the U.S. and consider various measures of firm quality as outcomes. These measures include firm size, turnover, as well as firmeffects defined in Abowd et al. (1999). Overall, they find modest effects on the quality of the firms where the formerly unemployed workers find jobs.  $^{\rm 1}$ 

Finally, two recent studies examine how active labor market programs affect firm behavior and firm-level outcomes. Blasco and Pertold-Gebicka (2013) study a large scale randomized experiment on the effects of counseling and monitoring, and examine if this affected the firms in areas exposed to the experiment. Lechner et al. (2013) exploit that German local employment offices determine the mix of ALMPs to study firm level effects. In this paper, we use data that links firms and workers to study firms that are actually targeted by the subsidies, whereas these two studies focus on effects on all firms in a certain area.<sup>2</sup>

The paper is structured as follows. Section 2 provides the institutional background and discusses the potential role of caseworkers. Section 3 explains the data and outlines the empirical strategy. Section 4 presents the results. Finally, Section 5 concludes.

#### 2. Background

#### 2.1. The targeted wage subsidies

In Sweden, targeted wage subsidies and all other aspects of Active Labor Market Policies are administrated by the Swedish Public Employment Service (PES). The overall aim of the agency is to promote a wellfunctioning labor market for both unemployed individuals and firms. The PES provides different policy measures targeted to unemployed individuals, including job search counseling, labor market training, practice programs and targeted wage subsidies. Another aim is to support firms in the recruitment process, in particular by maintaining a free and publicly available vacancy database. The PES is divided into 280 local public employment offices. Each unemployed individual is assigned to a caseworker at the local office, and caseworkers are responsible for enrolling the people assigned to them into policy programs and to provide job-search assistance.

In this paper we focus on targeted wage subsidies. These subsidies target different sets of unemployed individuals and reimburse part of the firms' labor costs by crediting their tax accounts when an eligible person is hired. The aim is to provide firms with incentives to hire those that otherwise would struggle to find non-subsidized jobs. From the perspective of the long-term unemployed, the subsidized job can be a steppingstone towards a non-subsidized job. Workers hired through these subsidies are subject to exactly the same regulations (including employment protection laws) as non-subsidized workers.

We analyze two different subsidy systems. The first, the Employment Subsidy Program (Anställningsstöd) was in place between 1998 and 2006. The program was targeted *and* selective. It was mainly *targeted* to individuals unemployed for at least 12 months and at least 20 years old.<sup>3</sup> The program replaced 50% of the labor cost (including payroll taxes) for a maximum duration of 6 months. The program was *selective* in the sense that each subsidized job had to be approved by a caseworker at the local PES office. The importance of caseworkers is

<sup>&</sup>lt;sup>1</sup> For survey evidence how wage subsidies affect the unemployed workers covered by the subsidies see Card et al. (2010, 2015), Kluve (2010). For recent evidence on Swedish data, see Sjögren and Vikström (2015) on targeted employment subsidies and Egebark and Kaunitz (2014) and Saez et al. (2017) on non-targeted payroll tax reductions for youths. The latter of these papers also study spillover (wage) effects within the firms through rent sharing.

<sup>&</sup>lt;sup>2</sup> Other papers studying spillover effects at the market level include, for instance, Blundell et al. (2004), Lise et al. (2004), Ferracci et al. (2014), Pallais (2014), Gautier et al. (2015) and Lalive et al. (2015). These studies use geographical variation and/or theoretical models to study spillover effects at a more general level, including market equilibrium effects. In contrast, we focus on the allocation of workers across firms and on how targeted wage subsidies affect firm performance.

<sup>&</sup>lt;sup>3</sup> Workers with special needs or workers with extensive unemployment histories may obtain a subsidized job before 12 months of unemployment.

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