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Individual determinants of job-related learning and training activities of employees - An exploratory analysis of gender differences

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Individual determinants of job-related learning and training activities of employees - An exploratory analysis of gender differences

Abstract

Regarding gender differences, theory suggests that in a partnership the individual with the lower working hours and earnings position should exhibit lower training participation rates. Since women are more likely to match this description, we investigate whether systematic group differences explain gender variation. Across all countries, male workers are not affected by their earnings position. Disadvantages for female secondary earners arise only in Germany in the group of part-time workers when compared to single earners but not in the group of full-time workers. The findings hold at the extensive and the intensive margin, suggesting that, compared to the Netherlands and Italy, Germany faces particular obstacles regarding gender differences in job-related training.

Key Words: further education and training, gender differences, country comparisons

JEL Codes: J16, J24, M53

1 Introduction

The role of job-related learning and training activities as a possible driver of outcome inequalities with respect to pay (Munasinghe et al., 2008; Büchel & Pannenberg, 2004; Jürges & Schneider, 2004; Pischke, 2001; Kuckulenz & Zwick, 2003; Schömann & Becker, 1998), promotions (Pannenberg, 1995; 1997), and human capital formation (Becker, 1964; Ben-Porath 1967) has been highly debated in the literature. From a macroeconomic point of view, continuing education is decisive in ageing societies in order to secure high worker productivity over a longer working life. Occupational and technical change further reinforce the necessity of lifelong learning. To avoid labour shortages it is therefore important to ensure equal access to job-related training to everyone, avoiding discrimination based on gender. In particular, a cumulative process such that otherwise advantaged individuals self-select into on-the-job training which results in an even higher divergence of income and career perspectives has to be avoided. Indeed, empirical evidence on training incidence suggests that differences among men and women persist although the evidence remains inconclusive as to who shows a higher participation rate. However, it is not completely clear what is driving these differences. Against this background, the question arises whether there exists important group heterogeneity among men and women which is crucial in determining the participation rate and intensity. Particularly, the household context has been shown to significantly influence labor market participation of women (Lauber et al., 2014; Boll, 2011; Anxo et al., 2007; Geyer & Steiner, 2007; Vogel, 2007, Jaumotte, 2003; Hersch & Stratton, 1994; Bielby & Bielby 1989) and, hence, might play an important role for the participation in job-related training. However, so far there is little empirical research on the relationship between job-related training and household which is why the present paper aims to fill this gap.

Previous research suggests that for persons who take over more tasks in the household—hence, with a higher likelihood of holding part-time jobs and earning less than a respective partner—there are fewer incentives for their employers as well as individuals themselves to invest in further education. If part-time jobs can be observed more frequently among women, the job status may explain gender-specific variation in participation in further education. These relationships and potential explanations are found in human capital theory (Becker, 1964), bargaining models (Manser & Brown, 1980), ‘doing gender’ theories (West & Zimmerman 1987) and discrimination theories (Becker, 1957). To investigate the importance of group heterogeneity among men and women, in terms of part-time jobs and the earnings position in the partnership, for training participation, we use information from the EU Labour Force Survey (EU LFS) for Germany, Italy, and the Netherlands. The three countries show distinct

characteristics regarding their level of training participation but also family-friendly workplaces, allowing us to analyze the influence of the institutional environment. The earnings position distinguishes between employees who do not live with a partner in the same household (singles) and those who do and earn more than their partner (main earners), the same (equal earners), or less (secondary earners).

As to the results of our study, the Netherlands train significantly more often than Germany and there are only negligible differences between Italy and Germany. Being full-time employed relates more strongly to training than being part-time employed for female workers in Germany. The earnings position does not affect male workers in any country. However, in the German case, female single workers train more often than female secondary earners, a finding that is particular for part-time workers. Full-time female workers in a secondary earnings position are at no disadvantage when compared to the other earning positions. Instead full-time main earners train significantly less than secondary earners. Children below 12 years of age significantly reduce mothers' training participation in Germany and the Netherlands but not Italy when controlling for the working hours. No significant relationships can be identified for women and men when disregarding working hours.

Our study adds to the literature in three aspects. First, it sheds light on the remaining variation in training engagement, beyond the set of covariates that is usually employed in the literature. As an original contribution, we test the power of the relative earnings position in the household combined with the working time in explaining in-group variance in training involvement after controlling for established individual and job-related characteristics. Second, the study explores the role of institutional factors in a cross-country comparison, potentially showing the robustness of the new differentiators. In addition, we link the child gradient in the training equation to national-level indicators for family-compatible working conditions. Third, the study deals with the extensive and the intensive margin in the same methodological setting, supplementing the results from training participation with the findings for episode length.

The outline of the paper is as follows. Section 2 provides the background for the study from which we derive our hypotheses. Section 3 describes the data, variables, and the methodology applied. Section 4 provides our main findings for participation incidence, a robustness check using training intensity, and a discussion of the results. Section 5 concludes.

2 Background

2.1 Previous research

From a theoretical point of view, a lower training engagement of women compared to men seems plausible for various reasons. By building on an economic rationale to explain human capital investments, human capital theory (Becker 1964) argues that the amount of human capital investments hinge on the returns to investment. Assuming a fixed resource budget, individuals choose their investments such that the pay-off rates of different investments are balanced. The theory itself is gender-blind. According to Becker's model of time allocation though (1965), and enforced by the theory of optimal energy allocation (Becker 1985), women are assigned a lower investment incentive in market-related human capital relative to men, due to women's comparative advantage in family tasks. Enforced by economies of scale and assuming a unique household utility, genders' comparative advantages explain the traditional gendered work division. More specifically, investments in firm-specific human capital that were made prior to an absence from the labor market may be significantly less valuable or even obsolete after the return to the labour market. Opportunities to reap the benefits from investment in human capital can be limited by wage-restricted job options that result from less demanding part-time jobs. Specifically, if women are unable to accept promotion offers following job-specific training, for instance, due to family reasons, training incentives are limited for both market sides (Hersch & Stratton 1994). Extending human capital theory to occupational choice, Polachek (1981) assumes that women, anticipating future employment breaks, choose occupations with low atrophy rates during the time off. As occupation-specific skill requirements in those jobs upgrade less dynamically, training requirements are rather low. In sum, human capital theory and related theories postulate that the continuously full-time employed exhibit the highest training incidence and hence, that primary earners (mostly men) should show higher training participation rates than women.

Different from the assumption of a joint household utility, bargaining models address the relevance of individual power. Cooperative bargaining models postulate that partners bargain over the intra-family production and distribution of goods (Lundberg & Pollak, 1993; Mc Elroy & Horney, 1981; Manser & Brown, 1980). Among others, this applies to decisions with respect to time use, fertility and income distribution (Beblo & Boll, 2014). As time is an ingredient for human capital formation (Ben-Porath 1967), training decisions are supposed to be subject to intra-couple bargaining. Partners' relative earnings prove a powerful division rule in this regard. In more detail, higher relative earnings are associated with a higher bargaining position. Hence, the partner with the relatively higher wage is more likely to train, not only as

this pays off more (Becker, 1965) but also as he is more able to enforce his time use preferences.

However, bargaining theory is not able to explain why it happens that economically powerful female partners display a gender-stereotyped behavior, reflected by a high (fe)male share on the couple's workload of (un)paid tasks. The sociological theory of 'doing gender' fills this gap (Berk 1985, West und Zimmerman 1987, South und Spitze 1994). It postulates that gender roles are structured by practiced behavior in the household context. Partners may derive utility from gender stereotype behavior. Particularly in the course of family building, traditional gender roles are revitalized (Dieckhoff & Steiber, 2009). In general, doing gender predicts that gender equalization in the labour market goes hand in hand with a re-traditionalizing of the household sphere. Relatedly, the 'identity economics' approach argues that in contra-normative situations, a loss of gender identity may occur that may be compensated by an intensified gender-typical behavior in a different field of action (e.g. Akerlof und Kranton 2000). For example, successful women who earn more income than their male partners might compensate the latter by taking over the bulk of household tasks (Brines 1994). Hence, according to 'doing gender' theory, a *higher* (lower) training incidence of women could be related to a second (primary) earner position.

Institutional factors like country-specific work arrangements and institutional childcare provision may notably impact the time that mothers can devote to job-related training. From our understanding, family-friendly work environments allow flexible work arrangements, such as working part-time, and provide access to institutional child care. Such environments are particularly important for families with young children who require much attention and, thus, can be the most important impediment to participation in job-related training for those mothers mainly responsible for upbringing the children in the household context. To investigate the importance of institutional factors, the analysis has to be extended to cross-country comparisons.

Finally, discrimination theories stress the perspective of employers with manifold evidence for taste-based (Becker, 1957) and statistical discrimination (Blau & Ferber 1992). Due to a traditional division of work within couples, employers might perceive mothers as less committed to their job than childless mothers with similar characteristics. By contrast, fathers are assumed to be more attached to their career than otherwise similar men since the former are more likely to earn the lion's share of family income (Correll et al., 2007; Nader, 2007). Hence, employer discrimination against women might particularly evolve in the case of parenthood and account for part of the observed gender effects in further training involvement. The empirical evidence on gender effects in further training involvement delivers contrary results. Studies providing evidence for a higher engagement of women in job-related training (Burgard, 2012 for self-initiated training; Green & Zanchi, 1997) stand opposed to studies showing men's lead over women

(BMBF, 2014; Burgard, 2012 for employer-initiated training; Munasinghe et al., 2008; Schömann & Becker, 1995) or studies documenting the absence of any gender differences (Burgard & Görlitz, 2011; Arulampalam et al., 2004).

2.2 Research hypotheses

There is manifold evidence on training-relevant characteristics but the characteristics cannot not fully explain the observed outcome variation by gender. Specifically, if “women are less likely to train than men all else being equal” (Dieckhoff & Steiber, 2009, p. 16), what are the reasons behind such a “gender effect”? The named theories above hint at an interaction between gender roles and economic incentives, which together shape training behavior of individuals in a stereotyped way. To measure prevailing gender roles, Dieckhoff & Steiber (2009) explore micro data on gender attitudes, career aspirations and fertility plans based on European Social Survey data. However, fertility plans fail to explain a lower training engagement of women in their analysis and one reason might be that expressed intentions are not robust enough to reliably predict behavior. Moreover, self-reported gender roles may differ from individual behavior. Even in couples where both partners have a strong labour market attachment, birth giving tends to reinforce traditional labor division patterns (Bielby & Bielby, 1989). Burgard (2012) chooses a different approach to highlight the importance of the household context for the training propensity of employees. Building on the assumption that training is one out of several options how to spend one’s time, Burgard shows that women’s training probability for employer-provided courses is linked to the time use of their partners but men decide independently of their female partners. Hence, opposite to men, women seem to adapt to their partners’ career preferences but men do not.

Thus, extending the work of Dieckhoff & Steiber (2009) and Burgard (2012), we use a different, more fact-based indicator of individually assumed gender roles. We construct a relative earnings position of individuals in the household by comparing their own income to the one of their partner. We differentiate between main earners who earn more than their partner, equal earners who roughly earn the same as their partner, secondary earners who earn less than their partner, and single earners who live without a partner. The concept of the relative earnings position links to the theory in various aspects that are suited to form testable hypotheses. First, it reflects the monetary incentives of the individual to achieve the best job match. The secondary earners’ income is of lower importance to the household income, potentially decreasing the earners’ interest in achieving their full earnings potential on the market via investments in human capital. Second, a secondary earner position held by a woman is suitable for a test of the ‘doing gender’ approach. Third, secondary earners are in a

comparatively disadvantageous bargaining position in the household context, motivating a low training incidence. Fourth, secondary earners might signal less job commitment and energy to employers, decreasing the motivation of employers to offer training opportunities. Fifth, a secondary earner position held by a woman might relate to low atrophy occupations. As discussed above, women who anticipate family-related career breaks choose occupations with low atrophy rates and, due to their intermittent careers, they are more likely to assume the secondary earner position before and after the break. Also, this assumption of occupational segregation is empirically testable. Sixth, as men (women) may assume typical female (male) earnings positions, we may test if discrimination trumps human capital theory in this regard, assuming that job-related training is mainly a decision made by the employer.

We expect that the institutional effect of a family-friendly work context operates via the role of children below the age of 12 in the household. We argue that children below 12 should not hinder mothers' training engagement in family-compatible work contexts but that they should do so in other contexts. We consider part-time quota of women a suitable indicator for family-friendly work arrangements. Furthermore, we use the total care ratio as well as the full-time care ratio (as the share of children in institutional care over the population of each age group) as indicators for the institutional childcare provision in a country. The three countries notably vary with respect to the three named indicators.¹ The indicators do not enter our regressions as we estimate training participation on the national level. Instead, the indicators serve as qualitative context information when interpreting the children below 12-parameter in the national context.

The study tests the main theoretical motivations for adult training in the following four hypotheses.

