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Adverse Selection and Information Advantages of Training Firms *

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ABSTRACT:

The possibility of adverse selection by training firms is common theoretical argument for company-sponsored investments in general skills. The paper derives a public and a private signal after apprenticeship training and shows that training firms are able to positively select graduates they keep. The public signal has a stronger impact on entry wages of employer changers than for stayers and private signals shows exactly the opposite pattern.

JEL Codes: J24, J31, J62, J63, M52, M53

Key words: training, employer change, adverse selection, asymmetric information

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1 Introduction

Adverse selection of employees who change jobs is an important assumption in theoretical papers on asymmetric information and selectivity on the labour market. The main argument for adverse selection is that when a firm has discretion over whom to lay-off, firm's decision to keep a worker signals to the market that the worker is of high ability, so the market bids up the wage of retained workers. As a result, the firm finds it unprofitable to retain low-productivity workers and hence lays them off. The market then infers that laid-off workers are of low productivity and offers them low wages in their next jobs (Greenwald, 1986; Gibbons and Katz, 1991).

Adverse selection of employer changers in the presence of asymmetric information has a number of serious consequences. On the one hand, it inhibits workers who are better than the average to change jobs voluntarily because they do not want to be associated with the inferior group and get a wage penalty. Adverse selection and asymmetric information incur turn over costs for employees because being once associated as part of an inferior group means loss of future income. On the other hand, adverse selection can induce firms' investment in general human capital because training firms can keep their most productive apprentices, offer them a wage after training that is lower than their productivity and hereby recoup their training investments.

Although there is a large theoretical literature on how firms tackle adverse selection and signals from job applicants, empirical papers usually infer the importance of adverse selection and signals only indirectly (Grund, 1999; Behrenz, 2001; Hu and Taber, 2011)¹. They cannot directly show that firms keep the employees they assess as the most productive because individual productivity is not easy to measure (Schönberg, 2007). We also do not know whether new employers are uncertain about the true quality of employer changers and pay them according to their (observable) lower individual productivity or whether they pay them the average productivity for all employer changers. The main reason for this gap in the literature is the availability of measures for private and public signals. Private signals are only known to the training firm (and the econometrician) and a public signal is available for

¹ The most papers analyses wage-penalties of employer movers (Gibbons and Katz, 1991; Acemoglu and Pischke, 1998; Grund, 1999; Krashinsky, 2002; Hu and Taber, 2011) and the time involuntary movers need to catch-up the wage trajectories of stayers (von Wachter and Bender, 2006; Bachmann et al., 2010)

the entire market (and the econometrician). Analysing both signals can reveal the potential of adverse selection and information asymmetries in labour markets.

In this paper, we first provide a measure for a private and a public signal after apprenticeship training. We find that public signals have a larger impact on entry wages of employer switchers than of stayers and private signals have a larger impact on entry wages for those apprenticeship graduates who stay with the training firm. This pattern is according to the predictions of asymmetric labour market information theory. Outside firms are not willing to give employer changers the same wage mark-up as the training firms and therefore the training firms have the opportunity to underpay the apprenticeship graduates in order to recoup their training investments. On the contrary, training firms retain apprenticeship graduates according to their private and public available assessment.

The remainder of this paper is structured as follows. Section 2 provides an overview on the institutions of the German apprenticeship system. Section 3 presents our estimation strategy. Section 4 describes the data and analyses differences between movers and stayers after apprenticeship training. In Section 5, we present our findings on determinants of entry wages and their differences between employer movers and stayers. The paper ends with a conclusion in Section 8.

Institution

Apprenticeship training in Germany traditionally provides the highest professional education degree for about two thirds of the German workforce and is therefore the backbone for medium skilled vocational training. Apprenticeships are generally considered as training investments for firms at least for blue-collar manufacturing occupations (Mohrenweiser and Zwick, 2009; Schönfeld et al., 2010). Apprentices usually start the apprenticeship immediately after school at the age of 16. They learn usually three or three and a half years, depending on the occupation. Apprenticeships are subjected to the Vocational Training Act and occupational specific training curricula. The Vocational Training Act describes the length of training, necessary equipment and requirements for training firms. Training firms have to fulfil these requirements in order to get permission for apprenticeship training granted by the chambers of industry and commerce or the chambers of craft. The training curricula describe the minimum skills which have to be acquired in each training occupation for a

successful graduation. The basic training contents are therefore identical for all apprentices in an occupation irrespective of the training firm and region. Apprentices receive graded skill certificates at the end of the training period. The chambers observe the quality of apprenticeship in each enterprise in their region and administer the final exam on the practical part of the skill examination. The chambers set the final exam day and the apprenticeship legally terminates on the day after the final exam. The final exam typically takes place on the same days for all apprentices within one occupation in a region. The theoretical part of the skill examination is administered and graded by publicly funded and controlled vocational schools.

