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Abstract

This paper investigates job characteristics that German training companies could use as a signal to apprentices to lower the quit intentions of apprentices and further to maximize their own probability to cover occurred net costs. Moreover, the results could also be used as policy implications to avoid unnecessary early contract cancellations and especially real dropouts. 10 questions about how important certain achievements are to apprentices and how likely it is to achieve them, were used. For this the "BIBB Survey Vocational Training from the Trainees Point of View 2008" conducted by the Federal Institute for Vocational Education and Training (BIBB) is used. It is a representative German firm-level study of 5901 apprentices in 6 German federal states in the year 2008. The probit regressions show positive effects for job characteristics that represent job security. Expecting to be retained after the apprenticeship and encouraging apprentices to train further constantly decrease the intention to quit. Further, it seems that women are more affected by job security signals, but they also sort more often into occupations with lower retention probabilites. Consequently, it is more a indication for occupational segregation than a sign for differences between sexes.

JEL classification: J24, J28, J30
Keywords: Apprenticeship, quits, job characteristics, job satisfaction

1 Introduction

Although the German dual system of vocational education and training (VET) is worldwide taken as role model, this system is currently characterized by a decreasing number of individuals that want to start an apprenticeship and lower numbers of signed contracts in 2015. Whereby both facts are mostly the result of an increasing number of individuals that want to study instead. Also, great mismatch problems can be observed (Jansen et al., 2015). On the one hand, training companies of certain sectors claim that no suitable applicants are available on the market. On the other hand, apprentices struggle with the excessive demand for training positions in popular sectors. As a result, due to a lack of opportunities, companies as well as apprentices choose to conclude a contract even though they do not fit to each other, which can in turn increase the probability of early cancellations. Once a contract is cancelled, companies have to spend further money to find a substitute, and depending on the strategy companies pursue (substitution or investment), they also have to face costs they will never be able to collect later. Training companies with an investment strategy train apprentices whose productivity is lower than their training costs, these companies generally collect benefits after the apprenticeship is successfully completed. These companies do not only depend on the successful completion of the apprenticeship, but also on the retention of the apprentices afterwards to cover the costs that occured during apprenticeship. On the contrary, companies with a substitution strategy train apprentices who are able to cover the costs with their higher productivity during the training period (Lindley, 1975). For apprentices, a cancellation does not necessarily has to be problematic. They can change the occupation or the company, can upgrade to university or really drop out (Bessey and Backes-Gellner, 2015). However, the latter one comes with bad career and income prospects. Further, it bears the highest risk of becoming unemployed and should therefore be avoided (e.g. Schöngen, 2003 and Ryan, 2001).

This research investigates which job characteristics training companies could use as a signal to apprentices to lower quit intentions of apprentices and to maximize the probability of being able to cover occurred net costs. The results could also be used as policy implications to avoid unnecessary early contract cancellations and especially real dropouts. Since, the literature predicts high effects of job satisfaction on the quitting behavior (e.g. Levy-Garboua et al., 2007), I do not only concentrate on obvious determinants for a quit such as income, age, migration etc. like recent literature, but also on job characteristics that are closely related to job satisfaction. By taking 10 questions on what an apprentice wants to achieve and how likely it is to reach these goals, I investigate the effects of these job characteristics on the quit intention. Basically, I take components of overall job satisfaction and estimate each effect on the intention to quit apprenticeship. I use the “BIBB Survey Vocational Training from the Trainees Point of View 2008" which was conducted by the Federal Institute for Vocational Education and Training (BIBB). This representative German firm-level study of 5901 apprentices contains the design, procedures, basic conditions and quality criteria of apprenticeship. Additionally, it includes information about the educational background, sex, age, migration background and the training allowance of apprentices.

The probit regressions show positive effects for job characteristics that represent job security. Creating the expectation to be retained after completing the apprenticeship and encouraging apprentices to train further constantly decrease the intention to quit. Further, it seems that espcially women are more affected by job security signals, but they also

sort more often into occupations with lower retention probabilites. Consequently, it is rather a indication for occupational segregation than only a sign for differences between sexes. While arousing interest in political and economic questions decreases the intention to quit, expecting to be capable of running an own business increases the intention to quit. Learning occupation specific contents, having a good exam grade and good grades at the vocational degree as well as social acceptance and transferability have no effect on the quit intention. Surprisingly, it does not really matter whether the achievement of a certain goal was rated as important in advance, more important is the expectation to achieve these goals.

The paper is organized as follows. In section 2 the paper gives an overview about the relevant literature and motivates the research question. Section 3 provides data and variable description as well as descriptive results. Section 4 presents the empirical framework and discusses the results. Section 5 concludes the empirical analysis.

2 Literature

When discussing the cancellation of apprenticeship contracts both parties, training companies as well as apprentices have to cope with possible consequences. Depending on the training strategy, training companies depend more or less on the retention of their apprentices after they have completed successfully. While companies with a substitution strategy face no net costs, companies with an investment strategy do so. With an investment strategy companies train apprentices whose productivity is lower than their training costs. These companies make up for their losses at the end of an apprenticeship or afterwards. This means they do not only depend on the successful completion of their apprentices, but also on the retention of apprentices afterwards to cover costs that occurred during apprenticeship. On the contrary, companies with a substitution strategy train apprentices with a productivity above their training cost, as well as are the unit labor costs of their apprentices lower than the unit labor cost of unskilled workers. Hence, this companies substitute unskilled workers with apprentices (Lindley, 1975). Empirically, Beicht et al. (2004) conclude that in German training companies the investment strategy dominates. This follows from their cross-section analysis about the costs and benefits of in-company vocational education and training in Germany, after which almost all of the German training companies face net cost during apprenticeship. Although there is a great debate whether the substitution strategy among German training companies is as low as reported by Beicht et al. (2004), the research on training strategies at least agrees on the importance of the investment strategy among German training companies (e.g. Mohrenweiser and Zwick, 2009; Mohrenweiser and Backes-Gellner, 2010 and Jansen et al., 2015). Knowing that at least a great share of this training companies face net costs during apprenticeship, investment in human capital has to obtain utility gains for the companies after apprenticeship. Jansen et al. (2015) report that by retaining graduates companies are able to save personnel costs such as costs for recruiting, and costs for on the job training. Acemoglu and Pischke (1999) show theoretical evidence that the retention rate is an important determinant to invest in training. In addition, Wolter and Schweri (2002) confirm this empirical with their analysis about the retention rate of apprentices in Switzerland. They find out that the decision to retain apprentices depends more on the benefits derived after the apprenticeship than on the occurred net costs during apprenticeship. Furthermore, companies can avoid skill shortages by retaining their apprentices. With an investment strategy training companies recruit their own skilled workers and are able to avoid matching problems in

times of tight labor markets (e.g. Fougére and Schwerdt, 2002; Zwick, 2007 and Jansen et al., 2015). Further literature indicates that the firm size (Soskice, 1994 and Wolter et al., 2006) and the sector (Büchel and Neubäumer, 2001 and Mohrenweiser and Backes-Gellner, 2010) are decisive whether a firm invests or substitutes. By using a ten-year panel (IAB Establishment Panel 2003) Mohrenweiser and Backes-Gellner (2010) show higher probabilies for a substitution strategy and lower retention rates within the group of service sector companies compared to manufacturing sector companies. They refer for explanation to Lazear (2009) who explains the more general skills and higher probabilities for external job offers in service sectors with a skill weights approach. Soskice (1994) finds empirically a higher intention to train in larger and medium-size firms. Because of the presence of internal labor markets, companies are more able to retain their apprentices.