¹ In the Netherlands, 77.7% of all women work part-time. However, half-day child care provision by far dominates institutional care facilities. The share of children enrolled in formal childcare of 30 hours per week at minimum is rather low, ranging from 6% for the below 3 and 13% for the 3-6 years old to 21% for the 7-12 years old in 2011. That is, the time resources and flexibility women gain from family-friendly work arrangements are counteracted by narrow opening hours of institutional childcare providers. Germany ranks in a medium position. Here, the share of children in full-time care amounts to 15, 44 and 40% for the below 3, 3 to 6 and 7 to 12 years old, respectively. Moreover, the care provision for small is far lower than in the Netherlands (but higher than in Poland and as high as in Italy). With 48.7% also the part-time quota of German women marks a medium position in this 4 country-comparison. Italy exhibits poor institutional care for the below 3 but provides extensive care for 3-12 years old children. And, most importantly, a comparatively high portion of care is provided full-time. 17% of the below 3, 75% of Kindergarten children and 85% of school aged children below 13 are enrolled in full-day care. This effect might partly offset the tight work schedules resulting from the comparatively low part-time quota of 32.5%. The same argument holds for Poland, where only 10.3% of women work part-time. On the other hand, with 34% (50%) of 3-6 (7-12) year old children a considerable part is enrolled in full-time care.

Hypothesis 1: Compared to all other income positions, individuals in secondary earner positions show a lower training incidence and intensity for both genders.

Hypothesis 2: Both earnings position and working time jointly shape economic returns of training. Specifically, in combination with a lower earnings position in the household, working part-time leads to a more pronounced negative relationship with the training incidence and intensity than working full-time.

Hypothesis 3: The negative relationship between secondary earner and training incidence as well as intensity is driven by job characteristics that are occupation- and gender-specific.

Hypothesis 4: The correlation between training incidence (as well as intensity) and the presence of children below the age of 12 is negative for women and positive for men.

In the empirical tests, we investigate the hypotheses separately for different countries because, although theories predict that the main relationships should continue to hold, the institutional settings might change the importance of selected variables.

3 Empirical approach

3.1 Data and variables

For this report, we use information from the EU Labour Force Survey wave from 2013 (EU LFS). Detailed descriptions of the used data set EU LFS is provided in the Section A 1 . This study focuses on employees, that is, the unemployed are left out of the analysis. To permit the comparison of the results across data sets we impose the same restriction on the samples. Hence, only individuals in the workforce between 15 and 74 years are included. As to the main outcome variable, our study addresses job-related activities only, ignoring those which are primarily privately motivated. We do not impose any further restrictions. The documented activities may encompass formal and non-formal learning and training and are not subject to a particular course length, funding scheme, or location of the event. That is, our definition of the target variable is rather broad as it aims to overarch different data sets that are analyzed in this study. Unless otherwise indicated, we use the terminology “job-related training”.² The EU

² The wording of the article’s title “job-related learning and training activities” borrows from a recently published study of the European Centre for the Development of Vocational Training (Cedefop 2015) that also combines different data sets in the analysis.

LFS uses the term “job related training/taught learning activity”. The reference period of self-reported training behavior of respondents, for the EU LFS, encompasses the last four weeks before the interview.

The extensive margin of training will presumably differ from the intensive margin. We explore the extensive margin by focusing on the participation in training in a bivariate analysis. We investigate the magnitude and determinants of training participation for Germany, Italy, and the Netherlands. We additionally explore the training duration given in hours of course length. The training duration is coded as the number of hours spent on all taught learning activities within the last four weeks.

In accordance with our research question, we specify two core independent variables, that is, the employees working time and his or her relative earnings position in the household. These core variables are supplemented with a set of controls. First, the employee’s working time is the self-assessed categorization of respondents into part-time and full-time. Both data sets provide this information. In most studies full-time work is considered a key driver of training involvement as it increases the participation rates (e.g., BMBF, 2014, Wilkens & Leber, 2003, Bellmann et al. 2013). The second main variable refers to the earnings position of the employee in the household context. We thereby differentiate between employees who do not live with a partner in the same household (singles) and those who do and earn more than their partner (main earners), the same (equal earners), or less (secondary earners). The category equal earners is specified in the EU LFS because income is only available in deciles, which is why we are not able to identify the precise income difference between partners if they belong to the same income category. As the SOEP provides metric income information, all coupled individuals may be assigned to either the main or secondary earners group. Note that the specification of income differs between the two data sets as well (see Section A 2).

Studies that focus on the determinants of training show that some job-related as well as individual characteristics are decisive in this context (see BMBF 2014 for recent descriptive findings for Germany). With regard to control variables we distinguish between job-related and individual or household context related variables. As work related training widely differs among economic sectors (e.g. Bechmann et al., 2013; Burgard, 2012), dummies controlling for NACE sector classifications are included. The industry codes are shortened to numbers but Table 3 in the Annex provides the detailed description. In addition to industry, firm size is included since there is evidence that working in a large firm may be related to a higher training participation rate of employees (e.g. Seidel & Hartmann, 2011) but not necessarily (Bechmann et al., 2013; Janssen & Leber, 2015). There are also a number of job characteristics which have been highlighted in the literature. For example, supervisory responsibility is positively related to a higher training engagement (e.g. BMBF 2014, Pfeifer et al., 2008 for higher

occupational positions in general). Note that women are underrepresented in leading positions that are mostly combined with full-time jobs (Holst & Kirsch, 2015). Furthermore, trainings activities are found to differ between employees with permanent and those with temporary contracts (BMBF 2014). The occupation has also been documented to be significant in determining work-related training (Burgard, 2012) and ISCO classifications are used to control for this effect. The ISCO labels are abbreviated to numbers but Table 4 in the Annex provides a complete list. Finally, firm tenure is included.

With respect to individual characteristics, the level of education has been shown to be positively associated to work related training participation (e.g. Seidel & Hartmann, 2011). Furthermore, age and its square term are included in the regression.

The relationship between age and training participation seems to peak at medium age, resulting in an inversely U-shaped age profile of participation (BMBF 2014). Also note that labour market experience shows a positive correlation with job-related training whereas career breaks are associated with lower training incidence (Fitzenberger & Muehler, 2015). Finally, the presence of children has been shown to be negatively associated with the training participation of women (e.g. Schröder et al., 2004). The fact that not only existing but also anticipated children lower the training propensity of women is highlighted by Steffes & Warnke (2015). To address this, a variable indicating the presence of a child below the age of 12 in the household is also included. We expect that the institutional effect of a family-friendly work context operates via the role of children below the age of 12 in the household. We argue that children below 12 should not hinder mothers' training engagement in family-compatible work contexts but that they should do so in other contexts. We consider part-time quota of women a suitable indicator for family-friendly work arrangements. Furthermore, we use the total care ratio as well as the full-time care ratio (as the share of children in institutional care over the population of each age group) as indicators for the institutional childcare provision in a country. The indicators do not enter our regressions as we estimate training participation on the national level. Instead, the indicators serve as qualitative context information when interpreting the children below 12-parameter in the national context.

Detailed variable descriptions are to be found in Section A 2 in the Annex. Table 5 in Section A 3 depicts detailed summary statistics on the variables employed in this analysis.

3.2 Sample structure

Some notable country differences with regard to the sample structure become evident. First of all, among women, the full-time quota remarkably differs between the considered countries. 22.3% of Dutch women in our sample work full-time. Among German and Italian women, the shares are 51.3% and 67.5%, respectively. As to the second core variable in our study, the relative earnings position, further notable differences have to be acknowledged. 57.3% of women in our Dutch sample are secondary earners, whereas this applies to 41-44% of Italian and 46.0% of German women. Conversely, the share of main earners and equal earners among German women amount to 8.6% and 7.5%. The share of singles peaks among Italian women (39.0%), being of comparable height in Germany (37.9%) and somewhat smaller in the Netherlands.

Furthermore, women differ with respect to further job-related and individual characteristics. Beginning with education, 40.7% of Dutch women hold a graduate degree whereas the respective share among Italian women is roughly half of this size (22.6%) and amounts to 28.9% for German. Women further differ with regard to occupations. Relating to their high education level, 29.0% of Dutch women work as professionals, but only 16.2% of German women do. Children aged below 12 are more widespread among Dutch and Italian women where this holds for roughly one third of women, compared to one fifth in Germany.

Among men, some discrepancies are remarkable as well. 62.1% of Dutch men are coded as main earners whereas the share is less than 50% in the other two countries. In the cross-country comparison, the share of graduates peaks among Dutch men which has also been the case for Dutch women. However, the Dutch men are followed by German men whereas German women ranked worse than German men.

3.3 Methodology

Generally, each regression analysis is performed in four steps over two different samples where the models successively build on each other. The dependent variable y_i is always the participation rate or intensity of individual i .

The first sample consists of men and women in full-time positions and allows investigating the influence of gender and the earnings position, holding the working time constant.⁴ The variable β_0 describes the constant and ϵ_i the individual-specific

⁴ Due to a lower number of observations for men in part-time positions, we create two subsamples where the first one focuses on gender differences and the second one the role of the working time for women only. The procedure further allows jointly investigating the three-way interaction with country for both relationships.

error term. Model 1a focuses on the main explanatory variables, namely the relative earnings position in the household ($EarnPos_i$) and a dummy variable taking the value of one if the respondent is male ($Male_i$). Model 2a includes a two-way interaction between the earnings position and the gender ($EarnPos_i * Male_i$). Model 3a adds a three-way interaction between the earnings position, the gender, and the country, allowing to investigate significant differences across countries. Finally, Model 4a considers various control variables to correct for the effect of other determinants of work-related training (summarized with vector \mathbf{X}_i).

$$Model\ 1a: y_i = \beta_0 + \beta_1 EarnPos_i + \beta_2 Male_i + \epsilon_i$$

$$Model\ 2a: y_i = [Model\ 1a] + \beta_3 EarnPos_i * Male_i + \epsilon_i$$

$$Model\ 3a: y_i = [Model\ 2a] + \beta_4 Country_i + \beta_5 Male_i * Country_i + \beta_6 EarnPos_i * Country_i + \beta_7 Male_i * EarnPos_i * Country_i + \epsilon_i$$

$$Model\ 4a: y_i = [Model\ 3a] + \mathbf{X}_i + \epsilon_i$$

The second sample focuses on women only, focusing on the influence of working hours. Generally, the gender dummy is replaced with a dummy variable for the working hours. Specifically, the variable β_0 describes the constant and ϵ_i the individual-specific error term. Model 1b includes the key explanatory variables only, covering the relative earnings position in the household ($EarnPos_i$) and a distinction between full-time and part-time employment ($Hours_i$). Model 2b extends the list of variables with interaction terms. More precisely, the relative earnings position is interacted with the working hours to test for significant interaction effects between these two key categories ($EarnPos_i * Hours_i$). Model 3b includes a three-way interaction between the earnings position, the working time, and the country. Finally, Model 4b adds all the control variables (\mathbf{X}_i).

$$Model\ 1b: y_i = \beta_0 + \beta_1 EarnPos_i + \beta_2 Hours_i + \epsilon_i$$

$$Model\ 2b: y_i = [Model\ 1b] + \beta_3 EarnPos_i * Hours_i + \epsilon_i$$

$$Model\ 3b: y_i = [Model\ 2b] + \beta_4 Country_i + \beta_5 Hours_i * Country_i + \beta_6 EarnPos_i * Country_i + \beta_7 Hours_i * EarnPos_i * Country_i + \epsilon_i$$

$$Model\ 4b: y_i = [Model\ 3b] + \mathbf{X}_i + \epsilon_i$$

The sample for each regression model is based on the specification of Model 4, which defines the maximum number of observations by the data availability of all needed variables. This avoids that changes in the sample composition drive changes in the coefficients when additional variables are included. For an easier interpretation of the results, we include graphs with the marginal effects for the main variables of interest. As reference category serves secondary earners for the earnings position and Germany for countries.

We estimate a Probit model of the participation decision because the dependent variable takes on values of either zero or one. The results in the tables show the average marginal effects. As to the course length, the data is censored at the null since hours of training may not take on negative values. Thus, the assumption of normally distributed errors which underlies Ordinary Least Squares (OLS) estimations has to be questioned. Tobit models which deal with a notable fraction of zero values might be more appropriate in this regard. Alternatively, if zero values are produced due to a small observation window masking true values above zero, Tobit estimations are no longer doubtlessly superior to OLS estimations, or more specifically, regression results using OLS converge to Tobit estimates as the number of zeros in the regressand decrease (Wilson, C., Tisdell, C. A., 2002). As mentioned above, in the EU LFS data, training behavior within the last four weeks preceding the interview is reported, that is, the window length is fairly small. However, time use research indicates that prolonging the window length does not necessarily reduce the fraction of zero values (Foster, G., Kalenkoski, C. M., 2010; Stewart, 2009, p.14). And, most importantly, a Tobit estimation is the appropriate specification when the extensive and the intensive margin depend on the same factors (Crown, 1998). Therefore, we choose the Tobit model as our main model in the estimation of course length. In the Tobit model, course duration values include the null as the lower bound.

4 Results

The results section focuses first on training incidence, starting with a descriptive overview of the main variables of interest by country before moving to the multivariate analysis of determinants by gender and working time. Afterwards, the same steps are repeated, replacing the dependent variable with training intensity to investigate the robustness of the other findings.

4.1 Main findings

4.1.1 Distribution of training incidence

As Table 1 shows, women train more often than men, irrespective of their working hours and earnings position in all countries. In the cross-country comparison, the Netherlands stand out with highest training participation. Italy marks the lower bound although with highly comparable values to Germany. As a tendency, female full-time workers train more often than female part-time workers (except Dutch women where there are only very small differences) and main earners more than secondary earners. At first sight, the overview suggests that all characteristics play a role training incidence but further analyses are needed to confirm this observation. Even if the differences between countries, gender, working hours, and earnings position were significant, we would need to investigate whether they were driven by other attributes of individuals or countries.

