

Boll, Christina; Bublitz, Elisabeth

Working Paper

A cross-country comparison of gender differences in job-related training: The role of working hours and the household context

HWWI Research Paper, No. 172

Provided in Cooperation with:

Hamburg Institute of International Economics (HWWI)

Suggested Citation: Boll, Christina; Bublitz, Elisabeth (2016) : A cross-country comparison of gender differences in job-related training: The role of working hours and the household context, HWWI Research Paper, No. 172, Hamburgisches WeltWirtschaftsinstitut (HWWI), Hamburg

This Version is available at:

<https://hdl.handle.net/10419/129777>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



Hamburg Institute
of International
Economics

A cross-country comparison of gender differences in job-related training - The role of working hours and the household context

Christina Boll, Elisabeth Bublitz

HWWI Research

Paper 172

Corresponding author:

Dr. Christina Boll

Hamburg Institute of International Economics (HWWI)

Heimhuder Str. 71 | 20148 Hamburg | Germany

Phone: +49 (0)40 34 05 76 - 668 | Fax: +49 (0)40 34 05 76 - 776

boll@hwwi.org

HWWI Research Paper

Hamburg Institute of International Economics (HWWI)

Heimhuder Str. 71 | 20148 Hamburg | Germany

Phone: +49 (0)40 34 05 76 - 0 | Fax: +49 (0)40 34 05 76 - 776

info@hwwi.org | www.hwwi.org

ISSN 1861-504X

Editorial Board:

Prof. Dr. Henning Vöpel

Dr. Christina Boll

© Hamburg Institute of International Economics (HWWI)

March 2016

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means (electronic, mechanical, photocopying, recording or otherwise) without the prior written permission of the publisher.

HWWI Research Paper No. 172 | March 2016

**A cross-country comparison of gender differences in
job-related training - The role of working hours and the
household context**

Christina Boll, Elisabeth Bublitz

This study is an outcome of a research project that had been funded by the Hans Böckler Foundation. The full content of the study, any omissions and views expressed therein are in the sole responsibility of the authors. We are grateful to Malte Hoffmann, Jens Torsten Möller and Lars Wenzel who provided excellent research assistance.

Content

1 Introduction	1
2 Background	3
2.1 Previous research	3
2.2 Research hypotheses	5
3 Empirical approach	7
3.1 Data and variables	7
3.2 Sample structure	9
3.3 Methodology	10
4 Results	12
4.1 Main findings	12
4.1.1 Distribution of training incidence	12
4.1.2 Determinants of training incidence by gender	13
4.1.3 Determinants of training incidence by working time	17
4.2 Robustness checks	20
4.3 Discussion	23
5 Conclusion	26
References	28
Appendix	33
A 1 Detailed data description	33
A 2 Variable overview	34
A 3 Summary Statistics	37
A 4 Detailed regressions results: Figures and tables	41

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. For female workers in Germany, but not Italy or the Netherlands, working part-time instead of full-time corresponds with a decrease in course length by 5.5 hours. Also, regarding German part-time employed women, single earners train 5.6 hours more than secondary earners. The findings of our study hold at the extensive and the intensive margin, suggesting that Germany faces particular household-related 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, 1997; 1995), and human capital formation (Ben-Porath, 1967; Becker, 1964) 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. Against this background, the question arises whether there exists important group heterogeneity among men and women which is crucial in determining the participation incidence and intensity. Particularly, the household context has been shown to significantly influence labour 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 the household context 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 job-related training. If part-time jobs can be observed more frequently among women, the job status may explain gender-specific variation in participation in job-related training. 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 regarding family-

friendly work environments, allowing us to analyse 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). We implement a step-wise estimation procedure for two samples: (a) men and women in full-time positions and (b) women in full- and part-time positions. On both samples we run Probit regressions with training incidence as dependent variable and use Tobit regressions for training intensity (course length) as a robustness check. First, we only include the central variables (sample (a): gender and earnings position, sample (b): working hours and earnings position) which are then interacted with each other in the second model. The third model includes three-way interactions with country and the fourth model covers several additional control variables.

As to the results of our study, Dutch workers train significantly more often than Germans and there are only negligible differences between Italians and Germans. Being full-time employed relates more strongly to training than being part-time employed for female workers in Germany and Italy. The earnings position does not affect workers in Italy or the Netherlands. As for Germany, training participation of male workers is not significantly influenced by their earnings position. However, full- and part-time female single workers in Germany train more often than female secondary earners. Looking at significant differences in course length, working part-time instead of full time corresponds with a decrease by 5.5 hours. Female single earners in part-time jobs train 5.6 hours more than female secondary earners in part-time positions; hence, both reduced working hours and a reduced contribution to the household's labour income are associated with less training. When looking at the complete female sample, children below 12 years of age significantly reduce mothers' training participation in Germany and the Netherlands but not in Italy. As soon as the sample is divided between part- and full-time female workers, we see that in Germany both groups are equally affected while in the Netherlands only mothers in part-time jobs show a significant negative relationship with training participation.

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 how country fixed effects interact with the named two variables, potentially showing the robustness of the new differentiators. In addition, we test the country-specific role of children below 12 in the household for job-related training. 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-neutral. 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 labour 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-related 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, partners with the relatively higher wage are more likely to train as they are more able to enforce their time use preferences.

However, bargaining theory is not able to explain why it happens that economically powerful (fe)male partners display a gender-stereotyped behaviour, 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 (South & Spitze, 1994; West & Zimmerman, 1987; Berk, 1985). It postulates that gender roles are structured by practiced behaviour in the household context. Partners may derive utility from gender stereotype behaviour. 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 behaviour in a different field of action (e.g. Akerlof & 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.

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 difference in job-related training.

The empirical evidence on gender effects in job-related training 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). In light of the theoretical approaches discussed above, one explanation of the conflicting results may be gender differences in the earnings position and working hours which are analysed in the present study.

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, "women are less likely to train than men all else being equal" (Dieckhoff & Steiber, 2009), 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 behaviour 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 behaviour. Moreover, self-reported gender roles may differ from individual behaviour. Even in couples where both partners have a strong labour market attachment, birth giving tends to reinforce traditional labour 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, resulting in 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.

In addition to our main variables, 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. As women bear the lions' share of childcare in the observed countries (DIW, 2016; Boll et al., 2012), we argue that children below 12 should not hinder fathers' training engagement at all. We further expect that children should not hinder mothers' training engagement in maternal career oriented contexts but that they should do so in other contexts. We consider the prevalence of all-day child care as a suitable promotor for a strong labour market involvement of mothers. We thereby build on the rich evidence for a positive association between the supply of institutional childcare and mothers' employment (Brilli, Del Boca and Pronzato, 2015; Gornick, Meyers & Ross, 1996). We further acknowledge the special importance of all-day care in this context (cf. for Germany: Marcus & Peter, 2015; Tobsch, 2013; Beblo et al., 2005). Hence, we expect that the positive stimulus of all-day child care on mothers' employment should simultaneously increase their training propensity. The literature points to a potential selection in this context when linking mothers' individual use of all-day care to mothers' employment behaviour. Put in context here, one could argue that causality runs from training to child care use and not the other way round. However, potential endogeneity is circumvented in our study since in the interpretation of our empirical analysis we refer to nation-wide coverage rates.

The study tests the main theoretical motivations for job-related training in the following four hypotheses. According to theory, there are no reasons to assume that the suggested relationships differ between the extensive and intensive margin which is why all hypotheses should equally hold for training incidence and intensity.

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

Hypothesis 2: Working full-time is correlated with more training than working part-time across all earnings positions. Specifically, in combination with part-time, a secondary earnings position leads to a more pronounced negative relationship with training incidence and intensity than in combination with 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 industry-specific.

Hypothesis 4: Women's training incidence as well as intensity is negatively affected by the presence of children below the age of 12, conditional on poor all-day child care provision.

In the empirical tests, we investigate the hypotheses not only across all countries but also in comparison across countries (three-way interactions) and separately for different countries (individual country samples) because, although theories predict that the main relationships should continue to hold, the institutional settings might change the importance of selected variables. For instance, if a country offers extensive training opportunities for all employees independent from their work volumes and/or if part-time work is widespread among both genders, working hours may play a less important role for our outcome variable.

