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Contents

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Occupational success? A comparison of dual and school-based training courses

In Germany, both dual and school-based vocational education and training lead to qualification for activities at the medium qualifications level. However, what degree of subsequent occupational success is achieved by skilled workers who have obtained their qualifications via the various routes? The 2012 Employee Survey conducted by the Federal Institute for Vocational Education and Training, BIBB, and the Federal Institute for Occupational Safety and Health, BAuA, (BIBB/BAuA Employee Survey) serves as the basis for a comparison of subjective and objective occupational success factors between those who have undergone dual training and those who have completed full-time school-based VET at vocational schools or in the healthcare, education and social services sectors. The results show that any differences perceived to be identifiable between women who have undertaken dual vocational education and training and women who have gone down the school-based pathway are not caused by the different training systems.

Training and occupational success

Dual training in accordance with the Vocational Training Act (BBiG) and the Crafts and Trades Regulation Code (HwO) has long been considered to be the ideal pathway into appropriate employment for school leavers who are not in possession of a higher education entrance qualification. School-based training courses within the so-called school-based occupation system[1] that lead to a full vocational qualification have also always been available. Such courses were, however, for a long time viewed as “an important repository for young people who had not succeeded in finding a training place within the scope of the dual system” (BAETHGE/BUSS/LANFER 2003, p. 39), for which reason they had tended to take on a “shadow role” (EULER/SEVERING 2006, p. 83). Only since the mid 1990’s, and not least because of their increased quantitative significance, have these courses “developed into an interesting alternative to the dual system” (BAETHGE/BUSS/LANFER 2003, p. 39).

Box

2012 BIBB/BauA Employee Survey

The 2012 BIBB/BAuA Employee Survey is a telephone-based, computer-aided representative survey of 20,000 persons in active employment in Germany jointly conducted by the Federal Institute for Vocational Education and Training (BIBB) and the Federal Institute for Occupational Safety and Health (BAuA). The data was collected between October 2011 and March 2012 by TNS Infratest Sozialforschung in Munich. The statistical population comprises persons in active employment aged from 15 years (not including trainees). Employment is considered to be regular work activity of at least ten hours per week for which payment is received ("core workers"). Data was adapted to the structures of the statistical population via weighting in accordance with central characteristics on the basis of the 2011 Microcensus. More information on the concept, methodology and results of the survey is available at **www.bibb.de/arbeit-im-wandel**.

Whether school-based training actually represents an "interesting alternative" to the dual system materially depends on the question of whether the occupational success achieved by those who have completed school-based training is comparable to the success of workers who have undergone dual training. In order to investigate this issue, the factors contributing to occupational success and the criteria that define the term "occupational success" are explained below.

Empirical studies show that school-based training courses offer good occupational prospects. At the age of 30, those who have completed full-time school-based vocational education and training and who are in dependent employment earn a net hourly wage that is comparable to workers who have been trained in the dual system (cf. POLLMANN-SCHULT 2006a). At the level of the occupation, it is revealed that typical female dual training occupations such as hairdresser, sales assistant for retail services as well as hotel and restaurant and housekeeping occupations are primarily associated with lower income opportunities (cf. HALL 2012). For this reason, those who have completed such courses of training are more likely to receive a low wage and are particularly affected by precarious employment (cf. DORAU/MAIER/SCHANDOCK 2010). School-based training also leads to high rates of employment that is appropriate to training (cf. HALL 2010a; KONIETZKA 1999; POLLMANN-SCHULT 2006b). In addition, the 2004 OECD "Education at a Glance" Report (cf. BMBF 2004) notes that members of the working age population with dual VET exhibit higher rates of unemployment across all age groups than their counterparts in the labour supply who have achieved a school-based vocational qualification.[2]

Previous results are not only based on different data, operationalisations and investigation groups. They also highlight various partial aspects of occupational success. A range of indicators can be use to show occupational success. Indicators of a more objective nature include income, level adequacy and occupational position. There are also subjective indicators such as job satisfaction. Alongside the reference criterion of current activity, occupational history as a whole is also of interest given the fact that occupational success encompasses career success. Occupational success can further be aligned to values other than professional progress. These may include job security or good working conditions.[3]

The 2012 BIBB/BAuA Employee Survey makes it possible to analyse the various facets of occupational success on the basis of a single data source. Analyses are limited to persons in active employment whose highest qualification is a dual or school-based vocational qualification. Occupational success is operationalised on the basis of objective and subjective indicators.

Before moving on to describe the database and the construct of 'occupational success' in greater detail and presenting the results, a closer examination of the individual training courses that lie behind the school-based occupation system or which lead to full training qualifications is of fundamental significance to the interpretation and portrayal of the results. Data from the "Integrated Training Reporting System" (iABE) is used for this purpose.

On the significance of various fully qualifying training pathways

Whereas dual training are governed in a nationally standardised way on the basis of the BBiG and HwO and are only possible in state-recognised training occupations, school-based training is "not regulated by the uniform VET legislation that applies to dual vocational education and training. This primarily means that qualification certificates have not been standardised with regard to their market value under collective bargaining law and in terms of work organisation are not defined as occupational fields or modules for occupational career pathways" (KRÜGER 1996, pp. 259 ff.). Unlike vocational education and training in the dual system, however, school-based training courses in many cases stipulate an intermediate secondary school leaving certificate as the entry requirement.

School-based training occupations have particularly emerged from within people-related service sector occupations. A series of assistant occupations has continued to be developed for special qualifications for which companies have no tradition of providing training or which occurred too rarely for the realisation of dual vocational education and training (BAETHGE 2003, p. 564). The same applies to the tradition of the healthcare occupations (FELLER 2006, p. 290). According to FRIESE (2004, p. 14), the establishment of school-based training courses for housekeeping, social, nursing and care occupations signalises "the starting point for a specifically female vocationalisation process that continues to leave its mark down to the present day via a lower degree of professionalisation, collective wage agreement application and societal status allocation".

Figure 1: Fully qualifying VET courses (number of entrants 2013)

Dual system pursuant to BBiG/HwO
Vocational education and training in the dual system pursuant to BBiG / HwO
Including basic vocational training year/part-time dual vocational school
497,427

School-based occupation system

Training courses in the healthcare, education and social sectors
Training in healthcare, educational and social services occupations governed by federal state or Federal Government law
167,252

Full-time school-based training at vocational schools
Full vocational qualifications at vocational schools pursuant to BBiG/HwO, outside BBiG/HwO and training courses that lead to a vocational qualification and acquisition of a higher education entrance qualification
44,990

Civil service training for medium level entry
8,961

Source: Integrated Training Reporting System, 2014 BIBB Data Report, own representation

The iABE permits a systematic consideration of the quantitative significance of the various training pathways, starting with the year 2005.[4] Figure 1 summarises the various training courses that lead to full vocational qualifications. A total of four segments can be differentiated.