Table 1

Distribution of training incidence by working hours and household situation for women and men

	Germany		Italy		Netherlands	
	Women	Men	Women	Men	Women	Men
Part time						
Single	4.2		2.63		13.5	
Main earner	6.87		4.02		15.89	
Secondary earner	3.4		3.69		12.69	
Equal earner	5.1		4.25		15.97	
Full time						
Single	8.41	5.95	5.61	4.81	16.24	14.8
Main earner	7.61	5.34	8.12	5.53	15.63	13.99
Secondary earner	6.27	4.11	6.22	4.56	12.04	12.21
Equal earner	8.53	5.72	8.16	6.15	14.23	12.78

4.1.2 Determinants of training incidence by gender

To identify the determinants of training engagement, we run Probit estimations of the participation for men and women in full-time positions. As noted in Section 3.3 ,

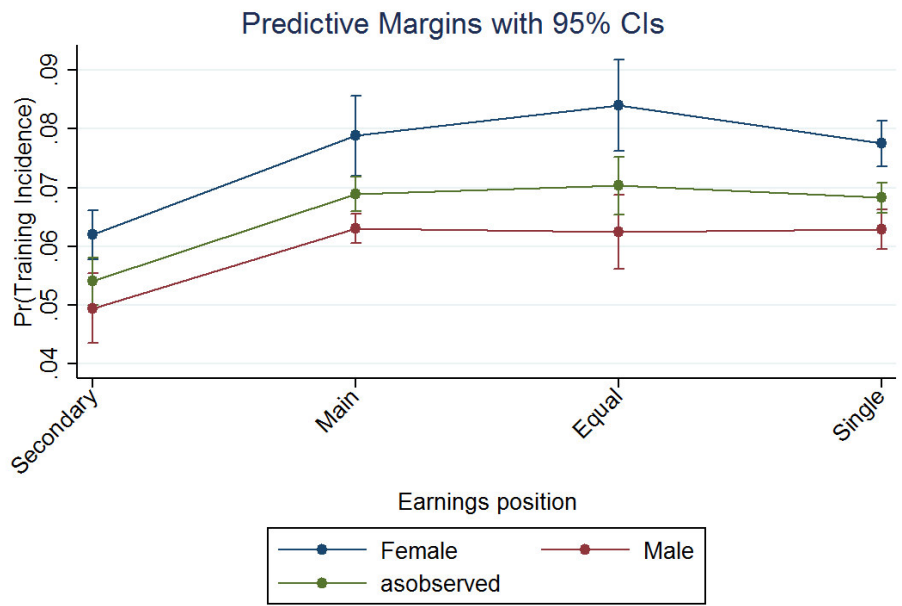
the set of included covariates differs between models. We begin with the core variables of our analysis (Model 1a), adding interaction terms of earnings position and gender in a next step (Model 2a) and then three-way interactions between earnings position, gender, and countries (Model 3a). The full model additionally contains a broad range of controls (Model 4a).

The complete regression tables with the average marginal effects of the coefficients can be found in Table A 1.⁵ The results for Model 1a show that men participate in job-related training less often than women and that, compared to secondary earners, all other groups participate in training significantly more often. Figure 1 shows the predictive margins for the interactions from Model 2a. Accordingly, men continue to participate significantly less in job-related training than women. For the earnings positions there are significant differences for women, where secondary earners show lower participation rates than all other groups, but there are no differences for the earnings positions of men. Model 3a confirms significant differences regarding these relationships across countries, according to which female secondary earners show lower participation rates than other earnings positions, with the most pronounced differences in Germany. However, these differences diminish when all control variables are included in Model 4a. Figure 2 therefore depicts the results of the three-way interaction between earnings position, gender, and country based on Model 4a. In general and also within the group of men and women, the Netherlands has a higher training incidence than Germany but there are no significant differences between Italy and Germany. This supports the descriptive results. Note that the differences between Dutch men and women, although more pronounced than in other countries, are not significant. There continue to be no significant differences among male respondents in different earnings positions by countries. For women, the earnings position only plays a significant role in Germany for single women who train significantly more often than female secondary earners.

⁵ For an easier interpretation of significant differences within countries and gender, we additionally estimated the same regression models both separately for country and gender. The results are available upon request.

Figure 1

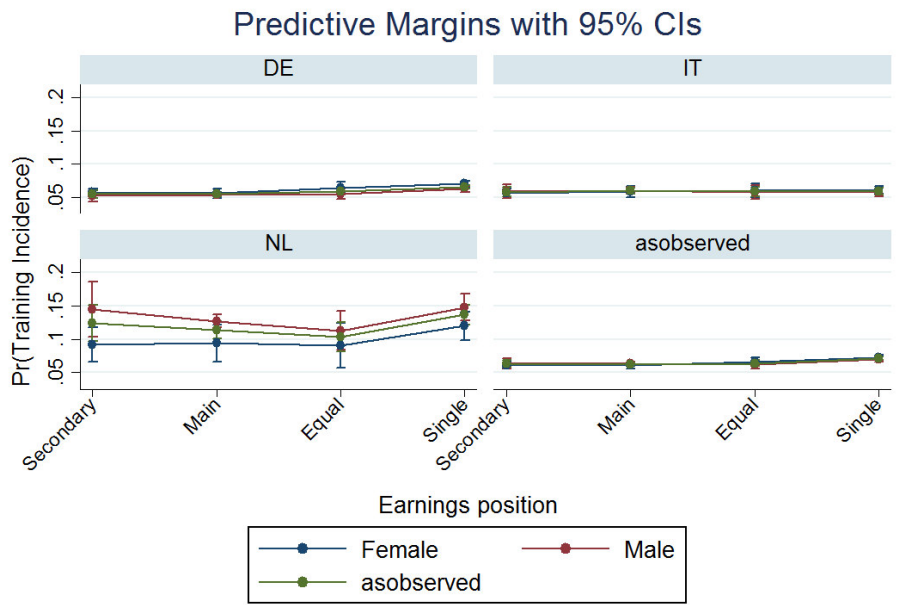
Predictive margins for probability of training incidence for men and women in full-time positions (Probit, Model 2a)



Notes: Men and women in full-time positions based on Model (2).

Figure 2

Predictive margins for probability of training incidence for men and women in full-time positions by countries (Probit, Model 4a)



Notes: Men and women in full-time positions based on Model (4).

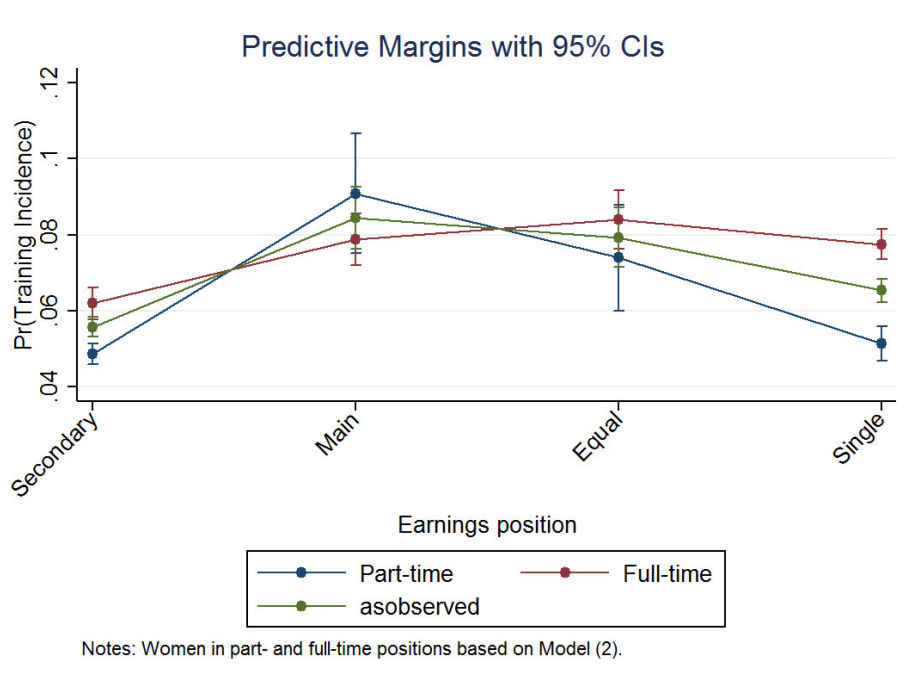
As to the control variables, the results show that time in current employment, working in firms with more than 50 employees (compared to firms with 1 to 10 employees), supervisory responsibilities, and higher education levels are all significantly positively related to training incidence. Age correlates positively with training participation but at a diminishing rate. Several of the control variables for industry and occupation show significant coefficients. In light of potential segregation mechanisms on this level, we separately estimate the role of occupations and industry, excluding all other control variables (see Table A 1, column 5 and 6). There appear to be no noticeable differences between the two models regarding our main variables. Having a child below 12 years does not significantly correlate with training incidence, even when estimating the models separately by country and gender (results are available upon request).

4.1.3 Determinants of training incidence by working time

Since few men work in part-time positions and women appear to be more affected by the earnings position, the analysis now proceeds with the sample of women in full- and part-time positions. The complete regressions results are reported in Table A 2. The results for Model 1b confirm that women in full-time positions train more frequently (column 1), supporting findings from Wilkens and Leber 2003. The same holds for all main, equal, and single earners when compared to secondary earners. Adding the interactions in Model 2b returns the results as shown in Figure 3. Female main earners train significantly more than secondary earners when in full-time positions but less when in a part-time position. Equal earners train significantly more often than secondary earners in part-time positions but not in full-time positions. Single earners participate more frequently in training than secondary earners in full-time but not in part-time positions. This suggests that, compared to the baseline of secondary earners with the respective working hours, working full-time as single and working part-time as main and equal earner corresponds with the highest training incidence. In other words, for both full- and part-time work, there are always groups that are better off than secondary earners.

Figure 3

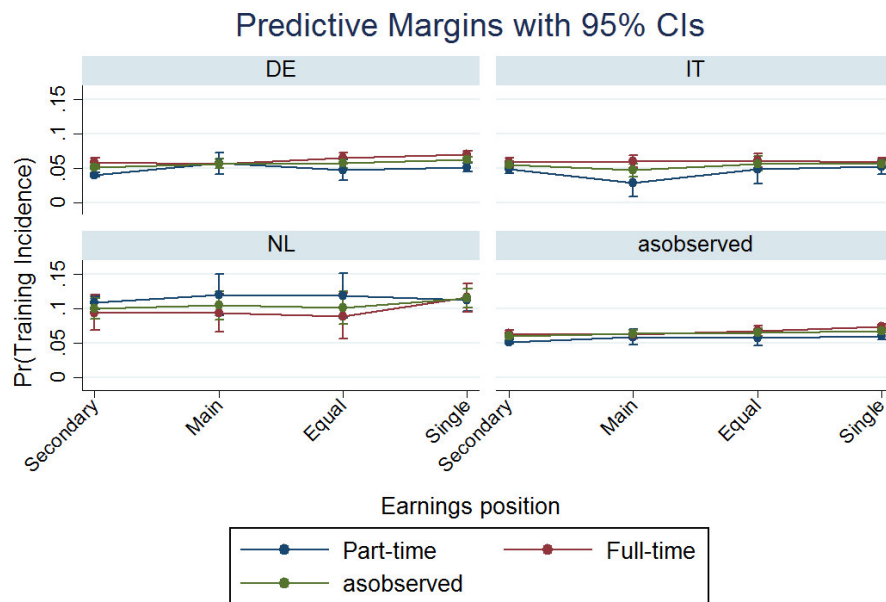
Predictive margins for probability of training incidence for women in part- and full-time positions (Probit, Model 2b)



Including three-way interactions between working time, earnings position, and country in Model 3b shows already that these differences appear more pronounced in some but not in all countries (see Table A 2, column 3). As before, Germany displays more differences based on the earnings position than the other countries. Figure 4 now depicts the results from the full Model 4b. Against the baseline of Germany, women in Italy and the Netherlands train significantly more often, except for full-time employed Dutch women who train on average less often than full-time employed German women. In general, main earners in Italy train significantly less than in Germany but there are no further differences across countries. However, when Italian main earners hold a full-time position they train significantly more than their German counterparts. Note that full-time Dutch employees train less frequently the part-time Dutch employees. In Germany, holding a full-time position significantly increases the training incidence with the exception of main earners who train significantly less than secondary earners in full-time positions. For German women in part-time positions, only single earners train significantly more when compared to secondary earners. These within country differences regarding the earnings position are not evident in the other countries.

Figure 4

Predictive margins for probability of training incidence for women in part- and full-time positions (Probit, Model 4b)



Notes: Women in part- and full-time positions based on Model (4).

As to the control variables, the results support previous findings. A high formal qualification level and supervisory positions significantly boost the training incidence. Age increases training participation but at a diminishing rate. Persons in firms with more than 50 employees train more often than persons in firms with 1 to 10 employees. Again, we separately test the influence of industry and occupation but neither of the two variable sets leads to more changes in the core variables than the other (see Table A 2, columns 5 and 6). A permanent position does not notably alter the training participation for either gender.

On average, a child below 12 years decreases training incidence for women. In separate regressions for each country the marginal effect only turns significantly negative in Germany and the Netherlands but not Italy, supporting former findings of Schröder et al. (2004) (results are available upon request).

