2000

The structure of education and its influence on occupational mobility: a comparative study between the United States and Germany

Andrea Gabriele Mueller
University of Iowa

THE STRUCTURE OF EDUCATION AND ITS INFLUENCE ON OCCUPATIONAL MOBILITY. A COMPARATIVE STUDY BETWEEN THE UNITED STATES AND GERMANY

by

Andrea Gabriele Mueller

A thesis submitted in partial fulfillment
of the requirements for the Master of
Arts degree in Sociology
in the Graduate College of
The University of Iowa

May 2000

Thesis Supervisor: Associate Professor Scott R. Eliason

Graduate College
The University of Iowa
Iowa City, Iowa

CERTIFICATE OF APPROVAL

_____

MASTER'S THESIS

_____

This is to certify that the Master's thesis of

Andrea Gabriele Mueller

has been approved by the Examining Committee
for the thesis requirement for the Master of Arts
degree in Sociology at the May 2000 graduation.

Thesis Committee: _____
Scott R. Eliason, Thesis Supervisor

_____
David Bills

_____
Charles Mueller

To my parents, Wolfgang and Dorothea Müller.
For their support,
their critical judgement and advice,
and most of all their love.

ACKNOWLEDGMENTS

I would like to thank Professor Scott R. Eliason for his advice on data analysis and helpful discussions throughout the research project. Thanks to Professor David Bills and Professor Charles Mueller for helpful comments on earlier versions of this paper. I am thankful to the Fulbright Association and The University of Iowa that supported my first year of graduate studies at the Department of Sociology with scholarships. Also, I would like to thank the graduate students at the department of sociology for their encouragement and helpful advice, especially Benjamin J. Earnhart and Elizabeth C. W. Lyman.

ABSTRACT

Mobility research analyzes the influence of social background on educational and occupational attainment. It is generally agreed that occupational mobility is conditional on educational attainment and social background. The research here presented reanalyzes this relationship with special interest to educational attainment. The analysis is conducted using RC-association, models which have not been used in the research of social mobility at all. After a short introduction to the topic, the educational systems of Germany and the United States are presented indicating the formal structure of the institutions, years of schooling possible, and credentials. Second, a theoretical framework is developed using features of human capital theory, status attainment theory, dual labor market theory, and Weber's theory of social closure. Third, findings of the statistical analysis are presented separately for each country and then in comparative perspective. Fourth, the final part of the paper discusses high school tracking as an informal process to restrict access to higher education. Two distinct patterns between father's occupation and respondent's occupation have emerged from the data. These patterns are similar for both countries, indicating that similar underlying processes take place. Social closure as indicated by levels of self-recruitment are relatively strong in both countries, while processes of social mobility are weaker in the United States. Overall, mobility rates are slightly higher for Germany than the United States.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

Processes of social mobility have gained attention since the early twentieth century. Social mobility was first understood in terms of class mobility, but soon researchers took an interest in individual movements as well. With the status attainment model two generations were investigated to understand how status is transferred from one generation to another. Education was found to be an important mediating variable. The analysis presented here focuses on educational attainment and its influence on occupational attainment. From a comparative perspective the influence of different educational systems is investigated. Reference is made to the difference between "sponsored" and "contest" mobility defined by Turner . While Germany is an example of sponsored mobility, where formal tracking takes place at an early age, the United States represents contest mobility, where there is the intention to provide equal educational opportunities to all students for as long as possible. Contest mobility should enable students to attain different levels of education independent of their social background. It is one interest of this paper to examine if the influence of social background is different for educational and occupational attainment across countries.

If educational attainment is influenced by social origin, the class of origin plays an important role in the attainment process. Membership in a social class is not only defined by available resources, but also by norms and roles related to lifestyle. Life chances therefore depend on social class position and are transferred to the next generation. Parents are interested in passing on their resources to their children, and children are, in general, interested in keeping the lifestyle they are used to. Reproduction of social classes is therefore an expected result of this perspective.

EDUCATIONAL SYSTEM

Germany

The German school system can be described as what Turner refers to as a sponsored mobility system, with high rates of selection throughout education . The first selection process takes place after four years of compulsory education are completed. Pupils are tracked into *Hauptschule* (five or six years of education); *Realschule* (six years of education) or *Gymnasium* (nine years of education). With graduation each pupil receives either the *Hauptschul*-degree if graduating from *Haupschule*, the *Mittlere Reife* (intermediate general qualification) if graduating from *Realschule*, or the *Abitur* if graduating from *Gymnasium* (see figure 1). In their analysis, Baker, Esmer, Lenhardt and Meyer state that German students define themselves through the level of secondary school they are attending. They define these tracks as associated with a particular social status. "The *Gymnasium* is linked to the university-prepared officials, intellectual, and professional roles. The *Realschule* is linked to the middle and bourgeois classes. The *Hauptschule* is linked to the working and lower classes."(Baker, Esmer, Lenhardt, and Meyer 1985, 217, italics added) High numbers of pupils with *Hauptschul*- and *Realschul*-diplomas enter the *Dual System* to receive a vocational training. But vocational training is also attractive for pupils with *Abitur* in order to gain experience before continuing with higher education (Brauns and Steinmann 1999, 19). The *Dual System* is a combination of formal schooling and vocational training. Brauns finds that pupils with *Hauptschul*- and *Realschul*-diploma predominately complete vocational training in crafts, manufacturing, office and sales related training while *Abitur* candidates predominately carry out vocational training in commercial enterprises, e.g. banks or insurance companies (Brauns and Steinmann 1999, 19). This differentiation indicates that tendencies towards specific occupations exist between degree candidates. Students who received the *Mittlere Reife* (intermediate general qualification) at the *Realschule* can attend *Fachoberschulen* to

receive the *Fachhochschulreife*. Students who leave the *Gymnasium* with twelve instead of thirteen years of education also receive the *Fachhochschulreife.* The *Fachhochschulreife* is a necessary requirement to enter *Fachhochschule,* a college of higher education that is less oriented towards academia and provides a three year education (Brauns, Müller, and Steinmann 1997, 5) . Universities (including '*Technische Hochschule*' - technical universities) offer four-year academic programs (years vary by subject) and require *Abitur* as entrance qualification. The interplay between educational system and attained degree influences occupational attainment and defines career pattern as will be discussed later on.

The *Datenreport 1999* of the *Statistisches Bundesamt Deutschland* presents most recent figures on educational attainment indicating an overall tendency to higher educational attainment. Twenty-eight percent of respondents born between 1969 and 1978 received an *Hauptschul*-degree, 25.2 percent received the *Realschul*-degree and 31.5 percent the *Fachhochschul*-degree (intermediate general qualification) or *Hochschulreife* (*Abitur).* Slightly more than fifty-five percent of the respondents did an apprenticeship, 3.1 percent received a *Fachhochschul*-degree and 4.2 percent a university degree. Forty-four percent of the respondents born between 1949 and 1958 received an *Hauptschul*-degree, 17.0 percent received the *Realschul*-degree and 21.2 percent the *Fachhochschul*-degree (intermediate general qualification) or *Hochschulreife* (*Abitur).* Out of these respondents 58.8 percent did an apprenticeship, 5.9 percent received a *Fachhochscul*-degree and 10.8 percent a university degree.

Of respondents born in 1938 or before, 76.2 percent received an *Hauptschul*-degree, 10.9 percent received the *Realschul*-degree and 8.5 percent the *Fachhochschul*-degree (intermediate general qualification) or *Hochschulreife* (*Abitur).* Out of these respondents 50.6 percent did an apprenticeship, 2.7 percent received a *Fachhochscul*-degree and 4.2 percent a university degree (Statistisches Bundesamt 1999, Table 17, 18,

77f.). These findings represent an increasing educational attainment in higher education, supporting the tendencies of educational expansion.

United States

Turner describes the educational system of the United States as an example of contest mobility (Turner 1960), where selection processes take place late in one's educational career. In this system it is one aim of education to "train as many as possible in the skills necessary for elite status so as to give everyone a chance to maintain competition at the highest pitch."(Turner 1960, 863) . After finishing primary education (grades one to six) pupils attend middle schools or junior high schools (grades seven and eight) and then transfer to high schools (grades nine to twelve). After twelve years of total schooling, students typically receive their high school diploma. High school drop-outs can take the G.E.D. (test of general educational development), which is equivalent to the high school diploma. After graduating from high school, pupils can attend institutions of higher education. Higher education can be vocational oriented as well as academic oriented. For example, technical schools provide different programs of vocational training oriented towards blue-collar or pink-collar occupations. Technical schools are sometimes attached to firms or industries, and can therefore fulfill similar functions as on-the-job-training, e.g. they teach special skills necessary for an occupation. However, technical schools did not establish a similar importance to obtain occupational credentials as did the *Dual System* in Germany (Krymkowski 1991, 50). Duration of schooling and curriculum can be very different in each technical school. Other schools of higher education are community colleges and junior colleges, which offer diverse curriculum and credentials. Junior colleges provide continuing education for an additional two years. Qualifications received at junior colleges are either associate degrees or credits earned towards a bachelor's degree. For a detailed discussion on community and junior colleges see Labaree (Labaree 1997).

Graduate education in academic institutions and professional schools, in general, require a bachelor degree and can lead to, for example Master of Arts (MA) or Science (MS) or Ph.D. degrees, in academic institutions and professional degrees, for example Medical Degree (MD) or Doctorate of Jurisprudence (JD) in professional schools. Institutions of higher education can be differentiated in terms of whether they are teaching or research institutions. Duration of study and curriculum differs between these colleges and universities and shapes later occupational opportunities.

After finishing high school about one third of the total student population continues with higher education for an additional four years to receive a bachelor's degree or higher. The 1998 census report shows that the proportions of students who received at least a bachelor's degree increased rapidly for respondents born between 1934 and 1953. For cohorts born after 1953, educational attainment decreased slightly and fluctuates around 27 percent (the average education for females is slightly higher than that of males) but little over twenty-seven percent (25.6 percent male, 29 percent females) of the total respondents born between 1969 and 1973 received at least a bachelor's degree, and twenty-nine percent (31.4 percent male, 26.8 percent females) of the population born between 1949 and 1953. Only 19.7 percent (25.1 percent male and 14.8 percent females) of respondents born between 1934 and 1938 received a bachelor's degree or higher (Day and Curry 1998, Table1).

LITERATURE REVIEW

Occupational mobility has been highly researched, especially by scholars of social stratification. Ganzeboom, Treiman and Ultee provide a detailed overview of the development of cross-national analysis (Ganzeboom, Treiman, and Ultee 1991). They conclude that much progress has been made over the years, especially in terms of methodology, e.g. data comparability, measurement, and techniques of data analysis, but that research questions have became narrower over time. One well established conclusion in mobility research is the importance of education as a determinant of occupational status and as mechanism to transfer advantages from one generation to the next (Ganzeboom, Treiman and Ultee 1991, 296f.). Many studies use education to predict occupational mobility, but only a few studies have taken institutional conditions into account to understand occupational attainment. Allmendiger, for example, focuses on the interaction between the educational system and mobility (Allmendiger 1989). In her study "Educational Systems and Labor Market Outcomes" the main objective is the standardization and stratification of educational institutions. Unfortunately, she only takes formal tracking into account (Allmendiger 1989). In the comparison of the educational systems, a brief theoretical discussion of informal tracking in the United States as opposed to the formal tracking in Germany is provided.

For the presented analysis of occupational mobility with its main focus on education the following theoretical framework will be established. First, human capital theory, with its focus on educational credentials and skills, provides a foundation for the importance of credentials in labor market outcomes. This theory does not focus on mobility processes, but helps to understand the role education plays in labor market attainment. Second, status attainment theory provides links among social origin, education and occupational attainment from a sociological perspective. Third, the theory of dual labor markets provides a discussion on segmented labor markets. It provides an

indication of which lines of occupational mobility are likely/ unlikely to take place. Fourth, Weber's concept of social closure links occupational attainment with a specific lifestyle. This concept is embedded in Weber's class theory, where class is defined by specific life chances based on economic interests and opportunities in the labor market.

While human capital theory and status attainment theory take an individualist approach looking at processes through the supply-side of the labor market, dual labor market, describing processes through the demand-side of the market, and class theory take a more universalistic approach.

Human capital theory and status attainment theory are very similar in their interest in education. They claim that a positive relationship between education and income exists. While human capital theory investigates the relationship from an economic perspective and focuses on increasing returns of income with additional years of schooling, status attainment theory takes a sociological perspective and finds support for increasing returns in not only income but also prestige with increasing years of education. However, very often have high income occupations high prestige and *vice versa*.

Human capital theory analyzes the relationship between education and labor markets in terms of productivity (Becker 1975; Mincer 1993). It concludes that human capital is not only a condition but also a consequence of economic growth. Increasing human capital leads to higher productivity in the labor market because it results in an increase of physical capital (Mincer 1993, 294). There is also evidence that the growth in productivity increases the demand in education and training. "Research on US data suggests that the more rapid the productivity growth in an industry, the greater the demand for education and training in it." (Mincer 1993, 329) An increasing demand on better educated people leads to higher rates of enrollment in school (Mincer 1993, 71), one reason for the expansion of the educational system in the last century. Increasing education not only increases returns in a long-term perspective but also increases costs in a short-term perspective. Attending school implies the cost of tuition and other school

expenses, as well as loss of earnings, that is, loss of income that would have been earned if the person had gone into employment (Mincer 1993, 70). The decision to receive a higher education therefore depends on a personal calculation between short-term disadvantages and long-term advantages.

Training continues after graduating from formal schooling. After entering the labor force it is continued by either formal activities, e.g. apprenticeships, or on-the-job training (Becker 1975, ch. II; Mincer 1993, 101). In general, training takes place at earlier stages of employment because expected returns are relatively higher compared to later (Blossfeld 1986, 209). While the extent and investments in on-the-job training are larger in the United States (Mincer 1993, 127) vocational training in Germany has a stronger institutionalization through the *Dual System*, a combination of vocational training and formal schooling where close ties between the apprentices and firms or industries are developed. In Germany, the *Dual System* is a standardized system of apprenticeships throughout the country (Becker 1994; Blossfeld 1987b; Blossfeld and Mayer 1988). However, the quality of apprenticeship education is heterogeneous. Winkelmann provides evidence that the training apprentices undergo depends on the size of firms and has a strong influence on the likelihood of experiencing unemployment (Winkelman 1996, 670). His findings also suggest that despite differences in quality, apprentices gain non-specific and universally recognized skills, which are transferable between firms. If formalized occupational training differs, it follows that differences in on-the-job training are even larger because they depend on individual decisions of the firm or industry and do not follow standardized regulations (Winkelman 1996, 668). While skills gained through apprenticeships in Germany are transferable between firms, on-the-job training, especially in the United States, is firm specific and less likely to be able to transfer between firms.