Focusing on the other contracting party, apprentices choose under a variety of choices the one which yields the highest net present value. However, shown by Bessey and Backes-Gellner (2015) for German apprentices and for Swiss apprentices by Schmid and Stalder (2006) apprentices can revise an earlier educational decision. For example, due to lower benefits or higher costs than expected they might decide for a better alternative. Based on a three-year panel in the Swiss Canton of Bern, Schmid and Stalder (2006) find out that not every early contract termination is followed by bad consequences for apprentices. All apprentices who change company or occupation, down- or upgrade are happier with their new educational situation. But, especially individuals who drop out without re-entering the training system, have bad career prospects. This is in line with Ryan (2001) who confirms increasing future prospects for participants in vocational education and apprenticeship. Similar to Schmid and Stalder (2006), Bessey and Backes-Gellner (2015) analyze the cancellation behavior of German apprentices by using hazard rate and competing risks models. Claiming the higher risks of worse employment prospects for unskilled and low-skilled workers, due to a changing demand structure in the future, they highlight the importance of analyzing the determinants for different types of cancellation, namely upgrade, change or dropout. The authors show that especially financial distress and lower income are important determinants for a dropout, whereas bad matches enhance the probability to change the firm or occupation.

So, seeing the problem for training companies not being able to cover apprenticeship costs, and for apprentices the higher risk to enter the labor market unskilled when a contract is canceled, it remains the question what signals companies could use to avoid quits. The literature on apprenticeship contract cancellations of course finds objective determinants that influence the quitting behavior of apprentices like income, sex and labor market conditions (e.g. Bessey and Backes-Gellner, 2015; Beicht and Krewerth, 2010), as well as the level of schooling (e.g. Bednarz, 2014 and Cutler and Lleras-Muney, 2008), migration background (e.g. Dostie, 2010 and Beicht and Walden, 2013), secondary jobs (Seidel, 2016) or the region (e.g. Bessey and Backes-Gellner, 2015). However, a closer look into more subjective determinants is missing. At least Beicht and Krewerth (2010) measure for German apprentices the determinants for being satisfied with the own remuneration and find less satisfied apprentices with a remuneration 20% below the class average, with work overtime and less satisfied apprentices who hold a secondary job. But a link to quits has not been made by them. However, there are several empirical studies that investigated how job satisfaction influences the quitting behavior of employees in generel (e.g. Freemann, 1978 and 1980; Clark et al., 1998; Clark, 2001; Cornelißen, 2008; Lévy-Garboua et al. 2007 and Green, 2010). While for example Hamermesh (1977) and Freeman (1978) started to introduce job satisfaction in general into labor economics,

further literature concentrated on job satisfaction and its influence on the quitting behavior of indviduals (e.g. Clark, 2001; Levy-Garboua, et al. 2007 and Green, 2010). For example, by using the German Socioeconomic Panel Levy- Garboua et al. (2007) find out - with constructed satisfaction indicators - that the higher the job satisfaction the lower the intention to quit. Further, using the first seven years of the British Household Panel Survey, Clark (2001) shows that cross section job satisfaction responses are a good indicator for future quits. Moreover, he finds that the satisfaction with pay and job security are most important for future quits. Seeing it from another point of view, Backes-Gellner and Tuor (2010) explain with which soft job characteristics (e.g. career prospects, work atmosphere and personal development) firms can use to lower the vacancy rate faster. With an ordered probit model they estimate the effect of soft characteristics on job satisfaction and take the significant variables to measure their effect on the vacancy rate for companies. They conclude that companies in Germany can lower their vacancy rate significantly when they use signals like job security, good work conditions or challenging/interesting jobs to promote high job quality. Alternatively and particular in the psychological area, there is an extensive amount of studies on the intention to quit. According to Ajzen and Fishbein, (1980) or Igbaria and Greenhaus (1992) intentions seem to be good indicators for the actual behavior of individuals. Especially, in cross-sectional survey with no follow up and no possibility to observe the actual behavior at a later point in time, intentions seem to be good indicators for the actual behavior of individuals. Also, the meta-analyis conducted by Steel and Ovalle (1984) reports a positive relationship between intentions and employer turnovers. By analysing 34 psychological studies, which were carried out between 1965-1983, they report a correlation coefficient between the intention and the actual turnover of 0.50 and confirm the strong relationship. Further literature identifies variables like experience with job related stress, lack of commitment, job satisfaction as well as factors that lead to job related stress as influencing determinants for quit intentions (e.g. Igbaria and Greenhaus, 1992; Kahn et al., 1964; Leong et al., 1996; Peters et al., 1981; Rahim and Psenicka, 1996). Igbaria and Greenhaus (1992) for example find that the intention to quit is greatly influenced by the job satisfaction and a lack of commitment by employees. Further, by taking a large international manufacturer also Wunder (1982) shows an increasing intention to quit when job satisfaction decreases. Hereafter, job stressors lower the job satisfaction and this introduces a lower organizational committment, while the lower commitment increases the intention to quit. Additionally, there is some evidence for the importance of support on the intention to quit. Some research indentifies that a missing support by supervisors triggers job dissatisfaction and hence leads to a higher intention to quit (e.g Munn et al. 1996). However, believing the majority of psychological literature it is not a questions of who supports, but the fact getting support at all. Meaning, that it is more a matter of getting situation specific support (e.g. Tinker and Moore, 2001). Besides this, there are also labor economists that rather use quit intentions as a measure for actual quittings (e.g. Shields and Price, 2002 or Sousa-Poza and Henneberger, 2004).

To sum up, finding job characteristics which influence the job satisfaction and lower quit intentions of apprentices, could help training companies to maximize the probability to cover net costs that occured during apprenticeship. In addition to this they can also avoid skill shortages. Further these job characteristics could be used for policy implications to avoid unnecessary early contract cancellation and especially real dropouts. Since, as far as I know research on "soft" job characteristics and their effect on quittings is only been analyzed for regular employment, I contribute with my analysis the recent literature on apprenticeship cancellations/quits (change, upgrade, dropout).