4.1.4 Summary of main findings

The analyses in Section 4.1 show that disregarding control variables overemphasizes differences between men and women in different positions. Adding three-way interactions with country dummies appears to lead to the most important changes

which are relatively robust when further control variables are included. This suggests that important variation across countries exists and, hence, that the institutional environment plays an important role. The Netherlands differ from the other countries in that they show higher participation rates in general. Although training incidence is also higher for Dutch men and for Dutch part-time workers, these differences are not significant.

Across all countries, the earnings position does not matter for men but for selected female groups, hinting already at a potentially important differentiator and suggesting that the household context matters more for women than for men. When we focus on women and include information on the working hours, the earnings position appears more important than before, suggesting that working hours play an important moderating role. Although we find selected differences in Italy and the Netherlands, they appear less important than in the German case. For German women, a full-time position positively correlates with the training incidence, with the exception of main earners who train significantly less than secondary earners in full-time positions. In the group of female part-time workers, only single earners train significantly more when compared to secondary earners. In other words, disadvantages for female secondary earners only arise in the group of part-time workers when they are compared to single earners. Although there were no a priori reasons to assume that one country would show larger differences regarding the household context than the other, we find that this is indeed the case of Germany.

4.2 Robustness checks

The participation decision focuses on the extensive margin of the training engagement, that is, whether or not individuals participate in job-related training. However, gender, work arrangement, and earnings position might impact the intensive margin as well, namely the length of the training period. To complement our results for the participation decision, we explore the information on course length that is available in the EU-LFS. As noted in Section 3.1, training duration is coded as the number of hours spent on all taught learning activities within the last four weeks.

Table 2 reports the average course length by earnings position, gender, and country over all observations (including zeros). Again, the Netherlands stand out with the highest training intensity. Differences between Germany and Italy become more pronounced with clearly lower values in Italy. With one exception for male secondary earners, female full-time workers show a higher or very similar course length when compared to male full-time workers. In all countries, full-time employed women have a higher training intensity than part-time employed women.

Table 2

Distribution of participation in further education (training intensity, average course length) by working hours and household situation for women and men (separate by country)

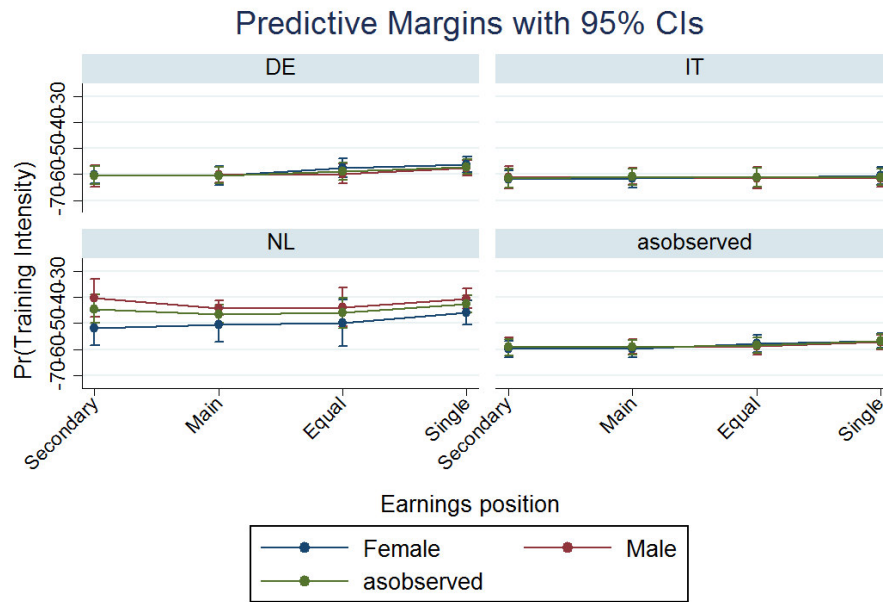
	Germany		Italy		Netherlands	
	Women	Men	Women	Men	Women	Men
Part time						
Single	0.796		0.159		1.556	
Main earner	0.569		0.218		1.552	
Secondary earner	0.393		0.167		1.453	
Equal earner	0.569		0.154		1.759	
Full time						
Single	1.276	1.138	0.310	0.318	2.413	2.385
Main earner	1.036	0.890	0.472	0.321	2.299	2.100
Secondary earner	0.850	0.766	0.285	0.275	1.778	2.414
Equal earner	1.384	1.007	0.420	0.412	2.408	2.487

The analysis repeats the same steps as done in the previous sections but now changes the dependent variables to the training intensity. The results from the regressions can be found in Table A 3 for differences by gender and in Table A 4 for differences by working time. Figure 5 shows the margins for the model specification 4a (see Figure A 1 for Model 2a). Already by eyeballing the graphs from the Probit and the Tobit estimation, we can see large similarities for the analysis of men and women in full-time positions. A comparison of the two regression models confirms that the findings of the Tobit estimation are indeed, with only negligible differences, in line with previous results. As for our female sample in full- and part-time positions, Figure 6 reports the margins for Model 4b from the Tobit estimation (see Figure A 2 for Model 2b). Again the graphs from the Probit and Tobit estimations closely mirror each other. A closer examination of the regression tables confirms that the previous findings are not altered when investigating training intensity instead of training incidence.

In sum, the results derived from Tobit estimations of training duration support those derived from the participation decision analysis. That is, the extensive and the intensive margin of job-related training of employees are determined by the same factors.

Figure 5

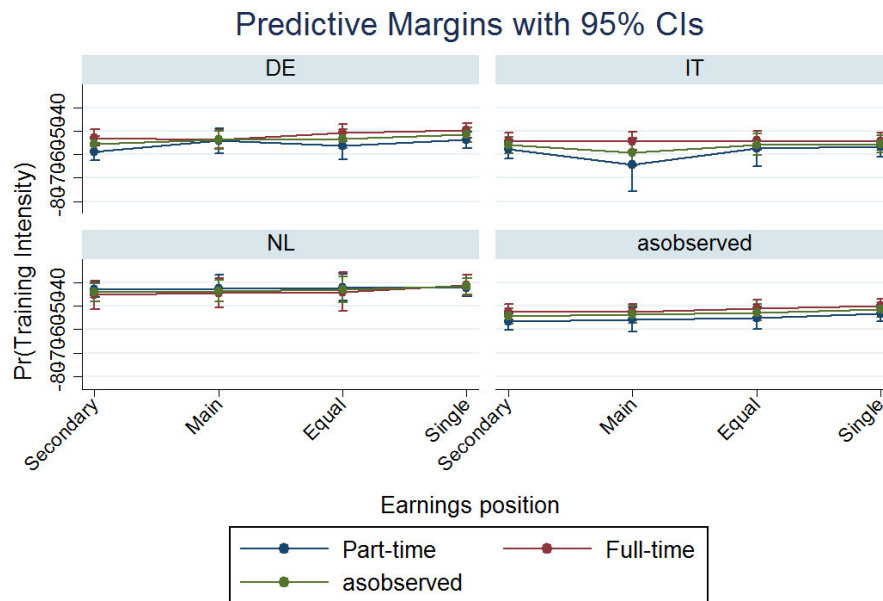
Predictive margins for probability of training intensity for men and women in full-time positions (Tobit, Model 4a)



Notes: Men and women in full-time positions based on Model (4).

Figure 6

Predictive margins for probability of training intensity for women in part- and full-time positions (Tobit, Model 4b)



Notes: Women in part- and full-time positions based on Model (4).

4.3 Discussion

Hypothesis 1 postulates that a secondary earner position is linked to less training compared to all other earnings positions. In light of our results, Hypothesis 1 has to be rejected because male secondary earners are not significantly disadvantaged and female secondary earners are only disadvantaged in the Germany case when compared against female part-time single earners. It seems that the household context plays a higher role for women than for men. This may be partly due to a lower variation of earnings positions in the male samples. However, the earnings position loses significance when additional covariates are added to the model. It seems that part of the job, firm and biography characteristics correlate with the earnings position. We suggest that in a life course perspective, women who follow the 'mommy track' choose family-compatible workplace arrangements at an early stage in their career. The secondary earner position is one piece of the puzzle in this regard. Being the single earner in the family is associated with more frequent training and to more training hours. One reason might be that women who may not resort to a second (higher) income have higher training incentives on their own and moreover, signal higher returns on investment to their employer than secondary earners.

Hypothesis 2 predicts that the part-time penalty in terms of training is greater for secondary earners than for individuals in a more favourable earnings position. Hypothesis 2 does not hold because working part-time lowers the training incidence for German secondary earners against all other earnings positions only in one case but not the others. Working full-time increases the training incidence for female German workers, however, with the exception of main earners. Also this second hypothesis builds on human capital theory stating that both earnings position and working time shape the economic incentives for training and may reinforce each other. We suggest that full-time work signals a strong job commitment and thereby high returns to h.c. investments. Thus, training incentives are high for both market sides. The additional training incentive that accrues from the main earner position is rather small. By contrast, part-time employed individuals are suggested to be more eager to train if they are in the main earner position and employers should be more willing to invest in main earners' human capital than in secondary earners who are more likely to quit their job. However, it has to be noted that ascribed behaviour plays an important role in this context as the expected economic returns on investment might be shaped by perceived gender roles. Thus, a result may be that employers statistically discriminate against women. We interpret the finding that single part-time workers train significantly more as further support for Hypothesis 2 as it stresses the strong labour market attachment of single earners. We suggest that single earner positions are less likely to be anticipated than a secondary earner position which is part of family constitution and fertility plans.

Hypothesis 3 postulates that secondary earners feature job characteristics that are distinct from those of individuals in more privileged earnings ratios compared to their partners. The hypothesis relies on Polachek's theory of occupational segregation that postulates that women concentrate in jobs with low atrophy rates and thus, low wage penalties from career interruptions. We argue that low earnings and promotion perspectives correlate with comparatively low training incentives (and opportunities) in these occupations. As a result, we would expect that occupational characteristics, once controlled for, should mitigate the earnings gradient in the training equation. Hypothesis 3 cannot be confirmed for all countries; instead, only in Germany important differences between men and women become evident. In the German case, occupational but also highly correlated industrial characteristics appear to be the most important control variables when focusing on changes in the core variables of Models 4.

Hypothesis 4 predicts that the presence of children negatively affects the training propensity and intensity of mothers while it works in the opposite direction for fathers. We assume here that the institutional effect operates via the role of children below 12 in the family. We expect that in family-friendly contexts, reflected in high part-time quotas and/or an extensive provision of child care, present children aged 12 or younger should not affect the training propensity of parents. By contrast, in contexts with poor compatibility we expect a negative child gradient for mothers and a positive gradient for fathers, as gender roles are arguably more traditional in contexts with poor compatibility. Hypothesis 4 has to be rejected because, only when controlling for working hours, Dutch and German women but not Italian women are negatively affected by the presence of children below the age of 12. Although there were no a priori reasons to assume that one country would show larger differences regarding the household context than the other, we find that this is indeed the case of Germany.

The German case stands out through the analysis. The findings suggest that female workers in Germany face obstacles related to the household context that are not diametrically opposed to job-related training in other countries. For instance, the differences that we find are difficult to explain with the, on average, higher training levels in Netherlands because the levels of Italy are similar to those of Germany but Italy shows mostly insignificant relationships. Also, institutional settings such as children below the age of 12 may hinder training participation but they show up significantly negative in both Germany and the Netherlands and can hence not explain the other country differences. Unfortunately, the present analysis cannot directly investigate potential sources of the identified cross-country differences in training participation.

5 Conclusions

Our study investigated to what degree earnings combinations in a personal relationship moderate the influence of (1) a work-related variable such as working time or (2) personal characteristics such as gender on the training participation. The analysis further considered different institutional backgrounds in a cross-country comparison.

The results show that, if there exist significant differences, these are found for German women. In all other countries, neither male nor female workers appear to be systematically affected by their earnings position. For instance, part-time work is only of disadvantage for German female secondary earners when compared to single earners. Working full-time sole puts German women in a better position. These differences hold at the extensive (training incidence) and intensive margin (training intensity).

Since the direct sources of differences in training participation in Germany have not yet been identified, it appears plausible that both employees and employers play a role. It therefore seems important to sensitize all involved parties for the likelihood that female secondary earners may train at lower levels as other groups. If training participation is indeed a decision made jointly by both partners in a personal relationship, it is also important to inform both individuals. In addition, the institutional environment has to enable secondary earners or those with children to participate in training to the same degree as other groups.

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Appendix

A 1 Detailed data description

EU LFS

We use data from the European Labour Force Survey (EU LFS; for more detailed information on the European Labour Force Survey, see European Union). The EU-LFS is a quarterly household sample survey, including the 28 Member States of the European Union, two candidate countries (Macedonia and the former Yugoslavia Republic) and three countries of the European Free Trade Association (Iceland, Norway and Switzerland). It is based on European legislation since 1973 in order to assure comparability of the results. The survey design, survey characteristics, methods and the decision making processes of the EU LFS are precisely regulated. The EU LFS covers approximately 1.8 Mio. individuals aged 15 years or older⁶ and asks the respondents for their demographic background, labour status, employment characteristics and their previous employment experience/search for person not in employment. Furthermore, respondents are asked whether they were students or participated in any courses during the past four weeks, their field of study and their highest educational attainment level. Respondents are asked via personal visits, telephone interviews, web interviews and self-administered questionnaires. In 2012, the participation was compulsory in thirteen countries (Belgium, Germany, Greece, Spain, France, Italy, Cyprus, Malta, Austria, Portugal, Slovakia, Norway and Turkey), and voluntary in the other countries. The quarterly sampling rates in 2013 varied from 0.25 % in Germany and France up to 4.5 % in Luxembourg. The overall sampling rate of the total population was about 0.3 %.