Since the vocational schools and the chambers are independent institutions that grade the final exams and issue the apprenticeship certificate, the grade at the end of the apprenticeship is visible and well-known to the market and can be interpreted as a *public signal*. For this interpretation, we need two institutional details: apprentices learn visible and transferable skills and that they are free to choose an employer. The transferable skills that are visible by outsider firms are ensured by the occupation specific training curricula monitored by the chambers. Furthermore, each apprenticeship contract legally terminates at the day after the final exam and apprentices are free to choose an employer after the exam. Training costs reimbursement contracts for apprentices are forbidden by law. Outsider firms can assess the quality of each apprentice on basis of the grades in several practical and theoretical subjects examined by the chambers or government-run vocational schools. The chambers set the end of apprenticeship and apprentices as well as training firms have no possibilities to postpone the exam. This day is fixed, well-known and can be found on the internet pages of the chambers several months in advance.

On the contrary, we construct the *private signal* from the earnings variation within one establishment, occupation and graduation year cell. We define an earnings bonus that a training firm pays an apprentice at the end of the apprenticeship on top of the base salary as a private signal. Paying such a bonus is a cheap possibility of a training firm to keep an apprentice (Mohrenweiser and Zwick, 2013). The bonus reflects that a training firm rewards productivity beyond pure grades such as the personality, capability to work in teams or the social skills of an apprentice. The bonus can serve as a private signal if the signal is not observable by outsider firms. For identifying the bonus as a private signal, we need two

additional institutional details: apprentices perform comparable tasks and a focal wage. Apprentices perform comparable tasks because the externally set training curricula define and the chambers examine the tasks. Apprentices in each occupation know the usual remuneration in their trade – we call this the focal wage. Apprentices' wages are usually set by collective bargaining on the sector level according to §17 of the Vocational Training Act. Apprentices in one of the 26 economic sectors defined by collective bargaining in principle should earn the same wage irrespective of their occupation. The focal apprenticeship wages are published for example by the unions and we can assume that apprentices know what they should earn in each stage of the apprenticeship.

Previous studies collected evidence for earnings variation between apprentices learning the same occupation in the same establishment and graduation year. Some firms pay bonuses for example for good grades or extra-ordinary performance public to make superior performance objective and public (Backes-Gellner and Oswald, 2012; Ryan, 2011; Ryan et al. 2013). Moreover, firms' frequently combine the bonus with sending selected apprentices to subsidies aboard for some weeks. Working aboard is a bonus for good performance and usually combined with additional compensation subjected to collective bargaining rules (Mohrenweiser et al., 2013).

Data and variables

We use the Ausbildungspanel Saarland, a data-set linking the Social Security Records with administrative exam files from the chamber in the German federal state Saarland. The data comprise the entire apprenticeship graduation cohorts 1998 and 2005. Both data-sets were linked on the basis of the initial of name and surname, birthdate and gender (see also data report).

We use the final exam grades, the occupation and the school-leaving qualification from the chambers data-set. The school-leaving qualification is more detailed and distinguishes between all school-leaving levels. The occupation code corresponds to the apprenticeship diploma. We translate the chamber occupation codes to the occupation codes in the Social Security Records.

We use the employment histories of apprentices from the Social Security Records and can particularly identify apprentices learning in the same establishment using the establishment identifier in the Social Security Records. We use the earnings information, gender, nationality and firm size from the Social Security Records.

