Why do some workers never participate in training?

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Abstract

Despite empirical evidence on the positive effects of training on workers' wages and employability, a puzzlingly large number of workers have never participated in any training course during their career. Using data from a representative sample of the Dutch labour force, we distinguish between recent participants in training, temporary non-participants, and chronic non-participants to better understand the drivers of training participation. We find a hard core of 17% of the working population who never participated in any training course during their working life. Chronic non-participation is related to workers' intrinsic motivation to learn, low levels of task complexity, and a missing human resource development (HRD) policy in the firm where the worker is employed. However, temporary non-participants do not differ from recent participants when it comes to their non-cognitive skills, task complexity, or firm HRD policy. Chronic non-participants appear to earn significantly less than those who recently participated in training, but we do not observe any wage difference between temporary non-participants and recent participants. The latter result suggests that studies that do not distinguish between temporary and chronic non-participants in training underestimate the wage effects of training.

Keywords: Training, non-cognitive skills, motivation, task complexity, HRD

JEL classification: J24

1. Introduction

In industrialized countries, rapid technological and organizational change has boosted policy attention to lifelong learning. Increasing the participation rates of adults in lifelong learning has become a major policy issue and is now one of the European Council's (2011) five benchmark indicators of the performance of education and training in the Member States. Although the average training participation of 25- to 64-year-olds in the European Union increased by 3.6 percentage points to 10.7% between 2000 and 2014, only eight of the EU-28 countries achieved the 2010 benchmark of having at least 12.5% of the working population participating in training (European Commission, 2015).

A large body of economic literature has documented the positive effects of training on wages (e.g. Booth and Bryan, 2005; Jones et al., 2012), employability (e.g. Bassanini, 2006; Picchio and van Ours, 2013), and firm productivity (e.g. Almeida and Carneiro, 2009).[1] Furthermore, it compensates for the depreciation of human capital (e.g. Groot and Maasen van den Brink, 2000). Nevertheless, a puzzlingly large number of individuals have never participated in training during their working career. The economic literature lacks empirical evidence on this group of chronic non-participants and the mechanisms that explain chronic non-participation in training. This paper is one of the very first studies investigating potential reasons for this chronic non-participation in training.

Our study contributes to the literature in three ways. First, we use a unique feature of our data that allows us to distinguish between recent training participants, temporary non-participants, and chronic non-participants, whereas other studies could not distinguish between temporary and chronic non-participants. We find a substantial hard core of 18% of all Dutch workers who never participated in a training course during their working lives. Second, we test whether chronic non-participation in training is related to a worker's non-cognitive skills and job tasks and the firm's human resource development (HRD) practices. Building on the role of non-cognitive skills in human capital formation (Heckman et al., 2006), we investigate the extent to which chronic non-participation in training is related to workers' intrinsic motivation to learn, self-regulation, and economic preferences such as their future orientation and preference for leisure (see also Tuor and Backes-Gellner, 2009; Fouarge et al., 2013). Alternatively, it could be that – due to their low levels of motivation – chronic non-participants work in less demanding jobs (i.e. doing routine job tasks) in which they do not face skill obsolescence or in jobs with limited training opportunities. In this paper,

[1] The significance and size of these effects, however, differ across studies, depending on the country under scrutiny, the definition of training, the outcome under scrutiny, and the approach used to deal with endogenous selection. Some studies also report small or insignificant returns to training; for example, Leuven and Oosterbeek (2008) report zero returns.

we test this alternative explanation. Third, we show that considering those who do not train as a homogeneous comparison group for those who recently trained to assess the returns to training – as most studies do – is likely to produce downward-biased estimates on the returns to training. This is because workers who participated in training some years ago but did not recently participate could still benefit from their earlier training in their current job.

To our knowledge, to date, only Backes-Gellner et al. (2007) document differences between temporary non-participants and chronic non-participants in training. However, their study, based on German data, does not contrast these groups with workers who recently participated in training. The authors find that chronic non-participants in training have higher costs and lower short-term benefits of training compared to temporary non-participants. However, they argue that, in the longer run, these workers would benefit from training in terms of improved labour market prospects. Moreover, Backes-Gellner et al. show that workers with a strong orientation towards the present are less likely to participate in training.[2] These findings suggest that chronic non-participants have particular characteristics that make them less prone to participate in training: They might have low levels of motivation (Theranou, 2001), a high time preference or a lack of awareness regarding the future benefits of training (Carey et al., 2004) or work in jobs with low skills demand or in firms without a training policy. Our study is the first to investigate these hypotheses more thoroughly.

We find that workers with a strong intrinsic motivation to learn and high levels of self-regulation are less likely to be chronic non-participants, while temporary non-participants do not differ from training participants with respect to these traits. Having more complex tasks in their jobs and a more developed firm HRD policy makes a worker less likely to have never participated in training, but neither job tasks nor a firm's HRD policy differentiate between temporary non-participants and recent participants in training. However, we show that the relation between low intrinsic motivation to learn and chronic non-participation is not driven by the fact that those with these traits sort into jobs with routine tasks.

We further show that the wages of recent participants in training are similar to those of temporary non-participants, whereas chronic non-participants earn significantly lower wages. Although our data do not allow to deal with endogenous selection, these findings suggest that studies that identify returns to training from a comparison between those who train and those who do not (Bassanini et al., 2005; Bassanini, 2006; Dearden et al., 2006; Leuven and Oosterbeek, 2008; Albert et al., 2010; Fouarge et al., 2013) probably underestimate the wage effects of training participation. This is

[2] Backes-Gellner et al. (2007) measure time preferences with a dummy indicating that enjoying life and having enough time for personal interests/leisure is a very important aim in life.

because the reference group of those who did not participate in training includes both temporary and chronic non-participants. As we show, the latter have clearly different characteristics compared to temporary non-participants, who are very similar in these characteristics to recent participants in training.

The remainder of the paper is organized as follows. Section 2 briefly reviews the relevant literature. Section 3 describes the data and the main concepts. The methods used for the analysis are explained in Section 4 and the results are presented in Section 5. Conclusions and discussions are presented in Section 6.

2. Literature review

Non-participation in training likely results from the cost–benefit decisions of workers (Vignoles et al., 2004). Backes-Gellner et al. (2007), however, argue that non-participants are not a homogeneous group. The authors distinguish between temporary and chronic non-participants. Temporary non-participants are defined as those who did not participate in any recent training but did participate in training in the past, while chronic non-participants are defined as those who never participated in any training during their working career. Backes-Gellner et al. find that chronic non-participants would have to bear higher training costs than they are willing to pay. Moreover, the benefits of training regarding their current jobs (i.e. increase in pay and job security) would be substantially lower for chronic non-participants compared to the temporary non-participants. However, these two groups do not differ significantly in terms of improved prospects on the labour market in the long run. This result suggests that never participating in training could be driven by other factors, such as non-cognitive skills (e.g. intrinsic motivation to learn, self-regulation), economic preferences (e.g. future orientation, preference for leisure), the type of tasks to be performed (e.g. task complexity), or the firm's training supply.