- *The dual system pursuant to the BBiG/HwO*, which comprises around 330 private sector technical and service training occupations. The most popular training occupations in 2013 included management assistant for retail services, sales assistant for retail services, motor vehicle mechatronics technician, office management clerk and industrial clerk.[5]
- *Training in the healthcare, education and social sectors*, encompassing various training courses governed by federal or federal state law that are provided at different learning venues (e.g. trade and technical schools, health sector schools).[6] The most popular occupations here include healthcare and nursing assistant, geriatric nurse, nursery school teacher, physiotherapist and social assistant (cf. KROLL/SCHIER 2013). Although these training courses also frequently take place on a dual basis, i.e. at schools and at companies (such as hospitals and old age care homes), they are the responsibility of the school provider and are generally referred to as school-based occupations (cf. Consortium Of Educational Reporting 2006).
- *Full-time courses at vocational schools*[7], comprising fully qualifying vocational qualifications at full-time vocational schools pursuant to and outside the BBiG/HwO. Training courses governed by federal state law (outside the BBiG/HwO) take place in occupations such as commercial assistant, business assistant and technical assistant for information technology (cf. KROLL/SCHIER 2013). Occupations for these fields of activity can also be partially learned within the dual system (e.g. office management clerk), meaning that this segment is also accorded a compensatory function.
- *Civil service training for medium level entry*, which is provided by the Federal Government, the federal states and local government authorities.

The school-based occupational system is made up of two segments – full-time school-based training at vocational schools and training in the healthcare, education and social sectors. This segments will be considered separately at a later point. Civil service training constitutes a special case and will not be the object of further consideration.

The figures for the year 2013 show that the number of entrants to the dual system pursuant to BBiG/HwO is 497,427. This represents a ratio of BBiG/HwO occupations to school-based occupations of 2.3 to 1. Whereas the proportions of women in the dual system and in the segment of full-time school-based training courses at vocational schools are around 41 percent and just over 50 percent respectively, training in the healthcare, education and social sectors is primarily focused on female occupations, and women make up 78 percent of trainees (cf. DIONISIUS/SCHIER/ILLIGER 2014).

In overall terms during the 1990's, increasing numbers of young people commenced fully qualifying training outside the dual system (cf. KROLL 2009). By way of contrast, numbers of entrants to the dual system fluctuate considerably. In some years, the strong dependence of the dual system on the economy has in particular led to significant decreases in the provision of training places (see,

for example, TROLTSCH/WALDEN/KRUPP 2010).[8] Figure 2 shows the development from 2005 onwards.

Figure 2: Development of the various fully qualifying segments from 2005 (2005 = 100 percent)

Vocational education and training in the dual system pursuant to BBiG / HwO
Full-time school-based training at vocational schools
Training courses in the healthcare, education and social sectors

Source: Dionisius / Illiger / Schier 2014, own representation

Compared to 2005, there is a significant drop in full-time school-based training at vocational schools (–38.5 percent). In the segment of training in the healthcare, education and social sectors, however, the proportion of entrants has constantly risen over the past few years. This means that it is possible to state that the societal significance of these training courses has increased. Because of this development, dual training pursuant to BBiG /HwO is not contrasted with school-based training in overall terms. Training in the healthcare, education and social sectors (which takes place in "dual" form in some cases, albeit in different occupations than in the dual system) and training at full-time vocational schools, which is usually conducted in a purely school-based way, are instead considered separately. Around half of the training courses in the healthcare, education and social sectors are subject to nationally standardised regulation and also provide qualifications in a growing field of employment. Compared to this, the training courses at full-time vocational schools governed by federal state law are characterised by considerable type diversity. The heterogeneity of training provision results in a lack of transparency. This makes inter-company and universal "coding of qualifications", which can take place for dual training on the basis of training regulations, more difficult on the part of the employers (GEORG/SATTEL 2006, pp. 130 ff.).

In overall terms, therefore, the question of whether those who complete school-based and dual training enjoy different degrees of occupational success is not the only issue to arise. We also need to ask ourselves whether there are differences between full-time training courses at vocational schools and training in the healthcare, education and social sectors and whether the latter form of training is comparable with dual training on the basis of the characteristics described above. In order to investigate this, we need to go further than merely taking into account that school-based training courses are mostly completed by women and by persons with a higher level of prior school learning. The occupational field in which training takes place also exerts a crucial influence on later occupational success on the labour market. After the completion of vocational education and training and control of third variables, considerable wage differentials by occupation can be identified. These largely exhibit a high level of stability over the course of time (cf. BLIEN/PHAN/VAN 2010). The primary focus here is on long-term occupational success. Differences between various occupations and the market usability of such occupations are not revealed until we look beyond initial placement on the labour market, which is strongly determined by the behaviour of companies with regard to offering trainees permanent employment following completion of training (cf. KRÜGER 2001; WITZEL/HELLING/MÖNNICH 1996).

Dimensions of occupational success

Occupational success is a hypothetical construct, and for this reason does not find any generally acceptable operationalisation in academic research literature (cf. ABELE/SPURK/VOLMER 2011). Literature normally differentiates the following dimensions of occupational success. Firstly, there are the various components of occupational success, mostly differentiated according to objective and subjective aspects (cf. NG / SORENSEN / FELDMAN 2005). Secondly, there is the reference criterion of work versus career, the differentiation between short-term success (current work) and long-term occupational success (professional *career*). Career success also includes aspects such as occupational advancement (cf. DETTE /ABELE / RENNER 2004).

Objective occupational success criteria encompass several aspects, such as income, occupational position and status. Subjective occupational success, on the other hand, comprises personal evaluation of occupational success and is, for example, operationalised as self-assessment, satisfaction with current work or previous career (career satisfaction). Generally speaking, none of the objective success criteria are able to map the entirety of occupational success. Income, for example, is less of a success criterion in the public sector than in the private economy (cf. ABELE 2002).

There are also subjective indicators of occupational success that in overall terms are less influenced by labour market conditions, by the occupational field, by the organisation and by educational level (cf. ABELE / SPURK / VOLMER 2011) and that exert an independent significance. Previous investigations confirm that there is only a moderate positive correlation between subjective and objective occupational success criteria and that these may be considered relatively independently of each other (cf. DETTE et al. 2004; NG / SORENSEN / FELDMAN 2005).