On-the-job training is an important part of total investments in education in the United States. "Investment in on-the-job training is a very large component of total

investment in education in the United States economy. Measured in terms of costs, it is as important as formal education for the male labor force and amounts to more than a half of total 9mal and female) expenditures on school education." (Mincer 1993, 127) However, returns to education are higher for formal education than for on-the-job training (Mincer 1993, 127f). Large differences exists between investment and returns to training for males and females. In general, investments in females' on-the-job training is smaller because it is assumed that females spend less time in the labor market, leading to interrupted career patterns compared to men due to family responsibilities. It is assumed that different career patterns between males and females indicates less productivity for women than for men over the life course (Blossfeld 1987a, 91).

Human capital theory is able to explain differences in return for different levels of education but does not fully explain mobility processes. For example, based on education, human capital theory explains why people with higher credentials work in occupations with higher educational requirements. However, it is not able to explain why people move from one occupation to another or continue working in their occupation. Also, it downplays differences in returns between men and women in the labor market and ethnic groups (Tomaskovic-Devey 1993, 5). Human capital theory is not able to explain why different social groups (male, female and ethnic minorities) with the same training, e.g. years and credentials in formal education, and the same amount of on-the-job training have different returns in terms of income.[1]

The focus of status attainment theory is the understanding of a person's social standing in association to characteristics of the family of origin. In the basic model of status attainment theory, socioeconomic status (SES) of origin was used to explain educational attainment, and SES and education were then used to explain occupational attainment (Blau and Duncan 1967). In this context, in general, two generations are analyzed in their relationship of background variables, e.g. education and income of the

parents to the occupational attainment of the respondent. Education was found to be an important intervening variable in this relationship.

In the context of status attainment theory, occupational mobility is analyzed in terms of relative mobility and absolute mobility. While relative mobility is not affected by marginal shifts, e.g. economic change, absolute mobility includes marginal shifts in the analysis. Rates of mobility are the result of persistence and change in socioeconomic status through work and schooling. Blau and Duncan's (1967) work *The American Occupational Structure* was very influential in the understanding of occupational mobility. Their findings were represented in path models, a major advancement in the late 1960's, providing a link between social background variables through education to first and current occupation of the respondent's. Featherman and Hauser continued with the original study and analyzed the relationship between social background and attainment in a follow-up study conducted in 1973. They improved the methods used in status attainment theory and argued that log-linear models where more appropriate models for the analysis of mobility tables (Featherman and Hauser 1978). In contrary to the path models, the estimates in log-linear models are not effected by the marginal distribution indicating a pure measure of strength of the association.

Psychological characteristics were added to increase knowledge of the attainment process. Sewell and Shah found in an early study of the Wisconsin Model that intelligence plays an important role in determining which student is going to continue with higher education. However, socioeconomic status never decreases in its influence on attainment. The authors find differences for male and female respondents concluding that the relative effect of socioeconomic background is greater than the effect of intelligence for females, but the effect of intelligence is greater than the effect of socioeconomic status for males in determining access to higher education (Sewell and Saha 1967, 22f). In other projects, variables related to school experience and aspiration were included to test attainment processes. Again, different effects are found for male and female

respondents. Kerckhoff points out that in addition to the basic model, information on the institutionalized decision-making processes, performance (grades) and classification and differentiation used by teachers, should be included in the model to increase the overall knowledge of the attainment processes. He continues that the model established by Blau and Duncan is very powerful in explaining educational attainment but less so in explaining occupational attainment (Kerckhoff 1976, 377). Sewell, Hauser and Wolf find that educational attainment has a stronger effect than job experience for females because they show more often than men interrupted career patterns (Sewell and Hauser 1980). Men rely on educational attainment in their first occupation but later in their career they rely more often on occupational status. Overall they conclude that "the mechanisms by which schooling affects occupational standing at mid-life appear to be quite different among men and women." (Sewell and Hauser 1980, 578) Other studies support their conclusion that processes of status attainment differs for males and females (DiPrete and Grusky 1990).

Additional intervening variables were introduced in the model, especially when the influence of the "significant other" on attainment processes was examined. In relation to symbolic interaction theory the variable "significant other" refers to the idea that a person's aspirations are developed and adjusted to the social environment and one's own self-assessment of ability on the basis of objective information provided by others, e.g. peers (Wilson and Portes 1975, 345). Wilson and Portes find that significant others do not have a significant influence on attainment. They hypothesize that socioeconomic background, mental ability and academic performance have a social psychological effect on status attainment in developing a self-image and life aspirations on the one hand and a structural effect through the institutional setting on the other hand (Wilson and Portes 1975). The finding that parents' influence is stronger than the effect of peers is supported by a study of Davies and Kandel. They compare the influence of peer groups and parents on educational attainment and find strong evidence in favor for the importance of parents.

The influence of socioeconomic status is even stronger than respondent's school performance (Davies and Kandal 1981).

Status attainment theory also analyzes the effect of socioeconomic influence and attainment processes over time (Blau and Duncan 1967). Throughout his research Robert Mare finds declining effects of socioeconomic influence on the educational attainment of across cohorts of respondent over time (Mare 1980; Mare 1981; Mare 1993). He is also concerned with the question how different sample techniques affect results in social attainment research and demonstrates how offsetting trends can conceal important social change (Mare 1981). Mare's finding of a decreasing influence over time is supported by Alwin and Thornton, who find not only that socioeconomic variables have a stronger influence on earlier stages of educational attainment but also that family size is relevant for attainment processes. In status attainment literature, family size is used as measure of socioeconomic well-being and is thought to influence the cognitive development of a child. They conclude that respondents from larger families are disadvantaged (Alwin and Thornton 1984). Based on a case study in Oregon, Temple and Polk analyze effects of success and failure over time on later attainment decisions. While success in earlier stages of educational attainment does not assure later success, early failure in attainment processes predicted later failure in the academic career of the respondent (Temple and Polk 1986). In a rather indirect way this finding supports the importance of socioeconomic status. If parents are interested in successful school attainment of their children, they are more likely to encourage their children for higher achievement. Often they provide assistance when their children have difficulties solving problems. These forms of supports helps children to go on to higher attainment levels and succeed in their school achievement. Parents' support and higher educational attainment may not necessarily lead to a successful career, nevertheless, it decreases the likelihood of failure at early stages of educational attainment and thus increases the likelihood to continue to later stages in the educational career.

Various other studies provide evidence for the importance of parents' socioeconomic background. In analyzing the importance of wealth, Rumberger finds a direct influence from parents to their children not only in the form of gifts, but also as inheritance, which directly effects adult economic status (Rumberger 1983). A more recent study by Mare analyzes mating processes and conclude that people with similar social backgrounds are more likely to get married than people with different socioeconomic backgrounds (Mare 1991). This finding indicates that partly the existing social structure is reproduced through mating processes. Children whose parents are from different social backgrounds are more likely to experience inconsistent socialization, that is, they experience the lifestyle of both social backgrounds and learn their values and norms. However, children with parents from similar socioeconomic levels are more likely to experience consistent socialization through an overall agreement between parents backgrounds. Warren and Hauser included a third generation in the status attainment model and investigate the influence of grandparents on their grandchildren. They conclude that no evidence for a direct effect exists and show that their influence is mediated through the parents (Warren and Hauser 1997).

Dual labor market theory takes a demand-side approach to understand the development of polarizing structures in the labor market. Doeringer and Piore refer to the resulting segmentation as primary and secondary sectors in the demand side of the labor market (Doeringer and Piore 1971). Primary and secondary segments can be distinguished by stable employment in the former and unstable employment in the later. The primary sector is highly specialized and requires high qualifications. Internal mobility or career opportunities lead to low rates of turnover. The principle of seniority, good working conditions, benefits and an internal wage structure are additional characteristics, which enhance the interest of the employee to stay in the position. Low wages, low benefits, bad working conditions and no opportunity of advancement which lead to high rates of turnover characterize the secondary sector. The demand side

approach of the labor market develops a dual structure where functions of organization and coordination are concentrated in the upper primary sector, production in the lower primary sector and routine production processes are concentrated in the secondary sector. The primary sector can be differentiated by training requirements, where higher educational qualifications lead to employment in upper primary sectors and on-the-job training takes place at the lower primary sector. Employers are interested in low turnover rates of highly qualified employees. In creating internal career opportunities employers offer employment stability and meet the interest of the employee for a secured position. Characteristics in the secondary sector lead to low job satisfaction and therefore increased rates of turnover. Because women show more often than men interrupted occupational career patterns they are more likely to be found in the secondary sector. Also ethnic minorities and other minority groups are more likely to be found in the secondary sector. The theory of dual labor market therefore argues that differences between the primary and secondary sector increase in the long-term perspective. These sectors are also related to polarizing tendencies in the demand side of the labor market (Doeringer and Piore 1971; Hardes 1981).

To make adjustments to accommodate the German labor market, Lutz and Sengenberger further develop the theory of dual labor markets in the early 1970's to include a third market sector, the craft specific labor market (Hardes 1981, 200-203). Their theoretical extension starts off taking differences of human capital into account. They use Becker's differentiation of on-the-job training, general and specific human capital (Becker 1975). Firm-specific training results in an interest of the supply and demand sides to remain at their position. To increase years of employment, investments into vocational training by the employer are worthwhile because they decrease rates of turnover and training costs. This relationship leads Lutz and Sengenberger to differentiate "three partial labor markets": "secondary labor market", the "craft specific labor market" and the "internal labor market". The craft-specific labor market refers to some

occupations with specific qualifications and is found in particular skilled trades (Blossfeld and Müller 1988, 126). Vocational training, e.g. provided by the *Dual System* in Germany, leads to certified credentials, which are transferable between firms and industries. They are necessary requirements to enter an occupation. As result, external mobility is restricted to the sector in which the credential was earned (Hardes 1981, 201). Secondary labor markets require low qualification and are dominated by women and minority groups. Internal labor markets require high specialization and provide internal career opportunities (Hardes 1981, 201). Lutz and Sengenberger expect that the importance of the craft-specific labor markets will decrease in the next decades so that firm-specific labor markets dominate, a development which has already taken place in the United States. Employees of craft-specific labor markets will increasingly be employed by large industries (Hardes 1981, 203). Blien (in Blossfeld and Müller 1988, 126) provides support for this tendency in the German labor market. He argues that relatively high rates of exchange exist between the internal and craft-specific labor market, which makes it difficult to measure them separately. He therefore suggests understanding the craft-specific labor market as a link between internal and secondary labor market.[2]

Status attainment theory and the theory of dual labor markets can best be combined through Weber's class concept, which is not only based on the economic dimension but also on status and power. Classes are the basis for social action: "We may speak of a 'class' when (1) a number of people have in common a specific causal component of their life chances, insofar as (2) this component is represented exclusively by economic interests in the possession of goods and opportunities for income, and (3) is represented under the conditions of the commodity or labor markets. This is 'class situation.'" (Weber 1978 (1921)-a, 927). Class situation can be understood as the life chance to obtain goods, to gain a position in life or to find inner satisfaction; it is based on the power or lack of power over goods and skills and its relation to income within a given economic order. For Weber, life chances are the result of the distribution of

property or the structure of a concrete social order (Weber 1978 (1921)-a, 929). He states that status is founded on lifestyle, formal education and hereditary or occupational prestige; it can influence class positions but is not identical with them (Weber 1978 (1921)-b, 305f). Therefore, lifestyle is the result of life chances based on economic order. People in the same class situation share the same lifestyle and are therefore in the same status group. Status groups can be based on the type of vocation, inheritance of high status and political power. Selection processes lead to the development of hereditary status groups. "The development of hereditary status groups is generally a form of the (hereditary) appropriation of privileges by an organizational or qualified individuals. Every definite appropriation of political powers and the corresponding economic opportunities tends to result in the rise of status groups, and vice-versa." (Weber 1978 (1921)-b, 306)[3]

Weber defines three types of classes: property classes, commercial classes and social classes. Property classes are defined by differences in property, commercial class are defined by goods and services they provide, and social classes are the working class, petty bourgeoisie, propertyless intelligentsia and classes privileged through property and education (Weber 1978 (1921)-b, 302-305). Social classes are the focus of this paper, because "a '*social class*' makes up the totality of those class situations within which individual and generational mobility is easy and typical." (Weber 1978 (1921)-b, 302, italics in original)

Class is the basis for social action and defined as a combination of specific life chances represented by economic interests "in the possession of goods and opportunities for income [...] under the condition of commodity or labor markets." (Weber 1978 (1921)-a, 927) Class and status groups are not identical; however, it can be argued that status hierarchies stabilize the existing class structure and legitimize class position. Therefore, social groups that have developed an interest to solidify these positions and restrict access to outsiders. Open and closed relationships are formed with members of

the status hierarchy where open relationships enable outsiders to access the status hierarchy and closed relationships restrict participation on the basis of subjective meaning and binding rules (Weber 1978 (1921)-b, 45).

Parkin develops Weber's closure hypothesis and identifies two forms of social closure on the basis of exclusion or solidarism (Parkin 1974). Exclusion can take place either on the basis of individualist or collectivist rules. Individualistic rules describe attributes of the individual and collectivist rules refer to a collectively defined quality of men.[4] "Such a distinction refers not only to the processes underlying class recruitment and succession but also the means by which access to public goods and social resources in general is similarly monitored." (Parkin 1974, 6) Forms of exclusion can be either based on individualistic characteristics or collective characteristics. "Class nomination" is the singling out individuals on the basis of personal attributes, e.g. credentials, and allows access to positions. "Class reproduction" is based on universalistic characteristics where social closure is transferred through lineage, ethnicity, religion etc. (Parkin 1974, 6-9). In general, class nomination and class reproduction coexist, that is, life chances opportunities and resources are passed on to the next generation, but at the same time credentials or other specific requirements are necessary to access high status positions. However, even though the status attainment literature provides evidence for significant effects of social inheritance, the formalization of education has led to an increasing importance of class nomination over class reproduction. In industrialized societies it is no longer possible to inherent positions. In most cases it is necessary to have the credential indicating that the knowledge relevant to this position was obtained. For example, people growing up in family businesses gain an overall understanding of decision making processes and management. However, not before obtaining the necessary credential it is legitimate for them to take part in these processes themselves. In other words, class reproduction takes place in that a person gets exposed to the socialization to inherent a

position, which was already occupied by one's father. But to actually get employed in this position requires certain credentials.

Social closure through solidarism depends on the capacity of social mobilization and in general works along industrial and political lines. Solidarism deals with the conflict of redistribution between capital and labor, or can be expressed in social movements. But these kinds of closure are less relevant in the context of this analysis.

The interaction of social closure on the basis of exclusion and solidarism can be seen in vocational training, e.g. the apprenticeship system restricts entry into skilled trades and through solidarism aims at the reallocation of resources between capital and labor (Parkin 1974, 13). In more detail, the apprenticeship system provides formalized training, and after successful completing the training the apprentices receive a certificate as prove of their education. Access to an occupation is therefore restricted to those holding the credential. However, at the same time the conflict between capital and labor exists in the workplace. While the master of crafts owns the tools, the apprentice is in the position of a manual laborer without property.