There is ample evidence that non-cognitive skills affect a worker's decision to invest in human capital (Heckman et al., 2006; Duncan et al., 2007). In a meta-analysis of 256 studies, Colquitt et al. (2000) show that personality traits have a significant and direct relation to the motivation of employees to train, as well as on learning outcomes. In particular, for those who have a low tendency to train, being more aware of the returns to training could increase their willingness to participate. Walter and Mueller (2015) find that individuals who have higher expectations in terms of future pay raises, career opportunities, or recognition among their colleagues are willing to pay more for their training. Intrinsic motivation to learn is expected to affect the individual's cost–benefit analysis of investing in

training, since more motivated people could perceive fewer opportunity costs with respect to the time dedicated to training and mainly value what they could learn from the training course. Theranou (2001) also shows that intrinsic motivation to learn and motivation through expectations on future returns explain actual training participation one year later. Maurer et al. (2003) find that workers who have more insight into their career, those who believe in the need to develop themselves professionally, as well as those who feel they would derive benefits from training are more inclined to participate in training and learning activities. These studies suggest that workers' motivation could play a major role in individual training decisions.

Pfeiffer and Reuß (2008) show that self-regulation could also have an impact on workers' decision to participate in training. Self-regulation refers to goal-directed behaviour: Individuals with higher levels of self-regulation have the 'capacity to plan, guide, and monitor one's behaviour flexibly in the face of changing circumstances' (Brown, 1998: 62). According to Radosevich et al. (2004), self-regulation is positively correlated with the adoption of learning goals. Therefore, self-regulated workers are more likely to see training as a means to an end. Conversely, individuals with low levels of self-regulation are less conscious of what they need to do to achieve their goals, which makes them less willing to bear the immediate costs of training that could have future benefits (Elliot and Thrash, 2002).

Apart from these non-cognitive skills, the decision not to train could also result from individuals' economic preferences or constraints. Borghans et al. (2008) suggest that participation in training is driven by economic preferences such as time discounting and preference for leisure. Fouarge et al. (2013) find that the unwillingness to train of low-educated workers compared to highly educated workers can be attributed to economic preferences such as future orientation[3] and a preference for leisure.

By considering both self-regulation and future orientation, different aspects of the discount rate are captured in our analyses. Self-regulation captures the non-cognitive part (e.g. keeping track of progress towards goals), whereas future orientation is related to the perceived value of delayed benefits. Fouarge et al. (2013) show that those who prefer to allocate their time to leisure and who think less about the future consequences of their actions are less likely to participate in training, whereas Walter and Mueller (2015) find that time constraints explain why some individuals are not willing to participate in training. In the same vein, Backes-Gellner et al. (2007) suggest that present-oriented individuals are less likely to participate in training, since they have higher discount rates and

[3] Future orientation captures the extent to which individuals are willing to make an effort today to achieve future designed goals.

would sacrifice less leisure time. Tuor and Backes-Gellner (2009) even find that the non-monetary costs of training are a more binding restriction than monetary costs.

Alternatively, training participation decisions could also be driven by the nature of the job and the extent to which changes in the job tasks lead to skill obsolescence (De Grip and van Loo, 2002). One reason for not investing in training could be that the current job has low skill requirements, and henceforth low human capital depreciation. Bassanini et al. (2005) find that the skill intensity of the occupation increases the likelihood of training participation. In the same vein, De Grip and Smits (2012) show that workers who work in jobs that require more technical knowledge or strong information technology skills participate more often in training. Data from the European Labour Force Survey are consistent with the literature, showing 'no need of training for work' as the most frequent reason (50%) for non-participation in training.[4]

Another explanation for why workers do not train could be that their employer does not supply any training opportunities. Tuor and Backes-Gellner (2009) and De Grip and Smits (2012) show that employer support is important in training decisions and the share of self-financed training compared to employer-supported training is relatively low. Nelen and De Grip (2009) find that formal training is stimulated by human resource practices such as performance interviews, personal development plans, and both positive and critical feedback.

In this paper, we test the extent to which chronic non-participation can be explained away by workers' non-cognitive skills or, alternatively, by their less demanding job tasks or their firms' lack of HRD policy.

3. Data and descriptive results

This study is based on data detailing the working and learning activities of a representative sample of the Dutch labour force. The data are from the Research Centre for Education and the Labour Market (ROA) 2010 Lifelong Learning Survey. The data from the ROA Lifelong Learning Survey were gathered among the respondents of the Dutch Central Bank (DNB) 2010 Household Survey, a web-based survey of some 2,000 Dutch households. This enables us to enrich the data and cover the unobserved heterogeneity with information from the DNB Household Survey that is lacking in our data, such as an individual's future orientation.

[4] See http://ec.europa.eu/eurostat/statistics-explained/index.php/File:Obstacles_to_participation_in_education_and_training,_2011_(%C2%B9)_(%25)_YB15.png.

The analyses are based on the 2010 wave of the ROA Lifelong Learning Survey, since it contains detailed information on non-cognitive skills as well as information on job tasks. However, panel data information from earlier waves (2004 and 2007) of the ROA Lifelong Learning Survey is used for a robustness check.[5] The sample is restricted to employed respondents between the ages of 25 and 64, excluding those who are self-employed, and includes 878 workers. Sample statistics are reported in Table 1.

Training participation

As in most other studies, training is measured as participation in training or work-related courses in the previous two years, excluding courses taken as a hobby (e.g. Bassanini et al., 2005). A novel feature compared to other surveys is that we included a follow-up question for workers reporting that they did not participate in any courses or training in the past two years: We asked them whether they participated in courses or training more than two years ago. This allows us to distinguish three kinds of workers: 1) recent participants who trained in the last two years, 2) temporary non-participants who trained in the past but not in the last two years, and 3) chronic non-participants who have not participated in training since they entered the labour market. Furthermore, workers' previous training participation answers are checked for robustness with information gathered from the same individuals in earlier waves of the ROA Lifelong Learning Survey. We do this because workers may rationalize their past behaviours and give inconsistent responses at different times. Indeed, some workers who stated in the 2010 wave that they had never participated in any training course stated in earlier waves (2004 or 2007) that they participated in training at some point in their life. These workers were recategorized as temporary non-participants.[6]

Descriptive statistics in Table 1 show that about 57% of Dutch workers participated in training in the last two years. Another 26% of the workers participated in training, but more than two years ago. These are temporary non-participants. However, there is a hard core of 17% of Dutch workers who never participated in any training course. We label this group of workers the chronic non-participants. This percentage of chronic non-participants in training is very similar to those in the earlier waves (2004 and 2007) of the ROA Lifelong Learning Survey. The percentage of chronic non-participants in training is higher among low-educated workers, although, even among the highly educated, the percentage of chronic non-participants is 13%. The difference between the training

[5] We report these robustness checks in footnotes.

