European Sociological Review, Vol. 5 No. 3, December 1989

Educational systems and labor market outcomes

JUTTA ALLMENDINGER

ABSTRACT Educational opportunities, and the specific structures of educational systems, are as consequential for mobility in labor markets as are the attributes of the individuals who make careers in those markets. The conceptual and empirical challenge is to understand how individual and environmental factors *interactively* affect mobility processes. The argument is developed in three steps. First, a *typology* for the classification of educational systems is presented. According to this typology, educational systems can be distinguished along the criteria of 'standardization' (the provision of equal educational standards nationwide) and 'stratification' (the selection procedures within the systems). Second, general hypotheses are stated on how educational system characteristics shape labor market outcomes. With a stratified educational system, occupational status is closely determined by individual educational attainment; with an unstratified system, occupational status is less determined by educational attainment. On the other hand, with a standardized system, job changes occur less frequently than with an unstandardized system. Third, *empirical evidence* is provided. The educational systems of Norway, West Germany and the United States are evaluated according to the typology of standardization and stratification. The connection of educational system attributes and labor market outcomes is analyzed on the basis of retrospective life history data from the United States, Norway and West Germany.

INTRODUCTION

The collective environment—institutions and material conditions—provides incentives, constraints, and alternatives to individual actors and shapes their choices and actions. At the same time, the choices and actions of individuals shape their collective environment. This reasoning—that macro-level and micro-level are intertwined—is at the very core of sociological thinking. It also presents an ongoing challenge for empirical sociological research.

It is a frightful challenge because we hardly ever are in the position to flesh out the full relationship between the individual level and the collective level. To do so would require data about institutional characteristics, economic trends, individual decision-making processes, social interaction, and aggregate individual outcomes. On the other hand, we surely can move beyond the kind of context-free empirical research about which Boudon (1971: 48) has complained that it attempts no more than: 'to enumerate individual characteristics and to treat the individual as if he were detached from his environment and hence as an abstraction'.

For the topic of the present paper, education and mobility processes, Boudon's complaint is all too often justified. For example, we know that mobility processes—whether across generations or in the course of the work-life—are strongly determined by educational attainment. In empirical studies of the relation between education and mobility, educational attainment is almost always treated as an individual characteristic. In itself, that is not a problem: how much schooling someone obtains is obviously a datum about that specific person. The problem is that empirical analyses too often overlook the fact that individual choices about schooling are significantly shaped and constrained by the opportunities the environment offers. Thus, any analysis of the relationship between educational

attainment and mobility patterns that does not take account of the educational environment is almost certain to be misleading.

Educational opportunities, and the specific structures of educational systems, are as consequential for mobility in labor markets as are the attributes of the individuals who make careers in those markets. The conceptual and empirical challenge is to understand how individual and environmental factors *interactively* affect mobility processes.

While prior mobility research has not focused on the link between individual and environmental factors, their interaction has not been altogether neglected. Convergence theory (Kuznets, 1966; Kerr, 1983), for example, considers both structural mobility (mobility due to change in the distribution of positions) and exchange mobility ('pure', or 'individual' mobility) in exploring changes in national occupational structures. A specific example of this approach is the paper by Featherman, Jones and Hauser (1975) which argues that all societies with market economies and nuclear family systems have similar mobility regimes.

The characteristics of educational environments, and their impact on educational attainment and labor market chances, however, have generally been ignored. This is the case despite the fact that studies in various fields of sociological inquiry have consistently shown the link between educational attainment and organizational settings differs across nations. Examples include the work of Sengenberger and Köhler (1983) on the personnel strategies of American and German automobile firms, and that of Lutz (1976) and Maurice and Sellier (1979) on institutional differences in French and German firms. There also are many empirical studies of social mobility which find cross-national variation in mobility patterns despite controls for economic conditions. Even though these studies point to the importance of institutional (educational) structures, this explanation is only given *a posteriori*: institutional differences are not addressed in the research design (see, for example, König and Müller, 1986; Haller, König, and Kurz, 1985; Kappelhof and Teckenberg, 1987). Only Maurice and Sellier—as representatives of the 'Aix school'—go beyond a unique set of nation specific variables and take steps to 'substitute names of variables for the names of social systems' (Przeworski and Teune, 1970: 8).

In this paper, I attempt to show that educational *systems* define occupational opportunities for individuals at entry into the labor market, and that these systems have long-term implications for how people are matched to jobs. In this view, the amount of schooling a person attains and the occupational career this person experiences are dependent on the educational environment. I am aware that this is only a modest step towards a full specification of the interrelation between micro-level and macro-level analyses. But to empirically attach individuals to their environment, is, I hope, a useful step.

I will develop the argument that educational system characteristics matter for occupational outcomes in four steps: first, I present a *typology* for the classification of educational systems, second, I *evaluate* educational systems (using the examples of Norway, the United States and West Germany) according to that typology; third, I state *hypotheses* about how educational system characteristics shape labor market outcomes. Finally, on the basis of retrospective life history data from the United States, Norway and West Germany, I will provide empirical evidence that educational system characteristics do matter for occupational outcomes.

TYPOLOGY FOR THE CLASSIFICATION OF EDUCATIONAL SYSTEMS

There are numerous existing options for classifying educational systems, many of which are intended for use in comparative educational policy research. One of the most influential systems was developed by Harbison and Myers for use in studies of the relationship between educational expansion and economic development (Harbison and Myers, 1964; see also Meyer *et al.* 1977, 1979). These researchers sought to create a formal, world-standardized, and universally-applicable system. Unfortunately, the system does not allow extraction of data that are needed to analyze how the organization of education influences work mobility.

Other classification schemes for educational systems do explicitly relate institutionalized features to mobility processes. One example is that of Turner (1960), who distinguishes 'contest mobility' and 'sponsored mobility'. Hopper (1968) expands Turner's classification, by asking 'how', 'when' and 'why' pupils are selected. Yet these studies focus on *inter*generational mobility processes and do not allow analysis of how educational systems relate to *intra*generational mobility.

Because no existing classification scheme is suitable for linking educational systems to labor market outcomes, it was necessary to generate a new one. This typology derives from two dimensions: the standardization of educational provisions, and the stratification of educational opportunities.

Standardization is the degree to which the quality of education meets the same standards nationwide. Variables such as teachers' training, school budgets, curricula, and the uniformity of school-leaving examinations are relevant in measuring the standing of an educational system on this dimension.

Stratification is the proportion of a cohort that attains the maximum number of school years provided by the educational system, coupled with the degree of differentiation within given educational levels (tracking). This dimension can be measured by examining the organizational structure of educational systems and/or by data that show the proportion of a cohort that exits at a given educational level (attrition rate).

The two dimensions of educational systems are best explained by providing concrete empirical examples through case studies of educational systems in the United States, Norway and West Germany. These three nations have quite different educational structures and vocational training arrangements and therefore allow analysis of the concepts that are the focus of this paper. I discuss the systems along the dimensions of standardization and stratification for primary and secondary education, higher education, and vocational training. As will be seen, the resulting classification allows the derivation of specific hypotheses about transitions into labor markets and about mobility patterns therein—hypotheses which then can be tested with existing life event data sets for each nation.

THE EDUCATIONAL SYSTEMS OF THE UNITED STATES, NORWAY AND WEST GERMANY

Standardization of Primary and Secondary Education

In the United States, education is considered a state and local responsibility, and the school system is characterized by a low degree of standardization in the organization of schools, in their curricula and in their academic criteria. The curricula differ not only between states (as they do, in part, in Germany) or between rural and urban areas (as they do in Norway), but also to a considerable degree from school to school. A national or a state curriculum does not exist. The standardization of educational provision is further undermined by substantial differences among and within school districts in expenditures per pupil. Some states spend little more than half the national average while others spend more than twice the average per pupil. Variation among school districts is also found in teachers' salaries, which are determined by local school districts. Acquisition of a high school diploma does not require a formal examination, but rather merely adequate attendance and a satisfactory record of school achievement as determined by the schools or the district, subject to state requirements. Final examinations that are standardized in content and level of difficulty do not exist. Thus, it is obvious that educational administration in the United States is decentralized, and that educational provision is *unstandardized*. Certain segments of the population are disadvantaged because local components of the educational system vary in respect to the quality of the educational program. This has consequences for the body of students' knowledge, the degree to which students seek higher education, and the kind of higher education to which they have access.

