Institutional Effects of Apprenticeship Training on Employment Success in Germany

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Abstract

A remarkable number of private German enterprises contribute high investments to their firm based apprenticeship training. Therefore it is surprising that the linkage between training and employment is high, but not that strong as expected. In general every second trainee leaves the training firm at the end of apprenticeship training. However there is some remarkable variation in the employment perspectives, especially toward the probability of becoming employed in the training firm.

From a theoretical perspective two different training strategies of firms could be identified: Following production theory considerations (Lindley 1975) employing apprentices is a substitute for low paid work; apprentices become already productive during the training period, the net cost of training are marginal or negative. A take over of qualified apprentices after training is not required for the training firm according to the cost structure of training. The probability that the graduates will leave the training firm and the occupational field of training is high, but also the risk of becoming unemployed or a scheme participant.

In contrast investment oriented training strategies requires rewards from the productivity of fully qualified apprentices. In this case training costs are high and the training firm is highly interested to take benefit from the productivity of their trainees after the completion of the apprenticeship training. Given imperfect markets the training firm faces advantage compared to non training firms which balances the training cost in a medium term perspective (Acemoglu/Pischke 1998/1999). In this segment the employment perspectives for trainees are high to stay at the training firm and in the field of training. And even if there is no take over by the training firm, the risk of unemployment or scheme participation is comparable low.

To stabilize firms training strategy specific institutional settings are required, such as fixed term training contracts, and a high recognition of the formal training certificate as entry prerequisite into the labour market, which both reduce individuals shirking probability and allows firms long term training investment.

Using German social security data (IEB), matched with enterprise data and implementing additional data from the BIBB-training cost study (Beicht/Walden 2004) labour market perspectives of apprentices trained in the private sector of West-Germany are analyzed. Following our theoretical considerations, firm specific training strategies are identified and used as explaining variable. Regional and individual characteristics are introduced as controls. Logit models are employed to explain labour market position in the first two years after apprenticeship training. First empirical results confirm our theoretical assumptions.

Keywords: human capital, apprenticeship training, transition form training to work,

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Contents

1 Motivation: Labour market entry after finishing German apprenticeship training

„In the both last decades the dual System was participated by about half of all young people out of each single birth cohort; each year there participated between one million and 1.5 million young people in an apprentice scheme training contract" (Sachverständigenkommission Kosten und Finanzierung der beruflichen Bildung 1974:41). The quoted findings refer to the German apprenticeship training of the 50es and 60es of the old Federal Republic of Germany still even now describe the current situation more or less precisely, even if the system of vocational and academic training has developed further on in the last decades and the pattern of educational participation between the 60es and the recent decade is hardly to be comparable. On the on hand the training places at the German Universities and especially at the German applied Universities have enhanced, on the other side the figure of participants at pre-training courses, preparing less developed young persons for an apprenticeship training have increased tenfold. The later makes clear that even school leaver, who didn't perform pretty well at school, are urged to looking for access to apprenticeship training, as the German labour market offers no job perspectives for people without a vocational degree (Dietrich & Abraham 2005). Some first recent empirical studies give some incidents that young people, participation at one or even more of these pre-training courses in the end will join the German apprenticeship training, however remarkably delayed in contrast to their better performing class mates. In how far this group is participation at regular apprenticeship training or at state sponsored out of firm training and how they do manage to enter the labour market afterwards is still an untouched field in Germen labour market research (comp. DJI 2006; Lex et al 2007; Beicht et al 2007).

In contrast to the labour market perspectives of young people without a vocational degree the job perspective of apprenticeship leavers are still pretty good. More than ever second of each young person participated at a firm based apprenticeship training became employed by the training firm itself immediately after finishing the training (BMBF 2007:207f; Hillmert 2001; Konietzka 2002). However it is to be taken into account that to an undefined extent a first employment is guaranteed by collective agreements of the social partners (comp. Bispinck et al 2002); in consequence delayed disposals up to six months in average of apprenticeship trainings are to be taken into account.

It is surprising however, that in dependence of the operationalization of occupation according to the German classification of occupations[1] up to 50% of the training graduates did not get a first job in that field of occupation they are trained for (Witte & Kalleberg 1995; Solga & Konietzka 1999; Haas 2002; Seibert 2007). The association between training and occupation in the first job seems to be weaker as to be expected according to the high job specificity of the training.

Over the last decades the probability of a job change was increasing in the first years of employment (Hillmert 2001, Konietzka 1999), the same was for the likelihood to start the first employment contract with a precarious work contract (temp agency, short-term contract, freelancer contract etc; comp. Bosch 2002). Even if there is some empirical evidence supporting segmentation theory that starting first job in a precarious position will work as a trap for further job careers, there are some recent findings (see Scherer 2004; McGinnity et al 2005: Leschke 2007) which indicate, that an entry into an precarious job at the begin of the employment career is not necessarily a trap but could be a stepping stone into a regular employment carrier. In these cases precarious jobs as a first job work as a gate opener. Following Konietzka (2002:645) up to now there are no stabile indicators for a process of restructuring the process of labour market entry".

The risk of becoming unemployed after a training in the German apprenticeship training is moderately low and even in the longer perspective graduates from the apprenticeship system do face a unemployment risk below average (Reinberg & Hummel 2007) even if there is some recent empirical evidence that the average of unemployment spells tends to become enlarged using the German post-war birth cohorts as a reference (Buchholz & Kurz 2005).

There is some empirical evidence for associations between both individual and regional characteristics and training outcome (comp. Konietzka 2002; Dietrich & Abraham 2005). At the individual level empirical evidence is given by gender specific and qualification specific effects. In recent years in the German debate dimensions reflecting the migrant background gains growing interest. The main question arised focuses on migration specific training outcome even under control

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[1] Namely the German „Classification of occupations" (1988), which is still used at the coding of social security data (namely the German Beschäftigenstatistik; see Hummel et al 2005.), does not allow to identify the very training occupations in detail but different training occupations are summed up in rough vocational codes. Further on in some field the correspondence between the coding of the training occupations and the field of employment is rather weak.

of qualification and field of training (Damelang & Haas 2006; Burkert & Seibert 2007). Up to now it seems to be an striking question weather the observed outcome depends on mechanism of discrimination, on unobserved heterogeneity for example related with qualification (language skills etc), on competences or abilities, on differences in specific assets of both cultural specific human capital, on differences in social capital and cultural capital assets or on specific network effects (comp. Seibert & Solga 2005; Kalter 2006).

There is strong empirical evidence for the effect of the regional labour market on the transition from training to work. Training graduates in weak labour market regions like the New Lander of East Germany show serious problems entering the regional labour market. Regional mobility could be one option to cope with these problems (Haas 2002)[2].