[6] About half of those who claimed to have never participated in training stated that they did at some point of their life in a former wave. Recategorizing those workers with inconsistent answers and replicating the analyses did not change the results.

participation groups by gender is small and insignificant.[7] On average, temporary non-participants are slightly older than recent participants (significant at 1%), whereas recent participants and chronic non-participants do not differ significantly.

[Insert Table 1 about here]

Wages

Workers' wages are indicated by their gross monthly wages.[8] On average, as shown in Table 1, the wages of recent participants and temporary non-participants are not significantly different. However, chronic non-participants earn significantly lower wages. A drawback associated with the use of monthly wage information is that it is missing for about a third (32%) of the respondents. Consequently, the categorical net monthly income of the workers that has only 10 missing observations is used in a robustness analysis.[9]

Non-cognitive skills

We include three non-cognitive skills: 1) intrinsic motivation to learn 2) extrinsic motivation to train (Theranou, 2001),[10] and 3) self-regulation (Carey et al., 2004). We measure a worker's intrinsic motivation to learn using the validated scale of Noe and Wilk (1993). Respondents were given five statements and asked to indicate, on a scale of one to five, the extent to which these statements applied to them. Examples of the statements are 'I would like to improve my skills' and 'I am ready to exert effort in a training course to improve my skills' (for a full list, see Appendix A). Intrinsic motivation to learn is the average of all five statements, which is then normalized. Scale reliability is calculated using Cronbach's alpha, which equals 0.86. Higher scores indicate that the workers are more motivated to learn. On average, the intrinsic motivation to learn of chronic non-participants is lower than that of recent participants and temporary non-participants and the difference is statistically significant.

[7] Chronic non-participation in training is lowest among workers aged between 25 and 34, suggesting that chronic non-participation is not driven by young workers recently entering the labour market.
[8] The analyses control for the number of hours worked.
[9] One limitation of using the net monthly income of the workers is that it includes income from different sources.
[10] Theranou (2001) shows that these are two distinct types of motivation that both matter in people's decision to participate in training.

Extrinsic motivation to train is assessed by using six statements from Theranou's (2001) measure of the instrumentality of training. Respondents are asked, on a scale of one to five, the extent to which they agreed with statements on the expected outcomes of training (e.g. training can help in 'achieving career goals' or 'obtaining a higher wage'; see Appendix B for a full list). Extrinsic motivation to train is calculated as the average of all six statements, which is then normalized. Cronbach's alpha equals 0.90. Similar to intrinsic motivation to learn, higher values indicate a stronger extrinsic motivation to train. Recent participants have higher mean values of extrinsic motivation to train (significant at 1%) than the chronic non-participants, whereas the difference between temporary and chronic non-participants is insignificant.

[Insert Table 2 about here]

We measure self-regulation using 14 statements of Carey et al. (2004), such as 'I set goals for myself and keep track of my progress' and 'I can achieve the aims that I set myself' (for a full list, see Appendix C). Self-regulation is calculated as the average answer to all six statements, which is then normalized. Cronbach's alpha equals 0.71. Individuals with higher levels of self-regulation would be more likely to manage their desires and try achieving their goals by keeping on track. Henceforth, recognizing the benefits of training can trivialize its costs. Expectedly, chronic non-participants have lower scores of self-regulation compared to the other two groups (see Table 1), but the difference between recent participants and temporary non-participants is insignificant.

Table 2 illustrates the correlations between chronic non-participation in training and the explanatory variables. Intrinsic motivation to learn and self-regulation are both correlated with chronic non-participation in training, whereas the correlation between chronic non-participation in training and extrinsic training motivation is not significant (-0.040). Lower intrinsic motivation to learn seems to be the strongest indicator of chronic non-participation in training among the non-cognitive skills. Intrinsic motivation to learn and extrinsic motivation to train are significantly and positively correlated (0.448).[11] Self-regulation is correlated with intrinsic motivation to learn (0.076, significant at 5%), but the correlation between self-regulation and extrinsic training motivation is statistically insignificant.

[11] This high correlation suggests that it is hard to tease out intrinsic motivation to learn from extrinsic training motivation. As a robustness test, we use less correlated single items from these scales.

Economic preferences

Similar to the approach of Fouarge et al. (2013), economic preferences are assessed by an individual's future orientation and preference for leisure. As suggested by Strathman et al. (1994), future orientation[12] is measured using the 12-item scale from the DNB Household Survey. It includes items such as 'I think about how things can change in the future, and try to influence those things in my everyday life' and 'I think it is more important to work on things that have important consequences in the future, than to work on things that have immediate but less important consequences' (for a full list of statements, see Appendix D). The answers were given on a seven-point scale where one indicates 'totally disagree' and seven indicates 'totally agree'. Therefore, higher values indicate stronger future orientation (greater patience). A single item indicating future orientation is constructed based on the standardized average of these items. Cronbach's alpha equals 0.73.[13] Future orientation is negatively correlated with chronic non-participation in training at the 10% level and positively correlated with intrinsic motivation to learn and self-regulation. On average, both recent participants (significant at 5%) and temporary non-participants (significant at 10%) have higher mean scores of future orientation than the chronic non-participants, whereas the difference between recent participants and temporary non-participants is insignificant.

The ROA Lifelong Learning Survey contains a question that asks respondents about their willingness to use a fictitious voucher for a training course outside office hours. A follow-up question asks respondents why they would choose not to use the voucher. Respondents could indicate on a five-point scale the extent to which five statements apply to them. One such statement is they 'prefer to do something else in the evening'. This item is used to measure respondent's preference for leisure. The item was standardized, with higher values indicating that the respondents had stronger levels of preference for leisure. There is a positive correlation between chronic non-participation and preference for leisure (0.087, significant at 5%). Moreover, preference for leisure is negatively correlated with non-cognitive skills (significant at 1%). Recent participants have lower values for preference for leisure than temporary non-participants (significant at 5%) and chronic non-participants (significant at 1%).

[12] The correlation between self-regulation and future orientation is 0.103 and replicating the models separately for each item does not influence the results.

[13] Information from the DNB Household Survey is used to construct future orientation but more than 20% of the information was missing. Therefore, we used information from the 2007, 2009, and 2011 waves of the DNB Household Survey for the missing values, since an individual's future orientation is fairly stable over time (Strathman et al., 1994).

