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Anja Kuckulenz

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An Empirical Assessment

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Preface

This study is an empirical assessment of continuing vocational training in Germany and discusses determinants and consequences of training. The work described in this dissertation was carried out at the Centre for European Economic Research (ZEW). I am very grateful to my supervisor Prof. Dr. Dr. h.c. mult. Wolfgang Franz, who supported and encouraged me throughout this work. I would like to thank him for always having a sympathetic ear to my questions and for very helpful assistance. I am also indebted to Prof. Dr. Walter Oechsler, who kindly accepted to be my second supervisor. My work benefited from discussions with him and his doctoral students.

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I have derived enormous personal and scientific benefit from my time spent at the ZEW, both from the people who work here and the environment that they have created. I thank my colleagues from the ZEW's Department of Labour Markets, Human Resources and Social Policy for fruitful exchange of ideas on methodological issues as well as giving precious advice on econometric matters. The pleasant and constructive working environment made this piece of research possible.

Moreover, I want to thank my co-authors Alfred Garloff, Michael Maier, and Thomas Zwick for great teamwork that made me enjoy doing research. Additionally, I like to thank Thomas Zwick for helping me to get my research work started and following it with support. My roommate Alfred Garloff followed all forward as well as backward steps of this work and always patiently discussed the most various issues with me. Next to my co-authors, also Friedhelm Pfeiffer, Martin Schüler, and Alexandra Spitz were attentive referees of

(parts of) my first draft and gave valuable comments. Jenny Meyer, Iliyan Stankov, Diliana Stoimenova, and Tobias Tönnesmann provided excellent research assistance. All remaining errors are, of course, my own responsibility.

Last but not least, I would mostly like to thank my family for consistent affection and support and Martin, who motivated me to get this work done.

Mannheim, April 2007 *Anja Kuckulenz*

Contents

1

Introduction

Countries endowed with higher education tend to experience faster growth. The main investment in education after schooling (including tertiary education) is continuing training. Schooling and training together make up the prevailing skill formation in a developed economy. Education (and therefore also training) affects the productivity of an economy in several ways. First, education is important for successful research activities which, in turn, enhance growth. Second, education produces human capital, i.e. knowledge accumulation, and therefore productivity growth. Investments in human capital are, thus, a core element of a knowledge-based society and crucial for sustained economic growth. While primary and secondary education has been in the focus of researchers for many years, there is far less profound evidence on continuing training. James Heckman declares continuing training to be a blind spot in the vision of politicians and policy analysts: "[...] the work experience and skills acquired in the workplace in the form of job search, learning by doing and workplace education are often neglected in popular discussions because they are not well measured. Post-school learning is an important source of skill formation that accounts for as much as one third to one half of all skill formation in a modern economy. Because much of this learning takes place in informal settings outside of educational institutions, it gets neglected by the educational technocrats and the politicians who equate skill formation with classroom learning. Once we recognise the importance of informal sources of learning for skill formation, we think about policies to foster skill in a different way" (Heckman, 2000: 6).

Against the background of international competition, continuing training and its impact on productivity are the centre of interest in academia as well as in public discussions. Moreover, it is recognised by now that continuing training and its impact on labour market outcomes are anything but homogeneous.

In particular, there are large differences in training participation rates for low- and high-skilled workers and also with respect to other personal, job and firm characteristics. The impact of training on productivity and wages

is heterogeneous in terms of observed and unobserved characteristics. Besides differences regarding training participants, also the type of training is important to consider. In analysing the impact of training on labour market outcomes, a broader approach should be taken which includes external effects of continuing training. Hence, the prerequisite of informed discussion and policy advice on continuing training is a sound theoretical and empirical analysis of relevant features taking heterogeneity into account. This is what this work is devoted to.

