

A double hurdle approach for company further training behaviour and an empirical test of this using data from the IAB establishment panel

Despite the growing importance of company further training, 60 % of all western German firms do not provide their employees with further training. If firms are asked to give their reasons for not providing further training, only 19 % report that they do not support further training in principle; 16 % say that they only did not provide further training in the first six months of the year but that they do support further training in principle; 12 % state that they only did not release their staff for further training for reasons of time and 57 % state that the skill level of their workforce is currently sufficient. This suggests that the *length of the observation period* is of importance in questions regarding *firms' further training behaviour*. The paper starts out from the hypothesis that if a longer observation period were taken as a basis, the share of firms providing further training would increase and their further training intensity would decline, and that this can be assumed to be the case in particular in small firms.

The background for this is early work on the importance of the length of the survey interval for purchasing decisions of households; for instance, with a short observation period a household not purchasing alcoholic beverages may mean that the members of the household do not drink alcohol in general or that they are using alcoholic drinks that they bought previously. This can be explained using a so-called double hurdle model: the first hurdle that generally stands in the way of purchasing certain goods can be of social, psychological or ethnic nature, whilst the second hurdle involves the price being too high or the existence of supplies. If the observation interval, and thus the period in which a purchase can be made, is extended, then the second hurdle becomes lower because special offers for the good become more likely and/or the supplies are exhausted.

The paper first develops a double hurdle model to depict the *further training behaviour of firms*: The *first hurdle* is that a firm classifies *provision of further training* as being worthwhile in general because the associated *costs* are permanently not higher than the *revenues* expected in the future as a result of the training measure. It is deduced that these costs and revenues of further training vary considerably depending on the capital intensity, innovation orientation and size of the firms, their employee structure and their labour relations and therefore determine firms' further training behaviour.

The *second hurdle* is that the firm *definitely provides further training* because the employees' skill levels are no longer sufficient or the firm wishes to prevent this happening. The reason for this can be that the last further training measures took place some time ago or that occasions for further training have occurred. When the observation period is longer this second hurdle is lower, so *more* of the firms that are *interested in further training in general* can be observed. In the paper this is assumed to be of importance in particular for small firms: firstly because internal further training measures, which are less costly for them and require a minimum number of participants, are only worthwhile at longer intervals, and secondly because reasons for further training such as the introduction of new products or new production processes or organisational changes occur less regularly in small firms.

In part three the applicability of the model is tested *empirically* using data from the *IAB establishment panel*. To what extent can the further training behaviour of firms be better depicted by extending the observation period?

First of all the *descriptive analysis* shows that just under half of the firms that did not provide further training in 2001 were actually involved in further training when the observation period was longer; in particular small and very small firms provide their employees with further training on an irregular basis. Furthermore, firms which do not provide further training and firms that provide further training regularly or irregularly differ considerably as regards the means and proportions of the explanatory variables. In the *multivariate analysis* we first calculate the further training provision and the intensity of further training for the 2001 wave of the IAB establishment panel, i. e. for an observation period of only one year, and estimate what determinants they depend on. In the second step the results of the three survey waves of the establishment panel between 2000 and 2005 are combined, i. e. we make a cross-section out of the balanced panel and obtain in this way an observation period of six years for which we calculate the same dependent variables and estimate their determinants.

It emerges first of all that there are a number of variables which have an influence on whether it is generally worthwhile for the firms to provide further training, i. e. whether they overcome the first hurdle. When the observation period is extended, these structural variables remain largely unchanged. This is shown by comparing our probit estimates of further training provision and our quasi-likelihood estimates of the intensity of further training for 2001 and for 2000 to 2005 in each case: the same variables for capital intensity and innovation orientation and the same proportions for the employee structure prove to be significant in each case. Only the variables that characterise industrial relations - existence of a works council and payment above the collectively agreed wage scale - lose significance when the observation period is longer, which suggests that they do not have a stable influence on the general further training behaviour. In addition, it is possible to establish proof of a number of concrete reasons for further training, by means of which the second hurdle for further training activities is overcome. Investment in communication technology and EDP and changes in the organisation structure are significant for firms' provision of further training and intensity of further training in both the short and the longer observation periods.

These results suggest that the procedure presented here of extending the observation period by using the results of several waves of panel data sets is suitable for other economic issues.