⁶ Norway and Sweden only cover persons between 15 and 74 years and Iceland and Switzerland only provide data on people aged 15 and more.

A 2 Variable overview

Variable label	EU LFS
Participation in professional development	Dummy variable takes on value of 1 if respondent participated in job related training in the last 4 weeks.
Course hours	Number of hours spent in job related training within the last 4 weeks.
Income	Monthly take-home pay from main job. Available only in deciles.
Relative earnings position in household (main earner, secondary earner, equal earner, single)	<p>There are four categories in the EU LFS due to the nature of the income data. Income is only presented by deciles and hence several partners have identical incomes.</p> <p>Secondary earner (0, reference category): A secondary earner is a person that earns less than his or her partner or spouse.</p> <p>Main earner (1): A person is main earner if his income is larger than the income of his or her partner or spouse.</p> <p>Equal earner (2): A equal earner is identified when both partners earn an income in the same decile. Both partners will be equal earners as long as they are working.</p> <p>Single (3): A working person is a single earner if there is information on income and no partner or spouse in the household.</p>
Full time position	Dummy takes on value of 1 if respondent works in a full time position.
Interaction terms	See Regression tables. Reference category are secondary earners in a full time position.
Tenure	Time since the person started current employment.
Industry	21 dummies for NACE Rev 2 (1 digit) sectors, the reference category is manufacturing. For details see Table 3.
Firm size	The number of individuals working at the local unit in the following categories: 1 to 10 (reference category), 11-19, 20-49, 50 or more. "Don't know but less than 11" was merged with reference group and "Don't know but more than 10" was dropped.
Permanent position	Dummy that takes on the value of 1 if the employment is permanent.
Supervisory responsibility	Dummy variables takes on value of one if respondent has supervisory responsibility.
Occupation	10 dummies for occupation type of workers by ISCO-08 (1 digit) classification. Category ISCO=3 (Technicians and associate professionals) is the reference category. Military occupations (0) are dropped. See Table 4 for Details.
Education level	Dummy variables based on the ISCED-97 classification with three categories: lower secondary, upper secondary (reference category) and third level education. Highly educated have completed tertiary education (5A, 6), and the medium educated persons have completed upper secondary or post-secondary education (ISCED 3-4, 5B).
Age	EU LFS provides age data in 5 year intervals (15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59,

	60-64, 65-69, 70-74). People below 15 and above 74 years of age are dropped. Age is included with a squared term in the regression.
Children	Dummy variable takes on value of 1 if a child under 12 years is present in the household.
Geographic control variables	Country: Regressions carried out separately by country. No additional control variables included.

Table 3

Classification of industries (NACE Rev. 2, 1-digit level)

#	Industry
1	Forestry and fishing
2	Mining and quarrying
3	Manufacturing
4	Electricity, gas, steam and air conditioning supply
5	Water supply; sewerage; waste management and remediation activities
6	Construction
7	Wholesale and retail trade; repair of motor vehicles and motorcycles
8	Transporting and storage
9	Accommodation and food service activities
10	Information and communication
11	Financial and insurance activities
12	Real estate activities
13	Professional, scientific and technical activities
14	Administrative and support service activities
15	Public administration and defence; compulsory social security
16	Education
17	Human health and social work activities
18	Arts, entertainment and recreation
19	Other services activities
20	Activities of households as employers; undifferentiated goods - and services - producing activities of households for own use
21	Activities of extraterritorial organisations and bodies

Table 4

Classification of occupations (ISCO (International Standard Classification of Occupations 2008, 1-digit level)

#	Occupations
1	Managers
2	Professionals
3	Technicians and associate professionals
4	Clerical support workers
5	Service and sales workers
6	Skilled agricultural, forestry and fishery workers
7	Craft and related trades workers
8	Plant and machine operators and assemblers
9	Elementary occupations

A 3 Summary Statistics

Table 5

Summary Statistics EU LFS (separate by country and sex)

GERMANY Variable	Women					Men				
	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max
Participation in continuing education	47978	0.058	0.234	0	1	48470	0.052	0.222	0	1
Course length in hours	47954	0.833	5.717	0	200	48455	0.951	6.602	0	200
Secondary earner	47978	0.470	0.499	0	1	48470	0.085	0.279	0	1
Main earner	47978	0.088	0.283	0	1	48470	0.487	0.500	0	1
Equal earner	47978	0.075	0.264	0	1	48470	0.075	0.264	0	1
Single	47978	0.367	0.482	0	1	48470	0.353	0.478	0	1
Full time position	47978	0.518	0.500	0	1	48470	0.915	0.279	0	1
Time in current employment (yrs)	47978	10.662	9.801	1	54	48470	12.432	10.837	1	57
NACE 1	47978	0.005	0.068	0	1	48470	0.009	0.096	0	1
NACE 2	47978	0.001	0.025	0	1	48470	0.004	0.062	0	1
NACE 3	47978	0.121	0.327	0	1	48470	0.290	0.454	0	1
NACE 4	47978	0.006	0.075	0	1	48470	0.013	0.115	0	1
NACE 5	47978	0.002	0.047	0	1	48470	0.009	0.097	0	1
NACE 6	47978	0.015	0.123	0	1	48470	0.100	0.300	0	1
NACE 7	47978	0.160	0.366	0	1	48470	0.129	0.335	0	1
NACE 8	47978	0.027	0.163	0	1	48470	0.074	0.262	0	1
NACE 9	47978	0.041	0.198	0	1	48470	0.022	0.148	0	1
NACE 10	47978	0.020	0.138	0	1	48470	0.035	0.183	0	1
NACE 11	47978	0.038	0.190	0	1	48470	0.030	0.170	0	1
NACE 12	47978	0.006	0.076	0	1	48470	0.005	0.069	0	1
NACE 13	47978	0.049	0.215	0	1	48470	0.040	0.196	0	1
NACE 14	47978	0.053	0.225	0	1	48470	0.041	0.199	0	1
NACE 15	47978	0.085	0.279	0	1	48470	0.078	0.269	0	1
NACE 16	47978	0.102	0.303	0	1	48470	0.040	0.196	0	1
NACE 17	47978	0.210	0.407	0	1	48470	0.054	0.225	0	1
NACE 18	47978	0.011	0.105	0	1	48470	0.008	0.091	0	1
NACE 19	47978	0.036	0.187	0	1	48470	0.016	0.127	0	1
NACE 20	47978	0.013	0.111	0	1	48470	0.000	0.000	0	0
NACE 21	47978	0.001	0.023	0	1	48470	0.001	0.025	0	1
Firm size: 1 to 10 persons	47978	0.227	0.419	0	1	48470	0.131	0.338	0	1
Firm size: 11 to 19 persons	47978	0.135	0.342	0	1	48470	0.106	0.308	0	1
Firm size: 20 to 49 persons	47978	0.167	0.373	0	1	48470	0.159	0.366	0	1
Firm size: 50 persons or more	47978	0.471	0.499	0	1	48470	0.604	0.489	0	1
Permanent position	47978	0.902	0.297	0	1	48470	0.923	0.266	0	1
Supervisory responsibilities	47978	0.203	0.402	0	1	48470	0.348	0.476	0	1
ISCO 1	47978	0.023	0.149	0	1	48470	0.057	0.232	0	1
ISCO 2	47978	0.145	0.352	0	1	48470	0.172	0.377	0	1
ISCO 3	47978	0.286	0.452	0	1	48470	0.193	0.395	0	1
ISCO 4	47978	0.191	0.393	0	1	48470	0.093	0.290	0	1
ISCO 5	47978	0.189	0.392	0	1	48470	0.091	0.288	0	1
ISCO 6	47978	0.003	0.058	0	1	48470	0.012	0.109	0	1
ISCO 7	47978	0.028	0.166	0	1	48470	0.217	0.412	0	1

ISCO 8	47978	0.020	0.139	0	1	48470	0.109	0.311	0	1
ISCO 9	47978	0.116	0.320	0	1	48470	0.057	0.232	0	1
Low: Lower secondary education	47978	0.100	0.300	0	1	48470	0.072	0.259	0	1
Medium: Upper secondary education	47978	0.629	0.483	0	1	48470	0.621	0.485	0	1
High: Third level education	47978	0.271	0.445	0	1	48470	0.307	0.461	0	1
Age	47978	43.163	11.178	17	72	48470	43.858	11.087	17	72
Child below 12 years	47978	0.215	0.411	0	1	48470	0.203	0.402	0	1

Variable	Women					Men				
	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max
Participation in continuing education	36218	0.054	0.227	0	1	31115	0.052	0.221	0	1
Course length in hours	36210	0.282	2.294	0	200	31106	0.323	2.885	0	180
Secondary earner	36218	0.417	0.493	0	1	31115	0.114	0.318	0	1
Main earner	36218	0.101	0.302	0	1	31115	0.486	0.500	0	1
Equal earner	36218	0.091	0.288	0	1	31115	0.104	0.306	0	1
Single	36218	0.391	0.488	0	1	31115	0.295	0.456	0	1
Full time position	36218	0.670	0.470	0	1	31115	0.944	0.230	0	1
Time in current employment (yrs)	36218	12.551	9.850	1	57	31115	14.327	10.299	1	55
NACE 1	36218	0.011	0.104	0	1	31115	0.028	0.164	0	1
NACE 2	36218	0.001	0.025	0	1	31115	0.003	0.058	0	1
NACE 3	36218	0.120	0.325	0	1	31115	0.279	0.448	0	1
NACE 4	36218	0.004	0.060	0	1	31115	0.013	0.113	0	1
NACE 5	36218	0.003	0.057	0	1	31115	0.019	0.137	0	1
NACE 6	36218	0.008	0.090	0	1	31115	0.077	0.267	0	1
NACE 7	36218	0.110	0.312	0	1	31115	0.101	0.301	0	1
NACE 8	36218	0.026	0.160	0	1	31115	0.077	0.267	0	1
NACE 9	36218	0.058	0.233	0	1	31115	0.032	0.175	0	1
NACE 10	36218	0.014	0.120	0	1	31115	0.032	0.176	0	1
NACE 11	36218	0.033	0.179	0	1	31115	0.038	0.191	0	1
NACE 12	36218	0.000	0.000	0	0	31115	0.000	0.000	0	0
NACE 13	36218	0.036	0.186	0	1	31115	0.021	0.144	0	1
NACE 14	36218	0.055	0.228	0	1	31115	0.032	0.176	0	1
NACE 15	36218	0.075	0.264	0	1	31115	0.100	0.300	0	1
NACE 16	36218	0.139	0.346	0	1	31115	0.055	0.228	0	1
NACE 17	36218	0.161	0.367	0	1	31115	0.067	0.249	0	1
NACE 18	36218	0.010	0.100	0	1	31115	0.009	0.094	0	1
NACE 19	36218	0.031	0.173	0	1	31115	0.018	0.132	0	1
NACE 20	36218	0.104	0.306	0	1	31115	0.000	0.000	0	0
NACE 21	36218	0.001	0.028	0	1	31115	0.000	0.000	0	0
Firm size: 1 to 10 persons	36218	0.353	0.478	0	1	31115	0.233	0.423	0	1
Firm size: 11 to 19 persons	36218	0.145	0.352	0	1	31115	0.159	0.366	0	1
Firm size: 20 to 49 persons	36218	0.168	0.374	0	1	31115	0.186	0.389	0	1
Firm size: 50 persons or more	36218	0.334	0.472	0	1	31115	0.421	0.494	0	1
Permanent position	36218	0.899	0.302	0	1	31115	0.919	0.273	0	1
Supervisory responsibilities	36218	0.217	0.412	0	1	31115	0.324	0.468	0	1
ISCO 1	36218	0.009	0.093	0	1	31115	0.026	0.160	0	1
ISCO 2	36218	0.166	0.372	0	1	31115	0.131	0.338	0	1

ISCO 3	36218	0.172	0.378	0	1	31115	0.221	0.415	0	1
ISCO 4	36218	0.207	0.405	0	1	31115	0.114	0.318	0	1
ISCO 5	36218	0.226	0.418	0	1	31115	0.097	0.296	0	1
ISCO 6	36218	0.000	0.000	0	0	31115	0.011	0.105	0	1
ISCO 7	36218	0.030	0.169	0	1	31115	0.182	0.385	0	1
ISCO 8	36218	0.034	0.182	0	1	31115	0.118	0.323	0	1
ISCO 9	36218	0.157	0.364	0	1	31115	0.100	0.300	0	1
Low: Lower secondary education	36218	0.269	0.443	0	1	31115	0.338	0.473	0	1
Medium: Upper secondary education	36218	0.503	0.500	0	1	31115	0.479	0.500	0	1
High: Third level education	36218	0.228	0.420	0	1	31115	0.184	0.387	0	1
Age	36218	44.851	8.820	17	72	31115	45.587	9.092	17	72
Child below 12 years	36218	0.305	0.460	0	1	31115	0.313	0.464	0	1