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 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. 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. All training activities are summarized under the term "job-related training". The reference period of self-reported training behaviour 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 job-related training in the past four weeks 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, employees' working time and their 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 jobs. In most studies full-time work is considered as a key driver of training involvement because it increases the participation rates (e.g., BMBF, 2014; Bellmann et al., 2013; Wilkens & Leber, 2003). 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 has to be 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.

Studies that focus on the determinants of training show that some job-related as well as individual characteristics are decisive in this context. With regard to the control variables we distinguish between job-related and individual or household context related variables. As job-related training widely differs among economic sectors (e.g. Bechmann et al., 2013; Burgard, 2012), dummies controlling for NACE sector classifications are included. 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 does not have to be (Janssen & Leber, 2015; Bechmann et al., 2013). 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 job-related training (Burgard, 2012) and ISCO classifications are used to control for this effect. Finally, firm tenure is included. With respect to individual characteristics, the level of education has been shown to be positively associated to job-related training participation (e.g. Seidel & Hartmann, 2011).

Furthermore, age and its square term are included in the regressions. The relationship between age and training participation seems to peak at medium age, resulting in an inversely U-shaped age profile of training 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 and further test our fourth hypothesis, a variable indicating the presence of a child below the age of 12 in the household is also included. The fourth hypothesis requires a country-specific interpretation which is why we additionally test our models for the country samples.

Detailed variable descriptions are found in Section A 2 in the Annex.

As mentioned earlier, 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 the availability of all-day institutional child care as a suitable indicator for such contexts. The indicator does not enter our regressions because we estimate training participation on the national level. Instead, it serves as a qualitative context information when interpreting the children below 12-parameter in the national context. Specifically, we consider the full-time care ratio (as the share of children in institutional all day-care over the population of each age group). The three countries notably vary with respect to this indicator (Eurostat 2016). In the Netherlands, the share of children enrolled in formal childcare at a minimum of 30 hours per week is rather low, ranging from 6% for the below 3 and 15% for the 3-6 years old to 22% for the 7-12 years old in 2013. Germany ranks in a medium position. Here, the share of children in full-time care amounts to 19, 54 and 51% for the below 3, 3 to 6, and 7 to 12 years old, respectively. Italy exhibits rather poor full-time institutional care for the below 3 (14%) but provides extensive full-time care for 3-6 (69%) and 6-12 years old children (82%).

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. This data almost perfectly meets the information for the whole statistical population in these countries (Eurostat, 2015). Also among male workers, the Dutch full-time quota is lowest in the three country-comparison (80.9%). 93.3% of male Italians and 90.2% of male

Germans work full-time. As to the second core variable in our study, the relative earnings position, further important differences have to be acknowledged. 57.3% of women in our Dutch sample are secondary earners, whereas this applies to 41.9% 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 (26.5%). Among men, some discrepancies are remarkable as well. 62.1% of Dutch men are coded as main earners whereas the share is less than 48.0% in Italy and 47.2% in Germany. Table A 3 in Section A 3 depicts detailed summary statistics on the variables employed in this analysis by country and gender.

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 the participation rate (main results) or the participation intensity (robustness checks) of individual i .

The first sample (a) 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.¹ The variable β_0 describes the constant and ϵ_i the individual-specific 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 additionally 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 investigating significant differences across countries. Finally, Model 4a considers various control variables to correct for the influence of other determinants of job-related training (summarized with vector \mathbf{X}_i).

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

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

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

¹ 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 on the role of the working time for women only. The procedure further allows jointly investigating the three-way interaction with country for both relationships.

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

The second sample (b) includes only women, 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 considers all the control variables (\mathbf{X}_i).

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

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

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

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

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 for 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 the 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. We use course length as a robustness check for training incidence. As course length includes the null, we expect that our hypotheses concerning the extensive margin also hold for the intensive margin. 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, & Tisdell, 2002). As mentioned above, in the EU LFS data, training behaviour 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 & Kalenkoski, 2010; Stewart, 2009). 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 our findings. The last section includes a discussion of our hypotheses in light of the empirical 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 these characteristics play a role for 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 context for women and men (in %)

	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

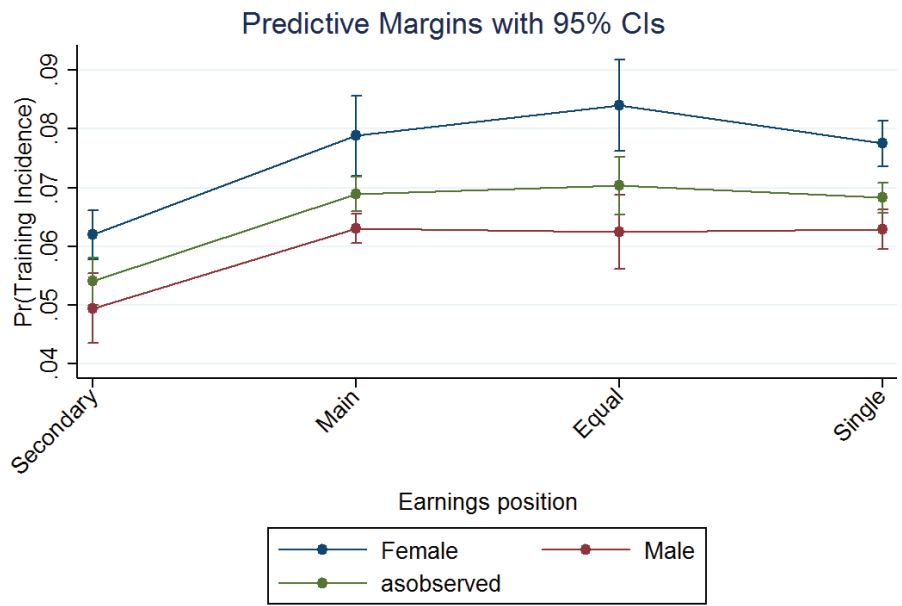
To identify the determinants of training engagement, we run Probit estimations of the participation for men and women in full-time positions. As noted in Section 3.3, the set of included covariates differs between models. We begin with the core variables of our analysis (Model 1a), adding interaction 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).

For an easier interpretation of significant differences within countries and gender, we additionally estimated the same regression models both separately for country and gender which is of particular relevance for Hypothesis 4. The complete results are available upon request. We graphically show how the relationships between the earnings position and gender (Figure 1, Figure 2) or the working hours (Figure 3, Figure 4) affect job-related training. Note that we only discuss correlations that are significant at the 1%- or 5%-level (as indicated in the regression tables in Annex A 4) but that the figures do not display significance levels. For illustration, note that the interpretation of the interactions in the tables is based, for instance, on the single coefficient for male employees (showing general differences across gender), the earnings position (for female employees with secondary earners as reference category), and the interaction between male employees and earnings position (with female employees in the respective earnings position as reference group).

The complete regression tables with the average marginal effects of the coefficients can be found in Table A 4. 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. There are no (significant) differences between men and women in the respective earnings positions. Model 3a confirms significant differences regarding these relationships across countries, according to which 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 and female respondents in the same 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. For male employees, the earnings position plays no significant role (see Table 2). There are no significant differences between men and women in Germany when controlling for additional covariates.