Further on some few findings are reported on the relevance of specific training occupations on the transition success into the labour market (comp. Haas 2002; Konietzka 2002). Even if this vocation specific findings already indicate the relevance of the firm side for the labour market success, up to now the contribution of the firm as relevant actor at both the decision for training and employment after graduation from apprenticeship training and at the further employment career remains under-explored (see Hillmert 2001; Konietzka 1999 u. 2002). This observation is striking in so far, as from a theoretical perspective there are several references concerning the active role firms taking at these crucial transitions.

In the following section some central theoretical considerations toward a firm specific decision for apprenticeship training and its relevance for the transition from training to employment will be introduced and discussed. This discussion will be referred to the recently elaborated framework of a rational decision for education (Boudon 1974; Gambetta 1987; Breen & Goldthorpe 1997). This framework develops elements towards a rational action theory explaining individuals' educational decisions. The striking assumption of this framework is the motive of status reproduction. This motive links individual's educational decision with the multiple reorganized framework of intergenerational

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[2] This weakness became increased by the introduction of scheme based out of firm apprenticeship training, which was introduced to reduce the gap between individuals demand for apprenticeship places and firms offers. (vgl. Beicht & Berger 2007). The state bases training beyond firms demand weakens not only the success rate quantitative, but creates also a weaker match between schemes based training and future occupation in the labor market (Winkelmann 1994; Dietrich 2004).

reproduction of social position (see Kerckhoff 1995)[3]. This framework has motivated a series of empirical studies modelling individual's decision on general education and the access to university. But in the subsequent debate some old arguments reappeared reintroducing the question about the relevance of partners, peer groups or social networks on the one side and the inactive role of the educational system on the other side. Concerning the later the empirical evidence is ambiguous. On the one side the educational system supports the class background (see e.g. teachers recommendations concerning the tracking after primary school; Lehmann et al 1997) on the other side a teaching effect of school, which is more or less independent from the class background is to be noticed (see Heyns 1978).

Whilst the modelling of rational decisions in the field of general educations puts the institutions into the logic of situation or logic of aggregation (Elster 1979 and 1986; Coleman 1990), it seems to be more appropriate to re-introduce the firm as an own standing and crucial actor, when analyzing two decisions a) getting an apprentice training place, and b) getting a first job after finishing an apprenticeship training. In the remainder the second question will be the challenging one.

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[3] Further relevant dimensions are partners, peer groups and social networks (Stocké 2007).

2 Theoretical considerations

The German apprenticeship training is organized by both the state and the firm. Whilst the state organizes the school based training (1-2 days a week in general education and vocational theories) and is supplying the financial means for schooling, the firms carry out the theoretical and practical training on the job. As the apprenticeship training is covered by federal law (Berufsbildungsgesetz [federal law of vocational education]) and is organized by countrywide curricula, exams and degrees, the apprenticeship training seems to be highly standardized (Allmendinger 1989). As the apprenticeship training is organized at the educational level of upper secondary education, it seems to be low stratified (Allmendinger 1989). However already from segmentation theory perspective there comes some strong arguments towards an informal stratification (Neubäumer 1999). This goes along with the fact, that the apprenticeship training takes place in about 340 different and own standing regulated training vocations.

From a firm side perspective it is a fundamental requisition for firms to become approved as a training firm by the responsible chamber of commerce, chamber of trade etc. (Neubäumer/Bellmann 1999). If that is given firm specific factors are relevant for the quality and quantity of apprenticeship training. In detail it is the proportion of workforce who needs apprenticeship training to carry out the work, the firm specific work flow and related recruiting strategies (market oriented recruiting, agency work or firm based training). Further on institutional factors such as collective bargaining (Tarifvertrag), codetermination (Mitbestimmmung) and workers' councils (Betriebsräte) take strong influence on quality and quantity of firms training decision (Dietrich 2000; Niederalt 2005). Additional industry specific factors (Franz/Soskice 1994; Neubäumer 1999) or regional effects such as the local competition, the density of firms in a specific industry (Harhoff/Kane 1997) seems to be relevant. Even the technological progress of a single firm in contrast to its competitors on the market takes effects on firms training decision (Franz & Soskice 1994).

2.1 Human capital specific considerations

Form a human capital specific perspective Becker raised his very prominent question already in 1964, why should firms pay for training. He reported his well known findings that firms should invest in firm specific training, whilst the training general human capital and that includes marketable

occupational specific human capital has to be paid by the individuals itself (Becker 1964). From this point of view the German apprenticeship training and its vocational oriented training is still a challenge for human capital related considerations. In the literature there are some attempts to reconcile the empirical findings with the theoretical assumptions[4]. Widely accepted is the proposal from Acemoglu/Pischke, who identify the main reasons for firm-based general training in effects of incomplete information which have wage differentials in consequence. Training firms receive a wage advantage compared to non training firms which over-compensate firms training costs (Acemoglu/Pischke 1998; 1999a und b).

In general there are two closely related motives, underlying the firm specific decision for training: a) in how far firms do generally agree to train apprentices and b) to what extent they offer training places for apprentices and take over training costs into general human capital.

From production theoretical perspective (Lindley 1975) firms become active in training, when the trainees are willing to deliver a contribution to firms' productivity during their training period which exceeds firms training costs itself. This is especially given by the training in some vocations with lower demand for qualification and this is especially the case in small enterprises and in some certain industries (Beicht/Walden 2004). With the progress of training the productivity of the apprentices is raising and the productive contributions of the trainees overcome the training costs to a rising extent (Beicht/Walden 2004). So with the duration of training, firms will gain marginal and to an increasing extent absolute rewards to their training investments.

For firms decision to start an apprenticeship training under the assumptions of this productivity oriented strategy it seems to be a prerequisite that firms has not to take into account considerations concerning a further employment of apprentices after their graduation. A take over after graduation is not necessary for the training decision itself. And even it the training firm will not be able or not be willing to signal a further employment perspective, the probability of quitting the training by the apprentice is low because of the fact that the final training certificate is a prerequisite for entering a job even in a field of occupation not be covered by the apprenticeship training itself.

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[4] Arguments are dealing with imperfect markets, bounded rationality, imperfect information, and exogenous barriers to mobility of the workforce, firms' local agreements on non-poaching trainees or regional monopolistic

A second strategy of apprenticeship training is not be able to be explained solemnly under the assumptions of production theoretical arguments, as the firm specific costs under this training strategy exceeds the results of trainees' productivity, which the training firm receives during the training period to a high amount. This type of training is more an investment in future productivity of the trainees and is called in the following as the investment in human capital strategy (comp. Stevens 1994; Franz & Soskice 1995; Dustmann & Schoenberg 2008). This type of training strategy seems to be necessary for specific fields of occupations. In these cases it is necessary for the training firm to take over high investments into human capital, to employ this workforce after training. In this field of occupations firms are confronted with high opportunity costs by hiring professionals on the market, such as recruiting costs, costs for additional on the job training of external recruited, incomplete information about the real productivity of individuals, which could create high costs especially in highly regulated labour markets like the German one where the dismissal of a single workforce is strongly limited (see Acemoglu/Pischke 1999). Form this perspective the investment oriented training strategy is mainly based on further employment of the graduated trainees within the training firm.

