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# Young and Out in Germany

## On Youths' Chances of Labor Market Entrance in Germany

Wolfgang Franz, Joachim Inkmann,  
Winfried Pohlmeier, and Volker Zimmermann

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### 10.1 Introduction

The youth labor market in Germany often fascinates labor economists and policymakers: youth unemployment rates in Germany are considerably below the OECD average and are beaten only by Japan, Luxembourg, and Switzerland. Moreover, the German apprenticeship training system is frequently cited as a promising model for vocational education.

Whatever the merits of the institutional regulations and the functioning of the German youth labor market are, this paper focuses on those youths who fail in this system at one point or another. Hence, our study deliber-

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ately refrains from joining the literature analyzing the advantages of the dual system in Germany (without denying that there are a lot of them). Rather, our concern is the group of young people who either do not find an apprenticeship training opportunity or do not successfully complete such training for whatever reason, or fail to get a job after apprenticeship training. More specifically, the paper is devoted to a treatment of the following type of questions: How does youth unemployment evolve in comparison to adult joblessness? Are there any differences in the risk or the duration of unemployment? To what extent does the apprenticeship training system relegate unemployment to higher age groups? Who does not get an apprenticeship and what happens to him or her? Which individual characteristics of a youth make him or her most likely to fail at one stage or another in early work history? To what extent can a disadvantageous family background be blamed for failures? Are early failures permanent scars or temporary blemishes?

Since our approach is empirically oriented—including a microeconomic analysis of some of the aforementioned aspects—a serious caveat is in order. Focusing on youths and, moreover, concentrating on problematic groups of young people means a substantial reduction in sample size even if the entire data set is large. Therefore, some of our findings represent case studies, the robustness of which is in question.

The paper is organized as follows. Section 10.2 not only offers an overview of the youth labor market, including its dynamics and institutional framework, but also provides a quantitative assessment of those youths who fail during several transition stages from school to work. Section 10.3 analyzes the duration of the first spell of nonemployment after completion of formal vocational training. The estimates are based on a proportional hazard function approach for grouped durations. Section 10.4 addresses the extent to which failures early in the work history have long-lasting effects on future income. Section 10.5 summarizes our findings.

## **10.2 Problematic Groups in the Youth Labor Market in Germany: An Overview**

### **10.2.1 Youth Unemployment: Getting the Questions Right**

As an obvious starting point figures 10.1 and 10.2 display time series of youth and adult unemployment rates for West Germany distinguishing between males and females and several age groups. The definition of the unemployment rate follows official statistics in Germany: registered unemployed persons divided by members of the labor force (including self-employed persons). Note, however, that youths looking exclusively for apprenticeship training are not counted in official unemployment statistics because they are “not at the disposal of the labor office” (see below).

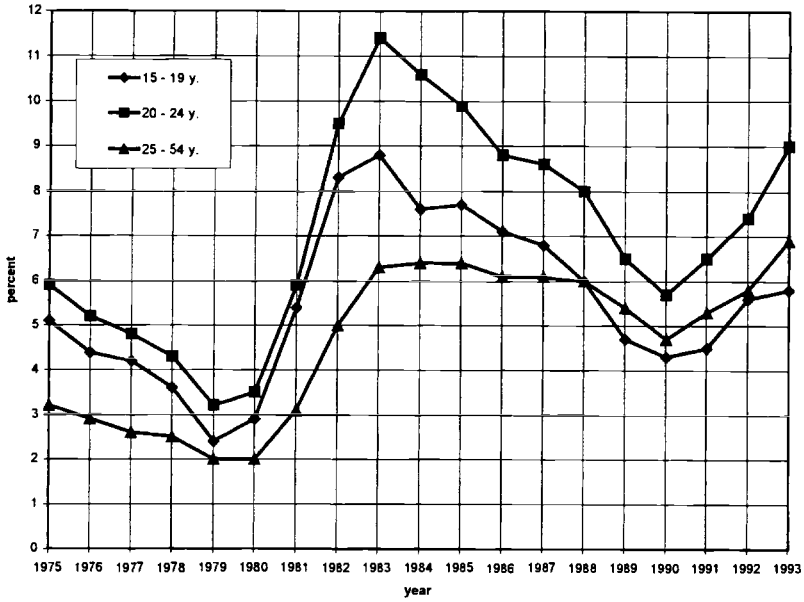


Fig. 10.1 Youth and adult unemployment rates: males

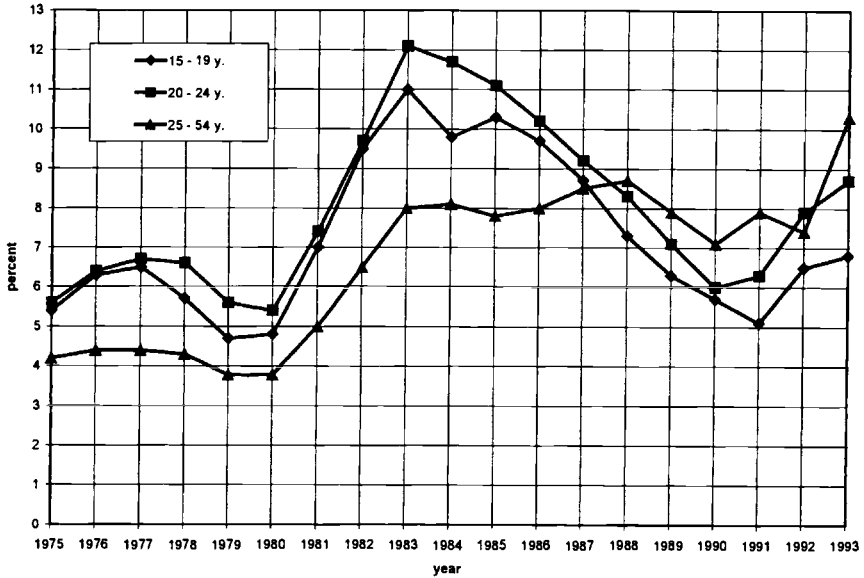


Fig. 10.2 Youth and adult unemployment rates: females

Both figures reveal that youth unemployment in Germany is, to some extent, relegated to the age group 20–24. Male unemployment rates for youths aged 20–24 exceeded those for youths aged 15–19 by 2.2 percentage points on average during the time period 1983–93, with a maximum of more than 3 percentage points in the recession year 1993. These differences with respect to age groups are less marked for females. Hence, the question arises as to why youth unemployment rates differ so much between age and sex groups (see Franz 1982 for an earlier study). In section 10.2 we therefore investigate the extent of possible failures during the transition from school to work using aggregate data, while section 10.3 is devoted to a microeconomic analysis concerning failures to enter a first job.

A second striking feature emerges if we compare youth and adult unemployment rates. Between 1980 and 1988 all youth unemployment rates displayed in figures 10.1 and 10.2 exceeded adult unemployment rates, sometimes by a considerable amount. With males aged 20–24 as an exception, all but one youth unemployment rate fell short of adult unemployment rates afterward.

We have noted already that official unemployment figures do not include youths looking exclusively for apprentice training. Information on those is available for September of each year and refers to youths registered at the labor office and looking for apprenticeship training. They are far from negligible in number. For example, in West Germany during the recession year 1993 about 67,500 youths under the age of 20 were officially registered as being unemployed (in East Germany, 22,600). In September of the same year 14,800 youths were not yet recruited for an apprenticeship training position in West Germany (in East Germany, 2,900). When a boom year such as 1991 is considered the figures for West Germany are 54,200 unemployed youths and 11,200 applicants; that is, official youth unemployment figures for West Germany have to be multiplied by a factor of around 1.2 for a broader definition of youth joblessness. It should be stressed, however, that these calculations represent a crude approximation at best. Many applicants receive an apprenticeship training position soon after September because a considerable number of these positions are blocked for some time by multiple applications (it is not required that the labor office be involved, either by applicants or by firms offering apprentice training). Moreover, an unsuccessful search for an apprenticeship training position does not necessarily mean unemployment but may end in further school education, for example. Under these caveats figure 10.3 nevertheless gives an impression of the size of problematic groups among the young in the labor market. The figure converts official unemployment rates for youths less than 20 years old into youth joblessness rates by including yet unsuccessful applicants for apprenticeship training.

As is well known, unemployment rates are of limited importance because they are silent on the dynamics of unemployment, such as the risk

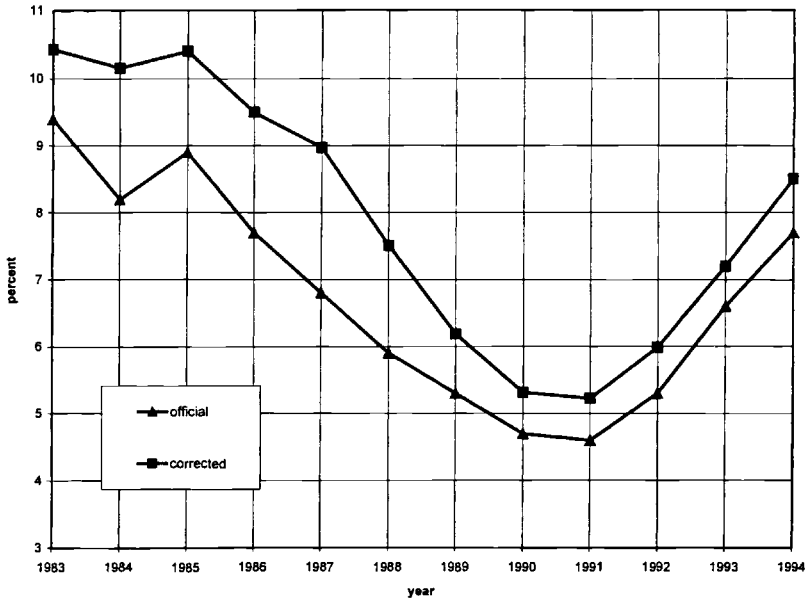


Fig. 10.3 Official and corrected youth unemployment rates

and duration of unemployment or the occurrence of multiple spells. To begin with, table 10.1 shows annual figures averaged over five-year periods on risk and on duration by age and sex. The risk of becoming unemployed for a group is measured by the ratio of the annual sum of inflows into the unemployment pool to the labor force of that group. Thus “risk” also includes multiple entries into unemployment by the same individual (per year). “Duration” means completed unemployment duration of those individuals who left the unemployment register during one year, where annual data for each individual are taken in the period between 1 October of the previous year and 30 September of the current year. In light of these definitions, dictated by the data set, it is obvious that the figures in table 10.1 suffer from various deficiencies. They do not allow a distinction between single and multiple spells of unemployment per individual, and moreover, the long-term unemployed may be underrepresented in the calculation of unemployment duration. Under these caveats they support an observation made in many, if not in most countries, namely, that youths suffer from a higher risk of becoming unemployed compared to older members of the labor force, such as those aged 55–59, but that they face a considerably shorter duration for each unemployment spell (though not necessarily of unemployment insofar as they experience multiple spells of unemployment). Both risk and duration are higher for males aged 20–24 than for the younger age group. For females, however, only duration in-

**Table 10.1** Dynamics of Unemployment in West Germany: Risk and Duration

Age Group	1984–88		1989–93	
	Males	Females	Males	Females
Risk (%)				
Below 20	22.7	28.0	21.6	23.1
20–24	28.7	25.1	25.0	19.4
55–59	14.8	14.9	13.0	13.9
15–65	15.6	18.3	14.4	14.5
Duration (weeks)				
Below 20	16.5	19.1	12.1	14.4
20–24	18.6	22.0	15.1	17.1
55–59	44.0	54.5	52.7	67.1
15–65	27.0	31.1	26.6	30.6

Source: Bundesanstalt für Arbeit, *Amtliche Nachrichten der Bundesanstalt für Arbeit* (Bonn, various issues); calculations by authors.