Overall, Weber's class theory and indication of open and closed relationships provide the theoretical framework for the following analysis. Social class, as defined by Weber, are of interest to the analysis because individual and generational mobility takes place in these classes. While Weber's class theory provides the overall frame, human capital theory, status attainment theory and theory of dual labor markets provide possible explanation for closed and open relationships in social classes. For example, the influence of social origin on educational attainment and educational attainment itself are able to explain the ability of access to positions if seen in the context of class analysis. In societies with sponsored mobility class nomination, as defined by Parkin, is the dominating characteristic for the social class system, while in societies with contest mobility class reproduction, as defined by Parkin, is the dominating characteristic for the social class system.

HYPOTHESES

The main difference between the educational system in the United States and Germany is the selection process throughout educational attainment. While in the American school system no standardized selection process takes place, German pupils are tracked into different institutions at age ten. The tracking in Germany should influence later career chances. Müller's analysis of class and education reveals a close link between qualification and class position: "In Germany [...] *all qualification levels generally show stronger links to the class most frequently associated with a given qualification then in the combined average of all nations."* (Müller, Lüttinger, König, and Karle 1990, 84, italics in original.)

> Hypothesis 1: It is expected that early tracking influences occupational attainment and limits relative mobility between first and current occupation of the respondent. Rates of relative mobility should be higher in the Untied States than in Germany.

Human capital theory provides a discussion of different kinds of human capital, formal education and on-the-job training, their costs and their return in the labor market (Becker 1975; Mincer 1993). Formal education leads to greater returns compared to on-the-job training and is easier to transfer between occupations. On-the-job training provides firm specific skills which are less likely to be able to transfer between occupations. This analysis does not include a measure of on-the-job training, so the discussion will therefore be restricted to formal education. The important difference between Germany and the United States in the discussion of formal education and on-the-job training is that vocational training is a strong component of the formal education in Germany. Blossfeld shows that the vocational training in Germany is closely linked to an occupation. Occupational mobility is therefore determined by formal education of the respondent (Becker 1994; Blossfeld 1987b; Blossfeld and Mayer 1988). To test this finding it is expected that ties between formal education and first occupation differ for Germany and the United States.

> Hypothesis 2: It is expected that the ties between formal education and first occupation are stronger in Germany than in the United States.

Status attainment theory provides a thorough analysis of attainment processes. It was shown that the socioeconomic status of origin has a strong influence on the educational attainment of the respondent. Research supports the argument that parents influence on educational attainment is stronger compared to other influence, e.g. peers (Davies and Kandal 1981; Wilson and Portes 1975). It can be assumed that parents have an interest in their children to receive an education which is either equal to the occupational status they occupy or higher. From a collectivist standpoint, Weber's class theory provides an argument that people living the same lifestyle are in the same status group (Weber 1978 (1921)-a; Weber 1978 (1921)-b). People in the same status group are interested in developing relationships among members within their status group, and in restricting outsiders from entering. It can therefore be assumed that parents are interested in providing their children with the education required to secure a position in a specific status group (in general, their own group or higher).

> Hypothesis 3: It is expected that the relationship between social background and educational attainment is strong for educational degrees, which are required for entry occupations accessing father's class of origin in both countries. Respondents with high social backgrounds are expected to have strong ties with higher educational degrees and respondents from lower social origin are expected to have strong ties with low educational degrees. In addition, it is expected that the relationship between fathers occupation and respondents education is stronger for Germany than for the United States as result of formal tracking.

Educational attainment also defines which sector of the labor market people have access to. Doeringer and Piore argue that the primary sector is highly specialized and requires high qualifications (Doeringer and Piore 1971). People with lower educational requirements are more likely to be employed in the secondary sector where rates of turnover are higher and working conditions are bad relative to the primary sector. Cross-over between the primary and secondary sectors are less likely to take place, especially access to the primary sector is restricted through credentials. Upper white collar

occupations are occupations in the primary sector. Higher education and upper white-collar occupations should therefore be closely related to each other.

> Hypothesis 4: Higher educational degrees are expected to have strong ties with upper white-collar occupations. For Germany it is expected that respondents with a university or *Fachhochschul*-degree have strong ties with upper white-collar occupations. For the United States it is expected that respondents with a bachelor's degree or higher have strong ties to upper white-collar occupations.

If credentials are closely related to occupations, it can also be concluded that access to these occupations is restricted. Weber and Parkin pointed out that social closure is likely to develop in social groups to prevent access from outside. Parkin claims that social closure can be based on universalistic or individualistic characteristics (Parkin 1974). While universalistic criteria define restrictions on the basis of group characteristics, individualistic characteristic are based on personal attributes. Educational attainment, for example, is a personal attribute which defines access to classes and its influence should be strongest in systems with sponsored mobility. The credential attained determines the level of occupational attainment.

Hypothesis 5: It is expected that the level of social closure is highest in upper white-collar occupations. The level of social closure is indicated by the tie between first and current occupation. The tie between first and current occupation should therefore be strongest in upper white-collar occupations.

DATA AND VARIABLES

The International Social Survey of Program (ISSP) 1987 is used for the analysis of Germany. Since the ISSP 1987 "Social Inequality" data does not provide information on all important variables for every country, it could not be used for the United States. Therefore, the General Social Survey of 1994 is used to analyze the American case.

The ISSP is a bilateral collaboration between the German *Allgemeine Bevölkerungsumfragen der Sozialwissenschaften* (ALLBUS) of the *Zentrum für Umfragen, Methoden, und Analysen* (ZUMA) and the United States, the General Social Survey (GSS) of the National Opinion Research Center (NORC), University of Chicago. A three-stage stratified sampling method with no weighting mechanism was used to conduct the sample. The dataset is representative for the population of West Germany 18 years of age and older. East Germany is excluded from the analysis. The German sample contains 1397 cases (824 males and 839 females).

The General Social Survey was conducted in February, March and April of 1994 and is an independently drawn sample of the English-speaking population ages 18 years and older. No weights were used in the sampling mechanism. The GSS 1994 was designed and conducted by the National Data Program for Social Sciences, Chicago USA. It contains a total number of 2992 cases (1290 male and 1702 female respondents).

The following variables are used: fathers occupation, when the respondent was 16 years old for the United States and 15 years for Germany; the respondent's highest educational degree; and respondent's first occupation and respondent's current occupation.

The ISCO (International Standard Classification of Occupation, 1960) classification was used to categorize occupational categories for Germany and the 1980 Census occupational and industrial classification was used to classify GSS occupations. To obtain comparability, the census classification in the US dataset was recoded to meet

the ISCO classification. Occupations are the baseline for the class schema used in this discussion. It is adopted from the analysis done by Blau and Duncan (Blau and Duncan 1967). (1) professional, technical and related workers and (2) administrative and managerial workers are classified as (I) upper white-collar; (3) clerical and related workers and (4) service workers are classified as (II) lower white-collar; (5) service workers have their own classification as (III) service class; (6) production and related workers, transport equipment operators and laborers, laborers not elsewhere classified (including semiskilled and unskilled workers) are classified as (IV) manual labor; and (7) agricultural, animal husbandry, and forestry workers, fishermen and hunters are classified as (V) agricultural occupations.

The following educational categories were used for Germany: (1) School without certificate; (2) Lower secondary school qualification, completion of compulsory education *(Volkshochschul*-degree, *Hauptschul*-degree); (3) Middle school qualification and vocational training (*Mittlere Reife, Realschul*-degree (intermediate general qualification), *Fachschulreife)*; (4) Certification from a secondary technical or trade school (*Fachhochschulreife, fachgebundene Hochschulreife* (subject specific secondary degree, Degree of *Fachoberschule)*, (5) *Abitur*; (6) Higher degree below university (*Fachhochschul*-degree); and (7) University degree. Respondents who are still in school, who have other types of degrees or did not respond to this question were excluded from the analysis. For the United States the following educational categories were used: (1) Less then high school; (2) High school; (3) Associate/ Junior College; (4) Bachelor's; and (5) Graduates. Respondents without valid answers were excluded from the analysis.

Critique

Because East Germany underwent major changes since 1989, a dataset prior to this change containing only information on West Germany for the presented analysis. After the unification in Germany, major changes in the East German school system and

labor market took place. Because these changes take time before they are completely institutionalized it was important to focus on West Germany where the educational and occupational system were relatively stable. Since the sample size was doubled in the 1994 GSS this dataset was used to analyze occupational mobility in the United States. An increasing sample size leads to more efficient standard errors in the analysis. In addition, an increasing sample size increases the number of cases in each cell, an important condition for log-linear models.

Due to the small sample of the ISSP, a separate analysis for German males and females cannot be conducted without violating statistical power. The analysis presented will therefore be restricted to a combined sample of male and female respondents. Despite sufficient sample size of the US dataset, a separate analysis will not be conducted for males and females of the United States because the main objective in this paper is a comparative analysis. The analysis will be presented in terms of odds ratios for the relative mobility rates for the overall sample. Because of these data constraints, a separate analysis for males and females will be left for further research.

Because of differences in the educational system, the number of educational categories differs for each country. It was decided to use the different number of categories since my main interest is the effect of education on occupational mobility, and adjusting the number of categories would have led to reduced overall information. The results are presented as odds ratios.

The analysis presented will not differentiate between skilled, semiskilled and unskilled laborers. These categories were collapsed into manual labor because the analysis focuses on the division between manual and non-manual positions, rather then differences inside these categories. Unfortunately, it does not allow me to differentiate between manual workers with vocational education and those without.

METHODS

The relationships between father's occupation, respondent's education and respondents first and current occupations are modeled using RC-association models. Association models were first presented by Leo A. Goodman in the late 1970's and early 1980's. Clogg and colleagues continued to develop the model especially in respect to social sciences (Becker and Clogg 1989; Clogg 1982; Clogg, Eliason, and Wahl 1990). The advantage of the model is that it "provides information about intervals between categories of ordinal variables" (Clogg 1982, 114). The model used in the analysis presented is an RC(M)-association model, an extension of the earlier models, where (M) represents the dimensions to be fit (Eliason 1990, 39).

The RC(M)-association model for a cross-classification of occupation by education is presented in equation (1). In all models used in this analysis, occupation has seven categories and education has five categories for the United States[5] and seven educational categories for Germany. To illustrate the model the association between father's occupation to respondent's education for Germany will be described in more detail. Father's occupation has *I* categories (*i* = 1, ..., 7 categories) representing rows and education has *J* categories (*j* = 1, ..., 7 categories) representing columns, and produce a *I* x *J* (7 x 7) contingency table.

This cross-classification is modeled,

$$\log(F_{ij}) = \lambda + \lambda_i^R + \lambda_j^C + \sum_{m=1}^{M} \phi_m \mu_{im} \nu_{jm}$$

where F_{ij} represents the expected frequencies under the model for the *i*'th occupation and the *j*'th education, λ is a constant, and λ_i^R and λ_j^C are row and column main effects, respectively. The second part of the equation corresponds to the sum of the intrinsic associations between row and column effects: ϕ_m is the intrinsic association of the latent *m'*th dimension between father's occupation and education, μ_i corresponds to the row

scores of father's occupation and v_j corresponds to the column scores of respondent's education in the latent *m'*th dimension.

The independence model, that is, if no dimension fits the model, is indicated by $\phi_m=0$. In this case the RC(0)-association model is equivalent to the loglinear model of independence. In general, the independence model is considered the baseline and is compared with other possible models. The saturated model, that is, where the expected and observed frequencies are equal, is defined with M = min(I-1, J-1) (Eliason, Leicht, Fritsma, and Wendt. Unpublished Manuscript). To identify the fit of the model, the ratio of L^2-test statistic to the degrees of freedom of the model are compared.

The RC(M)-association model can be interpreted in terms of a log-odds ratio.

$$\Phi_{ii'jj'} = \log\left(\frac{F_{ij} / F_{ij'}}{F_{i'j} / F_{i'j'}}\right) = \sum_{m=1}^{M} \phi_m \left(\mu_{im} - \mu_{i'm}\right)\left(\nu_{jm} - \nu_{j'm}\right)$$

Equation (2) indicates that the log-odds ratio for the association of father's occupation and respondent's education is a function of father's occupation *i* and *i'* and respondent's education, *j* and *j'*, in dimension M. The higher the value of the log-odds ratio for this relationship the stronger is the association between categories. The information in the association can then be compared to the average respondents or to other log-odds ratios.

To calculate the RC (M)-association model the program CDAS developed by Scott R. Eliason was used (Eliason 1990). A model for origin and destination was analyzed for each relationship (father's occupation to respondent's education, respondent's education to respondent's first occupation, respondent's first occupation to respondent's current occupation) and the number of dimensions were requested to identify the best model fit. Using the test statistic L^2 relative to the degrees of freedom, the model with the best fit was selected and influence measures were requested for each relationship. The log of the influence measures between the row and column provides the log-odds-ratio which is used in the discussion of this paper. Exponentiating the influence measure results in the odds-ratio used in this presentation.

The relationship presented refer only to significant positive paths between relationships. Those categories, which do not indicate significant relationships demonstrate that no significant mobility exists between categories. That is, the process of recruitment is random.

Four RC(M)-association models will be presented for each country: first, the association between father's occupation and respondent's education; second, the association between respondent's education and first occupation; third, respondent's first occupation and current occupation and fourth the association between father's occupation and respondent's current occupation. While the first three models represent incremental mobility rates, the last represents what may be called total mobility rates of the respondent. After the presentation of the model selection in the following section, odds-ratios are presented for the selected models.

RESULTS

Selection of the Model

Germany

The following results were obtained using the ISSP 1987. The table presents four dimensions for each relationship.

The L^2 should be relatively small to the degrees of freedom of the model. If the L^2 is large relative to the degrees of freedom, the expected frequencies depart from the actual cell frequencies. It is therefore concluded that for large L^2 the model does not represent the relationship between the variables in the model well and should be rejected. The degrees of freedom for the model is the difference between the number of cells and the number of estimated free parameters. The index of dissimilarity indicates the proportion of the cases which should be moved to result in a model with better fit. The R^2 - Analog of association provides the amount of information accounted for by the model. The increase in the R^2 - Analog can be seen as indicator on how much additional information is provided by the model. If the increase of information from one model to the next is less then ten percent the more parsimonious model is preferred, that is, the model with fewer dimensions given relative close L^2 and degrees of freedom. Test Statistic:

$$L^2 = 2\sum_{ij} f_{ij} Ln \frac{f_{ij}}{F_{ij}}$$

R^2 - Analog :

$$R = 1 - \frac{Ln_{RC(M)}}{Ln_{RC(0)}}$$

Table 1: Father's Occupation by Respondent's Education (N=1214)

RC-Model (Dimension)	L^2 Test-Statistic	DF (Degrees of Freedom)	Index of Dissimilarity	R^2 – Analog
RC (0)	349.6	36	0.21	
RC (1)	38.52	25	0.04	0.889
RC (2)	**18.09**	**16**	**0.02**	**0.948**
RC (3)	8.69	9	0.01	0.975
RC (4)	1.06	4	0	0.997

Table 1 presents the results from the analysis of father's occupation to respondent's education. It indicates that the model with two dimensions fits best the association between father's occupation to respondent's education. The RC (2)-association provides an L^2relatively close to the degrees of freedom. The index of dissimilarity is 0.02, which is relatively small. It indicates that 2 percent of the cases have to be moved to acquire a better fit of the data. Almost ninety-five percent of the relationship between father's occupation to respondent's occupation is explained by the model.