Figure 1

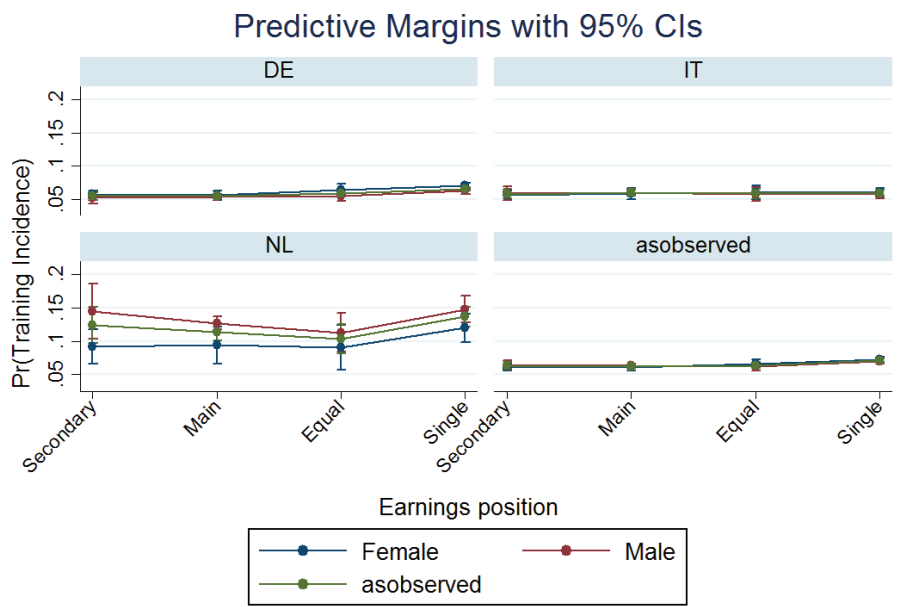
Predictive margins for probability of training incidence for men and women in full-time positions (Probit, Model 2a in Table A 4)



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

Figure 2

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



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

Table 2

The role of the earnings position and young children (Probit, sample a and b separately by country and gender)

Sample (a)	Germany		Italy		Netherlands	
	Full-time jobs		Full-time jobs		Full-time jobs	
	Women	Men	Women	Men	Women	Men
<i>Ref: Secondary earner</i>						
Main	-0.00606 (0.00514)	0.00163 (0.00446)	0.00243 (0.00533)	0.000740 (0.00511)	0.0140 (0.0259)	-0.0145 (0.0208)
Equal	0.00253 (0.00571)	0.00211 (0.00561)	0.00465 (0.00604)	-0.00154 (0.00649)	0.000191 (0.0278)	-0.0203 (0.0258)
Single	0.00992** (0.00408)	0.00833* (0.00461)	0.00317 (0.00437)	0.00264 (0.00582)	0.0229 (0.0210)	-0.00288 (0.0227)
Child below 12 years (1=Yes)	-0.0101* (0.00549)	0.00235 (0.00286)	0.000288 (0.00458)	0.00678* (0.00377)	-0.0254 (0.0259)	-0.00336 (0.0106)
Controls	YES	YES	YES	YES	YES	YES
Observations	24829	44361	24278	29368	2191	8025
Sample (b)	Women		Women		Women	
	All	Part-time	All	Part-time	All	Part-time
<i>Ref: Secondary earner</i>						
Main		0.0124* (0.00688)		-0.0114* (0.00622)		0.0282 (0.0188)
Equal		0.00568 (0.00657)		0.00000894 (0.00701)		0.0237 (0.0197)
Single		0.0111*** (0.00318)		0.000747 (0.00393)		0.00432 (0.0106)
Child below 12 years (1=Yes)	-0.00966*** (0.00295)	-0.00535* (0.00299)	-0.00107 (0.00330)	-0.00243 (0.00386)	-0.0282*** (0.00952)	-0.0283*** (0.0103)
Controls	YES	YES	YES	YES	YES	YES
Observations	47978	23100	36218	11929	10162	7950

Notes: Results from Probit regressions separate by countries, gender, and working hours with all control variables. Sample (b) with "all" women includes interaction effects which are not reported here. Full model results are available upon request. Robust standard errors in parentheses.

* p < 0.1, ** p < 0.05, *** p < 0.01.

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 4, 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 (see Table 2, Model 4a).

4.1.3 Determinants of training incidence by working time

Since few men work in part-time positions, the analysis now proceeds with the sample of women in full- and part-time positions. The complete regressions results are reported in Table A 5. The results for Model 1b confirm that women in full-time positions train more frequently. 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. In general, female full-time workers train significantly more than female part-time workers. Further distinguishing between the earnings position, this relationship is turned around for main earners who train significantly less than secondary earners when in full-time jobs but more when in a part-time jobs. In part-time jobs, equal earners train significantly more often than secondary earners. The training incidence of full-time equal earners does not significantly differ from the one of part-time equal earners. For part-time jobs, single earners do not participate more frequently in training than secondary earners; however, for full-time jobs, single earners show a higher training incidence than part-time single earners. This suggests that, with the exception of main earners, across all remaining earning positions female workers in full-time positions train more frequently than female workers in part-time positions. As regards the earnings position of part-time secondary earners, there are always groups that are significantly better off than secondary earners.

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 5, 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, Dutch and Italian women continue to train significantly more often. Note that country differences are diminished among the group of full-timers. 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. In Germany, holding a full-time position significantly increases the training incidence across all earnings positions, with the only exception of full-time employed main earners who train significantly less than main earners in part-time positions. There are no additional differences between full- and part-time workers

within the same earnings position group. For German women in part-time positions, only single and main earners train significantly more when compared to secondary earners. Note that in a separate country estimation for Germany the main earner coefficient for part-time workers is only significant at the 10% level and thus needs to be interpreted with care as regards the robustness (see Table 2). We therefore focus on the difference between secondary earners and singles. These within country-within working hours differences regarding the earnings position are not evident in the other countries.

Figure 3
Predictive margins for probability of training incidence for women in part- and full-time positions (Probit, Model 2b in Table A 5)

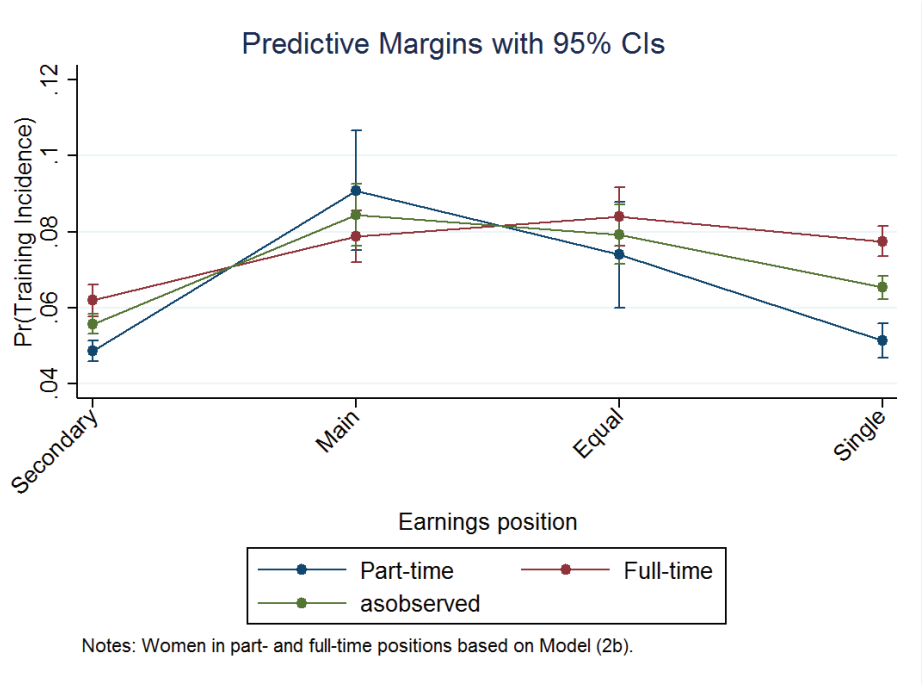
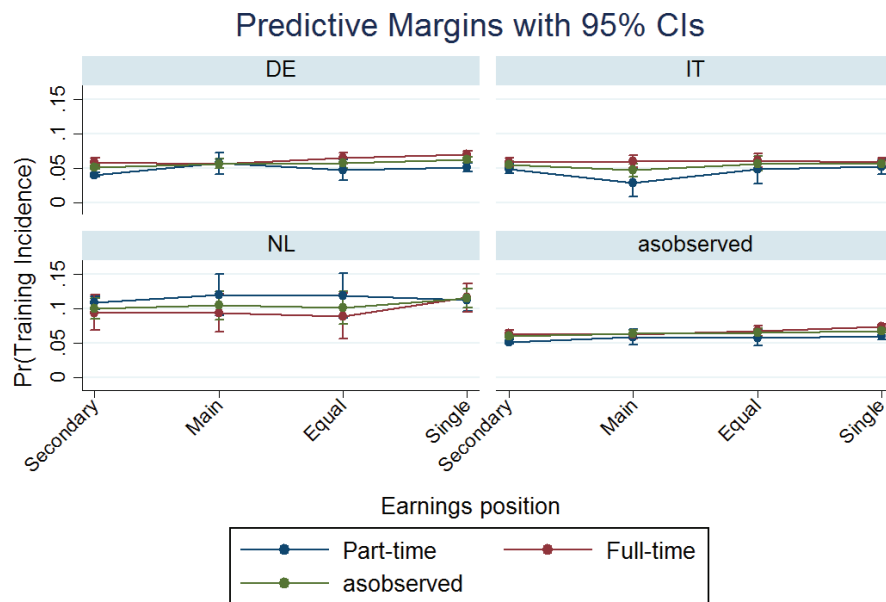


Figure 4

Predictive margins for probability of training incidence for women in part- and full-time positions (Probit, Model 4b in Table A 5)



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

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. A permanent position does not notably alter the training participation. 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 5, columns 5 and 6).