It is often claimed that upgrading workers' skills could help to meet the challenges entailed in technological and structural change as well as population ageing. The German Council of Economic Experts (*Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung*) stated in its annual report for 2000/2001 that firms will have to meet challenges and compete with their ageing workers. The fact that the participation rate of older workers in continuing training is currently so low is due on the one hand to youth-centred personnel management and on the other to workers' anticipation of early retirement. This implies barriers to activate the whole potential of human capital in the economy. Neither youth-centred personnel policies nor early retirement are sustainable if economic and demographic conditions change (Sachverständigenrat, 2000: 219).

The OECD points to the same challenge and asks for more detailed knowledge on lifelong learning and continuing training after schooling and formal education: "While much is known about what governments and individuals expend to promote learning within formal education institutions, far less is known about the extent of learning at the workplace or in other settings outside formal education and after the completion of initial education" (OECD, 2002: 247).

In the following chapters, single topics are discussed that are particularly important for learning at the workplace or in other settings outside formal education. Specifically, the determinants of training participation as well as the consequences of an investment in skill formation are empirically investigated. Important questions surrounding continuing training to be answered are:

A) Determinants of continuing vocational training

- Who participates in continuing training? Do firms invest in training older employees?
- Do firms provide continuing training mainly when they face the pressure of competition? Or do firms see continuing training as a long-term investment in human capital?

B) Consequences of continuing vocational training

- Does heterogeneity matter for the wage effect of training? Do some groups of employees profit more from training than others? What is the reason for this difference?

- Does continuing training aggravate differences between skill groups? Do low-educated employees fall further behind during their professional life? To what extent are schooling and continuing training complementary?
- Does continuing training really lead to human capital formation or is it more of a signalling or motivational instrument?
- Can firm-provided continuing training also be used in other firms? To what extent does it provide general/specific knowledge?
- Is there a difference between individual and social returns to continuing training which would suggest governmental intervention in order to internalise external effects of continuing training?

Ultimately, this study aims at contributing to the debate on reforms of the educational system and the organisation of the labour market in the light of technical change and globalisation. It also provides prerequisites for an informed discussion on continuing training. Lifelong learning is one of the educational matters concerning policy makers in all industrialised countries as it constitutes an important building block of the educational system. The importance of heterogeneity of training participation and of returns to training has been recognised by now and will be brought into focus throughout all chapters.

In chapter 2, I start with a general introduction on continuing training in Germany and emphasise how training is defined in empirical research. This sets the stage for chapters 3, 4, and 5, where specific issues concerning continuing training that are debated in academia as well as in public are discussed. Chapter 3 presents wage effects of continuing training. In contrast to many former studies, which calculate only the average effect of continuing training, I explicitly account for the heterogeneity of training participants. Additionally, different types of training that vary in the degree of firm specificity are considered here. This difference between general and firm-specific training is picked up in chapter 4. Here, the study elaborates on determinants and consequences of these two training forms, and it is tested to what extend continuing training in Germany has a firm-specific component. In chapter 5, wage and productivity effects of training are compared in order to find out how the training rent is shared between employer and employee. In addition, this comparison enables me to estimate whether there exist positive externalities of continuing training between employees as suggested by parts of the literature on education. In the following, the single sections are briefly outlined.

Chapter 2 overviews continuing training in Germany with a focus on continuing training in empirical research. In section 2.1, the main building block of the literature on continuing training – human capital theory – is introduced. An overview of the training literature is provided while specific topics are discussed in each section.

Section 2.2 provides an introduction to educational policy in Germany and describes the legal background of further education. Continuing training is an important measure of active labour market policy in Germany. It is not part of

the later analysis in this study, where only (firm-related) continuing training for employees is discussed; government-provided training for the unemployed is excluded. Nevertheless, the importance of this measure in active labour market policy is briefly discussed. Besides, the potential financial support for continuing training that firms or individuals can receive from governmental or other institutions are listed. As it is also shown, continuing training is a topic in a number of collective agreements. The section on the institutional background concludes with a description of the suppliers of continuing training.

Section 2.3 presents a description of the empirical relevance of continuing training in Germany using an international comparison. Afterwards, information on training incidence and on the costs of continuing training in Germany is provided.