3 Data and Descriptive Statistics

3.1 Data

The empirical analysis is based on the "BIBB Survey Vocational Training from the Trainees Point of View 2008" conducted by the Federal Institute for Vocational Education and Training (BIBB). With this representative German firm-level study 5901 apprentices (in 340 classes and at 205 schools) from 15 common training occupations in Germany were interviewed during their second year of apprenticeship in six federal states.[1] The survey contains the design, procedures, basic conditions and quality criteria of apprenticeship. Additionally, it includes information about the educational background, sex, age, migration background and the training allowance of apprentices. Since, this sample contains apprentices during their second year of apprentices, some apprentices might have already quit and could not be considered. This is not necessarily a problem for the analysis. Quits during the first year are mainly due to mismatches and hence are caused by learning more about the occupation, the apprentice as well as about the training company. However, I am interested in determinants of quits that lie beyond mismatch problems. So, oberserving the apprentices in their second year of apprenticeship seems appropriate, since they already became familiar with the occuaption and training company. There is also no sign for selection. The sample is drawn randomly. Further, due to a high response rate and a high number of complete questionnaires (about 90% of the drawn sample), there is no sign that "bad" apprentices are less or more likely to join or avoid to answer certain questions . See for detailed information on the data set Krewerth et al. (2011).

Variables

With the question: "Have you ever seriously thought about to drop out of apprenticeship?" I have a dummy variable which captures the intention to quit among apprentices. This indicator takes on the value 1, when an individual answered with "Yes". However, not every thought about a dropout has to lead to one. The possibilities are as follows: Apprentices can finish the apprenticeship, change occupation or company, upgrade or really drop out. Since, I am not able to identify the real outcome, I decided to talk of quit intentions from now on. Being only able to identify the intention instead of the actual decision not necessary has to be a drawback. An extensive amount of psychological literature on intentions show that intentions are the best indicator for the actual behavior of individuals (e.g. Ajzen and Fishbein, 1980; Igbaria and Greenhaus, 1992; Steel and Ovalle, 1984) as well as is there some empirical research in economics that use intentions, too (e.g. Gordon and Denisi, 1995; Shields and Ward, 2001).

My main interest lies in the analysis of 10 questions. This 10 questions contain information about what apprentices want to achieve with their apprenticeship and how important and likely the achievement of certain goals are. The questions I use are as follows:

How important is it for you ...

1. to become independent with your apprenticeship?
2. that your apprenticeship arouses political and economic interests?
3. that your training company retain you after apprenticeship?

[1] The six federal states are: Hamburg, Hesse, North-Rhine-Westphalia, Baden-Württemberg, Brandenburg, Thuringia

4. that you learn occupation specific contents?
5. that you can transfer your skills to other companies and work areas within your learned occupation?
6. that you have a good vocational degree grade?
7. that you achieve a good grade in your final exam?
8. that your apprenticeship encourage you to invest constantly in further training?
9. that your apprenticeship provide a stable foundation for you to become self-employed?
10. that you gain social acceptance?

On a scale from 1-6, whereby 1 is "very important" and 6 is "not important", the apprentices were asked to rate how important each goal is individually. On a second scale they were asked how likely it is that this goal will be achieved. Similar to the first scale, they have to rate between 1 - 6 whether the apprentices expect that this goal "will be achieved completely" (1) or "won't be achieved at all" (6). I aggregated each scale for better interpretation, whereby 1-3 is aggregated to "important" ("will be achieved") and 4-6 to "not important" ("won't be achieved"). Assuming that this 10 questions only partly represent determinants that influence job satisfaction, I additionally control for job satisfaction itself to capture the whole influencing impact of job satisfaction on the intention to quit. (e.g. Clark, 2001; Levy-Gaboua et al., 2007). For the estimations, I use a proxy for the overall job satisfaction which is named VET-Rating in the upcoming tables. The apprentices were asked to rate their apprenticeship by giving a grade from 1-6, whereby 1 stands for "very good" and 6 for "very bad" apprenticeship.

Further, I follow the recent literature on apprenticeship dropouts and quits. Therefore, I control for income per month and consider the type of occupation (aggregated to manufacturing, personal related services, business related services and IT-services[2]). Types of occupation can for example differ by share of female, income and school level, which can cause differences in the quitting behavior wihtin a type of occupation. Relying on Beicht and Walden (2013), I also control whether someone is in his favourite occupation. Considering that some apprentices choose a certain apprenticeship because of a lack of opportunities, they might be more open for canellations when better alternatives appear. Individual's characteristics like school performance, age, sex, region and the migration background are included, as well as dummies for the number of all employees at the training location (including the interviewed apprentice) and the work atmosphere. The level of school performance is thereby considered in two ways. 6 school degree dummies are used and additionally the grade in math and in German.[3] For detailed information see also the summary statistics (Table A.1 in the Appendix).

3.2 Descriptive Statistics

Overall, I have 4099 observations in the sample. I excluded observations with missing values and further apprentices who were trained external or inter-company (in German "außer/überbetriebliche Ausbildung"). External and inter-company trained apprentices

[2]Classification of occupations are built on the KldB 2010

[3]School degree dummies: no degree (used as reference category), special needs school (German: "Sonderschule", second general school (German: "Hauptschule"), intermediate secondary school (German:"Realschule"), upper secondary school (German: "Gymnasium"), other.

are often disadvantaged apprentices who were not able to find an apprenticeship in the first place. This apprentices differ from the majority of apprentices. In order to avoid biased results I excluded them .

34.0% of all apprentices in the sample thought about a quit (see, Appendix Table A.1). Especially men want to quit their apprenticeship (54.9%), apprentices in manufacturing (35.3%) and business related service occupations (34.5%), as well as apprentices with lower incomes. Tougher working conditions (e.g. working time, physical or mental stress) as well as lower remunerations in certain occupations are explanations for differences in the quitting behavior across occupations. Additionally, the descriptive Table 1 shows higher intentions to quit among apprentices with a lower level of school education, which might be due to worse decision-making abilities (see, Cutler and Lleras-Muney, 2008).

-Insert Table 1 here -

Turning to the variables of interest, the descriptive analysis shows for each goal the same pattern. Among the apprentices that wish to quit, I find for each goal a lower share of apprentices that expect to achieve these goals compared to apprentices that do not want to end their apprenticeship. However, for 4 goals I find stronger differences, namely for arouse interest in political an economic questions, expecting to be retained, learning occupation specific contents and getting encouraged to train further. For example, among apprentices that wanted to quit, 54.8% expect to be retained, while among those who do not want to quit, 75.4% expect to be retained afterwards. For expecting to be encouraged to train constantly further, the results show a relation from 66.6% to 85.8% as well as a relation from 34.9% to 53.0% for expecting that the apprenticeship arouse the interest in political and economic interest. Finally, expecting to learn occupation specific contents reveals a share of 67.1% among the possible quitters compared to 88.1% among the non-quitters. See for detailed information Table 2.