We restrict our data to those apprentices whose apprenticeship spell in the Social Security Record ends close to the chamber exam day. We further drop apprentices earning less than the lowest or more than the highest percentiles in their occupation during the apprenticeship training. We further consider graduates with a full-time employment as first job after apprenticeship and with earning above the marginal income threshold and less than the upper earnings limit in the statutory pension fund. Moreover, we use only apprentices graduating with at least one other apprentice in the same establishment, occupation and graduation year. We need at least two graduating apprentices per cell to calculate the earnings bonus as described below. Furthermore, we distinguish between three and three and a half year apprenticeships on the basis of days in apprenticeship in the Social Security Records. (ggf. eine Tabelle mit der Anzahl der Obs wegen der Restriktionen einfügen)

Table 1 summarises the variable definition, mean and standard deviations of the variables. Around 40 per cent of the apprenticeship graduates in our final sample switch the employer after training. Separately for movers and stayers, Table 2 shows the differences in the covariates.

Our main dependent variable is the log entry earnings of apprenticeship graduates in full-time employment. Stayers receive significant higher earnings in their first job after apprenticeship than movers. The raw difference is with around 0.2 log points substantial. After controlling for individual and firm characteristics, the difference closes to around seven percentage points and is comparable to prior studies about the mover/ stayer wage differential immediately after apprenticeship.

We use two variables for signals after apprenticeship training. The final exam grades serve as a public signal because they are certified on the apprenticeship certificate. On the contrary, a private signal should not be observable by outsider firms. Our private signal is the bonus a training firm pays to apprentices they want to keep. The idea of the private signal comes

from the observation that training firms pay apprentices who learn the same occupation in the same graduation year similar earnings during the most time of apprenticeship but start to differentiate the earnings in this homogenous group when the final exams approach. Training firms are more likely to keep those apprentices who earn a higher bonus than they peers (compare Mohrenweiser and Zwick, 2013). We will test in the following estimations, whether this signal is private one.

We also use a number of control variables that explain the entry earnings (refs). On the individual-level, we control for gender, nationality and education background (school-leaving certificate). On the establishment-level, we control for the number of employees since larger firms are more attractive employers. Moreover, we generate the mean earnings of apprentices in each training firm at the end of apprenticeship. The idea beyond this variable is that high ability school-leaver may be more likely to apply on high-paying firms. Graduating from high-earnings training firm may be a public signal for outsider firms about the average ability of apprentices (Wagner and Zwick, 2012).

Findings

Descriptive statistics

Table 2 displays the descriptive statistics for movers and stayers separately. Movers have a lower educational background than stayers. They are less likely to graduate from 10 or 12 year schools (Realschule and Abitur) and more likely to graduate from nine year schools, the transitions system or without a school certificate. On training establishment-level, stayers are more likely to learn in larger firms that pay higher earnings. Moreover, stayers receive better grades² and higher earnings than movers. Movers are seen to be less able than stayers by vocational schools as well as training firms.

Adverse Selection

In order to test whether the productivity assessment of the training firm and the relative grade position within our homogeneous peer group (same training firm, same occupation and same year) also confirms our descriptive evidence of a negative selection of movers, we

² Since we multiply the grades by minus 1, better grades are associated with higher numbers.

run a Probit regression that explains the determinants of moving to another employer directly after apprenticeship graduation (Schönberg, 2007), compare Table 3. We find that indeed the relative bonus and the relative grade position in relation to the peers are positively correlated with the probability to stay in the training firm. Note, we condition also the grades on the cell. This procedure generates also a private instead of a public signal since outside firms have an idea about the general distribution of grades within an occupation but not about the relative differences within a cell. However, only cell differences show us if training firms are able to offer the best apprentices an employment contact but not the worse ones.

In addition, having been trained in a large and well-paying firm as well as having had a higher schooling level is positively correlated with the probability to be retained. Movers after apprenticeship training therefore are a negatively selected group.

Symmetry of Information

The key differentiation between public and private signals after training is their effect on entry earnings. Public signals should have a stronger influence on entry earnings for movers than for stayers while the opposite should hold for private signals. Table 4 shows an augmented Mincer earnings regression separately for movers and stayers. The public signal, the apprenticeship grades, significantly influences the entry earnings for movers and for stayers. A one grade better apprenticeship certificate increases the earnings for movers by 5.4 per cent. Similarly, a one grade better apprenticeship certificate increases the entry earnings for stayers by 3.1 per cent. The public signal shows the expected signs.

The private signal, the earnings bonus, significantly increases the earnings of stayers only. A one standard deviation higher earnings bonus during training is associated with 1.7 per cent higher earnings in the first job ($0.8027703 * 0.0212696$). On the contrary, the earnings bonus has no significant influence on entry earnings for movers. Even if we take the size of the coefficient into account, the effect for stayers is stronger than for movers.