For this reason, multiple indicators (objective and subjective) are recommended in the literature for the operationalisation of occupational success in order to take account of the diversity of the construct (cf. DETTE/ABELE/RENNER 2004). The present analysis follows this recommendation. The indicators used are aligned to the axes objective versus subjective and current occupation versus occupational career.

Data and operationalisations

The 2012 BIBB / BAuA Employee survey is used for the analysis of the occupational success of skilled workers who have completed dual and school-based training. Taking previous considerations as a basis, a differentiation is made between company-based training courses pursuant to BBiG/HwO, school-based training courses in healthcare, educational and social occupations (e.g. nurses, masseurs, medical laboratory assistants, nursery school teachers and geriatric nurses) – referred to in abbreviated form as healthcare and social occupations – and other school-based training courses at vocational schools. These different training segments are the central characteristic of the present analysis, which is conducted separately for women and men.[9]

Prior school learning is represented by the *highest school leaving qualification achieved*. Three reference levels are differentiated in this regard. These are maximum of lower secondary school leaving certificate (including qualifying lower secondary school leaving certificate), intermediate secondary school leaving certificate (including specialised upper secondary school entrance qualification or other intermediate qualification) and higher education entrance qualification (including specialised upper secondary school leaving certificate).

In order to investigate differences between the training sectors, further relevant characteristics for occupational success are controlled in multivariate analyses. Account is taken of whether training was completed in East Germany and of whether the qualification was acquired after the year 1990. In order to investigate the occupational success of women in particular, it remains necessary to control previous employment history and family background due to the fact that these may exert an influence on occupational opportunities. In this regard, account is taken of occupational experience[10], breaks in employment[11] and the presence of children. Occupations learned are differentiated into three *occupational field sectors*. These are manufacturing occupations and primary and secondary service sector occupations (Table A1 in the Annex).[12] As expected, the prior school learning of persons who have trained in a secondary service sector occupation is higher than that of those in primary service sector or manufacturing occupations. This is irrespective of the training institution. Around 30 percent of employees who have undergone school-based and dual training are in possession of the upper secondary school leaving certificate or specialised upper secondary school leaving certificate (Table A2 in the Annex).

In Figure 3, the operationalisations of the characteristics of occupational success are aligned to the dimensions of current occupation versus occupational career and objective versus subjective.

Figure 3: Dimensions of occupational success and its operationalisation

Current occupation	Objective indicators	
	Individual gross income	“Now we come to your gross monthly income. This means wages or salary before deductions for tax and social insurance. Please do not include child benefit. What is your gross monthly income from your job as a <…>?” [13]
	Permanent contract of employment	“Do you currently have a fixed term contract of employment or a permanent contract of employment?”
	High occupational position	In this context, a high occupational position is defined as a highly qualified task or a qualified task with a line manager function for at least ten employees based on information on position in company.
	Subjective indicators	
	Activity within preferred occupation	“Are you currently working in your preferred occupation or would you like to work in a different occupation?”

	High degree of work satisfaction	"I will now look at various aspects of your work activity. In your job as a <…>, please tell me if you are very satisfied, satisfied, less satisfied or dissatisfied". "And, taking everything into account, how satisfied are you with your work in overall terms?"
Occupational career	Objective indicators	
	Specialist adequacy	"If you compare your current job as a <...> with your training as a <...>, would you say that the activity is in line with the activity for which such training usually provides preparation, that the activity is related to this training or that the activity no longer has anything to do with this training?".
	Level adequacy	"What sort of training is usually required to exercise the activity – completion of vocational education and training, a degree from a University of Applied Sciences or a university, an advanced training qualification or no training qualification?" Activities for which at least completion of vocational education and training is required are determined as level-adequate in this context.[14]
	Subjective indicators	
	Occupational advancement	"If you consider the whole of your working life, would you say that you have experienced occupational advancement, occupational downgrading, no essential change or have tended to experience up's and down's"?
	High degree of satisfaction with occupational history	"All in all, how satisfied are you with your working life up until now?" The categories offered were very satisfied, satisfied, less satisfied or dissatisfied. - The category "very satisfied" indicates a high degree of satisfaction with occupational history.

Source: 2012 BIBB/BAuA Employee Survey Questionnaire, own representation

Investigation group and distributions

Only workers whose highest qualification is a dual or school-based VET qualification are included in the analysis. Persons who have gone onto advanced training or higher education study following completion of vocational education and training are not considered due to the fact that different career pathways are open to those with academic qualifications compared to those at the medium qualifications level. The unweighted sample comprises 10,631 persons, 6,015 women and 4,616 men. The proportion of women with a school-based occupation in the healthcare/social sector is significantly higher than the corresponding proportion of men (20.4 percent as opposed to 3.3 percent). By the same token, the proportion of men who have completed dual training pursuant to BBiG/HwO is higher for men than for women (90.9 percent versus 71.6 percent). Because of the high correlation between gender and segment of vocational education and training, the following analyses are presented separately for men and women. Table 1 provides information on the distribution of all independent variables included in the analyses by gender and type of training.

It reveals that women and men who have undergone school-based training in the healthcare, education and social sectors (nurse, nursery school teacher) are more likely to be in possession of the upper secondary school leaving certificate (25.1 percent and 35.4 percent respectively) than is the case for men and women who have completed dual training (the corresponding figures being 15.5 percent and 10.3 percent). A large proportion of men and women who have completed dual VET (33.8 percent and 47.8 percent respectively) have a maximum of the lower secondary school leaving certificate. This highlights the integrative function of the dual training system. All occupations within the healthcare, education and social sectors are located in the "secondary service" occupational field. The proportions of women and men who have completed dual training are only 16.5 percent and 6.4 percent respectively.[15] The majority of women with dual VET has undergone training in an occupation in the primary service sector (e.g. office management clerk, wholesale and retail clerk, sales assistant for retail services, clerk in public administration, hairdresser etc.). Most of the men have trained in a manufacturing occupation. Table A1 in the Annex shows the respective occupational fields in which training courses have been completed. There is very little difference between the groups with regard to the control variables. It is noticeable that those who have undergone school-based training are less likely to have completed their training in East Germany and more likely to have completed their training since 1990.

Objective and subjective occupational success in the current occupation

The achievements of those in active employment in respect of individual gross income, contract of employment and occupational position, whether they are working within their preferred occupation and how satisfied they are with their work situation in overall terms are all central indicators of occupational success, and these will be considered for actual activity below.

The following objective indicators were deployed.