On average across all countries, 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 in Italy (see Table 2, Model 4b). Dividing the sample further between part- and full-time employed women shows that mostly female part-time workers in the Netherlands while in Germany both full- and part-time workers are equally affected, although only on the 10%-level.

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 should impact the intensive margin in the same way, 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 3 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 3

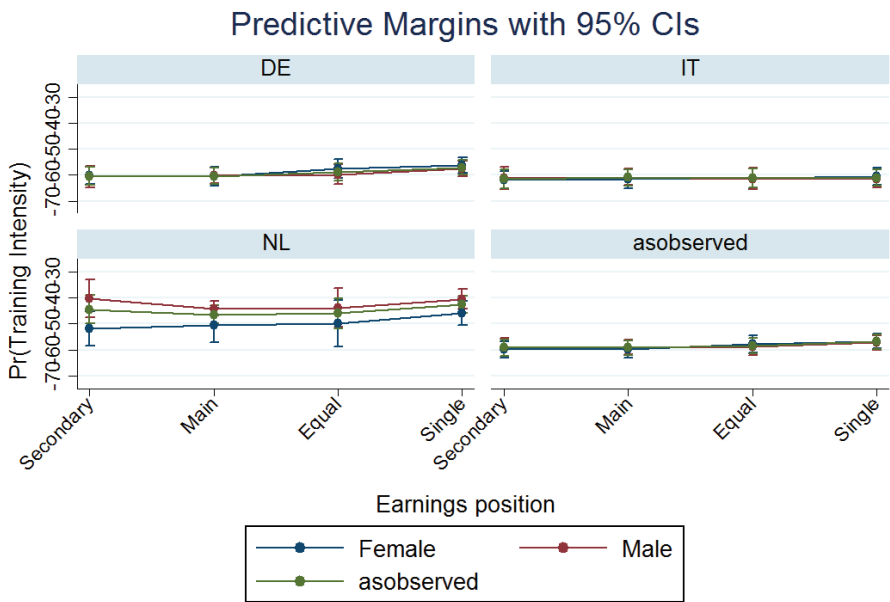
Distribution of training intensity by working hours and household context for women and men (average course length)

	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 6 for differences by gender and in Table A 7 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 estimations, 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 from the Probit estimation of the participation decision. 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.

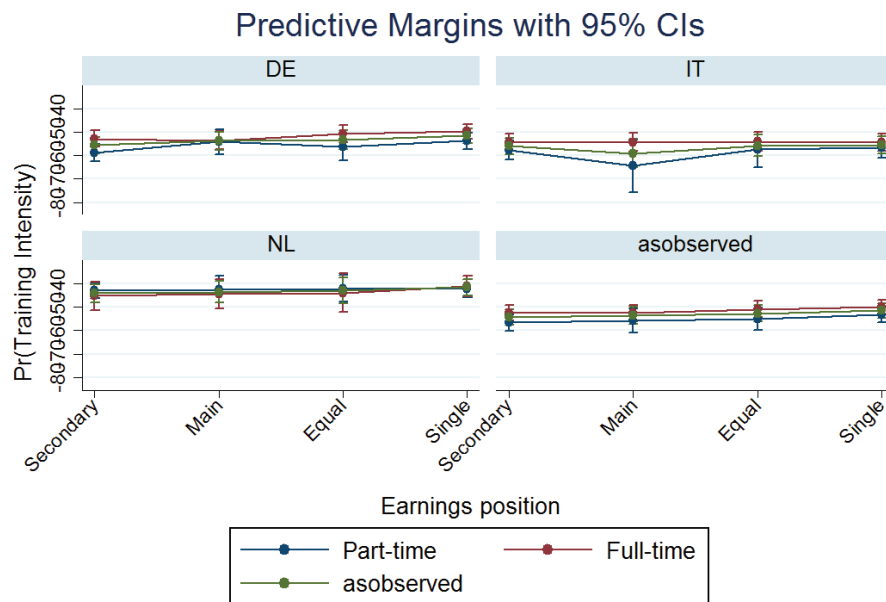
Figure 5
Predictive margins for probability of training intensity for men and women in full-time positions (Tobit, Model 4a in Table A 6)



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

Figure 6

Predictive margins for probability of training intensity for women in part- and full-time positions (Tobit, Model 4b in Table A 7)



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

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. Since Germany remains the only country with significant differences, we estimated a separate country regression that allows comparing differences in course length among women in part- and full-time positions (see Table 4). Again, the differences diminish once we control for all covariates (Model 3). In general, working full-time increases course length of female workers by 5.5 hours. Within the group of part-time workers, single earners train 5.6 hours more than secondary earners. When working full-time, female single earners train 2.9 hours more than female secondary earners. Remember that the difference between single earners in part- and full-time positions is not significant (see e.g. Table A 7). A child below 12 years corresponds with a reduction in course length by 3.6 hours.

Table 4

Differences in course length for Germany for women (Tobit, sample b)

	(1) Model 1b	(2) Model 2b	(3)
Full time position (1=Yes)	10.95*** (0.858)	11.35*** (1.178)	5.544*** (1.204)
<i>Ref: Secondary earner</i>			
Main	5.086*** (1.278)		
Equal	6.627*** (1.365)		
Single	5.899*** (0.879)		
<i>Ref: Part-time # Secondary earner</i>			
Part-time # Main		12.19*** (2.636)	4.131 (2.676)
Part-time # Equal		6.854** (2.869)	1.937 (2.934)
Part-time # Single		5.375*** (1.372)	5.587*** (1.424)
<i>Ref: Full-time # Secondary earner</i>			
Full-time # Main		3.580** (1.469)	-1.636 (1.459)
Full-time # Equal		6.380*** (1.579)	1.201 (1.552)
Full-time # Single		5.910*** (1.120)	2.879*** (1.099)
Child below 12 years (1=Yes)			-3.848*** (1.010)
Constant	-70.08*** (2.606)	-70.27*** (2.626)	-82.12*** (6.054)
<hr/>			
sigma			
Constant	37.86*** (1.337)	37.86*** (1.337)	36.04*** (1.292)
<hr/>			
Controls			YES
Observations	47954	47954	47954
Pseudo R ²	0.010	0.010	0.052

Notes: Results from Tobit regressions for Germany for women in full- and part-time positions.

Full model results are available upon request. Robust standard errors in parentheses.

* p < 0.1, ** p < 0.05, *** p < 0.01.

4.3 Discussion

Hypothesis 1 postulates that irrespective of gender a secondary earner position is linked to less training compared to other earnings positions. In light of our results, Hypothesis 1 has to be rejected because male secondary earners are not significantly disadvantaged. Full-time and part-time female secondary earners are both disadvantaged in the German case when compared against single earners. One may consider singles and secondary earners to represent the two extremes of the earnings position. For female full-timers, the results are less robust. That is, the predictions of

human capital theory and bargaining theory are not confirmed by our data. It seems that the household context plays a higher role for women than for men. This may be partly data-driven since men exhibit a lower variation of earnings positions. Moreover, we suggest that selection into part-time work due to preferences or lower earnings capacities play a higher role for women than for men. This argument gains further importance by the fact that 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 with more training hours. One reason might be that women who may not resort to a second earner in the household have higher training incentives on their own and moreover, signal higher returns on investment to their employer than secondary earners.