All our control variables show the expected signs. Females earn lower entry earnings than males. The gender difference is stronger for movers than for stayers. The school-leaving certificate is only significantly associated with the entry earnings for movers but not for

stayers. Outside firms seem to rely more on the public signals of schools while training firms evaluate the ability of apprenticeship graduates beyond pure school-leaving grades. Furthermore, stayers in high-paying training firms (measured as the mean earnings-level of apprenticeship graduates in the establishment) earn also higher earnings as a skilled employee. However, apprentices leaving a high-paying training firm, receive also higher earnings in the first job after apprenticeship. One standard deviation higher average earnings in the training firm leads to a 6.2 per cent higher earnings in the new firm. This effect may result from the initial selection of apprentices by high-paying firms that is known in local labour markets. Moreover, stayers receive higher entry earnings in larger firms but this effect does not hold for movers. The further controls, nationality, age and firm size, have no additional impact on entry earnings.

Conclusion

This paper shows adverse selection of switching apprenticeship graduates. Therefore, it distinguishes between private and public signals of individual productivity. Training firms are able to keep the most productive graduates and the group of employer movers is negatively selected. This shows that training firms have an information advantage on individual productivity that permits them to re-coup training investments.

The paper further shows that a public signal, the grades in the final exam, have a stronger influence on entry earnings of employer movers than for stayers. On the contrary, the private signal, the earning bonus a training firm pays, has only a positive influence on the entry earnings of stayers but not for movers. This difference shows that information about the individual productivity is not symmetrically distributed but training firms have an information advantage.

References

- Acemoglu D and Pischke J (1998). Why Do Firms Train? Theory and Evidence, *Quarterly Journal of Economics* 113(1), 79-119.
- Akerlof G (1982). Labor Contracts as Partial Gift Exchange, *Quarterly Journal of Economics* 97, 543-569.
- Altonji J and Pierret C (2001). Employer Learning and Statistical Discrimination, *Quarterly Journal of Economics* 116 (1), 313-350.
- Altonji, J and Spletzer, J (1991). Workers Characteristics, Job Characteristics, and the Receipt of On-The-Job Training, *Industrial and Labor Relations Review* 45 (1), 58-71.
- Backes-Gellner U and Tuor S (2010). Avoiding Labor Shortages by Employer Signaling - On the Importance of Good Work Climate and Labor Relations, *Industrial and Labor Relations Review* 63(2): 271-286.
- Bachmann, R., T. K. Bauer und P. David (2010), Labour Market Entry Conditions, Wages and Job Mobility. Ruhr Economic Papers No. 188.
- Beicht, U and Ulrich, J (2008). Ausbildungsverlauf und Übergang in Beschäftigung, *Berufsbildung in Wissenschaft und Praxis* 37 (3), 19-23.
- Behrenz, L (2001). Who Gets the Job and Why? An Explorative Study of Employers' Recruitment Behaviour, *Journal of Applied Economics* 4(2), 255-278.
- Büchel, F and Neubäumer, R (2001). Ausbildungsinadäquate Beschäftigung als Folge branchenspezifischer Ausbildungsstrategien. *Mitteilungen aus der Arbeitsmarkt- und Berufsforschung* 34 (3), 269-285.
- Deißinger, T (2008). Cultural Patterns Underlying Apprenticeship: Germany and the UK, in Aarkrog, V. & Helms Jorgensen, C. (eds.): Divergence and Convergence in Education and Work, Bern, 33-55.
- Fitzenberger B, Osikominu A, Völter R (2006). Imputation Rules to Improve the Education Variable in the IAB Employment Subsample, *Schmollers Jahrbuch* 126 (2), 405-436.
- Foster, A. & Rosenzweig, M. (1993). Information, Learning, and Wage Rates in Low-Income Rural Areas, *Journal of Human Resources* 28 (4), 758-790.
- Gibbons, R and Katz, L (1991). Layoffs and Lemons. *Journal of Labor Economics* 9 (4), 351-380.