Individual gross income: individual gross income was calculated on the basis of gross monthly earnings divided by actual weekly working time.[16] The mean (median) gross hourly wage for workers who have completed vocational education and training is €13.70.[17] Women and men who have completed school-based training in the healthcare, education and social sectors achieve a significantly higher hourly wage (€13.80 and €15.40 respectively) than women and men who have undergone dual training (€12.10 and €14.4) and women and men in other school-based occupations (€12.20 and €14.40) (Table 2).[18]

Table 1: Differences between men and women with dual and school-based training (highest qualification) in percent

	Women			Men		
	Dual training BBiG/HwO	School-based training		Dual training BBiG/HwO	School-based training	
		Healthcare and social occupations	Other occupations		Healthcare and social occupations	Other occupations
Sample size (unweighted)	4210	1321	484	4163	174	279
Highest school leaving qualification						
Lower secondary school leaving certificate (maximum)	33.8	15.0	25.9	47.8	20.3	34.3
Intermediate secondary school leaving certificate	50.7	59.9	49.9	41.9	44.3	42.6
Upper secondary school leaving certificate or specialised upper secondary school leaving certificate	15.5	25.1	24.2	10.3	35.4	23.1
	100.0	100.0	100.0	100.0	100.0	100.0
Occupational field in which training took place						
Manufacturing occupations	13.5	0.0	7.1	73.2	0.0	38.8
Primary service occupations	70.0	0.0	70.2	20.4	0.0	29.9
Secondary service occupations	16.5	100	22.7	6.4	100	31.3
	100.0	100.0	100.0	100.0	100.0	100.0
Control variables						
Training in East Germany	21.4	18.4	22.5	22.7	12.2	16.8
Training after 1990	41.1	61.7	53.3	44.4	74.0	62.4
Occupational experience (in years)	20.4	18.0	20.7	22.1	16.7	20.8
Break in employment	61.1	61.0	67.1	36.4	43.5	40.0
Migration background	11.9	13.5	19.7	13.9	28.3	23.4
Children	71.7	71.2	72.0	60.0	54.2	57.7
For information purposes: Age	42.9	41.7	44.4	42.4	39.9	42.7

Note: Persons in active employment with vocational education and training (highest qualification).
Source: 2012 BIBB/BAuA Employee Survey 2012, weighted data.

Permanent contract of employment: a permanent contract of employment stipulates particular periods of notice and reasons for giving notice of termination for the employer and thus affords workers security of planning and protection. The effective cancellation of protection against dismissal in fixed-term contracts of employment, on the other hand, exposes employees more strongly to market competition (cf. GROß 1999). A comparison of forms of training shows that persons with other school-based training have a

significantly lower chance of securing a permanent position than those who have completed dual training (Table 2).[19]

High occupational position: women and men with dual training achieve a significantly higher income in higher occupational positions than in other positions (€16.00 and €18.40 respectively as opposed to €12.40 and €14.10). Women who have completed school-based training in the healthcare, education and social sectors are more likely to achieve a higher position (12.7 percent) than those who have undergone dual training (6.4 percent). The figure is particularly high for nurses (16.3 percent).

Table 2: Occupational success in current activity by training segment and gender

	Women			Men		
	Dual training BBiG/HwO	School-based training		Dual training BBiG/HwO	School-based training	
		Healthcare and social occupations	Other occupations		Healthcare and social occupations	Other occupations
Objective indicators						
Gross hourly wage (median)	12.1	13.8	12.2	14.4	15.4	14.4
Permanent position [1)]	89.1	88.8	83.8	89.7	85.7	86.2
High occupational position [2)]	6.4	12.7	9.1	13.1	14.3	16.4
Subjective indicators						
Activity within preferred occupation	74.4	87.3	73.0	76.7	85.8	71.1
High degree of work satisfaction (very satisfied)	28.9	29.0	32.8	23.7	29.7	21.6

Note: Persons in active employment with vocational education and training (highest qualification).
1) Only employees subject to mandatory social insurance contributions
2) Only dependent employees
Source: 2012 BIBB/BAuA Employee Survey 2012, weighted data.

Table 3: Dimensions of work satisfaction by training segment and gender (proportion very satisfied in percent)

	Women			Men		
	Dual training BBiG/HwO	School-based training		Dual training BBiG/HwO	School-based training	
		Healthcare and social occupations	Other occupations		Healthcare and social occupations	Other occupations
Employment conditions						
Income	11.6	8.4	12.4	11.7	4.7	6.8
Working time	20.4	18.9	22.9	14.9	12.4	10.9
Tools and equipment	17.1	14.4	20.9	15.4	9.5	10.3
Physical work conditions	15.2	9.3	18.0	12.6	9.5	10.2
Activity/continuing training						
Opportunities for advancement	6.9	7.3	5.9	7.3	3.1	3.4
Type/content of activity	24.3	31.4	28.4	21.2	33.7	18.8
Use of abilities	21.8	30.0	25.8	22.7	32.5	19.4
Opportunity for continuing training	13.9	25.8	18.1	13.3	23.7	10.5
Company						
Company atmosphere	35.5	31.5	36.7	28.0	27.6	23.9

Direct line manager	33.0	32.7	36.4	27.2	30.9	27.1

Note: Persons in dependent employment with vocational education and training (highest qualification).
Source: 2012 BIBB/BAuA Employee Survey 2012, weighted data.

The following subjective indicators were deployed.

Activity within preferred occupation: women and men who have been trained in a school-based healthcare, educational and social occupation are significantly more likely to be working in their preferred occupation (87.3 percent and 85.8 percent respectively) than workers who have completed dual training (74.4 percent and 76.7 percent) (Table 2). This also explains aspects such as the higher degree of satisfaction with the type and content of the activity on the part of those who have completed school-based training (Table 2). In response to the question regarding the nature of the preferred occupation, seven of 15 test persons stated that the most important aspect was enjoyment of the work. Descriptions used included “it needs to be fun”; “the job needs to be enjoyable”; “an activity you enjoy doing” and “making your hobby into your job” alongside adjectives such as “exciting”, “varied”, “interesting”, “fulfilling” and “satisfying”.[20]

High degree of work satisfaction: the results regarding job satisfaction are not uniform (Table 2). The women who express the highest level of job satisfaction are those who have completed other school-based training. The most satisfied male employees are in the healthcare, education and social sectors. The individual aspects of work satisfaction are condensed into a main component analysis comprising there factors (with subsequent varimax rotation) (Table 3). The first factor combines advancement opportunities, type/content of the activity, use of abilities and opportunity for continuing training. This factor is designated as “activity/continuing training”. The second factor, “employment conditions”, bundles together satisfaction responses regarding income, working time, tools and equipment and physical working conditions. The third factor, “company”, encompasses the items of company atmosphere and direct line manager.