Section 2.4 gives an insight into continuing training in empirical research. Empirical work on continuing training in Germany provides surprisingly divergent evidence of the incidence of training. This makes it difficult to compare different econometric analyses of the impact of training on labour market outcomes difficult. Three large German data sets are used to study training incidence, determinants of training, and the correlation between continuing vocational training and wages. Results are compared in order to analyse the extent to which differences in estimated wage effects of continuing vocational training are due to the data set used and how the training variable is defined. This exercise provides important help for two problems. It serves to find the data set that fits best in answering certain research questions on continuing training, and beyond, it allows for hints on the degree of caution I need to employ when interpreting empirical results from different sources.

Chapter 3 discusses the heterogeneity of the wage effect of training and provides empirical evidence. In particular, section 3.1 discusses why heterogeneity should not only play a role in training participation but also in the wage effect of training. It points to the endogeneity problem researchers face when evaluating the impact of continuing training on wages. Unobserved heterogeneity induces the endogeneity problem because third factors influence training participation and wages simultaneously. Instrumental variable estimation is capable of solving the endogeneity problem; and using a full set of interaction terms enables me to estimate heterogeneous wage effects. The empirical results suggests that, first, wage effects of training are positive on average. Second, wage effects of training are heterogenous. Third, wage effects differ by skill group and other personal, firm, and job characteristics.

Section 3.2 uses the same methodology to investigate sector differences in the effects of training. Continuing training in personal services is analysed in detail and compared to the economy as a whole. The personal services sector is particularly interesting because it is a growing low-wage sector. Results suggest that training participation in personal services is not lower than average participation in the economy as a whole. On average, however, there is no impact of continuing training on wages in the personal services sector.

In section 3.3, the analysis of section 3.1 is extended by allowing for selection on unobservables. In particular, the expected return to training, which partly depends on unobservable characteristics, is likely to be a crucial criterion in the decision whether to take part in a training measure. It is accounted for the likely possibility that workers' selection into training measures is based on unobserved heterogeneity by using recent advances in estimating returns to schooling, which allow for selection on unobservables, and apply it to the estimation of the impact of training on earnings. Allowing heterogeneity to be unobserved by the econometrician, but assuming that individuals may act upon this heterogeneity, completely changes the interpretation and properties of commonly used estimators.

Section 3.4 analyses the effect of different types of training on wages. It is distinguished between two types of training: internal and external training. The former includes training inside firms (e.g., quality circles) while the latter comprises training taking part outside firms (e.g., attending trade fairs). Results suggest that internal training, which seems to be mainly firm-specific, has no impact on wages. External training, in contrast, which seems to be mainly general training, has a positive impact on wages.

Section 3.5 concludes chapter 3 with a short summary of the results of the individual sections. In all sections, heterogeneity in wage effects of continuing training is shown to be crucial. Differences between skill and age groups as well as with respect to other personal, job, and firm characteristics are shown. Since low-skilled have a lower chance to participate in training and profit less from participation, a focus is set on this group. The personal services sector, a low-wage sector, is examined in detail, and results show that in this sector, the average effect of training on wages is lower compared to the entire economy. Taking selection into training into account increases the estimated training coefficient slightly but does not qualitatively change the results. In the empirical analysis, allowing for the possibility that individuals consider the expected returns to training reduces the estimated return to training. This finding shows that probably those individuals who have a high-expected return to training choose to participate. In addition, evidence for heterogeneity of the wage effect of different training forms is presented. Training of a mainly general nature has a positive effect on wages while training including mainly firm-specific contents does not affect wages.

Chapter 4 focusses on how mobility between jobs may change the relation between continuing training and wages described in previous chapters. This offers insights on the firm-specificity of training. In more detail, the relationship between training, mobility, and wages is empirically analysed in two ways. First, the correlation between training and mobility is examined. Mobility is expected to increase or to remain unchanged if training provides mostly general human capital while a decreasing mobility is expected when training is mostly specific and not transferable between employers. Second, wage effects of mobility allowing for training participation are considered. I expect job change after general training to have a positive or zero wage effect,

while specific capital should decrease wages or will have no effect after a job change because a new employer will not reward the human capital that is unproductive in the new job.