Task complexity

We measure the level of complexity required for an individual's work tasks using five-point scales with which respondents indicate the extent to which their job involves doing easy tasks (one) or challenging/difficult tasks (five) and whether their job involves routine tasks (one) or creative tasks (five). We use the average value of the two scales – which we normalize – to measure the complexity of the tasks in a job. As Table 3 shows, task complexity is indeed negatively correlated to chronic non-participation, showing that workers who never participated in any training have jobs with more routine and easier tasks (-0.217, significant at 1%). Task complexity, however, is also significantly correlated with a worker's intrinsic motivation to learn, extrinsic motivation to train, and self-regulation. This result suggests that workers who have higher levels of non-cognitive skills are more likely to sort into jobs with more challenging tasks. Moreover, recent participants have the highest mean values of task complexity, whereas chronic non-participants have, on average, the lowest values. The differences in mean value between the three groups are statistically significant (at 1%).

HRD policy

We use information on a firm's HRD policy to proxy for the firm's supply of training and work environment. A firm's HRD policy is measured by the application (yes = 1) of five HRD practices, including the use of a 'personal development plan' and 'regular feedback from the direct manager' (for a full list, see Appendix E). The firm's HRD policy is measured as the standardized value of the average answers to these five HR practices. As Table 3 shows, a firm's HRD policy is correlated with never having participated in training (-0.193, significant at 1%). Recent participants have the highest HRD policy values, on average, followed by temporary non-participants. Moreover, HRD practices are positively related to a worker's motivation and self-regulation. This result suggests that chronic non-participation could be the result of workers with certain traits sorting into jobs with employers who offer few training and development opportunities, rather than being the direct result of these traits.[14] Furthermore, recent participants have the highest mean HRD policy scores, followed by temporary non-participants. The difference is significant at 1% for all groups. Similar to the other explanatory variables, the HRD policy scores are normalized to have zero mean and a standard deviation equal to one.

[14] In Section 4, we analyse whether this is the case.

Control variables

We control for tenure, gender, age, age squared, education, having a partner, the number of children living in the household, tenure, and eight sector dummies (see Table 1), since it is well documented that the supply of training differs greatly among industry sectors (Bassanini et al., 2005). Furthermore, we assign the sample mean to the missing values of intrinsic motivation to learn (5.35%), extrinsic motivation to train (5.35%), self-regulation (11.85%), future orientation (5.58%), preference for leisure (5.24%), task complexity (11.16%), HRD policy (11.28%), and tenure (0.68%) and add the corresponding dummy variables.[15]

4. Results

Training participation status

We use discrete choice models to assess training participation status, with recent participants, temporary non-participants, and chronic non-participants. The models include non-cognitive skills, economic preferences, task complexity, HRD policy, and a number of control variables.

Table 3 shows the marginal effects of the determinants of training participation for various model specifications (see Appendix B, Table B1, for all the variables included in the models). Model 1 includes only non-cognitive skills and the control variables. Model 2 additionally includes economic preferences (future orientation and preference for leisure). Models 3 and 4 include the addition of task complexity and HRD policy, respectively.

Column 2 of Table 3 shows that workers with high scores for intrinsic motivation to learn and self-regulation are significantly less likely to be chronic non-participants in training. However, neither intrinsic motivation to learn nor self-regulation significantly differs between recent participants and temporary non-participants (see Column 1). Our estimation results also show that extrinsic motivation to train does not significantly differ between chronic non-participants, temporary non-participants, and recent participants.[16] This insignificance of extrinsic motivation to train is in line

[15] Only the dummy for the missing values of intrinsic motivation to learn is significant and the results do not differ significantly from the main analyses when the models are replicated by excluding the missing values (these findings are discussed in Section 4).

[16] As Table 2 shows, the correlation between intrinsic motivation to learn and extrinsic motivation to train is strong and significant. We replicated the analyses in Table 3 while excluding intrinsic motivation to learn and found that the extrinsic motivation to train remains insignificant. These findings differ from those of Tharenou (2001).

with the findings of Fouarge et al. (2013), who find that low-educated workers have similar returns to training as highly educated workers do.

[Insert Table 3 about here]

As can be seen from Model 2, the impact of non-cognitive skills remains unchanged with the inclusion of economic preferences. Moreover, the marginal effects of future orientation and preference for leisure are not significant, suggesting that these economic preferences do not influence worker training participation.[17]

Model 3 shows that the job's task complexity is among the drivers of training participation. Workers carrying out easier tasks are more likely to be chronic non-participants (significant at 1%), as shown in Column 6 of Table 3. This result suggests that workers who have more routine tasks in their jobs have lower training needs. However, the complexity of a worker's job tasks does not differentiate between temporary non-participants and recent participants.

The estimation results of Model 3 also show the relation between (1) low levels of intrinsic motivation to learn and self-regulation and (2) chronic non-participation is driven by the sorting of people with these traits into less demanding jobs that require less training. Column 6 of Table 3 shows that this is not the case for a worker's intrinsic motivation to learn. Controlling for task complexity in the job, we find that the effect of intrinsic motivation to learn is equally significant. However, the marginal effect of self-regulation becomes insignificant, suggesting that workers with lower levels of self-regulation also sort into jobs with less complex tasks.

Model 4 shows that those who are employed in a firm with a more extensive HRD policy are significantly less often a chronic non-participant. When there is a lack of personal development planning or regular feedback from line managers, workers are more likely to never participate in training. However, the firm's HRD policy does differentiate temporary non-participants from recent participants in training.[18] Workers' lack of intrinsic motivation to learn remains a significant

[17] Future orientation and preference for leisure remain insignificant when we replicate the analyses excluding self-regulation.

[18] The coefficient becomes significant for temporary non-participants (-0.076, significant at 5%) and higher for chronic non-participants (-0.097, significant at 1%) when the analyses are replicated including only a variable based on the item 'the firm provides a personal training' rather than a combination of HRD policy items. This result suggests that firms influence the actual training participation behaviour of workers to some extent (see also Backes-Gellner and Tuor, 2009).

explanation for chronic non-participation in training, even when we control for task complexity and the firm's HRD policy. [19, 20]

In an additional analysis, we also replicate the first two models (excluding tenure and sectors) with the whole sample aged between 25 and 64, including unemployed individuals and those out of the labour force but excluding respondents going to school or studying (Appendix B, Table B2). We also take into account that employed respondents could have different unobserved characteristics from respondents who are not employed. Therefore, we model the probability of being employed by including non-cognitive skills, region, degree of urbanization, education, age, age squared, having a partner, and number of children living in the household by using a maximum likelihood estimation (Wooldridge, 2015).

We note that the significance of self-regulation increases (from the 10% to the 1% level) and extrinsic motivation to train becomes significant at the 5% level in the first model. Those with a higher level of non-cognitive skills are less likely to be a chronic non-participant compared to recent participants, whereas none of these traits differ between temporary non-participants and recent participants in training. After economic preferences are included in Model 2, the significance level of self-regulation declines slightly (from 1% to 5%) and extrinsic motivation to train becomes insignificant. Other parameters remain similar to those in the main analyses.