Hypothesis 2 predicts that reduced weekly working hours intensify the negative effect on training that accrues from a lower earnings position. Also this second hypothesis builds on human capital theory stating that both a lower earnings position and reduced working time decrease 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 human capital investments. Thus, training incentives are high for both market sides. Thus, the additional training incentive that accrues from a weightier earnings position compared to a secondary earner should be rather small in the full-time context. By contrast, for part-time employed individuals the relative earnings position should make a bigger difference. Specifically, part-timers are suggested to be less eager to train when they are in the secondary earner position compared to all other earnings positions, and moreover, employers should be less willing to invest in secondary earners' human capital who are more likely to quit their job. Due to lacking variation in working hours for men, we tested this hypothesis for women only. Hypothesis 2 is partly confirmed by our data. We find that, in general, full-timers train more than part-timers. Looking at the subgroup of secondary earners, however, both part- and full-time working women in Germany are more disadvantaged by a secondary earner position when compared to single earners. Hence, the expected additional disadvantage arising from the combination of part-time work and the earnings position is not confirmed by our data. This means that the working hours are an important differentiator for job-related training but, in the case of German women, this holds only as long as the earnings position is not regarded jointly with the working hours. For female secondary earners, part-time work does not cause an additional disadvantage compared to full-time work. This finding stresses the high importance of the household context for German women when it comes to job-related training. More specifically, it highlights the strong labour

market attachment of single earners in Germany. We suggest that particularly single earner positions are less driven by selection than secondary earner positions which is part of family constitution and fertility plans. In all, Hypothesis 2 receives partial support by the German results. It can, however, not be confirmed for Italy and the Netherlands.

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 relative earnings gradient in the training equation. Moreover, as career perspectives of men and women particularly matter in the stage of family building in shaping the earnings positions and work division within couples (IfD, 2015), we suppose significant positive parameters of managerial and professional occupations. Hypothesis 3 can only be tested for Germany because none of the other countries show significant differences regarding our main variables. Occupational but also highly correlated sector affiliations appear to be the most important control variables when focusing on changes in the core variables of models 4. Hypothesis 3 is hence supported by the analysis.

Hypothesis 4 predicts that the presence of children negatively affects the training propensity and intensity of mothers with poor opportunities to pursue their career. We restrict the hypothesis to mothers since mothers take up the lion's share of childcare (Boll et al., 2014). We assume here that the institutional effect operates via the role of children below 12 in the family. We expect that in maternal career oriented contexts, reflected in an extensive provision of full-time child care, present children aged 12 or younger should not affect the training propensity of mothers. Precisely, as Italy's coverage rate of all-day care is far higher than those of Germany and Netherlands for 3-12 year old children, we suggest that German and Dutch female workers should be negatively affected in their training engagement by a child aged 12 or younger but Italian women should not. This is exactly what we find in the female sample when controlling for working hours; thus, Hypothesis 4 can be confirmed.

Overall, the analyses 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. The significant differences found in the complete sample when disregarding country differences seem to be driven by Germany. In sum, this suggests that important variation across countries

exists and, hence, that the institutional environment plays an important role. The German case stands out through the analysis. The findings suggest that secondary earners in Germany face obstacles related to the household context that are no impediments to job-related training in other countries. A first explanation is provided by the different impact of the presence of younger children in the household. Moreover, the country differences point to the role of different work and training cultures and gender roles on the labour market. The Netherlands show a high overall training level as well as a high prevalence of part-time work among both genders; hence, it might not come as a surprise that gender and working hours are less influential on the training outcomes in this country. In Italy, the gender divide in employment refers more to participation than to working hours. Women's wages resemble men's more than in Germany and the Netherlands (Boll et al., 2016); thus, gender differences in returns to training investments are rather small. By contrast, Germany exhibits a quite gender segregated labour market with low-paid 'female' part-time jobs and pay attractive jobs in male dominated industries and leading positions. Moreover, monetary incentives for unequal earnings of partners, operating e.g. via the tax system, and traditional gender roles and concerns against maternal employment are still vital. Altogether, this might explain the special role of the household context for genders' training engagement in the German case.

5 Conclusion

Our study investigated to what degree the intra-couple earnings position moderates the influence of (1) workplace-related variables such as working time or (2) personal characteristics such as gender on the participation in job-related training at the extensive and intensive margin. The analysis further considered different national 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 positions in the household context. Female secondary earners in full- and part-time jobs train significantly less than single earners. As for female main earners, differences depend on the model specification, suggesting that differences are relatively small and may better be explained with other covariates. Working full-time solely puts German and Italian women in a better training position whereas the weekly working hours do not significantly shape the training engagement of Dutch women. These differences hold at the extensive (training incidence) and intensive margin (training intensity).

The finding that particularly German female secondary earners may train at lower levels than other groups has to be put in context to the aforementioned theories which point to the importance of monetary incentives and gender roles. It appears plausible that both employees, their partners and employers play a role. It therefore seems important to sensitize all involved parties for the employability of both genders to secure financial stability over the life-course and the importance of updated qualifications in this context. Hence, a multiple disadvantage of women in terms of employment, qualification and earnings should be avoided. In terms of enabling strategies the institutional environment should enable secondary earners or those with children to participate in training to the same degree as other groups.

There are several avenues left for further research. For instance, it would be helpful to investigate how a more detailed measure of working hours, including marginal employment, may shape training participation because female workers tend to make up a larger share in groups with lower working hours. Additionally, one may consider varying the information included on the training (e.g. course type, funding, location, observation window). As regards country differences, one may focus on the German case and identify potential drivers for the different impact of the earnings position by gender. Alternatively, it seems promising to extend the analysis to other countries that are sampled on variables such as varying gender roles and accessibility to child care, allowing to better understand the interaction between the earnings position, gender, and working hours. Ideally, such a data set would encompass information on childcare provision on an individual level.

References

- Akerlof, G. A., R. E. Kranton (2000): Economics and Identity, *Quarterly Journal of Economics* 115 (3), 715-753.
- Anxo, D., Fagan, C., Cebrian, I., Moreno, G. (2007). Patterns of labour market integration in Europe – a life course perspective on time policies, *Socio-Economic Review* (5), 233-260.
- Arulampalam, W., Booth, A. L., Bryan, M. L. (2004). Training in Europe, *Journal of the European Economic Association* 2 (2/3), 346-360.
- Beblo, M., Lauer, C. and Wrohlich, K. (2005) 'Ganztagsschulen und Erwerbsbeteiligung von Müttern - eine Mikrosimulationsstudie für Deutschland', *Zeitschrift für ArbeitsmarktForschung - Journal for Labour Market Research* 38(2/3), 357-72.
- Bechmann, S., Dahms, V., Tschersich, N., Frei, M., Leber, U., Schwengler, B. (2013). Beschäftigungsmuster von Frauen und Männern. Auswertungen des IAB-Betriebspanels 2012, IAB-Forschungsbericht 14/2013.
- Becker, G. S. (1985): Human Capital, Effort, and the Sexual Division of Labor, *Journal of Labor Economics* 3 (1, pt. 2), Trends in Women's Work, Education, and Family Building, January 1985, S33-S58.
- Becker, Gary S. (1964): *Human Capital. A Theoretical and Empirical Analysis with Special Reference to Education*, New York: National Bureau of Economic Research, Chicago University Press, Chicago/London.
- Becker, G. S. (1957). *The Economics of Discrimination*, Chicago IL: University of Chicago Press.
- Ben-Porath, Y. (1967). The Production of Human Capital and the Life Cycle of Earnings, *The Journal of Political Economy* 75 (4), 352-365.
- Bellmann, L., Grunau, P., Leber, U., Noack, M. (2013). *Weiterbildung atypisch Beschäftigter*, Bertelsmann-Stiftung (Hrsg.), Gütersloh.
- Berk, S. F. (1985). *The Gender Factory: The Apportionment of Work in American Households*. New York: Plenum.
- BMBF (Hrsg.) (2014). *Trendbericht Weiterbildung*. Zugriff am 20.05.2015. Verfügbar unter http://www.bmbf.de/pubRD/BMBF_Trendbericht_AES2014_2015-03-16.pdf
- Bielby, W. T. & Bielby, D. D. (1989). Family Ties: Balancing Commitments to Work and Family in Dual Earner Households, *American Sociological Review* 54, 76-89.
- Blau, F. D., Ferber, M. A. (1992). *The Economics of Women, Men and Work*, 2nd ed., New Jersey: Prentice Hall.
- Beblo, M. & Boll, C. (2014). Ökonomische Analysen des Paarverhaltens aus der Lebensverlaufperspektive und politische Implikationen, in: Bonin, H.; Spieß, C.K.;