- Göggel K and Zwick T (2012). Heterogeneous Wage Effects of Apprenticeship Training, *Scandinavian Journal of Economics* 114 (3), 756-779.
- Greenwald, B (1986). Adverse Selection in the Labour Market. *The Review of Economic Studies* 53 (2), 325–347.
- Greenwald, B and Glasspiegel, R (1983). Adverse Selection in the Market for Slaves: New Orleans, 1830-1860, *Quarterly Journal of Economics* 98 (3), 479-499.
- Grund, C (1999). Stigma effects of layoffs?: Evidence from German micro-data. *Economics Letters*, 64(2), 241-247.
- Hu, L and Taber C (2011). Displacement, Asymmetric Information, and Heterogeneous Human Capital, *Journal of Labor Economics* 29 (1), 113-152.
- Jovanovic, B. (1979). Job Matching and the Theory of Turnover. *The Journal of Political Economy* 87(5), 972-990.
- Kahn, L (2013). Asymmetric Information between Employers, IZA Discussion Paper 7147, Bonn.
- Katz, E and Ziderman, A (1990). Investment in General Training: The Role of Information and Labour Mobility. *The Economic Journal* 100 (403), 1147-1158.
- Krashinsky, H (2002). Evidence on adverse selection and establishment size in the labor market. *Industrial and Labor Relations Review*, 84-96.
- Lazear, E (1981). Agency, earnings profiles productivity and hours restrictions, *American Economic Review* 71, 606-620.
- Lynch, L (1992). Private-sector Training and Earnings of Young Workers, *American Economic Review* 82 (1), 299-312.
- Mohrenweiser J and Zwick T (2013). Managing Retention after Training in Transferable Skills: The Effect of a Bonus during Training, mimeo.
- Neal, D (1999). The complexity of job mobility among young men, *Journal of Labor Economics* 17(2), 237-261.
- Raaum, O and Røed, K (2006). Do Business Cycle Conditions at the Time of Labor Market Entry Affect Future Employment Prospects?. *Review of Economics and Statistics* 88 (2), 193-210.
- Schönberg U (2007). Testing for asymmetric employer learning, *Journal of Labor Economics* 25 (4): 651-692.

Schönfeld G, Wenzelmann F, Dionisus R, Pfeifer H and Walden G (2010). Kosten und Nutzen der dualen Ausbildung aus Sicht der Betriebe. Bielefeld: Bertelsmann Verlag.

Seibert, H and Solga, H (2005). Gleiche Chancen dank einer abgeschlossenen Ausbildung? *Zeitschrift für Soziologie* 34(5), 364-382.

Ryan P, Wagner K, Teuber S and Backes-Gellner U (2013). Trainee Pay in Britain, Germany and Switzerland: Institutions, Market Forces, Market Power, *European Journal of Industrial Relations* 19(3), 201-220.

Ryan P (2011). Apprenticeship: Between Theory and Practice, School and Workplace, *Economics of Education Working Paper No. 64*, Zurich.

Wachter von T and Bender S (2006). In the Right Place at the Wrong Time: The Role of Firms and Luck in Young Workers' Careers, *American Economic Review* 96 (5), 1679-1705.

Wagner R and Zwick T (2012). How Acid are Lemons? Adverse Selection and Signalling for Skilled Labour Market Entrants, *ZEW Discussion Paper 12-046*, Mannheim.

Wydra-Sommagio, G, Seibert T, Buch, T, Hell, S and Kotte, V (2010). Gute Abschlussnoten zahlen sich aus, *IAB Kurzbericht 20/2010*, Nuremberg.

Yellen, J (1984). Efficiency Wage Models of Unemployment, *American Economic Review* 84 (2), 200 - 205.

Tables

Table 1: Definitions of variables and descriptive statistics

Variable	Definition (mean; sd)
Grade (public signal)	Grade in the final exam multiplied by -1 (-2.84; 0.74)
Grade Deviation (private signal)	Deviation of individual final exam grade from establishment/ occupation/ graduation year cell minimum (0.46; 0.59)
Log earnings bonus during training (private signal)	Log daily earnings deviation from establishment/ occupation/ graduation year cell minimum plus 1 in € (0.51; 0.75)
Log earnings at first full-time employment	Log daily earnings at first full-time employment as skilled worker in € (4.05; 0.35)
Mover	Dummy variable equals 1 if the apprentice leaves the training firm and find a skilled job in the training occupation within 30 days (0.41; 0.49)
Female	Dummy variable equals 1 if apprentice is female (0.28; 0.45)
School certificate “Hauptschule” or school drop out	Dummy variable equals 1 if apprentice graduates from nine year school track or does not pass the final exam after nine school years (0.42; 0.49)
School certificate “Realschule”	Dummy variable equals 1 if apprentice graduates from a ten year school track (0.39; 0.49)
School certificate “Abitur”	Dummy variable equals 1 if the apprentice receives a university entrance allowance (0.18; 0.39)
Age	Age at apprenticeship graduation (21.35; 2.01)
German	Dummy variable equals 1 if the apprentice has German nationality (0.96; 0.19)
Establishment earnings level (training firm)	Average daily apprentice earnings in the training firm at the end of apprenticeship in € (24.1; 7.66)
Number of employees (training firm)	Number of employees in the training firm (789; 1,581)