We furthermore distinguish between recent participants who participated in one training course in the last two years (37.34% of the recent participants) and those who participated in more than one training course in the last two years to see whether workers who participated in training more intensively have different traits from those who participated only in one training course (Appendix B, Table B3). Indeed, we find that higher levels of intrinsic motivation to learn, more complex tasks in the job, and a more developed HRD policy make participation in more training more likely. This result suggests that the incidence of training participation, apart from the worker's own intrinsic motivation to learn, could increase with more complex job tasks or better-developed human resource strategies.

[19] Furthermore, we investigated whether task complexity and a firm's HRD policy have a moderating effect on workers' intrinsic motivation to learn and/or self-regulation. We found that the impact of intrinsic motivation to learn on being a recent participant in training compared to being a chronic non-participant is higher for those who have more complex job tasks. This finding suggests that a worker's intrinsic motivation to learn is most important for training participation if a worker is employed in a job with complex work tasks. However, we cannot determine the extent to which these results are due to the selection of workers with these traits into these jobs.

[20] We also replicated the analyses by excluding the missing values of the explanatory variables to see whether they influence the results and obtained similar results. Only self-regulation became insignificant in the second model for chronic non-participants and a firm's HRD policy became significant at the 10% level for temporary non-participants, suggesting that a lack of HRD policy in the firm makes temporary non-participants more likely than recent participants.

Implications for the estimation of wage returns to training

Our estimated results have shown that chronic non-participants are very different from both temporary non-participants and current participants in training in terms of their non-cognitive skills and job tasks. This finding suggests that it is important to distinguish between chronic non-participants and temporary non-participants when estimating the returns to training to avoid bias.

To illustrate whether distinguishing between the two groups of non-participants in training is relevant to the estimation of wage returns to training, we first run an ordinary least squares wage regression – as is common in other studies – in which we only distinguish between those who trained in the last two years and those who did not (Table 4), controlling for working hours. Workers who recently participated in training earned 6.7% higher wages than workers who did not. This wage difference, however, is not significant. In Model 2, we control for task complexity, HRD policy, gender, age (in years), age squared, education, having a partner, the number of children living in the household, and industry sector, as well as non-cognitive skills (motivation, self-regulation) and economic preferences.[21] Inclusion of these controls reduces the estimated returns on training and remains insignificant. We repeat these estimations in Models 3 and 4, respectively, where we distinguish between chronic non-participants, temporary non-participants, and recent participants. The results from Model 4 show that workers who participated in any training earn significantly more than those who never participated in training (wage difference of 17%). Workers who trained in the past but not recently also earned more than chronic non-participants (wage difference of 21%). As these results suggest, the wage difference between temporary non-participants and recent participants is not statistically significant (p = 0.483). These analyses show that considering the non-participants in training as a homogeneous group neglects the effect of former training participation and therefore underestimates the returns to training.[22]

Since information on wages is missing for one-third of the sample, we also estimated ordered logit models in which the net monthly income of the workers (grouped in 11 categories) is the dependent variable. The estimation results mirror the results of Models 3 and 4 in Table 4 (Appendix F, Table B4). The results are in line with those of Table 4: Recent participants and temporary non-participants earn similar wages, but chronic non-participants earn significantly lower wages. It is obvious that, given the cross-sectional nature of our data, these analyses cannot be taken as causal estimates of

[21] To limit potential endogeneity, we control for several factors that influence both training participation and wages (e.g. including task complexity to avoid ability bias). However, it remains possible for other factors to influence the returns of high-ability workers with the available cross-sectional data.

[22] Excluding respondents with missing values for the explanatory variables yields similar results.

returns to training. However, the results clearly show that temporary non-participants and chronic non-participants differ not only in non-cognitive skills and job tasks, but also in terms of earnings when these characteristics are controlled for.

[Insert Table 4 about here]

5. Conclusion

If a substantial share of the labour force persistently lags behind in terms of human capital investments during their life course, this could jeopardize people's ability to deal with changing skill needs and related skill depreciation in their working career. We show that there is, indeed, a hard core of about 17% of the Dutch workforce who never participated in a training course after they left initial education. Even among the highly educated, this percentage is substantial (13%). As far as we know, only one study, that of Backes-Gellner et al. (2007), has considered chronic non-participation in training. Our study adds to this scant literature by investigating potential explanations for chronic non-participation in training.

We find that low levels of intrinsic motivation to learn and self-regulation are related to chronic non-participation. A key finding is that having high levels of intrinsic motivation to learn or self-regulation is significantly related to being a chronic non-participant in training, but temporary non-participants and recent participants do not differ from one another with respect to these traits. These results support the ideas that (1) workers with higher levels of intrinsic motivation to learn participate in training for human capital formation (Heckman et al., 2006) and (2) chronic non-participants in training could be less goal oriented (Carey et al., 2004).

We also find that workers with high job task complexity are less likely to be chronic non-participants. This result suggests that workers who require greater abilities to carry out their tasks are more likely to update their skills through training (Bassanini et al., 2005). Although workers with low levels of self-regulation sort into jobs with less challenging job tasks, controlling for job tasks does not explain the correlation we find between intrinsic motivation to learn and being a chronic non-participant. We also find that the lack of good HRD policies increases the likelihood of being a chronic non-participant but, again, leaves the role of intrinsic motivation to learn unchanged. None of the factors considered in our models are crucial in the distinction between temporary non-participants and recent participants.

Furthermore, we investigate whether distinguishing between temporary and chronic non-participants in training is relevant to the estimation of wage returns to training. Wage returns do not differ between recent participants and non-participants in training when temporary and chronic non-participants are considered as a homogeneous group (as done in most studies). However, when we distinguish between temporary and chronic non-participants, chronic non-participants earn less than both temporary non-participants and recent participants, whereas temporary non-participants and recent participants earn similar wages. These analyses of wage differentials on cross-sectional data do control for relevant confounders (including non-cognitive skills and job tasks). However, they still could be subject to endogeneity issues. Nevertheless, this is probably less relevant to the point we want to make here. Our findings suggest that chronic non-participants in training make up a large share of the workforce and they have specific traits that distinguish them from both temporary non-participant and recent participants. This finding has consequences for empirical research on the returns to training, since most studies typically compare the wage returns of those who trained recently with the returns of those who did not train recently. We show that the latter group is very heterogeneous. Considering non-participants in training as a homogeneous group would neglect the returns to previous training(s) for temporary non-participants and would thus lead to biased estimations of wage returns to training.