Table 2: Respondent's Education by Respondent's First Occupation (N=1203)

RC-Model (Dimension)	L^2 Test-Statistic	DF (Degrees of Freedom)	Index of Dissimilarity	R^2 – Analog
RC (0)	585.54	36	0.26	
RC (1)	55.5	25	0.05	0.905
RC (2)	**11.27**	**16**	**0.02**	**0.981**
RC (3)	3.99	9	0	0.993
RC (4)	1.92	4	0	0.996

Table 2 represents the relationship between respondent's education and respondent's first occupation. Using the test statistic explained, the RC (2)-association model is chosen as

best fit for the data. The L^2 is relatively close to the degrees of freedom. The index of dissimilarity indicates that 2 percent of the cases need to be moved to better fit the model. The information explained by the model is 98.1 percent.

Table 3: Respondent's First Occupation by Respondent's Current Occupation (N=911)

Model (Dimension)	L^2 Test-Statistic	DF (Degrees of Freedom)	Index of Dissimilarity	R^2 – Analog
RC (0)	924.2	36	0.41	
RC (1)	295.95	25	0.19	0.679
RC (2)	82.17	16	0.08	0.911
RC (3)	**6.31**	**9**	**0.17**	**0.993**
RC (4)	0.63	4	0	0.993

Table 3 identifies the relationship between respondent's first occupation to respondents current occupation. RC (3)-association model provides the best model fit. The L^2 is relatively close to the degrees of freedom of the model. The index of dissimilarity indicates that 17 percent of the cases need to be moved to better fit the model. The overall information contained by the model is 99.3 percent.

Table 4: Father's Occupation by Respondent's Current Occupation (N=801)

RC-Model (Dimension)	L^2 Test-Statistic	DF (Degrees of Freedom)	Index of Dissimilarity	R^2 – Analog
RC (0)	239.94	36	0.2	
RC (1)	54.53	25	0.08	0.876
RC (2)	**19.69**	**16**	**0.04**	**0.955**
RC (3)	4.96	9	0.02	0.989
RC (4)	1.36	4	0	0.997

Table 4 presents findings for the relationship between father's occupation and respondent's current occupation. The RC (2)-association model fits the data well. L^2 and degrees of freedom are relatively close to each other. The index of dissimilarity indicates that 4 percent of the cases need to be moved to improve the fit of the model. The information contained in the model is 95.5 percent.

United States

The results presented were obtained using the 1994 GSS. The following information is contained in Table 5. The RC (2)-association model is chosen to fit the data well. The $L^2$is relatively close to the degrees of freedom contained in the model. The index of dissimilarity indicates that 15 percent of the cases need to be move to get a better fit of the model. The information explained by the model is 97.8 percent.

Table 5: Father's Occupation by Respondent's Education (N=2396)

RC-Model (Dimension)	L^2 Test-Statistic	DF (Degrees of Freedom)	Index of Dissimilarity	R^2 – Analog
RC (0)	440.16	24	0.16	
RC (1)	34.94	15	0.44	0.921
RC (2)	**9.618**	**8**	**0.15**	**0.978**
RC (3)	2.55	3	0	0.994
RC (4)	0	0	0	1.00

Table 6: Respondent's Education by Respondent's First Occupation (N=1358)

RC-Model (Dimension)	L^2 Test-Statistic	DF (Degrees of Freedom)	Index of Dissimilarity	R^2 – Analog
RC (0)	674.87	24	0.27	
RC (1)	53.55	15	0.58	0.921
RC (2)	**8.54**	**8**	**0.18**	**0.987**
RC (3)	1.14	3	0	0.998
RC (4)	0	0	0	1.00

Table 6 indicates that the RC (2)-association model provides the best fit for the data. L^2 and the degrees of freedom are close to each other. The index of dissimilarity indicates that 18 percent of the cases need to be moved to receive a better fit of the model. The information contained in the model is 98.7 percent.

Table 7: Respondent's First Occupation and Respondent's Current Occupation (N=1330)

RC-Model (Dimension)	L^2 Test-Statistic	DF (Degrees of Freedom)	Index of Dissimilarity	R^2 – Analog
RC (0)	1227.36	36	0.4	
RC (1)	451.53	25	0.23	0.632
RC (2)	185.87	16	0.13	0.849
RC (3)	73.5	9	0.07	0.94
RC (4)	**20.94**	**4**	**0.03**	**0.983**

Table 7 indicates different models for the relationship between first occupation and current occupation of the respondent. In this case it is more difficult to select a model. The L^2 and degrees of freedom are not as close to each other as in the other models presented. However, the L^2 of model RC (3)-association model is nine times larger than the degrees of freedom and RC (4)-association model is only five times larger than the degrees of freedom for this model. The index of association indicates that 7 percent of the cases need to be moved in the RC (3) but only 3 percent in the RC (4). RC (4) contains 4 percent more information than RC (3). Based on the test-statistic L^2 it was decided that RC (4)-association model provides the best fit and it is used to analyze the relationship between respondent's first occupation and respondent's current occupation. The information explained by the model is 98.3 percent.

Table 8: Father's Occupation by Respondent's Current Occupation (N=2281)

RC-Model (Dimension)	L^2 Test-Statistic	DF (Degrees of Freedom)	Index of Dissimilarity	R^2 – Analog
RC (0)	305.99	36	0.15	
RC (1)	59.73	25	0.06	0.864
RC (2)	**27.63**	**16**	**0.03**	**0.937**
RC (3)	11.96	9	0	0.973
RC (4)	1.62	4	0.01	0.996

Table 8 provides information on the fit for the model between father's occupation and respondent's current occupation. It indicates that RC (2)-association model has the best fit to the model. In model RC (3), L^2 and degrees of freedom are closer to each other and the index of dissimilarity indicates that none of the cases has to be moved. Model RC (3) contains only 4 percent t more information than model RC (2). In the relationship between respondent's first to current occupation, RC (4) was chosen because the ratio between the L^2 and degree of freedom was much larger. However, in this case the model RC (2) is selected because the ratios of the L^2 relative to the degrees of freedom is smaller and only 4 percent additional information is gained with model RC (3)-association model. The index of dissimilarity is 0.03 indicating that 3 percent of the cases need to be moved to increase a better fit. Almost Ninety-four percent of the information is explained by the model.

Class Boundaries and Life Chances

Examining Mobility Odds-Ratios from Selected Models

In an earlier section of this paper the relationship between occupation, status and class was discussed. Weber's definition of status based on life chances and its relation to a class position was used to link status attainment theory to class situation. Following Weber, status groups are based on the same lifestyle which can be identified through, for

example the same vocation. Status groups can lead to social closure as Weber indicated and Parkin further developed, that is, it restricts access from outside. This process of social closure can also be described as self-recruitment, indicating that positions are more likely to be filled from members inside the status groups than by outsiders.

Status attainment theory supports the finding that social origin influences educational attainment from the individual perspective. This statement is very similar to saying that social classes reproduce themselves. Social groups do not only provide specific resources, in general based on property, but they also transfer social and cultural norms and expectations to their children. Expectations are often closely related to the idea of inheriting the status position of their family or even to move up to the next higher status group. The analysis is restricted to the relationship of father's occupation to respondent's education and occupation. But in this analysis the influence of social origin becomes manifest in findings where the respondent replicates or succeeds father's occupational class. Social classes can be identified by their lifestyle. A lifestyle transmits norms and roles related to it, and through informal education the parents lifestyle becomes internalized in their offspring, for example through attending concerts, plays or visiting a museum. A specific lifestyle can also be expressed through the consumption of economic goods, for example a style of clothing, type of car, choice of foods.

In this way, education and the availability of economic resources becomes part of everyday life. If the decision is made to attend higher education it is not only understood that returns are relatively higher to additional years of schooling, but parents often continue to support the decision in the form of financial help. People from less privileged backgrounds often cannot rely on their parents' support and are expected to gain financial independence. Cost of education can be accepted more easily if economic resources are available and returns are expected to compensate for short-time disadvantage.

Different social classes have different lifestyles, depending on economic resources. That is, people who do not come from privileged social backgrounds and were

not exposed to the same extent to cultural events or other forms of informal education might be less interested in cultural events. Oriented towards gaining independence, they might be more interested in an occupational position to receive financial independence. It might also be expected that a better lifestyle can be reached in starting early employment. Attending school for additional years of schooling might then seem to be a disadvantage if income is postponed for some more years. It might not occur to these individuals that returns to higher education are higher in a long term perspective.

The discussion presented is oversimplified and many other factors affect the decision of whether an institution of higher education is attended or not. The main point is that receiving higher education depends to a large extent on social background and parental expectations towards the offspring. Economic resources restrict or support specific orientations. How these conditions influence educational and occupational attainment can only partially be demonstrated in this analysis. However, it can be shown that life chances based on social background influence attainment insofar as they provide or restrict opportunities.

The analysis presented reveals two distinct patterns, which will be described as class location I and class location II. They are slightly different for Germany and the United States but overall indicate similar patterns of mobility between the countries. These class locations emerge if the mobility process is followed from father's occupation through educational attainment, first occupation until current occupation. Class locations define boundaries between occupations, which are difficult to cross over. As will be described in this section, relative mobility in Germany seems to be more open to allow access from outsiders but at the same time has high rates of self-recruitment. The United States reveals lower rates of mobility and show weaker ties between occupations compared to Germany, indicating that the level of self-recruitment is higher in Germany than the United States.

Figure II and III at the end of this paper indicate the class locations. Class location I and class location II are separated through the dashed line. Class location I (above the dashed line) includes the relationships from professional or technical occupations, higher administration or managerial occupations, clerical (and sales for the United States) through education into professional and technical and higher administrative and managerial occupations in the United States and Germany. Class location II (below the dashed line) includes the relationship of relative mobility between service occupations, manual laborers, and agriculture through educational attainment into clerical, sales, service, manual labor and agricultural positions. It will be argued that class location I and class location II represent different life chances indicated by occupational position in the labor market and thus different class positions.

Germany

Father's Occupation to Respondent's Education

The relationship between father's occupation and respondent's education is illustrated in figure II at the end of this paper. The first column in this figure refers to father's occupation and the second column to respondent's education. As noted earlier, the odds-ratios demonstrate the statistically significant positive paths between categories only. Categories without links indicate random mobility.

Significant relationships between categories of father's occupation and respondent's educational degree exist within what was referred to as class location I and university degree and *Abitur*; and within class location II and *Hauptschul*-degree and school without certificate. Those whose fathers have a professional or technical occupation are 2.6 times more likely to receive a university degree than the average respondent and are 2.7 times more likely to receive the *Abitur* compared to the average respondent. Respondents whose father have an occupation with a higher administrative or managerial background are 3.3 times more likely to receive an university education and

2.3 times more likely to receive their *Abitur* compared to the average respondent. Respondents whose father works in a clerical occupation are 1.5 times more likely to receive a university degree than the average respondent. These findings show that respondents from a higher administrative or managerial background are about 2.2 times (see figure II, 1st and 2nd column: 3.3/ 1.5) more likely to receive a university degree as opposed to people from a clerical background. Respondents from a higher administrative background are 1.3 times (see figure II, 1st and 2nd column: 3.3/ 2.6) more likely to receive a university degree than respondents from professional or technical occupations. Overall, these relationship indicate that people from upper white-collar occupations are significantly more likely to receive a university degree than those from other backgrounds.

Respondents whose fathers work in a sales occupation are 2.0 times more likely than the average to receive a certification of a secondary technical or trade school. This significant relationship is isolated from later patterns of relative mobility. The educational degree is vocational oriented but those who received the *Fachhochschulreife* are also enabled to attend *Fachhochschule*, that is, a degree of higher education. However, no significant relationship exists with father's occupation and a *Fachhochschul-* degree itself. It is not possible to gain further detail in this analysis.

Respondents whose fathers work in a service occupation are 1.5 times more likely to drop out of school than those from other backgrounds. Those whose fathers work in manual labor occupation are 2.8 times more likely to receive a *Haupschul*-degree and 5.0 times more likely to drop out of school than the average respondent. Respondents whose fathers work in agriculture are 2.8 times more likely than the average to receive a *Hauptschul*-degree and 5.0 times more likely than the average to drop out of school. This finding shows that respondents who come from an agricultural background are 1.25 times (see figure I, 1st and 2ndcolumn: 5.0/ 4.0) more likely to drop out of school compared to respondents whose fathers work as manual laborers and 3.3 times (see figure II, 1st and

2nd column: 5.0/ 1.5) more likely to drop out of school compared to respondents from service backgrounds. Respondents whose fathers are employed in agriculture are as likely to attend *Hauptschul*e as respondents whose fathers work as manual laborer.

Respondents who did an apprenticeship or vocational training and who received working experience sometimes go back to gain a higher vocational occupation. For example to receive the *Master* title (master of crafts) an apprenticeship of three or four years of practical work experience and attendance at a specialized school is required (Brauns, Steinmann, Kieffer, and Marry 1999, 65). The analysis presented is not able to take this relationship into account.

It is worth noting that the relationships between father's occupation of upper white-collar occupations and education is weaker than the relationship between respondents in service occupations and lower and their social background. Later studies in status attainment theory have shown that father's occupation does not only have a significant influence on educational and occupational attainment of the respondent, but it has also shown that the influence decreases over time. For Germany it was indicated that the most important tracking decision was made after four years of schooling, that is, that children are about ten years old. Following status attainment theory, parents have a major influence when this decision is made. In general, middle class parents are interested in sending their children to the *Gymnasium* as opposed to *Realschule* or *Hauptschul*e. While middle-class parents are likely to argue if their children are send to a lower track, lower class parents are more likely to agree to the decision suggested by the teacher. At this point of time the influence of the parents is very strong. As their children get older their decision processes are more independent from their parents. They are more likely to decide independent of social origin, if they would like to drop-out of school after twelve years of schooling to start an apprenticeship or to attend *Fachhochschule* or university. While students who were tracked into the *Gymnasium* have the option to attend vocational training or schools with lower requirements, students from lower tracks have

only limited possibilities to attend higher education. Unless they receive the *Abitur* the traditional university degree cannot be obtained by lower track students. In other words, the early influence of parents on educational attainment has a strong influence on the later career opportunities of their children. For Germany, this relationship was most recently supported by Henz and Maas who showed that educational decisions are influenced by the status of the father and the education of parents (Henz and Maas 1995). They also found that the influence of social origin decreases over time. Because the decision of which track to attend is made after four years of schooling, parents' influence is relatively stronger compared to later decisions. Following this argument the link between father's occupation and respondent's education should be stronger for lower social background, because the possibilities of their educational attainment are more restricted than those for respondents from higher social origins.

