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Education and Training in a Changing Labor Market

Youth Employment in the United States and Germany: The Mechanics of Restructuring

By James C. Witte*

Summary

Recent analyses of the consequences of the economic restructuring of the 1980s have paid little attention to the integration of young people into the labor force. However, it is at this point that private and public institutional actors have the greatest flexibility in allocating labor to fit with the requirements of a rapidly changing economy. This paper uses data from the United States and Germany to examine labor force integration processes in the two countries. Special attention is paid to the distribution of young workers in labor market positions as defined by sector and skill levels. Effects of individual characteristics, labor market position and overeducation on earnings are estimated and compared between the two countries.

1. Introduction

Initial reactions to the impact of the economic restructuring of the 1980s in the United States and Europe were mixed. Some observers characterized this period as one of job improvement and skill enhancement, while others described an unprecedented decline in job quality, a widespread decline in skills, and diminished job security. Over time, the emergent consensus has been that there is an element of truth to each assessment. The "emptying out of the middle class" has increased the number of high-skill, high-income jobs, while simultaneously increasing the number of low-skill, low-income jobs. Even the most careful analyses of the disparate impact of restructuring, however, have yet to broach the important procedural question. Yes, economic restructuring has dramatically altered the profile of the labor force in the United States and Europe, but *how* has this been accomplished?

The analyses presented in this paper focus on the integration of young people in the labor force as a factor in any dramatic economic restructuring. Even as evidence mounts to show that restructuring has had varied effects on different demographic groups — as defined by race, ethnicity and gender — surprisingly little attention has been paid to age as a distinct demographic axis in the mechanics of restructuring. As the demands of the labor market shift toward certain skills and away from others, efficient markets would presumably direct new workers to high-demand positions rather than redistributing the existing labor force.

This paper uses a cross-national approach to illustrate that although the forces behind economic restructuring may be global, the manner in which these forces play themselves out is by no means universal. National economies vary in the institutional mechanisms that govern their fundamental labor market processes, including the integration of young people into the labor market. This paper focuses on the early career stages of young people age 22 in the United States and Germany. By examining only 22-year-olds, the analysis highlights differences between the two countries. In the United States this draws our attention primarily to young people who have been characterized as "the forgotten half," those who receive little or no postsecondary education. By contrast, due to its well-developed system of vocational education and apprenticeship training, many 22-year-olds in Germany have had considerable postsecondary vocational preparation prior to full-time employment. If the flexibility of labor markets primarily exists in the allocation of young people to positions, then these two divergent systems may react to the challenges of economic restructuring in very different ways.

2. Data and Variables

The analyses presented in this paper draw on three data sets: (1) the United States National Longitudinal Study of the High School Class of 1982, High School and Beyond

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(HS&B), (2) the German Socio-Economic Panel (GSOEP), and (3) the PSID-GSOEP. The primary analysis of labor market composition and the associated income effects in the United States are based on the HS&B, which began in 1980 with a nationally representative sample of nearly 30,000 sophomores and seniors at over 1,200 public and private American high schools. The analyses presented in this paper are based on over 10,530 original sample members of the class of 1982, who participated in subsequent follow-up surveys, including the most recent data collection effort in 1992.¹ Though the design of the HS&B study permits detailed analyses of a single cohort, it may not serve as a basis for intercohort comparisons. Toward this end, data from the PSID-GSOEP Equivalent File were used to consider changes over time for different cohorts of young people and as a means to compare trends in the earnings of American young people with general labor market trends. Moreover, the PSID-GSOEP Equivalent File data is a reorganized release of the original PSID data designed to facilitate cross-national research with the GSOEP. The GSOEP and the PSID-GSOEP Equivalent File provide data for all of the analyses of the German labor market presented in this paper. The GSOEP is a nationally representative panel study that was started in 1984 with a sample of approximately 16,000 individuals in 5,021 households. Interviews are conducted annually and the most recent release of the data contains eleven waves of data.²