The Norwegian school system is controlled by the Royal Ministry of Church and Education. Hence, one could assume that the high degree of political centralization leads to educational provisions which are highly standardized. This, however, is not the case. Three factors inhibit

standardized educational provision: the language problem, the organizational differences between country and city schools, and some arbitrariness in the allocation of students to secondary schools. About three-quarters of the Norwegian people use as their written language Bokmal or Riksmal, while the rest use Ny-Norsk or Landsmal, the names for an amalgam of west country dialects created in the nineteenth century as a reaction against the influence of Danish. Each municipality decides which language to use in schools, and only in the grammar schools must both be taught. The language split parallels urban–rural differences in the organization of schools. In the towns, children attend school every day, and there is generally one class corresponding to each year group. In the country, many one-teacher and two-teacher schools exist, in which children go to school only on alternate days.

Besides differences in school organization, there is an urban/rural stratification in teachers' training. Kerr (1960: 20) reported that in smaller village schools, science and English are not usually taught because the local teacher was not qualified to teach them. A still further division between rural and urban schools is the institutionalization of the eighth school year in 'continuation' schools. In 1940, there were 313 continuation schools in country districts as compared to 223 in towns (Boyesen, 1946: 143). If we relate these numbers to the total number of about 3,500 rural districts and 440 urban districts (Lindbekk: 1974: 159), we find that every tenth rural district, but every other urban district, provided such a school. Although pupils in the countryside nominally have the same number of primary school years, their education seems poorer. Their socialization primarily takes place in their homes rather than in school (which they attend just three mornings a week).

In regard to the standardization of school-leaving examinations, and access to secondary and higher education, various patterns are institutionalized. The transfer between primary and secondary schooling is based solely on the primary school's evaluation, not on school certificates. This procedure ranks students relative to other students in the school and does not maintain equal standards for all students. Secondary schools, in contrast, are generally more homogeneous and subject to the same standards (curricula, examinations) all over the country. The Norwegian school system, although centrally administered, thus displays for primary schooling—despite strong claims to the opposite[1]—very unstandardized features. Secondary schooling, however, can be labeled as standardized.

In the Federal Republic of Germany, the states (*Länder*) that make up the Federation are the legislative and administrative authorities in the organization of education. Although the West German school system is less centralized than the Norwegian, the degree of standardization throughout the nation is considerably higher. To some extent this is merely due to the density of the population: whereas Norway with an area of 323 thousand km^2 has a population of 3·5 million people (density: 11 people/km^2), West Germany, with the smaller area of 258 thousand km^2, has a population of 54 million (population density 209 people/km^2).

More important, however, is the establishment of a coordinating organ that prevents too much diversity among the *Länder*. The chief organ for cooperation is the Standing Conference of State Education Ministers (*Kultusministerkonferenz*). It ensures that the structures, institutions, curricula and leaving certificates are comparable in all *Länder*, and that academic and professional training is equally valid throughout the nation. Although there are 11 distinct and separate bodies and major administrative authorities, the degree of standardization is considerably higher than in either Norway or the United States. All transitions between schools are based on standardized school-leaving examinations. The professional education of teachers (who are all public servants) does not differ among schools, or between urban and rural areas. Expenditure per pupil varies somewhat between *Länder*, but again to a less significant degree than in Norway or the United States.

Stratification of Primary and Secondary Education

The degree to which an educational system is stratified is determined by the proportion of a

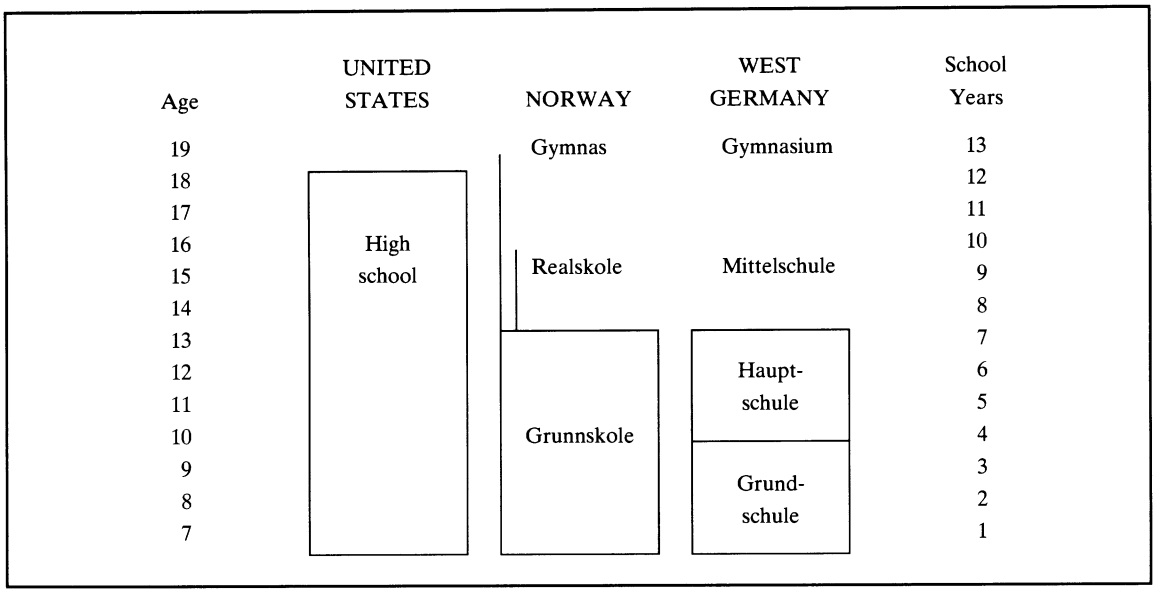

FIGURE 1 *The structure of primary and secondary school systems in the United States, Norway, and West Germany.*

cohort selected to attain the maximum number of school years provided by the system. The higher this proportion is, the less stratified is the educational system. The classification of selection procedures is therefore crucial for the classification of educational systems.

Cross-national differences in selection procedures are most remarkable in regard to the timing of selection, the finality of selection, and the consequences of selection (see Figure 1). In West Germany, the decision on who can continue is made at approximately age ten. Pupils are selected to pursue either four, six, or nine years of additional schooling. This decision is not subject to review, and later transfers to higher levels are generally more or less impossible (de-grading, however, occurs to a considerable degree). Norway has an extended primary school system that is untracked and lasts for seven or eight years. The recruitment to upper levels (either two or four more years of schooling) is delayed until age 14. Later transfers are usually not possible. In the United States, the cohort born around 1930 entered an educational system in which the selection of students to tracks of differing lengths of training was no longer the task of primary schools. The American school system had already stopped offering an academic education to merely a small minority and turned to a system that is labeled as one of 'mass terminal education' (Trow, 1961).[2]

Cross-national differences in selection procedures show in the *quantity* of education that citizens of the three nations obtain. Although the maximum number of years of schooling that the students *may* obtain is about the same in all three cases and amounts to 13 years (excluding higher education), the number of years of schooling that students *do* attain is strikingly different. Table 1 displays the percentage distribution of educational attainment by highest educational level on the basis of the life history data sets under study.[3] We find that Norway and West Germany have similar enrollment rates at the top level of the hierarchy. At the intermediate level, Norway has higher enrollment rates, a fact that is due to the possibility of entering *Realskolen* upon completion of elementary school after 1949. In the United States, we find the well known significant differences in the amount of educational training between whites and blacks: 71 per cent of white Americans in the sample finished high school as compared to 44 per cent of black Americans.

We conclude that the West German and

TABLE 1 *Highest educational attainment by population. All cohorts*

	US White	US Black	Norway	West Germany
Elementary	13·3	24·4	51·4	75·6
Some High/ Realskole/ Mittelschule	13·7	31·7	36·2	14·9
High school Gymnas Gymnasium	71·0	43·9	12·5	9·5

Norwegian educational systems of primary and secondary education are stratified; the American system can be labeled unstratified. This observation is important: generally, it is assumed that the structural differentiation of the school system has strong effects on the socialization and allocation of students to occupational levels.