Respondent's Education to Respondent's First Occupation

For an illustrated description of this relationship refer to figure II, columns two and three at the end of this paper. The figure shows that respondents with university degree and professional or technical occupations (35.2) and higher administration or managerial work (11.9) indicate a strong tie between each other. Respondents who received a university degree are 35.2 times more likely than the average respondent to be employed in their first occupation in a professional or technical profession and are 11.9 times more likely than the average respondent to have their first occupation in higher administration or managerial work. This strong relationship indicates that people who work in professional and technical occupations are mainly recruited from those with university and *Fachhochschul*-degrees. People with university degrees are about three times more likely to start their occupational career in a professional or technical occupation than in higher administration or in a managerial position.

The links between respondents who receive a *Fachhochschul-* degree with professional or technical and higher administration or managerial occupations are not as strong as those with university degrees, but they are significant and indicate relatively strong ties compared to other relationships. Having a *Fachhochschul*-degree makes respondents 10.1 times more likely to have their first occupation in a professional or technical position than those from other backgrounds, and 5.1 times more likely than average to enter a higher administrative or managerial occupation. In other words, respondents who receive a *Fachhochschul*-degree are about two times more likely to enter a professional or technical occupation than higher administration. Overall, this finding indicates that upper white-collar occupations recruit from those having a university or *Fachhochschul*-degree.

As described earlier, *Abitur* is a necessary requirement to get accepted to university and the *Fachhochschulreife* is a necessary requirement to attend *Fachhochschule*. Brauns and Steinmann describe the increasing importance of *Fachhochschul*-degree compared to university degree and conclude that differences in rewards, e.g. income and status continued to decrease. In the late 60's the *Fachhochschulreife* was introduced. In 1969, an upgrading of schools of engineering and higher schools of economics to *Fachhochschule*n took place. While the *Fachhochschulreife* does allow access to schools of higher education below university (*Fachhochschulen*) it does not enable access to universities (Brauns and Steinmann 1999, 19). Brauns, Müller and Steinmann find that "In consequence [of the process of upgrading], between the 1980s and 1990s returns to qualification 3a [Lower-level tertiary degrees, generally for shorter duration and with a vocational orientation; e.g. technical college diplomas - *Fachhochschule-*, social worker or, non-university teaching certificates] become more similar to returns to qualification 3b [completion of traditional, academically-oriented university education]. The improved occupational prospects of graduates with 3a qualification corresponds to the institutional upgrading of the 3a

educational institutions (the *Fachhochschule*)." (Brauns, Müller and Steinmann 1997, 14, italics added) However the strong ties between university degrees and first occupation compared to *Fachhochschul*-degrees and first occupation suggests that a respondent is 3.5 times (see figure II, 2nd and 3rd column: 35.2/ 10.1) more likely to have a professional or technical occupation if the respondent has a university degree instead of a *Fachhochschul*-degree, and 2.3 times (see figure II, 2nd and 3rd column: 11.9/ 5.1) more likely to have a higher administrative or managerial occupation if the respondent has a university degree instead of a *Fachhochschul*-degree.

The ties between *Abitur* and upper white-collar occupations are weaker compared to relationships between university degree and *Fachhochschule*. *Abitur* by itself is not an occupational degree but rather a requirement for higher education. It can be assumed that the lack of occupational specific training links this degree not only to professional or technical occupations but also to clerical work, a lower white-collar occupation. The finding indicates that respondents with *Abitur* are 2.7 times more likely than those from other backgrounds to have a professional or technical position as first occupation and that they are 1.7 times more likely than average to be employed in a clerical position. Therefore, the ties between upper white-collar occupations and education are strongest with university degree as opposed to with *Fachhochschul*-degree and *Abitur*. Ties are about 13 times (see figure II, 2nd and 3rd column: 35.2/ 2.7) stronger with university degree as opposed to with *Abitur*, and 3.7 times stronger for *Fachhochschul*-degree as opposed to with *Abitur*. Overall, the class of upper white-collar recruits among respondents with university degree, *Fachhochschul*-degree and *Abitur* but recruitment is highest for university graduates.

Respondents with certification of secondary technical or trade school are not significantly related to any occupational category. This finding is surprising because these schools are vocational in orientation. At the same time, the degree received enables students to access *Fachhochschule*. It is therefore plausible to assume that respondents

who attended certified secondary technical or trade school continue their education at *Fachhochschule*n. The analysis presented does not provide enough information to determine if this is true or not.

Respondents with *Realschul*-degree (intermediate general qualification) and vocational training have significant ties with clerical and sales occupations. Respondents with *Realschul*-degree are 1.5 times more likely than the average respondent to start their occupational career in a clerical occupation and are 3.3 times more likely than those from other backgrounds to start in a sales occupation. Compared to university degree and *Fachhochschul*-degree, the ties between these occupations are weaker, indicating that it is easier for outsiders to enter lower white-collar occupations.

Respondents with *Hauptschul*-degree are 4.9 times more likely than average to start in a sales occupation, 2.7 times more likely than the average respondent to start as worker and 2.9 times more likely than those from other backgrounds to start in an agricultural occupation. The *Hauptschul*-degree therefore indicates strong relationships with three occupational categories and supplies the lower white-collar class, manual labor and agriculture with employees. Respondents with a *Hauptschul*-degree are 1.5 times (see figure II, 2nd and 3rd column: 4.9/ 3.3) more likely to enter sales occupations compared to respondents with intermediate general qualification. In sum, the class of lower white-collar occupations recruits from lower secondary education, especially *Realschule* and *Hauptschul*e, and less often from respondents with *Abitur*.

Respondents with no educational certificate have strong ties with sales occupations, manual labor and agricultural positions. Respondents without educational degrees are 19.7 times more likely than the average respondent to start their first occupation in a sales occupation. They are 7.8 times more likely than the average respondent to start as a manual laborer, and 8.5 times more likely than those from other backgrounds to start in an agricultural position. Respondents who dropped out of school are four times (see figure II, 2nd and 3rd column: 19.7/ 4.9) more likely to start their

occupation in sales as opposed to respondents with *Hauptschul*-degree, and about six (see figure II, 2nd and 3rd column: 19.7/ 3.3) times more likely than respondents with intermediate general qualification. In other words, the ties with respondents who did not complete their general education are very strong with sales occupations, stronger than with respondents who received a lower secondary degree.

Overall, respondents with *Abitur*, *Realschul*-degree, *Hauptschul*-degree and school drop-outs enter lower white-collar occupations. That is, respondents from five educational categories are recruited into low white-collar occupations. Therefore, lower white-collar occupations seem to be open to outsiders and have low rates of social closure. Lower white-collar occupations are more open as the class of upper white-collar.

Service occupations are isolated and do not indicate significant relationships with any of the educational degrees. This finding is surprising and can not be explained at this point. It can be assumed that service occupations recruit from different levels of the educational hierarchy, and are relatively open. This finding indicates that no significant pattern between father's from sales occupations to any educational level exists. Therefore, it must be concluded that the relationship between father's in sales occupation and educational attainment of the respondent is random.

The class of manual labor, as well as the class of agricultural occupations, recruits from respondents with *Hauptschul*-degree and drop outs. As described earlier, these relationships are very strong. The strong ties relating upper white-collar occupations and the university degree or *Fachhochschul*-degree indicate a high level of recruitment. Similarly, strong ties between *Hauptschul*e and school drop-outs indicates strong ties for manual laborer and agriculture. Therefore, the strong relationships found in the lower occupational categories indicate social closure similar to the relationship found in upper white-collar occupations.

Findings presented on the relationship between educational attainment and first occupation confirm earlier findings by Blossfeld, Müller and colleagues (Blossfeld and

Müller 1988; König and Müller 1986). They indicate that especially strong ties exist for educational degree and upper white-collar occupations and educational degree and manual laborers and agriculture.

Respondent's First Occupation to Respondent's Current Occupation

The relationship between first and current occupation is illustrated in figure II, columns three and four, at the end of this paper. Respondents with professional or technical relations are 11.1 times more likely to remain in professional and technical occupations than average and 5.0 times more likely to enter administrative or managerial occupations than those from other backgrounds. Those who have their first occupation in higher administration or managerial work are 3.5 times more likely than the average respondent to enter professional or technical occupations. It is interesting to note, that no significant positive relationship exists with higher administration or managerial work. Respondents who entered professional or technical occupations in the beginning of their occupational career are 3.2 (see figure II, 3rd and 4th column: 11.1/ 3.5) times more likely to work in a professional or technical occupation. This relationship implies strong ties between professional and technical occupations and indicates high rates of self-recruitment. This relationship also provides support for closed career markets as found by Blossfeld: "Those who began their occupational careers as semiprofessionals and professionals are extremely stable. If nonetheless a switch does occur, this is mainly between administrative occupations and the occupational group of managers." (Blossfeld 1987a, 107)

However, respondents with clerical and service occupations in their first occupation are also significantly related to professional and technical occupations as current occupation. Respondents who had their first occupation in a clerical position are 2.3 times more likely than the average respondent to work in professional or technical

occupations as current occupation and respondents coming from services are 1.9 times more likely than those from other backgrounds to work in professional or technical occupations as current occupation. Respondents who work in a professional or technical occupation in their first occupation are 4.8 times (see figure II, 3rd and 4th column: 11.1/ 2.3) more likely to work in a professional or technical occupation in their current occupation than respondents with clerical occupations as their first occupation. Respondents with administrative or managerial occupations for their first occupation are 1.5 times (see figure II, 3rd and 4th column: 3.5/ 2.3) more likely than those who worked in clerical occupations in their first occupation to work in a professional or technical occupation in their current occupation, but respondents with a clerical occupation as their first occupation are 1.2 times (see figure II, 3rd and 4th column: 2.3/ 1.9) more likely, compared to respondents with service occupations as their first occupation to work in professional and technical occupations in their current occupation. Respondents who had their first occupation in professional or technical occupations are 5.8 times (see figure II, 3rd and 4th column: 11.1/ 1.9) more likely to work in a professional or technical occupation in their current occupation than respondents with a service occupation as their first occupation. Respondents who worked in higher administration or managerial work are 1.8 times (see figure II, 3rd and 4th column: 3.5/ 1.9) more likely to work in a professional or technical occupation compared to those who worked in a service occupation in their first occupation. Even though entry from lower white-collar and service occupations into upper white-collar occupations are less likely than for respondents who started out their career in upper white-collar occupations, it is possible to enter upper white-collar occupations from lower classes. In other words, transitions from lower white-collar occupations and service occupations to upper white-collar occupations are less likely but they are possible. The strong ties among upper white-collar occupations indicate high rates of self-recruitment and social closure. However,

indicated in this analysis, upper white-collar occupations are not totally closed to outsiders.

Besides respondents with their first occupation in a clerical occupation who cross boundaries to upper white-collar classes, respondents in clerical occupations are 7.6 times more likely than average to stay in this occupation and 1.8 times more likely than the average respondent to enter sales occupations. The likelihood of staying in a clerical occupation indicates high rates of self-recruitment and social closure. This occupation is relatively closed to respondents with other occupations because no other significant relationship exists to enter clerical occupations. Respondents having worked in sales occupation as first occupation are 4.4 times more likely than the average respondent to stay in this occupation. Respondents with sales occupation as first occupation are 2.4 times (see figure II, 3rd and 4th column: 4.4/ 1.8) more likely to stay in sales than a respondents from clerical occupation are likely to enter sales occupations.

This relationship indicates that lower white-collar occupations have relatively high rates of self-recruitment. No outsider from another occupation enters lower white-collar occupations. This finding also indicates social closure. In his analysis of social mobility in Great Britain, Goldthorpe concludes that relative rates of mobility are higher in the intermediate occupations than in lower white-collar occupations (Goldthorpe 1987 (1980), 334). For Germany, rates of social closure and self-recruitment do not appear to be very different from upper white-collar or manual labor and agricultural occupations. The only indication of higher rates of mobility is existent in the relationship from lower white-collar occupations to professional or technical occupations. However, this is not enough evidence to conclude that lower white-collar positions have higher rates of mobility.

Service occupations reveal relationships to upper white-collar occupations and self-recruitment. Respondents whose first occupation is in a service occupation are 3.1 times more likely than the average respondent to stay in a service occupation and 1.9

times more likely to move to professional or technical occupations. Respondents are 1.6 times more likely to stay in a service occupation than to move to professional or technical occupations. This findings supports earlier findings by Becker that the expansion of the public sector and welfare state led to increasing importance of the state service sector for employment and occupational mobility (Becker 1994). State employment in Germany is characterized by lifelong employment. Becker finds that processes of occupational mobility are restricted to earlier parts of one's career (Becker 1994, 615). Weak ties between first and current occupations support Becker's findings and indicate that relative moves in the later phases of one's career are less likely because mobility is mostly over with graduation from formal education and entry into first occupation. However, even though ties to professional or technical occupations are weak, crossing class boundaries into upper white-collar occupations does take place.

Manual labor and agricultural occupations indicate relatively closed labor markets with high rates of self-recruitment. Respondents whose first occupation was a position in manual labor are 1.8 times more likely than the average respondent to move into service occupations. Respondents whose occupational career started in agriculture are 3.2 times more likely than those from other backgrounds to work as a manual laborer but 4.2 times more likely than the average respondent to move into a service occupation for their current occupation. Respondents whose first occupation was in agriculture are 2.3 times (see figure II, 3rd and 4th column: 4.2/ 1.8) more likely to enter a service occupation than respondents who started their occupational career as a manual laborer. Processes of self-recruitment are very strong in agricultural occupations. Those whose first occupation was in manual labor are 7.9 times more likely than average to stay in manual labor. Respondents who started in an agricultural occupation are 43.8 times more likely than those from other backgrounds to stay in agriculture.

No respondent from upper white-collar, lower white-collar and service occupations entered manual labor or agriculture. This finding indicates that manual labor

and agriculture are closed to outsiders from non-manual occupations and at the same time that respondents in these occupations are unlikely to enter non-manual occupations. High rates of self-recruitment are found in all occupations, which supports earlier findings by Kleining (Kleining 1971, 30) but they are especially strong for professional or technical occupations and agriculture. Findings from status attainment theory are therefore supported in that self-recruitment is strong in most occupations but especially in the upper and lower social classes (Blau and Duncan 1967; Featherman and Hauser 1978). Weber's class theory is also supported as self-recruitment indicates social closure of status groups (Weber 1978 (1921)-a; Weber 1978 (1921)-b).