Given a different time perspective and different utility function it is common for both training strategies that firms' decision on apprenticeship training requires a positive rent perspective in that sense that the expected respectively short term or long term benefits of training overcome firms the training costs. From a firm side perspective this means negative net training costs are required for a training decision.

From this perspective firm take into account owns expectations about the future business success with a different time perspective in the case of the production strategy or the investment strategy. As the business expectation influences directly the short term and long term perspective of the benefit side of the training decision, whilst the cost side of training is not affected by the business expectations (comp. Dietrich/Gerner 2007).

Public reputation and public benefits for specific types of training places or specific groups of trainees may affect the firm specific cost-benefit relation and smooth some training places from an

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positions (comp. Sadowski 1980). Backes-Gellner (1992 and 1995) introduced a "ware house model", who strengthens the opportunity costs of apprenticeship training.

investment based training strategy towards a production based training strategy. This also may allow firms to offer apprenticeship places beyond firms' expected needs for new apprentices.

2.2 Arguments from institutional theory

From a firm-based perspective both training strategies require fixed term contracts well recognized by law and signed by individual contracts between the apprentice and the training firm as a effective protection for shirking. Shirking seems to be a serious problem for training which is well documented for the British apprenticeship training. In UK the completion-rate, which is the share of apprenticeship trainees, who finished the training completely, varies between 20% und 50% depending on the field/industry of training (Unwin 2006). In contrast to UK German apprenticeship trainees fulfil their training contracts to a high degree (more than 90% comp Statistisches Bundesamt 2007) after having successfully passed the very early probation period of less than 6 months[5]. What could be arguments for these country specific findings of different completion rates? British trainees quit their training to a remarkably extent at that point of time, they could realize a higher wage at the market as they received at training. This pattern seems to be out of proof for Germany. Even if the fixed term training contract defines both the duration and the content of the training, is seems to be a weak instrument to stabilise individuals training involvement for the whole scheduled period of training. A stronger argument however seems to be the high recognition of the apprenticeship degree itself. Even the access to jobs out of the given field of training requires an apprenticeship degree. This supports especially apprenticeship training following the productivity oriented strategy. In this cased firm draw benefits from the training the longer it takes, and the trainees fulfil their training contract even if they realize they will not have a chance to stay at the training firm after graduation. But they realize that they will need the final degree to get access to a recognized job even out of their field of training. In the case of the investment strategy where firms have to deliver cost intensive training remarkable good employment perspectives work here as incentives for trainees' continuance in the training contract.

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[5] In total about 20% of all apprenticeship contracts become broken before the scheduled duration of training in 2006 (Statistisches Bundesamt 2007)

Thus the high recognition of the certificate delivered by the apprenticeship training and its relevance for the further employment career and the regulated training duration covered by federal law are core elements for the German institution of apprenticeship training. In the productive segment the fixed period of training duration allows the firms to draw direct benefits from the trainees already whilst the training period. This attractive institutional arrangement results in training beyond firm specific demand.

In contrast in the investment segment the apprenticeship training is connected with remarkable net cost. Trained firm are highly interested to employ the trainees after finishing the training, this longer employment perspective opens rewards to the training firm, as they are now able to realize wage advantages compared to non training firms (Acemoglu/Pischke 1998/1999). For the training graduates, this field of employment is highly attractive as it opens access to internal labour markets and offers more stable employment and career perspectives. So this form of apprenticeship training offers advantages to both sides, e.g. training firm and apprentices, .and further employment is the most realistic strategy at the end of this form of training.

Again some empirical evidence is given from international comparison. Schweri et al (2003) report comparable high rates of firm specific mobility at the end of the apprenticeship training for Switzerland. One year after the end of training only 36% of the training graduates do still work in the training firm (Schweri et al 2003). Mühlemann et.al. (2007) mentioned, one reason for this high Swiss mobility rate could be identified in the missing of a take-over protection, as it is the case as a result of collective bargaining in Germany. Further on Mühlemann et al (2007) assume that in Switzerland the training costs are lower compared to Germany; more than two thirds of all training firms in Switzerland argue, that their training creates profit. (Mühlemann et al 2007). Compared to Germany this could be used as an indicator for a higher expansion of productivity oriented training strategies in Switzerland. In Switzerland vocational training on a higher level is delivered to a high extent from vocational schools.

2.3 Training firms as crucial part of the sorting system

Motivated by a high correlation between the level of educational attainment and the labour market position Spring (1976/1988) stressed on the sorting function of the educational system and crated the term „sorting machine". From a micro perspective Soskice (1994) applied the concept of rank-order-tournament[6] to the German apprenticeship system, describing both the competition of students for the access to firm based apprenticeship places in Germany and the selection process of firms concerning the access to their apprenticeship places is based on level of school degrees and on school marks students compete for privileged apprenticeship places which gives access to internal labour markets in medium an big sized firms in the private market, which offers stabile employment careers, income above average and secure working conditions. The firm specific selection process is based on expected productivity signalled by school success.

Kerckhoff (1995) develops Spring's concept of „sorting machine". Kerckhoff applies Springs sorting-concept to both the mechanism of status attainment in the educational system and to the mechanism of the labour market „that serve to channel individuals toward adult positions in the stratification system" (Kerckhoff 1995:325). Kerckhoff stresses on the active role of institutions at the process of sorting individuals into stratified positions. „We cannot ignore the role of individuals' choices and action, but by purpose is to show how the institutional arrangements provide the alternatives und delimit those choices and action" (Kerckhoff 1995:325).

Even if the individual preferences and individual training decisions based on these individual preferences play a strong role in the process of status attainment, in the context of apprenticeship training firms take over a twofold sorting-function. At the one side firm decide who gets access to specific apprenticeship places, which are connected with different labour market perspectives. On the other side firms decide who will get a job offer after finishing the apprenticeship training, independent from individual's options to leave the firm voluntarily as to start a job at another firm or as to start a new training at school or university.

In the next steps data and the statistical model will be introduced and results will be presented and discussed.

