



Does informal learning at work differ between temporary and permanent workers? Evidence from 20 OECD countries[☆]

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ABSTRACT

This paper analyses the relationship between temporary employment and the intensity of on-the-job informal learning across 20 developed countries. Using microdata from the OECD's PIAAC survey, we estimate an instrumented endogenous switching regression model and find that temporary employees engage in on-the-job learning more intensively than their counterparts in permanent employment. We show that this higher intensity of informal learning does not substitute for temporary workers' lower participation in formal training. Instead, both types of learning are complementary. Heterogeneous-effect analyses suggests that early career expectations of gaining a permanent contract could explain the higher informal learning investments of employees while in a temporary job.

1. Introduction

During the last two decades, temporary employment has increased substantially in many OECD countries (OECD, 2014). Ideally, on-the-job investments in human capital (i.e. training and learning from experience) in this type of jobs should improve the integration of new entrants or unemployed individuals into the labour market. However, both in public policy and in the economic literature, there is a debate about the opportunities for human capital development associated with temporary contracts (Arulampalam and Booth, 1998; Booth et al., 2002; OECD, 2014).

Despite the debate and policy relevance, remarkably little is known about the difference between temporary and permanent employees with respect to the learning content of their jobs. Mainly due to the lack of appropriate data, the empirical literature has thus far been entirely focused on workers' training participation. In line with human capital theory, several empirical studies have provided evidence of a negative relation between temporary contracts and training participation in various countries (e.g. Arulampalam et al., 2004; Cutulli and Guetto, 2013). The empirical question on whether and, if so, to what extend learning

informally on the job differs between temporary and permanent employees still remains.

Policy makers in most OECD countries have become increasingly aware that informal learning over the working life represents also a rich source of human capital and skills development, usually recognised through the experience wage premium in the labour market (OECD, 2010, 2013a). Although years of experience (or tenure) have played an important role in the economic literature as a proxy for unobservable investments in learning while working (Mincer, 1974), there are hardly any empirical studies on the learning potential of different jobs or the extent to which different workers learn from experience (Rosen, 1972; Tesluk and Jacobs, 1998; Heckman et al., 2002).

In this article, we contribute to filling this gap by providing empirical evidence on the influence of temporary contracts on the intensity of informal learning at work across 20 OECD countries.¹ For our analysis, we use unique data from the OECD Programme for International

¹ Table 1 shows the countries included in our analyses.

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Assessment of Adult Competences (PIAAC) survey conducted in 2011 and 2012. This is the first survey that provides detailed internationally comparable measures of workers' skills, job-tasks content and informal learning at work, the latter based on a conceptual framework that considers three modes of informal learning: (1) learning by doing, (2) learning from others, and (3) learning by keeping up-to-date with new products or services.

We contribute to the literature on flexible employment and human capital development in three ways. First, we estimate the extent to which the intensity of informal learning on the job differs between workers with temporary and permanent contracts. In doing so, we raise the issue of potential endogeneity of enrolment in a temporary job due to selection based on unobservable characteristics. We not only include several important and previously neglected control variables in the temporary contracts literature (such as workers' skills, learning attitude and task-job content) but also implement an endogenous switching regression model (SRM) to correct for the expected negative bias in a naïve ordinary least squares (OLS) estimation. To this end, we exploit the differential exposure of workers of different ages to employment protection legislation (EPL) and potential unemployment, using age-group-by-country information six years prior to the data generation.² We obtain consistent estimates by applying the full-information maximum likelihood (FIML) method and show our estimations to be robust. Our main results show that workers in temporary jobs invest more intensively in informal learning than their counterparts in permanent contracts do, although the former are, in line with the empirical human capital literature, less likely, on average, to participate in formal training activities.

Second, we explore the interaction between training and informal learning to analyse whether there is substitution or complementarity between these two types of learning for both temporary and permanent employees. We find evidence of a complementarity relation, regardless of the type of contract, which suggests that the higher informal learning investments of temporary workers do not substitute for the lack of formal training.

Third, we provide marginal treatment effects (MTEs) estimates to analyse the heterogeneity in workers' informal learning along the distribution of their individual unobserved characteristics. This analysis shows whether informal learning outcomes for workers on the margin of a temporary job placement change with the probability of selection into a temporary contract by marginally increasing the corresponding interaction between the unemployment rate and EPL measures we use as selection instruments in our identification strategy. Allowing for this type of heterogeneity reinforces our main finding: There is a consistent difference in on-the-job informal learning between temporary and permanent employees in favour of those who have a temporary contract. Interestingly, this difference is expected to be larger among workers with lower propensities of selection into temporary jobs, that is, those who are likely to have better unobservable characteristics (e.g. ability and motivation).