The findings presented also show that there is a strong relationship between educational qualification and first occupation. König and Müller show that "educational certification has a strictly hierarchical-ordered impact on mobility [and] since job and career lines is strongly dependent on educational attainments, the chance of transcending these barriers during worklife are small." (König and Müller 1986, 91) Similar findings are shown by Blossfeld and colleagues that in the German society entry occupation has a strong influence on later mobility, and that there is strong evidence to suggest that high rates of mobility end upon entry into the first occupation (Becker 1994; Blossfeld 1987a; Blossfeld 1993; Blossfeld and Mayer 1988). The findings presented here support his analysis showing that "advancement into more highly skilled positions predominate in the middle range of the occupational structure for the skilled manual occupations, skilled service jobs, and skilled commercial and administrative occupations." (Blossfeld 1987a, 107).

Odds of Relative Mobility and Class Boundaries

The theory of dual labor markets differentiates between the primary and the secondary sector. Their characteristics were described in the literature review. Findings presented show that a clear relationship exists between entry occupation and current

occupation of the respondent. In most cases the educational credential acquired provides access to the occupation. Described patterns indicate that access to an occupation can only take place if the credential was received. For example while professional or technical occupations allow access from respondents without higher education, higher administration or managerial occupations allow limited access.

Class location I described the relationship between upper white-collar occupations and clerical positions as father's occupation through the educational attainment of a university degree, *Fachhochschul*-degree and *Abitur* to upper white-collar occupations as current occupation. Class location II referred to service occupation, manual labor and agriculture and led by the attainment of lower secondary qualifications to positions in lower white-collar occupations, manual labor or agriculture. Class location I and class location II are separated through the dashed line in figure II.

It was found that these class locations are connected at two points: First, *Abitur* was significantly related with clerical occupations, and, second, clerical and service occupations had access to professional or technical professions for current occupations. Besides these exceptions, class locations are divided on educational lines. The analysis presented provides support for Blossfeld's and Mayer's argument that labor market segmentations are less the result between primary and secondary sectors in the labor market but more of qualification barriers (Blossfeld and Mayer 1988, 138). In their class analysis Mayer, and Carroll find that educational qualification define access to a class position as well (Mayer and Carroll 1987).

However, these conclusions does not explain the entry from lower white-collar occupations and service occupations into upper white-collar occupations. Also the significant relationship between workers and service occupations and between agriculture and service occupations contradicts earlier findings which only draw a distinction of mobility rates between manual and non-manual occupations.

Blossfeld's analysis finds a central tendency in more skilled occupations. Skilled occupational groups in production, services and administration have a tendency to remain in this occupational group. That is, the more skilled respondents are, the more likely they are to remain in the same occupation (Blossfeld 1987a, 101). This finding is supported for respondents in upper white-collar occupations who do not enter any other occupational class. On the contrary, respondents with lower education do cross boundaries to occupations in other classes. Blossfeld and Mayer also conclude that education protects against employment in the secondary sector (Blossfeld and Müller 1988, 134,).

The findings presented indicate that processes of social reproduction take place. The strong relationship between social background and the attainment of higher education is an indicator that opportunities to attend additional years of schooling are provided for respondents from a privileged social background. Attending higher education is supported by the resources of parental background based on cultural, social or economic conditions. With acquiring higher education, access to upper white-collar position is almost assured. With these occupational positions, respondents also receive a relatively higher income which then allows a better lifestyle compared to people with less income and economic resources.

The finding of two almost perfectly distinguishable clusters indicates that life chances are restricted by economic conditions and personal preferences. They are clear indicators for different opportunities depending social origin. Being in a privileged position not only means that opportunities for higher educational and occupational attainments are greater but it also indicates that the privilege is likely to be reproduced in the next generation.

Respondents coming from social backgrounds in class location II have fewer resources to use and less opportunities to improve their social position. The propensity to enter class location I is defined by social origin and educational attainment. If the step to

higher education was not taken, it is unlikely to cross boundaries between class locations and move up. Overall, it can be concluded that coexistence of the class of reproduction, that is social origin, and the class of nomination, that is educational attainment, as Parkin calls these phenomenon, reproduces social structure.

United States

Father's Occupation to Respondent's Education

The relationship between father's occupation and respondent's education, first and current occupation, is illustrated in figure III. The 1st and 2nd column refers to the relationship between father's occupation and respondent's education.

Significant relationships between father's occupation and higher education exist for respondents coming from upper and lower white-collar occupations. Respondents whose fathers are working in a professional or technical occupation are 2.0 times more likely than the average respondent to receive a graduate degree and 1.8 times more likely than those from other backgrounds to receive a bachelor degree. Those whose fathers have an occupation in higher administrative or managerial positions are 1.4 times more likely than average to receive a graduate degree and 1.7 times more likely than the average respondent to receive a bachelor degree. Respondents whose fathers are working in clerical positions are 2.0 times more likely than those from other backgrounds to receive a graduate education and 1.4 times more likely than average to receive a bachelor degree. Respondents whose fathers work in a sales occupation are 1.3 times more likely than the average respondent to receive a bachelor degree. Overall, respondents whose fathers are working in a professional or technical occupation are as likely as respondents whose fathers are working in a clerical occupation to receive a graduate degree, but they are 1.4 times (see figure III, 1st and 2nd column: 2.0/ 1.4) more likely to receive a graduate degree than those who come from a higher administrative or managerial background. Respondents whose fathers are working in a professional or technical

occupation are about as likely as respondents from higher administration or managerial backgrounds to receive a bachelor degree. Those whose fathers work in professional or technical occupations are about 1.3 times (see figure III, 1st and 2nd column: 1.8/ 1.4) more likely to receive a bachelor degree compared to those from a clerical background and about 1.4 times (see figure III, 1st and 2nd column: 1.8/ 1.3) more likely compared to those whose father is working in sales. Respondents whose father works in administrative or managerial positions are about 1.2 times (see figure III, 1st and 2nd column: 1.7/ 1.4) more likely to receive a bachelor degree than those coming from a clerical position and 1.3 times (see figure III, 1st and 2nd column: 1.7/ 1.3) more likely than those coming from a sales occupation. Overall, it can be concluded that people with higher educational degrees are recruited from backgrounds where fathers work in upper and lower white-collar occupations.

Respondents whose fathers have a service occupation are 2.8 times more likely than the average respondent to drop out of school. Those whose fathers work in manual labor are 1.3 times more likely than the average respondent to receive a high school degree, and are 2.6 times more likely than those from other backgrounds to drop out of school. Respondents whose fathers have an agricultural occupation are 5.3 times more likely than average to drop out of school. That is, respondents whose fathers have an agricultural position are 1.9 times more likely (see figure III, 1st and 2nd column: 5.3/ 2.8) to drop out of school than respondents whose fathers work in service occupations and about two times more likely (see figure III, 1st and 2nd column: 5.3/ 2.6) than respondents whose fathers are manual laborers.

High school graduation indicates a significant positive relationship with father's from manual labor only. Graduation from high school or the G.E.D. is a requirement to enter college or university. The analysis presented examines the relationships for respondents who finished their formal education. To understand why only one significant relationship with high school exists, one should keep in mind that graduating high school

enables people to attend colleges and universities. Because the relationship presented shows the highest degree earned no significant ties exist between upper and lower white-collar occupations and high school. In other words, respondents from upper social backgrounds are likely to receive the high school degree in order to enter higher education. For those coming from lower social backgrounds are less likely to graduate from high school and more likely to drop-out of high school. Overall, there is a strong influence of social origin on educational attainment. Respondents coming from a white-collar background are likely to receive higher education, and respondents with a social background in service or manual occupation are more likely to drop out of school.

No significant relationship exists between associate and junior college degrees and father's occupation. Following Labaree's argument that associate and junior colleges are often used to earn transfer credits or for continuing education purposes, people with very diverse interests attend these schools Labaree 1997). Because respondents are selected on random this argument is supported. No significant positive relationship exists to indicate especially strong ties with any of the existing categories.

These findings support status attainment theory and its claim that socioeconomic background influences the decision process in terms of education. Blau and Duncan, in their work on occupational mobility in the United States, and the follow up study done by Featherman and Hauser, gave evidence to suggest that educational attainment is influenced by social origin (Blau and Duncan 1967; Featherman and Hauser 1978). Their findings were supported by later studies, e.g. Wilson and Portes, and Davies and Kandal (Davies and Kandal 1981; Wilson and Portes 1975). Other studies researching the influence of the socioeconomic status of parents on their children support this argument but indicate that influences on attainment decrease across cohorts over time (Alwin and Thornton 1984, Hout, 1993; Mare 1980). If there is evidence that the influence of social origin on attainment processes decreases over time, as indicated by these studies, other processes must be taking place to account for the finding that respondents coming from

service, manual labor, or agricultural background are not as likely as others to enter institutions of higher education. There are two possible explanations for these processes: First, either the overall influence on educational attainment is stronger in the United States, as, for example, in contrast to Germany, to where people get tracked at age ten. Second, during high, school processes of informal tracking in the United States have similar influences on educational attainment as formal tracking in Germany. I am not aware of any literature that indicates that social origin has a stronger effect in the United States. On the contrary, it is often argued that, compared to other countries, the United States is more open and less stratified on the basis of the equal opportunity ideology. Higher odds ratios for Germany indicate stronger ties between father's occupation and education for Germany pointing out stronger influences of social origin. However, cross-over between class locations are not found as significant. The result presented might be due to informal tracking in high school. The analysis presented does not allow for measuring informal tracking. Therefore, only a theoretical discussion on tracking processes in the United States and its effect on occupational mobility will be provided at the end of this paper.

Respondent's Education to Respondent's First Occupation

The relationship is illustrated in figure III, column two and three in the appendix. Higher educational degrees have strong ties with upper white-collar occupations. Respondents with graduate degrees are 9.6 times more likely than the average respondent to start their occupational career in a professional or technical occupations and 8.5 times more likely than those from other backgrounds to enter higher administration or managerial work. Ties between upper white-collar occupation and respondents with bachelor degrees are less strong but nevertheless significant. Respondents who received their bachelor degree are 2.1 times more likely than average to start their career in professional or technical occupations and 1.8 times more likely than those from other

backgrounds to have their first occupation in higher administration or managerial work. In other words, respondents with a graduate degree are 4.6 times (see figure III, 2nd and 3rd column: 9.6/ 2.1) more likely than respondents with bachelor degrees to enter professional or technical occupation after finishing their formal education and 4.7 times (see figure III, 2nd and 3rd column: 8.5/ 1.8) more likely than respondents with bachelor degrees to enter higher administrative or managerial works. Overall, these findings indicate that upper white-collar occupation recruit respondents with higher education. There is no significant relationship between respondents with less than higher education, junior or associate college or high school with upper white-collar occupations. The finding presented therefore indicates strong ties between higher education and upper white-collar occupations.

Respondents who attained their educational degree in an associate or junior college are 1.9 times more likely than the average respondent to start their occupational career in a clerical occupation. Respondents who received their high school degree are 2.2 times more likely than those from other backgrounds to start their occupational career in a clerical occupation. Those who received an associate or junior college degree are about as likely to enter a clerical position as respondents with a high school degree. Respondents with a high school degree are only 1.2 times (see figure III, 2nd and 3rd column: 2.2/ 1.8) more likely than respondents with associate or junior college to start their occupational career as a clerk. No significant relationship exists between any educational degree and sales occupation. Therefore, the movement into sales is no different from random. Overall, the findings indicate that lower white-collar occupations recruit people with associate or junior college degrees and high school degrees.

Respondents who received a high school degree are 2.1 times more likely than the average respondent to start as a manual laborer and 2.2 times more likely than the average respondent to start their occupational career in a clerical occupation. In other

words, respondents who receive their high school degree are as likely to start in manual labor as in clerical occupations.

Respondents who do not have an educational certificate are 2.7 times more likely than those from other backgrounds to enter service occupations, 3.0 times more likely than the average respondent to enter manual labor and 13.6 times more likely than average to enter agriculture. That is, respondents who dropped out of school are 4.5 times (see figure III, 2nd and 3rd column: 13.6/ 3.0) more likely to have their first occupation in agriculture than in manual labor and 5.0 times (see figure III, 2nd and 3rd column: 13.6/ 2.7) more likely to start their occupational career in agriculture opposed to service occupations. Overall, respondents with no educational degree are likely to enter service occupations, manual labor or agriculture.

Increasing access to higher education is often assumed to decrease inequality between people. As Hout, Raftery, and Bell show for the United States, a decrease in inequality through the educational system did not take place (Hout, Raftery, and Bell 1993). Through an increasing number of schools, colleges, and universities, the difference in achievement for people with different social classes has diminished. Haut et al. also show that increasing educational achievement for persons with a working class background was only possible because it did not lead to an substantial decrease of educational attainment of people from upper and middle classes in the United States. In general, more people proceed to higher stages of the educational institution, and selection processes take place later in their educational career. This development has lead to the development of an “educational underclass” (Hout, Raftery and Bell 1993, 46ff.). This development is supported by findings in this analysis that the division between respondents who enter higher education are mainly from a higher social origin.

There is also extensive research on the effect of financing education on graduation rates. Students from higher social backgrounds are not only more likely to graduate but they are also more likely to have enrolled in a college preparatory curriculum in high

school, which increases success in college (Baker and Vélez 1996, 91). Findings indicate that loan and sponsored programs, which were intended to support students with lower socioeconomic backgrounds to attend higher education, worked, in general, to the advantage of higher income families (Baker and Vélez 1996; Heller 1997; Volkwein, Szelest, Cabrera, and Nabpierski-Parcel 1998).

The evidence illustrates a clear tendency that people from low-income backgrounds are less likely to attain higher education. It therefore supports earlier findings that respondents from higher education not only come predominately from upper white-collar and lower white-collar occupations, but it also provides evidence that respondents with different educational degrees have different occupational opportunities. Higher educational degrees provide access to upper class occupations that are closed to respondents without the educational requirement. This relationship leads to a distinct pattern between those with high education and those without. Results presented reveal separate class locations between upper white-collar occupations and lower white-collar, service, manual labor, and agriculture occupations. The strong tie between higher education and upper white-collar occupations indicates a closed labor market for people with higher education. Lower white-collar occupations, service occupations, manual labor and agriculture recruit their workers from those with a high school certification or less. These developing class locations are also indicators of dual labor markets. Respondents with higher education are likely to be employed in upper white-collar occupations and respondents with lower white-collar occupations are likely to be part of the secondary labor market (Doeringer and Piore 1971).

Respondent's First Occupation to Respondent's Current Occupation

Refer to figure III, 3rd and 4th column for an illustration of the relationship between respondent's first and current occupation. Respondents whose first occupation

was a professional or technical position are 10.2 times more likely than average to have a current occupation in a professional or technical occupation. Those respondents with their first occupation in higher administration or managerial work are 2.5 times more likely than those from other backgrounds to enter professional or technical occupations and 14.7 times more likely than the average respondent to stay in a higher administration or managerial positions. Respondents who had their first occupation in a professional or technical occupation are 4.1 times (see figure III, 3rd and 4th column: 10.2/ 2.5) more likely to work in a professional or technical position than those from higher administrative or managerial work. Respondents in higher administration or managerial occupations are 5.9 times more likely to work in the same occupation as their current occupation, as opposed to entering a professional or technical occupation. For professional or technical positions, no other significant relationship exists besides self-recruitment. These findings indicate a high level of self-recruitment, indicating social closure. Overall, in upper white-collar occupations, self-recruitment is strong and takes place within different types of upper white-collar occupations, e.g. administration or managerial occupations, and professional or technical occupations.