The classification of educational systems at the level of primary and secondary schooling can now be accomplished. If we treat the two dimensions, stratification and standardization, as two axes, the educational structures of each nation occupy different cells in the resulting matrix (see Figure 2). The United States offers an unstratified primary and secondary school system, but one that is unstandardized. Thus, a range of options is open to all students, but the options are, at the same time, restricted by the unequal quality of educational provision throughout the country. West Germany, on the other hand, provides a stratified, but standardized, school system; students are stratified by number of school years and their options for future choices are severely restricted. At each level of schooling, however, the quality of training is the same for all students. Thus, students retain all options for further moves associated with the level they occupy. Norway displays both, a stratified and unstandardized school system for primary schooling, and a stratified and standardized school system for secondary schooling. Finally, it may be noted that the cases studied fall entirely into the two cells on the main diagonal (high standardization/low stratification, and high stratification/low standardization).

		Stratification: high	Stratification: low
Standardization	high	FRG NORWAY (secondary)	
	low		USA NORWAY (primary)

FIGURE 2 *Stratification and standardization of primary and secondary education.*

Standardization of Higher Education

Many studies have been undertaken to compare the systems of higher education in Western Europe with those of the United States. Prime attention is paid to the strikingly different enrollment ratios. Lipset (1963), for one, gives a US–West German comparison for 'about 1956' that indicates that 663 per cent more students are enrolled in US than in West German universities (proportion of 20–24 year olds). Remarks like this have led to the outcry that West Germany is distinctively 'backward' and the United States is particularly 'advanced' (Picht, 1965). Such a conclusion, which derives qualitative outcomes from quantitative differences, is misleading. As will be seen below, the classification of school systems, already discussed on the primary and secondary levels, is helpful in understanding how these quantitative differences in higher education are generated.

Let us first examine the degree of standardization of the American system of higher education. There is considerable variation in the content and quality of training provided by American colleges and universities. The American college is considered as an educational institution concerned not only with learning but also with conduct and morals (Veysey, 1965: 219). 'The colleges have to stand for something' (Ben-David, 1947: 27) and are not supposed to adopt the stand of 'value neutrality' in science and scholarship as is still proclaimed (though not successfully implemented) in West Germany (Ringer, 1967). This implies that college curricula are generally broad, and not strongly orientated toward pre-

paring the students for careers. Career training, then, is gained either by passing on to special professional or graduate schools (institutions that do not exist in West Germany and Norway), or by on-the-job training upon entry into the labor market. Given this understanding of what a college education should provide, basic differences among universities are not surprising. But heterogeneity in curricula is just part of the argument. More importantly, American colleges and universities are substantially stratified in terms of the status and prestige they confer on students.

The hierarchy of academic institutions reproduces and perpetuates this social stratification. It also ensures the continuity of the social hierarchy, because each level of academic institutions continues to recruit disproportionately from different social levels. This situation reflects unstandardized educational provision. In the USA, it does not suffice to know the years of college education or the degree attained, because differences among universities according to ownership, size and quality of faculty produce students with very heterogeneous knowledge and abilities.

West German and Norwegian universities are state institutions. As such, they are supposed to adhere to the same standards throughout the nation. A ranking of universities does not exist in West Germany. In Norway, the question of standardization is altogether meaningless because, until 1960, Norway had only one full university. Further, West German and Norwegian universities train for specific occupations. Students have to decide on their field of study (in essence, their future occupation). A core curriculum for students of all faculties does not exist.

Stratification of Higher Education

Turning now to the second dimension of the typology, we must ask how many students, of those who are eligible to enter, are actually permitted to enter, and upon what criteria. We must further ask what proportion of the students, of those that enter higher education, gains university degrees. The Norwegian and West German systems of higher education are unstratified, because they permit access to all eligible students (i.e. those with the *Abitur* or *Matriculation*). These certificates enable students to take on their university studies without further selection, such as tests or examinations.[4]

The American system stratifies students. The admission of students is highly selective.[5] The selection process is under control of the universities. They usually do not base selection on the high school diploma alone, but rely on several aptitude tests and on their own admissions procedures. The use of tests is frequently interpreted as providing reliable measures of students' abilities. However, test scores are not necessarily related to the quality of teaching provided in the schools nor are they culturally neutral, and they disadvantage certain students.[6] Further, American universities offer degrees at different levels within higher education (AA or BA), whereas West German and Norwegian universities train their students for essentially a single-level university degree. This shows that American universities select students not only at entry into the system, but also within the system. For these reasons, the American structure can be labeled stratified.

Figure 3 summarizes the results in the matrix explained above. The American system of higher education is unstandardized and stratified. The Norwegian and West German systems are standardized and unstratified. Comparing this result with the evaluation of the primary and secondary school systems (Figure 2), yields interesting observations. Stratifying structures ensue from unstratified structures at the lower level, and unstratified structures ensue from stratified structures at the lower level. In the former case, options are systematically reduced, while in the latter, options for those that 'made it' are increased.

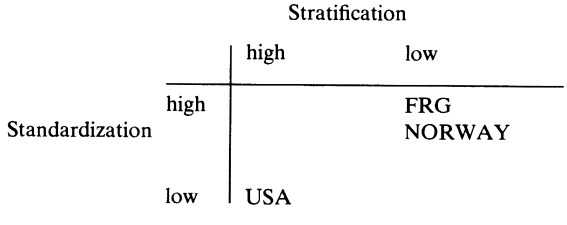

FIGURE 3 *Stratification and standardization of higher education.*

Standardization and Stratification of Vocational Training

It is appropriate to distinguish four different types of vocational training: training in general schools, training in vocational schools, apprenticeships in firms, and on-the-job training.

Over the period covered in this study, vocational training, as part of general schooling, was only provided by the United States. This training covers a wide array of different tasks and cannot be considered as specific professional training (community colleges can be neglected here because before 1960 they played a minor role). Collins (1971), for one, writes: 'Specifically vocational education in the schools for manual positions is virtually independent of job fate, as graduates of vocational programs are not more likely to be employed than high school drop-outs.' Thus, additional vocational training is necessary, which, in the United States, is provided as 'on-the-job' training. 'Most skilled manual workers acquire their skills on the job or casually' (Clark and Sloan, 1966). It therefore seems appropriate to consider vocational school tracks as a stage of career preparation, rather than as actual career training. In the other two nations, such career preparation is not institutionalized, and the transition from school to work is both more clear cut and more unprepared.

Vocational schools are often more closely attached to the local labor market, and they offer training in occupations that are predominant in the geographical area of these schools. In Norway, they are open to students with elementary schooling, and provide an occupational-specific training for (future) manual and white-collar workers. In West Germany, vocational schools are mainly technical schools, open to middle school leavers; in the United States, they are mainly community colleges.

I distinguish two types of in-firm training, apprenticeships and on-the-job training. On-the-job training, provided mainly in the United States, is unregulated by State laws, has no clearly defined curriculum, and mostly leads to very firm-specific knowledge. Because the degree of specificity of vocational training has a rather important impact on future career chances, it will be discussed in a separate section.

Apprenticeships are the most common vocational training arrangement in West Germany and in Norway. In Norway, apprenticeships are subject to (and protected by) state and guild regulations, and last two or four years. In West Germany, the so-called 'dual system' prevails,[7] in which apprentices have to attend public schools *and* hold contracts with an employer.

The four vocational training structures, general schooling, vocational schools, apprenticeships and on-the-job training, can now be analyzed in regard to the two dimensions of standardization and stratification.

I suggest that the degree of standardization is *relatively* higher whenever the training takes place within public schools and in the form of apprenticeships. Such training is broader, and is not firm-specific to the extent to which 'on-the-job' training most likely is. Training that takes place in firms depends on characteristics of the firm, the region, and economic conditions.

In regard to the dimension of stratification, training in general and vocational schools, as well as apprenticeships, does not stratify people: everyone is eligible for, and has the option to, participate (in Norway and West Germany the supply of apprenticeships always exceeded the demand; this changed with the recession in 1967, but did not affect the range of options open to the cohorts studied here). Further, the attrition rate is low, and employers are not allowed by law to fire apprentices. 'On-the-job' training, however, stratifies people. It is the decision of employers alone whom to hire; the training is unconstrained by any federal regulations, and workers are not protected against lay-offs or dismissal. These observations are summarized in Figure 4. The results show that the observation of a shift from integrating to stratifying policies holds true for the vocational level. Norway and West Germany provide unstratified systems, the United States a stratified system. Further, the United States offers mainly unstandardized structures, whereas Norway and West Germany furnish mainly a standardized system.