The empirical evidence suggests that training does inhibit some specific capital. The probability of being mobile is negatively correlated with the probability of participating in training. Furthermore, both the partial correlation and the wage effects of (exogenous) mobility are negative for the group of training participants while there is no effect for the group of non-training participants. Finally, participation in training negatively affects the probability that the individual – subjectively – is better off after a job change.

Chapter 5 estimates and compares wage and productivity effects of continuing training in order to analyse who gains from workers' training. Investments in continuing training are undertaken in order to raise the level of qualification in a firm and to secure its economic performance. There are also arguments for subsidising continuing training relating to the society's social and economic benefits from such investments which ought to boost productivity and growth. The main argument are the positive external effects of continuing training which induce welfare gains and technological progress.

Whether these investments in training are profitable to the individual, the firm, and society as a whole is still unclear although the question is of considerable importance. Most studies on the productivity impact of training take wages as a proxy for productivity. The focus of this chapter is on comparing wage and productivity effects in order to study how the training rent is shared between employers and employees. The use of advanced econometric techniques allows me to account for endogeneity and time-invariant, unobserved factors.

In more detail, wage and productivity effects are estimated and compared using panel data on the industry level in order to analyse the extent to which employer and employees gain from continuing training. The study demonstrates that the rent-sharing aspect of training is important for employer and employees in Germany. Results suggest that both employer and employees profit from the investment in human capital. The estimated productivity effects of training are higher, on average, than the wage effects.

Since the estimated effect of continuing training on productivity exceeds the effects estimated by comparable studies using firm level data, my results hint to the existence of external effects of training on a sector level, that is, spillovers from training between firms in the same sector.

The results in chapter 3 suggested that skill group heterogeneity of the training impact on wages should be considered. In order to shed light on this issue and to analyse whether the impacts of participating in training on wages and on productivity differ for low- and high-skilled workers, I differentiate between these two groups in section 5.6. This extension makes it possible to analyse whether there are spillovers between the two skill groups. It is tested whether training participation of high-skilled has an influence on wages of low-skilled or the other way around.

High-skilled workers seem to capture a larger share of the rent than low-skilled workers. This result is consistent with the findings in chapter 3. In addition, no positive external effects of firm-provided training between employees of different skill groups are found. Therefore, the empirical evidence suggests that there are no spillovers from continuing training between skill groups.

Chapter 6 sums up and interprets the results. Policy-relevant findings are emphasised in order to provide a basis for an informed discussion on continuing training in Germany.

Overall, this research aims at carrying out an in-depth analysis of continuing training attainment in Germany and its consequences on individual labour market outcomes as well as on firms' added value. The extent and nature of heterogeneity between skill groups is carefully examined in all the chapters. Observed differences in continuing training attainment and in the wage effects of training are accounted for. Heterogeneity between skill groups is analysed. Differences in personal, firm, job characteristics, and other attributes are also examined carefully. In addition, this study allows for selection on unobservables.

By revealing the heterogeneity of the wage effect, by taking job mobility into account, and by comparing it to the productivity effect, this study adds to the empirical literature on continuing training in Germany in three main fields. First, it is shown in detail who participates in continuing training and which participants profit from training in terms of higher wages. Second, heterogeneity of skill participants (most importantly with respect to qualification) in training participation as well as in returns to training is examined carefully. In addition, differences between general and specific training are taken into account. Third, with the analysis on the industry level, externalities from training are captured that are missed out in other micro-level studies.

In the analysis, rich representative data sets are used that include abundant information on personal, firm, and job characteristics. I apply advanced econometric methods which account for endogeneity. Thus, I provide evidence for the importance of a differentiated analysis of continuing training, which the OECD called for in its Employment Outlook 2004: "Still, little is known about the labour market impact of adult learning. To what extent do workers who receive training enjoy better job prospects to the detriment of their non-trained counterparts? Are the effects different across demographic groups and what do empirical findings suggest as regards lifelong learning strategies?" (OECD, 2004: 183).