Data from the HS&B, GSOEP, and PSID-GSOEP Equivalent File have been operationalized in the analyses presented in this paper in the following manner. With good reason, it has become increasingly common to estimate separate male and female income models as a means to account for the pervasive labor market effects of gender. In the income analyses in this paper, however, the main effects of *gender* are captured by a dummy variable, with men serving as the reference category. A series of preliminary analyses found the estimation of separate models for male and female young, full-time workers to be statistically unwarranted. Preliminary analyses did suggest that the theoretically plausible interaction effect between gender and *marital status* ought not to be ignored. For this reason, the income analyses in both the United States and Germany estimate separate effects of marriage for men and women in contrast to single males and females. The income models for the United States include a separate dummy effect for *minority status*, where Hispanics, Native Americans, African-Americans and Pacific Islanders are treated as a single minority group, in contrast to White and Asian-American young people. In the income models for Germany a distinction was made between German citizens and resident aliens. In both the United States and German labor markets, opportunities vary with *regional and local labor market conditions*; however, the use of the HS&B and the GSOEP data is restricted by confidentiality issues that limit geographic analyses. Within this constraint, the

analyses presented below use the degree of urbanization to give some consideration to variation in local labor market conditions.

Firm *tenure*, measured in months, is collected as part of the HS&B and GSOEP studies and is included in our income analyses in the two countries. In addition, a dummy variable indicating persons who had been in the labor force less than one year is included in the German income models. This variable controls for the very low yearly incomes of those persons who were employed at age 22, but who may have been in low-paying apprenticeship positions for part of the preceding year.

While the effects of *postsecondary education and training* are presumably important in both countries, vastly different institutional arrangements mean that one ought not simply use years of education as a convenient common denominator. Instead, in each country the effects of different levels of education and training are considered in contrast to a theoretically relevant reference category. In the United States young people who have finished high school and participated in a formal vocational training program (either in high school or through another private or public institution) serve as the reference category, while separate effects are estimated for those who neither completed high school nor received training, those with just training, those with just a high school degree, those with a vocational certificate and no training, those with a certificate and training, and individuals who received an Associate's or Bachelor's degree. In Germany, individuals with no postsecondary vocational education serve as the reference category, and separate income effects are estimated for individuals who have completed a school based form of vocational education, those who have completed an apprenticeship, and those who are simultaneously enrolled in a formal vocational education program and employed full-time.

The context of economic restructuring is captured using a framework developed by Gittleman and Howell (1995). Beyond the fundamental distinction between the primary and secondary labor market segments, Gittleman and Howell further distinguish between independent primary sector jobs and subordinate primary sector jobs, which

¹ The data used here come from the April 1995 CD-ROM Restricted Use Data Files. Information on this data set, including distribution and access requirements, as well as open access to some of the HS&B data in tabular form, is available through the U.S. Department of Education World Wide Web site (<http://www.ed.gov>).

² The German data used in this paper are from the 1997 release of the GSOEP (1984-1995) and the PSID-GSOEP Equivalent File produced by the Center for Demography and Economics of Aging, Syracuse University and the German Institute for Economic Research (DIW), Berlin with funding from the National Institute on Aging. Further information about these data may be obtained at <http://www.diw-berlin.de> or <http://www-cpr.maxwell.syr.edu/p01/p01.htm>. Or see Wagner et al. (1993) or Witte (1992).

systematically vary in earnings, education, unemployment, benefits, union coverage, physical demands, and other attributes. Their framework then further distinguishes between independent primary jobs in the private sector and those in the public sector. Among subordinate primary jobs, Gittleman and Howell identify the distinction between blue-collar and white-collar jobs as critical. Jobs in the secondary sector, on the other hand, they argue cluster into two groups: blue-collar and service jobs. This then yields six distinct "job contours": (1) independent primary private (IP: Private), (2) independent primary public (IP:Public), (3) subordinate primary white-collar (SP:W-C), (4) subordinate primary blue-collar (SP:B-C), (5) secondary blue-collar (SC:B-C) and (6) secondary service (SC:Serv). The HS&B occupational codes were combined with individual earnings, educational attainment, and public vs. private sector employment information to approximate Gittleman and Howell's framework.