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[6] For the general concept of concept of rank-order-tournament see Lazear/Rosen 1981; Thurow 1975 Soerensen

3 Empirical modelling and data

3.1 Modelling

As depending variable it will be engaged the labour market position immediately after graduation from the apprenticeship training (one month after graduation) one year and two years after graduation in dependence of individual characteristics, firm specific characteristics and regional labour market characteristics. A multinomial logit model will be estimated. Hausman Test and repeated Small-Hsiao tests are engaged to confirm the assumptions of independence of irrelevance of alternatives (IIA) (Long & Freese 2006).

3.2. Data

For the empirical analysis data from the „Integrierte Erwerbsbiographien" (IEB) of the IAB will be used. The IEB-data are process produced micro data at the individual level, containing information about all episodes of dependant employment of the German workforce since 1975: employment records on marginal employment are included since end of the nineties. The IEB-data include also process produced data from the Federal employment offices, which contain full information about all episodes of job search and unemployment, including episodes of unemployment benefits). Additional episodes of scheme participation at schemes of the active labour market politics are included[7].

For this analysis a sub file was drawn covering all labour market records of people finishing apprenticeship training in 2001. Following the identification rule from Bender/Dietrich 1994 as graduates from the apprenticeship training are identified such people, who joined an apprenticeship training in a recognized training occupation (BiBB 2004 Berufe-Dreisteller nach der BA '88er Klassifikation der Berufe) with a reported duration of at least 450 days. As the theoretical considerations refer to firms in the private market, public organizations but also institutions whose dominant function is the training itself (e.g. Bildungsträger) are not included into the analysis. This is also the case with training contracts, who are public financed or which are public co-sponsored. As in

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2001.

[7] The data include most of the German labour market schemes, some small sample sized schemes and especially some schemes for apprenticeship seeks (BvB, EQJ etc) are up to now not included.

the New Lander this is the case for a significant number even of enterprises in the private sector

training firms from the New Lander are excluded totally from further analysis[8]. Further on people,

who are elder than 25 years at the end of the apprenticeship training were excluded as it is assumed,

that these cases fit better to further education than to apprenticeship training which is more or less age

determined. (comp Jacob 2004).

Firm specific characteristics like size of firm, the average individual daily wage as indicator

for firms' productivity and the average wage of trainees in the firm are matched to the data set. The

dataset contains further on information on regional characteristics. So REGIOTYP (see Blien et al

2004) is added, which distinct labour market region according to their labour market dynamic, the

level of unemployment and the degree of urbanity of the local labour market.

Up to now, only limited empirical data are available on costs and benefits of firm based

apprenticeship training. This result mostly out of the fact, that the process of collecting survey data is

outstanding challenging (see Beicht/Walden 2004 and Mühlemann et al 2007). According to this

representative data for Germany are only available from the BIBB-Study „Kosten und Nutzen der

betrieblichen Ausbildung"(Beicht/Walden 2004)[9].

This BIBB-study, based on empirical data from 2001 collected on the firm level of 2.496

enterprises contains specific information on costs and benefits for 52 distinct training occupations. In

consequence of incompatible systems of occupational classification only cost-benefit information for

30 training occupation could be used in this study[10]. Theses 30 training occupation cover about one

third of all apprenticeship training contracts of each entry cohort (Dietrich 2007)[11]. Using the original

micro date[12] the net costs for West-German training occupations were re-calculated.

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[8] As apprenticeship trainees living in the new Lander especially close to the former border to West Germany do join an apprenticeship training at firms in West Germany a smaller group of East German trainees is to be found in the data set.

[9] For Germany, Austria and Switzerland only a few empirical studies on the cost benefit relation of apprenticeship training are available (see Bardeleben 1993; Beicht/Walden 2004; Hanhart/Bossio 1998; Wolter/Schweri 2002; Schweri et al 2003; Lassnigg/Steiner 1997). It is common to all these studies that the cost-benefit relation varies remarkably with firm size, industry and field of training.

[10] Up to 6 specific training occupations with different cost-benefit relation will be covered by a single three digit occupation of the German "Klassifikation der Berufe".

[11] For the analysis in this paper cost –benefit –information will be used, based on the weighted firm specific data for West-Germany. Regression analysis showed that the net contribution to the net costs is highest for training occupations, compared to firm size or industry. In consequence of regional institutional settings and of

After matching the BIBB cost-information with the IEB data in total micro data for 129.000 graduates form the apprenticeship training in the year 2001 could be used for the analysis reported in this paper (see Table 1).

Here about Table 1

3.2.1 Dependant variable

As dependant variable we assume the labour market status at distinct points of time after finishing the apprenticeship system: labour market status 32, 365 and 731 days after finishing the training. Labour market status is defined as follows:

- Regular[13] dependant employment at the training firm,

- Regular dependant employment at a new firm

- Labour market scheme participation

- Registered unemployment

- Other Labour market activities (a new training episode at firm, school or university, compulsory army or civil service, out or the work force etc.[14]).

Neglecting censored episodes[15], 60% of all training graduates become dependant employed within the training firm or at a new firm immediately after graduating from the apprenticeship training. And even within the observation window of two years the rate of employed remains at this level (chart 1). However already in the first year, there is a strong trend from the training firm towards other firms. In how far, these new enterprises are completely new firms or organizationally related to the training

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remarkable wage differences between the new and the old Lander a split between the old and the new Lander is recommended.

[12] Access to the empirical data from the BIBB-study was available during a research visit to the FDZ of the BIBB. I acknowledge gratefully helpful support from Dr Walden and Mr Hoecke from the BIBB.

[13] The employment contract is fully covered by the social security system, which means protected by social and labor law.

[14] From a empirical perspective out of the labour force is a residual category, as this labour market position is not to be observed directly but indirectly as a data gap between two observed spells of labour market activity, as these gap activities do not generate an own record of data.

[15] Which are to be assumed as normal distributed over the dependant variable.

firm (such as sister firms, subsidiaries etc) can not be clarified on basis of the used data. So internal labour markets are insufficient identified and further employment in the organization of the training firm is underestimated[16]. However there is some empirical evidence for effects of collective bargaining, such as the transition from the training firm to other firms or into unemployment seems to be smoothened by short-term obligations of the training firm for a time dependant take over of the training graduates (see Bispinck et al 2002): this may contribute to the observed 50% continuance at the training firm at least for the first period after graduation.