With this discussion, the description of educational systems is concluded, and I can proceed with the analysis of their importance for labor

Standardization \ Stratification	high	low
high		NORWAY FRG
low	USA (on-the-job)	

FIGURE 4 *Stratification and standardization of vocational training structures.*

market outcomes. This is the goal of the next section, to which I will turn after some general remarks on cross-national comparisons of educational structures. On the most general level, I have shown that the educational systems of the USA, Norway and West Germany differ and that these differences also persist over the years.[8] Cross-national differences in regard to educational structures have persisted over the decades between 1920 to 1970, decades in which the countries further industrialized, developed, and modernized. For the three nation states studied, a process of convergence cannot be observed.

The focus on 'equivalency' theory leads many observers to overlook key differences among modern industrial nations. On the basis of this case study, I argue that the structure of educational systems is not wholly determined by 'inescapable' demands of the industrial system. In all three nations, standardized and stratified educational systems co-exist. In this matter, a metaphor of Schumpeter (1943) comes to mind. He asked the question; 'What is needed to make automobiles faster?', and provided the answer, 'Brakes'. In the United States, unstratified school systems are used at the primary and secondary level and each individual thus has a higher opportunity to obtain the maximum number of school years provided by the system. But opportunities are curbed by stratified educational systems of higher education that aim to secure status barriers. In West Germany and Norway, where highly selective and restraining mechanisms prevail at the lower levels of the school systems, brakes at the upper level are not needed, and opportunities are more equally distributed among those who reached this level.

EDUCATION AND LABOR MARKET OUTCOMES: A FRAMEWORK

Educational systems shape the matching of people to jobs. In general terms, the dimension of *standardization* refers to what employers expect. In standardized systems employers can rely on information given by (standardized) certificates and do not have to screen and/or train individuals entering the labor force. The effect of standardized training systems, then, is a smooth transition between the educational and occupational sectors, a transition that does not require repeated job shifts to achieve a good 'match'.

Stratification, on the other hand, affects the match between education and social structure. In stratified educational systems, there is a tight coupling between the educational system and a differentiated occupational structure; in unstratified systems, the coupling is loose. Hence, stratified educational systems should also reduce the frequency of job shifts.

The argument is illustrated in Figure 5. Following the format of Figures 2 to 4, the co-ordinates are the two dimensions relevant for comparative analyses of the link between educational and occupational systems. Most occupational transitions are expected in unstandardized and unstratified educational systems; least shifts are expected in standardized and stratified educational systems. Educational systems which offer any other combination of standardization and stratification produce a rate of job shifts which falls in between the two extremes.

Standardization \ Stratification	high	low	
high	−	+	Tight coupling between educational attainment and labor market outcome
low	+	++	Loose coupling between educational attainment and labor market outcome

FIGURE 5 *Effects of standardized and stratified educational systems on the propensity for lateral and vertical career mobility.*

The following sections elaborate on the consequences of educational opportunities and constraints for labor market outcomes. I focus, first, on the transition into the labor market following primary and secondary education; second, on the transition following higher education; and third, on the transition following vocational training.

THE LABOR MARKET TRANSITION FROM PRIMARY AND SECONDARY SCHOOLING

In Norway, as well as in the United States, significant differences in the quality of schooling for the population as a whole were observed. The consequences of unstandardized structures, such as differences between rural and urban schools, or between inner-city and suburban schools, seriously affect the choice of occupation upon entry into the labor market. It does not require any imagination to see that rural education in Norway socializes students to enter occupations that are predominantly 'rural occupations', in areas like farming, crafts, and fishing. This restriction can be attributed neither to differentials in years of educational training nor educational level attained, but rather to an urban/rural partition in the labor market that is upheld by the educational system. The division affects both entry into the labor market and movement between jobs, specifically the occurrence of lateral job shifts.

Labor market outcomes, however, derive not only from strong ties between school location and student, but also from the lack of standardized, and thus reliable, school-leaving certificates which can be universally used as screening devices (Spence, 1974; Stigler, 1962). In West Germany, the *Volksschulabschluss* is an examination which serves as a screening device for employers. In Norway and the United States, however, employers cannot rely on such certificates when allocating people to jobs. Instead, they must develop and employ their own strategies, and use their own selection procedures, all of which impose costs on firms. One such selection procedure, reported in studies that analyze American devices for matching people to jobs, is to allocate a large proportion of people into low level entry positions in the firm, to screen them on the basis of their on-the-job performance, and only then to finally 'select' them. Thus, selection takes place within the firm rather than prior to initial employment (Sengenberger and Köhler, 1983; König and Müller, 1986; Maurice *et al.* 1982; Rose, 1985; Haller *et al.* 1985).

The implications for school-leavers are obvious. The job search activity for American and Norwegian students who exit the school system after primary school (and do not continue with vocational training) will take time, and involve many job shifts early in their careers (for empirical evidence see Coleman, 1984; Blossfeld, 1986; Kappelhof and Teckenberg, 1987). In other words, the matching of people to jobs is unbound, and the link between the educational and occupational systems is loose.

In West Germany and in Norway at the secondary school level, on the other hand, the link between the two systems is tight. Employers can assume that the educational system channels, selects, and screens their future work force reliably. Compared to American employers, they need fewer screening mechanisms within the firm, hire only as many workers as they actually need, and thus decrease their overall hiring (and firing) activity. This tight coupling between schooling and labor market entry decreases the probability of many early career job shifts.

Labor market outcomes that result from stratified structures at the level of primary and secondary schooling reflect the matching of a differentiated school structure to a differentiated occupational structure. Stratified structures allocate individuals to positions of matching status within the differentiated occupational structure (Bowles and Gintis, 1976). In the two countries with highly stratified school systems, West Germany and Norway, the educational systems regulate entry into the class and status system on almost all levels: pupils without any certificates largely join the ranks of the 'unskilled'. The qualifying school-leaving certificate of the *Volksschulen* (the completion of primary schools in Norway) qualifies people for entry into apprenticeship and skilled workers' occupations. The *Realskolen* and *Mittelschulen*, mainly attended by lower middle class craft and

industrial workers, lead to the *Real-Examen*, and offer a passage to white-collar jobs. The gymnasia lead to *Examen Artium* and *Abitur* which guarantee university entry. In both countries, stratified school systems correspond to differentiated occupational strata. The effect of the tight link between the educational and occupational sectors is to reduce the likelihood of many job shifts at the beginning of the work-life. Even job shifts later in the work-life are unlikely to cross-cut the educational partition in the labor market.

Unstratified school systems, on the other hand, do not sift and differentiate people according to occupational level. American students (if they do not drop out from high school) leave primary/secondary schooling at one level, but are faced with a differentiated occupational structure. The contest is focused on an array of vacancies at different occupational levels. By contrast, West Germans and Norwegians who exit the educational system at different levels are constrained to enter narrower ranges of jobs, all of which belong to the same occupational level. Thus, the coupling between educational attainment and occupational status should be higher for West Germans or Norwegians than for Americans.

THE LABOR MARKET TRANSITION FROM HIGHER EDUCATION

West German and Norwegian students pursue their studies as a *Brotstudium*, realizing that their only chance to attain high status is via academic studies. The degree of professionalization was (and is) high in both nations. Students exit the system of higher education with a certificate of general value, independent of where the training took place. This specific career education permits entry into the professions without further training. The transition can therefore be made quickly and without 'noise'—that is, without many shifts at the beginning of the career. This transition will be especially smooth because, in West Germany and Norway, 'learning and the learned are thoroughly integrated into the administrative systems' (Ringer, 1967) and many university graduates become employed as public servants with life-long employment contracts. Further, many core enterprises are nationalized (such as the railways, postal services, telephone and other communication services), and this extends the range of vacancies for university graduates.