Note: See text for details.

creases with age, and the reverse is true for risk. Hence, we are left asking why the aforementioned distribution of risk and duration among age groups exists. A tentative explanation as to why males aged 20–24 face considerably higher risk than females may be that males can escape from unemployment by entering military service already at ages under 20. This only means, however, a postponement of the risk from the lowest age group to the next higher one.<sup>1</sup> The comparatively short duration of youth unemployment leaves it open whether such a short episode has long-lasting effects on a worker's later career. Hence, in section 10.4 we elaborate on this question by estimating earnings functions depending on, among other variables, unemployment experience at the beginning of working life.

In the presence of multiple spells of unemployment a distinction is in order between the duration per spell of unemployment and the duration of unemployment per person. Put differently, the first dimension times the number of unemployment spells per individual gives the latter dimension. Information on this issue with an emphasis on youth unemployment is not very rich for Germany. Karr and John (1989) is still the most in-depth study. The authors base their investigation on all unemployed persons who received unemployment compensation between July 1979 and June 1984, around 7.9 million persons. In addition, they match data from employment statistics to the data stemming from unemployment benefits statistics in order to capture those unemployed who are not entitled to any unemployment benefits. While the results of this study tend to be somewhat historical they are based on a huge data set and provide information some-

1. Note that figures on the labor force include soldiers.

**Table 10.2** Cumulated Unemployment in West Germany, 1979–84

Age Group	Number of Persons (million)	Number of Spells per Individual	Duration per Spell (weeks)	Cumulated Duration (weeks)
Below 20	1.965	1.14	17.9	20.4
20–24	2.260	1.86	18.4	34.2
25–29	1.440	1.96	22.2	43.6
30–54	3.723	1.86	25.7	47.8
55–59	.665	1.20	46.7	55.8
All	10.053	1.71	23.7	40.5

*Source:* Karr and John (1989).

what more reliable than that obtained from case studies of a few hundred unemployed individuals.

Table 10.2 highlights some results of Karr and John's study. Note that all numbers refer to the period 1979–84, so that an unemployed youth under age 20 had 1.14 spells of unemployment during the whole five-year period. Each spell lasted 17.9 weeks, so that the cumulated unemployment duration amounted to 20.4 weeks. Disregarding the lowest and highest age groups, there is little variation in the number of spells per individual. By and large, the relation between age and number of spells follows the shape of an inverted U. This does not hold for duration per spell, which increases with age.

In order to obtain more recent empirical evidence on this aspect we carry out a similar analysis based on several waves of the German Socio-Economic Panel covering the time period 1984–93 (West Germany). While our calculations also refer to a five-year period they differ from those in Karr and John (1989) in that all persons are included who became unemployed at any point of time and could be observed for five years (Karr and John consider only those who became unemployed at the beginning of the five-year period 1979–84). As a consequence our figures are not strictly comparable to those obtained by Karr and John. The main reason for our approach is, of course, to obtain more observations. Our sample size remains small nevertheless. The number of spells per individual amounts to 1.22 for youths under age 25, with a cumulated duration of 23.4 weeks as displayed in table 10.3. As in table 10.2 there is no clear tendency for the number of spells to unambiguously decrease with age, whereas the cumulated duration of unemployment is positively correlated with age.

### 10.2.2 Demand and Supply of Apprenticeship Training

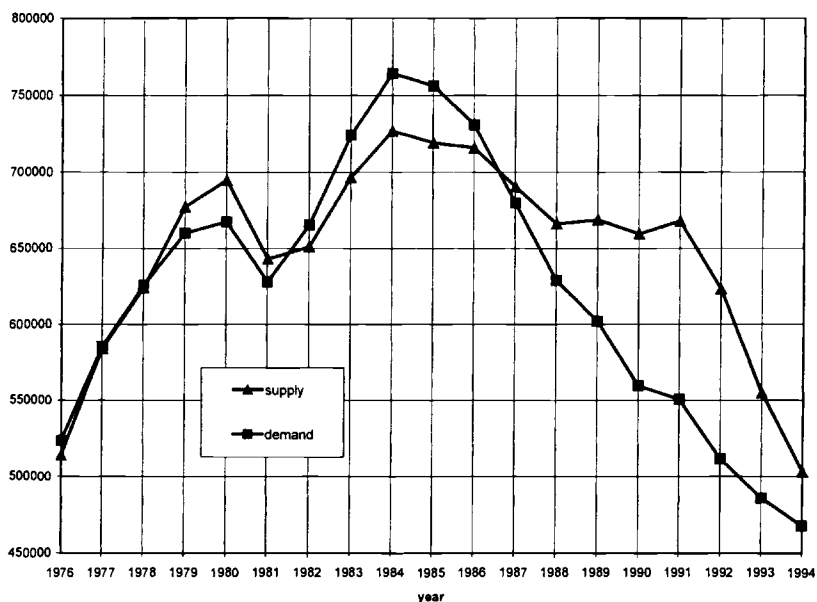
Over the past two years concern about the supply of apprenticeship training positions has again taken center stage in public discussions. Figure 10.4 reveals that no substantial new developments have appeared in



**Table 10.3** Multiple Spells and Duration of Unemployment in West Germany, 1984–93

Age Group	Number of Persons	Number of Spells per Individual	Cumulated Duration (weeks)
Below 25	525	1.22	23.4
25–30	314	1.25	27.0
31–40	312	1.14	30.0
41–50	221	1.16	33.3
51–60	217	1.11	55.8

Source: German Socio-Economic Panel; calculations by authors.



**Fig. 10.4** Demand and supply of apprenticeship training positions in West Germany

the market for apprenticeship training positions underlying this debate. Periods of excess demand for apprenticeship training such as 1976–78 and 1982–86 were followed by periods of excess supply. Note that the numbers in figure 10.4 refer only to those positions and applicants registered at the labor office.<sup>2</sup> There is only very limited information on those employers and applicants who act without contacting the labor office.

2. “Supply” means the sum of new contracts for apprenticeship training and vacancies for apprenticeship training. “Demand” is defined as the sum of new apprenticeship training applicants and applicants for apprenticeship training who have not (yet) received a contract.

As can be seen, the years after 1986 are characterized by considerable excess supply, with a peak in 1991. This helps to explain why unemployment rates of youths fall short of adult unemployment rates in this time period. The increase in demand for apprenticeship training positions in the first half of the 1980s is due to the entrance of the baby boom birth cohort of the second half of the 1960s into the labor market. The decline in demand after 1984 is not only a consequence of smaller birth cohorts but also due to lower labor force participation rates. For example, participation rates of males under age 20 fell from 45.8 percent in 1985 to 37.1 percent in 1993 (for females from 39.6 percent to 32.8 percent) due to increased demand for higher education. This issue will be taken up again in the next section. Reasons for the shrinking supply of apprenticeship training positions are, among other things, increasing costs, institutional regulations, and lower expected demand for qualified workers.<sup>3</sup>

### 10.2.3 From School to Work: Success or Failure?

What follows is a quantitatively oriented analysis of the transition process from school to work, including a brief description of major institutional regulations concerning vocational education. Special attention is given to those youths who at one point or another fail in the system. In addition, subsection 10.2.4 is entirely concerned with measures for those youths who fail or drop out of an apprenticeship.

While this section is based on an interpretation of various statistics and institutional regulations, an econometric analysis of some aspects of this transition process is relegated to section 10.3. In view of the numerous variations in the system, for example, according to which state of the Federal Republic of Germany is under consideration, it goes without saying that only some stylized facts can be displayed here.

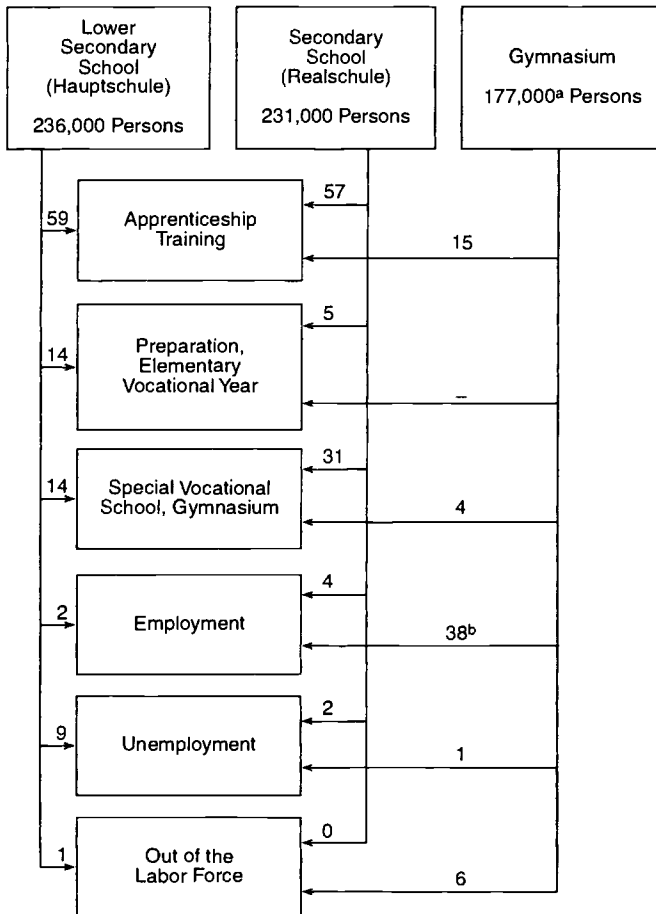
By and large, three stages of the educational process can be distinguished for the topics dealt with here: (1) the transition from the school system into apprenticeship training, (2) dropouts and failures during apprenticeship training, and (3) the transition to employment after apprenticeship training.

#### *First Stage: Transition from School to Vocational Training*

To begin with, three different school types and certificates of general education are distinguished in figure 10.5, where all numbers refer to West Germany in the year 1990.<sup>4</sup> All calculations in this figure are based on a national accounts system for education (Bildungsgesamtrechnung). This system uses various aggregate flows and stocks and merges them with tran-

3. See Franz and Soskice (1995) and Winkelmann (1996) for a brief overview and analytical treatment.

4. This is the most recent year for which numbers are available.



**Fig. 10.5 Transitions from general education in West Germany, 1990**

Source: Institut für Arbeitsmarkt- und Berufsforschung (1993, 17).

Note: See text for details. Numbers labeling arrows are percentages.

<sup>a</sup>Thirty-five percent of these youths enter universities or advanced colleges for higher education.

<sup>b</sup>Twenty-nine percent military service and 9 percent employment.

sition probabilities obtained from other sources (e.g., individual data sets) in order to get a consistent flow diagram for different types of school education, vocational training, and the labor market. It is, however, set up for some years only (for details, see Tessaring, Reinberg, and Fischer 1993). Note that other flows will be discussed later, such as flows from apprentice training or vocational schools (see fig. 10.6 below).