-Insert Table 2 here -

Summarized, I find - besides the known obvious determinants for quits - evidence that the expectation of achieving a goal during apprenticeship has an influence on the intention to quit. To confirm the descriptive results this section is followed by mulitvariate estimations.

4 Empirical Framework and Results

4.1 Estimation Method

By estimating the effect of job characteristics on the intention to quit apprenticeship, I analyze potential signals companies can use to avoid costly contract cancellations and further could be used for policy implications to avoid real dropouts. I assume that individuals choose a certain investment in human capital if it yields the highest net present value for them. However, apprentices have the opportunity to revise an earlier decisions when it seems to be unprofitable (Stalder and Schmid, 2006 and Bessey and Backes-Gellner, 2015). According to that, unexpected higher costs or lower expected benefits can enhance an apprentice to quit and to search for an alternative with an higher net present value. Since, I can only observe the actual intention of apprentices and not the net utility of staying in apprenticeship, I use a probit regression as empirical approach:

$$Pr(y = 1|X) = \Phi(X\beta). \tag{1}$$

X is the matrix of explanatory variables and β contains the corresponding parameter values. Finally, Φ represents the cdf of a standard normal distribution.

The underlying latent model is:

$$y_i = \begin{cases} 0, & y_i^* \geq \tau \\ 1, & y_i^* < \tau \end{cases} \tag{2}$$

The underlying dependent unobserved continuous variable y^*contains the individual's utility of apprenticeship

$$y_i^* = \beta_0 + \beta_1 x_{i1} + ... + \beta_k x_{ik} + \varepsilon_i = x_i^{'}\beta + \varepsilon_i, \tag{3}$$

where ε is i.i.d. with a standard normal distribution and independent of $x_i^{'}$:

$$\varepsilon | x_i \sim N(0,1). \tag{4}$$

$x_i^{'}$ is a vector of individual and firm specific characteristics of apprentice i and β is the corresponding parameter vector.

Finally, assuming that τ represents a utility threshold, it follows from equation (2) and (3) that an apprentice's intention to quit increases when his or her utility falls below the threshold τ.

I use average marginal effects to interpret the results. This is the average size of the effect of a discrete or partial change of a variable across all observations. According to Long and Freese (2014), while all variables were held constant at their observed values, a marginal effect for a discrete or partial change of a variable for each observations is calculated. Finally the average over all calculated marginal effects is generated and represents the average marginal effect.

Further, to measure the effect of job characteristics on the job satisfaction, I use the already mentioned VET-Rating of apprentices as a proxy for job satisfaction and run a ordered probit model. According to Long and Freese (2014), an ordered probit model estimates the relationship between a dependent ordered categorial variable and some chosen independent variables. Precisely, it estimates the probability that a certain category of an outcome variable occurs.

The probability that an individual selects a certain state of job satisfaction (s) is as follows:

$$Pr(s_l = m) = Pr(\kappa_{m-1} < \beta_1 x_{1l} + \beta_2 x_{2l} + ... + \beta_n x_{nl} + \mu_l \leq \kappa_m) \tag{5}$$

The coefficients and cutpoints were estimated together. Furhther, μ_l is normally distributed, M is the number of possible outcomes and κ_0 is taken as $-\infty$ and κ_l as $+\infty$.

4.2 Results

Starting with the displayed standard probit regression in Table 3, I report average marginal effects and standard errors in parantheses. Since my main interest lies on interpreting the effect of expecting to achieve certain goals during apprenticeship on the intention to quit, I will focus on this discussion. However, I will analyze whether the effects differ across

groups such as between men and women or the type of occupation. In addition, I control for migration background, age, sex, region, school level, grade in math and German, income, favorite occupation, work atmosphere, firm size, type of occupation, job satisfaction and holding a secondary job. I run this and all upcoming estimations with and without robust standard errors but find no evidence for misspecification (see for example, Appendix Table A.2). Hence, all shown tables display estimation results without robust standard errors.[4] The dependent variable contains the intention to quit and takes on the value 1 if an apprentice wanted to quit, and 0 otherwise. The independent variables of main interest, namely the information on expecting to achieve a goal, take on the value 1 when apprentices expect to achieve a certain goal.

I find statistically significant effects on the intention to quit for: Apprenticeships that arouse political and economic interest, apprentices who expect to be taken over after completion, apprenticeships which encourage apprentices to invest constantly in further training and for apprenticeships that enable apprentices to become self-employed.

- Insert Table 3 here -

Firstly, expecting to be retained after completing apprenticeship lowers the intention to quit by 3.7 percentage points at a 1%-significance level. So, receiving the information to be retained might signal job security in terms of good employment, career and income prospects as well as development chances. This results are also in line with Clarks (2001) analysis about individuals in British housholds and their quitting behavior. Besides pay, Clark (2001) identifies job security as one powerful measurement to predict quits among British individuals. Consequently, companies with an investment strategy could increase the probability to cover costs that occured during apprenticeship, when they signal their intention to take over, early. Secondly, the encouragement of apprentices to participate constantly in further training acts as a sign for job security, too. The wish to quit decreases by 4.5 percentage points. According to Becker (2009) the investment in human capital, especially in specific human capital, has to pay of for companies. So, it seems that the aim of supporting further training must be the need of firms to fulfill vacancies of jobs with higher skill requirements. Hence, the presence of further training signals career advancement in the future (see, Sadowski, 1980). However, learning occupation specific and relevant contents is insignificant in the probit regressions. Since the descriptive analysis argued the converse, this seemed at first suprisingly. But, the fact that the apprentices were interviewed during their second year of apprenticeship explains it. The experience that occupation specific contents do not match the expectation will probably be made during the probation period or at least within the first year. So, this kind of mismatch will mostly lead to quits (change, upgrade or dropout) within the first year. Thirdly, arousing the interest in political and economic questions lowers the intention to quit apprenticeship by 3.7 percentage points. This achievement seems to be strongly related to the type of occupation. Assuming that for business related service occupations political and economic questions matter more, the abiltiy to recognize such coherences might help to perfom better in employment. The contrasts of margins confirm this assumption.