American students in the 1950s tended to endorse the Horatio Alger myth, celebrating the success of the self-made and self-educated man. School achievement was only one of several paths to success (Ringer, 1966; Touraine, 1974; Ben-David, 1947; Lynd and Lynd, 1929). American colleges produce graduates who are stratified in regard to their labor market chances—stratified by the number of years of higher education they have received, but even more by the 'name' of the institution which awarded their degree. Poorly standardized educational structures deflate the value of certificates as passports for entry in the labor market. The rather general US training, as well as the 'missing connection between higher education and government service' (Ringer, 1966: 247), suggests that the move into the occupational system will be more erratic, and that entry in the occupational system will occur at different levels of the occupational status system. To sum up: the link between higher education and occupational structure is tight in West Germany and Norway, and is loose in the United States. Few job shifts should be observed at the beginning of the work-life for Norwegian and West German graduates, and many should be found for American graduates. In West Germany and Norway, the attainment of a university degree 'opens the door' to high status jobs, as well as allowing for upward career mobility in the course of the work-life. This may be true to some extent for the American university graduate as well, but less certainly so. The key explanation is the coupling between attainment of a college degree and labor market outcome. This coupling is high in the United States, and low in West Germany and Norway, providing evidence that educational systems indeed pattern labor market processes, and do so differently across nations.

THE LABOR MARKET TRANSITION FROM VOCATIONAL TRAINING

The major difference among vocational training arrangements is their degree of standardization.

We can think about the dimension of standardization as a continuum reaching from apprenticeships at the one end to on-the-job training at the other. Apprenticeship systems should lead to quite different labor market outcomes than do on-the-job training systems.

The apprenticeship system itself is standardized. Imbalances between the supply of apprenticeships and the demand for apprenticeships, however, can at least in some occupations lead to transition problems for workers who enter the labor market. Germany has a 'qualification' labor market (see Maurice, Sellier and Silvestre, 1982; Sengenberger and Köhler, 1983; Haller *et al.* 1985; König and Müller, 1986), such that occupational training and skills are more important (for job security, wages, fringe benefits etc.) than is seniority. Thus, the stratification in German enterprises is between skilled and unskilled workers. Workers with apprenticeships that do not 'fit' will always remain marginal to 'skilled' workers.

On-the-job training can be considered a rather specific training, completely unregulated by curricula and thus located at the opposite end from apprenticeships on the firm-occupation specific continuum. A change of enterprise almost always implies the need for further training. 'On-the-job' training, however, is often followed by work in organizations that follow an 'organizational' and 'seniority' labor market system, rather than a 'qualification' labor market system.[9] The longer the worker stays in the firm in which he or she has been trained, the more precious this worker is to the firm, and the less likely the firm will be to lay off or fire the worker. Concomitantly, American union policies protect workers with much labor market experience, even though they may not be the workers with the best training.

DATA

The empirical test of the framework discussed above will rely on life history data sets for Norway, the United States, and West Germany. All three data sets comprise representative national samples of adult men from different birth cohorts. Data were collected by asking the respondents to recall the exact timing and chronological order of events in different realms of their lives, such as their childhood, their families of origin, and their educational and occupational activities from age 14 until the time of the interview.

The American Life History Study (Blum, Karweit and Sørensen, 1969) is commonly referred to as the 'Johns Hopkins study'. This study was conducted as part of the Social Accounts Program at the Center for Social Organization of Schools, The Johns Hopkins University, Baltimore. The Social Accounts Program was initiated by James S. Coleman and Peter H. Rossi. The universe for the Life History Study is the total population of males 30–39 years old in 1968 (the time of the interview). The total number of interviews obtained was 1,589: 738 black and 851 white respondents. Two samples are available. One sample is a nationally representative sample which weights white and black Americans according to their proportion in the population. The second sample overrepresents black American citizens. Research on mobility patterns of white and black Americans provided evidence (Coleman *et al.* 1972) that work histories differ across the two populations, and that education does not have the same effects on career processes across racial lines. Therefore it is clear that all analyses must be stratified by race to avoid biased estimates. The nationally weighted sample would not provide any advantage, and I thus use the unweighted sample (which overrepresents blacks): black and white American citizens will be treated as two distinct populations.

The Norwegian data are from the Norwegian Occupational Life History Study, directed by Natalie Rogoff-Ramsøy (Rogoff-Ramsøy, 1984). The sample is comprised of men living in Norway in 1970 whose year of birth was 1921, 1931, or 1941. The universe excluded women and includes immigrants born in other countries. The total sample size amounts to 3,470 completed interviews, which were conducted between November 1971 and March 1972.

The West German data are from the West German Life History Study, originated and directed by Karl Ulrich Mayer between July 1981 and October 1983 (Mayer and Brückner, 1989). A representative sample stratified by

cohort and sex was drawn. Three cohorts were selected, born between 1929 and 1931, 1939 and 1941, and 1949 and 1951. Foreign residents (defined as persons not holding West German citizenship) are not part of the universe. The total sample size of these three cohorts is 2,172 (1,079 men).

The comparison of the three data sets shows four important differences. These are

(i) The *universe of the sample*. The exclusion of women in the American and Norwegian studies is most consequential. With the data at hand, it simply is not possible to analyze female career trajectories in a cross-national comparison.

(ii) The *selection of birth cohorts*. The cohort born in 1921 (Norway), and the cohort born in 1949/1951 (West Germany) do not figure in the other samples. To resolve this difference, I identified and selected a cohort of males born between 1929 and 1931.

(iii) The *date of the interview*. Life histories of men in the birth cohort 1929–31 are reported until age 50 in West Germany, but only until age 40 in Norway and the United States. I therefore truncated the West German data file by one decade; all observations which refer to events after 1970 are neglected.[10] The variable which indicates whether or not the event is completed has also been adjusted.

(iv) The *sample size*. The West German and American samples are half as large as the Norwegian sample. Consequently, subgroup analyses will be restricted to a level which is feasible for all data sets.

Hence, while differences in the properties of the three national samples are not trivial, appropriate adjustments of the data sets are possible to an extent that ensures basic comparability across nations.

EFFECTS OF EDUCATION ON CAREER PLACEMENT AND CAREER TRAJECTORY

The question now is whether educational attainment leads to different levels of occupational prestige and to different career trajectories as a function of the degree of standardization and stratification of the system in which education was pursued. First, we will examine the effects of stratified systems on occupational status attainment, and then turn to the effects of standardization.

Effects of Educational System Stratification on Career Placement and Career Trajectory

Effects of educational system stratification on labor market outcomes can be assessed by measuring occupational rewards in terms of occupational prestige (SAS).[11] I expect (i) that workers with the same amount of formal education are rewarded differently in stratified and unstratified systems; (ii) that occupational rewards in the first job are more disparate in stratified than in unstratified systems; and (iii) that formal certificates are more important in stratified systems than in unstratified systems.

(i) *Are workers with the same amount of formal education rewarded differently in stratified versus unstratified systems?* To test whether educational systems produce system-specific outcomes in occupational prestige, we can simply compare the average occupational prestige scores for each level of formal education across the four populations. Table 2

TABLE 2 *Level of formal education and average status attainment in first job, by population, all cohorts*

Highest Formal Attainment	Mean SAS	Standard deviation	Coefficient of variation	N
US Whites				
Elementary	0·30	0·41	1·39	109
Some High School	0·37	0·49	1·33	111
High School	0·72	0·87	1·22	593
US Blacks				
Elementary	0·30	0·41	1·36	225
Some High School	0·45	0·93	2·07	225
High School	0·90	1·57	1·74	333
Norway				
Elementary	0·44	0·68	1·54	1,635
Realskole	0·69	0·78	1·13	1,152
Gymnas	2·13	1·39	0·65	396
West Germany				
Lt. elementary	0·45	0·30	0·65	88
Elementary	0·53	0·38	0·71	724
Mittelschule	1·00	0·86	0·86	160
Gymnasium	1·91	1·29	0·67	101

displays the breakdown of SAS scores by educational level. At each level, American men are rewarded with less occupational prestige in their first job than are Norwegian and West German men. For the lowest levels, elementary schooling and 'some high school', this finding is not surprising because, in West Germany and Norway, these levels represent formal exits from the educational system whereas in the United States they are perceived as levels attained by high school 'drop-outs'. More informative are the returns to high school, gymnas and gymnasium. The average SAS score of the jobs attained by white American workers is 0·72, by black American workers 0·90, by Norwegian workers 2·13 and by West German workers 1·91. These different returns in occupational prestige for the same number of years of formal schooling are striking and clearly support the first hypothesis of stratification effects: the more people who attain the highest formal education, the less their average prestige score.