A nine- or ten-year lower secondary school (*Hauptschule*) education is compulsory for all youths aged 7–15 unless they switch after four years,

typically at age 10, to a nine-year gymnasium or a six-year secondary school (*Realschule*).<sup>5</sup> The lower secondary school provides basic general education and provides a certificate (*Hauptschulabschluss*) to those who successfully pass all classes. The student at the gymnasium, after examinations, ends up with a certificate called an *Abitur*, which entitles this youth to continue his or her education at a university or an advanced college for higher education (*Fachhochschule*). The secondary school also provides successful youths with a certificate (*Mittlere Reife*), which, for example, entitles its holders—provided that they have completed apprenticeship training—to attend the aforementioned three-year advanced college for higher education, which specializes in fields such as engineering or business administration. These colleges differ from universities not only in their shorter period of education (three years) but also in that they attempt to provide an education that is more oriented to applications and practice.

As figure 10.5 indicates, 236,000 youths left lower secondary school in 1990. Note that “leaving” does not necessarily mean that all youths passed all classes in this school.<sup>6</sup> Those who fail in one class or another have to repeat the class but may leave lower secondary school after finishing the nine-year compulsory full-time school period. Many of those youths, however, stay at this school in order to complete all nine classes successfully and to receive the lower secondary school certificate. In case of serious deficiencies some youths change from lower secondary school to a specialized school for disabled persons. Of the 236,000 lower secondary school leavers, 59 percent embark on apprenticeship training more or less immediately afterward, 14 percent enroll in a preparation or elementary vocational year, 14 percent continue vocational education at a special vocational school, but 9 percent enter unemployment. Indeed, the transition from lower secondary school to apprenticeship training is a critical point. Moreover, the suspicion may be raised that an unknown share of youths continue their education involuntarily.

Hence, the obvious question arises as to what happens with those youths without an apprenticeship training position. Whether employed or unemployed a youth has to attend a part-time vocational training school, which is compulsory until age 18, unless the youth departs for another school. “Part time” usually refers to one full day per week. Youths may, however, continue their educations, and the German vocational training system offers a variety of possibilities, such as a preparation year for vocational training (*Berufsvorbereitungsjahr*) or an elementary vocational year (*Berufsgrundbildungsjahr*). The first alternative is a full-time school specially designed to assist youths who found it difficult to obtain an appren-

5. See the glossary of some features of the German educational system in appendix C.

6. In 1988 roughly 20 percent of all youths leaving lower secondary school did not have a lower secondary school certificate (Bundesministerium für Bildung, Wissenschaft, Forschung und Technologie 1994, 76).

**Table 10.4** Youths in Vocational Education (thousands)

Year	Vocational School	Special Vocational School	Elementary Vocational Year		Preparation Year for Vocational Training
			Full Time	Part Time	
1980 <sup>a</sup>	1,848	326	66	14	42
1985 <sup>a</sup>	1,893	330	80	16	36
1990 <sup>a</sup>	1,469	246	37	47	26
1993 <sup>b</sup>	1,323	246	30	63	32

Source: Bundesministerium für Bildung, Wissenschaft, Forschung und Technologie (1994, 48).

<sup>a</sup>West Germany.

<sup>b</sup>West Germany and East Berlin.

ticeship by offering broad prevocational training. On the other hand, the elementary vocational year, which is now mostly part-time schooling (see table 10.4),<sup>7</sup> provides instruction in subjects common to a range of similar occupations and replaces six to twelve months of normal apprenticeship training. To some unknown extent both variants of the preparation year serve as “waiting loops” for school leavers without apprenticeship contracts. As a third example, those youths who leave lower secondary school with a certificate may attend a, usually one-year, full-time special vocational school (*Berufsfachschule*). Although some of these special (higher) vocational schools provide a complete education, such as that needed to work as a medical-technical assistant, the great majority of these schools are of a kind where attendance counts toward the training period in a recognized skilled occupation and among these there is a preponderance of the clerical-administrative variety (known as commercial schools) and a second type providing training for home economics or social care occupations. An exceptionally high proportion of students (roughly two-thirds) are female and want to continue their training in the dual system (Münc 1991, 122–23).

We are now in a position to take a closer look at those lower secondary school leavers in figure 10.5 who undergo training within the “preparation year for vocational training” and the “elementary vocational year” or attend special (higher) vocational schools. What do these youths do after this time period? Our own calculations based on the Socio-Economic Panel reveal that more than half of these youths enter an apprenticeship afterward, although this result should be viewed with caution because the number of persons involved is small.

7. The shift toward the part-time form of the elementary vocational year since the second half of the 1980s may, to some extent, stem from the emphasis that has been placed on this type of school by several employers’ associations; see Münc (1991, 113).

As is displayed in figure 10.5, 9 percent of those youths who leave lower secondary school (with or without a certificate of successful completion) enter the unemployment pool.

Going back to figure 10.5, the second major school type is the *Realschule*, or secondary school. The typical youth enters this school after completing the first four years of elementary school, that is, at age 10. Schooling at the secondary school lasts six years and culminates, after examinations, with a secondary school certificate. Ambitious apprentice training positions more or less formally require such a certificate. As can be seen from figure 10.5 slightly more than one-half of all secondary school leavers enter apprenticeship training. By and large, the remaining school leavers continue their educations. Compared with leavers from lower secondary school only a small fraction of secondary school leavers enter unemployment. Table 10.5 shows the status of school leavers from lower secondary and secondary school one year and five years after they have left school. One year after completion of general education, about 80 percent are still in school or in vocational training. Only about 7.5 percent of them are employed. Five years after completion of general education 16.5 percent are still in vocational training and 3.8 percent attend university or an advanced college for higher education.

**Table 10.5** School and Employment Status of Lower Secondary School and Secondary School Leavers in West Germany (percent)

School Cohorts 1984-93	After One Year				
	School	Vocational Training	Employed	Unemployed	Not in Labor Market
Males	25.0	57.3	7.9	2.2	7.6
Females	19.9	60.0	7.1	2.4	12.1
German	22.2	66.2	4.5	2.0	5.1
Foreign	23.3	45.8	11.5	3.4	16.0
Total	22.5	57.6	7.5	2.6	9.8
School Cohorts 1984-89	After Five Years				
	School <sup>a</sup>	Vocational Training	Employed	Unemployed	Not in Labor Market
Males	5.7	16.3	63.8	9.9	4.3
Females	1.6	16.8	60.0	8.0	13.6
German	5.2	27.2	59.4	6.5	7.1
Foreign	1.8	9.0	65.8	12.6	10.8
Total	3.8	16.5	62.0	9.0	8.6

Source: German Socio-Economic Panel; calculations by authors.

<sup>a</sup>University or advanced college for higher education.

Finally, the third school type is the nine-year gymnasium. As with secondary school youths enter gymnasium after four years of elementary school and leave it at age 19–20 or so. As has been mentioned the gymnasium awards, after examinations, a certificate called an *Abitur*, which entitles the holder to enter a university. Some 15 percent of all gymnasium leavers, however, decide to undergo apprenticeship training first, as figure 10.5 indicates. For example, a youth might obtain an apprenticeship training position at a bank and after that study business economics (perhaps with an emphasis on banking). The largest group of gymnasium leavers (35 percent) continues school education mostly at universities (28 percent). Some 9 percent become employed, and 29 percent enter military service, voluntarily or involuntarily, or community service (in lieu of military service). Roughly 1 percent become unemployed, and 6 percent leave the labor force. The latter group consists mostly of females.

Most youths experience a smooth transition from school to vocational training. One reason for this is their high flexibility toward their future occupations. In 1994/95, 65 percent of youths named more than one occupation that they wanted to get training for, and 28 percent named more than three occupations. Roughly 51 percent started apprenticeship training in an occupation that was not their first choice. Tables 10.6 and 10.7 show the 10 most desired occupations of young males and females one or two years before completion of schooling and the 10 most frequent newly concluded apprenticeship training contracts. Besides the differences between males and females, the high flexibility of youths in the transition process can be seen.

Taken together, in 1990 about 12 percent of all youths did not experience a smooth transition from the three school types under consideration into apprenticeship training or further education, and another 7 percent dropped out of the labor force. With respect to the first group, the labor office offers several measures to assist school leavers, such as providing vocational counseling, matching seekers of apprenticeship training with such positions (as far as they are registered at the labor office), and providing financial aid not only to enable youths to receive apprenticeship training (such as reimbursing costs of applications or moving) but also to maintain their livelihood during apprenticeship training if they do not live with their parents, are at least 18 years old, or are married. A description and quantitative assessment of measures for the “hard to employ” is relegated to subsection 10.2.4.

Failures in the transition from school to apprentice training have long-lasting effects on later occupational careers. Table 10.8 takes a closer look at those transitions by distinguishing two groups of persons in the age 20–24 category depending on whether they had complete vocational training in 1988. For each group it was then investigated what they had done immediately after school (being then 14–15 years old). For example, 10

**Table 10.6**      **Desired Occupations and Newly Concluded Apprenticeship Training Contracts of Male Youths, 1994/95**

Rank	Desired Occupation	Percentage	New Apprenticeship Training Contract	Percentage
1	Motor vehical mechanic	18.6	Motor vehicle mechanic	6.8
2	Joiner/woodworker	12.4	Bricklayer/skilled construction worker	6.8
3	Bricklayer	11.0	Joiner/woodworker	5.4
4	Bank clerk	9.8	Electrician	4.9
5	Electrician	9.1	Painter/varnisher	4.6
6	Mechanical electrician	8.3	Industrial worker	4.0
7	Office clerk	7.2	Plumber/fitter	3.6
8	Radio/television technician	5.6	Import/export and wholesaler trader	3.4
9	Carpenter	5.4	Retail trader	3.1
10	Draftsman	4.8	Industrial clerk	2.6

*Note:* See text for details.



**Table 10.7**      **Desired Occupations and Newly Concluded Apprenticeship Training Contracts of Female Youths, 1994/95**

Rank	Desired Occupation	Percentage	New Apprenticeship Training Contract	Percentage
1	Office clerk	14.5	Office clerk	10.7
2	Doctor's assistant	14.4	Doctor's assistant	7.6
3	Bank clerk	10.8	Retail trader	6.7
4	Hotel manageress	9.4	Dental assistant	6.3
5	Hairdresser	8.3	Hairdresser	6.1
6	Animal keeper	7.7	Industrial clerk	5.0
7	Veterinary assistant	7.6	Bank clerk	4.2
8	Florist	6.3	Sales assistant	4.0
9	Photographer	6.0	Food industry	
			Lawyer's/notary's clerk	4.0
10	Shop assistant	5.9	Hotel manageress	3.5

*Note:* See text for details.

**Table 10.8** Transitions from School by Vocational Education in West Germany, 1988

Previous Exits after School Into	Persons with or without Complete Vocational Education in 1988 (%)	
	With	Without
Job without qualification requirements	10	54
Apprenticeship training	64	16
Unemployment	1	4
Further education	22	21

*Source:* Bundesminister für Bildung und Wissenschaft (1991, 33, 35).

*Note:* See text for details.

percent of those persons who completed vocational training in 1988 did not embark on apprenticeship training immediately after school but first had a job without qualification requirements. The data are based on a special survey of youths aged 20–24 collected in West Germany around 1988. Each group consists of about 1,800 youths. Some 54 percent of those without a complete vocational education had failed already in the transition from school, in that they embarked on a job that did not require further vocational education. This figure stands in marked contrast to the corresponding figure of 10 percent for those with a complete vocational education. Thus the suspicion may be raised that those early failures represent “permanent scars rather than temporary blemishes” (Ellwood 1982). This is also evidenced by the subsequent transition of youths without a complete vocational education. Among those who had a job some 27 percent changed to another job (again without further requirements with respect to vocational education), 13 percent entered the unemployment pool, 6 percent temporarily entered apprenticeship training, and 11 percent took up further vocational training, unsuccessfully, however.