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Table 1: Sample statistics

	Total		Training Participation		
			Recent Participant	Temporary non-participant	Chronic non-participant
	Mean	Std. Dev.	Mean	Mean	Mean
Training Participation					
Recent Participant	0.57	0.495			
Temporary non-participant	0.26	0.441			
Chronic non-participant	0.17	0.373			
Log Monthly Wage[a]	10.44	0.595	10.49	10.48	10.17***
Non-cognitive skills					
Intrinsic motivation to learn	0.00	1.000	0.18	-0.12***	-0.39***
Extrinsic motivation to train	0.00	1.000	0.06	-0.07*	-0.09*
Self-Regulation	0.00	1.000	0.09	-0.05*	-0.20***
Economic Preferences					
Future Orientation[a]	0.00	1.000	0.04	0.00	-0.15**
Preference for leisure	0.00	1.000	-0.10	0.09**	0.20***
Job Characteristics					
Task Complexity	0.00	1.000	0.20	-0.09***	-0.50***
HRD Policy	0.00	1.000	0.19	-0.12***	-0.45***
Female	0.44	0.497	0.45	0.42	0.45
Age	46.47	9.747	45.93	47.94***	46.01
Education					
- Elementary	0.02	0.146	0.01	0.03**	0.05***
- Lower Vocational Education	0.21	0.406	0.17	0.24**	0.28***
- High School	0.10	0.303	0.09	0.11	0.14**
- Intermediate Vocational Education	0.21	0.407	0.20	0.23	0.22
- Higher Vocational Education	0.30	0.458	0.36	0.26***	0.17***
- University	0.16	0.366	0.18	0.14*	0.13*
Partner	0.77	0.424	0.74	0.78	0.82**
No of Children in the Household	1.01	1.126	1.00	0.98	1.06
Log Tenure	2.12	1.123	2.12	2.17	2.01
Industry Sector					
- Energy, industry, land	0.15	0.360	0.15	0.13	0.21**
- Construction, transport	0.09	0.281	0.08	0.10	0.07
- Catering, trade	0.11	0.311	0.08	0.13***	0.19***
- Financial and Commercial Services	0.15	0.358	0.15	0.18	0.10**
- Public Sector	0.13	0.340	0.14	0.14	0.08**
- Education	0.12	0.326	0.14	0.09**	0.10*
- Healthcare	0.21	0.410	0.23	0.18*	0.23
- Culture, sport, recreation	0.03	0.182	0.03	0.04	0.04
Number of Observations (N)	878				

Note: Stars show the significance level compared to the recent participants (* p<0.10 ** p<0.05 *** p<0.01)

[a] Variable from the DNB Household Survey

Table 2: Correlations between the main variables of interest

	1	2	3	4	5	6	7	8
1) Chronic non-participation[a)]								
2) Monthly wage	-0.199***							
3) Intrinsic motivation to learn	-0.174***	-0.000						
4) Extrinsic motivation to train	-0.040	-0.038	0.448***					
5) Self-regulation	-0.087**	-0.016	0.076**	-0.057				
6) Future orientation	-0.067*	0.158***	0.146***	0.066*	0.096***			
7) Preference for leisure	0.087**	0.012	-0.312***	-0.169***	-0.156***	-0.062*		
8) Task complexity	-0.217***	0.227***	0.173***	0.028	0.149***	0.165***	-0.110***	
9) HRD	-0.193***	0.173***	0.127***	0.128***	0.072**	0.044	-0.025	0.207***

a) Coded as 1 for chronic non-participants and 0 otherwise.

* p<0.10 ** p<0.05 *** p<0.01

Table 3: Multinomial probit model for training participation status

	Model 1		Model 2		Model 3		Model 4	
Reference: Recent Participant	Temporary non-participant (1)	Chronic non-participant (2)	Temporary non-participant (3)	Chronic non-participant (4)	Temporary non-participant (5)	Chronic non-participant (6)	Temporary non-participant (7)	Chronic non-participant (8)
Intrinsic motivation to learn	-0.017	-0.053***	-0.014	-0.050***	-0.011	-0.047***	-0.010	-0.045***
	(0.017)	(0.013)	(0.017)	(0.014)	(0.017)	(0.013)	(0.017)	(0.013)
Extrinsic motivation to train	-0.001	0.004	-0.000	0.005	-0.000	0.005	0.003	0.009
	(0.017)	(0.014)	(0.017)	(0.014)	(0.017)	(0.014)	(0.017)	(0.014)
Self-regulation	-0.013	-0.022*	-0.012	-0.021*	-0.011	-0.014	-0.009	-0.012
	(0.015)	(0.012)	(0.015)	(0.012)	(0.015)	(0.012)	(0.015)	(0.012)
Preference for leisure			0.014	0.009	0.015	0.006	0.016	0.006
			(0.016)	(0.013)	(0.016)	(0.013)	(0.016)	(0.013)
Future orientation			0.015	-0.011	0.015	-0.008	0.014	-0.009
			(0.016)	(0.013)	(0.016)	(0.013)	(0.016)	(0.013)
Task complexity					-0.007	-0.057***	-0.003	-0.051***
					(0.016)	(0.012)	(0.016)	(0.012)
HRD policy							-0.023	-0.044***
							(0.016)	(0.014)
Controls	yes		yes		yes		yes	
N	878		878		878		878	

Note: Recent training participation is the reference, temporary non-participation is the first outcome and chronic non-participation is the second outcome. The table shows the marginal effects after a multinomial probit model and the standard errors in parentheses. Controls used in the models are gender, age, age-squared, education, having a partner, number of kids living in the household, log tenure, industry sector, and dummy variables to control for missing values on intrinsic motivation to learn, extrinsic motivation to train, self-regulation, future orientation and preference for leisure, task complexity, HRD policy and tenure.

* p<0.10 ** p<0.05 *** p<0.01

Table 4: OLS regression models for monthly wage on training participation status

	Monthly wage (log)	
	Model 1	Model 2
Recent Participants	0.067	0.042
(Reference: Non-Participants)	(0.045)	(0.041)
Working Hours	0.441***	0.268***
	(0.040)	(0.039)
Controls	No	Yes
Adj-R-Squared	0.186	0.403
N	601	601
	Model 3	Model 4
Recent participants	0.255***	0.174***
(Reference: Chronic non-participants)	(0.060)	(0.056)
Temporary (non-)participants	0.307***	0.206***
	(0.067)	(0.060)
Working Hours	0.442***	0.272***
	(0.039)	(0.039)
Controls	No	Yes
Adj-R-Squared	0.212	0.414
N	601	601

Notes: Standard errors in parentheses. Controls used in the models are intrinsic motivation to learn, extrinsic motivation to train, self-regulation, future orientation, preference for leisure, task complexity, HRD policy, gender, age, age-squared, education, having a partner, number of kids living in the household, tenure, industry sector, and dummy variables to control for missing values on working hours, intrinsic motivation to learn, extrinsic motivation to train, self-regulation, future orientation and preference for leisure, task complexity, HRD policy and tenure.
* p<0.10 ** p<0.05 *** p<0.01

Appendix A: Overview of scales used

Items for intrinsic motivation to learn (Noe and Wilk 1993 2001)

To what extent do you agree with the following statements?