-Insert Table 4 here -

Here, Table 4 reveals for business related service apprentices a 4.4 perentage points lower intention to quit (at a 10%-significance level), while it shows insignificant effects for the other types of occupation. Finally, to enable apprentices to get self-employed is, in

[4] All estimations with robust standard errors are available on request

contrast to the already explained job characteristics, positively related to quits. Feeling capable of running its own business increases the intention to quit at a 5%-significance level by 3.0 percentage points. Knowing that less and less occupations request a master of craftman's certificate to run an own business this could be an explanation. It seems as soon as an apprentice feels prepared to work self-employed the wish to leave the training company increases. This behavior of apprentices is hardly to predict and seems further unrelated to the job satisfaction of apprentices, which in turn makes it difficult for training companies to counteract in advance. The ordered probit model in Table 3 proofs this. Using the VET-Rating as dependent variable, the ordered probit model reveals only for expecting to be able to get self-employed insignificant effects. For the other 9 job characteristics the results in Table 3 show a higher probability to be satisfied, once apprentices expect to achieve a goal. [5] Since, this apprentices might leave the training company before the latter one can profit from its investment, the training of this apprentices bears high risk of losing money. Especially, in occupations where high self-employment rates can be observed this could cause lower intentions of companies to train apprentices.

Focusing again on the results of the standard probit regression, neither the expected final exam grade nor the vocational degree grade have an effect on the quit intention. Further, I find no evidence for the importance of social acceptance or for the transferability of learned skills to other companies or work areas. Presumbably, social acceptance is decisive during the applying phase. As soon as an individual has decided for an occupation he/she is aware of the social acceptance. This might be similar for the transferability of skills to other companies/work areas. Within the first year of apprenticship apprentices will mostly get to know the contents they learn during apprenticeship, and how specific the acquired skills will be. Hence, the lack of transferability will probably be realized within the first year. Finally, the overall VET-Rating confirms the reviewed literature, in which dissatisfaction increases the intention to quit (see, section 2).

Turning briefly to the control variables, I find results that are in line with the recent literature. Apprentices with a migration background, with bad math grades or work under a bad work atmosphere are more likely to quit. Apprentices with a higher income and older apprentices are less likely. Further, holding a secondary job to cover living cost and working not in one's favorite occupation increases the intention to quit apprenticeship (see for detailed information, Appendix Table A.2).

4.2.1 Differences across groups

Differences across sex

The overall results show no differences between sex, but turning to job security, the results reveal differences in the behavior pattern of men and women. When interacting the sex of individuals with each goal, the contrast of margins show for women a decreasing intention to quit by 5.1 percentage points as soon as they expect to be retained. Furthermore, providing further training or the encouragement of apprentices to train further leads to a lower intention to quit (- 6.3 percentage points) within the group of women. Among men both signals do not effect their behavior (see, Table 5).

- Insert Table 5 here -

[5] (1) "very good" apprenticeship", (6) "very bad apprenticeship"

Regarding to literature on risk taking, the reaction to job security signals can be explained by the higher risk aversion of women (e.g. Borghans et al., 2009; Powell and Ansic, 1997). Especially when women make family plans they might look for stability in their employment. However, like Rohrbach-Schmidt and Uhly (2015), I rather suspect occupational segregation. On their research on determinants of apprenticeship cancellations they show, that even controlling for soziodemographic and company specific characteristics, there are different cancellation probabilites across occupations. Following further Zwick and Mohrenweiser (2009), manufacturing apprentices cause net costs during apprenticeship. This apprentices are rather unproductive during training and the majority of the manufacturing training companies can only benefit from their apprentices by retaining their apprentices afterwards. Apprentices from comercial, trade and construction are on the contrary more productive and can cover the costs they cause during training. There is no need for these training companies to retain their apprentices. Turning to my results, descriptively I find a higher share of women in personal and business related service occupations, on the contrary there are more men in manufacturing and IT-service occupations. Moreover, for business and personal related service occupations the contrast of margins in Table 6 show for job security signals a decreasing intention to quit, but not for manufacturing and IT-service occupations. Generalizing Zwick and Mohrenweiser's (2009) results, due to the investment strategy of training companies the probability of being retained is for manufacturing occupations generally higher, compared to personal and business related occupations. So, signaling job security, in terms of take overs or the provision of further training, has especially in occupations with a lower retention probability a stronger effect on the quitting behavior. Consequently, the results indicate not only differences between sexes, but that women also sort more often into occupations where the given job security is generally lower.

Differences across types of occupation

Although the 15 occupations are common among German apprentices and represent a good selection one problem occurs, namely that every category misses important occupations. Because of this problem, statements across the types of occupation should be made very cautiously. Interpretations can only point out possible relations. Nevertheless, the types of occupation are common occupations in Germany and should in fact be considered as controls to avoid biased estimates. Like mentioned before, for business related service occupations political and economic questions seem to matter more. Here, the abilty to recognize such coherences might help to perfom better in employment. The contrasts of margins in Table 6 reveal a 4.4 percentage points lower intention for these apprentices to quit (at a 10%-significance level), while it shows insignificant effects for the other types of occupation.

- Insert Table 6 here -

Expecting to get independent and/or to be able to get self-employed increases the intention to quit by 12.0 (13.7) percentage points for personal related service apprentices.

Interaction between importance of a goal and expecting to achieve this goal

As a last step, I checked if the quitting intention changes when I do not only consider whether the achievement of a certain goal can be expected, but furthermore consider the importance of this goal. Using the contrasts of margins, I suprisingly find that the preliminary evaluation, whether a goal is important for an apprentice, do not really matter for

the intention to quit. This indicates that apprentices react strongly to signals and not to their individual categorization of goals.

To sum up, the probit regressions show significant effects for job characteristics that represent job security. Expecting to be retained after completion and encouraging apprentices to constantly train further, decreases the intention to quit significantly. Further, it seems that espcially women are more affected by job security signals, but they also sort more often into occupations with lower retention probabilites. In other words, it is more an indication for occupational segregation than a sign for differences between sexes. While arousing interest in political and economic questions decreases the intention to quit, expecting to be capable of running an own business increases the intention to quit. Learning occupation specific contents, a good exam and vocational degree grade, transferability and social acceptance have no effect on the wish to quit. Surprisingly, it does not really matter whether the achievement of a certain goal was rated as important in advance, but how likely it is that the apprentices achieve certain goals.

5 Conclusion

This paper investigates the effect of job characteristics - in terms of what apprentices want to achieve and how likely it is to reach these goals - on the quit intention of apprentices. By taking 10 questions on how important certain goals are to apprentices and how likely it is to achieve them, I contribute to the recent literature on apprenticeship quits which focuses more on objective determinants of different types of cancellation. I use job characteristics that are closely related to job satisfaction and hence to the intention to quit. Basically, instead of only using job satisfaction itself, I take components of overall job satisfaction and estimate each effect on the intention to quit apprenticeship. Until now, as far as I know, this has only been analyzed for regular employment. The aim of this research is to find signals training companies could use to maximize their probability to cover costs that occured during the training period as well as to maximize the probability to avoid skill shortages. Furthermore, this results could be used for policy implications to prevent real dropouts which are often related to bad income and career prospects and in the worst case to unemployment. I use the data set "BIBB Survey Vocational Training from the Trainees Point of View 2008", conducted by the Federal Institute for Vocational Education and Training (BIBB). In this representative German firm-level study 5901 apprentices (in 340 classes and at 205 schools) from 15 common training occupations in Germany were interviewed during their second year of apprenticeship, in six federal states. Information on design, procedures, basic conditions and quality criteria of apprenticeship were collected with this survey. Additionally, it includes information about the educational background, sex, age, migration background and the training allowance of apprentices.