Table 10.9 reveals that youths’ failures to receive apprenticeship training stem from both sides, supply and demand. Figures are based on the same survey mentioned before and include youths aged 20–24 who do not have a complete vocational education. A distinction is made between youths looking for apprenticeship training and those who were not. Both groups of youths were asked for their reasons for not embarking on apprenticeship training. For example, 57 percent of youths who had been looking for apprenticeship training did not start such training because offers were lacking in the desired occupation,<sup>8</sup> but this figure is clearly

8. Those who did not look for apprenticeship training answered this question, too. This may be due to anticipations (correct or not).

**Table 10.9** Reasons for Not Starting Apprenticeship Training, 1988 (percent)

Reason <sup>a</sup>	Searching for Apprenticeship Training	
	Yes	No
Poor performance (certificates, tests)	65	35
No interest in further learning	7	30
No offer of apprentice training in desired profession	57	10
No offer at all	41	15
No idea about what type of profession	9	25
More labor income wanted	12	21
Marriage, pregnancy	8	19
No confidence in himself or herself	4	15

Source: Bundesminister für Bildung und Wissenschaft (1991, 49).

Note: See text for details.

<sup>a</sup>Multiple answers are possible.

overshadowed by poor performance as the major reason for not starting apprenticeship training. In total (and not displayed in table 10.9) 56 percent of youths without a complete vocational education did not search for apprenticeship training, and reasons for that can mainly be found in individual circumstances such as poor performance, unwillingness to undertake further learning, lack of ideas about what to do, and family formation.

### *Second Stage: During Vocational Training*

As pointed out in the previous subsection, inflows into apprenticeship training stem from various school types. This is also highlighted by table 10.10, which differentiates trainees according to their level of school education. The age structure of the apprenticeship trainees mirrors school leaving dates and shows that the traditional picture of the 15-year-old youth leaving lower secondary school and embarking on apprentice training is not (or at least no longer) a representative description of reality. In 1990, around one-quarter of all apprenticeship trainees were under age 18; the corresponding figures for 1980 and 1960 were 52 and 82 percent, respectively.<sup>9</sup> The average age of an apprenticeship trainee increased from 16.6 years in 1970 to 19.0 years in 1993 (Bundesminister für Bildung und Wissenschaft 1991, 40). Our own calculation on the basis of the Socio-Economic Panel shows that in West Germany during the period 1984–93 the average age of youths successfully completing their apprenticeship training increased from around 22 to 24 years. There are several reasons

9. Bundesminister für Bildung und Wissenschaft (1995, 56); figure for 1990 includes East Germany.

**Table 10.10** Apprenticeship Trainees by School Education (percent)

Education	1983	1989	1993
Without lower secondary school certificate	3.0	2.5	3.5
With lower secondary school certificate	39.9	35.5	34.2
Preparation year for vocational training, basic vocational year	4.4	6.2	4.9
Special vocational school	11.1	10.2	7.9
Graduation from secondary school	31.7	31.8	35.8
Graduation from gymnasium	8.4	13.8	13.7

*Source:* Bundesminister für Bildung und Wissenschaft (1985, 38; 1991, 36; 1995, 56).

for this change: First, in the past decade an increasing number of gymnasium leavers have undergone apprenticeship training before entering, say, university (see fig. 10.5 for the respective flow in 1990). Not only have qualification standards for several professions risen, so that completing (lower) secondary school is no longer enough, but in addition firms increasingly value work experience among academics leaving universities. Second, those males with higher school experience increasingly try to finish their military service before embarking on apprenticeship training in order to ensure a smooth transition from training to work.

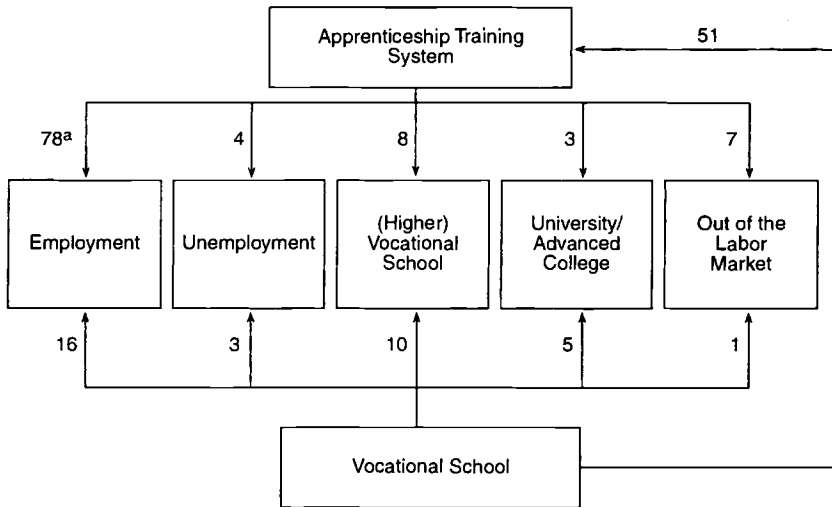
In the course of apprenticeship training, malfunctioning may arise from three sources: the trainee changes the type of vocational training or the firm providing such training; the trainee drops out to take up full-time school education, to become (un)employed, or to leave the labor force; or finally the trainee fails to pass examinations. To begin with, aggregate data on premature terminations of training contracts as a percentage of annual newly signed contracts (averaged over three previous years) display an average figure of 16.2 percent for the 1980s, ranging between 14.4 percent (1982) and 21.2 percent (1989), where the first year was during a recession while 1989 was characterized by much better economic conditions (Bundesminister für Bildung und Wissenschaft 1991, 42). In the boom year 1991 we observe a figure of more than 24 percent. Thus the suspicion may be raised that premature terminations are procyclical. Moreover, in 1989 some 83 percent of all premature terminations were initiated by trainees. Reasons in declining order of importance are difficulties with the trainers or entrepreneurs, dissatisfaction with the chosen profession, another more promising training firm, deficiencies in training courses, and duties that have nothing to do with vocational training. Premature terminations are above average in small and medium-size firms.

Finally, the overwhelming majority of trainees succeed in final examinations. The average percentage of passed exams was about 90 percent in the 1980s with a slightly decreasing trend (Tessaring 1993, 136). Those who fail are allowed to repeat, of course. Information on trainees who ultimately fail is sparse, however.

*Third Stage: After Vocational Training*

In order to give a first impression figure 10.6 summarizes transitions from the apprenticeship training system into the labor market or the school system for 1990. This year has been chosen to facilitate comparison with figure 10.5. Note, however, that the data do not indicate whether a trainee successfully completed his or her training. Calculations are again based on the national accounts for education. Seventy-eight percent of all trainees got a job, but more than 11 percent became unemployed or left the labor market. Unsurprisingly, transitions into the labor market exhibit a cyclical pattern. For example, the transition into employment declined in the recession years 1982–83 to about 70 percent but increased to 76 percent in the boom year 1990.

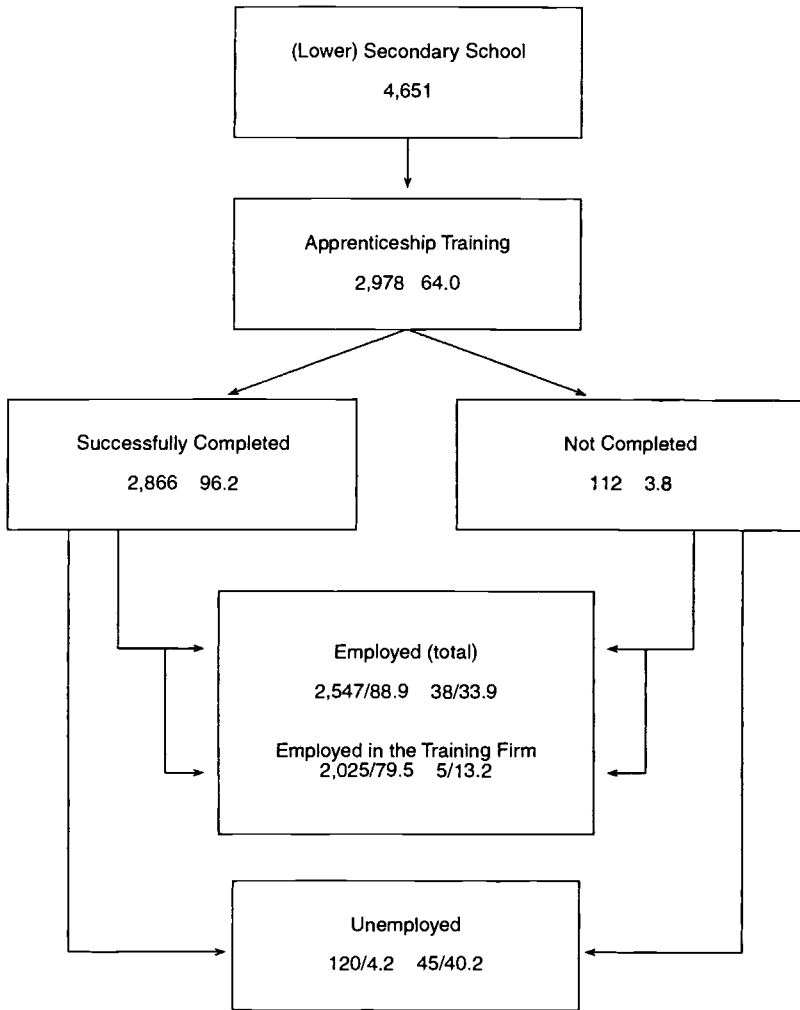
More information can be gained from individual data sets. Figure 10.7 presents our own calculations using the third wave (taken in 1991–92) from a data set collected by the Federal Institute of Vocational Education (Bundesinstitut für Berufsbildung—BiBB). People born between 1960 and 1970—that is, between ages 32 and 22 when the survey was taken—were interviewed about personal characteristics, school and work history, and the like. Their school and work experience covers the time period from around 1975 onward. In total, the data set contains 4,651 youths leaving (lower) secondary school. About 64 percent completed training successfully, and most were employed in the same firm afterward. On the



**Fig. 10.6 Transitions from apprenticeship training and vocational schools in West Germany, 1990**

Source: Institut für Arbeitsmarkt- und Berufsforschung (1993, 19).

<sup>a</sup>Includes military service and community service.



**Fig. 10.7 Transitions from school to work in West Germany, 1975–91**

*Source:* Bundesinstitut für Berufsbildung; calculations by authors.

*Note:* See text for details. First number is number of persons; second number is percentage of directly preceding status.

other side, some 40 percent of those who failed in the training system became unemployed.

#### 10.2.4 Special Measures for the “Hard to Employ”

This subsection is devoted to an overview and assessment of measures designed for special groups on the youth labor market. The major ques-

tion to be dealt with is how to make the less and the least able youths reasonably productive. Three types of measures are offered: prevocational measures for those youths who have not yet found an apprenticeship training position, special measures for handicapped youths, and special measures for youths without reasonable school experience or with social problems.