For the sake of comparison, data on occupational position (*berufliche Stellung*) is used to measure shifts in the structure and quality of jobs in the German labor market. Beyond the fundamental social and legal distinctions between blue-collar workers (*Arbeiter*), white-collar workers (*Angestellte*), trainees (*Auszubildende*), the self-employed (*Selbständige*) and civil servants (*Beamte*), white-collar and blue-collar workers may then be stratified to distinguish skilled and professional jobs from semi-skilled and unskilled employment. This then yields nine basic job classifications: (1) blue-collar unskilled (BC-Un), (2) blue-collar semi-skilled (BC-Semi), (3) blue-collar skilled (BC-Skill), (4) self-employed persons (SE), (5) Trainees (Tr), (6) white-collar unskilled (WC-Un), (7) white-collar semi-skilled (WC-Semi), (8) white-collar professional (WC-Prof), and (9) civil service (CS).

Income analyses using the GSOEP are based on labor earnings, which includes wages and salary from all employment-training, primary and secondary jobs, and self-employment-plus income from bonuses, overtime, and profit-sharing. Specifically labor earnings is the sum of income from primary job, secondary job, self-employment, 13th month pay, 14th month pay, Christmas bonus pay, holiday bonus pay, miscellaneous bonus pay, and profit-sharing income.³ Similarly, the United States portion of the PSID-GSOEP Equivalent File income results are based on labor earnings, which include wages and salary from all employment including self-employment (farming, business, market gardening, and roomers and boarders), professional practice or trade, and bonuses, overtime and commissions. While the original PSID labor income variable only includes the labor part of self-employment income, the PSID-GSOEP Equivalent File variable also includes the asset part of self-employment income. In the analysis presented here these values were converted to constant 1991 dollars and deutsche marks based on the consumer price index derived from the *International Financial Statistics Yearbook* (1995).

The significance of overeducation is assessed in the income models by considering the *fit between training and employment*. The survey questions used to determine fit vary in wording, but in each case, the incidence of overeducation is based on respondents' self-reports. In the HS&B, fit is based on whether or not individuals report that they could have obtained their current position without prior training. In the GSOEP analyses fit is determined by respondents' reports as to whether or not they are working in the occupation for which they have been trained.

3. Employment of Young Adults in the United States and Germany

Emphasizing those 22-year-olds who are employed full-time, Table 1 considers the labor market positions assumed by young people in the United States and the extent to which they are employed in positions consistent with the education and training they have received. The first row in Table 1 extrapolates from Gittleman and Howell (1995) to estimate the overall composition of the United States labor force in 1986. The second row of Table 1 describes the positions occupied by 22-year-olds, who are one-third as likely to be employed in the independent primary sector, but more than twice as likely as all workers to be employed in the subordinate primary white-collar sector. Smaller differences are noted in a slightly greater proportion of young workers in the subordinate primary blue-collar sector and a somewhat smaller proportion engaged in secondary service sector positions. The distribution of positions according to education level — those with the least training are most likely to be in the secondary sector and 22-year-olds with a Bachelor's degree are most likely to be employed in positions in the independent primary sector — comes as no surprise, as education figures prominently in Gittleman and Howell's classification scheme.

Table 1 also summarizes the incidence of "overeducation" among 22-year-olds who are employed full-time. The final column indicates that while 28.1 percent stated that they had formal training for their current position, this figure varied considerably with the type of education and training an individual received. Most generally it is apparent that those with a formal postsecondary degree (i.e., a vocational certificate, a two-year Associate's degree or a four-year Bachelor's degree) are likely to occupy a position for which they have been trained. Though most 22-year-olds whose formal education ended with high school indicate that they have received some form of vocational training, they are significantly less likely to use that training on their current job. The final row of Table 1 also suggests that the type of position occupied determines if an individual has an opportunity to use the skills acquired. Members of the high

³ Total income information has not yet been calculated for the 1995 cohort of 22-year-olds so these individuals are excluded from the income analyses.