The results show statistically significant effects for job characteristics that represent job security. Further, it seems that espcially women react to job security signals, but they also sort more often into occupations with lower retention probabilites. Consequently, it is more a indication for occupational segregation than a sign for differences between sexes. Especially, expecting to be retained after completion and encouraging apprentices to train further constantly, decreases the intention to quit significantly. Receiving the information to be retained might signal job security in terms of good employment, career and income prospects as well as development chances. This results are also in line with Clarks (2001) analysis about individuals in British housholds and their quitting behavior.

Besides pay, Clark (2001) identifies job security as one powerful measurement to predict quits among British individuals. Similar to signaling a take over, the encouragement to constantly train further acts as a signal of job security. Since especially the investment in specific human capital has to pay of for firms, it is linked to job vacancies with higher skill requirements or career advancement (Sadowski, 1980). Although, the descriptive analysis shows evidence for the importance of learning occupation specific contents, the multivariate analysis cannot confirm this presumption. Since the sample consists of apprentices in their second year of apprenticeship, specific contents might be important in the first year of apprenticeship and do not concern the apprentices of this sample. Surprisingly, apprentices that expect to be able to run an own business have a higher intention to quit. One explanation could be the request of a master of craftman's certificate. For less and less occupations a master of craftman's certificate is necessary to become self-employed. Since these apprentices might leave the training company before the latter one can profit from its investment, the training of this apprentices bears high risk of losing money. Especially, in occupations where high self-employment rates can be observed this could cause lower intentions of companies to train apprentices. For business related service occupations political and economic questions matter more. Here, the abiltiy to recognize such coherences might help to perfom better in employment.

Unfortunately, the used data set has some disadvantages that have to be mentioned. First of all, I usa a cross-sectional data set. I observe the intention to quit and there is no chance to observe actual quits at a later point in time. Knowing that not every intention has to lead to a quit (dropout, upgrade or change), apprentices can also finish their apprenticeship successfully. Some could argue that the intention not necessary has to be correlated with the actual behavior. However, an extensive amount of psychological literature confirms that intentions represent the actual behavior quite well (e.g. Ajzen and Fishbein, 1980 and Igbaria and Greenhaus, 1992). Additionally, since training companies as well as politics want to avoid unnecessary cancellations, they should start with interventions as soon as problems getting obvious. Hence, observing apprentices intention during their second year of apprenticeship could help to identify problems at an earlier stage. Furthermore, some apprentices might already quit during the first year of apprenitceship and cannot be considered in the analysis. Quits during the first year are mainly due to mismatches and hence are caused by learning more about the occupation, the apprentice as well as about the training company. Since, I am interested in determinants of quits that lie beyond mismatch problems, observing apprentices during the second year of apprenticeship seems appropriate. They already became familiar with the occuaption as well as with the training company. Further, due to the cross-sectional structure of the data set, I have to cope with the problem of unobserved characteristics such as ability, support by family or family background. Since fixed effects estimations are not possible, I control for a variety of important characteristics to avoid biased results. For example, by using the level of education of apprentices or their performance during school, I am able to capture partly abilities of apprentices as well as the parents level of education and wealth (Black et al., 2005). In addition, for further research on apprentice's quit intention more occupations would be acquiered to compare across occupations. In this data set every built category misses important occupations which is why statements across the types of occupation should be made very cautiously. Interpretations can only point out possible relations. All in all, a panel analysis would help to control for unobserved individual characteristics and firm characteristics. Preferably, this survey should be conducted again with a brighter selection of occupations, with more than one observation point in time, and for comparison reasons, should contain the actual quitting behavior. However, there

are not many data sets available that focus especially on apprentices. So, the number of observations is very high compared to other data sets. Furthermore, it contains a rich set of soft job characteristics that are closely related to the quality of apprenticeship and the aims of apprentices. This allows a deeper look into the reasons for quitting and show some interesting results.

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Table 1: Intention to quit by characteristics

	Intention to quit		
	No	Yes	Total
Sex			
Men	65.5%	54.9%	61.9%
Women	34.5%	45.1%	38.1%
Total	2711	1388	4099
Income			
$\leq$400 EUR	32.5%	49.5%	38.3%
401 - 600EUR	49.9%	43.4%	47.7%
601 - 1500 EUR	17.6%	7.1%	14.1%
Total	2711	1388	4099
Type of occupation			
Manufacturing	40.6%	35.3%	38.8%
Personal related services	14.2%	25.2%	18.0%
Business related services	35.5%	34.5%	35.2%
IT-services	9.6%	5.0%	8.0%
Total	2711	1388	4099
Highest school degree			
No degree	0.3%	0.4%	0.4%
Special needs school	0.3%	0.4%	0.3%
Second general school	14.5%	27.2%	18.8%
Intermediate secondary school	50.3%	51.8%	50.8%
Upper secondary school	34.0%	19.6%	29.1%
Other degree	0.6%	0.6%	0.6%
Total	2711	1388	4099

Source: BIBB Survey Vocational Training from the Trainees Point of View 2008.

Table 2: Intention to quit by goals

	Intention to quit		
	No	Yes	Total
Acquire independency			
No	8.8%	20.2%	12.7%
Yes	91.2%	79.8%	87.3%
Arouse interest in political and economic questions			
No	47.0%	65.1%	53.1%
Yes	53.0%	34.9%	46.9%
Take over			
No	24.6%	45.2%	31.6%
Yes	75.4%	54.8%	68.4%
Learn occupational contents			
No	11.9%	32.9%	19.0%
Yes	88.1%	67.1%	81.0%
Transfering skills to other companies/work areas			
No	12.2%	26.3%	17.0%
Yes	87.8%	73.7%	83.0%
Good vocational degree grade			
No	9.3%	21.3%	13.4%
Yes	90.7%	78.7%	86.6%
Good exam grade			
No	6.8%	18.4%	10.7%
Yes	93.2%	81.6%	89.3%
Train further constantly			
No	14.2%	33.4%	20.7%
Yes	85.8%	66.6%	79.3%
Be able to get self employed			
No	44.0%	51.7%	46.6%
Yes	56.0%	48.3%	53.4%
Social acceptance			
No	16.8%	30.3%	21.4%
Yes	83.2%	69.7%	78.6%
Total for each goal	2711	1388	4099

Source: BIBB Survey Vocational Training from the Trainees Point of View 2008.