Finally, this study aims at giving policy advice concerning firm-provided continuing training by revealing some specific possibilities of government intervention. Policy suggestions on three main issues are offered. First, certain groups are identified that have a low chance to participate in continuing training. The gap between low and high-skilled widens if low-skilled employees have less educational opportunities. One goal of educational policies is to narrow

this gap, and one way might be the support of continuing training for the low-skilled.

Second, it is estimated whether firm-provided training is mainly general or firm specific. In case training produces general human capital that increases productivity also outside the training-providing firm, there would be an argument for subsidising firm-provided continuing training because incentive mechanism are not efficient, and a hold-up problem may exist.

Third, the study tries to identify positive externalities of continuing training between employers and firms by comparing wage and productivity effects on an industry level. The new literature on growth theory stresses the role of education. Increasing returns to education are often assumed because of positive externalities to human capital in production. Some tentative evidence suggests that the magnitude of this effect observed at the economy-wide level may exceed the observed effect at micro-levels indicating possible externalities. The empirical basis for the assumption of spillovers at the firm, industry, sector, or economy-wide level is essentially unknown. This study tries to fill this gap by estimating spillovers at the industry level in Germany since externalities deriving from continuing training have not been estimated in former work. The identification of spillovers is crucial for policy makers because in this case, external effects exists that cannot be internalised by firms. This result would suggest government intervention to reach the social optimum of continuing training.

2

Continuing Training[1]

Lifelong learning and continuing training are widely discussed topics in academia and are also often in the centre of public debates. In order to introduce the topics discussed in the following chapters, I will start this chapter with a brief overview of the training literature. Then, the institutional background regarding continuing training in Germany is described and some facts and figures are presented to demonstrate the empirical relevance of continuing training in Germany.

Broadly defined, continuing vocational training comprises all more or less organised or structured activities – whether they lead to a recognised qualification – which aim to provide people with knowledge, skills, and competencies that are necessary and sufficient in order to perform a job or a set of jobs. Employees in continuing training, thus, undertake work preparation or adapt their skills to changing requirements. The content of continuing vocational training can be job-specific, directed to a broader range of jobs or occupations, or a mixture of both; it may also include general education elements. However, the definition of continuing vocational training (CVT) in individual countries is different. And more than that, also within a country, the definition varies between data sources. This makes empirical research difficult because it is non-trivial what kind of training is included in training measures and how these can be compared to other measures.

The remaining part of the section is, therefore, devoted to continuing training in empirical research and includes an empirical application. On the basis of three large individual data sets, determinants of training as well as correlations with wages are discussed with respect to differences in how the training variable is set up and defined in the various data sets. The analyses illustrate the importance of these differences in empirical work and give a hint which data sets are most suitable to answer certain research questions.

[1] This chapter draws on Kuckulenz (2006a).

2.1 Theoretical Background: A Short Introduction to the Training Literature

The basic building block of the training literature is the human capital theory. What is meant by human capital explains Gary S. Becker as follows: "To most people capital means a bank account, a hundred shares of IBM stock, assembly lines, or steel plants in the Chicago area. These are all forms of capital in the sense that they are assets that yield income and other useful outputs over long periods of time. But these tangible forms of capital are not the only ones. Schooling, a computer training course, expenditures of medical care, and lectures on the virtues of punctuality and honesty also are capital. That is because they raise earnings, improve health, or add to a person's good habits over much of his lifetime. Therefore, economists regard expenditures on education, training, medical care, and so on as investments in human capital. They are called human capital because people cannot be separated from their knowledge, skills, health, or values in the way they can be separated from their financial and physical assets" (Becker, 2002).