Table 1

Structural Positions and Overeducation of 22-Year-Olds in the United States who are Employed Full-Time^{a)}

	Percent Employment by Sector					Formally Trained for Current Job
	IP: Private and IP: Public	SP-WC	SP-BC	SC-BC	SC-service	
All persons employed full-time	30.5	17.8	13.3	21.3	17.3	Na
All 22-year-olds employed full-time	10.6	36.3	17.1	21.1	14.8	28.1
22-year-olds according to education level						
No high school degree, no training	3.7	0.2	21.1	37.5	29.0	5.2
No high school degree, trained	2.9	8.1	29.4	38.4	21.3	12.0
High school degree, no training	4.7	29.5	22.5	27.9	15.5	20.0
High school degree, trained	8.3	40.4	16.0	20.4	15.0	23.8
Certificate, no training	2.5	42.5	20.0	20.0	15.0	56.4
Certificate, trained	17.3	44.9	18.4	12.1	7.2	62.6
Associate's degree, no training	33.3	33.3	—	8.3	25.0	38.5
Associate's degree, trained	33.4	37.8	13.5	9.9	5.4	59.1
Bachelor's degree, no training	85.7	14.3	—	—	—	57.1
Bachelor's degree, trained	51.7	29.9	8.0	5.7	4.6	63.7
Formally trained for current employment according to sector	50.8	31.6	28.1	16.2	20.3	—
<p>a) IP: Private — independent primary private; IP: Public — independent primary public; SP:W-C — subordinate primary white collar; SP:B-C — subordinate primary blue collar; SC:B-C — secondary blue collar; SC:Serv — secondary service. Source: Estimated with High School and Beyond (1995 Restricted Use Data Files).</p>						

school class of 1982 who were employed full-time are vastly underrepresented in the independent primary sectors, where over half of those employed reported that they had been trained for their current job. On the other hand, young workers in the United States are disproportionately concentrated in the subordinate primary white-collar sector, where they are also more likely than average to have received training for their current position.

Results from the United States show little change in employment patterns of young people during the 1980s and early 1990s. This was not the case in Germany (not shown here, results available from the author) among three sets of cohorts (those age 22 in 1984-88, 1989-92 or in 1993-95). Along with the increase in the proportion of 22-year-olds engaged in vocational education and training, there is a steady decline in full-time employment from 57 percent of the oldest cohort to 44 percent of the youngest. Moreover, the unemployment rate of 7.8 percent found among the oldest cohort falls to only 3 percent among those aged 22 between 1989 and 1992. However, with the decline in the business cycle, unemployment then bounces back to 8.0 percent for the most recent cohorts. Here, then, is an important difference between youth employment in Germany and the United States. The level

of full-time employment is generally higher in Germany than in the United States, the decline in full-time labor force participation is not nearly as dramatic as in the United States.⁴ Moreover, part-time youth employment is of little significance in Germany, averaging about 4 percent of each cohort of 22-year-olds on the day they were interviewed — though approximately one-fourth of all 22-year-olds are employed part-time some time during the year. By contrast, at the time of data collection nearly as many 22-year-olds in the United States are employed part-time as full-time. There are some yearly fluctuations in the relative importance of full-time and part-time employment, but between 85 and 90 percent of all 22-year-olds are employed part-time or full-time in each year after 1986.⁵ Part-time 22-year-old workers in the United States

⁴ Though the HS&B is a single cohort study and can not be used for intercohort comparisons, the PSID-GSOEP Equivalent File does permit analyses of this type.

⁵ Fluctuations in the level of work effort vary significantly from year to year for both full-time and part-time workers, though the proportional shifts are greater among part-time workers (ranging from an average of 900 hours per year to 1,145 hours per year) than among full-time workers (ranging from 2,145 hours per year to 2,327 hours per year).