(1 = disagree completely … 5 = agree completely)

1. I learn a lot from courses compared to my colleagues
2. I would like to improve my skills
3. I am ready to exert effort in a training course to improve my knowledge and skills
4. Taking a course gives me good ideas
5. I think I can improve my knowledge and skills by taking a course

Items for extrinsic motivation to train (Theranou 2001)

To what extent do you agree with the following statements?

(1 = disagree completely … 5 = agree completely)

Taking a course can contribute to …

1. achieving my career goals
2. obtaining a higher wage
3. increase my chances of employment
4. to change my job
5. increase my chances of promotion
6. obtaining praise from my superior

Items for self-regulation (Carey et al. 2004)

To what extent do the following statements apply to you?

(1 = I am not at all like that … 5 = I am like that)

1. I usually keep track of my progress toward my goals
2. My behavior is not that different from other people's
3. Others tell me that I keep on with things too long (reversed)
4. I doubt I could change even if I wanted to(reversed)
5. I have trouble making up my mind about things(reversed)
6. I get easily distracted from my plans(reversed)
7. I reward myself for progress made toward my goals(reversed)
8. I don't notice the effects of my actions until it's too late(reversed)
9. My behavior is similar to that of my friends(reversed)
10. It's hard for me to see anything helpful about changing my ways(reversed)
11. I'm able to accomplish goals I set for myself
12. I put off making decisions(reversed)
13. I have so many plans that it's hard for me to focus on any one of them(reversed)
14. I change the way I do things when I see a problem with how things are going

Items for future orientation (Strathman et al. 1994)

To what extent do you agree with the following statements?

(1 = totally disagree … 5 = totally agree)

1. I think about how things can change in the future, and try to influence those things in my everyday life
2. I often work on things that will only pay off in a couple of years
3. I am only concerned about the present, because I trust that things will work themselves out in the future(reversed)

4. With everything I do, I am only concerned about the immediate consequences (say, a period of a couple of days or weeks) (reversed)
5. Whether something is convenient for me or not to a large extent determines the decisions that I take or the actions I undertake (reversed)
6. I am ready to sacrifice my well-being in the present to achieve certain results in the future
7. I think it is important to take warnings about negative consequences of my acts seriously, even if these negative consequences would only occur in the distant future
8. I think it is more important to work on things that have important consequences in the future, than to work on things that have immediate but less important consequences.
9. In general, I ignore warnings about future problems because I think these problems will be solved before they get critical (reversed)
10. I think there is no need to sacrifice things now for problems that lie in the future, because it will always be possible to solve these future problems later (reversed)
11. I only respond to urgent problems, trusting that problems that come up later can be solved in a later stage (reversed)
12. I get clear results in my daily work, this is more important to me than getting vague results (reversed)

Items for HRD policy

In what ways does the company or the organization you work focus on your work and/or career development?

(0 = no … 1 = yes)

1) a personal training
2) regular feedback from your manager
3) career plan
4) the possibility of job rotation
5) performance pay or bonuses

Appendix B: Tables

Table B1: Multinomial probit model for training participation status (all variables reported)

	Model 1		Model 2		Model 3		Model 4	
Reference: Recent Participant	Temporary non-participant (1)	Chronic non-participant (2)	Temporary non-participant (3)	Chronic non-participant (4)	Temporary non-participant (5)	Chronic non-participant (6)	Temporary non-participant (7)	Chronic non-participant (8)
Intrinsic motivation to learn	-0.017	-0.053***	-0.014	-0.050***	-0.011	-0.047***	-0.010	-0.045***
	(0.017)	(0.013)	(0.017)	(0.014)	(0.017)	(0.013)	(0.017)	(0.013)
Extrinsic motivation to train	-0.001	0.004	-0.000	0.005	-0.000	0.005	0.003	0.009
	(0.017)	(0.014)	(0.017)	(0.014)	(0.017)	(0.014)	(0.017)	(0.014)
Self-regulation	-0.013	-0.022*	-0.012	-0.021*	-0.011	-0.014	-0.009	-0.012
	(0.015)	(0.012)	(0.015)	(0.012)	(0.015)	(0.012)	(0.015)	(0.012)
Preference for leisure			0.014	0.009	0.015	0.006	0.016	0.006
			(0.016)	(0.013)	(0.016)	(0.013)	(0.016)	(0.013)
Future orientation			0.015	-0.011	0.015	-0.008	0.014	-0.009
			(0.016)	(0.013)	(0.016)	(0.013)	(0.016)	(0.013)
Task complexity					-0.007	-0.057***	-0.003	-0.051***
					(0.016)	(0.012)	(0.016)	(0.012)
HRD policy							-0.023	-0.044***
							(0.016)	(0.014)
Female	0.008	-0.001	0.008	-0.002	0.007	-0.015	0.009	-0.016
	(0.035)	(0.029)	(0.035)	(0.029)	(0.035)	(0.028)	(0.035)	(0.028)
Age	-0.000	-0.017	0.000	-0.017	0.001	-0.021	-0.001	-0.025**
	(0.017)	(0.013)	(0.017)	(0.013)	(0.017)	(0.013)	(0.017)	(0.013)
Age-squared	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Elementary	0.040	0.262**	0.048	0.259**	0.070	0.216*	0.073	0.214*
	(0.112)	(0.114)	(0.113)	(0.114)	(0.116)	(0.111)	(0.116)	(0.110)
Lower vocational education	-0.020	0.038	-0.021	0.038	-0.021	0.015	-0.028	0.008
	(0.049)	(0.042)	(0.049)	(0.041)	(0.049)	(0.038)	(0.049)	(0.037)
High school	-0.021	0.052	-0.023	0.053	-0.024	0.060	-0.026	0.068