Variable	Women					Men				
	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max
Participation in continuing education	10162	0.136	0.343	0	1	9701	0.135	0.341	0	1
Course length in hours	10092	1.657	7.241	0	200	9656	2.053	9.400	0	160
Secondary earner	10162	0.576	0.494	0	1	9701	0.090	0.287	0	1
Main earner	10162	0.094	0.291	0	1	9701	0.630	0.483	0	1
Equal earner	10162	0.069	0.254	0	1	9701	0.071	0.257	0	1
Single	10162	0.261	0.439	0	1	9701	0.208	0.406	0	1
Full time position	10162	0.216	0.412	0	1	9701	0.827	0.378	0	1
Time in current employment (yrs)	10162	11.225	9.346	1	46	9701	13.232	10.970	1	51
NACE 1	10162	0.006	0.078	0	1	9701	0.010	0.099	0	1
NACE 2	10162	0.000	0.000	0	0	9701	0.002	0.046	0	1
NACE 3	10162	0.047	0.211	0	1	9701	0.174	0.379	0	1
NACE 4	10162	0.003	0.051	0	1	9701	0.009	0.095	0	1
NACE 5	10162	0.004	0.062	0	1	9701	0.008	0.091	0	1
NACE 6	10162	0.009	0.094	0	1	9701	0.075	0.263	0	1
NACE 7	10162	0.120	0.324	0	1	9701	0.135	0.342	0	1
NACE 8	10162	0.023	0.148	0	1	9701	0.072	0.259	0	1
NACE 9	10162	0.022	0.147	0	1	9701	0.016	0.124	0	1
NACE 10	10162	0.016	0.126	0	1	9701	0.049	0.217	0	1
NACE 11	10162	0.039	0.193	0	1	9701	0.049	0.217	0	1
NACE 12	10162	0.008	0.092	0	1	9701	0.007	0.086	0	1
NACE 13	10162	0.053	0.225	0	1	9701	0.073	0.260	0	1
NACE 14	10162	0.039	0.194	0	1	9701	0.037	0.189	0	1
NACE 15	10162	0.080	0.271	0	1	9701	0.112	0.315	0	1
NACE 16	10162	0.117	0.322	0	1	9701	0.069	0.254	0	1
NACE 17	10162	0.372	0.483	0	1	9701	0.076	0.266	0	1
NACE 18	10162	0.016	0.124	0	1	9701	0.012	0.107	0	1
NACE 19	10162	0.026	0.160	0	1	9701	0.012	0.110	0	1
NACE 20	10162	0.001	0.031	0	1	9701	0.000	0.000	0	0
NACE 21	10162	0.000	0.000	0	0	9701	0.000	0.000	0	0
Firm size: 1 to 10 persons	10162	0.143	0.350	0	1	9701	0.109	0.312	0	1
Firm size: 11 to 19 persons	10162	0.120	0.326	0	1	9701	0.096	0.295	0	1
Firm size: 20 to 49 persons	10162	0.167	0.373	0	1	9701	0.166	0.373	0	1

Firm size: 50 persons or more	10162	0.569	0.495	0	1	9701	0.628	0.483	0	1
Permanent position	10162	0.878	0.328	0	1	9701	0.903	0.296	0	1
Supervisory responsibilities	10162	0.172	0.377	0	1	9701	0.356	0.479	0	1
ISCO 1	10162	0.043	0.202	0	1	9701	0.123	0.329	0	1
ISCO 2	10162	0.300	0.458	0	1	9701	0.297	0.457	0	1
ISCO 3	10162	0.207	0.405	0	1	9701	0.172	0.377	0	1
ISCO 4	10162	0.152	0.359	0	1	9701	0.082	0.274	0	1
ISCO 5	10162	0.221	0.415	0	1	9701	0.083	0.276	0	1
ISCO 6	10162	0.002	0.046	0	1	9701	0.014	0.115	0	1
ISCO 7	10162	0.009	0.093	0	1	9701	0.118	0.322	0	1
ISCO 8	10162	0.008	0.090	0	1	9701	0.068	0.253	0	1
ISCO 9	10162	0.058	0.234	0	1	9701	0.044	0.204	0	1
Low: Lower secondary education	10162	0.155	0.362	0	1	9701	0.161	0.368	0	1
Medium: Upper secondary education	10162	0.427	0.495	0	1	9701	0.420	0.494	0	1
High: Third level education	10162	0.418	0.493	0	1	9701	0.418	0.493	0	1
Age	10162	43.204	10.705	17	72	9701	44.615	10.843	17	72
Child below 12 years	10162	0.315	0.464	0	1	9701	0.309	0.462	0	1

A 4 Detailed regressions results: Figures and tables

Figure A 1

Predictive margins for probability of training intensity for men and women in full-time positions (Tobit estimation, Model 2a)

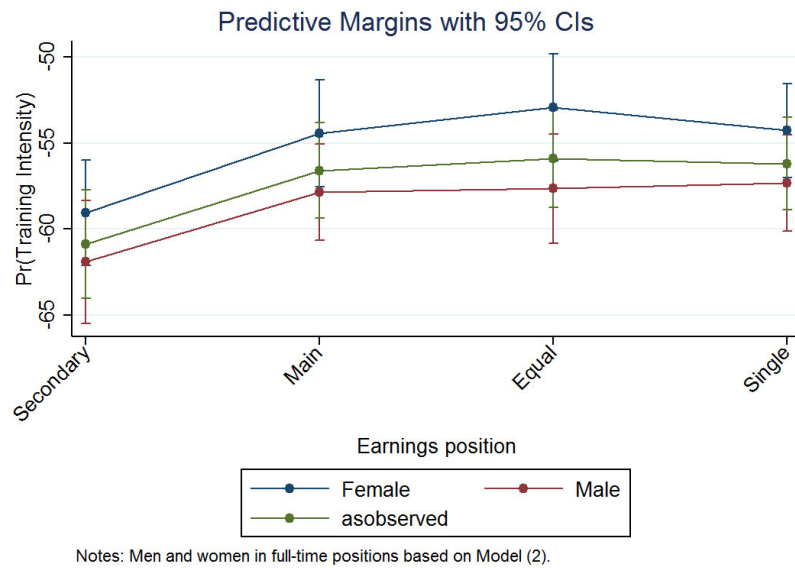


Figure A 2

Predictive margins for probability of training intensity for women in part- and full-time positions (Tobit estimation, Model 2b)

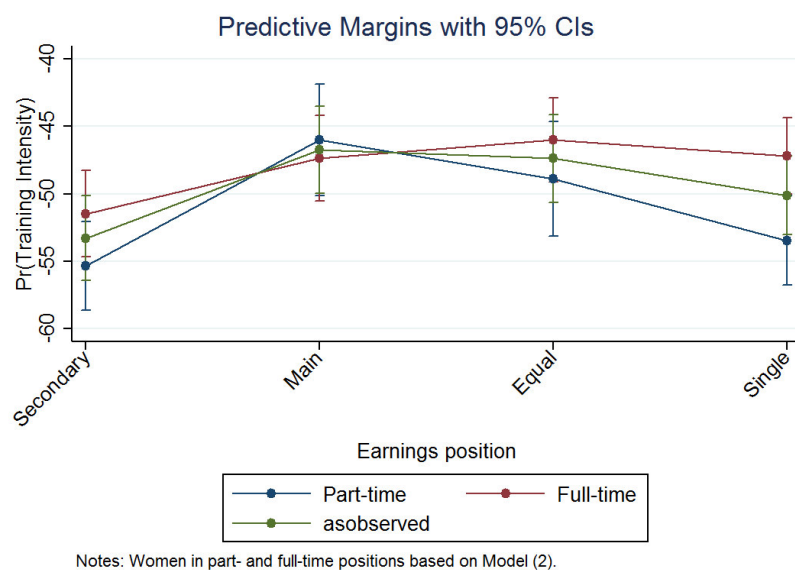


Table A 1

Marginal effects of probit estimation for training incidence (only-full time positions)

	(1)	(2)	(3)	(4)	(5)	(6)
	Model 1a	Model 2a	Model 3a	Model 4a		
Male (1=Yes)	-0.0150*** (0.00170)	-0.0144*** (0.00443)	-0.0254*** (0.00593)	-0.00644 (0.00585)	-0.00680 (0.00589)	-0.0116** (0.00590)
<i>Ref: Secondary earner</i>						
Main	0.0151*** (0.00226)	0.0151*** (0.00353)	0.0114** (0.00459)	-0.00200 (0.00459)	0.00745 (0.00458)	0.00300 (0.00458)
Equal	0.0170*** (0.00300)	0.0198*** (0.00404)	0.0198*** (0.00530)	0.00673 (0.00511)	0.0174*** (0.00527)	0.0114** (0.00516)
Single	0.0144*** (0.00211)	0.0140*** (0.00259)	0.0184*** (0.00342)	0.0123*** (0.00358)	0.0174*** (0.00346)	0.0139*** (0.00351)
<i>Ref: Secondary earner # Male</i>						
Main # Male		-0.000539 (0.00553)	0.00233 (0.00739)	0.00378 (0.00720)	0.00524 (0.00732)	0.00166 (0.00729)
Equal # Male		-0.00565 (0.00647)	-0.00182 (0.00859)	-0.00336 (0.00838)	-0.00361 (0.00848)	-0.00415 (0.00849)
Single # Male		0.000359 (0.00508)	0.00304 (0.00665)	-0.00123 (0.00649)	0.00219 (0.00657)	0.000748 (0.00659)
<i>Ref: DE</i>						
IT			-0.00688* (0.00414)	-0.00138 (0.00429)	-0.00796* (0.00410)	-0.00389 (0.00418)
NL			0.0510*** (0.0155)	0.0350*** (0.0136)	0.0529*** (0.0157)	0.0394*** (0.0142)
<i>Ref: Male # DE</i>						
Male # IT			0.00767 (0.00905)	0.00895 (0.00892)	0.00461 (0.00900)	0.00698 (0.00898)
Male # NL			0.0408** (0.0165)	0.0405** (0.0165)	0.0366** (0.0165)	0.0383** (0.0166)
<i>Ref: Main earner # DE</i>						
Main # IT			0.00219 (0.00768)	0.00392 (0.00756)	0.00289 (0.00769)	0.00198 (0.00756)
Main # NL			0.0114 (0.0158)	0.00371 (0.0155)	0.00306 (0.0158)	0.00561 (0.0156)
<i>Ref: Equal earner # DE</i>						
Equal # IT			-0.00172 (0.00820)	-0.00275 (0.00807)	-0.00217 (0.00815)	-0.00265 (0.00808)
Equal # NL			-0.00558 (0.0176)	-0.00828 (0.0174)	-0.00769 (0.0177)	-0.00867 (0.0175)
<i>Ref: Single Earner # DE</i>						
Single # IT			-0.0212*** (0.00588)	-0.00779 (0.00582)	-0.0123** (0.00589)	-0.0156*** (0.00580)
Single # NL			0.00438 (0.0130)	0.00719 (0.0126)	-0.000161 (0.0129)	0.00423 (0.0127)
<i>Ref: Male # Main earner # DE</i>						
Male # Main # IT			-0.00395 (0.0114)	-0.00371 (0.0112)	-0.00226 (0.0114)	-0.00215 (0.0113)
Male # Main # NL			-0.0298 (0.0205)	-0.0155 (0.0204)	-0.0233 (0.0205)	-0.0213 (0.0205)
<i>Ref: Male # Equal earner # DE</i>						
Male # Equal # IT			0.000166 (0.0134)	-0.00259 (0.0133)	-0.000774 (0.0134)	-0.00110 (0.0133)
Male # Equal # NL			-0.0184 (0.0243)	-0.0146 (0.0241)	-0.0194 (0.0243)	-0.0133 (0.0243)
<i>Ref: Male # Single earner # DE</i>						
Male # Single # IT			0.00434	-0.00414	-0.000289	0.00103