Table 2

Overeducation and Structural Positions of German 22-Year-Olds by Cohort
(in percent)

	1984-1988	1989-1992	1993-1995
Blue-collar unskilled	5.9	2.1	2.5
Blue-collar semi-skilled	11.6	15.5	7.4
Blue-collar skilled	32.5	27.6	38.7
Self-employed	3.1	1.4	—
In training	2.0	1.6	—
White-collar unskilled	13.1	10.9	4.3
White-collar semi-skilled	23.1	32.6	41.7
White-collar professional	1.3	1.2	—
Civil service	7.3	7.0	5.5
	100.0	100.0	100.0
Employed in job trained for	58.8	61.3	73.8

Source: Estimated with the German Socio-Economic Panel (1997 Syracuse 95 percent Data File).

average 19.7 hours of work per week, as compared to 18.5 hours in Germany — a substantively small but statistically significant difference.

Table 2 summarizes the distribution of German young people according to the nine types of occupational positions listed above. Though the previous results indicate that in the most recent cohorts, fewer German 22-year-olds are employed full-time, Table 2 suggests that those who are employed find themselves in relatively good positions. While the overall proportion of skilled blue-collar workers decreased during the period 1984-1994, the proportion of skilled blue-collar workers among 22-year-olds increased. The proportion of semi-skilled white-collar workers increased to over 40 percent, nearly equal to the share of semi-skilled, professional, and managerial workers in the labor force as a whole. Keeping in mind that German university students will primarily enter the labor force in professional, managerial, and semi-skilled positions, the overwhelming majority of the future German labor force will be in high-skilled positions. Moreover, the proportion of 22-year-olds who are employed in a position that fits their training has steadily increased, so that among the most recent cohort nearly three-quarters of the employed 22-year olds are in positions that fit the skills they have acquired.

4. Earnings of Employed Young Adults in the United States and Germany

A series of regression models are used in Table 3 (United States) and Table 4 (Germany) to clarify the relationship between income and individual characteristics, labor

market position, and overeducation. In each country the natural log of yearly income serves as the dependent variable and the analysis is restricted to 22-year-olds employed full-time. In each country income is regressed on a set of individual characteristics. Then, indicators of labor market position are added to the analysis. Finally, a term is added that represents the extent to which an individual's employment "fits" his or her education, where the lack of fit indicates overeducation.

In the United States, the individual characteristics model yields no surprises. Women earn significantly less than men. In the case of marriage this gender gap is further exacerbated: married men earn significantly more than single people, while married women earn significantly less.⁶ Minorities earn less than Whites and Asian-Americans. Young people who attended suburban high schools earn more than their peers who attended urban or rural schools. There is also a predictable return to job tenure, as earnings grow significantly with the number of months spent at a firm. Finally, despite the limited variation in education found among 22-year-olds, significant income effects are found at either end of the education scale.

In Germany, on the other hand, the results of the individual characteristics model are somewhat unex-

⁶ The interaction effects of marriage and gender should not be interpreted to mean that marriage per se is the source of the difference in earnings. Causal direction remains open, i.e., some men may earn more because they have married or they marry because of their earnings. Similarly, some women may earn less because they marry or these women may marry because of lower earnings potential.

Table 3

Effects of Individual Characteristics, Labor Market Position, and Overeducation on the Log of Earnings of 22-Year-Olds in the United States Employed Full-Time in 1986: OLS Coefficients and Standard Errors

	(1)		(2)		(3)	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Female	-0.152**	0.011	-1.141**	0.012	-0.139**	0.012
Married male	0.099**	0.015	0.088**	0.015	0.089**	0.015
Married female	-0.040**	0.015	-0.041**	0.015	-0.041**	0.015
Minority	-0.063**	0.011	-0.057**	0.011	-0.055**	0.011
School location (reference category = Attended suburban high school)						
Attended urban high school	-0.057**	0.013	-0.048**	0.013	-0.047**	0.013
Attended rural high school	-0.085**	0.011	-0.081**	0.011	-0.079**	0.011
Tenure (months at firm)	0.004**	0.001	0.004**	0.001	0.004**	0.001
Education (reference category = high school degree, trained)						
No degree, no training	-0.071**	0.020	-0.043*	0.020	-0.032	0.020
No degree, trained	-0.002	0.022	-0.002	0.022	0.004	0.021
High school degree, no training	-0.021	0.023	-0.016	0.023	-0.015	0.023
Certificate, no training	0.038	0.058	0.039	0.057	0.016	0.057
Certificate, trained	0.016	0.018	-0.006	0.018	-0.032	0.018
Associate's or bachelor's degree	0.064**	0.017	0.031	0.018	-0.009	0.018
Labor Market Segment (reference category = Subordinate primary — white collar)						
Secondary service	—	—	-0.149**	0.015	-0.145**	0.015
Secondary blue collar	—	—	-0.040**	0.014	-0.033*	0.014
Subordinate primary blue collar	—	—	0.013	0.015	0.015	0.015
Independent primary	—	—	0.047**	0.017	0.039*	0.017
Fit between training and job	—	—	—	—	0.071**	0.011
Constant	9.664**	0.020	9.672**	0.023	9.653**	0.023
Adjusted R ²	0.092		0.113		0.119	