To begin with, prevocational measures aim to assist young persons during the transition process from school to apprenticeship training. These youths are not necessarily disabled but need some orientation and basis to prepare for vocational education. These measures include, first, basic training in order to find an adequate vocational training position for the youth in question; second, special classes for youths with physical or mental deficiencies who are not yet ready for vocational training but who may, in principle, be considered for vocational training; and, third, courses that provide information and motivation to those youths who are on the brink of dropping out of vocational life or have done so already. Taking all three measures together, some 68,000 youths entered such prevocational training in West Germany in 1994, with an emphasis on the second type. This figure amounts to roughly 15 percent of those who started apprenticeship training in that year.<sup>10</sup>

Measures of the second type are exclusively concerned with mentally or physically disabled youths. These measures provide either vocational training or vocational reintegration into work by further training or recruiting. The overwhelming share of all this training takes place in special training schools and workshops for disabled youths and is concerned mostly with recruiting. The number of disabled youths who left one of these programs in West Germany in 1993 was about 38,000. Of these, some 70 percent completed this training successfully in that they passed examinations in order to receive a certificate in an officially recognized profession. Some of the rehabilitation centers that provide such training report that in 1993 about 72 percent of all disabled youths got employment afterward, some 18 percent became unemployed, and the remaining persons could not be integrated into the labor market.

Measures of the third type are mainly devoted to assisting youths during apprenticeship training who have difficulties coping with the training due to school deficiencies or social problems. For the most part these measures take the form of accompanying courses while the youth stays in apprenticeship training. By the end of 1994 around 75,000 disadvantaged youths were subject to these measures in West Germany.

On the whole and referring to West Germany in 1993, around 150,000 hard-to-employ youths were covered by measures described in this section.

10. The figures in this subsection are from Bundesminister für Bildung und Wissenschaft (1995, 77-84).

To get an impression of this magnitude, at the same time about 1.3 million youth were apprentices. Note, however, that the two figures have about 50,000 persons in common.

### 10.3 Finding the First Job

Referring to the third stage mentioned above, economists generally agree that the German vocational training system is rather efficient in preventing youths from becoming unemployed. However, there is little empirical evidence on the effectiveness of the system in placing youths into stable and adequate employment. Therefore, this section focuses on the duration of nonemployment after participation in a formal vocational training program. This formal training can be a traditional apprenticeship training program within the dual vocational training system (consisting of education in a public vocational school and vocational training within a firm) or some other vocational training offered solely in a profession-specific vocational school. Schools of this type include schools for professions in the health care system (*Schulen des Gesundheitswesens*), special vocational schools,<sup>11</sup> and schools for the civil service (see the glossary in appendix C for details).

In the following empirical study we take a closer look at the process of growing into work in general by analyzing the duration of nonemployment after graduation from a vocational training program, as well as the duration of youth unemployment for those who report being unemployed. We define a nonemployed youth as someone who is either unemployed or out of the labor force. The latter group of people, for instance, consists of youths participating in brief additional vocational training programs (without receiving official degrees from them) or youths who, for some reason, are not willing to search for permanent jobs, for example, because they plan to continue schooling in the near future. On the other hand, the subsample of the unemployed can be regarded as the sample of those individuals who are likely to be more restricted in their choice sets. However, our measure of unemployment is rather weak because we have to define an unemployed youth as somebody who is registered as being unemployed at the labor office. Since registration at the labor office is, for example, a prerequisite for the parents to receive child support benefits (*Kindergeld*) this measure captures to some extent individuals who are not actively searching for jobs, as well. For simplicity we disregard compulsory military service (or alternative service) as a specific option to escape the nonemployment pool and compute the length of nonemployment spells net of military service.

11. These schools train young people to become, e.g., bilingual secretaries, interpreters, or children's or old people's nurses.



The first step into the labor market is likely to be the most crucial one. Hence we focus on the first spell of nonemployment (unemployment) after the completion of formal vocational training using a subsample of the German Socio-Economic Panel for the years 1984–92. The sample consists of 1,071 individuals aged 17–30 who have successfully completed their final vocational training programs. A more detailed description of the data construction and some basic descriptive statistics of the sample are given in appendix A. Our estimates are based on the proportional hazard function approach proposed by Han and Hausman (1990) for grouped durations. The estimation of this model does not require a parametric specification of the baseline hazard. Moreover, unlike Cox's (1972) partial likelihood method the Han-Hausman approach can easily tackle the problem of ties as well as the inclusion of parametric heterogeneity. For the case of individual heterogeneity resulting from an exponentially distributed individual effect it can be shown that the log likelihood is that of a conventional ordered logit model (without censoring). The additional nuisance parameter due to the exponential compounder is not separately identifiable and is estimated as a part of the nonparametric baseline hazard.

Figure 10.8 depicts the shape of the baseline hazard of a representative youth based on estimates displayed in table 10.11. The probability of finding a job after the completion of a vocational training program decreases sharply in the first few months and remains fairly constant afterward; that

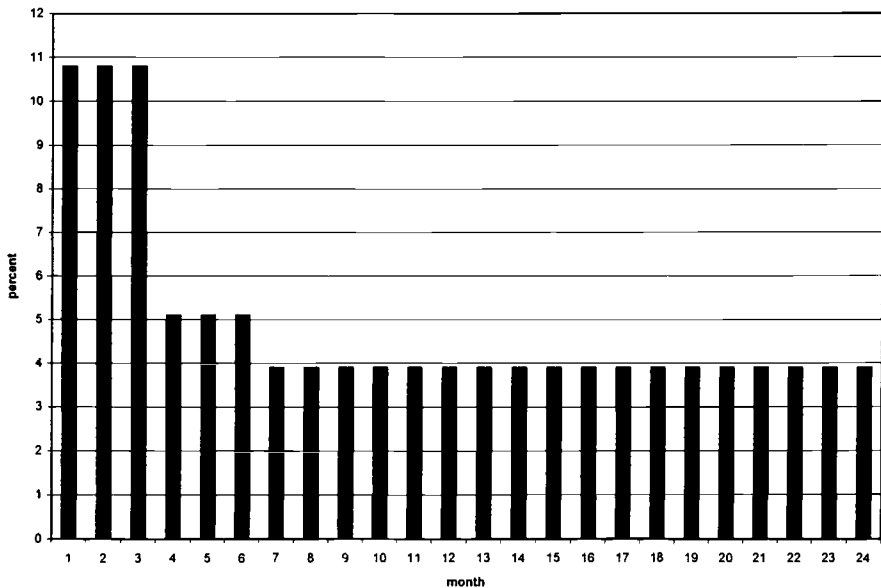


Fig. 10.8 Baseline hazard rates for a representative youth

**Table 10.11** Parameter Estimates of the Grouped Hazard Rate Model

Variable <sup>a</sup>	Coefficient	<i>t</i> -Value <sup>b</sup>
Socioeconomic background		
Age/100	-13.57	-2.7
Sex	.00	.0
Nationality	-.02	-.1
Family status	-.07	-.2
Handicapped	.54	2.2
General educational background (no certificate) <sup>c</sup>		
Lower secondary, secondary school	-.69	-2.3
Entitlement for advanced college, gymnasium	-1.08	-2.7
Type of vocational training (special vocational school)		
Apprenticeship	-1.40	-4.3
Higher vocational school	-.84	-2.2
Vocational school: civil service	-1.97	-2.7
Other vocational training including health care	-.33	-.9
Socioeconomic background of head of household		
Household head not missing	1.67	1.6
Age	-2.49	-1.4
Sex	.56	1.2
Family status	-.15	-.4
Vocational background of head of household (nonemployed)		
Blue collar without formal training	-.87	-2.8
Blue collar with formal training	-.64	-2.0
Foreman, senior craftsman	-1.15	-2.6
White collar with low training	-.90	-2.7
White collar with high training	-1.01	-2.1
Civil servant	-.14	-.3
Self-employed	-.72	-1.8
Replacement ratio	-1.18	-1.4
Mean log likelihood	-.5391	
<i>N</i>	1,071	

*Note:* Dependent variable is duration of nonemployment.

<sup>a</sup>Reference categories in parentheses.

<sup>b</sup>Robust *t*-values on the sandwich form of the variance-covariance estimates.

<sup>c</sup>Contains very few persons who obtained instruction at other schools not included in the following categories.

is, youths who do not find jobs shortly after their graduation from vocational training have to face comparatively long episodes of nonemployment on average. The low hazard rate for the long-term nonemployed points to a potential malfunctioning of the youth labor market, which does not offer great chances of a successful transition from school to work.

The estimated effects of the covariates on the hazard function are given in table 10.11, where a positive coefficient implies a positive impact of the

corresponding variable on the duration of nonemployment. Our results show that being particularly young turns out to be a severe handicap in finding a first job. Looking at employment probabilities of apprentices, Helberger, Rendtel, and Schwarze (1994) cannot find significant evidence of commonly supposed discrimination against foreign and female youths. Our estimates point in the same direction. Although there is no significant difference between foreign and German youths in terms of the probability of finding a job, foreign youths can be regarded as less "choosy" with respect to the quality of jobs. While more than 80 percent of German youths find jobs for which they have been trained in the vocational training program, the corresponding figure for foreign youths is 66 percent. Hence the difference in the labor market entry behavior of German and foreign youths is characterized by different choices between the short-run gain of a quick escape into employment and the long-run gain of choosing a job corresponding to one's vocational training with a lower probability of unemployment and higher earnings in later stages of one's career. Such a search strategy might be reasonable for foreign youths who plan to return to their home countries, where they cannot expect significant positive returns from the vocational training program.

Although a number of statutory measures to promote employment for the handicapped exist, physical disability significantly reduces the chances of finding a job. Of little surprise is the effect of the level of general education on the duration of unemployment. Those with the highest schooling (gymnasium, entitlement for advanced colleges for higher education) face significantly shorter episodes of nonemployment than youths holding no general educational degree from a German school. This finding clearly contradicts the notion that employers are sometimes reluctant to employ "overqualified" workers who hold degrees that qualify them for academic professions.

Youths being trained within the dual system reveal significantly shorter spells of nonemployment after vocational training than those who are trained in any other vocational school. This, however, is only limited evidence for the hypothesis that the dual system is an efficient vehicle for promoting youth employment because the dummies for the type of vocational training proxy the occupational demand conditions as well.<sup>12</sup> Moreover, in contrast to other types of vocational training programs an apprenticeship guarantees a first employment relationship during the training period. In the past decade around 80 percent of apprentices stayed with their training firms after completion of apprenticeship (see figure 10.7 and Harhoff and Kane 1997). In comparison to youths who receive their training solely in conventional vocational schools, graduates from higher

12. Unfortunately, given our data source, we are not able to distinguish between individuals of the same occupational degree by their training background (apprenticeship within the dual system vs. training in occupational training centers).

vocational schools (*Fachschulen für Meister* or *Technikerschulen*) and vocational schools for the civil service can expect a quick start into employment. For the latter group this is mainly due to the fact that the public sector adjusts the recruitment of apprentices to its own demand for skilled employees.