Women and men who have completed school-based training in healthcare, educational and social occupations are significantly more likely to be satisfied with their activity and continuing training opportunities than women and men who have undergone dual training. With regard to employment conditions, however, they are less likely to be satisfied than persons who have completed dual training. This particularly applies in the case of physical working conditions. It is also noticeable that a high degree of satisfaction with income is less likely to be expressed than is stated by persons with dual training. It seems that a higher gross wage cannot compensate for the unfavourable working conditions. Nevertheless, women who have completed training in other school-based occupations are more satisfied with their employment conditions in overall terms.

Objective and subjective occupational success in the occupational history

Alongside evaluation of the current activity, the question arises as to whether, within the scope of their occupational history, employees exercise an activity that is adequate for their specialist skills and in line with their qualifications level, whether they are able to advance occupationally and how satisfied they are with their previous occupational history in overall terms.

The following objective indicators were deployed.

Specialist adequacy: “specialist adequacy” is taken to mean alignment of content between occupation learned and occupation exercised. Vocational education and training is usually commenced with the aim of exercising an adequate activity at a later point. Nevertheless, any occupational changes which occur do not necessarily mean devaluation of skills acquired during training and occupational downgrading. In this case, we have used a subjective measure that permits such a differentiation into gradual and complete change of occupation (cf. HALL 2010b). Women and men who have completed school-based training in healthcare, educational and social occupations are significantly more likely to exercise an activity that is adequate for their specialist skills than is the case with women and men who have undergone dual training (86.7 percent and 83.2 respectively, as opposed to 59.3 percent and 63.8 percent) (Table 4).

Table 4:
Occupational success in the employment history by training segment and gender

	Women			Men		
	Dual training BBiG/HwO	School-based training		Dual training BBiG/HwO	School-based training	
		Healthcare and social occupations	Other occupations		Healthcare and social occupations	Other occupations
Objective indicators						
Specialist adequacy	59.3	86.7	61.1	63.8	83.2	60.6
Level adequacy	77.1	92.9	80.5	87.9	96.4	82.8
Subjective indicators						
Occupational advancement	44.5	48.8	47.5	51.4	59.3	51.4
Satisfaction with occupational history [1)]	28.6	34.1	32.7	25.4	31.9	19.2

Note: Persons in active employment with vocational education and training (highest qualification).
1) Proportion "very satisfied"
Source: 2012 BIBB/BAuA Employee Survey 2012, weighted data.

Level adequacy: "level adequacy" is also taken into consideration as a vertical dimension alongside the horizontal dimension of specialist adequacy. This refers to the analogy between the level of requirement of the activity and the qualification level of the training. In order to measure level of requirement, we use a subjective approach that is deemed to be particularly valid and reliable in the field of skills research (BÜCHEL 1998, pp. 68 ff). Over-qualification for a job brings a loss of income, employment security and occupational development opportunities in its wake. Women and men who have completed school-based training in healthcare, educational and social occupations are significantly more likely to achieve level adequacy than women and men with dual training (92.9 percent and 96.4 percent respectively as opposed to 77.1 percent and 87.9 percent). One of the reasons for this is a correlation with higher specialist adequacy in the healthcare, educational and social occupations.

The following subjective indicators were deployed.

Occupational advancement: respondents arrive at their own subjective assessment of occupational advancement by evaluating whether they consider their previous working life to be an advancement. A cognitive pretest defines the factors which enable occupational advancement to be identified as a higher salary, greater responsibility or autonomy, better general conditions and higher occupational esteem (cf. PORST/RAUH/LUTHRINGSHAUSER 2011). It comes as no surprise that the respondents' subjective assessment of their previous working life is generally very positive: "…people are no doubt concerned about their career success, they want to be successful and they want to feel successful" (ABELE/SPURK/VOLMER 2011, p. 196). Nevertheless, in comparative terms it is revealed that women and men who have completed school-based training in the healthcare, education and social sectors are more likely than those who have completed dual training to describe their previous working life as an advancement (48.8 percent and 59.3 percent respectively as opposed to 44.5 percent and 51.4 percent).

Satisfaction with occupational history: the questionnaire assesses both current job satisfaction and a person's satisfaction with his or her occupational history as a whole. The results in this case are in line with the assessment of occupational development. Women and men who have completed school-based training in the healthcare, education and social sectors are more satisfied with their previous working life (34.1 percent and 31.9 percent respectively) than those who have completed dual training (28.6 percent and 25.4 percent).

The descriptive analyses show that men and women in active employment who have completed training in healthcare, educational and social occupations are more likely to be working in their preferred occupation and are generally more satisfied with the type and content of their activity and with their continuing training opportunities than their counterparts who have undergone company-based training. They are also more likely to be employed in a way that is adequate to their skills and level of training. Although they have a higher gross hourly wage, they are less satisfied with their income than those who have completed company-based training. For their

part, the latter are more satisfied with their employment conditions (including working time, tools and equipment, physical working conditions) and with the company atmosphere. This means that success criteria that tend to be connected with occupational activity are rated more highly by those who have completed training in healthcare, educational and social occupations than company-trained employees. The opposite applies with regard to employment conditions. Multivariate analyses have been conducted with the aim of identifying the extent to which the descriptive findings remain robust if the various influencing factors are controlled.

Determinants of occupational success – multivariate explanation models

Multivariate analytical procedures permit us to keep various influencing factors constant and thus to identify net effects of individual variables, in this case the influence of the training segments. Although the descriptive analyses result in similar findings for men and women, in overall terms only a small number of men complete training in healthcare, educational and social occupations. For sample size reasons, therefore, the multivariate analyses are carried out for women only.

In order to assess income, a linear regression model is estimated containing the logarithmised gross hourly wage as a dependent variable. Logarithmised wages approximately follow normal distribution. One advantage of this transformation is that the regression coefficients can be interpreted as a percentage change in the case of a change by one unit in the dependent variables (marginal effects). For all further indicators of occupational success, marginal effects are estimated on the basis of logistic regression models due to the fact that binary dependent variables are involved.