Chart 1: Labour market position one month, one and two years after graduation
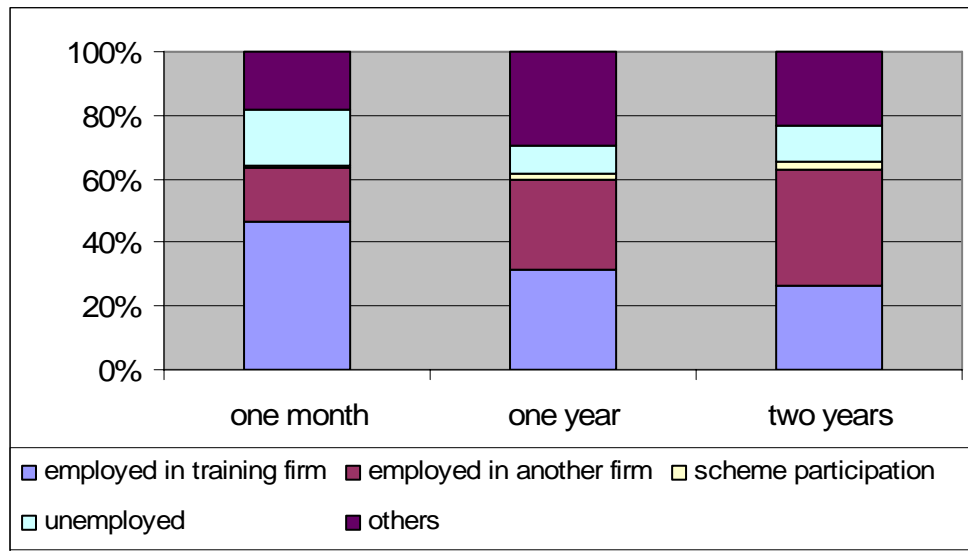
Source: IEB subsample: Graduates from training in 2001 N=136.336 persons

16% of the apprenticeship graduates become registered unemployed immediately after the finished their training. This proportion decreases within the first year after graduation to 7%. Participation at a labour market scheme seems to be exceptional for graduates from a firm based training. From significant importance however is the transition out of the workforce. Even if this labour market status is not to be observed directly there is some evidence even from comparable studies based on survey data, that transitions into school based vocational education or to university and temporary, but mandatory participation at the compulsory military service or civil service for young men seems to be the main events within this status group.

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[16] It is to be taken into account that according to the given data a firm is defined in a more technical way and describes more a single workplace than an economic active entity. This means each unit defined as firm in this context is handled as independent from each other, even if it is part of a more complex organisation.

3.2.3. Explaining variables

In core of the subsequent analysis the question will be raised, in how far distinct firm specific training strategies influence the entry into the labour market after graduation from the apprenticeship training.

Using the micro data three different training strategies will be identified in the following:

a) Productivity oriented training strategy: assuming the cumulative costs and benefits within a given training contract over all years of training in average the benefits overcome the training costs (= negative or zero net costs).

b) Investment oriented training strategy: assuming the cumulative costs and benefits within a given training contract over all years of training, in average the training costs will overcome the benefits during the training period remarkable (more than 2.400 Euro for each year of training).

c) From statistical perspective a third group remains, which does not clearly fit to any of the former groups. Reasons may be the net costs are slightly positive in average (below 2.400 Euro for each training year), or the variance within a specific training occupation is too large to assign it to one of the both mentioned groups clearly.

It will be assumed that firms will offer training at a cost intensive apprenticeship places when it is intended by the firm, that this will be a tool to recruit qualified workers instead of hiring them on the labour market. In this case it is to be assumed that firms intend a longer ongoing work relation, to get their investment on training reimbursed. But of course a take over after the training is not a guarantee however it depends on individual performance and productivity whilst the training. With increasing firm specific productivity, indicated by the average wage over all firms dependant employed, it will be assumed, that a job offer after the training episode will be given more selective. In contrary with increasing firm size the opportunity structure for access to an internal labour market is increasing. Whilst information about industry indicate specific agreements on collective bargaining, such as intensity and duration of a mandatory temporary employment contract for trainees after graduating from the apprenticeship (comp Bispinck et al 2002). A descriptive overview over the explaining variables is given in Table 3.

Here about Table 3

Individual and regional characteristics are primarily used as controls, not at least because of the process produced data used here are offering only a very limited set of data. So the choice of a specific training vocation is gendered to a high extent (comp. Engelbrech 1995). However from an empirical perspective the bivariate association between the training strategy and gender is weak. In contrast there is a strong relation between individuals' level of general education and the training strategy. Data show strong correlation between education and training strategy, whilst the investment strategy is positive correlated with the German "Abitur" (upper secondary degree). Mobility background, comparable weak indicated by the information on nationality, shows no systematic correlation with the training strategy.

The regional labour market situation at individuals" place of living is assumed to work as a strong indicator for local opportunity structure. According to the above mentioned considerations the take over of trainees after graduation from the training is a constitutive element of the investment oriented training strategy. In consequence a further employment by the training firm should be independent from the regional labour market. In contrast employment perspectives of graduates who are trained under a productivity oriented strategy are strongly correlated with the regional labour market conditions. In consequence labour market access and vice versa the risk of becoming unemployed or dropping out of the labour market depends more on formal individual characteristics such as level of qualification, gender or migration background.

4 Results

The bivariate distributions already indicate a strong correlation between the training strategy and the labour market success after graduation from the training (Table 2). Remaining in the training firm but also becoming employed in another firm is higher for those graduates who are trained under the investment strategy compared to the labour market perspectives of graduates trained under both of the other strategies and these findings are stabile over time.

Here about Table 2.

These findings become confirmed by the multinomial logit model. The probability of becoming employed by the training firm, becoming employed in a new firm or becoming registers unemployed or joining a labour market scheme depends strongly on firms training strategy. And the effect of the training strategy becomes stronger during the observation window. Along with the duration since graduation from the apprenticeship training the risk of leaving the training firm increases for apprentices trained under the productivity oriented strategy compared to people trained under the investment oriented strategy. Why does the explanatory power of effect of the training strategy does increase? One striking answer could be found in the argument of collective bargaining[17], which prevents from early dismissal independent from the training strategy. With time these agreements become irrelevant. So it is not surprising that firm size shows the same effect[18]. The smaller the firm size the more likely becomes the probability of interfirm job mobility.

But also firms' productivity increases the probability of interfirm job mobility. This indicates that with increasing productivity also firms' selectivity towards new workers increases. And firm net training costs become less important compared to individuals later contribution toward firms" productivity. Even though the effect of the apprenticeship wage on the probability for interfirm job mobility after graduation is negative. Here the apprenticeship wage is assumed to work both as a

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[17] Unfortunately the used data do not contain information about collective bargaining or work councils.

[18] Up to now no tests for interaction effects are calculated.

proxy for training costs and as an identifier for firm specific selectivity at the entrance to an apprenticeship place.

Whilst there is no significant effect of the migration variable and the gender effect becomes weaker with the duration after graduation, the probability of interfirm job mobility is increasing for graduates with lower general education. Increasing unemployment experience indicates an increasing probability for interfirm job mobility, so former unemployment experience seems to work as a signal for lower productivity. In labour market regions with high economic dynamic interfirm job mobility seems to be higher than in weaker labour market region: according to Hass (2002) weak labour market regions reduce voluntarily interfirm job mobility.