Most interesting are the effects of the family background variables. Occupational status is a decisive determinant of the length of the nonemployment spell. We are able to distinguish between various levels of occupational states of the household head. Using “nonemployed household head” as the reference category, we find that children of blue-collar workers are more likely to escape from the nonemployment pool than children of nonemployed parents. In particular, children of highly qualified blue-collar workers (foremen and senior craftsmen) have the greatest chances of finding jobs. A similar pattern can be observed for youths with parents belonging to the group of white-collar workers. Here again we find a positive correlation between the qualification of the parent and the likelihood of finding a job. To some extent our estimates support the notion that apprenticeships serve as a partial gift exchange, where the qualified staff receives an extra premium by having their children favored in the recruitment process. In particular, such policies are well known at large companies. This view is also supported by estimates for the remaining two parental background variables. Children of self-employed parents or civil servants do not have significantly better chances of finding jobs than children belonging to the reference group. Other parental background variables, such as gender of household head, age, marital status, and the dummy for whether there is information on the household head in the sample at all, do not significantly contribute to the explanation of the duration of nonemployment.

Graduates of apprenticeship programs are eligible for unemployment benefits while graduates of vocational training programs outside the dual system are not. This suggests that the type of vocational training has an decisive impact on the youth’s reservation wage. Using the replacement ratio as a crude measure for the opportunity costs of not working we cannot find any positive impact of the level of unemployment benefits on the duration of nonemployment.<sup>13</sup>

In order to assess the relevance of long-term unemployment for specific subgroups we compute the average predicted probability of long-term nonemployment.<sup>14</sup> In figure 10.9 we distinguish by the type of vocational training. With an average long-term nonemployment probability of more than 30 percent, youths who were trained in a special vocational school

13. See Wurzel (1993, chap. 7) and Hunt (1995) for a more elaborate analysis of the effect unemployment compensation schemes on the hazard rate using samples of youth and adult unemployment.

14. Long-term nonemployment is defined as nonemployment having a duration of more than a year.

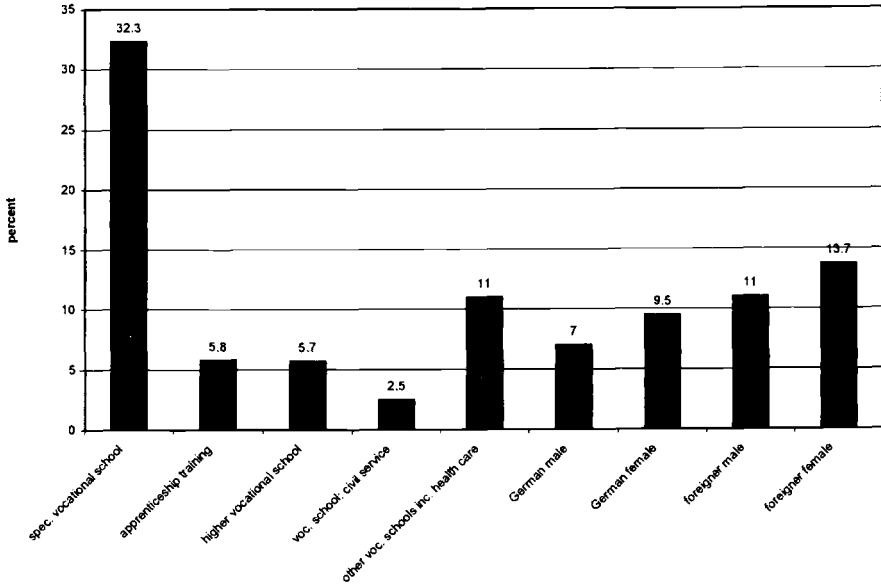


Fig. 10.9 Twelve-month average survival probabilities in nonemployment

outside the dual system are the ones most likely to face long-term nonemployment. This may reflect the rather limited opportunities for these graduates. In contrast, graduates of other training schemes face a much lower average probability of long-term nonemployment.

Also in figure 10.9 we repeat the exercise comparing the average predicted probability of long-term nonemployment distinguished by gender and nationality. Although neither the coefficient of the gender dummy nor the coefficient of the nationality dummy are significant, a comparison of the average predicted probabilities of long-term nonemployment for the four subgroups reveals substantial differences in employment chances. While the average probability of long-term nonemployment for German males is 7.03 percent, the corresponding figure for foreign females is almost twice as high (13.7 percent).

In a final step, we try to detect hard-to-employ youths by looking at socioeconomic characteristics of youths who reveal significantly higher probabilities of long-term nonemployment. This is done by estimating the probability of long-term nonemployment for each individual in the sample and testing this probability against the null hypothesis that it is not greater than the long-term nonemployment ratio in the sample (8.85 percent). Individuals with significantly higher long-term nonemployment probabilities are defined as belonging to the hard-to-employ group. Given rather brief average spells of nonemployment this criterion is fairly extreme and

leaves us with 74 observations in the hard-to-employ subsample. However, our main conclusions remain valid for less extreme selection procedures (e.g., choosing hard-to-employ youths on the basis of a six-month criterion).

Descriptive statistics for the subsample of outsiders are given in table 10.12. In comparison to the overall sample the outsiders are slightly

**Table 10.12** Descriptive Statistics for Hard-to-Employ Subsample

Characteristic	Mean for Hard to Employ	Mean for Overall Sample
Socioeconomic background		
Age	19.22	21.66
Sex	.65	.45
Nationality	.35	.19
Family status (married)	.03	.12
Handicapped	.20	.13
General educational background		
No certificate <sup>a</sup>	.15	.08
Lower secondary, secondary school	.84	.79
Entitlement for advanced college, gymnasium	.01	.13
Type of vocational training		
Special vocational school	.94	.12
Apprenticeship	.03	.72
Higher vocational school	.00	.07
Vocational school: civil service	.00	.03
Other vocational training including health care	.03	.06
Socioeconomic background of head of household		
Household head not missing	.97	.82
Age	47.92	41.91
Sex	.12	.09
Family status (not married)	.09	.11
General educational background of head of household		
No certificate <sup>a</sup>	.33	.12
Lower secondary, secondary school	.60	.57
Entitlement for advanced college, gymnasium	.04	.13
Vocational background of head of household		
Nonemployed	.20	.15
Blue collar without formal training	.34	.18
Blue collar with formal training	.20	.13
Foreman, senior craftsman	.03	.06
White collar with low training	.04	.11
White collar with high training	.01	.05
Civil servant	.11	.06
Self-employed	.05	.08
Replacement ratio	.04	.30
<i>N</i>	74	1,071

<sup>a</sup>Contains very few persons who obtained instruction at other schools not included in the following categories.

younger (19 vs. 22 years) and have almost the same general educational background. The most distinguishing feature is background with respect to vocational training. While in the overall sample 70 percent of the youths are trained within the dual system, only 3 percent of the hard-to-employ youths have received such training. We interpret this result as striking evidence of the efficiency of the dual system in promoting access to the labor market.

Again, the importance of family background is striking. The hard-to-employ group contains on average substantially more youths whose parents have a bad general educational background (36 vs. 20 percent). A similar pattern is observable with respect to occupational background of the parent. Contrary to the inferences based on the parameter estimates our selection procedure points out that females (65 vs. 44 percent) and foreign youths (35 vs. 19 percent) are overrepresented in the group of outsiders. Of course, the results based on our selection procedure should not be interpreted in a causal manner. The fact that we find females overrepresented in the hard-to-employ subgroup reflects to some extent the reality of their occupational choices (e.g., vocational training outside the dual system).

It seems worth mentioning that our selection procedure also reveals the “hotel mom syndrome.”<sup>15</sup> Youths with a high probability of long-term non-employment have on average older parents (49 vs. 42 years) and are less likely to live with a household head that is not married (9 vs. 11 percent).

Appendix table 10B.2 contains parameter estimates of the grouped duration model where we use duration of unemployment as the dependent variable. The sign pattern of the parameter estimates is very similar to that for duration of nonemployment, leading to the conclusion that the two dependent variables capture similar phenomena. However, two distinctive features are present. First, while the duration of nonemployment decreases significantly with age there is no significant evidence that older unemployed youths are easier to employ. The higher probability of nonemployment for the young turns out to be the result of lower opportunity costs of time. Second, being trained in a profession related to the civil service almost guarantees a job afterward when the youth is willing to delay her or his entrance into the labor market.

#### **10.4 Permanent Scars or Temporary Blemishes?**

In contrast to the U.S. literature (e.g., Ellwood 1982; Lynch 1985, 1989) there has been little research on the long-run effects of youth unemployment in Germany. The vast majority of studies for Germany such as Flaig,

15. The “hotel mom syndrome” denotes the recent trend among youths and young adults toward attending a local occupational school in order to enjoy the convenience of staying home.

Licht, and Steiner (1993) or Mühleisen and Zimmermann (1993) concentrate on the effects of previous unemployment on the probability of unemployment by controlling for occurrence dependence or some type of duration dependence. None of these studies center on youth unemployment in particular. To our knowledge no study has been devoted to the long-run effects of youth unemployment on earnings. The following analysis attempts to gain some insight into the quantitative importance of long-term effects of failure during apprenticeship and the effects of initial unemployment on an individual's earnings in subsequent years.

The following analysis is based on a cross section conducted in 1991–92 by the BiBB in cooperation with the Institute for Employment Research (Institut für Arbeits- und Berufsbildung). The data set contains information on roughly 34,000 East and West German employees. For the purposes of our study the BiBB data are of particular interest because they include extensive retrospective information on an individual's labor force history. Questions about vocational training, in particular those related to apprenticeship training, are covered in great detail. We restrict the analysis to regularly employed West German employees who were not over age 25 when they passed their vocational training in the period 1965–90. Hence the oldest individuals in our sample are in their fifties and can look back on a work history of more than 20 years. Contrary to the studies by Ellwood (1982) for the United States and Ackum (1991) for Sweden we are able to trace the long-run effects on earnings of early failure in the labor market. The final sample used for the analysis consists of 6,970 males and 2,221 females. The reader is referred to appendix B for a more detailed description of the sample construction and some basic descriptive statistics.

Table 10.13 compares the distribution of monthly gross earnings for persons who faced problems at the beginning of their careers with that for people who successfully completed apprenticeship and entered the labor market without any friction. About 5.2 percent of all persons either dropped out of a training program or became unemployed after apprenticeship. Every fifth youth who dropped out of a training program became unemployed afterward.

The descriptive evidence is striking. While about 50 percent of those who experienced at least one of the two types of friction in the early stages of their careers are located in the lower tail of the earnings distribution (less than DM4,000), only 26 percent of the successful labor market entrants fall into this category. Moreover, those who accept jobs that are inadequate with respect to their previous vocational training have to face substantially lower earnings. A comparison of the figures in columns (4) and (5) reveals no serious differences in earnings between those who stay with the training firm and those who get an appropriate job outside the training firm.

In order to obtain empirical evidence on whether entry problems into



**Table 10.13 Earnings Distribution of Former Apprenticeship Trainees**

Income <sup>a</sup> (thousand DM)	Apprenticeship Training Not Completed (1)	Apprenticeship Training Completed and Immediately Followed By							
		Unemployment (2)		Inadequate Occupation outside Training Firm (3)		Adequate Occupation outside Training Firm (4)		Adequate Occupation inside Training Firm (5)	
Less than 4	60 (52.6)	59 (49.2)	70 (35.4)	115 (26.5)	704 (26.5)				
4-5	38 (33.3)	42 (35.0)	86 (43.4)	183 (42.2)	1,148 (43.1)				
More than 5	16 (14.1)	19 (15.8)	42 (21.2)	136 (31.3)	810 (30.4)				
Total	114	120	198	434	2,662				

*Source:* Bundesinstitut für Berufsbildung; calculations by authors.

*Note:* Numbers in parentheses are percentages of column totals.