Table 5 shows the model structure of the analyses taking income as an example. Model 1 begins by estimating the bivariate influence of vocational education and training on income. The model estimation initially confirms the finding of the bivariate analysis, namely that the income of women who have completed school-based training in healthcare, educational and social occupations is around 10 percent higher (0.095) than that of women who have undergone dual training. Model 2 then takes prior school learning and other characteristics relevant to income into account. It is revealed that the income effect of school-based training in healthcare, educational and social occupations is reduced to 7 percent (0.067). This primarily correlates with the higher level of prior school learning in healthcare, educational and social occupations. The comparison between the two training segments is, however, restricted by the fact that all school-based healthcare, educational and social occupations are secondary service sector occupations (Table A1 in the Annex). A combination of training segment and occupational field sector (Model 3) is therefore formed in order to undertake a final investigation into whether dual training occupations in the secondary service sector bring similar success to school-based healthcare, educational and social occupations. The selected reference category is women in dual secondary service sector occupations. Primary service sector occupations and dual manufacturing occupations are differentiated. It is shown that women with school-based training in healthcare, educational and social occupations no longer significantly differ from women who have completed dual vocational education and training in a secondary service sector occupation.[21] Income differences between the training segments thus primarily correlate with employment opportunities in the occupational field in which training has taken place.[22]

Table 5: Determinants of the income of women (logarithmised gross hourly wage, OLS regressions)

	Model 1	Model 2	Model 3
Training segment (reference category: dual)			
School-based: healthcare and social occupations	0.095**	0.067**	
School-based: other	0.008	-0.018	
Characteristics of the person			
Training in East Germany		-0.225**	-0.214**
Training after 1990		0.020	0.017
Occupational experience (in years)		0.010**	0.010**
Break in employment		-0.036+	-0.037*
Migration background		-0.005	-0.008
Children		-0.032	-0.033

Highest school leaving qualification			
Maximum of lower secondary school leaving certificate (ref.)			
Intermediate secondary school leaving certificate		0.143**	0.135**
Upper secondary school leaving certificate or specialised upper secondary school leaving certificate		0.307**	0.296**
Training and occupational field sector			
Dual: secondary service sector (reference category)			
School-based: healthcare and social occupations			0.017
Dual: primary service sector			-0.054*
Dual: manufacturing occupation			-0.117**
School-based: other			-0.070*
Constant	2.478**	2.231**	2.292**
N	5794	5794	5794
R^2	0.007	0.116	0.119

Note: Persons in active employment with vocational education and training (highest qualification).
Significance level: + p < 0.10, * p < 0.05, ** p < 0.01; robust standard errors
Source: 2012 BIBB/BAuA Employee Survey 2012, weighted data.

Table 6 checks whether a similar explanation can be given for the differences between women who have completed dual and school-based training with regard to the other indicators of occupational success. Model 3 follows the model structure of Table 5, although only the marginal effects for the variable “Training segment” are stated. The mean values of the marginal effects in respect of all observations are calculated for this purpose, i.e. the average marginal effects (AME). Average marginal effects (AME) have several advantages, including plausible interpretation.[23] The AME specifically states by how many percentage points the probability of an interesting event changes in the mean of all observations when the relevant explanatory variable increases by one unit.[24] The odds ratios previously usually represented cannot provide this interpretation.

The differences already shown in the table analysis are confirmed in Table 6. Women who have completed school-based training in healthcare, educational and social occupations evaluate their previous occupational history more positively than women who have undergone dual training. They are more likely to be working in their preferred occupation or to be in a high occupational position (se Model 1). If, however, the comparison is related to women who have completed dual training in the secondary service sector, the effects are either reduced or disappear entirely. This means that there are no longer any differences between the two groups with regard to assessment of occupational advancement and a high degree of satisfaction with occupational history. What remains is a higher likelihood – albeit reduced – that women in healthcare, educational and social occupations are working in their preferred occupation (plus 11 percent) and that they are exercising an activity that is adequate for their specialist skills (plus 25 percent). This means that there is a slight increase of plus 7 percent (0.069) in the likelihood that they are working in an activity that is adequate to their level of training. There is also a slight increase in the likelihood that they will hold a high occupational position (plus 4 percent), something which is achieved by nurses in particular. The only area in which women in other school-based occupations differ negatively from women who have completed dual training is with regard to a permanent contract of employment.

Table 6: Determinants of occupational success of women in their current activity and in occupational history (logistic regressions, average marginal effects (AME))

		Current activity				Occupational history			
		Permanent position [1]	High occupational position [2]	Activity within preferred occupation	High level of job satisfaction	Specialism adequacy	Level adequacy	Occupational advancement	Satisfaction with occupational history
Model 1	Dual training (reference category)								
	School-based: healthcare and social occupations	-0.006	0.052**	0.150**	0.010	0.324**	0.196**	0.052**	0.056**
	School-based: other	-0.038**	0.027	-0.017	0.026	0.013	0.020	0.013	0.028
Model 3	Dual: secondary service sector (reference category) [3]								
	School-based: healthcare and social occupations	-0.031	0.040**	0.106**	0.005	0.254**	0.069*	-0.012	0.014
	Dual: primary service sector	-0.028	-0.001	-0.040	0.000	0.007	-0.086**	-0.039	-0.045*
	Dual: manufacturing occupation	-0.064**	-0.035**	-0.099**	-0.044	-0.117**	-0.135**	-0.117**	-0.074*
	School-based: other	-0.076**	0.017	-0.055	0.029	-0.019	-0.087**	-0.043	-0.011
	N	5375	5399	5686	5808	5559	5805	5750	5800
	McFadden's R^2	0.065	0.054	0.029	0.008	0.095	0.106	0.027	0.012

Note: Persons in active employment with vocational education and training (highest qualification).
1) Only employees subject to mandatory social insurance contributions 2) Only dependent employees 3) Control variables see Model 3 Table 5
Significance level: + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$; robust standard errors
Source: 2012 BIBB/BAuA Employee Survey 2012, weighted data.

Within the dual occupations, women who have been trained in a dual manufacturing occupation assess their occupational success significantly more negatively than women in dual secondary sector occupations. This means that the likelihood of exercising an activity in their preferred occupation is reduced by 10 percentage points and that the likelihood that they are working in the occupation in which they have been trained is reduced by 12 percentage points. For this reason, they are also less likely to achieve a position adequate to their level of training. Previous occupational history is less likely to be perceived as advancement, thus resulting in a lower level of job satisfaction. Women from dual training occupations in the primary service sector differ from women from training occupations in the secondary service sector only in a few areas. This means a reduced likelihood of level adequacy and of a high degree of satisfaction with occupational history.

Conclusion

The aim of the analysis was to investigate whether skilled workers who have completed school-based and dual training achieve different degrees of occupational success. With regard to school-based training, a differentiation was made between full-time training at vocational schools and training in healthcare, educational and social occupations. Because the former are federal state specific qualifications, they display a lower degree of standardisation and greater heterogeneity than dual qualifications, which are regulated in a nationally uniform way. By way of contrast, school-based occupations in the healthcare, education and social sectors are similar to dual training occupations in that they are organised along "dual" lines and often regulated in a nationally standardised manner. They are, however, scarcely in competition with dual training courses in terms of activity exercised.