- Stichnoth, H.; Wrohlich, K. (Hrsg.), Familienpolitische Maßnahmen in Deutschland – Evaluationen und Bewertungen, *Vierteljahreshefte zur Wirtschaftsforschung* 2014: 121-144.
- Boll, C. (2011).): Mind the gap – German motherhood risks in figures and game theory issues, *International Economics and Economic Policy*, 2011, 8(4), 363-382.
- Boll, C.; Leppin, J.; Rossen, A.; Wolf, A. (2016): Magnitude and Impact Factors of the Gender Pay Gap in EU countries, Report prepared for and financed by the European Commission – Directorate-General for Justice, European Union (ed.).
- Boll, C.; Leppin, J.; Reich, N. (2012). Einfluss der Elternzeit von Vätern auf die familiäre Arbeitsteilung im internationalen Vergleich, *HWWI Policy Paper* 59, Gutachten im Auftrag des Bundesministeriums für Familie, Senioren, Frauen und Jugend (BMFSFJ), Hamburg.
- Boll, C.; Leppin, J.; Reich, N. (2014). Paternal childcare and parental leave policies: evidence from industrialized countries, *Review of Economics of the Household*, 12(1), 129-158.
- Brilli, Y.; Del Boca, D.; Pronzato, C. D. (2015). Does child care availability play a role in maternal employment and children's development? Evidence from Italy. *Families and Societies, Working Paper Series* (31).
- Brines, Julie (1994): Economic dependency, gender, and the division of labour at home, *American Journal of Sociology*. 100, 652-688.
- Büchel, F. & Pannenberg, M. (2004). Berufliche Weiterbildung in West- und Ostdeutschland. *Zeitschrift für ArbeitsmarktForschung* (2).
- Burgard, C. (2012). Gender Differences in Further Training Participation. The Role of Individuals, Households and Firms. *Ruhr Economic Papers*, 320, Ruhr-Universität Bochum.
- Burgard, C. & Görlitz, K. (2011). Continuous Training, Job Satisfaction and Gender – An Empirical Analysis Using German Panel Data, *Ruhr Economic Papers* 265, Ruhr-Universität Bochum.
- Correll, S., Benard, S. J., Paik, I. (2007). Getting a Job: Is There a Motherhood Penalty?, *American Journal of Sociology* 112 (5), 1297-1338.
- Crown, W. H. (1998). *Statistical models for the social and behavioral sciences. Multiple regression and limited-dependent variable models*. Westport, Conn.: Praeger.
- Dieckhoff, M. & Steiber, N. (2009). In Search of Gender differences in Access to Continuing Training: Is there a Gender Training Gap and if yes, why? *WZB Discussion Paper* 2009-504, May 2009, Social Science Research Center Berlin (WZB).
- Deutsches Institut für Wirtschaftsforschung (DIW) (2016): Auch in Doppelverdiensthushalten: Vollzeitwerbstätige Frauen leisten deutlich mehr

- Hausarbeit als Männer – Unterschiede verringern sich kaum, Pressemitteilung vom 02.03.2016, Berlin.
- European Union (2014). Quality report of the European Union Labour Force Survey 2013. *Eurostat Statistical Working Papers*, 2014 edition, Luxembourg: Publications Office of the European Union.
- Eurostat (2016): Formal childcare by age group and duration - % over the population of each age group (source: SILC) [ilc_caindformal], last update: 18.02.16, extracted: 03.03.2016.
- Eurostat (2015): Persons employed part-time - Total - % of total employment [tps00159], 28.09.2015,
<http://ec.europa.eu/eurostat/tgm/refreshTableAction.do?tab=table&plugin=1&pcode=tps00159&language=en>
- Fitzenberger, B., Muehler, G. (2015). Dips and floors in workplace training: gender differences and supervisors, *Scottish Journal of Political Economy* 62 (4), 400-429.
- Foster, G. & Kalenkoski, C. M. (2010). Tobit or OLS? An Empirical Evaluation Under Different Diary Window Lengths. *Discussion Paper, No. 2010-01; School of Economics, The University of New South Wales*.
- Geyer, J. & Steiner, V. (2007). Short-run and long-term effects of childbirth on mothers' employment and working hours across institutional regimes. An empirical analysis based on the European Community Household Panel, *DIW-Discussion Papers* (682), Berlin.
- Gornick, J. C.; Meyers, M. K.; Ross, K. E. (1996): Supporting the Employment of Mothers: Policy Variation Across Fourteen Welfare States. *Sociology* (1).
- Green, F. & Zanchi, L. (1997). Trends in the Training of Male and Female Workers in the United Kingdom, *British Journal of Industrial Relations* 35 (4), 635-644.
- Hersch, J. & Stratton, L. S. (1994). Housework, Wages, and the Division of Housework Time for Employed Spouses, *The American Economic Review* 84 (2), 120-125.
- Holst, E. & Kirsch, A. (2015). Managerinnen-Barometer 2015. *DIW Wochenbericht*, 47-60.
- Institut für Demoskopie Allensbach (IfD) (2015): Weichenstellungen für die Aufgabenteilung in Familie und Beruf, Untersuchungsbericht zu einer repräsentativen Befragung von Elternpaaren im Auftrag des BMFSFJ, Allensbach6.
- Janssen, S., Leber, U. (2015). Engagment der Betriebe steigt weiter, *IAB-Kurzbericht* 13/2015.
- Jaumotte, F. (2003). Female Labour Force Participation: Past Trends and Main Determinants in OECD Countries, *OECD Economics Department Working Papers* 376, OECD Publishing.

- Jürges, H. & Schneider, K. (2004). Dynamische Lohneffekte beruflicher Weiterbildung. Eine Längsschnittanalyse mit den Daten des SOEP. *Beitrag für die Jahrestagung des Bildungsökonomischen Ausschusses des Vfs*.
- Kuckulenz, A. & Zwick, T. (2003). The Impact of Training on Earnings, Differences between Participant Groups and Training Forms. *Discussion Paper, No. 03-57*, Centre for European Economic Research, Mannheim.
- Lauber, V., Storck, J., Spieß, C. K., Fuchs, N. (2014). Vereinbarkeit von Beruf und Familie von Paaren mit nicht schulpflichtigen Kindern – unter spezifischer Berücksichtigung der Erwerbskonstellation beider Partner. Ausgewählte Ergebnisse auf der Basis der FiD-Daten („Familien in Deutschland“), DIW Berlin (Hrsg.), *Politikberatung kompakt* 88, 17.10.2014, Berlin.
- Lundberg, S. & Pollak, R. (1993). Efficiency in Marriage. *Review of Economics of the Household* 1 (3), 153-167.
- Manser, M. & Brown, M. (1980). Marriage and Household Decision-Making: A Bargaining Analysis. *International Economic Review* 21: 31-44.
- Marcus, J.; Peter, F. (2015): Maternal Labour Supply and All-day Primary Schools in Germany. *DIW Roundup, Politik im Fokus* Deutsches Institut für Wirtschaftsforschung, Berlin (67).
- McElroy, M. B. & Horney, M. J. (1981). Nash-Bargained Household Decisions: Toward a Generalization of the Theory of Demand. *International Economic Review* 22, 333-49.
- Munasinghe, L., Reif, T., Henriques, A. (2008). Gender gap in wage returns to job tenure and experience, *Labour Economics* 15, 1296-1316.
- Nader, L. (2007). Berufliche Weiterbildung und Geschlechtergerechtigkeit, in: REPORT. *Zeitschrift für Weiterbildungsforschung* 30 (3), 29-38.
- Pannenberg, M. (1995). Berufliche Weiterbildung und individuelle Erwerbsverläufe. *Wirtschaft im Wandel*, 6, 12–16.
- Pannenberg, M. (1997). Financing On-the-Job-Training: Shared Investment or Promotion-Based System? Evidence from Germany. *Zeitschrift für Wirtschafts- und Sozialwissenschaften*, 525–543.
- Pfeifer, H., Behringer, F. Adam, T. (2008). Formalisierte berufliche Weiterbildung – Sekundäranalysen auf Basis des SOEP und anderer international vergleichbarer Erhebungen (BENEFIT). Abschlussbericht, Bundesinstitut für Berufsbildung, Bonn.
- Pischke, J.-S. (2001). Continuous Training in Germany. *Journal of Population Economics*, 14, 523-548.
- Polachek, S. W. (1981). Occupational Self-Selection: A Human Capital Approach to Sex Differences in Occupational Structure. *The Review of Economics and Statistics*, 63 (1), 60.