Modern human capital research got underway in the late 1950s, its main proponents being Gary Becker, Jacob Mincer, and Theodore Schultz (Becker, 1962 and 1964; Mincer, 1958; Schultz, 1961). Their ideas, focussing on investments in and returns to education, have provided the theoretical basis for decades of ensuing research.

The three main components of human capital are:

1. early ability (acquired in early childhood or innate),
2. qualifications and knowledge acquired through formal education, and
3. skills acquired during working life through on-the-job training.

While there is very little work on early ability (an exception is Cunha, Heckman, Lochner & Masterov, 2005), the literature on schooling, in contrast, is extensive. Much of the empirical research has analysed the relationship between education and wages, which is due to the abundance of high quality data sources on both. There is evidence for a large range of countries covering different time periods. A large number of extensive reviews on human capital have been written. For example, Heckman, Lochner, and Todd (2003) or Franz (2003) for a discussion of the theoretical foundations of the Mincer model; Card (1999) for the estimation of the causal effect of education on earnings; and the OECD Employment Outlook (1998: ch. 4.) for an international comparison of the returns to investment in human capital. Harmon and Oosterbeek (2000) review the empirical estimates of the return to schooling. See Harmon, Oosterbeek and Walker (2003) for a discussion of the microeconomic literature as well as Sianesi and van Reenen (2003) for the empirical macroeconomic literature on the returns to education.

In this study, I concentrate on the third component of human capital – on skills acquired during working life through on-the-job training. An intro-

duction to the literature on continuing vocational training is provided in this section. The relevant theoretical issues are discussed in detail in each chapter.

The literature on continuing vocational training draws heavily on the literature on schooling. However, empirical research on continuing training has lagged behind the research on schooling and formal education. Only recently, there have been attempts to directly measure the effects of accumulating human capital through training. Among the first empirical papers using information on training to estimate its impact on wages are Mincer (1988), J. Brown (1989), and Barron, Black, and Loewenstein (1989). In many aspects, similar questions are asked in the training literature, as in the schooling literature and the same econometric problems have to be handled by economists. Nevertheless, the literature on training covers certain aspects which are not discussed in the comparable literature on schooling. These relate to the fact that training can be a shared investment between employer and employee and that training can be (partly) firm-specific. For a non-technical review of the empirical evidence on the returns to education for the individual, the firm, and the economy at large, see Blundell, Dearden, Meghir, and Sianesi (1999). Leuven (2005) provides a survey of the theoretical literature on the economics of private sector training. Existing evidence on workplace training in Europe from different data sources is reviewed by Bassanini, Booth, Brunello, De Paola, and Leuven (2005). A tentative review of the literature that estimates wage returns to training is provided by Leuven (2004). More detailed discussions of the literature can be found in each of the following chapters.

2.2 Institutional Background

In section 2.2, I review the institutional background of continuing vocational training. I start with a general description of educational policy in Germany and then discuss the legal background of further education. Then, I introduce the reader to continuing training as a measure of active labour market policy. In the following, I describe how continuing vocational training is promoted and financially supported by governmental institutions in Germany. Specifically, I concentrate on adult education centres, tax deductions, and the promotion of continuing training in small and medium-sized businesses. Discussion then goes on to consider other forms of financial promotion and advice relating to continuing training and the role of continuing training in collective agreements. In the last section, I provide an overview of the main suppliers of further education.

2.2.1 Educational Policy

In Germany, responsibility for education is held by the states (*Laender*) rather than by the federal government. This is true for both primary and secondary

education as well as for tertiary education. In its coalition agreement, the new federal government has proposed to strengthen the autonomy of the German Laender regarding educational policy.