<sup>a</sup>Monthly gross earnings for a sample of 3,871 West German males employed in 1991 at least 30 hours a week who passed (or failed) an apprenticeship in the period 1965-90.

the labor market have long-run effects on an individual's earnings we estimate a conventional earnings function augmented by explicit information on entry problems into the labor market and the background of the training firm. Since there is only information on earnings in categorical form we estimate the parameters of a log earnings function by ML-ordered probit. Since the income brackets (thresholds) are known we are able to identify the parameters of the earnings function (including the variance of the error term) completely.

Table 10.14 presents estimates for two different specifications of the earnings function for males and females, where we try to distinguish between the hypothesis of a permanent shift in earnings due to entry problems and the hypothesis that the scar effects may decay with time. For the sake of brevity we do not comment on the effects of the conventional regressors, which in general are comparable in size and significance to the effects found in other studies using different samples.

For workers graduating from any vocational training program gross earnings increase with the general level of education. To some extent this reflects not only the effect of higher human capital accumulation but also the fact that apprentices with *Abitur* certificates (graduation from gymnasium) are mainly recruited by high-paying sectors.<sup>16</sup>

In order to capture the effects of quality of training we use sectoral and firm size dummies for the training firm. Both sets of regressors have only a quantitatively weak impact on current earnings. Due to the high proportion of males who stayed in the training sector the sectoral dummies for the training firm and the current firm are highly correlated. We can only observe marginal differences in earnings with regard to the training sector. Similar arguments hold for the firm size dummies for the training and the current firm. However, in this case the firm size effects of the training firm are more pronounced than the effects of the current firm. Receiving training in a large firm significantly increases earnings prospects in later years. The well-known positive correlation between firm size and income vanishes if one controls for the size of the training firm. The opposite is true for female earnings, where the firm size effect of the training firm disappears. Since for females we observe a proportion of employees not working in the jobs for which they have been trained due to career interruptions we can conclude that the quality of the training firm captured by the firm size dummies vanishes.

Somewhat problematic is the inclusion of three variables capturing the effect of job mobility on earnings, since they may be affected by endogeneity. Both male and female workers can expect a positive return to chang-

16. E.g., Winkelmann (1996, 1997) points out that 15.8 percent of all apprentices with *Abitur* certificates were trained in the banking sector, where the majority of apprentices (58.2 percent) graduated from gymnasium.

**Table 10.14 Earnings Functions: ML-Ordered Probit Estimates with Known Thresholds**

Variable <sup>a</sup>	Males				Females			
	(1)		(2)		(3)		(4)	
	Coefficient	<i>t</i> -Value <sup>b</sup>	Coefficient	<i>t</i> -Value <sup>b</sup>	Coefficient	<i>t</i> -Value <sup>b</sup>	Coefficient	<i>t</i> -Value <sup>b</sup>
Intercept	7.75	179.8	7.75	179.6	7.66	86.7	7.66	86.7
Socioeconomic background								
Age/10	.15	8.7	.15	8.7	.14	3.3	.14	3.3
Potential experience/10	.14	6.8	.14	6.8	.06	1.4	.06	1.4
Squared potential experience/100	-.05	-15.9	-.05	-15.9	-.04	-5.2	-.04	-5.2
Married	.07	5.4	.07	5.3	.05	2.9	.05	2.9
Schooling (secondary school)								
Lower secondary school	-.11	-12.6	-.11	-12.6	-.10	-5.7	-.10	-5.7
Entitlement for advanced college for higher education	.15	8.0	.15	8.0	.09	2.9	.09	2.8
Gymnasium	.19	10.4	.19	10.4	.11	3.6	.11	3.6
Type of failure (none)								
Vocational training failed	-.12	-5.1	-.10	-1.7	-.13	-3.0	-.09	-1.1
× Potential experience			-.01	-.4			-.02	-.5
Unemployment after vocational graduation	-.01	-.5	-.02	-.5	-.03	-.9	-.01	-.2
× Potential experience			.01	.3			-.02	-.5
Changes in employment (none)								
Profession changed	.08	4.2	.08	4.2	.11	1.9	.10	1.8
Employer changed	.03	3.3	.03	3.3	.01	.7	.01	.7
Profession and employer changed	-.08	-3.8	-.07	-3.8	-.14	-2.4	-.14	-2.3

Size of training firm (less than 10 employees)								
10–49 Employees	.03	3.2	.03	3.2	.04	2.2	.04	2.3
50–99 Employees	.04	3.3	.04	3.3	–.01	–.2	–.01	–.2
100–499 Employees	.06	5.5	.06	5.5	–.01	–.3	–.01	–.3
500 Employees or more	.09	7.4	.09	7.4	.00	.0	.00	.0
Size of current firm (less than 10 employees)								
10–49 Employees	–.02	–2.0	–.02	–2.0	.07	3.3	.07	3.2
50–99 Employees	–.01	–.8	–.01	–.8	.08	2.8	.08	2.8
100–499 Employees	–.02	–1.5	–.02	–1.5	.11	4.6	.11	4.6
500 Employees or more	.01	.8	.01	.8	.18	7.1	.18	7.1
Sector of training firm (service)								
Manufacturing	–.02	–2.0	–.02	–2.0	.04	1.5	.04	1.5
Craft	–.01	–1.2	–.01	–1.2	–.02	–.6	–.01	–.6
Trade	.02	1.1	.02	1.1	–.01	–.2	.00	–.2
Sector of current firm (service)								
Manufacturing	.08	8.8	.08	8.8	–.01	–.5	–.01	–.6
Craft	.03	3.0	.03	3.0	–.09	–2.5	–.09	–2.5
Trade	.06	4.4	.06	4.4	–.07	–3.1	–.07	–3.1
$\delta$	.26	62.0	.26	62.0	.31	32.6	.31	32.6
$N$	6,970		6,970		2,221		2,221	
Log likelihood	–14,775.01		–14,774.87		–4,656.82		–4,656.46	
	$\chi^2$	$p$ -value	$\chi^2$	$p$ -value	$\chi^2$	$p$ -value	$\chi^2$	$p$ -value
Joint significance of slope coefficients	2,015.76	.0	2,047.97	.0	484.37	.0	486.39	.0

<sup>a</sup>Reference categories in parentheses.

<sup>b</sup>Robust  $t$ -values based on the sandwich form of the variance-covariance estimates.

ing original professions during their careers. For males earnings are increased by 8 percent if they change profession but not employer and 3 percent for the reverse. A change of employer corresponds to an increase in current earnings of 3 percent for males while this effect is insignificant for females. The joint effect of both, a change in profession and employer, is captured by the sum of the two respective estimated coefficients and the one obtained from the interaction of the two variables. It turns out that the joint returns are different for males and females. While males profit from a 3 percent income increase, females have to suffer a 2 percent reduction. However, at least for males our results are in contrast with the common belief that a highly institutionalized German labor market punishes those who leave the professional track because of existing institutional barriers to entry into another occupation.

Most important for the purposes of our study is the set of regressors capturing the long-run effects of entry problems into the labor market. Assuming that the shift in earnings due to entry problems into the labor market is permanent, the estimates of the first specification (cols. [1] and [3]) imply a reduction of 12 percent (13 percent for females) in earnings if the youth drops out of an apprenticeship training program. Starting a professional career with a spell of unemployment does not generate a significant reduction in earnings. For the second specification we introduce interaction terms between the failure variables and the length of work history. This allows us to check whether the effects of entry problems become less relevant over the life cycle or can be regarded as permanent scars. Using the likelihood ratio test we cannot reject the hypothesis of a permanent earnings reduction in favor of a temporary blemish.

Since we are using cross-sectional information the usual caveats apply. In the first place we have to mention unobserved heterogeneity that cannot be controlled for. Thus both reduced earnings in later years and failure during apprenticeship years can be driven by unobservable components such as motivation and intellectual capabilities. Therefore, the size of the scar effects found may be smaller if unobserved heterogeneity is properly controlled for. Because of a different methodology and quality of data our results are not directly comparable to the earlier findings by Ellwood and Ackum. Unlike Ellwood's study we are able to focus on long-term effects that last over several decades. Moreover, we only use the incidence of youth unemployment as a predictor for earnings rather than forgone experience in terms of time out of the labor force. All in all our results suggest that the scar effects are much more severe in Germany than in the United States. Our results seem to differ also from those obtained by Ackum for Sweden. She finds that an additional year of unemployment reduces hourly earnings only by 2 percent. Having in mind that youth unemployment spells in Germany are fairly short and that the incidence of an early failure (particularly dropping out of a training program) plays such a cru-

cial role, our results suggest that a central role of firm-specific training within the dual system is that of screening device.

## 10.5 Conclusions

The main intent of this study has been an analysis of problematic groups in the youth labor market in Germany, that is, the nature and causes of failures during the school-to-work process. Briefly, the more important findings are the following:

1. To some extent youth unemployment is relegated to the age group 20–24 because teenagers are absorbed by the apprenticeship training system. This can be seen, for example, by inspection of table 10.5: Leaving lower secondary school and secondary school, roughly two-thirds of all German youths are in vocational training one year later and only 3 percent are unemployed. But four years later, nearly 9 percent of all those youths are unemployed, whereas the majority (around 60 percent) are employed. For all figures marked differences can be observed with respect to gender and nationality. For example, foreign youths are underrepresented in the share of youths in vocational training but overrepresented in the group of employed as well as unemployed youths. Since the supply of apprenticeship training positions is subject to considerable fluctuations this role of absorber is anything but perfect, as evidenced by the procyclical behavior of youth unemployment rates and a reversal of ordering between youth and adult unemployment rates at the end of the 1980s.

2. The dynamics of youth unemployment exhibit the familiar pattern. By and large, youths face a higher risk of becoming unemployed than do adult members of the labor force, but their duration of unemployment is relatively short. This observation still holds if multiple spells of unemployment by the same person are taken into account.

3. Failures are most prominent in the following three stages of the transition process from school to work. First, in 1990 about 4 percent of youths did not experience a smooth transition from schools of various types to apprenticeship training or further education, and another 2 percent dropped out of the labor force at this stage for whatever reason. Moreover, those early failures in the transition from school to apprenticeship training have long-lasting effects on later occupational careers. Second, in the course of apprenticeship training several sources of malfunction can arise, such as dropping out or failing to pass examinations. More precisely, as an average figure for the 1980s the number of premature terminations of training contracts as a fraction of annually signed contracts amounted to some 16 percent. The overwhelming share of all premature terminations were initiated by the trainees. With respect to examinations, roughly 10 percent failed to pass them. Around 40 percent of those who

did not complete apprenticeship training entered unemployment. Third, the transition from apprenticeship training, even if successfully completed, is not always smooth. During past decades on average nearly 90 percent embarked on employment (80 percent in the same firm where they had undergone their training), but 4 percent became unemployed. The suspicion may be raised that the latter figure has increased during past years.

4. A more in-depth investigation of the last mentioned transition process has been carried out on the basis of an econometric hazard rate approach. More precisely, we elaborate on the duration of the first spell of nonemployment (and unemployment) after the completion of formal vocational training. Our estimates are based on a proportional hazard function approach for grouped durations. The shape of the baseline hazard of a representative youth reveals that youths who do not have luck finding jobs shortly after their graduation from vocational training face comparatively long episodes of nonemployment. Interestingly, we do not find evidence of discrimination against foreign youths, perhaps due to a higher willingness of foreigners to accept less qualified jobs or greater assimilation with German youths if their parents have been in Germany for a long time. Similarly, there is no clear-cut correspondence between gender and the probability of becoming employed. However, overall background matters—that is, the choice of type of general education and type of vocational training scheme. These factors drive our findings that females and foreign nationals face high average probabilities of long-term nonemployment. Previous studies of the labor market entry behavior of youths in Germany have neglected the relevance of family background. We find an outstanding impact of family background on the labor market entry behavior of youths.