Table 3: Intention to quit apprenticeship

	Probit Intention to quit	**OProbit** VET-Rating
Exp.: Independency	.0050	-.2504***
	(.0199)	(.0572)
Exp.: Interest in political and economic questions	-.0371***	-.1325***
	(.0135)	(.0376)
Exp.: Take over	-.0374***	-.1667***
	(.0143)	(.0400)
Exp.: Learn occupational contents	-.0207	-.6705***
	(.0185)	(.0519)
Exp.: Transferability to other companies/work areas	-.0155	-.1550***
	(.0182)	(.0514)
Exp.: Good vocational degree grade	-.0315	-.1591***
	(.0219)	(.0611)
Exp.: Good exam grade	-.0365	-.1335**
	(.0241)	(.0669)
Exp.: Further training	-.0453**	-.2703***
	(.0178)	(.0490)
Exp.: Ability to get self-employed	.0299**	-.0332
	(.0136)	(.0385)
Exp.: Social acceptance	.0187	-.1226***
	(.0161)	(.0469)
VET-Rating	.0951***	
	(.0086)	
Cut1		-2.2964***
		(.3251)
Cut2		-.4220
		(.3242)
Cut3		1.0339***
		(.3247)
Cut4		2.1654***
		(.3263)
Cut5		3.3600***
		(.3390)
N	4099	4099
Pseudo R square	0.2490	0.1971

Notes: Probit model contains average marginal effects and standard errors in parentheses as well as controls for migration background, age, sex, region, level of education, school performance, income, firm size, favorite occupation, work atmosphere and secondary job. Ordered Probit model contains coefficients and standard errors in parentheses and controls for migration background, age, region, sex, level of education, school performance, income,firm size, favorite occupation, work condition and secondary job.
Source: BIBB Survey Vocational Training from the Trainees Point of View 2008.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4: Contrasts of predictive margins across type of occupation I

	Intention to quit
Manufacturing: Political and economic interest - Yes	-.0341
	(.0210)
Personal related service: Political and economic interest - Yes	-.0548
	(.0347)
Business related service: Political and economic interest - Yes	-.0445 *
	(.0229)
IT-service: Political and economic interest - Yes	.0033
	(.0416)
Chi2	8.87 *

Notes: Model contains contrast of margin effects and standard errors in parentheses as well as controls for migration background, age, sex, region, level of education, school performance, income, firm size, favorite occupation, work atmosphere, secondary job and VET-Rating.
Source: BIBB Survey Vocational Training from the Trainees Point of View 2008.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5: Contrasts of predictive margins across sex

	Intention to quit
Men: Political and economic interest - Yes	-.0485 ***
	(.0165)
Women: Political and economic interest - Yes	-.0178
	(.0223)
Chi2	9.10 **
Men: Take over - Yes	-.0290
	(.0177)
Women: Take over - Yes	-.0506 **
	(.0233)
Chi2	7.19 **
Men: Content - Yes	-.0052
	(.0219)
Women: Content - Yes	-.0444
	(.0291)
Chi2	2.34
Men: Further training - Yes	-.0334
	(.0217)
Women: Further training - Yes	-.0627 **
	(.0279)
Chi2	6.95 **

Notes: Model contains contrast of margin effects and standard errors in parentheses as well as controls for migration background, age, sex, region, level of education, school performance, income, firm size, favorite occupation, work atmosphere, secondary job and VET-Rating.
Source: BIBB Survey Vocational Training from the Trainees Point of View 2008.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 6: Contrasts of predictive margins across types of occupation II

	Intention to quit
Manufacturing: Independency - Yes	-.0457
	(.0352)
Personal related service: Independency - Yes	.1203 ***
	(.0463)
Business related service: Independency - Yes	-.0121
	(.0343)
IT-service: Indenpendency - Yes	.0132
	(.0516)
Chi2	8.65 *
Manufacturing: Political and economic interest - Yes	-.0341
	(.0210)
Personal related service: Political and economic interest - Yes	-.0548
	(.0347)
Business related service: Political and economic interest - Yes	-.0445 *
	(.0229)
IT-service: Political and economic interest - Yes	.0033
	(.0416)
Chi2	8.87 *
Manufacturing: Take over - Yes	-.0209
	(.0222)
Personal related service: Take over - Yes	-.0707 **
	(.0336)
Business related service: Take over - Yes	-.0560 **
	(.0248)
IT-service: Take over - Yes	.0517
	(.0410)
Chi2	11.89 **
Manufacturing: Content - Yes	-.0008
	(.0278)
Personal related service: Content - Yes	-.0245
	(.0470)
Business related service: Content - Yes	-.0365
	(.0306)
IT-service: Content - Yes	-.0256
	(.0519)
Chi2	1.88
Manufacturing: Transferability - Yes	-.0122
	(.0275)
Personal related service: Transferability - Yes	-.0426
	(.0487)
Business related service: Transferability - Yes	.0157
	(.0304)
IT-service: Transferability - Yes	-.0482
	(.0559)
Chi2	1.97

Table 6: Contrasts of predictive margins across types of occupation II cont.

Manufacturing: Good vocational degree - Yes	-.0078
	(.0306)
Personal related service: Good vocational degree - Yes	-.0086
	(.0557)
Business related service: Good vocational degree - Yes	-.0614
	(.0422)
IT-service: Good vocational degree - Yes	-.1336
	(.0861)
Chi2	4.56
Manufacturing: Good exam grade - Yes	-.0659 *
	(.0365)
Personal related service: Good exam grade - Yes	-.0937
	(.0599)
Business related service: Good exam grade - Yes	.0365
	(.0411)
IT-service: Good exam grade - Yes	-.0358
	(.0796)
Chi2	6.69
Manufacturing: Further training - Yes	-.0090
	(.0265)
Personal related service: Further training - Yes	-.1017 **
	(.0467)
Business related service: Further training - Yes	-.0484 *
	(.0285)
IT-service: Further training - Yes	-.1019
	(.0786)
Chi2	9.35 *
Manufacturing: Self-employment - Yes	-.0003
	(.0216)
Personal related service: Self-employment - Yes	.1370 ***
	(.0342)
Business related service: Self-employment - Yes	.0053
	(.0219)
IT-service: Self-employment - Yes	.0726 *
	(.0401)
Chi2	19.36 ***
Manufacturing: Social acceptance - Yes	-.0035
	(.0261)
Personal related service: Social acceptance - Yes	.0175
	(.0392)
Business related service: Social acceptance - Yes	.0317
	(.0263)
IT-service: Social acceptance - Yes	.0496
	(.0497)
Chi2	2.66