The training strategy also shows strong influence on the transition from training to unemployment. Immediately after graduation from training the transition into unemployment is 2.3 times higher for trainees covered by the productivity strategy compared to those covered by the investment oriented strategy. This effect becomes weaker with duration after graduation, but even two years after graduation the risk of becoming unemployed is 1.7 times higher for trainees covered by the production strategy compared to graduates covered by the investment oriented strategy. Again a strong firm size effect is observed. Apprenticeship training at a small sized firm is connected with a remarkable higher risk of becoming unemployed than for trainees in a big size company. Migrants show a higher risk of becoming unemployed for the whole observation window and lower qualified graduates show an increasing risk of becoming unemployed over time. Again the regional labour market structure counts. In weaker labour market regions the risk of becoming unemployed is remarkably higher, and this remains stabile over time.

Less consistent are the findings for transitions in other labour market activities. Here the heterogeneity of this group is to be taken into account, which includes events as transitions into compulsory military service or civil service, starting a new training or a vocational education at school or university, becoming labour market inactive or becoming self-employed[19]). Whilst graduates with lower general degrees and male graduates shows a higher probability to enter this status out of labour market (the main reason would be starting the mandatory military or civil service), the risk of entering

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[19] Even if becoming self-employed is not an important option for young people in Germany.

this status is increasing for graduates with higher general degree (Abitur) over time. The reason could be entering university or a vocational school-based education. Again graduates trained in the production strategy show a remarkably higher risk leaving the labour market. The same is the case for graduates living in weak labour market regions.

Access to labour market schemes is highly connected with individual characters such as low level of general education, migration background, former unemployment experience and low developed labour market region. Again the training strategy counts, and the productivity oriented strategy increased the risk of scheme participation.

To summarize these finings it is to be concerned, that even under control of the expected effects of individual and regional variables there are strong firm specific effects, which are also consistent with the theoretical considerations. The productivity oriented training strategy requires the productive contribution of the trainee, which makes long term considerations dispensable. A longer ongoing employment episode in the training firm is not necessary from firm's perspective, to contribute to training costs. And in fact, according to firm size and turnover rates, a significant proportion of firms who follow the productivity oriented training strategy would not be able to offer an apprenticeship place at all if they are obliged to take over their apprentices in general. From this point of view, it seems to be consistent with the theoretical considerations that for the productivity oriented training strategy interfirm job mobility is more likely compared to the investment oriented strategy. However this is also the case for the likelihood for a transition into unemployment or scheme participation.

In contrast training following the investment strategy is correlated with good employment perspectives in the training firm and connected with a low risk of becoming unemployed or a scheme participant. In so far these findings do indicate significant tendencies towards a stratified vocational training system even within the firm based apprenticeship training (see Neubäumer 1999) and to a certain degree do contradict the concept of a universal vocational education defined by the German law (Berufsbildungsgesetz). With respect to the employment career it seems to be of highly relevance, in what training vocation and in what type of firm the training takes place. And even the dependency of the transition from training to work from the regional labour market or from the business cycle

seems to be twofold according to the type of training strategy an apprentice is involved according to the training strategy. And it is more than evidently, that individual characteristics are only weakly able to compensate these structural disadvantages.

Here about Table 4

5 Perspectives

The paper strengthens strong firm specific parameters, which are not to be compensated by individual or regional characteristics. These firm specific strengths are at least a twofold. Whilst this paper is focused in detail on the firm specific effects of transition from training to work, there are en passant collected some arguments for firms' additional strong effect on the transition from school to training. Coming back to Kerckhoffs' concept of two stages of selection, it makes sense to take into account two processes of selectivity, which are interrelated.

Further on there is some empirical evidence for firm specific strategies offering apprenticeship places: at least two distinct strategies should be mentioned. A productivity oriented strategy which and an investment in human capital oriented strategy. The paper delivers some empirical evidence that in dependence of a given training strategy the training to work transition is connected with specific probabilities of becoming further employed at the training firm, getting a job at a new firm, becoming unemployed or a scheme participant or dropping out of the workforce voluntarily or involuntary. In so far the access to a given training place is highly connected with the further employment career.

However, the explanatory power of the training strategy seems not to be as strong as expected. Given the investment oriented training strategy, the rate of trainees who still is employed at the training firm two years after graduation is only about one third. This creates more discussion about the rationality of firms training strategy than it gives answers, even if the takeover within a bigger enterprise is definitely to be underestimated according to the lack of information about the organizational structure and the organisational connections of single firms to complex enterprise structures.

It is still a limitation of this paper, that transition to work is up to now not qualified according to the type of employment and working conditions. Neither the adequacy of employment according to qualification (Büchel 1998; Pollman-Schult & Mayer 2004) nor to wages (Wachter/Bender 2006) or social status and prestige (Blossfeld 1985; Pollman-Schult & Mayer 2004) is handled. This is also the case for the sustainability of employment. These questions describe fields of subsequent analysis.

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Table 1: 30 Training occupations by cost type

BKZ '88 BA	(BKZ '92)	Training occupation	Net costs of training [1]	Training strategy[2]
011	0110	Landwirt	-3059,71	1
391	3910	Bäcker	-2055,73	1
682	6611	Fachverkäufer im Nahrungsmittelhandwerk	-1650,16	1
635	6420	Bauzeichner	-1604,93	1
511	5101	Maler und Lackierer	-1593,42	1
753	7541	Steuerfachangestellter	-1490,95	1
741	7410	Fachkraft für Lagerwirtschaft	-816,58	1
051	0510	Gärtner	-557,67	1
911	9141	Hotelfachmann	-233,63	1
501	5010	Tischler	27,04	1
401	4010	Fleischer	39,87	1
901	9010	Friseur	152,42	2
053	0530	Florist	471,54	2
261	2540	Metallbauer	793,41	2
303	3031	Zahntechniker	1296,8	2
411	4110	Koch	1466,27	2
702	7021	Reiseverkehrskaufmann	1947,18	2
281	2810	Kraftfahrzeugmechaniker	2382,9	2
315	3151	Informationselektroniker (Radio-Fernsehen)	2616,64	3
304	3041	Augenoptiker	3155,9	3
174	1740	Drucker	3917,38	3
441	4410	Maurer	4173,77	3
172	1720	Mediengestalter Digital- u Printmedien	4449,93	3
691	6919	Bankkaufmann	5246,14	3
291	2921	Werkzeugmechaniker Stanz-Umformtechnik	5819,3	3
273	2730	Industriemechaniker (Maschinen-Systemtechnik)	6902,85	3
694	6950	Versicherungskaufmann	7427,87	3
274	2740	Industriemechaniker Betriebstechnik	8233,77	3
633	6330	Chemielabourant	11781,94	3
141	1410	Chemikant	12729,06	3

[1] Net costs of firm based training for 30 occupations are calculated by using weighted data for West-Germany

[2] 1 = Productivity oriented strategy, 2= Mixed strategy, 3 = Investment in human capital oriented strategy

Source: BiBB-Studie Kosten und Nutzen der betrieblichen Ausbildung; own calculations.