N = 4,152; Source: Ausbildungspanel Saarland 1998-2005.

Table 2: Description of differences between stayers and movers

Variable	Movers	Stayers	t-test
Grade (public signal)	-2.95	-2.75	5.59
Grade Deviation (private signal)	0.465	0.506	1.20
Log earnings bonus during training (private signal)	0.434	0.560	3.32
Log Earnings at first full-time employment	3.922	4.138	8.35
Female	0.299	0.266	1.13
No school certificate	0.054	0.013	2.21
School certificate "Hauptschule" or drop-out	0.518	0.358	5.13
School certificate "Realschule"	0.330	0.432	3.29
School certificate "Abitur"	0.150	0.208	2.13
Age	21.58	21.20	5.93
German	0.962	0.960	0.08
Establishment earnings level (training firm)	21.19	26.16	41.3
Number of employees (training firm)	317	1,114	515
Observation	1,695	2,457	

*** p < 0.01; ** p < 0.05; * p < 0.1; Source: Ausbildungspanel Saarland 1998-2005.

Table 3: Determinants of retention decision

Variable	coefficient
Earnings bonus	-0.125** (2.90)
Grade deviation	-0.108* (2.34)
Female	0.032 (0.41)
School certificate "Realschule"	-0.267*** (4.04)
School certificate "Abitur"	-0.450*** (3.70)
Age	-0.092 (0.77)
German	0.083*** (5.51)
Establishment earnings level	0.230 (1.91)
Number of employees / 1,000	-0.048*** (5.24)
Sector, Year, Occupation	Yes
Pseudo R-sqr	0.2
Number of Observations	4,152

Dependent variable: Dummy stayer/mover; Probit regression, non-displayed variables: no school certificate or Hauptschule certificate; standard errors clustered at the establishment-level, *** p < 0.01; ** p < 0.05; * p < 0.1; Source: Ausbildungspanel Saarland 1998-2005.

Table 4: Determinants of first full-time employment log earnings

	Stayers			Movers		
	(1)	(2)	(3)	(4)	(5)	(6)
Earnings bonus (private signal)	0.038*** (4.58)	0.037*** (4.40)	0.021** (2.38)	0.027** (2.15)	0.024* (1.95)	0.012 (0.91)
Grade (public signal)	0.038*** (5.50)	0.036*** (4.85)	0.031*** (4.48)	0.075*** (6.35)	0.060*** (4.87)	0.054*** (4.31)
Female		-0.024 (1.76)*	-0.026 (1.89)*		-0.060** (2.19)	-0.054** (1.99)
School certificate "Realschule"		0.021* (1.71)	0.016 (1.38)		0.065*** (3.44)	0.042** (2.22)
School certificate "Abitur"		0.014 (0.55)	0.002 (0.09)		0.112*** (3.03)	0.069* (1.90)
Age		0.001 (0.37)	0.002 (0.63)		0.002 (0.44)	0.006 (1.23)
German		-0.025 (1.11)	-0.026 (1.18)		0.049 (1.19)	0.042 (1.01)
Establishment earnings level			0.012*** (8.66)			0.008*** (5.39)
Number of employees / 1,000			0.015*** (2.63)			-0.016 (1.09)
Sector, Year, Occupation	Yes	Yes	Yes	Yes	Yes	Yes
R-sqr	0.61	0.62	0.66	0.40	0.41	0.42
Number of Observations	2,457	2,457	2,457	1,695	1,695	1,695

Dependent variable: log earnings in first full-time employment; OLS regression, non-displayed variables: no school certificate or Hauptschule certificate; standard errors clustered at the establishment-level, *** p < 0.01; ** p < 0.05; * p < 0.1; Source: Ausbildungspanel Saarland 1998-2005.