We also provide additional insights on the possible mechanisms that could explain our main result. To that aim, we perform several heterogeneous-effect analyses taking into consideration different observable individual and job-task content characteristics. In evaluating this heterogeneity, the most important concern is the possibility that firms select workers into temporary contracts due to the different task content of jobs and/or workers' different levels of skills beyond their educational level. This could lead to unobservable differences in learning opportunities by contract type. This kind of problem has been

² We use male unemployment rates by country as a selection instrument, which vary within countries across five-year age groups. We collected these unemployment data from six years preceding the respondent's interview date to ensure that, first, the current (in sample) and past (in instrument) five-year age groups refer to the same age group but not to the same cohort of individuals and, second, that we use consistent unemployment information prior to the occurrence of the global financial crisis for all employees in our sample.

largely overlooked in the literature on flexible employment. We find that employees with higher levels of numeracy/literacy skills are indeed less likely to have temporary contracts. We also find that workers with jobs that involve tasks of greater skills demand and flexibility have a lower probability of being selected into temporary contracts and are simultaneously more intensively engaged in informal learning. Furthermore, we find some heterogeneity with respect to workers' age and tenure.

Although the PIAAC data do not allow us to identify the particular mechanism driving our main finding, we discuss some heterogeneous-effect analyses in light of the theoretical idea that expectations of transition to permanent employment could be responsible for the stronger incentives to invest in informal learning while in a temporary job. Additional results from a different cross-country dataset at the European level provide descriptive support for this hypothesis.

The remainder of the paper is organised as follows. Section 2 discusses the literature related to our research question. Section 3 presents our model and empirical strategy and discusses the plausibility of the identifying assumptions. Section 4 describes our data. Section 5 presents our main empirical results, and robustness and heterogeneity analyses. Section 6 concludes the paper and discusses its main findings and implications.

2. Related literature

Studying how temporary contracts influence decisions of investment in informal learning at work in comparison to permanent contracts relates to two strands of economics research. First, the human capital literature on training investments and, second, the stepping-stone or dead-end job effects of temporary contracts.

From a theoretical perspective, firms using temporary contracts to adjust the size of their labour force have fewer incentives to invest in the human capital of these employees because of the shorter expected amortisation period. Workers in this situation are also expected to invest less in the accumulation of firm-specific skills. If that is the case, then the pursuit of flexible production by firms could impose negative externalities not only on the skills development of their current flexible workforce but also on their long-term productive capacity due to suboptimal aggregate training investments (Arulampalam and Booth, 1998). Previous empirical studies have confirmed this negative relation between temporary work and training participation (Atkinson, 1998; Arulampalam et al., 2004; Steijn et al., 2006; O'Connell and Byrne, 2012; Cuttulli and Guetto, 2013). Other studies have shown, however, that employers may invest in the general training of temporary employees due to the existence of labour market imperfections (Acemoglu and Pischke, 1999) or to screen workers according to ability prior to offering a permanent contract (Autor, 2001).

The latter reference leads us to the related literature on the stepping-stone effects of temporary employment. Most research in this field has claimed that on-the-job learning (both training and informal learning) and skills development are probably the main channel through which temporary contracts can offer a path into permanent employment. The odds of transition to a permanent position are believed to increase with the improvement of human capital and the gain of productive experience while in a temporary job (Autor, 2001; Booth et al., 2002; Gagliarducci, 2005; De Graaf-Zijl et al., 2011; Cockx and Picchio, 2012; Jahn and Pozzoli, 2013; Jahn and Rosholm, 2014). This strand of literature suggests that temporary employment could provide workers with further incentives for investments in on-the-job learning to improve their skills (or offset the deterioration of their human capital while unemployed) and thereby increase their chances of finding a more stable job. Nonetheless, these studies have also noted that, if temporary jobs are recurrent, the stepping-stone prospects decrease and human capital investments are expected to decline. Temporary employment could then become dead-end jobs.

However, due to the lack of appropriate data, little has been done to validate that learning on the job could be an important mechanism

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