Table 2: Labour market status and duration since graduation from apprenticeship training

	Productivity oriented	Mixed	Investment oriented	Total
		Training strategy		
LM-Status one month after graduation				
In LM scheme	0,6	0,7	0,2	0,5
Employed in training firm	39,9	36,9	57,1	44,5
Employed in a new another firm	15,0	16,4	19,1	16,7
Unemployed	20,0	20,4	8,4	16,5
Other status	20,3	21,5	11,1	17,7
Censored	4,2	4,2	4,1	4,2
Total	100	100	100	100
LM-Status one year after graduation				
In LM scheme	2,1	1,9	1,0	1,7
Employed in training firm	24,0	23,0	39,0	28,5
Employed in a new another firm	26,9	28,4	22,5	25,9
Unemployed	9,6	8,5	5,0	7,8
Other status	28,6	29,0	23,6	27,1
Censored	8,9	9,2	9,0	9,0
Total	100	100	100	100
LM-Status two years after graduation				
In LM scheme	2,5	2,5	1,4	2,1
Employed in training firm	17,2	16,9	31,4	21,6
Employed in a new another firm	31,5	33,1	26,2	30,3
Unemployed	10,6	9,6	6,0	8,9
Other status	20,7	19,1	16,4	18,9
Censored	17,5	18,7	18,6	18,2
Total	100	100	100	100

Source: BiBB-Studie Kosten und Nutzen der betrieblichen Ausbildung; own calculations.

Table 3 Descriptives of explaining variables (one month after graduation)

Characteristics	Values	N	%
Unemployment experience	No experience	111758	88,0
	1-3 months	11346	8,9
	More than three months	3824	3,0
Nationality	German	118983	93,7
	Non German	7945	6,3
Degree of general education	Lower secondary	109886	86,6
	Higher secondary (Abitur)	17042	13,4
Gender	Male	76271	60,1
	Female	50657	39,9
Firm size	0-4 employees	10758	8,5
	5-9	18145	14,3
	10-19	21339	16,8
	20-49	24005	18,9
	50-199	24453	19,3
	200-499	11895	9,4
	500-999	6932	5,5
	1000+	9401	7,4
Regional type	13 East Germany	2702	2,1
	21	4265	3,4
	22	7016	5,5
	31	13541	10,7
	32	17856	14,1
	33	23307	18,4
	41	12696	10,0
	51	6509	5,1
	52	25194	19,8
	53	13842	10,9
Training strategy	Productivity strategy	50853	40,1
	Mixed group	35187	27,7
	Investment strategy	40888	32,2
Industry of the training firm	Primary sector	3115	2,5
	Free vocations	4497	3,5
	Production sector	40555	32,0
	Service sector	31260	24,6
	Crafts sector	47501	37,4
Average daily wage per firm (in Euro)	(mean)		64,48
Trainees daily wage (in Euro)	(mean)		24.11
Total		126928	100,0

Source: BiBB-Studie Kosten und Nutzen der betrieblichen Ausbildung; own calculations.

Table 4: Labour market status after finishing apprenticeship training

Characteristics	M1: one month after		M2: one year after		M3: two years after	
	b	Std Err	b	Std Err	b	Std Err
Labour market scheme						
Nationality (Non German)	1.910***	0.111	0.421***	0.082	0.091	0.087
General education (upper secondary)	-0.280**	0.108	-0.423***	0.079	-0.260***	0.066
Gender (Female)	-0.084	0.106	-0.153*	0.060	-0.188***	0.057
Industry (Primary Sector)	0.118	0.248	-0.075	0.140	-0.391**	0.135
Industry (Free vocations)	-1.213***	0.322	-1.010***	0.217	-0.768***	0.197
Industry (Production sector)	0.410**	0.156	0.240*	0.094	0.131	0.086
Industry (Service sector)	0.126	0.149	-0.097	0.095	0.059	0.086
Regio_typ05==East Germany	1.621***	0.260	0.734***	0.167	0.916***	0.164
Regio_typ05==21	1.305***	0.241	0.728***	0.132	1.023***	0.124
Regio_typ05==22	0.198	0.284	0.333*	0.130	0.912***	0.113
Regio_typ05==31	1.057***	0.199	0.653***	0.098	0.882***	0.095
Regio_typ05==33	0.978***	0.190	0.547***	0.094	0.686***	0.090
Regio_typ05==32	0.753***	0.201	0.419***	0.100	0.647***	0.095
Regio_typ05==41	0.491*	0.230	-0.270*	0.136	0.085	0.124
Regio_typ05==51	-0.578	0.339	0.013	0.129	-0.124	0.129
Regio_typ05==52	-0.010	0.215	-0.046	0.106	0.272**	0.097
Training strategy (Productivity strategy)	0.726***	0.175	0.378***	0.100	0.406***	0.091
Training strategy (Mixed strategy)	0.434**	0.151	0.209*	0.083	0.354***	0.072
Firm size (0-4)	1.708***	0.346	1.364***	0.199	0.886***	0.155
Firm size (5-9)	1.568***	0.336	1.044***	0.194	0.738***	0.148
Firm size (10-19)	1.368***	0.331	1.049***	0.190	0.578***	0.144
Firm size (20-49)	1.146***	0.326	0.972***	0.188	0.587***	0.141
Firm size (50-1990	0.805*	0.325	0.863***	0.187	0.520***	0.139
Firm size (200-499)	0.646	0.353	0.657**	0.202	0.517***	0.150
Firm size (500-999)	0.327	0.419	0.628**	0.231	0.316	0.178
Uemploym duration (none)	-2.471***	0.195	-5.970***	0.133	-6.215***	0.145
Uemploym duration (1-3 months)	2.596***	0.174	-1.024***	0.059	-1.518***	0.062
Average firm wage	0.006*	0.002	0.002	0.001	0.002	0.001
Apprenticeship wage	-0.037***	0.007	-0.029***	0.004	-0.023***	0.003
Constant	-5.779***	0.533	-0.926**	0.286	-0.491*	0.242
Employed in a new firm						
Nationality (Non German)	0.050	0.036	0.035	0.033	0.027	0.037
General education (upper secondary)	-0.012	0.013	-0.040**	0.014	-0.041**	0.014
Gender (Female)	0.272***	0.019	0.173***	0.019	0.157***	0.020
Industry (Primary Sector)	0.208***	0.058	0.133*	0.057	-0.082	0.061
Industry (Free vocations)	-0.281***	0.046	-0.219***	0.042	-0.206***	0.044
Industry (Production sector)	0.017	0.032	0.093**	0.032	0.025	0.034
Industry (Service sector)	0.636***	0.029	0.737***	0.029	0.644***	0.032
Regio_typ05==East Germany	-0.350***	0.070	-0.266***	0.072	-0.190*	0.081
Regio_typ05==21	0.037	0.053	0.080	0.051	0.114*	0.054
Regio_typ05==22	0.179***	0.042	0.188***	0.041	0.217***	0.044
Regio_typ05==31	-0.076*	0.036	-0.123***	0.035	-0.065	0.037
Regio_typ05==33	0.031	0.031	0.013	0.030	0.041	0.031
Regio_typ05==32	0.075*	0.033	0.067*	0.032	0.109**	0.033
Regio_typ05==41	0.205***	0.035	0.223***	0.033	0.292***	0.035
Regio_typ05==51	-0.040	0.043	-0.089*	0.042	-0.119**	0.044
Regio_typ05==52	0.060*	0.030	0.086**	0.029	0.093**	0.030
Training strategy (Productivity strategy)	0.127***	0.032	0.321***	0.031	0.382***	0.033
Training strategy (Mixed strategy)	0.166***	0.027	0.264***	0.027	0.338***	0.028
Firm size (0-4)	1.061***	0.049	1.144***	0.049	1.120***	0.052