- Schömann, K. & Becker, R. (1998). Selektivität in der beruflichen Weiterbildung und Einkommensverläufe. In F. Pfeiffer & W. Pohlmann (Hrsg.), *Qualifikation, Weiterbildung und Arbeitsmarkterfolg* (p. 279–309). Baden-Baden: Nomos-Verlag.
- Schömann, K. & Becker, R. (1995). Participation in Further Education over the Life Course: A Longitudinal Study of Three Birth Cohorts in the Federal Republic of Germany, *European Sociological Review* 11 (2), 187-208.
- Schröder, H., Schiel, S., Aust, F. (2004). Nichtteilnahme an beruflicher Weiterbildung. Motive, Beweggründe, Hindernisse, Bielefeld.
- Seidel, S., Hartmann, J. (2011): Weiterbildung Geringqualifizierter, in: Rosenblatt, B. v., Bilger, F. (Hrsg.): Weiterbildungsbeteiligung 2010. Trends und Analysen auf Basis des deutschen AES, Bielefeld, 85-91.
- South, S. J. & G. Spitze (1994). Housework in Marital and Nonmarital Households, *American Sociological Review* 59, 327–47.
- Steffes, S., & Warnke, A. J. (2015). Gender differences in wages and training, mimeo.
- Stewart, J. (2009). Tobit or not Tobit? *IZA Discussion Paper, No. 4588*, Institute for the Study of Labor, Bonn.
- Vogel, A. (2007). Determinanten der Frauenerwerbstätigkeit im Haushaltskontext, in: Statistisches Bundesamt (Hrsg.): *Wirtschaft und Statistik* 3/2007, 312-319.
- West, C. & Zimmerman, D. H. (1987). Doing Gender, *Gender and Society* 1 (2), 125–151.
- Wilkins, I. & Leber, U. (2003). Partizipation an beruflicher Weiterbildung - Empirische Ergebnisse auf Basis des Sozio-Ökonomischen Panels. *Mitteilungen aus der Arbeitsmarkt- und Berufsforschung*, 36 (3), 329–337.
- Wilson, C., Tisdell, C. A. (2002). OLS and Tobit Estimates: When is Substitution Defensible Operationally? *Working Paper, No. 90519*, University of Queensland, School of Economics: Economic Theory, Applications and Issues.

Appendix

A 1 Detailed data description

EU LFS

We use data from the European Labour Force Survey for the year 2013 (EU LFS; for more detailed information on the European Labour Force Survey, see European Union 2014). 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 the 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 older² and asks the respondents for their demographic background, labour status, employment characteristics, and their previous employment experience/search for persons 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 2013, 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.

² Norway and Sweden only cover persons between 15 and 74 years, and Iceland and Switzerland only provide data on people aged 15 and older.

A 2 Variable overview

Variable label	EU LFS 2013
Participation incidence in job-related training	Dummy variable takes on value of 1 if respondent participated in job related training in the last 4 weeks.
Participation intensity incidence in job-related training (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/her income is larger than the income of his/her partner or spouse.</p> <p>Equal earner (2): An 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 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 elapsed 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 A 1.
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 1 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 A 2 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	Complete Sample: Country fixed effects in three-way interactions.

Table A 1

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 A 2

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 A 3

Summary Statistics EU LFS (separate by country and sex)

GERMANY ¹⁾	Women					Men				
	Variable	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min
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

¹⁾ See Table A 1 and Table A 2 for the industrial and occupational classifications.

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

⁴⁾ See Table A 1 and Table A 2 for the industrial and occupational classifications.

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

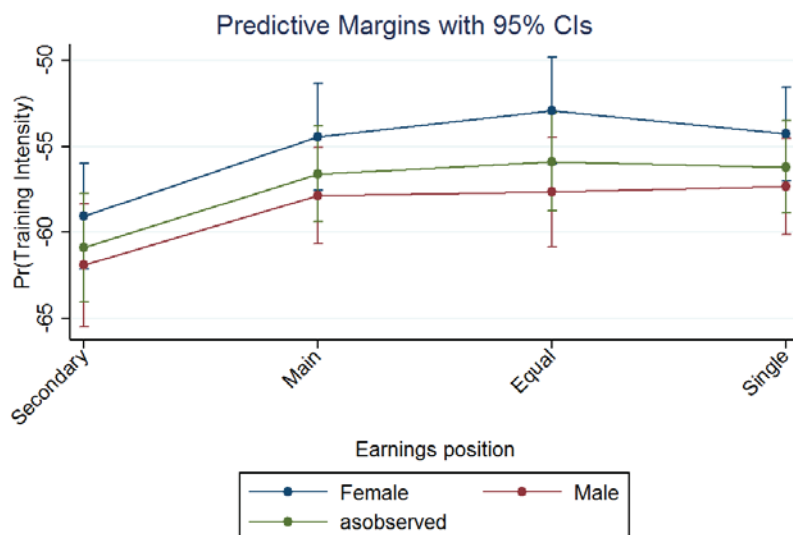
Permanent position	10162	0.878	0.328	0	1	9701	0.903	0.296	0	1
Supervisory responsibilities	10162	0.172	0.377	0	1	9701	0.356	0.479	0	1
ISCO 1	10162	0.043	0.202	0	1	9701	0.123	0.329	0	1
ISCO 2	10162	0.300	0.458	0	1	9701	0.297	0.457	0	1
ISCO 3	10162	0.207	0.405	0	1	9701	0.172	0.377	0	1
ISCO 4	10162	0.152	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

⁴⁾ See Table A 1 and Table A 2 for the industrial and occupational classifications.

A 4 Detailed regressions results: Figures and tables

Figure A 1

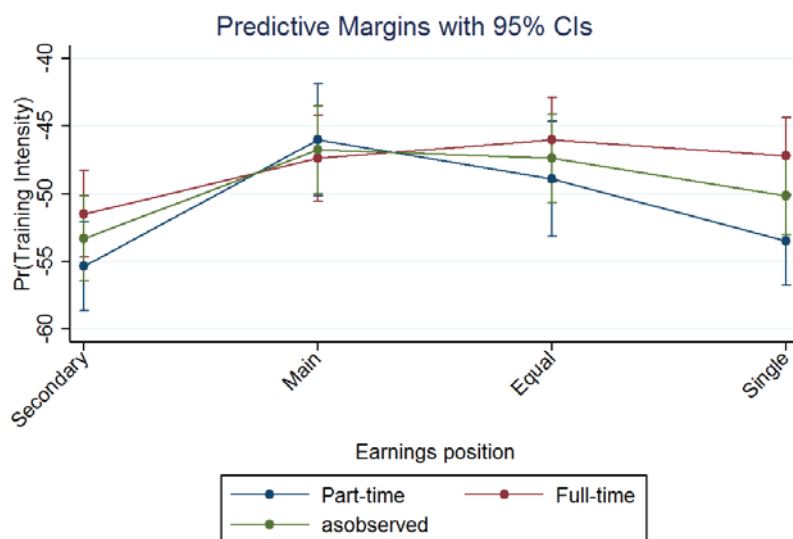
Predictive margins for probability of training intensity for men and women in full-time positions (Tobit estimation, Model 2a)



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

Figure A 2

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



Notes: Women in part- and full-time positions based on Model (2b).