(ii) *Do stratified educational systems lead to more distinct status hierarchies?* This hypothesis can also be tested by the analysis of Table 2. In all four populations we see a positive linear relation between educational resources and occupational rewards: the more education people acquire, the higher is the status of their first job. Simple difference scores, however, show that white Americans with a high school diploma gain on the average slightly more than twice the prestige of whites with elementary schooling, while Norwegians with a Gymnas degree gain an average prestige which is five times as high as the prestige of elementary school leavers. In West Germany, Gymnasium graduates attain jobs four times 'better' than those of elementary school leavers.

The results confirm that the relative standing of a person at the beginning of the career trajectory is not only the outcome of individual educational attainment by also of the organizational structure in which educational credentials have been awarded. Stratified educational systems (Norway, West Germany) do indeed channel the work force into occupations with distinctively different occupational status.

(iii) *Are formal qualifications attained in education more important in stratified systems?* To test whether a specific qualification matters more in one than another educational system, the SAS level of the first job is regressed on the variables 'years of formal and vocational training' and 'highest educational qualification attained'. In Norway and West Germany, the first of these variables is the sum of years of formal schooling and years spent in vocational training; the second is measured with two dummy variables, corresponding to 'high school' (gymnas, gymnasium) graduation, and 'some high school' (realskole, middle school graduation). Elementary schooling is the reference category. Table 3 shows two models. The reduced model (Model 1) includes only the variable 'years of schooling'. The full model (Model 2) includes also 'degree of formal education'. We see that in Norway and West Germany the full model is superior to the reduced model. Both the realskole and gymnas qualifications significantly increase status attainment in the first job even when 'years of schooling' are controlled. In the United States, the reduced model is sufficient: A 'high school' certificate is neither significant for the prediction of occupational status attainment nor does it reduce the error variance of the whole equation. I conclude that in stratified systems the form of qualification attained in the educational system matters. This conclusion is supported by further analyses in which I substituted information on whether Americans attained a college degree for that on whether they attained a high school degree. Results for this modified regression equation indicate that for both American

TABLE 3 *Regression analysis of SAS level of first job on years of schooling and level of school*

Model		R^2	Constant	Years schooling	Level Real	Level Gymnas
US Whites	1	0·26	–0·41	0·35**		
	2				n.s.	n.s.
US Blacks	1	0·08	–0·01	0·22**		
	2				n.s.	n.s.
W. Germany	1	0·19	0·06	0·20**		
	2	0·33	0·14	0·13**	0·26**	0·93**
Norway	1	0·30	–0·98**	0·54**		
	2	0·48	–0·91**	0·44**	0·46**	1·01**

samples 'college degree' is a significant covariate. Further, returns to college degrees in the United States are very similar to the returns to the gymnas/gymnasium qualification in Norway and West Germany.

The results indicate that the coupling between educational attainment and occupational status is higher for West Germans and Norwegians than for Americans; and that in stratified systems the level, or type, of qualification itself matters more than the length of education. In unstratified school systems, people are not sifted and differentiated according to occupational levels.

EFFECTS OF EDUCATIONAL SYSTEM STANDARDIZATION ON CAREER PLACEMENT AND CAREER TRAJECTORY

Effects of standardized educational and vocational training systems can be assessed by examining the amount of variation in key measures for standardized relative to unstandardized educational systems. Specifically, I predict (i) that in standardized educational systems, the variation in occupational prestige within each educational system is smaller than in unstandardized educational systems: and (ii) that workers educated in unstandardized systems have *more job shifts* overall than do those from standardized systems.

(i) *Is variation in occupational status smaller for workers from standardized educational systems?* The results in Table 2 and the regression analysis displayed in Table 3 give evidence that occupational rewards are indeed less dispersed for workers with the same educational attainment in standardized than in unstandardized systems. In Table 2, we focus on the coefficient of variation a measure that allows us to compare the deviation around the mean across populations. This coefficient is 1·22 for the dispersion of occupational prestige of white Americans with high school degrees. For black Americans it is 1·74, but for Norwegians and West Germans with gymnas or gymnasium qualifications it is only around 0·66. The earlier observation that the Norwegian elementary school system is rather unstandardized is further supported by the considerably higher dispersion of status scores for elementary school leavers in Norway (V = 1·54) as compared to West Germany (V = 0·65).

Another way of displaying the effect of unstandardized systems on status attainment is shown in Table 3. More variation in SAS level should be accounted for in standardized systems than in unstandardized systems. The results support this hypothesis: 26 per cent of the variance in status attainment (R^2) is explained by educational attainment for the white American population, 33 per cent is explained for West Germans, and 48 per cent is explained for Norwegians. For black Americans, educational attainment matters least, with a R^2 of only 0·08.

(ii) *Are there more job spells in unstandardized systems?* Vocational training systems which are set up as apprenticeships lead to professional knowledge which is bound to one occupation. Workers acquire occupation-specific training, and the boundaries between occupations can be crosscut in the course of occupational life only with difficulty. In unstandardized systems, some students acquire vocational training in high schools or junior colleges, but the variation in both length and content of such vocational training is considerable. Workers generally are not committed to pursuing only one occupation. Employers, on the other hand, know what professional expertise to expect from workers who have finished long-term apprenticeships. In unstandardized systems, however, employers cannot rely on any clear signals. Instead, they hire workers to train and to screen 'on-the-job'. The consequences for both voluntary and involuntary job shifts are obvious: standardized vocational training systems decrease the likelihood that many jobs will be held over the course of an individual's work history, and unstandardized systems increase this likelihood.

The overall number of jobs varies considerably across the populations. White Americans report 6·5 job spells, while black Americans report 5·6, Norwegians 7·5, and Germans 3·5. Table 4 reports the percentage of workers with one to five job spells in each population. The last row gives the percentage of persons with more than five jobs. In the United States, 56 per cent of all white Americans and 44

per cent of all black Americans have more than five job spells. In Norway, 58 per cent of all workers have more than five job spells as compared to only 14 per cent of West German workers.

The clear division between West Germany and the United States represents the first support for the hypothesis that as systems are more standardized, there are fewer job shifts. The Norwegian case, however, challenges this assertion. Although the Norwegian educational structure is far less standardized than the West German, it is clearly more standardized than the structure in the United States. I therefore expected the number of Norwegian job shifts to fall somewhere between the number reported in the United States and in West Germany, rather than being higher than both. The explanation for this Norwegian pattern includes macro-economic conditions and considerable differences in the number of job changes among different occupations. The decline of the agricultural sector required major adjustments by young persons with farming backgrounds. Such persons cannot stay in farming; they also have severely restricted opportunities for good schooling, and their choice of occupations is constrained. At age 14, they have to find employment, which is most likely in the (rural) area where their parents live. This implies, however, that they will be trained in vocations in declining (agrarian) economic sectors, with declining demand. Long job search activities are thus induced by economic change which overrides 'normal' transitions.

(iii) *Do unstandardized systems lead to more job transitions at the beginning of the career?* Vocational training in the form of apprenticeships ends with a standardized examination that serves as a screening device (Spence, 1974; Stigler, 1962) for employers. Employers need few screening mechanisms within the firm, hire as many workers as they actually need, and thus decrease overall hiring and firing activity. In systems without such standardized examinations, however, employers cannot rely on signals when allocating people to jobs. Instead, they must develop and employ their own screening strategies, and use their own selection procedures. One such selection procedure is the allocation of a large proportion of people into low entrance positions in the firm, the screening of their on-the-job performance, and subsequent selection (Sengenberger and Köhler, 1983; Haller *et al.* 1985; König and Müller, 1986; Maurice *et al.* 1982; Rose, 1985), By implication, the job search activity for students from unstandardized systems will take some time, and many job shifts are likely to occur at the beginning of the career.

TABLE 4 *Percentage of workers by number of job spells over the career trajectory*

Total number of job spells	US White	US Black	Norway	West Germany
1	3·3	7·3	5·1	10·1
2	7·1	5·9	7·5	23·1
3	12·3	11·4	9·4	28·5
4	11·9	14·7	10·7	13·5
5	9·8	17·2	9·7	11·2
More than 5	55·6	43·5	57·6	13·6

This difference between workers who are trained in standardized vocational systems and those trained in unstandardized systems, however, is likely to diminish over time. If workers are trained on-the-job and stay in a firm for a long period of time, they acquire training which is tailored to the needs of the firm. Employers will try to hold trained workers to compensate for their initial training costs.