	(1)	SE	(2)	SE	(3)	SE
Firm size (5-9)	0.790***	0.044	0.960***	0.045	0.928***	0.046
Firm size (10-19)	0.614***	0.042	0.822***	0.042	0.793***	0.043
Firm size (20-49)	0.529***	0.040	0.726***	0.040	0.715***	0.041
Firm size (50-1990	0.387***	0.037	0.568***	0.037	0.556***	0.038
Firm size (200-499)	0.290***	0.039	0.373***	0.040	0.393***	0.040
Firm size (500-999)	0.256***	0.043	0.360***	0.044	0.383***	0.044
Uemploym duration (none)	-0.414***	0.048	-1.768***	0.032	-2.062***	0.029
Uemploym duration (1-3months)	1.724***	0.056	0.410***	0.039	-0.015	0.037
Average firm wage	0.006***	0.000	0.001**	0.000	0.002**	0.001
Apprenticeship wage	-0.010***	0.001	-0.011***	0.001	-0.010***	0.001
Constant	-2.127***	0.091	-0.001	0.083	0.609***	0.085
Unemployed						
Nationality (Non German)	0.267***	0.034	0.215***	0.047	0.334***	0.048
General education (upper secondary)	-0.137***	0.018	-0.429***	0.033	-0.434***	0.034
Gender (Female)	-0.235***	0.020	-0.437***	0.031	-0.233***	0.032
Industry (Primary Sector)	0.014	0.051	-0.058	0.076	-0.290***	0.080
Industry (Free vocations)	-1.125***	0.056	-1.521***	0.116	-1.410***	0.116
Industry (Production sector)	0.253***	0.032	0.286***	0.048	0.092	0.050
Industry (Service sector)	0.230***	0.029	0.171***	0.046	0.129**	0.048
Regio_typ05==East Germany	1.064***	0.057	0.804***	0.092	0.599***	0.104
Regio_typ05==21	0.884***	0.051	0.771***	0.073	0.783***	0.073
Regio_typ05==22	0.762***	0.045	0.630***	0.065	0.670***	0.064
Regio_typ05==31	0.811***	0.036	0.615***	0.053	0.545***	0.053
Regio_typ05==33	0.572***	0.033	0.504***	0.048	0.330***	0.048
Regio_typ05==32	0.636***	0.035	0.538***	0.051	0.472***	0.051
Regio_typ05==41	0.230***	0.041	0.258***	0.059	0.418***	0.057
Regio_typ05==51	0.253***	0.045	0.104	0.066	-0.098	0.067
Regio_typ05==52	0.105**	0.034	0.178***	0.050	0.186***	0.049
Training strategy (Productivity strategy)	0.901***	0.034	0.614***	0.050	0.535***	0.051
Training strategy (Mixed strategy)	0.678***	0.029	0.283***	0.041	0.314***	0.041
Firm size (0-4)	1.528***	0.059	1.042***	0.083	0.719***	0.081
Firm size (5-9)	1.218***	0.056	0.857***	0.078	0.637***	0.074
Firm size (10-19)	1.117***	0.054	0.781***	0.076	0.494***	0.071
Firm size (20-49)	0.997***	0.053	0.727***	0.073	0.443***	0.068
Firm size (50-1990	0.802***	0.052	0.586***	0.071	0.394***	0.066
Firm size (200-499)	0.445***	0.056	0.349***	0.078	0.318***	0.071
Firm size (500-999)	0.172**	0.067	0.340***	0.089	0.365***	0.080
Uemploym duration (none)	-0.476***	0.044	-3.159***	0.037	-3.649***	0.037
Uemploym duration (1-3months)	1.010***	0.054	-0.188***	0.042	-0.863***	0.041
Average firm wage	0.001	0.000	0.000	0.001	0.001	0.001
Apprenticeship wage	-0.023***	0.001	-0.016***	0.002	-0.018***	0.002
Constant	-1.918***	0.099	0.243	0.133	0.857***	0.131
Others						
Nationality (Non German)	0.299***	0.032	-0.554***	0.036	-0.242***	0.043
General education (upper secondary)	-0.145***	0.017	-0.001	0.014	0.134***	0.016
Gender (Female)	-0.124***	0.020	-0.527***	0.019	0.051*	0.023
Industry (Primary Sector)	0.201***	0.050	0.022	0.055	-0.271***	0.067
Industry (Free vocations)	-0.926***	0.053	-0.638***	0.046	-0.730***	0.054
Industry (Production sector)	0.214***	0.031	0.084**	0.032	-0.029	0.038
Industry (Service sector)	0.274***	0.028	0.367***	0.030	0.374***	0.036
Regio_typ05==East Germany	0.294***	0.061	0.389***	0.066	0.310***	0.084
Regio_typ05==21	0.500***	0.050	0.511***	0.049	0.402***	0.058
Regio_typ05==22	0.501***	0.042	0.448***	0.041	0.355***	0.048
Regio_typ05==31	0.226***	0.035	0.285***	0.034	0.228***	0.041
Regio_typ05==33	0.157***	0.031	0.226***	0.030	0.147***	0.035
Regio_typ05==32	0.314***	0.033	0.341***	0.032	0.243***	0.037