Male # Single # NL	(0.0107) -0.0244 (0.0190)	(0.0105) -0.0163 (0.0189)	(0.0106) -0.0199 (0.0190)	(0.0106) -0.0186 (0.0191)
Time in current employment (yrs)		0.000215** (0.0000944)		
<i>Ref: Manufacturing</i> Agriculture, forestry and fishing		-0.00699 (0.00808) 0.00361 (0.0128)	-0.0256*** (0.00437) 0.00710 (0.0126)	
Mining and quarrying		0.0120* (0.00690)	0.0250*** (0.00756)	
Electricity, gas, steam and air conditioning supply		0.0183** (0.00925)	0.00577 (0.00740)	
Water supply, sewerage, waste management and remediation activities		-0.0109*** (0.00310)	-0.0170*** (0.00245)	
Construction		0.00183 (0.00265)	0.00107 (0.00232)	
Wholesale and retail trade; repair of motor vehicles and motorcycles		0.0147*** (0.00380)	0.00482 (0.00313)	
Transportation and storage		-0.0162*** (0.00472)	-0.0190*** (0.00375)	
Accommodation and food service activities		-0.00199 (0.00376)	0.0214*** (0.00453)	
Information and communication		0.0405*** (0.00458)	0.0607*** (0.00496)	
Financial and insurance activities		0.00852 (0.0102)	0.0113 (0.0101)	
Real estate activities		0.00732** (0.00357)	0.0326*** (0.00423)	
Professional, scientific and technical activities		0.000728 (0.00421)	-0.00275 (0.00362)	
Administrative and support service activities		0.0142*** (0.00289)	0.0282*** (0.00295)	
Public administration and defence, compulsory social security		0.0342*** (0.00364)	0.0672*** (0.00387)	
Education		0.0494*** (0.00329)	0.0755*** (0.00352)	
Human health and social work activities		-0.0126** (0.00626)	-0.00648 (0.00630)	
Arts, entertainment and recreation		0.0104* (0.00536)	0.0147*** (0.00529)	
Other service activities		-0.0398*** (0.00536)	-0.0429*** (0.00529)	
Activities of households as employers, undifferentiated goods- and services- producing activities of				

households for own use	(0.00451)	(0.00225)			
Activities of extraterritorial organisations and bodies	-0.00720	0.00234			
	(0.0222)	(0.0248)			
<i>Ref: Firmsize 1-10 persons</i>					
11 to 19 persons	0.000964				
	(0.00283)				
20 to 49 persons	0.00177				
	(0.00260)				
50 persons or more	0.0111***				
	(0.00230)				
Permanent position (1=Yes)	0.00141				
	(0.00304)				
Supervisory responsibilities (1=Yes)	0.0301***				
	(0.00161)				
<i>Ref: Technicians and associate professionals</i>					
Managers	-0.000725	0.0111**			
	(0.00363)	(0.00438)			
Professionals	0.0117***	0.0293***			
	(0.00264)	(0.00286)			
Clerical support workers	-0.0119***	-0.0291***			
	(0.00258)	(0.00255)			
Service and sales workers	-0.0165***	-0.0413***			
	(0.00296)	(0.00258)			
Skilled agricultural, forestry and fishery workers	-0.0423***	-0.0650***			
	(0.00690)	(0.00507)			
Craft and related trades workers	-0.0266***	-0.0554***			
	(0.00279)	(0.00227)			
Plant and machine operators and assemblers	-0.0238***	-0.0527***			
	(0.00330)	(0.00263)			
Elementary occupations	-0.0387***	-0.0662***			
	(0.00338)	(0.00248)			
<i>Ref: Medium: Upper secondary</i>					
Low: Lower secondary	-0.0145***				
	(0.00227)				
High: Third level	0.0197***				
	(0.00203)				
Age	0.00111*				
	(0.000574)				
Age squared	-				
	0.0000259*				
	**				
	(0.0000067				
	2)				
Child below 12 years (1=Yes)	-0.0000919				
	(0.00198)				
Observations	133515	133515	133515	133515	133515

Notes: Results from a probit regression for men and women in full-time positions. The dependent variable shows whether respondent participated in continuing education (1=Yes). Robust standard errors in parentheses. * p < 0.1, ** p < 0.05, *** p < 0.01.

Table A 2

Marginal effects of probit estimation for training incidence (only-women)

	(1)	(2)	(3)	(4)	(5)	(6)
	Model 1b	Model 2b	Model 3b	Model 4b		
Full time position (1=Yes)	0.0167***	0.0149***	0.0365***	0.0227***	0.0358***	0.0271***
	(0.00192)	(0.00275)	(0.00373)	(0.00371)	(0.00369)	(0.00369)
<i>Ref: Secondary earner</i>						
Main	0.0200***	0.0468***	0.0493***	0.0209**	0.0351***	0.0299***
	(0.00344)	(0.00879)	(0.0122)	(0.00980)	(0.0109)	(0.0105)
Equal	0.0212***	0.0282***	0.0233**	0.00901	0.0178*	0.0134
	(0.00364)	(0.00791)	(0.0108)	(0.00947)	(0.0102)	(0.00989)
Single	0.0102***	0.00312	0.0120***	0.0136***	0.0114***	0.0141***
	(0.00200)	(0.00301)	(0.00406)	(0.00423)	(0.00407)	(0.00416)
<i>Ref: Full-time # Secondary earner</i>						
Main # Full-time		-0.0245***	-0.0311***	-0.0230**	-0.0250**	-0.0267***
		(0.00731)	(0.0101)	(0.00986)	(0.00993)	(0.00992)
Equal # Full-time		-0.00645	-0.00334	-0.00364	-0.00102	-0.00419
		(0.00757)	(0.0108)	(0.0106)	(0.0106)	(0.0107)
Single # Full-time		0.0111***	0.00576	-0.00299	0.00498	-0.00194
		(0.00423)	(0.00551)	(0.00541)	(0.00544)	(0.00545)
<i>Ref: DE</i>						
IT			-0.00474	0.0101**	0.00786*	0.00433
			(0.00403)	(0.00456)	(0.00444)	(0.00431)
NL			0.112***	0.0795***	0.0860***	0.0905***
			(0.00694)	(0.00597)	(0.00610)	(0.00634)
<i>Ref: Full-time # DE</i>						
Full-time # IT			-0.00154	-0.0112*	-0.0177***	-0.00737
			(0.00641)	(0.00638)	(0.00639)	(0.00639)
Full-time # NL			-0.0391***	-0.0324***	-0.0264**	-0.0377***
			(0.0109)	(0.0107)	(0.0108)	(0.0108)
<i>Ref: Main earner # DE</i>						
Main # IT			-0.0554**	-0.0508**	-0.0529**	-0.0510**
			(0.0223)	(0.0216)	(0.0218)	(0.0218)
Main # NL			-0.0212	-0.0130	-0.0116	-0.0182
			(0.0133)	(0.0131)	(0.0131)	(0.0132)
<i>Ref: Equal earner # DE</i>						
Equal # IT			-0.0255	-0.00890	-0.0156	-0.0149
			(0.0168)	(0.0169)	(0.0167)	(0.0168)
Equal # NL			-0.00134	-0.00265	0.00249	-0.00501
			(0.0143)	(0.0142)	(0.0142)	(0.0144)
<i>Ref: Single Earner # DE</i>						
Single # IT			-0.0296***	-0.0101	-0.0131	-0.0168*
			(0.00854)	(0.00876)	(0.00868)	(0.00862)
Single # NL			-0.01000	-0.0108	-0.00707	-0.00919
			(0.00748)	(0.00741)	(0.00741)	(0.00746)
<i>Ref: Full-time # Main earner # DE</i>						
Full-time # Main # IT			0.0575**	0.0543**	0.0563**	0.0527**
			(0.0235)	(0.0228)	(0.0230)	(0.0230)
Full-time # Main # NL			0.0321	0.0154	0.0151	0.0227
			(0.0201)	(0.0197)	(0.0199)	(0.0199)
<i>Ref: Full-time # Equal earner # DE</i>						
Full-time # Equal # IT			0.0239	0.00559	0.0142	0.0117
			(0.0185)	(0.0186)	(0.0184)	(0.0185)
Full-time # Equal # NL			-0.00398	-0.00669	-0.00970	-0.00405
			(0.0221)	(0.0218)	(0.0220)	(0.0221)

<i>Ref: Full-time # Single earner # DE</i>				
Full-time # Single # IT	0.00936 (0.0102)	-0.000916 (0.0103)	0.00143 (0.0103)	0.00203 (0.0102)
Full-time # Single # NL	0.0142 (0.0145)	0.0147 (0.0142)	0.00705 (0.0143)	0.0133 (0.0143)
Time in current employment (yrs)		0.0000963 (0.000110)		
<i>Ref: Manufacturing</i>				
Agriculture, forestry and fishing		-0.00880 (0.0124)	-0.0208*** (0.00538)	
Mining and quarrying		0.00353 (0.0258)	0.0225 (0.0317)	
Electricity, gas, steam and air conditioning supply		0.0225* (0.0126)	0.0388*** (0.0136)	
Water supply, sewerage, waste management and remediation activities		0.0110 (0.0157)	0.0165 (0.0145)	
Construction		-0.0154** (0.00605)	-0.00814 (0.00543)	
Wholesale and retail trade; repair of motor vehicles and motorcycles		0.000228 (0.00334)	0.00362 (0.00273)	
Transportation and storage		0.0147** (0.00597)	0.0156*** (0.00520)	
Accommodation and food service activities		-0.0149*** (0.00452)	-0.0152*** (0.00326)	
Information and communication		-0.00257 (0.00557)	0.0178*** (0.00623)	
Financial and insurance activities		0.0389*** (0.00568)	0.0530*** (0.00563)	
Real estate activities		0.0119 (0.0118)	0.0165 (0.0107)	
Professional, scientific and technical activities		0.00606 (0.00427)	0.0246*** (0.00434)	
Administrative and support service activities		0.00466 (0.00481)	-0.00143 (0.00348)	
Public administration and defence, compulsory social security		0.00963*** (0.00368)	0.0299*** (0.00362)	
Education		0.0308*** (0.00388)	0.0681*** (0.00372)	
Human health and social work activities		0.0409*** (0.00334)	0.0644*** (0.00303)	

Arts, entertainment and recreation	0.00675	0.0175**
	(0.00870)	(0.00855)
Other service activities	0.00974*	0.0135***
	(0.00538)	(0.00476)
Activities of households as employers, undifferentiated goods- and services-producing activities of households for own use	-0.0303***	-0.0297***
	(0.00420)	(0.00240)
Activities of extraterritorial organisations and bodies	-0.0175	0.00196
	(0.0213)	(0.0282)
<i>Ref: Firmsize 1-10 persons</i>		
11 to 19 persons	0.00342	
	(0.00300)	
20 to 49 persons	0.00263	
	(0.00281)	
50 persons or more	0.00963***	
	(0.00244)	
Permanent position (1=Yes)	0.00251	
	(0.00315)	
Supervisory responsibilities (1=Yes)	0.0226***	
	(0.00200)	
<i>Ref: Technicians and associate professionals</i>		
Managers	0.00507	0.0203***
	(0.00603)	(0.00756)
Professionals	0.0105***	0.0300***
	(0.00314)	(0.00343)
Clerical support workers	-0.0156***	-0.0361***
	(0.00275)	(0.00266)
Service and sales workers	-0.0161***	-0.0448***
	(0.00307)	(0.00260)
Skilled agricultural, forestry and fishery workers	-0.0445***	-0.0689***
	(0.0127)	(0.00815)
Craft and related trades workers	-0.0386***	-0.0665***
	(0.00508)	(0.00352)
Plant and machine operators and assemblers	-0.0363***	-0.0645***
	(0.00543)	(0.00379)
Elementary occupations	-0.0477***	-0.0725***
	(0.00295)	(0.00235)
<i>Ref: Medium: Upper secondary</i>		
Low: Lower secondary	-0.0155***	

High: Third level	(0.00262)
	0.0234***
	(0.00235)
Age	0.00273***
	(0.000635)
Age squared	-
	0.0000385*
	**
	(0.0000074
	7)
Child below 12 years (1=Yes)	-0.00984***
	(0.00228)
Observations	94601
	94601
	94601
	94601
	94601
	94601

Notes: Results from a probit regression for women in full- and part-time positions by countries. The dependent variable shows whether respondent participated in continuing education (1=Yes). Robust standard errors in parentheses. * p < 0.1, ** p < 0.05, *** p < 0.01

Table A 3

Tobit estimation for training intensity (only-full time positions)

	(1)	(2)	(3)	(4)	(5)	(6)
	Model 1a	Model 2a	Model 3a	Model 4a		
Male (1=Yes)	-3.329***	-2.866**	-5.871***	-0.564	-0.829	-2.005
	(0.496)	(1.309)	(1.774)	(1.808)	(1.789)	(1.802)
<i>Ref: Secondary earner</i>						
Main	4.395***	4.632***	3.480**	-0.465	2.308	1.002
	(0.729)	(1.070)	(1.426)	(1.408)	(1.432)	(1.415)
Equal	5.283***	6.108***	6.218***	2.545*	5.538***	3.907***
	(0.930)	(1.154)	(1.523)	(1.494)	(1.518)	(1.510)
Single	4.792***	4.771***	5.755***	3.748***	5.424***	4.401***
	(0.690)	(0.822)	(1.069)	(1.052)	(1.070)	(1.058)
<i>Ref: Male # Secondary earner</i>						
Male # Main		-0.592	0.256	0.786	1.032	0.0147
		(1.615)	(2.177)	(2.178)	(2.185)	(2.188)
Male # Equal		-1.844	-1.259	-1.692	-1.758	-2.005
		(1.943)	(2.547)	(2.548)	(2.548)	(2.565)
Male # Single		-0.187	0.625	-0.690	0.377	-0.0536
		(1.504)	(1.989)	(1.997)	(1.992)	(2.007)
<i>Ref: DE</i>						
IT			-4.032***	-1.937	-4.352***	-3.186**
			(1.236)	(1.255)	(1.246)	(1.237)
NL			11.41***	8.222**	11.79***	9.509***
			(3.301)	(3.295)	(3.322)	(3.331)
<i>Ref: Male # DE</i>						
Male # IT			1.189	1.329	0.238	0.928
			(2.567)	(2.588)	(2.580)	(2.590)
Male # NL			11.82**	12.17**	10.95**	11.27**
			(4.977)	(5.120)	(5.037)	(5.146)
<i>Ref: Main earner # DE</i>						
Main # IT			0.572	1.028	0.746	0.500
			(2.107)	(2.117)	(2.132)	(2.106)
Main # NL			3.423	1.810	1.257	2.032
			(4.648)	(4.658)	(4.689)	(4.688)
<i>Ref: Equal earner # DE</i>						
Equal # IT			-1.310	-1.659	-1.507	-1.666
			(2.244)	(2.242)	(2.248)	(2.243)
Equal # NL			-0.425	-0.502	-0.847	-1.019