Table A 4

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: Earnings position #</i>						
<i>Female</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 #</i>						

<i>DE</i>				
Male # Single # IT	0.00434 (0.0107)	-0.00414 (0.0105)	-0.000289 (0.0106)	0.00103 (0.0106)
Male # Single # NL	-0.0244 (0.0190)	-0.0163 (0.0189)	-0.0199 (0.0190)	-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)	-0.0256*** (0.00437)	
Mining and quarrying		0.00361 (0.0128)	0.00710 (0.0126)	
Electricity, gas, steam and air conditioning supply		0.0120* (0.00690)	0.0250*** (0.00756)	
Water supply, sewerage, waste management and remediation activities		0.0183** (0.00925)	0.00577 (0.00740)	
Construction		-0.0109*** (0.00310)	-0.0170*** (0.00245)	
Wholesale and retail trade; repair of motor vehicles and motorcycles		0.00183 (0.00265)	0.00107 (0.00232)	
Transportation and storage		0.0147*** (0.00380)	0.00482 (0.00313)	
Accommodation and food service activities		-0.0162*** (0.00472)	-0.0190*** (0.00375)	
Information and communication		-0.00199 (0.00376)	0.0214*** (0.00453)	
Financial and insurance activities		0.0405*** (0.00458)	0.0607*** (0.00496)	
Real estate activities		0.00852 (0.0102)	0.0113 (0.0101)	
Professional, scientific and technical activities		0.00732** (0.00357)	0.0326*** (0.00423)	
Administrative and support service activities		0.000728 (0.00421)	-0.00275 (0.00362)	
Public administration and defence, compulsory social security		0.0142*** (0.00289)	0.0282*** (0.00295)	
Education		0.0342*** (0.00364)	0.0672*** (0.00387)	
Human health and social work activities		0.0494*** (0.00329)	0.0755*** (0.00352)	
Arts, entertainment and recreation		-0.0126** (0.00626)	-0.00648 (0.00630)	
Other service activities		0.0104* (0.00536)	0.0147*** (0.00529)	
Activities of households as employers, undifferentiated		-0.0398*** (0.00536)	-0.0429*** (0.00529)	

goods- and services-producing activities of households for own use						
Activities of extraterritorial organisations and bodies				(0.00451)	(0.00225)	
				-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	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 5

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*** (0.00192)	0.0149*** (0.00275)	0.0365*** (0.00373)	0.0227*** (0.00371)	0.0358*** (0.00369)	0.0271*** (0.00369)
<i>Ref: Secondary earner</i>						
Main	0.0200*** (0.00344)	0.0468*** (0.00879)	0.0493*** (0.0122)	0.0209** (0.00980)	0.0351*** (0.0109)	0.0299*** (0.0105)
Equal	0.0212*** (0.00364)	0.0282*** (0.00791)	0.0233** (0.0108)	0.00901 (0.00947)	0.0178* (0.0102)	0.0134 (0.00989)
Single	0.0102*** (0.00200)	0.00312 (0.00301)	0.0120*** (0.00406)	0.0136*** (0.00423)	0.0114*** (0.00407)	0.0141*** (0.00416)
<i>Ref: Earnings position</i>						
<i># Part-time</i>						
Main # Full-time		-0.0245*** (0.00731)	-0.0311*** (0.0101)	-0.0230** (0.00986)	-0.0250** (0.00993)	-0.0267*** (0.00992)
Equal # Full-time		-0.00645 (0.00757)	-0.00334 (0.0108)	-0.00364 (0.0106)	-0.00102 (0.0106)	-0.00419 (0.0107)
Single # Full-time		0.0111*** (0.00423)	0.00576 (0.00551)	-0.00299 (0.00541)	0.00498 (0.00544)	-0.00194 (0.00545)
<i>Ref: DE</i>						
IT			-0.00474 (0.00403)	0.0101** (0.00456)	0.00786* (0.00444)	0.00433 (0.00431)
NL			0.112*** (0.00694)	0.0795*** (0.00597)	0.0860*** (0.00610)	0.0905*** (0.00634)
<i>Ref: Full-time # DE</i>						
Full-time # IT			-0.00154 (0.00641)	-0.0112* (0.00638)	-0.0177*** (0.00639)	-0.00737 (0.00639)
Full-time # NL			-0.0391*** (0.0109)	-0.0324*** (0.0107)	-0.0264** (0.0108)	-0.0377*** (0.0108)
<i>Ref: Main earner # DE</i>						
Main # IT			-0.0554** (0.0223)	-0.0508** (0.0216)	-0.0529** (0.0218)	-0.0510** (0.0218)
Main # NL			-0.0212 (0.0133)	-0.0130 (0.0131)	-0.0116 (0.0131)	-0.0182 (0.0132)
<i>Ref: Equal earner # DE</i>						
Equal # IT			-0.0255 (0.0168)	-0.00890 (0.0169)	-0.0156 (0.0167)	-0.0149 (0.0168)
Equal # NL			-0.00134 (0.0143)	-0.00265 (0.0142)	0.00249 (0.0142)	-0.00501 (0.0144)
<i>Ref: Single Earner # DE</i>						
Single # IT			-0.0296*** (0.00854)	-0.0101 (0.00876)	-0.0131 (0.00868)	-0.0168* (0.00862)
Single # NL			-0.0100 (0.00748)	-0.0108 (0.00741)	-0.00707 (0.00741)	-0.00919 (0.00746)
<i>Ref: Full-time # Main earner # DE</i>						
Full-time # Main # IT			0.0575** (0.0235)	0.0543** (0.0228)	0.0563** (0.0230)	0.0527** (0.0230)
Full-time # Main # NL			0.0321 (0.0201)	0.0154 (0.0197)	0.0151 (0.0199)	0.0227 (0.0199)
<i>Ref: Full-time # Equal earner # DE</i>						
Full-time # Equal # IT			0.0239 (0.0185)	0.00559 (0.0186)	0.0142 (0.0184)	0.0117 (0.0185)
Full-time # Equal # NL			-0.00398 (0.0221)	-0.00669 (0.0218)	-0.00970 (0.0220)	-0.00405 (0.0221)

Ref: Full-time # Single earner # DE

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)		
----------------------------------	--	-------------------------	--	--

Ref: Manufacturing 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***
	(0.070235)
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 6

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: Earnings position</i>						
# Female						
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 #</i>						
<i>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	
	(8.435)	(8.776)	
<i>Ref: Firmsize 1-10 persons</i>			
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)
				-7.652***		-17.11***
<i>Ref: Medium: Upper secondary</i>				(1.165)		(1.139)
Low: Lower secondary				-13.53***		-25.08***
				(1.614)		(1.598)
High: Third level				-5.104***		
Age				(0.893)		
Age squared				4.927***		
Child below 12 years (1=Yes)				(0.566)		
				0.176		
Constant	-58.93***	-59.05***	-57.01***	(0.175)		
	(1.524)	(1.558)	(1.620)	-0.00631***		
				(0.00203)		
				-0.132		
				(0.587)		
sigma				-60.46***	-64.38***	-51.91***
Constant	37.41***	37.41***	36.71***	(3.799)	(1.827)	(1.572)
	(0.862)	(0.863)	(0.837)			
Observations	133414	133414	133414	133414	133414	133414
Pseudo R ²	0.001	0.001	0.009	0.037	0.021	0.025

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 7

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: Earnings position</i>						
# Part-time						
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

The **Hamburg Institute of International Economics (HWWI)** is an independent economic research institute, based on a non-profit public-private partnership, which was founded in 2005. The University of Hamburg and the Hamburg Chamber of Commerce are shareholders in the Institute .

The HWWI's main goals are to:

- Promote economic sciences in research and teaching;
- Conduct high-quality economic research;
- Transfer and disseminate economic knowledge to policy makers, stakeholders and the general public.

The HWWI carries out interdisciplinary research activities in the context of the following research areas:

- Economic Trends and Global Markets,
- Regional Economics and Urban Development,
- Sectoral Change: Maritime Industries and Aerospace,
- Institutions and Institutional Change,
- Energy and Raw Material Markets,
- Environment and Climate,
- Demography, Migration and Integration,
- Labour and Family Economics,
- Health and Sports Economics,
- Family Owned Business, and
- Real Estate and Asset Markets.

Hamburg Institute of International Economics (HWWI)

Heimhuder Str. 71 | 20148 Hamburg | Germany

Phone: +49 (0)40 34 05 76 - 0 | Fax: +49 (0)40 34 05 76 - 776

info@hwwi.org | www.hwwi.org