To provide evidence that the organization of schooling matters for the timing of job transitions in the course of the work trajectory, I calculated the ratio of job shifts accomplished at distinct points of labor force experience to the overall number of job shifts. The discrete points are two, five, seven and ten years of labor force participation. Table 5 reports these ratios for workers with high educational attainment (college, gymnas, gymnasium) and for workers without such attainment. The interpretation of Table 5 will focus on white Americans (with an unstandardized educational system) and West Germans (with a standardized system). West Germans without a secondary school certificate completed about 50 per cent of all job transitions after two years labor force experience. By the time these workers have been in the labor force for 10 years, more than three-quarters of all transitions have been accomplished. White

TABLE 5 *Ratio of job spells completed after 2, 5, 7 and 10 years of labor force participation (LFX) to the overall number of job spells in the trajectory*

Years LXF	USA: Whites	USA: Blacks	Norway	West Germany
No college				
2	30·7	32·1	25·8	48·7
5	56·4	53·1	52·3	57·4
7	67·8	62·8	61·2	68·5
10	75·5	71·9	70·8	78·4
N of jobs	887	839	3,244	1,162
N of persons one job only	210	206	832	281
College/gymnas/gymnasium				
2	48·4	53·5	56·9	53·3
5	63·5	65·5	70·0	68·6
7	77·4	73·8	78·8	73·8
10	84·3	82·5	88·0	81·6
N of jobs	234	63	501	84
N of persons one job only	63	16	123	21

Americans without a college degree completed around 30 per cent of all job transitions after two years of labor force participation (18 per cent less than West Germans). After ten years of labor force experience, three-quarters of all job shifts are completed (2·9 per cent less than West Germans). From the West German–American comparison[12] the following figures can be reported. First, for half of all West German workers, the final job match is completed within two years of entry into the labor force; in the United States, this process takes more than twice as long. Secondly, the remainder of job transitions is distributed more evenly in West Germany than in the United States. And thirdly, after five years of labor force experience, the timing of job shifts is very similar for the two populations, as is the proportion of completed job transitions.

In sum, organizing vocational training as on-the-job training leads to a loose match between jobs and persons. The five first years of the career trajectory are a stage of trial and error, and involve many job shifts. After this initial stage is completed, however, workers trained on-the-job have obtained firm-specific occupational knowledge and skills which are valuable to the employer, and have made investments that they themselves value (through entitlement to firm benefits, such as pension plans and seniority rights). It seems that firm-specific training ties workers to their firms and jobs just as much as occupation-specific training ties workers to their occupations. Thus, the difference between the two types of system in inducing job shifts is concentrated in the first few years of labor force participation.

CONCLUSION

This paper has shown empirically that the effects of educational attainment on occupational rewards are dependent on the educational system in which education has been pursued. I distinguish between two critical properties of educational systems: standardization and stratification. The analysis showed that when a person is educated in a stratified system, his or her occupational status is strongly determined by educational attainment. The relationship between educational attainment and occupational status is less strong in unstratified systems. The educational system also shapes career trajectories—specifically, the likelihood of changing jobs. A person educated in a standardized system changes jobs less frequently than does someone educated in an unstandardized system. Hence, when we find cross-

national differences in the effects of educational attainment on mobility patterns, we should not merely conclude that 'nations are different'. Instead, we must replace vague references to nation-specific circumstances with concepts that help us understand how and why these empirical relationships differ across countries.

The implication for comparative studies that analyze nation states with different school structures is obvious. Variables such as years of schooling and degrees attained are meaningless. Secondly, school degrees in Norway and West Germany simply cannot be compared to high school degrees in the United States. Ten years of schooling in the United States, for example, means that the student dropped out of high school, whereas in West Germany and Norway it means that the student exited the educational system after completing middle school. The opportunities and constraints encountered in the labor market differ substantially for these two groups of students—despite the fact that they were in school for the same number of years. Thus, the very *meaning* of 'years of schooling' and 'qualifications attained', as well as their consequences for individual lives and their implications for employers, are seen to depend significantly on the properties of educational systems.

The present research can be expanded in at least two directions, one specific and one more general. The first direction has to do with the impact of educational structures on individual labor market outcomes. The framework presented in this paper would benefit from further work in three areas. The first would be to expand the scope of the time period covered. Because educational systems change within nations over time, single country studies which cover cohorts born in different decades need to be informed by educational system characteristics. Hence, the inclusion of cohorts born in other decades would be helpful in testing the scope of the typology developed in this work. The second development would be to enlarge the set of cross-national comparisons. Comparable data sets exist for Japan, France, Poland and the Netherlands. Including these data would be extremely helpful in testing the limits of the typology of educational systems. The third development would be to enlarge the diversity of individuals in the sample by including women, foreign workers, and so on. It was not my intention to exclude women from this study; it was, instead, a constraint imposed by the American and Norwegian data sets. Greater inter-individual variation would be valuable in determining whether institutional characteristics are gender-neutral—that is, whether they have the same impact on the careers of women as they do for men.

The second, and more general, direction for future work is to develop an understanding how *other* institutional characteristics shape individual outcomes. In particular, it would be useful to examine the effects of the internal hierarchical structures of organizations, their management practices, and their personnel policies. If we could find ways to obtain information about the recruitment, promotion, and training strategies of organizations and firms, and if we could develop a classification of organizations according to such strategies, then we would have accomplished another step towards a better understanding of how environmental conditions frame individual outcomes.

NOTES

1. For example, Boyesen, Director of the Board of Education in Norway, expresses the view that equality between rural and urban parts of Norway exists. His explanation is worth quoting: 'Rural schooling does not imply poorer schooling. On the contrary we have always been able to count on the children taking part in the daily work at home on the intervening day, the boys as a rule with their father, the girls with their mother, and thus coming under the influence of the home and everyday life. This signified as a rule a maturing of character which also included spiritual development' (1946: 141). Other authors who praise the egalitarian Norwegian school system are Kerr, 1960 and Munch, 1956.
2. The reader may assert that I exaggerate the difference between the USA and the two European nations because of 'tracking' and 'counseling' activities within American high schools. Tracking, however, is not comparable to the rigidity of a tripartite system that selects at age 10 (or 14). 'Tracked' high schools do not sift and sort students to so many different levels, and with such a degree of finality, as do the two European school systems.
3. A description of the three data sets will be given below.
4. The *numerus clausus*—a prime example of stratifying policies—was not applied during the years in which the cohorts considered entered higher education.

5. There are two temporary exceptions. In the 1930s, the competitive situation between the American colleges led new universities to accept practically everyone, irrespective of qualification. After WW II, the enactment of the GI Bill served the same end. But these conditions did not affect the cohorts studied here.
6. I do not argue that the total dependence of Norwegian and West German students on school examinations is a superior selection system for the individual student. For the population of students as a whole, however, it does establish a higher degree of equal treatment.
7. The obligatory three year part-time attendance at vocational schools is a second feature that distinguishes the West German system from the structures in the other two countries. This obligation extends to all school leavers between age 15 and 18, irrespective of whether or not they are in training apprenticeships or under contract. While this prolonged part-time school attendance might encourage the motivation to search for an appenticeship contract, it does not alter the general evaluation of the West German apprenticeship system in the context of this work.
8. Norway adapted 'integrated school structures', whereas in West Germany these reforms failed; the expansion of educational provision is more pronounced in the United States and in Norway, whereas urban–rural differences are persistently higher in these two countries than they are in West Germany.
9. Maurice, Sellier and Silvestre (1982) develop the typology of 'qualificational' and 'organizational' mobility spaces in their comparison between West German and French organizational structures. Organizational mobility spaces mean that the individual firm, its organizational structure (promotion ladders) and the on-the-job experience are mainly relevant for mobility opportunities. Qualificational mobility spaces mean that vocational education has a greater significance for occupational opportunities. While Maurice *et al.* use this typology for the French–West German comparison, it also suited for the present comparison between the United States, West Germany and Norway. Here, the United States provides an organizational labor market, West Germany a qualification labor market, and Norway a mixture of both systems, dependent on the type of vocational training.
10. The truncation has been necessary only for descriptive analyses, and for the creation of the macroeconomic indices which are constructed as indicating the average economic conditions during the time a job was held. It must be noted, however, that differences in the time of the interview have possible implications over and above those due to different observation periods and are related to the specific (retrospective) nature of the data.
11. Occupational prestige is measured with the Social Attainment Scale as developed by Sørensen (1977). The basic idea underlying the SAS scale is that status is exponentially distributed. But whereas Sørensen developed his scale for the measurement of relative occupational standing for only one point in time, I compute scores for the occupational distributions in each distinctive set of years. Such a construction did result in different scores for a single occupation (for example clerks) in 1950, 1960, 1970 and 1980, dependent on the distribution of occupations at these four points in time.
12. The timing of job transitions over the work life for black Americans and Norwegians is similar to the white American pattern. In the case of Norway, this similarity is due to a considerable heterogeneity in the vocational training of workers. For those who acquired vocational training within apprenticeships, the timing of transitions is much like West Germany. This finding again provides evidence that vocational training arrangements matter, and that they stratify people not only across nations, but also within nations which are distinguished by different vocational training arrangements, with differing degrees of standardization.