	(5.536)	(5.630)	(5.681)	(5.639)
<i>Ref: Single Earner # DE</i>				
Single # IT	-5.910***	-2.273	-3.614**	-4.508***
	(1.635)	(1.637)	(1.645)	(1.631)
Single # NL	0.619	2.083	-0.495	0.638
	(3.917)	(3.921)	(3.949)	(3.944)
<i>Ref: Male # Main earner # DE</i>				
Male # Main # IT	-0.713	-0.878	-0.236	-0.190
	(3.208)	(3.223)	(3.230)	(3.223)
Male # Main # NL	-9.687	-6.008	-8.172	-7.571
	(6.057)	(6.186)	(6.127)	(6.217)
<i>Ref: Male # Equal earner # DE</i>				
Male # Equal # IT	1.255	0.609	1.067	1.034
	(3.754)	(3.781)	(3.768)	(3.785)
Male # Equal # NL	-4.271	-3.924	-4.882	-3.187
	(7.915)	(8.018)	(8.000)	(8.074)
<i>Ref: Male # Single earner # DE</i>				
Male # Single # IT	1.385	-0.924	0.244	0.556
	(3.023)	(3.035)	(3.038)	(3.039)
Male # Single # NL	-7.385	-5.519	-6.410	-5.944
	(5.708)	(5.854)	(5.776)	(5.879)
Time in current employment (yrs)		0.0354		
		(0.0274)		
<i>Ref: Manufacturing Agriculture, forestry and fishing</i>				
		-2.345	-12.39***	
		(3.066)	(2.954)	
Mining and quarrying		1.423	2.604	
		(4.358)	(4.355)	
Electricity, gas, steam and air conditioning supply		4.160**	7.673***	
		(2.041)	(2.049)	
Water supply, sewerage, waste management and remediation activities		6.336**	2.519	
		(2.696)	(2.621)	
Construction		-4.571***	-7.617***	
		(1.254)	(1.213)	
Wholesale and retail trade; repair of motor vehicles and motorcycles		0.182	-0.0237	
		(0.892)	(0.838)	
Transportation and storage		4.947***	1.851*	
		(1.158)	(1.124)	
Accommodation and food service activities		-5.674**	-7.378***	
		(2.255)	(2.156)	
Information and communication		-0.338	6.597***	
		(1.306)	(1.283)	
Financial and insurance activities		10.68***	14.90***	
		(1.091)	(1.070)	
Real estate activities		3.451	4.390	

Professional, scientific and technical activities	(3.049) 2.633**	(3.052) 9.487***
Administrative and support service activities	(1.136) 0.157	(1.123) -1.033
Public administration and defence, compulsory social security	(1.411) 5.583***	(1.374) 9.056***
Education	(0.904) 8.660***	(0.887) 15.26***
Human health and social work activities	(0.941) 12.09***	(0.884) 17.38***
Arts, entertainment and recreation	(0.863) -3.095	(0.880) -1.178
Other service activities	(2.924) 3.583**	(2.895) 4.751***
Activities of households as employers, undifferentiated goods- and services-producing activities of households for own use	(1.633) -21.02***	(1.620) -31.75***
Activities of extraterritorial organisations and bodies	(4.438) -1.349	(4.381) 1.555
<i>Ref: Firmsize 1-10 persons</i>	(8.435)	(8.776)
11 to 19 persons	0.422 (0.902)	
20 to 49 persons	0.750 (0.821)	
50 persons or more	3.633*** (0.720)	
Permanent position (1=Yes)	-0.402 (0.973)	
Supervisory responsibilities (1=Yes)	8.724*** (0.512)	
<i>Ref: Technicians and associate professionals</i>		
Managers	-0.733 (0.970)	1.520 (0.932)
Professionals	2.597*** (0.662)	5.424*** (0.594)
Clerical support workers	-3.424*** (0.767)	-7.592*** (0.752)
Service and sales	-4.656***	-11.49***

workers				(0.949)		(0.898)
Skilled agricultural, forestry and fishery workers				-16.38***		-25.09***
Craft and related trades workers				(3.671)		(3.696)
Plant and machine operators and assemblers				-7.566***		-17.60***
Elementary occupations				(1.011)		(0.971)
<i>Ref: Medium: Upper secondary</i>				-7.652***		-17.11***
<i>Low: Lower secondary</i>				(1.165)		(1.139)
<i>High: Third level</i>				-13.53***		-25.08***
Age				(1.614)		(1.598)
Age squared				-5.104***		
Child below 12 years (1=Yes)				(0.893)		
Constant	-58.93***	-59.05***	-57.01***	4.927***	-60.46***	-51.91***
	(1.524)	(1.558)	(1.620)	(0.566)	(3.799)	(1.572)
sigma				0.176		
Constant	37.41***	37.41***	36.71***	(0.175)	35.47***	36.13***
	(0.862)	(0.863)	(0.837)	-0.00631***	(0.817)	(0.838)
Observations	133414	133414	133414	(0.00203)	133414	133414
Pseudo R ²	0.001	0.001	0.009	-0.132	0.037	0.025
				(0.587)		

Notes: Results from a Tobit regression for men and women in full-time positions. The dependent variable is the average course length in hours. Robust standard errors in parentheses. * p < 0.1, ** p < 0.05, *** p < 0.01

Table A 4

Tobit estimation for training intensity (only-women)

	(1)	(2)	(3)	(4)	(5)	(6)
	Model 1b	Model 2b	Model 3b	Model 4b		
Full time position (1=Yes)	4.317***	3.862***	9.757***	5.944***	9.679***	7.543***
	(0.524)	(0.730)	(1.001)	(1.007)	(1.007)	(1.000)
<i>Ref: Secondary earner</i>						
Main	4.911***	9.323***	10.31***	4.608**	7.713***	6.613***
	(0.817)	(1.646)	(2.254)	(2.257)	(2.239)	(2.243)
Equal	5.493***	6.438***	5.827**	2.416	4.605*	3.594
	(0.867)	(1.639)	(2.456)	(2.483)	(2.452)	(2.489)
Single	3.416***	1.883**	4.774***	5.004***	4.690***	5.398***
	(0.561)	(0.878)	(1.184)	(1.213)	(1.192)	(1.204)
<i>Ref: Full-time #</i>						
<i>Secondary earner</i>						
Full-time # Main		-5.199***	-7.230***	-5.222**	-5.829**	-6.153**
		(1.892)	(2.578)	(2.575)	(2.571)	(2.568)
Full-time # Equal		-0.967	-0.260	-0.334	0.295	-0.474
		(1.926)	(2.799)	(2.814)	(2.796)	(2.826)

Full-time # Single	2.411** (1.139)	0.359 (1.500)	-1.852 (1.515)	0.118 (1.510)	-1.665 (1.513)
<i>Ref: DE</i>					
IT		-2.882** (1.220)	1.164 (1.241)	0.495 (1.227)	-0.371 (1.225)
NL		19.33*** (1.134)	15.86*** (1.128)	16.62*** (1.112)	17.21*** (1.144)
<i>Ref: Full-time # DE</i>					
Full-time # IT		-0.906 (1.631)	-2.814* (1.655)	-4.875*** (1.650)	-2.393 (1.646)
Full-time # NL		-9.123*** (3.109)	-8.216*** (3.148)	-6.238** (3.134)	-9.021*** (3.168)
<i>Ref: Main earner # DE</i>					
Main # IT		-12.59** (5.968)	-11.43* (5.894)	-12.05** (5.897)	-11.54* (5.914)
Main # NL		-6.092* (3.398)	-4.068 (3.454)	-3.795 (3.401)	-5.198 (3.428)
<i>Ref: Equal earner # DE</i>					
Equal # IT		-6.407 (4.222)	-2.243 (4.327)	-4.093 (4.241)	-3.875 (4.274)
Equal # NL		-1.002 (3.545)	-1.545 (3.615)	-0.113 (3.583)	-1.990 (3.636)
<i>Ref: Single Earner # DE</i>					
Single # IT		-8.730*** (2.221)	-3.828* (2.310)	-4.646** (2.269)	-5.624** (2.273)
Single # NL		-3.662* (2.024)	-4.171** (2.072)	-3.058 (2.050)	-3.637* (2.061)
<i>Ref: Full-time # Main earner # DE</i>					
Full-time # Main # IT		13.09** (6.255)	12.34** (6.187)	12.92** (6.194)	11.97* (6.207)
Full-time # Main # NL		9.108* (5.374)	5.418 (5.433)	5.112 (5.404)	6.753 (5.442)
<i>Ref: Full-time # Equal earner # DE</i>					
Full-time # Equal # IT		5.148 (4.661)	0.533 (4.762)	2.871 (4.681)	2.159 (4.713)
Full-time # Equal # NL		0.713 (6.135)	0.839 (6.268)	-0.472 (6.260)	0.965 (6.293)
<i>Ref: Full-time # Single earner # DE</i>					
Full-time # Single # IT		3.505 (2.630)	0.800 (2.712)	1.437 (2.680)	1.675 (2.683)
Full-time # Single # NL		4.142 (4.066)	5.160 (4.120)	2.613 (4.103)	4.163 (4.131)
Time in current employment (yrs)			-0.0152 (0.0294)		
<i>Ref: Manufacturing Agriculture, forestry and fishing</i>			-3.705 (5.232)	-11.88** (4.726)	
Mining and quarrying			2.942 (8.277)	9.033 (8.920)	
Electricity, gas, steam and air conditioning supply			6.167* (3.300)	10.84*** (3.281)	
Water supply, sewerage, waste management and			3.492	5.357	

remediation activities	(4.751)	(4.591)
Construction	-5.851**	-3.680
Wholesale and retail trade; repair of motor vehicles and motorcycles	(2.809)	(2.754)
	-0.302	0.909
Transportation and storage	(1.153)	(1.095)
	4.658***	5.398***
Accommodation and food service activities	(1.740)	(1.716)
	-4.870**	-6.635***
Information and communication	(2.135)	(2.077)
	-1.054	5.709***
Financial and insurance activities	(1.966)	(1.927)
	10.39***	14.24***
Real estate activities	(1.412)	(1.380)
	5.404	7.179*
Professional, scientific and technical activities	(3.845)	(3.666)
	1.618	7.496***
Administrative and support service activities	(1.362)	(1.312)
	1.417	-0.481
Public administration and defence, compulsory social security	(1.568)	(1.487)
	4.185***	10.06***
Education	(1.210)	(1.177)
	7.585***	16.07***
Human health and social work activities	(1.118)	(1.057)
	9.636***	15.56***
Arts, entertainment and recreation	(1.011)	(1.016)
	3.580	7.143**
Other service activities	(2.855)	(2.799)
	2.791*	4.392***
Activities of households as employers, undifferentiated goods- and services-producing activities of households for own use	(1.673)	(1.643)
	-13.95***	-21.55***
Activities of extraterritorial organisations and bodies	(3.023)	(2.973)
	-6.589	1.054
	(10.61)	(11.20)
<i>Ref: Firmsize 1-10 persons</i>		
11 to 19 persons	0.832	

				(0.860)		
20 to 49 persons				0.829		
				(0.792)		
50 persons or more				2.927***		
				(0.691)		
Permanent position (1=Yes)				-0.0944		
				(0.925)		
Supervisory responsibilities (1=Yes)				6.034***		
				(0.573)		
<i>Ref: Technicians and associate professionals</i>						
Managers				1.123	3.662***	
				(1.381)	(1.326)	
Professionals				2.181***	5.178***	
				(0.723)	(0.632)	
Clerical support workers				-4.186***	-8.617***	
				(0.772)	(0.743)	
Service and sales workers				-4.244***	-11.51***	
				(0.876)	(0.804)	
Skilled agricultural, forestry and fishery workers				-14.98**	-23.69***	
				(6.823)	(6.491)	
Craft and related trades workers				-10.93***	-20.86***	
				(2.341)	(2.317)	
Plant and machine operators and assemblers				-11.30***	-20.89***	
				(2.253)	(2.221)	
Elementary occupations				-16.30***	-26.58***	
				(1.561)	(1.540)	
<i>Ref: Medium: Upper secondary</i>						
Low: Lower secondary				-5.211***		
				(0.990)		
High: Third level				5.716***		
				(0.601)		
Age				0.676***		
				(0.179)		
Age squared				-0.00998***		
				(0.00209)		
Child below 12 years (1=Yes)				-3.123***		
				(0.619)		
Constant	-55.52***	-55.34***	-59.16***	-70.12***	-66.58***	-51.59***
	(1.680)	(1.682)	(1.827)	(4.198)	(2.159)	(1.688)
sigma						
Constant	32.81***	32.81***	32.07***	31.04***	31.69***	31.48***
	(0.938)	(0.938)	(0.924)	(0.904)	(0.918)	(0.920)
Observations	94499	94499	94499	94499	94499	94499
Pseudo R ²	0.003	0.003	0.016	0.047	0.032	0.036

Notes: Results from a Tobit regression for women in full- and part-time positions. The dependent variable is the average course length in hours. Robust standard errors in parentheses. * p < 0.1, ** p < 0.05, *** p < 0.01