Respondents whose first occupation is a clerical occupation are 3.6 times more likely than the average respondent to stay in a clerical position. Respondents who have sales as their first occupation are 3.7 times more likely than those from other backgrounds to work in sales occupations in their current position. Lower white-collar occupations also indicate high rates of self-recruitment. Ties between first and current occupations are weaker than in upper white-collar occupations but significant. Sale occupations also have ties to higher administrative or managerial work and service occupations. Respondents whose first occupation is in sales are 1.8 times more likely than average to enter higher administrative or managerial occupations but also 1.9 times more likely than the average respondent to enter service occupations. Respondents with sales occupation as their first occupation are 2.1 times (see figure III, 3rd and 4th column:

3.7/ 1.8) more likely to stay in sales than to work in an administrative or managerial position in their current occupation and 1.9 times (see figure III, 3rd and 4th column: 3.7/ 1.9) more likely to stay in this position than to enter service occupations. This finding indicates that lower white-collar occupations link upper white-collar occupations with service occupations. The ties between these occupations are not very strong compared to self-recruitment in each occupation, but they indicate that crossing boundaries into these occupations is possible. In other words, it can be seen an occupation with higher mobility chances relative to others. Service occupations show high rates of self-recruitment, but service occupation as a first occupation does not indicate any other significant relationship. Respondents whose first occupation is a service occupation are 3.7 times more likely than the average respondent to stay in a service occupation in their current occupation.

Collins provides a discussion of access to managerial work. He finds that clerical workers are unlikely to enter managerial positions. “Clerical workers are mostly women, and women are rarely made managers outside of supervisory potions in clerical sectors” (Collins 1979, 45). In other words, Collins points out that clerical positions are female dominated and managerial positions are male dominated.[6] He also shows that educational requirements differ educational requirements differ for managerial and clerical positions, that is, college education leads to positions in higher administration or managerial work and high school degrees to clerical positions (Collins 1979).

Respondents whose first occupation is in manual labor are 3.9 times more likely than those from other backgrounds to stay in this position and 2.9 times more likely than the average respondent to have an agricultural position in their current occupation. Respondents whose first occupation is in agriculture are 36.9 times more likely than average to work in agriculture in their current occupation. Ties between agriculture as first and current occupation are very strong and indicate very high rates of self-recruitment. Respondents who worked in agriculture in their first occupation are 11.5

times (see figure III, 3rd and 4th column: 36.9/ 32) more likely to stay in agriculture as opposed to entering manual labor and 23.1 times (see figure III, 3rd and 4th column: 36.9/ 1.6) more likely to stay in agriculture as opposed to entering service occupations. Rates of self-recruitment are very high in agriculture. These rates are even higher than the rates of self-recruitment in upper white-collar occupations.

Overall, these findings indicate that educational attainment has an influence on occupational attainment. The findings presented do not give evidence to suggest that relative mobility rates are higher for the United States than for Germany. Also, they do not provide enough evidence to conclude that educational attainment is less important than in other countries. On the contrary, the barriers between upper white-collar and lower white-collar occupations, service occupations, manual labor and agriculture indicate the existence of distinct class locations in the United States. Respondents who received a higher education are more likely to take a position in class location I and respondents who received high school degrees or less are more likely to occupy a position in class location II. That is, access to class location is defined through the educational degree attainment. Again, this finding supports Parkin's emphasize on class nomination.

In the United States, rates of self-recruitment are indicated by strong ties between the relationships of first and current occupations. Lower white-collar occupations and service occupations can be seen as intermediate positions. However, only sales cross boundaries to upper white-collar occupations. Overall, this finding indicates that ties, when boundaries between classes are crossed, are not very strong. It must, therefore, be concluded that entry occupations have an effect on the occupational career in the United States. Standardized vocational training is relatively weak in the United States (Krymkowski 1991, 50) and often takes place on the job. On-the-job training is specific to the occupational position and therefore is very restricted in the skills taught. Employers decide who is trained and to what extent (Allmendiger 1989, 238). If people change

occupations, these skills can not all be transferred to the next position. This evidence supports low rates of exchange between class categories and explains why self-recruitment dominates occupational position. Respondents are therefore more likely to stay in their occupational class, that is, social closure is relatively stronger than relative mobility for all occupations.

Odds of Relative Mobility and Class Boundaries

The findings presented indicate distinctions between class location I and class location II. In this analysis the only connection between these class locations exists between sales occupations as first occupation and higher administration or managerial work as current occupation. The findings support earlier findings that managerial positions have different features than in other countries and are closer to lower occupational categories than, for example, in Germany (Haller, König, Krause, and Kurz 1985, 594).

Upper white-collar occupations are tied to higher educational degrees, indicating that the influence of high social origin leads to higher educational attainment. The attainment of higher education is a requirement to access upper white-collar occupations. The relationship between social origin of respondents from lower white-collar occupations into higher education indicates that the respondent did not only reproduce the status of social origin but also improved its own social class position by moving into upper white-collar occupations compared to father's position. These respondents can be seen as upward mobile compared to their father's occupation.

Rates of self-recruitment are relatively strong for occupations at the top and the bottom of the hierarchy. This finding indicates that these occupations are closed to access from the outside. Access to upper white-collar occupation is restricted through education. How access to agriculture is restricted can not be analyzed with this analysis. However, it can be assumed that since the overall number of farm workers decreases, farmers are in

general recruited through family inheritance, which also takes place on the basis of social closure (Blau and Duncan 1967; Featherman and Hauser 1978).

For respondents from service, manual and agriculture no significant ties to higher education exist. While high school is related to lower white collar occupations, none of these crosses boundaries to class location I. The only significant positive relationship connecting class location I and class location II exists between sale occupations as first occupation and higher administrative or managerial work as current occupation, but it is a rather weak relationship. However, it indicates that entering upper white-collar occupations is bound to higher education and cannot, on average, be accessed from occupations below.

These findings are yet another indicator of life chances related to social class positions. Life chances are based on the economic resources and status groups. It was again found that those who lack resources are disadvantaged over those with resources. Higher education in the United States depends even more on social origin in terms of economic resources since it is based on tuition and fees. The decision to take out loans is again influenced by social background and made easier for respondents with privileged backgrounds. As discussed earlier, loan policies and other founding resources did not increase opportunities for students from lower social backgrounds to access higher education. Instead it was found that actually middle class families were most favored (Baker and Vélez 1996; Heller 1997; Volkwein, Szelest, Cabrera and Nabpierski-Parcel 1998).

Comparison

Father's Occupation to Respondent's Education

The findings are illustrated in figure II and figure III. The relationship from father's occupation to respondent's education refers to columns one and three in each figure. The relationship between father's occupation and respondent's education is slightly

stronger for Germany than for the United States, especially if the relationship between father's from upper white-collar occupations and respondents with university degree is considered. Those respondents whose fathers have a professional or technical degree in Germany are 1.3 times (see figure II, 1st and 2nd column: 2.6/ see figure III, 1st and 2nd column: 2.0) more likely to receive a university degree, as they are to respondents whose father were from professional or technical degrees in the United States. The ties between those respondents whose father has an occupation in higher administration or managerial work and enter university or graduate education are stronger for Germany as well. In Germany, respondents whose father is working as a higher administrator or manager are 2.4 times (see figure II, 1st and 2nd column: 3.3/ see figure III, 1st and 2nd column: 1.4) more likely to enter university education than respondents in the United States with father's being employed in administration or managerial work. Those respondents whose fathers have a clerical occupation are 1.3 times (see figure III, 1st and 2nd column: 2.0/ see figure II, 1st and 2nd column: 1.5) more likely in the United States to receive a university degree than in Germany.

It is difficult to compare a bachelor degree with educational attainment in Germany. As I pointed out earlier, *Abitur* is a necessary requirement to attend university but it is not by itself an occupational degree. In Germany after two years in university, students take exams and receive either their *Vordiplom* or *Zwischenprüfung*. These are intermediate exams, and depending on the program, lead either to a *Diplom* or Master's of Arts degree, two possible university degrees in higher education with about the same duration of schooling. In general, Bachelor education in the United States is seen as equivalent to these intermediate exams. While intermediate exams in Germany do not represent a final educational degree, the bachelor degree in the United States does.

Sales occupations in the United States are significantly related with bachelor education, but no significant relationship for sale occupations exists in Germany. The significant relationship between a certified secondary technical or trade school cannot be

compared to any of the educational institutions in the United States. The most similar schools are associate and junior colleges, but while the United States enables students to gain credits to transfer to college or university, secondary technical or trade schools in Germany have a vocational orientation and do not provide the possibility to receive credits which can be transferred to university.

Lower secondary education in Germany, that is *Realschule* and *Hauptschul*e can be compared to high schools in the United States. While lower secondary education is ten years of schooling, a high school degree requires twelve years of schooling. Even though years of schooling differ in these institutions, the degree received in these schools is comparable.

Respondents whose fathers work in service occupations, manual labor and agriculture are significantly related to the *Hauptschul*-degree in Germany and the high school degree in the United States as well as with respondents who do not receive an educational degree. In the United States, respondents whose fathers work in service occupations are 1.9 times (see figure III, 1st and 2nd column: 2.8/ see figure II, 1st and 2nd column: 1.5) more likely to drop out of school than respondents with a social background in service occupations in Germany. German respondents whose fathers work in manual labor are 1.5 times (see figure II, 1st and 2nd column: 4.0/ see figure III, 1st and 2nd column: 2.6) more likely to drop out of school than do respondents from the Untied States with the same social origin. US respondents whose fathers work in agriculture are about as likely to drop out of school (see figure III, 1st and 2nd column: 5.3/ see figure II 1st and 2nd column: 5.0) as respondents in Germany. In Germany, respondents whose fathers work in manual labor occupations are about 2.2 times (see figure II, 1st and 2nd column: 2.8/ see figure III, 1st and 2nd column: 1.3) more likely to receive a *Hauptschul*-degree than respondents in the United States graduate from high school. Compared to the United States, German respondents are also likely to receive a *Hauptschul*-degree if their father works in agriculture, while the analysis for US

respondents does not indicate a significant relationship with high school graduation for respondents with agricultural background. In sum, while US respondents indicate only weak significant relationships with high school graduation, German respondents are more likely to graduate from *Hauptschul*e. However, rates of school drop-outs are relatively high in both countries.

Overall, respondents whose fathers work in either upper white-collar occupations or lower white-collar occupations are likely to receive a degree in higher education in both countries. While for the United States relationships to receive a high school degree are very weak and only exist for manual labor, German respondents from manual labor background and agriculture are likely to receive a *Hauptschul*-degree. Drop out rates for respondents whose fathers have a service occupation are stronger in the United States compared to Germany. But they are stronger for German respondents whose fathers work in manual labor. About the same drop out rates exist for respondents with agricultural background.

Research in status attainment theory was discussed in more detail earlier in this paper. It is therefore necessary only to indicate that both countries show very similar pattern of educational attainment. Slight differences occur for those whose fathers work in lower white-collar occupations and their relationship to education. While respondents in Germany are tracked into different lower secondary schools and show strong ties with *Hauptschul*e, respondents in the United States have only weak relationships between father's occupation and high school attainment. This finding could indicate that processes take place which cannot be measured with this analysis.

The findings presented for the analysis of father's occupation to respondent's education provide support for hypothesis three. Respondents whose fathers work in upper white-collar occupations show significant relationships with higher education. Ties between father's occupation and respondent's education are not very different between countries. However, they are somewhat higher for Germany than the United States.

While only clerical positions indicate strong ties to institutions of higher education in Germany, sales occupations indicate strong ties with higher education in the United States as well. The hypothesis is further supported in that it could be shown that not only respondents from privileged social backgrounds are strongly related with higher education, but also that respondents with lower social backgrounds are strongly related with lower educational institutions and even show high drop-out rates. No significant cross-over from lower social origin into higher education or high social origin into lower education takes place. On average it is therefore not likely that people with high social backgrounds obtain education below university and, on average, it is unlikely that respondents from low social origin obtain higher education.

Respondent's Education to Respondent's First Occupation

The findings are illustrated in figure II and figure III, column two and three, in the appendix. The analysis indicates strong relationships between respondents who received their degree in higher education for Germany and the United States to upper white-collar occupations. As was described earlier, university and *Fachhochschule* are schools of higher education, while the former is more academically oriented and the later is more vocationally oriented. Nevertheless, as it was pointed out by Brauns and colleagues (Brauns, Müller and Steinmann 1997; Brauns and Steinmann 1999), differences in returns decreased over time between schools of higher education.

Findings indicate that the relationship between higher educational degrees and upper white-collar occupations are significant in both countries, but they are stronger for Germany than the United States, indicating that the ties between educational degree and first occupation are stronger in Germany than in the United States.

Respondents who received a university degree in Germany are 3.7 times (see figure II, 2nd and 3rd column: 35.2/ see figure III, 2nd and 3rd column: 9.6) more likely to start their occupational career in a professional or technical position than those with a

graduate degree in the United States. University students who received a graduate degree are 1.4 times (see figure II, 2nd and 3rd column: 11.9/ see figure III, 2nd and 3rd column: 8.5) more likely to start their occupational career in higher administrative or managerial positions in Germany than in the United States. The United States has no educational institutions which are similar to a *Fachhochschule*, so it is therefore difficult to compare the strong ties of *Fachhochschul*-degree with higher education in the United States. Also, the relationship between *Abitur* and clerical and professional or technical occupations is difficult to compare to American graduates. However, it is worth noting that despite having a higher numbers of categories in Germany, the ties between educational degree and occupation are stronger in Germany. These ties indicate that upper white-collar occupations recruit from higher education graduates in both counties but the relationships are stronger for Germany.

Lower secondary education (*Realschule*, *Hauptschul*e) in Germany can be compared with receiving a high school degree in the United States. Ties exist for relationships between lower secondary education and lower white-collar occupations in Germany and high school graduation and clerical occupation in the United States. Respondents who have a high school degree in the United States are 1.5 times (see figure III, 2nd and 3rd column: 2.2/ see figure II, 2nd and 3rd column: 1.5) more likely to start their occupation in a clerical position, compared to German students who received their intermediate general qualification at a *Realschule*.