	(0.059)	(0.052)	(0.059)	(0.052)	(0.059)	(0.051)	(0.059)	(0.051)
Higher vocational education	-0.057	-0.070**	-0.059	-0.066*	-0.054	-0.052	-0.051	-0.039
	(0.045)	(0.034)	(0.045)	(0.034)	(0.046)	(0.034)	(0.046)	(0.034)
University	-0.063	-0.019	-0.074	-0.013	-0.069	0.020	-0.070	0.019
	(0.052)	(0.044)	(0.053)	(0.045)	(0.053)	(0.046)	(0.053)	(0.046)
Partner	0.019	0.050	0.022	0.049	0.024	0.059*	0.022	0.055*
	(0.038)	(0.032)	(0.038)	(0.032)	(0.038)	(0.032)	(0.038)	(0.032)
No of children in the household	0.001	-0.001	-0.000	-0.001	-0.000	-0.003	-0.000	-0.002
	(0.015)	(0.012)	(0.015)	(0.012)	(0.015)	(0.012)	(0.015)	(0.012)
Log tenure	-0.008	-0.010	-0.008	-0.011	-0.009	-0.006	-0.006	-0.002
	(0.015)	(0.012)	(0.015)	(0.012)	(0.015)	(0.012)	(0.015)	(0.012)
Construction, transport	0.064	-0.108**	0.069	-0.110**	0.066	-0.110**	0.059	-0.115***
	(0.063)	(0.046)	(0.063)	(0.046)	(0.063)	(0.044)	(0.063)	(0.043)
Catering, trade	0.094	0.023	0.091	0.018	0.088	0.010	0.082	0.005
	(0.062)	(0.055)	(0.062)	(0.055)	(0.062)	(0.052)	(0.062)	(0.051)
Financial and Commercial Services	0.088	-0.098**	0.084	-0.100**	0.080	-0.095**	0.087	-0.080*
	(0.055)	(0.044)	(0.055)	(0.044)	(0.055)	(0.043)	(0.056)	(0.045)
Public sector	0.068	-0.089*	0.066	-0.092**	0.065	-0.099**	0.075	-0.085*
	(0.057)	(0.046)	(0.057)	(0.046)	(0.057)	(0.044)	(0.058)	(0.045)
Education	-0.010	-0.023	-0.012	-0.024	-0.014	-0.002	-0.019	-0.010
	(0.060)	(0.057)	(0.060)	(0.058)	(0.060)	(0.058)	(0.060)	(0.057)
Healthcare	-0.004	-0.013	-0.008	-0.015	-0.009	0.003	-0.014	-0.002
	(0.052)	(0.049)	(0.051)	(0.049)	(0.052)	(0.049)	(0.052)	(0.048)
Culture, sport, recreation	0.100	-0.005	0.090	-0.008	0.081	-0.008	0.066	-0.035
	(0.094)	(0.081)	(0.094)	(0.081)	(0.093)	(0.078)	(0.091)	(0.072)
Observations	878		878		878		878	

Note: Recent training participation is the reference, temporary non-participation is the first outcome and chronic non-participation is the second outcome. The table shows the marginal effects after a multinomial probit model and the standard errors in parentheses. Other variables used in the models are dummy variables to control for missing values on intrinsic motivation to learn, extrinsic motivation to train, self-regulation, future orientation and preference for leisure, task complexity, HRD policy and tenure.

* p<0.10 ** p<0.05 *** p<0.01

Table B2: Multinomial probit model for training participation status for the whole sample

Reference: Recent Participant	Model 1		Model 2	
	Temporary non-participant	Chronic non-participant	Temporary non-participant	Chronic non-participant
Intrinsic motivation to learn	-0.008	-0.070***	-0.009	-0.064***
	(0.014)	(0.011)	(0.016)	(0.013)
Extrinsic motivation to train	0.005	-0.033**	0.004	-0.025
	(0.017)	(0.015)	(0.021)	(0.018)
Self-regulation	-0.008	-0.043***	-0.009	-0.036**
	(0.014)	(0.012)	(0.017)	(0.015)
Future orientation			0.001	0.016
			(0.017)	(0.015)
Preference for leisure			0.011	-0.006
			(0.014)	(0.012)
Inverse Mills Ratio	-0.000	-0.106	-0.029	0.091
	(0.277)	(0.238)	(0.405)	(0.357)
Controls	yes	yes	yes	yes
N	1,368		1,368	

Note: Recent training participation is the reference, temporary non-participation is the first outcome and chronic non-participation is the second outcome. The table shows the marginal effects after a multinomial probit model and the standard errors in parentheses. Controls used in the models are gender, age, age-squared, education, having a partner, number of kids living in the household and dummy variables to control for missing values on self-regulation, future orientation and preference for leisure.
* p<0.10 ** p<0.05 *** p<0.01

Table B3: Multinomial probit model for training participation status with 4 training groups

Reference: Recent Participants	Temporary non-participants	Chronic non-participants	Recent participants with more than 1 course
Intrinsic motivation to learn	-0.011	-0.045***	0.050***
	(0.017)	(0.013)	(0.019)
Extrinsic motivation to train	0.003	0.009	0.005
	(0.017)	(0.014)	(0.019)
Self-regulation	-0.010	-0.012	0.025
	(0.015)	(0.012)	(0.016)
Future orientation	0.014	-0.009	-0.004
	(0.016)	(0.013)	(0.016)
Preference for leisure	0.015	0.006	-0.001
	(0.016)	(0.013)	(0.016)
Task complexity and creativity	-0.003	-0.051***	0.055***
	(0.016)	(0.013)	(0.017)
HRD policy	-0.022	-0.044***	0.063***
	(0.016)	(0.014)	(0.016)
Controls	yes	yes	yes
Observations		878	

Note: Recent training participation is the reference, temporary non-participation is the first outcome and chronic non-participation is the second outcome. The table shows the marginal effects after a multinomial probit model and the standard errors in parentheses. Controls used in the models are gender, age, age-squared, education, having a partner, number of kids living in the household, log tenure, industry sector, and dummy variables to control for missing values on intrinsic motivation to learn, extrinsic motivation to train, self-regulation, future orientation and preference for leisure, task complexity and creativity, HRD policy and tenure.
* p<0.10 ** p<0.05 *** p<0.01

Table B4: Ordered logit model for net income

	Model 1	Model 2
Temporary non-participants	0.417***	0.276***
	(0.110)	(0.116)
Recent participants	0.476***	0.298***
(Reference: Chronic non-participants)	(0.099)	(0.108)
Working Hours	0.716***	0.464***
	(0.064)	(0.070)
Controls	No	Yes
N	868	868

Note: Answers are measured as (1) 500 Euros or less, (2) 501-1000 Euros, (3) 1001-1500 Euros, (4) 1501-2000 Euros, (5) 2001-2500 Euros, (6) 2501-3000 Euros, (7) 3001-3500 Euros, (8) 3501-4000 Euros, (9) 4001-4500 Euros, (10) 4501-5000 Euros and (11) 5001 to 7500 Euros. Standard errors in parentheses. Controls used in the models are intrinsic motivation to learn, extrinsic motivation to train, self-regulation, future orientation, preference for leisure, task complexity, HRD policy, gender, age, age-squared, education, having a partner, number of kids living in the household, log tenure, industry sector, and dummy variables to control for missing values on working hours, intrinsic motivation to learn, extrinsic motivation to train, self-regulation, future orientation and preference for leisure, task complexity, HRD policy and tenure.
* p<0.10 ** p<0.05 *** p<0.01