

Do firms train older workers when they change? Evidence from a French linked employer-employee survey

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Extended abstract

The aim of this paper is to investigate whether the impact of firms' technical and organisational changes on their employees' incidence of training varies with the age of the workers. To do this, we use 2006 COI survey which is the most recent French matched employer-employee data set on firms' organisational changes and computerization but also two others databases from government origin: the DMMO files and the "24-83" employers' tax declarations. The final sample is an original statistical dataset obtained by merging these three data sources which allows us to deal with econometric problems such as endogeneity and selection effects.

The capacity of older workers to adapt to an environment of rapid technical and organisational changes is crucial in the context of an increase of the employment rate of older workers. In fact, according to the so-called age-biased technological change hypothesis, the technological and organisational changes would lead to a reduction of the percentage of older workers in the workforce, particularly because of the depreciation of their human capital. Nevertheless, this argument is only partial since the employees' human capital evolves in response to these changes through training. So, as Bartel and Sicherman (1993) point out, if technical and organisational changes stimulates further training for older workers, then it gives incentives to stay in the job. From the workers' point of view, Langot et al. (2009) show that human capital increases and retirement age decisions are positively related. Furthermore, training responses may be different according the age of workers. Overall, in a theoretical perspective, the influence of technical and organisational changes on the relative training investments of older workers compared to younger ones is indeterminate, which motivates our empirical research.

We use three data sources that we have matched together. First, the data on employee further training and the measures of technical and organisational changes come from a French linked employer-employee survey on organisational changes and computerisation ("Changements Organisationnels et Informatisation", COI) conducted in 2006. Second, the "24-83" employers' tax declarations for the years 2003-2006 provide firm-level data about further training practices of employers. Third, the DMMO ("Déclarations de Mouvements de Main d'Oeuvre") files for the years 2003-2006 also provide firm-level data about all workforce entry and exit movements within firms.

The COI linked employer-level survey covers 7 700 firms with 20 or more employees belonging to the private sector. Each firm fills in a self-administrated questionnaire on the use

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of information technologies and new managerial tools in 2003 and 2006. The rich set of information allows us to build two synthetic indicators. The first one synthesises information about ten different features of the technology and measures the degree of use of new advanced technologies (internet access, intranet, data analogies tools...). The second one combines information about the use of eleven management tools (quality certification practice, just-in-time, total productive maintenance...). For each firm, these two synthetic indicators have been created for the two years 2003 and 2006. By comparing the level of these two indicators between 2003 and 2006, we create two dichotomous variables. The first takes the value one if the firm is characterized by more intensive use of their new advanced technologies between 2003 and 2006 and otherwise zero. The second takes the value one if the firm is characterized by more intensive use of their managerial tools between 2003 and 2006 and otherwise zero. A third dichotomous variable has also been considered signalling if the management of the firm has perceived a major organisational change since 2003. Finally, in our econometric analysis, we consider the influence of these three different dichotomous variables measuring changes and derived from the employer-level survey on employees further training incidence.

The employee-level survey concerns 14 369 employees randomly selected within each surveyed firm. This survey provides details of employees' socio-demographic characteristics, their employment situation and their job characteristics. Moreover, it allows measuring the incidence of several types of training: training in computer skills; training for supervisory role; training for client dealings; training for quality control procedure and other type of training. The year on which training incidence is observed is known. Consequently, we can precisely investigate whether employees have or not received training during the period where the technical and organisational changes have taken place within the firm. Finally, workers were asked the three following questions: "Has your work or that of your colleagues changed since 2003: 1. due to one or more changes to technique used? 2. due to one or more changes in working methods or distribution? 3. due to an financial restructuring buyback or management team changes?". The influence of these three variables of changes on employees' further training incidence will be estimated and the results obtained will be confronted with those obtained from the variables derived from the employer-level survey.

The COI survey is merged with two firm-level databases: the "24-83" employers' tax declarations and the DMMO files. The first data set permits to construct economic indicators reflecting the further training practices of employers during the 2003-2006 period. The DMMO files are quarterly exhaustive administrative databases which measure all workforce entry and exit movements within establishments with more than 50 employees. They allow constructing layoff and resignation rates by age class into each firm during the 2003-2006 period. We use these rates in the training equations in order to partially control the selection effects due to the fact that technological and organisational changes can reduce the employment of older workers.

The econometric strategy consists in estimating for each type of training measured at the employee level, the influence of the different employer and employee level variables of changes. The analysis is broken down into three different age classes: [20,29], [30,45] and [46,59]. In order to handle endogeneity of each variable of changes, we estimate biprobit and triprobit models. In fact, the two employer-level variables signalling a more intensive use of new advanced technologies and management practices between 2003 and 2006 are simultaneously introduced in training equations whereas the other variables of changes are considered one by one.

Three main conclusions can be drawn from the preliminary obtained results. First, the positive relationship between changes and further training incidence is greater when the employee-level variables of changes are considered rather than those from the employer-level survey. Second, technical and organisational changes influence positively the further training

incidence of employees of 30 years old and more with solely weak differences between the age classes [30,45] and [46,59]. Consequently, the changes do not seem to penalise older workers concerning their probability of further training. Third, the relationship between changes and incidence of training is very weak among the younger workers highlighting the influence of their formal qualification.

Keywords: J14, J24, O30.

JEL Classification: Technical and organisational changes, training, older workers.

References

Bartel A. and N. Sicherman (1993), « Technological Change and Retirement Decisions of Older Workers », *Journal of Labor Economics*, 11(1), pp. 162-183.

Chéron F., Khaskhoussi F., Khaskhoussi T. and F. Langot (2009), « Incentives Schemes to Delay Retirement and the Equilibrium Interplay with Human Capital Investment », *Economic Bulletin*, 29(1) pp. 221-229.