5. Finally, we focus again on the question as to whether early failures represent temporary blemishes or permanent scars by estimating earnings functions on the basis of an ordered probit approach with known thresholds. While the incidence of youth unemployment does not generate a permanent scar we find that failure in an apprenticeship training program is an important predictor of an individual's income opportunities in later stages of working life.

As with most empirical work a lot of questions cannot be (adequately) dealt with due to data limitations. These are of great concern, especially in this study, since we are dealing with a fairly small group of youths failing in the labor market. For example, attempts to estimate more elaborate models, such as a competing risk model for different risks of escaping from nonemployment, turned out to be difficult due to, say, an overparameterization that calls for more parsimonious specifications compared with the single risk model.

## Appendix A

**Table 10A.1** Descriptive Statistics for German Socio-Economic Panel Data Set

Characteristic	Mean	Standard Deviation	Minimum	Maximum
Nonemployment duration (months)	3.25	9.25	.00	83.0
Unemployment duration (months)	.81	3.23	.00	47.0
Socioeconomic background				
Age	21.66	2.60	17	29
Sex	.45			
Nationality	.19			
Family status (married)	.12			
Handicapped	.13			
General educational background				
No certificate <sup>a</sup>	.08			
Lower secondary, secondary school	.79			
Entitlement for advanced college, gymnasium	.13			
Type of vocational training				
Special vocational school	.12			
Apprenticeship	.72			
Higher vocational school	.07			
Vocational school: civil service	.03			
Other vocational training including health care	.06			
Socioeconomic background of head of household				
Household head not missing	.82			
Age	50.83			
Sex	.09			
Family status (not married)	.11			
General educational background of head of household				
No certificate <sup>a</sup>	.12			
Lower secondary, secondary school	.57			
Entitlement for advanced college, gymnasium	.13			
Vocational background of head of household				
Nonemployed	.15			
Blue collar without formal training	.18			
Blue collar with formal training	.13			
Foreman, senior craftsman	.06			
White collar with low training	.11			
White collar with high training	.05			
Civil servant	.06			
Self-employed	.08			
Replacement ratio	.03	.22		
<i>N</i>	1,071			

<sup>a</sup>Contains very few persons who obtained instruction at other schools not included in the following categories.



**Table 10A.2** Parameter Estimates of Grouped Hazard Rate Model

Variable <sup>a</sup>	Coefficient	<i>t</i> -Value <sup>b</sup>
Socioeconomic background		
Age/100	10.24	1.6
Sex	.14	.4
Nationality	.45	1.2
Family status	-.46	-.9
Handicapped	.49	1.3
General educational background (no certificate) <sup>c</sup>		
Lower secondary, secondary school	-.18	-.4
Entitlement for advanced college, gymnasium	-1.32	-2.0
Type of vocational training (special vocational school)		
Apprenticeship	-.34	-.7
Higher vocational school	-1.03	-1.8
Vocational school: civil service	-11.92	-22.6
Other vocational training including health care	-.55	-.9
Socioeconomic background of head of household		
Household head not missing	.63	.4
Age	-1.22	-.4
Sex	-.34	-.6
Family status	.72	1.6
Vocational background of head of household		
Blue collar without formal training	-.96	-2.1
Blue collar with formal training	-.94	-1.9
Foreman, senior craftsman	-2.10	-1.9
White collar with low training	-.20	-.5
White collar with high training	-.48	-.7
Civil servant	-.27	-.5
Self-employed	-1.11	-1.7
Replacement ratio	-.88	-.6
Mean log likelihood	-0.3011	
<i>N</i>	1,071	

*Note:* Dependent variable is duration of unemployment.

<sup>a</sup>Reference categories in parentheses.

<sup>b</sup>Robust *t*-values based on the sandwich form of the variance-covariance estimates.

<sup>c</sup>Contains very few persons who obtained instruction at other schools not included in the following categories.

## Appendix B

### *The BiBB/IAB Data*

The earnings function estimates in section 10.4 are based on the cross-sectional interview entitled “Acquisition and Utilization of Vocational Qualification” (“Erwerb und Verwertung beruflicher Qualifikation”), which was conducted in 1991–92 by the Federal Office of Vocational Training (Bundesinstitut für Berufsbildung—BiBB) in cooperation with

the Institute for Employment Research (Institut für Arbeits- und Berufsbildung—IAB). This data set is the third wave of a repeated cross-sectional study with earlier waves collected in 1979 and 1985–86. The third wave consists of 34,277 persons employed at the date of the interview, including 10,187 former citizens of the GDR and 614 foreigners living in West Germany.

The data set contains extensive information on the complete labor force history of each individual. Questions about vocational training, in particular those related to apprenticeship training, are covered in great detail. Monthly gross earnings, which serves as a dependent variable in the proposed earnings functions, is classified in one of fifteen categories, which is only a minor drawback compared to a more detailed recording. Twelve categories remain after a pairwise aggregation of the six lowest earning classes containing only a few observations. Table 10B.1 displays the resulting earnings distributions for males and females.

We restricted our analysis to individuals who grew up in the former West Germany because we focused on earnings impacts of failures during the transition process from apprenticeship training to employment. The East German vocational system did not offer a direct counterpart to West German apprenticeship training. In addition, we excluded self-employed persons and part-time workers with less than 30 hours of regular weekly work. Finally, we dropped individuals who completed their apprenticeship training either before 1965 or at more than 25 years of age. The resulting data set covers 6,970 males and 2,221 females with nonmissing information. Table 10B.2 displays descriptive statistics of the sample underlying the analysis given in section 10.4.

**Table 10B.1** Earnings Distribution in the BiBB/IAB Sample

Cell	Earnings Interval (DM)	Male Percentages		Female Percentages	
		Cell	Cumulated	Cell	Cumulated
1	Less than 1000	.30	.30	1.44	1.44
2	1,001–2,000	.42	.72	5.18	6.62
3	2,001–3,000	2.34	3.06	12.83	19.45
4	3,001–3,500	6.79	9.84	21.34	40.79
5	3,501–4,000	13.37	23.21	20.80	61.59
6	4,001–4,500	18.09	41.31	18.37	79.96
7	4,501–5,000	19.21	60.52	10.09	90.05
8	5,001–5,500	12.17	72.68	4.46	94.51
9	5,501–6,000	9.12	81.81	2.61	97.12
10	6,001–7,000	5.71	87.52	.77	97.88
11	7,001–8,000	4.03	91.55	.77	98.65
12	More than 8,000	8.45	100.00	1.35	100.00

*Source:* Bundesinstitut für Berufsbildung; calculations by the authors.

**Table 10B.2 Descriptive Statistics for BiBB/IAB Data Used**

Characteristic	Males		Females	
	Mean	Standard Deviation	Mean	Standard Deviation
Earnings	7.27	2.37	5.12	1.99
Socioeconomic background				
Age/10	4.14	1.12	3.55	1.09
Potential experience/10	2.21	1.17	1.61	1.14
Squared potential experience/100	6.26	5.40	3.88	4.57
Married	.92	.27	.78	.41
Schooling (secondary school)				
Lower secondary school	.65	.48	.44	.50
Secondary school	.25	.43	.46	.50
Entitlement for advanced college for higher education	.05	.22	.04	.19
Gymnasium	.05	.22	.06	.24
Vocational training				
Apprenticeship training completed	.96	.20	.90	.31
Vocational training completed	.07	.26	.13	.34
Apprenticeship failed	.03	.16	.04	.19
Unemployment after vocational training graduation	.03	.18	.04	.21
Changes in employment				
Profession changed	.35	.48	.26	.44
Employer changed	.68	.47	.64	.48
Profession and employer changed	.31	.46	.23	.42
Size of training firm				
Less than 10 employees	.27	.45	.35	.48
10–49 Employees	.29	.45	.23	.42
50–99 Employees	.10	.30	.10	.30
100–499 Employees	.16	.36	.15	.36
500 Employees or more	.17	.37	.11	.31
Size of current firm				
Less than 10 employees	.15	.36	.30	.46
10–49 Employees	.24	.43	.22	.42
50–99 Employees	.11	.31	.11	.31
100–499 Employees	.22	.41	.20	.40
500 Employees or more	.28	.45	.17	.37
Sector of training firm				
Service	.45	.50	.11	.32
Manufacturing	.29	.45	.20	.40
Craft	.08	.27	.25	.44
Trade	.16	.37	.36	.48
Sector of current firm				
Service	.36	.48	.20	.40
Manufacturing	.24	.43	.12	.32
Craft	.10	.29	.24	.43
Trade	.30	.46	.44	.50
<i>N</i>	6,970		2,221	

## Appendix C

### *Glossary of Some Features of the German Educational System*

#### General Education

Elementary school ( <i>Grundschule</i> )	Compulsory for all children aged 6–7; four years of schooling
Lower secondary school ( <i>Hauptschule</i> )	After elementary school pupils have to enroll unless they change to higher educational schools; five years of schooling; certificate of successful completion of compulsory general education ( <i>Hauptschulabschluß</i> )
Secondary school ( <i>Realschule</i> )	Optional after elementary school; six years of schooling; certificate of successful completion ( <i>Realschulabschluß</i> ) entitles enrollment in several schools of further education and, if apprenticeship training is successfully completed, in advanced colleges of higher education ( <i>Fachhochschulen</i> )
Gymnasium	Optional after elementary school (or secondary school); nine years of schooling; certificate of successful completion ( <i>Abitur</i> ) entitles enrollment at universities

#### Vocational Education

Elementary vocational year ( <i>Berufsgrundbildungsjahr</i> )	Optional part-time or full-time school after elementary school, especially for youths who do not have apprenticeship training positions; prepares for vocational education
Preparation year for vocational training ( <i>Berufsvorbereitungsjahr</i> )	Optional full-time school after elementary school for youths without apprenticeship training positions; prepares for vocational education (in a broader sense compared with the elementary vocational year)
Vocational school ( <i>Berufsschule</i> )	Compulsory for leavers of lower secondary school until age 18; mainly three years of schooling; part of the dual system in that an apprenticeship trainee

Special vocational school ( <i>Berufsfachschule</i> )	has to attend this school usually one day per week during apprenticeship training Provides full-time instruction lasting at least one year; does not demand vocational training or occupational experience as a prerequisite for admission; a first type enables the student to acquire a qualifying certificate in a recognized profession where attendance counts toward the training period in the profession
Higher vocational school	Provides part-time or full-time instruction for those who have successfully completed apprenticeship training and aim at a craftsman certificate, for example
Advanced vocational school ( <i>Fachoberschule</i> or <i>Fachgymnasium</i> )	Provides full-time instruction lasting three years; these schools require certificate of secondary school for admission; <i>Fachoberschule</i> entitles student to study at a <i>Fachhochschule</i> ; <i>Fachgymnasium</i> entitles a student to study at a university
Advanced college for higher education ( <i>Fachhochschule</i> )	Colleges with near-university status; three years of education; mostly specialized in various fields of studies, for example, engineering, commerce, social work, fine arts

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