Notes: Model contains contrast of margin effects and standard errors in parentheses as well as controls for migration background, age, sex, region, level of education, school performance, income, firm size, favorite occupation, work atmosphere, secondary job and VET-Rating.
Source: BIBB Survey Vocational Training from the Trainees Point of View 2008.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

A Appendix

Table A.1: Summary Statistics

Variables	MEAN	SD	MIN	MAX
Intention to quit	0.34		0	1
Importance of goal				
Imp: Independency	0.97		0	1
Imp: Political/economic interest	0.57		0	1
Imp: Take over	0.80		0	1
Imp: Content	0.98		0	1
Imp: Transferability	0.96		0	1
Imp: Good vocational degree	0.97		0	1
Imp: Good exam grade	0.99		0	1
Imp: Further training	0.93		0	1
Imp: Self-employment	0.75		0	1
Imp: Social acceptance	0.88		0	1
Achieving goal				
Exp: Independency	0.87		0	1
Exp: Political/economic interest	0.47		0	1
Exp: Take over	0.68		0	1
Exp: Content	0.81		0	1
Exp: Transferability	0.83		0	1
Exp: Good vocational degree	0.87		0	1
Exp: Good exam grade	0.89		0	1
Exp: Further training	0.79		0	1
Exp: Self-employment	0.53		0	1
Exp: Social acceptance	0.79		0	1
VET-Rating	2.59	0.92	1	6
Work atomosphere	2.38	1.13	1	6
Income				
Income: $\leq$ 400EUR	0.38		0	1
Income: 401-600 EUR	0.48		0	1
Income: 601-1500 EUR	0.14		0	1
Type of occupation				
Manufacturing	0.39		0	1
Personal related service	0.18		0	1
Business related service	0.35		0	1
IT-service	0.08		0	1
Sex				
Women	0.38		0	1
Migration background	0.16		0	1
Age				
Age: 15-19	0.38		0	1
Age: 20-24	0.56		0	1
Age: 25-30	0.06		0	1
Region				
West	0.76		0	1
Highest school degree				
No degree	0.00		0	1
Special needs school	0.00		0	1
Second general school	0.19		0	1
Intermediate secondary school	0.51		0	1
Upper secondary school	0.29		0	1
Other degree	0.01		0	1
Grade: German	2.71	0.76	1	6
Grade: Math	2.71	0.95	1	6
Evaluation of chosen occupation				
Dream occupation	0.30		0	1
Interesting occupation	0.43		0	1
Alternative occupation	0.16		0	1
Compensation	0.07		0	1
Do not know	0.04		0	1
Number of observations				4099

Source: BIBB Survey Vocational Training from the Trainees Point of View 2008.
School degree dummies: Special needs school (German: "Sonderschule"),
second general school (German: "Hauptschule"), intermediate secondary school
(German:"Realschule"), upper secondary school (German: "Gymnasium")

Table A.2: Intention to quit apprenticeship - Robustness check

	Probit	**Probit (Robust)**
	Intention to quit	Intention to quit
Exp.: Independency	.0050	.0050
	(.0199)	(.0205)
Exp.: Political and economic interest	-.0371***	-.0371***
	(.0135)	(.0134)
Exp.: Take over	-.0374***	-.0374***
	(.0143)	(.0144)
Exp.: Content	-.0207	-.0207
	(.0185)	(.0186)
Exp.: Transferability	-.0155	-.0155
	(.0182)	(.0185)
Exp.: Good vocational degree	-.0315	-.0315
	(.0219)	(.0221)
Exp: Good exam grade	-.0365	-.0365
	(.0241)	(.0243)
Exp.: Further training	-.0453**	-.0453**
	(.0178)	(.0177)
Exp.: Self-employment	.0299**	.0299**
	(.0136)	(.0135)
Exp.: Social acceptance	.0187	.0187
	(.0161)	(.0164)
Women	.0023	.0023
	(.0175)	(.0177)
Migration background	.0375**	.0375**
	(.0183)	(.0185)
Age: 15-19 (reference category)		
Age: 20-24	-.0018	-.0018
	(.0149)	(.0149)
Age: 25-30	-.1039***	-.1039***
	(.0271)	(.0263)
Region: West	.0077	.0077
	(.0161)	(.0164)
No degree (reference category)		
Special needs school	.0647	.0647
	(.1671)	(.1423)
Second general school	-.0010	-.0010
	(.1091)	(.1047)
Intermediate secondary school	-.0470	-.0470
	(.1087)	(.1042)
Upper secondary school	-.1029	-.1029
	(.1096)	(.1054)
Other	-.0340	-.0340
	(.1369)	(.1305)
Grade: German	-.0144	-.0144
	(.0089)	(.0089)
Grade: Math	.0133*	.0133*
	(.0069)	(.0069)

Table A.2: Intention to quit apprenticeship - Robustness check cont.

Income: ≤400 EUR (reference category)		
Income: 401 - 600 EUR	-.0301*	-.0301*
	(.0160)	(.0156)
Income: 601 - 1500 EUR	-.0774***	-.0774***
	(.0245)	(.0234)
Firm size: < 5 (reference category)		
Firm size: 5-9	.0273	.0273
	(.0222)	(.0231)
Firm size: 10-49	.0035	.0035
	(.0216)	(.0221)
Firm size: 50-249	-.0092	-.0092
	(.0243)	(.0245)
Firm size: 250-499	-.0183	-.0183
	(.0312)	(.0306)
Firm size: 500-999	.0196	.0196
	(.0379)	(.0363)
Firm size: 1000 and more	-.0176	-.0176
	(.0357)	(.0354)
Evaluation: Dream occupation (reference category)		
Evaluation: Interesting occupation	.0458***	.0458***
	(.0156)	(.0151)
Evaluation: Alternative occupation	.0950***	.0950***
	(.0208)	(.0207)
Evaluation: Compensation	.1835***	.1835***
	(.0307)	(.0318)
Evaluation: Do not know	.1541***	.1541***
	(.0365)	(.0375)
Manufacturing (reference category)		
Personal related services	.1109***	.1109***
	(.0224)	(.0231)
Business related services	.0517***	.0517***
	(.0199)	(.0198)
IT-services	.0559*	.0559*
	(.0289)	(.0290)
VET-Rating	.0951***	.0951***
	(.0086)	(.0086)
Work atmosphere	.0736***	.0736***
	(.0063)	(.0065)
No secondary job (reference category)		
Secondary job, money for living	.1289***	.1289***
	(.0265)	(.0274)
Secondary job, money for wishes	.0139	.0139
	(.0236)	(.0233)
Secondary job, money for both	.0260	.0260
	(.0207)	(.0209)
N	4099	4099
Pseudo R square	0.2490	0.1971

Notes: Both models contain average marginal effects and standard errors in parentheses.
Source: BIBB Survey Vocational Training from the Trainees Point of View 2008.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

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