* p < 0.05; ** p < 0.01; N = 6,009.

Source: Estimated with High School and Beyond (1995 Restricted Use Data Files).

pected. Most notably, the effects of gender and resident alien status are not statistically significant. Nor is there a significant "marriage penalty" for women, though married men do earn significantly more than single people of the same age. These findings suggest that at least at the start of one's career, the German labor market is relatively egalitarian — at least in terms of the earnings of those who are employed full-time at age 22. In Germany there are no effects of region size, as the earnings of young people in very small and very large metropolitan areas are not

significantly different from the earnings of those who live in other areas.

An interesting difference in the effects of firm tenure on income can be seen between the two countries. In Germany a quadratic term (tenure-squared) has a significant negative effect on earnings, indicating that the return to tenure diminishes over time; by contrast, in the United States, adding a quadratic term does not significantly improve the fit of the model. In part this may be due to the

Table 4

**Effects of Individual Characteristics, Labor Market Position, and Overeducation on the Log
of Earnings of German 22-Year-Olds Employed Full-Time in 1984-1994: OLS Coefficients and Standard Errors**

	(1)		(2)		(3)	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Female (reference category = male)	-0.031	0.034	-0.069	0.038	-0.007	0.038
Married male (reference category = single)	0.268**	0.089	0.253**	0.087	0.247**	0.087
Married female (reference category = single)	-0.022	0.069	0.022	0.068	0.016	0.068
Minority (resident alien) (reference category = German citizen)	0.045	0.062	0.082	0.062	0.081	0.062
Cohort (reference category = age 22 between 1984-1987)						
Age 22 between 1988-1992	0.225**	0.036	0.169**	0.036	0.175**	0.036
Age 22 between 1993-1994	0.186**	0.053	0.110*	0.053	0.118*	0.053
Metropolitan area (reference category = between 20,000 and 500,000)						
Metropolitan area smaller than 20,000 inhabitants	0.006	0.035	0.027	0.035	0.024	0.035
Metropolitan area larger than 500,000 inhabitants	0.052	0.047	0.054	0.046	0.053	0.046
Tenure (months at firm)	0.017**	0.003	0.017**	0.003	0.017**	0.003
Tenure (months at firm) squared	-0.0002**	0.000	-0.0002**	0.000	-0.0002**	0.000
Education (reference category = no postsecondary vocational education)						
School-based vocational education	0.121*	0.050	0.056	0.050	0.076	0.051
Apprenticeship training	0.115**	0.037	0.099**	0.037	0.109**	0.037
Less than one year in labor force	-0.460**	0.040	-0.518**	0.040	-0.528**	0.041
Labor Market Segment (reference category = blue-collar skilled)						
Blue-collar unskilled	-	-	-0.249**	0.083	-0.284**	0.086
Blue-collar semi-skilled	-	-	-0.099	0.055	-0.134*	0.059
Self-employed	-	-	-0.638**	0.108	-0.647**	0.108
White-collar unskilled	-	-	-0.083	0.056	-0.088	0.057
White-collar semi-skilled	-	-	0.062	0.047	0.068	0.047
White collar professional	-	-	0.283	0.150	0.293	0.150
Civil service	-	-	0.073	0.067	0.057	0.068
Firm Size (reference category = medium firm between 20 and 200 employees)						
Small firm (fewer than 20 employees)	-	-	-0.052	0.045	-0.044	0.045
Large firm (more than 200 employees)	-	-	0.161**	0.035	0.162**	0.035
Fit between training and job	-	-	-	-	-0.063	0.039
Constant	9.667**	0.052	9.713**	0.063	9.742**	0.065
Adjusted R ²		0.165		0.214		0.215

* p<0.05; ** p<0.01; N = 1,513.