The public financing of education is split between the federal government, the Laender, and the municipalities. About 80% of the financial resources invested into schools originate from the states, with municipalities accounting for the remaining 20% mainly for maintaining school buildings. The Laender are responsible for the financing of universities, except for additional grants from the federal level for new buildings and large purchases. Financial assistance, partly as a grant and partly as a (student) loan, is provided by the federal government and the Laender according to the Federal Education and Training Assistance Act (*Bundesausbildungsförderungsgesetz,* BAföG).[2]

In view of the financial structure of education in Germany, most variation in public expenditure on education arises between the 16 Laender (Ammermüller, Kuckulenz & Zwick, 2006). In addition to large differences in the Laender spending on education, some variation also appears between the more than 440 municipalities. Most pupils attend state schools that are free of charge. All institutions of higher education are essentially free as well. The share of private education spending in Germany is higher than in comparable countries: While 4.5% of the GDP is invested by the state, private entities invest 1.2% of the GDP. These private investments are mainly concentrated on the dual apprenticeship system and on continuing training at the workplace (Klös & Weiss, 2003).

2.2.2 Legal Background of Further Education

In the German federal law, there is no general right to participation in continuing training. Due to the institutional setting, continuing training participation is regulated by Laender laws, collective agreements, or individual agreements between employers and employees. Most importantly, the Laender are empowered to pass laws governing the right to further education, the promotion of training, and regulation of special company leave for this purpose. Furthermore, these laws include regulations with respect to the institutions providing further education and their sponsorship (BMBF, 2004). For example, in 12 Laender (out of 16), employees have the right to take extra days of vacation in order to participate in training courses and seminars (all Laender except Baden-Wuerttemberg, Bavaria, Saxony, and Thuringia). This regulation goes back to the late 1960s when education and qualification of the workforce was offensively promoted in Germany. Regulations in collective agreements that regard continuing training are discussed in section 2.2.5.

Specifically, employees can claim to take off one week from work per year and participate in a continuing vocational training course of their choice.

[2] Article § 56 of the BAföG says that the BAföG payments will be split between federal government (65%) and Laender (35%).

These activities do not have to supply the participants with firm-specific or industry-related knowledge. Employees can choose to participate in courses that do not directly qualify for their current job but supply them with general skills. For example, this provision also encompasses training courses aiming at deepening participants' political understanding. The idea is that such courses increase the understanding of social and political relations and will, in turn, stimulate political and social discussion and the assumption of responsibilities in a democratic country. This "education holiday" is mostly used to learn a foreign language or a computer programme. Such training days have the status of working days, i.e. they are paid by the employer. Direct training costs are paid by the employee.

Employees are mainly involved in initiation and implementation of continuing training through the works council. For details of the workers' participation regarding continuing training, see chapter 8.2.4 in Oechsler (2006).

2.2.3 Continuing Training as a Measure of Active Labour Market Policy

Continuing training is one of the most important instruments used by governmental institutions to mitigate discrepancies in qualificational demand and supply of workers (see, e.g., Fitzenberger & Speckesser, 2005; Lechner, Miquel & Wunsch, 2004 and 2005). These courses are aimed at the unemployed in particular and are designed to even out the lack of specific qualifications and to reduce periods of unemployment. The provision of training courses makes up a large share of spending on active labour market policies (see Table B.1 and B.2 in the appendix showing the expenditure on active and passive labour market policies and the number of participants in the quantitatively most important active labour market policies (ALMP) measures). Fitzenberger and Prey (2000) find positive, though only partially significant long-run effects of training on employment or wages. Lechner et al. (2004) present evidence for negative employment effects of public sector-sponsored training programmes in the short run and positive employment effects over a horizon of about 4 years. The negative lock-in effect for the period immediately following the beginning of the programme and the significant positive effect on employment a year after the beginning of the programme are affirmed by Fitzenberger and Speckesser (2005).

Total spending on continuing training by the Federal Employment Agency (*Bundesagentur für Arbeit*) increased from around 3 billion euros in the late 1980s to a peak of about 9 billion euros in 1992 (on a large scale, continuing training was offered to employees in the former eastern part of Germany after reunification). Thereafter, the Federal Employment Agency's spending on continuing training decreased to about 6.5 billion euros in the late 1990s.

Training courses for the unemployed are also financed by the Federal Employment Agency. In 2001, the Federal Employment Agency spent 4.78 billion