In order to investigate differences between the training segments, multivariate analyses were used to control other characteristics relevant to occupational success. These included prior school learning and the occupational field in which training took place (secondary versus primary service sector occupations). School-based occupations in the healthcare, education and social sectors

exhibit higher entry requirements in terms of school qualifications and provide training for the growing field of employment in the secondary service sector. Because training courses in the occupational fields vary in terms of gender, a further differentiation was made between men and women. Due to the small sample size of men with school-based training, the multivariate models were calculated for women only.

In order to measure the construct “occupational success”, objective and subjective aspects of occupational success and the reference criteria of current occupation versus occupational history were considered. The analyses show that women who have completed school-based training in the healthcare, education and social sectors produce better results in many success indicators than women who have undergone dual training. The differences may, however, be largely explained by the higher level of prior school learning and by the occupational opportunities associated with the field of employment in which training takes place. Women who have completed dual training in the occupational field of the secondary service sector are also “more successful” than women from other occupational fields. However, with the exception of a slightly reduced likelihood of permanent employment, school-based training courses outside the healthcare, educational and social occupations do not differ from dual training.

In overall terms, this makes it clear that prior school learning and the employment opportunities associated with the training or training occupation are of central significance to occupational success rather than the training system in itself (dual versus school-based). Both a “horizontal” and “vertical” segmentation of the occupations are revealed. The occupation in which training takes place has a crucial impact on shaping occupational and life opportunities and should be accorded greater consideration in research.

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Annex

Table A1: Occupational field of the occupation in which training takes place by training segment and gender (figures in percentages)

Main occupational field of the occupation learned	Women			Men		
	Dual training BBiG/HwO	School-based training		Dual training BBiG/HwO	School-based training	
		Healthcare and social occupations	Other occupations		Healthcare and social occupations	Other occupations
Manufacturing occupations	13.4		7.1	73.2		38.8
Agricultural occupations	1.9		1.2	3.6		3.6
Metal production and processing	0.4			4.2		2.4
Metal construction, plant construction, installation, fitting	0.1		0.2	8.8		2.1
Industrial mechanics, tools mechanics	1.1		0.2	13.0		1.5
Vehicle and aircraft construction, maintenance occupations	0.2			10.5		2.4
Electrical occupations	1.0		1.2	11.5		12.2
Textile processing, leather manufacture	4.0		2.2	0.3		0.0
Construction, timber and plastics occupations	1.1		0.5	15.0		9.0
Other manufacturing occupations	3.6		1.5	6.4		5.7
Primary service sector occupations	70.0		70.2	20.4		29.9
Sales assistant occupations (retail)	11.3		3.4	0.6		0.6
Management assistants for wholesale/retail services	13.3		6.8	4.7		1.8
Administrative occupations	4.5		1.0	0.9		0.0
Commercial office occupations	22.2		28.7	3.9		11.6
Body care occupations	4.1		8.5	0.1		0.0
Hotel and restaurant occupations, housekeeping	5.7		12.4	0.8		3.0
Other primary service sector occupations	8.8		9.2	9.4		13.1
Secondary service sector occupations	16.5	100.0	22.7	6.4	100.0	31.3
Banking, insurance clerks	4.1		0.5	2.0		1.2
Nursing and healthcare occupations	6.8	71.9	0.2	0.1	85.4	0.3
Social sector occupations	0.0	28.1	0.5	0.0	14.6	0.0
Other secondary sector service occupations	5.7		21.7	4.3		29.6

Source: Employee Survey 2012 conducted by BIBB/Federal Institute for Occupational Safety and Health (BAuA), weighted data.

Note: Delineation of occupational fields as according to Tiemann (2008). In contrast to the delineation provided by Tiemann (2008), banking and insurance clerks are allocated to the secondary service sector and occupations in body care are aligned to the primary service sector occupations (cf. Hall 2007).

Table: Prior school learning by training segment and occupational field sector (figures in percentages)

	Dual training BBiG / HwO			School-based training		
	Manufacturing occupations	Primary service sector occupations	Secondary service sector occupations	Manufacturing occupations	Primary service sector occupations	Secondary service sector occupations
Maximum of lower secondary school leaving certificate	51.8	37.2	15.6	40.9	31.3	16.1
Intermediate secondary school leaving certificate	42.3	46.9	54.8	44.7	50.1	55.3
Upper secondary school leaving certificate or specialised upper secondary school leaving certificate	5.9	15.9	29.6	14.5	18.6	28.6
	100.0	100.0	100.0	100.0	100.0	100.0

Source: Employee Survey 2012 conducted by BIBB/Federal Institute for Occupational Safety and Health (BAuA), weighted data.

Footnotes

1 The term school-based occupation system is taken to mean “training for a statutorily recognised occupation where the sole responsibility for training lies with the training provider” (Krüger 2004, p. 145). Training takes place at full-time vocational schools, at healthcare sector schools (e.g. in the occupation of nurse) and at special trade and technical schools for social care and pedagogical occupations (e.g. nursery school teacher).

2 An earlier analysis on the basis of the 2005 Microcensus conducted by BIBB into the risk of unemployment of those who have completed training in the dual system and at fully qualifying vocational schools including control of prior school learning and the occupation in which training took place did not provide any indications of systematic differences (Hall/Schade 2005, p. 24).

3 An analysis of self-initiated changes of employer on the basis of the German Socio-Economic Panel (SOEP) shows that just under one in five job switches is to a less well remunerated position. The fact that these “down-graders” state that they have achieved a significant improvement in their employment situation regarding workload and regulation of working hours compared to “advancers” suggests a “trade-off” between a reduction in income and more favourable working conditions (cf. Pollmann-Schult 2006c).

4 “The “Integrated Training Reporting System” (iABE) is a nationally standardised reporting system which helps to map structures and developments in the (initial) training system” (Dionisus/Illiger/Schier 2013, p. 244). For this purpose, the post general schooling training system is recorded in four sectors: vocational education and training, integration into training/transitional area, acquisition of a higher education entrance qualification and higher education study. For more information on the Integrated Training Reporting System, please visit: http://indikatorik.bibb.de/de/iABE-Startseite.htm

5 Popular occupations for men and women differ considerably. The most popular occupations amongst women include medical assistant, qualified dental employee and hairdresser. Examples of prevalent training occupations for men are industrial mechanic, electronics technician and plant mechanic for sanitary, heating and air conditioning systems. For more information, see: http://www2.bibb.de/tools/db_aws/dtazub_list.php?method=display_list

6 In the school year 2011/2012, about 47 percent of 1st year pupils were in training courses regulated by federal law. Cf. Federal Statistical Office, Specialist Publications 11, Series 2, BIBB calculations.