ACKNOWLEDGEMENTS

This paper is a revised edition of a chapter in my dissertation 'Career Mobility Dynamics—A Comparative Analysis of the United States, Norway and West Germany', accepted by the Department of Sociology of Harvard University, Cambridge. I have greatly benefited from my discussions with Aage B. Sørensen, Karl Ulrich Mayer, and J. Richard Hackman.

REFERENCES

Ben-David J. (1947): *American Higher Education. Direction Old and New*, New York: McGraw-Hill.

Blossfeld H P. (1986): 'Career opportunities in the Federal Republic of Germany. A dynamic approach to study life course, cohort, and period effects', *European Sociological Review*, 2: 208–225.

Blum Z, Karweit N, Sørensen A B. (1969): *A Method for the Collection and Analysis of Retrospective Life Histories*, Bloomington: Johns Hopkins University.

Boudon R. (1971): *The Uses of Structuralism*, London: Heinemann.

Bowles S, Gintis S. (1976): *Schooling in Capitalist America: Educational Reform and the Contradictions of Economic Life*, New York: Basic Books.

Boyesen E. (1946): 'Norway's Educational System', in G B Lampe, (ed), *Norway*, Oslo: Grondahl & Sons.

Clark H F, Sloan H S. (1966): 'Classroom and Main Street', *Teachers College Press*, 73: 1001–1014.

Coleman J S, Blum Z D, Sørensen A B, Rossi P H. (1972): 'White and Black Careers during the First Decade of Labor Force Experience. Part I: Occupational Status', *Social Science Research*, 1: 243–304.

Coleman J S. (1984): 'The transition from school to work', *Research in Social Stratification and Mobility*, 3: 27–60.

Collins R. (1971): 'Functional and Conflict Theories of Educational Stratification', *American Sociological Review*, 36: 1002–1019.

Featherman D L, Jones L, Hauser R M. (1975): 'Assumptions of social mobility research in the US: The case of occupational status', *Social Science Research*, 4: 329–360.

Haller M, König W, Krause P, Kurz K. (1985): 'Patterns of career mobility and structural positions in advanced capitalist societies: A comparison of men and women in Austria, France, and the United States', *American Sociological Review*, 50: 579–603.

Harbison F, Myers C. (1964): *Education, Manpower, and Economic Growth,* New York: McGraw-Hill.

Hopper E. (1968): 'A Typology for the Classification of Educational Systems', *Sociology*, 1: 29–45.

Kappelhoff P, Teckenberg W. (1987): 'Intergenerational and Career Mobility in the Federal Republic and the United States', in Teckenberg W, (ed), *Comparative Studies of Social Structure*, New York: Armonk.

Kerr A. (1960): *Schools of Europe*, London: Bowes & Bowes.

Kerr C. (1983): *The Future of Industrial Societies*, Cambridge: Harvard University Press.

König W, Müller W. (1986): 'Educational systems and labour markets as determinants of worklife mobility in France and West Germany: A comparison of men's career mobility, 1965–1970', *European Sociological Review*, 2: 73–96.

Kuznets S. (1966): *Modern Economic Growth. Rate, Structure, and Spread*, London: Yale University Press.

Lindbekk T. (1974): 'Education in Norway', in Rogoff-Ramsøy N., (ed), *The Norwegian Society*, Oslo/Bergen/Tromso: Universitetsforlaget.

Lipset S M, Zetterberg H L. (1959): 'Social mobility in industrial societies', in Lipset S M, Bendix R, (eds), *Social Mobility in Industrial Society*, Berkeley: University of California Press.

—— (1963): *The First New Nation. The United States in Historical and Comparative Perspective*, New York: Basic Books.

Lutz B. (1976): 'Bildungssystem und Beschäftigungsstruktur in Deutschland und Frankreich', in Mendius H G, Sengenberger W, Lutz B, Altmann N, Böhle F, *et al.*, (eds), Frankfurt: Aspekte.

Lynd R S, Lynd H M. (1929): *Middletown: A Study in Modern American Culture*, New York: Harcourt Brace Jovanovich.

Maurice M, Sellier F. (1979): 'A Societal Analysis of Industrial Relations: A Comparison between France and West Germany', *British Journal of Industrial Relations*, 17: 322–336.

Maurice M, Sellier F, Silvestre J J. (1982): *Politique d'éducation et organisation industrielle en France et en Allemagne: Essai d'analyse sociétal*, Paris: Presses Universitaires de France.

Mayer K U, Brückner E. (1989): *Lebensverläufe und gesellschaftlicher Wandel. Materialien aus der Bildungsforschung*, Max-Planck-Institut für Bildungsforschung, Berlin.

Meyer J W, Ramirez F, Rubinson R, Boli-Bennett J. (1977): 'The world educational revolution, 1950–1970', *Sociology of Education*, 50: 242–258.

Meyer J W, Tyack D, Nagel J, Gordon A. (1979): 'Public education as national building in America', *American Journal of Sociology*, 85: 591–613.

Munch P A. (1956): 'A Study of Cultural Change', *Studia Norvegica: Ethnological and Folkloristica*, 3: 1–104.

Picht G. (1965): *Die deutsche Bildungskatastrophe*, München: Deutscher Taschenbuchverlag.

Przeworski A, Teune H. (1970): *The Logic of Comparative Inquiry*, New York: Wiley.

Ringer F. (1966): *Education and Society in Modern Europe*, Bloomington: Indiana University Press.

—— (1967): 'Cultural Transmission in German Higher Education in the Nineteenth Century', *Journal of Contemporary History*, 2: 124–141.

Rogoff-Ramsøy N. (1984): *Codebook and Documentation of the Norwegian Life History Study*.

Rose M. (1985): 'Universalism, culturalism, and the Aix group: Promise and problems of a societal approach to economic institutions', *European Sociological Review*, 1: 65–83.

Schumpeter J. (1943): *Capitalism, Socialism and Democracy*, London: Allen and Unwin.

Sengenberger W, Köhler Chr. (1983): 'Beschäftigungselastizität und Arbeitsmarktstruktur. Ein Vergleich interner Arbeitsmärkte in der deutschen und amerikanischen Automobilindustrie', in Haller M, Müller W, *Beschäftigungssystem im gesellschaftlichen Wandel*, Frankfurt/New York: Campus.

Sørensen A B. (1977): 'The Structure of inequality and process of attainment', *American Sociological Review*, 42: 965–978.

Spence A M. (1974): *Market Signaling*, Cambridge: Harvard University Press.

Stigler G. (1962): 'Information in the labor market', *Journal of Political Economy*, Supplement: 94–105.

Trow M. (1961): 'Reflections on the Transition from Mass to Universal Higher Education' *Daedalus*, 99: 1–42.

Touraine A. (1974): *The Academic System in American Society*, New York: McGraw-Hill.

Turner R. (1960): 'Sponsored and contest mobility and the school system', *American Sociological Review*, 25: 855–67.

Veysey L. (1965): *The Emergence of the American University*, Chicago: The University of Chicago Press.

AUTHOR'S ADDRESS

Jutta Allmendinger, Max Planck Institute for Human Development and Education, Lentzeallee 94, 1 Berlin 33, West Germany.

Manuscript received: July, 1989.