Source: Estimated with the German Socio-Economic Panel (1997 Syracuse 95 percent Data File).

large differences in the average length of tenure between the two countries (14 months in the United States as opposed to 27 months in Germany). In the United States, 22-year-olds may not have been on the job long enough to experience a leveling off of their income growth. The rate of

increase in earnings among German young people may be more pronounced due to the depressed yearly wages of individuals who were working full-time at the age of 22, but who had spent part of the year in an apprenticeship position. This effect is captured in the large, significant negative

coefficient attached to the indicator of persons who had been in the labor force for less than one year. Finally, as expected, those with a completed apprenticeship or course of school-based vocational education earned significantly more than those with no postsecondary education.

In both countries, adding indicators of labor market position (in the second model) significantly improved the overall fit of the income model and had little effect on the coefficients associated with the individual characteristics included in the first model. In the United States, however, the effects of education did diminish somewhat once labor market position was included in the model—though those with no high school degree or training continued to earn significantly less than individuals with a high school degree and training. Compared to persons aged 22 in the United States who are employed in white-collar positions in the subordinate primary sector, those in blue-collar or service sector jobs in the secondary sector earned significantly less, while those in independent primary sector (public or private) earned significantly more. In Germany, where blue-collar skilled employment serves as the reference category, the only significant differences found were with self-employed persons and those in unskilled blue-collar positions — both groups earned significantly less than skilled blue-collar workers. Firm size is also introduced as a control variable in the second model in Germany and, as anticipated, employees earn significantly more in large firms.

Including an indicator of fit between employment and training in the third model has different results for each country. Most obviously, being employed in a job that fits one's education or training significantly increases income in the United States, but has no significant effect on earnings in Germany. However, this difference between Germany and the United States in the direct effect of fit on income should not be interpreted in isolation. Including the fit between employment and training in the model also has different consequences for the coefficients associated with main effects of postsecondary education and training. In the United States, where employment in a job that fits one's postsecondary training significantly increases income, there are no longer any significant main effects of postsecondary education and training. In Germany, where

the coefficient associated with fit is not significant, the direct effect of apprenticeship training remains positive and significant.

5. Conclusion: Overeducation and Implications for Future Career Processes

The analyses of education, employment, earnings, and overeducation presented in this paper raise two main issues. First, the very different effects of overeducation in the two countries suggest very different links between postsecondary education and employment. The German labor market rewards young people for apprenticeship training regardless of whether or not the education received is specifically linked to subsequent employment. In the United States, however, the returns to vocational education and training depend wholly on employment that fits one's education. At least among those who are employed full-time at age 22, the German vocational education system provides training that is of general value, while the value of early vocational training in the United States depends on the individual finding a position that requires the specific skills acquired. These findings suggest greater social costs to overeducation and a greater need to individuals to positions in the United States than in Germany.

Secondly, one ought not ignore the fact that early labor market experiences influence later career processes. In the United States young people who entered the labor market during the recent period of economic restructuring disproportionately fill positions in the least rewarding white-collar and service segments of the labor market. In Germany, however, there has been no increase in the proportion of young people in these segments of the labor market. Instead, German young people extended their period of education and delayed entry into the labor market. As these cohorts age, individuals in the two countries will face very different challenges. In the United States, mobility into more rewarding positions will determine the long-term economic success of those who entered the labor market early. In Germany, on the other hand, the critical issue is whether or not those who delayed entry into the labor market will subsequently enter into more rewarding positions or will still wind up at the bottom of the labor market.

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