7 Not including training courses in healthcare, social and educational occupations, which are included in their own separate area.

8 In addition to this, and despite good economic development, the high number of general school leavers meant that not all those interested could progress to a company-based training contract. The consequences were that more young people were forced into transitional measures (cf. inter alia Eberhard/Ulrich 2011) and an increase in the number of entrants to full-time school based training courses. As a result of the increasing supply problems on the training places market, legislation was introduced in the wake of the updating of the Vocational Training Reform Act of 2005 (for a fixed term until 2011) to offer the possibility of acquiring a training qualification pursuant to the BBiG/HwO via a school-based pathway (cf. Kremer 2009).

9 The recording of school-based qualifications in socio-scientific investigations is not a trivial matter. Very many nurses and nursery school teachers, for example, align themselves to “dual training” because of the proximity of the company to such training courses. This is despite the fact that such training takes place at full-time vocational schools, at healthcare sector schools or at trade and technical schools for socio-pedagogical occupations. This incorrect allocation, which makes it harder to differentiate between dual training pursuant to the BBiG/HwO and other fully qualifying training courses, can also be observed in other surveys such as the Microcensus or the SOEP. In order to prevent this, the BIBB/BauA Employee Survey includes the occupational title, the occupational classification code, the duration of training, the venue of training and other additional information.

10 Occupational experience as an indicator of the human capital accumulated during occupational activity is measured as the time in years since entry to the labour market minus breaks in employment. Only occupational experience is controlled in the multivariate model because of the very high correlation with age.

11 A break in employment is deemed to have occurred if active employment is interrupted for a period of at least six months. The question asked was: “Have you interrupted your occupational activity at any time since < year of initial occupational activity >?” Interruptions included periods of unemployment, parental leave, military or civilian service, the “voluntary ecological or social year” and training. Periods of advanced and continuing training, statutory paid maternity leave and illness, on the other hand, did not count as interruptions. If there were breaks in employment, the following further question was asked: “For how many years did you interrupt your occupational activity in total, calculated in approximate whole years?”.

12 Because secondary service sector activities are generally not physically tangible and thus constitute immaterial goods, they are also referred to as “knowledge work”. Secondary service sector occupations are also vehicles of sectoral change and may exhibit high employment growth rates. Primary service sector occupations, by way of contrast, have only recorded moderate growth in recent years. As is known, a massive reduction of employment has taken place in the manufacturing occupations (cf. Hall 2007).

13 The precise formulation of the question was adapted to the occupational position of the respondent. Missing income information and outliers were imputed or replaced on the basis of an MNAR mechanism which does not change the mean value and variance of income (cf. Rohrbach-Schmidt/Hall 2013).

14 In order to be able to undertake an exact categorisation with as few inconsistencies as possible, three further characteristics recorded in the Employee Survey were used to generate the requirements level. These were induction period (short versus longer), attendance at particular courses (yes/no) and position in the company. Tätigkeiten für die nach Aussage der Befragten zwar kein beruflicher Ausbildungsabschluss, aber eine lange Einarbeitungszeit und besondere Lehrgänge/Kurse notwendig sind wurden nach einer Einzelfallprüfung ebenfalls dem Anforderungsniveau „Berufsausbildung“ zugeschlagen.

15 Popular secondary service sector occupations in the field of dual training include medical assistant, qualified dental employee, bank and insurance clerk, chemical laboratory technician, engineering draughtsman and IT occupations.

16 Weekly hours need to be converted to monthly hours using the factor 4.5 (the average number of weeks per month). In cases where overtime is paid via time off in lieu, actual working time is replaced by agreed working time.

17 Mean monthly gross remuneration for all full-time employees subject to mandatory social insurance contributions (from 35 hours per week) is given in the 2012 BIBB/BauA Employee Survey as €2,700 (and €2,800 from 40 hours per week). By way of comparison, according to official wage and pay statistics the average monthly gross remuneration for all full-time employees subject to mandatory social insurance contributions (not including trainees) as of 31 December 2011 was €2,800 (Federal Employment Agency 2012, p. 7).

18 This is confirmed by official data. In 2010, average (mean) average gross monthly remuneration for full-time nurses (occupational category 853) and nursery school teachers (occupational category 864) was €2,819 and €2,631 respectively, significantly higher than for occupations such as sales assistant for retail services (occupational category 682, €1,570), hairdresser (occupational category 901, €1,154) and medical receptionist (occupational category 856, €1,660). Individual occupations such as office management clerk (occupational category 781) and wholesale and retail clerk (occupational category 681) can, however achieve a comparable income, the corresponding respective figures here being €2,636 and €2,498 (Employment Statistics 2012, Berufe im Spiegel der Statistik, see http://bisds.infosys.iab.de).

19 In overall terms, the likelihood of obtaining a permanent position is significantly higher for persons with vocational education and training (89 percent) than for persons without vocational education and training (80 percent) and for persons with a higher education qualification (82 percent).

20 The formulation of the question was checked for comprehensibility within the scope of a cognitive pretest (cf. Porst/Rauh/Luthringshauser 2011)

21 In order to take account of the “incomparability of gross wages” in the public and private sectors, the dummy variable “public sector” was also controlled in addition to the characteristics in Model 3. The effects of the variable “training sector” are, however, not altered by this.

22 There are only a few occupations where training can take place in company-based or school-based form that are comparable in terms of content. In our case, this applies in sufficient numbers for office management clerks (occupational category 780). If the analysis is restricted to women who have undergone either dual or school-based training in the occupation of office management clerk, no significant differences are revealed between the forms of training either bivariately or according to Model 3.

23 It can be demonstrated (Wooldridge 2002, pp. 470 ff.) that the average marginal effect (AME) is not distorted by unobserved heterogeneity. To this extent, the AME is suitable to compare the coefficients of gradually established models with one another. The marginal effect at the mean (MEM) does not, for example, possess this property (cf. Best/Wolf 2010).

24 The “problem” with the effect coefficients (odds ratios) mostly represented in literature is that they are often wrongly interpreted as probability ratios. Because the odds are linked with probabilities in non-linear form, an odds ratio represents completely different probability ratios for different basic likelihoods. For this reason, probabilities can only be calculated for given combinations of the independent variables. The AME circumvents this property of logistic models by stating an average effect (cf. Best/Wolf 2010).

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