While respondents who drop out of school have very strong ties to sales occupations in Germany, drop outs in the United States are significantly related with service occupations. Drop outs are 7.3 times (see figure II, 2nd and 3rd column: 19.7/ see figure II, 2nd and 3rd column: 2.7) more likely to enter sales occupations in Germany than they are likely to enter service occupations in the US. Respondents with no educational degree are 2.6 times (see figure II, 2nd and 3rd column: 7.8/ see figure III, 2nd and 3rd column: 3.0) more likely to enter manual labor as their first occupation in

Germany than in the United States. But they are 1.6 times (see figure III, 2nd and 3rd column: 13.6/ see figure II, 2nd and 3rd column: 8.5) more likely to enter agricultural positions as their first occupation in the United States than in Germany. Besides ties between high school drop outs and agricultural positions in the United States, relationships between educational degrees and entry occupations are again stronger in Germany. While for US respondents drop out rates have only significant relationships with service occupations, respondents with no educational degree in Germany have very strong ties to sale occupations. In other words, while US respondents have significant relationships with service occupations German respondents who dropped out of school are more likely to enter lower white-collar occupations, e.g. sales occupations.

Overall, educational degrees are more strongly related to entry occupations in Germany than in the United States. This finding supports existing research that educational attainment influences occupational attainment (Blossfeld 1987b; Brauns, Steinmann, Kieffer and Marry 1999). The analysis indicates that lower secondary schools in Germany have strong ties to lower white-collar occupations, but especially *Hauptschul*e has strong ties to manual labor and agricultural positions. Weaker relationships in the United States indicate that the educational degree respondents receive are less tied to specific occupations. However, to be employed in upper white-collar occupations requires a degree in higher education. Only weak relationships exist to lower white-collar occupations, service occupations, manual labor and agriculture.

Krymkovsky conducts a comparative analysis of the United States, Poland and Germany (Krymkowski 1991). He indicates the different structure of vocational education in the United States and its lack of standardization, which leads to weaker ties between the economy and educational degrees in the United States. In the German system, vocational training prepares students for specific occupations. In addition, Krymkovsky finds that the effect of allocation is higher in Germany compared to the United States. In Germany, he concludes, the educational system plays a larger role in

reproducing the social structure because people are tracked at an earlier age (Krymkowski 1991, 56). Both findings are supported by the analysis presented in this paper. Stronger ties between educational degrees and first occupations are found for Germany than the United States, and higher rates of self-recruitment for Germany, than the United States are found indicating stronger processes of social reproduction.

Hypothesis two is supported by the findings from the data. The relationship between education and first occupation is stronger for Germany than for the United States. This result is indicated by stronger ties for Germany. It should be noted that even though the number of categories is higher for Germany than the United States, the ties are still stronger for Germany. This finding indicates that the educational credential obtained defines access to occupational attainment.

The findings presented also provide support for hypothesis four. It was expected that respondents with higher education have strong ties to upper white-collar occupations. The findings show that ties are very strong between university and *Fachhochschul*-degree in Germany and bachelor and graduate education in the United States with professional or technical occupations and higher administrative or managerial occupations. In addition to higher education, *Abitur* indicates also significant ties with professional or technical occupations but it was pointed out that it can not be considered as a final occupational degree. On average, no respondents with an educational degree below higher education have significant ties with upper white-collar occupations. It can therefore be concluded that the higher educational degree is a necessary requirement to access upper white-collar occupations.

Respondent's First Occupation to Respondent's Current Occupation

The findings are illustrated in column three and four in figure II and figure III in the appendix for the relationship between respondent's first and current occupation. The

analysis indicates that the ties between first and current occupation show similar overall patterns, but patterns differ in the strength of their relationship between occupations. While Germany shows higher rates of self-recruitment, it also a has more significant relationships entering professional and technical occupations and cross boundaries between upper white-collar and lower white-collar or service occupations. With the exception of very strong ties of self-recruitment in higher administration and managerial work in the United States and no significant relationship in Germany. In the United States, on the other hand, access to upper white-collar occupations is more restricted, and ties exist only between occupations close to each other on the occupational hierarchy.

Ties between respondents whose first occupation is a professional or technical position are about as likely in the United States as in Germany to work in the same occupation in their current position. In other words, rates of self-recruitment are about the same in both countries for professional or technical occupations. Respondents in the United States have very high rates of self-recruitment for higher administrative or managerial positions (14.7), while Germany has no significant relationship at all. German respondents with their first occupation in higher administration or managerial work are 1.4 times (see figure II, 3rd and 4th column: 3.5/ see figure III, 3rd and 4th column: 2.5) more likely to enter a professional or technical occupation in their current occupation then US respondents in these occupations. Overall, the high self-recruitment rates for upper white-collar occupations are strong in both countries. However, higher administrative or managerial positions in the United States differ from those in Germany. In their comparative analysis of Austria, France and the United States, Haller and colleagues find an increasing proportion of employees are in managerial positions over the course of their career in all countries (Haller, König, Krause and Kurz 1985). Since the educational and occupational structure of Austria is very similar to the German structure it seems reasonable to assume that relationships in mobility are comparable. Haller et al. find that the increase of managers is five times larger in the United States

than in Austria (Haller, König, Krause and Kurz 1985, 594). Therefore, this finding indicates different significance of higher administration or managerial positions for Germany and the United States. It provides an explanation for stronger rates of self-recruitment between the administrative or managerial positions for first and current position in the United States. Haller et al. also find evidence to suggest that upper white-collar occupations are more open to respondents from lower occupations in the United States (Haller, König, Krause and Kurz 1985, 598). This finding can not be supported in this analysis. As described earlier, Germany shows stronger ties between lower white-collar and service occupations with upper white-collar occupations compared to the United States.

The patterns for lower white-collar occupations differ in the United States in their relationship between classes, but their overall pattern reveals similarities as well. While clerical positions have significant ties with upper white-collar, lower white-collar (sales occupations) and service occupations in Germany, the analysis for the United States indicates strong ties between sales and upper white-collar occupations, and service occupations. Rates of self-recruitment in lower white-collar occupations are stronger in Germany than in the United States. German respondents who work in a clerical position in their first occupations are 2.1 times (see figure II, 3rd and 4th column: 7.6/ see figure III, 3rd and 4th column: 3.6) more likely to continue to work as a clerk in their current occupation than US respondents with a clerical position in their first occupation. Respondents in sales occupation are 1.2 times (see figure II, 3rd and 4th column: 4.4/ see figure III, 3rd and 4th column: 3.7) more likely to stay in a sales occupation in Germany than United States respondents. German respondents with their first occupation in a clerical position are 1.3 times (see figure II, 3rd and 4th column: 2.3/ see figure III, 3rd and 4th column: 1.8) more likely to enter upper white-collar occupations than US respondents with their first occupation in sales are likely to enter upper white-collar occupations. While German respondents have strong ties to professional or technical

occupations, American respondents have significant relationships with higher administration. German respondents whose first occupations are clerical positions are about as likely to enter sales occupations as US respondents whose first occupation is a sales occupation are likely to enter service occupations. While the relationship for German respondents is significant with the class of lower white-collar occupations, United States respondents are significantly related to lower white-collar occupations and the service class. Overall, the ties between lower white-collar occupations indicate significant relationships with upper white-collar occupations for both countries and service occupations for the United States.

Since a separate analysis for males and females was not possible due to small sample sizes, cross-tabulations were used to get a better understanding of the distribution of males and females in each occupation. They indicate that the proportion of women is larger in lower white collar occupations than in upper-white collar occupations. In Germany, out of a total sample of N = 448 cases for the relationship between first and current occupation, 207 female (150 clerks and 57 in sale occupations) respondents are employed in lower white collar occupations, but only 30 female respondents were employed in upper white-collar occupations. Out of N = 468 cases of male respondents 40 males were employed in upper white collar occupations and 83 male respondents were employed in lower white collar occupations in the German sample. For the United States, 173 female respondents were employed in upper white collar occupations and 328 female (217 clerks and 111 in sale occupations) respondents were employed in lower white-collar occupations out of N = 766 cases. The male sample contained a total number of 564 cases (N = 564) respondents from which 123 were employed in upper white-collar occupations, and only 78 male respondents were employed in lower white-collar occupations. These findings indicate distinct occupational career patterns for male and females. Clerical occupations are also referred to as pink-collar occupations indicating that predominately females employees are employed in these positions. These findings

can be supported. In addition, weak ties between lower white-collar occupations and upper white-collar occupations indicate that career possibilities are restricted, that is, it appears that a ceiling effect exists for women, controlling access into upper white-collar occupations.

Self-recruitment rates in service occupations are slightly higher for respondents in the United States compared to those from Germany. US respondents whose first occupations are in a service occupation are 1.2 times (see figure III, 3rd and 4th column: 3.7/ see figure II, 3rd and 4th column: 3.1) more likely to have service occupations as current occupation than German respondents. Service occupations in the United States are not significantly related with any other occupation. In Germany, respondents whose first occupation is in a service occupation are 1.9 times likely than average to enter a professional or technical occupation as their current occupation, but they are 1.6 times (see figure II, 3rd and 4th column: 3.1/ 1.9) more likely to stay in a service occupation than to exit into a professional or technical occupation.

For manual labor and agricultural positions, rates of self-recruitment are higher in Germany. Respondents whose first occupation was a manual labor occupation are about two times (see figure II, 3rd and 4th column: 7.9/ see figure III, 3rd and 4th column: 3.9) more likely to work as a manual laborer in Germany than in the United States. Self-recruitment rates for agricultural positions are very strong in both countries. German respondents whose first occupation is in agriculture are 1.2 times (see figure II, 3rd and 4th column: 43.8/ see figure III, 3rd and 4th column: 36.9) more likely to stay in an agricultural position than US respondents. Ties between manual labor and agricultural positions and other occupations differ for both countries. US respondents whose first occupations were in manual labor are 1.6 times (see figure III, 3rd and 4th column: 2.9/ see figure II, 3rd and 4th column: 1.8) more likely to enter agriculture than German respondents are to enter service occupations. That is, manual laborers in Germany are able to cross boundaries to service occupations while American respondents in manual

labor are more likely to enter agricultural positions. Significant relationships for respondents whose first occupation is agriculture with service occupations and manual labor exist in both countries. German respondents whose first occupations are in agriculture are 2.6 times (see figure II, 3rd and 4th column: 4.2/ see figure III, 3rd and 4th column: 1.6) more likely to enter service occupations than US respondents with their first occupation in agriculture. In both countries ties between respondents whose first occupation is in agriculture and who enter manual labor in their current occupation have the same strength.

The findings presented here do not support hypothesis five. Strong ties were found in all cases between first and current occupation. The ties are strongest for occupations at the upper and lower end of the occupational hierarchy. In other words, social closure is strongest in upper white-collar occupations and agriculture compared to other occupations, but self-recruitment is strongest in agriculture. Also, in Germany rates of self-recruitment in higher administrative and managerial work are not significant. An argument was provided earlier that social closure is defined though educational requirements and social reproduction for upper white-collar occupations and social reproduction for agriculture. Intermediate occupations show weaker ties but they are nevertheless significant.

Hypothesis one can not be supported by the data. It was expected that formal tracking restricts relative rates of mobility and lack of formal tracking would promote higher rates of mobility for the United States. It was not only shown that more cross-over takes place between different occupations in Germany, it was also indicated by the data that access to upper white-collar occupations from below is more likely in Germany than in the United States. The hypothesis is partly supported, indicating that early tracking in Germany leads to stronger ties between educational attainment and first occupations. However, the findings show that respondents in their later career are more likely to enter professional or technical occupations through clerical or service occupations in Germany

than American respondents. Sales respondents show ties with administrative or managerial occupations in the United States but that is the only significant relationship with lower occupations.

Different studies investigate Lipset's and Bendix's claim (Lipset and Bendix 1959) that rates of social mobility do not substantially differ between countries. Kleining finds that even if mobility rates might be slightly higher in the United States, overall rates are not very different between the countries (Kleining 1971, 20). Erikson and Goldthorpe show that mobility rates in the United States are not unique in industrial countries (Erikson and Goldthorpe 1985, 18). The CASMIN (Comparative Analysis of Social Mobility in Industrial Nations) project was created to conduct comparative mobility research and specialize in creating tools so that differences and similarities in the countries could be taken into account. They support the FJH hypothesis (Featherman - Jones - Hauser - Hypothesis) a restatement of the Lispet and Bendix hypothesis that a basic similarity in relative mobility rates exist between industrialized countries (Erikson and Goldthorpe 1992a; Goldthorpe 1985, 557; Kerckhoff, Campbell, and Winfeld-Laird 1985).

Similar to the CASMIN project, Blossfeld's and Checchi's analyses show that Germany shows a stronger tie between educational and occupational attainment. The higher formal structure of educational systems contributes to stronger ties and leads to higher rates of certainty in occupational attainment. Checchi finds that Germany has a higher rate of mobility and that the educational achievement channel contributes to equalizing individual opportunities in the labor market because the apprenticeship system has an equalizing effect for those who did not attend higher education. "The United States exhibits a greater overall immobility than Germany and a lower contribution of the educational system: and indication that other factors of immobility […] are more effective in the former than in the latter." (Checchi 1997, 337)

Odds of Relative Mobility and Class Boundaries

Overall, social origin influences occupational attainment. It could be shown for both countries that occupational attainment depends on educational attainment, but educational attainment is strongly influenced by social origin. In both countries, higher education was a necessary requirement to access upper white-collar occupations. While Germany indicated weak links from lower white-collar and service occupations into upper white-collar occupations, the United States provided only evidence for ties between sales occupations into lower white-collar occupations. Since women are dominating lower white-collar occupations, a glass ceiling effect can be postulated, resulting in a separate mobility pattern for male and females.

Life chances and their influence on attainment opportunities were discussed. It was concluded that respondents from privileged backgrounds have more recourses and are more likely to receive a higher education, and are also able to retain their standard of living by accessing upper white-collar occupations. It was assumed that social origin has a direct influence on educational attainment, but an indirect influence on occupational attainment through education.

The class locations discussed not only indicate distinct career patterns between respondents with higher education, but also indicate class boundaries. Occupations with high educational requirements are found above the class boundary, that is, in class location I, and occupations with low educational requirements are found below the class boundary, that is, in class location II. Cross-over between boundaries are more likely in Germany than in the United States. This finding leads to the conclusion that occupational mobility is slightly higher for Germany. However, it should be kept in mind that at the same time, self-recruitment is higher for Germany than the United States, except for higher administrative or managerial occupations.

Class locations I and II can also be understood as indicators of life chances. Class location I provides high standards of living through high income resulting from

employment in the upper white-collar occupations. Class location II does not provide high income and economic independence. This distinct conditions define life chances. It could then be shown that there is reason to believe that social reproduction leads to similar living conditions and live changes in the next generation.

Total Rates of Mobility

Germany: Father's Occupation to Respondent's Current Occupation

The relationship for German respondents between father's occupation and respondent's current occupation is illustrated in figure IV at the end of this paper. Findings for the relationship between the direct relationship of father's occupation to respondent's current occupation indicate slightly different patterns of occupational mobility compared to relative rates of mobility. Respondent's whose father had a professional or technical occupation when the respondent was 15 years old are 2.9 times more likely than the average respondent to have a professional or technical occupation as their current occupation. Those whose father works in higher administration or managerial positions are 1.6 times more likely than the average respondent to be employed in professional or technical occupations in their current position.

Respondents whose father worked in a clerical occupations do not show significant relationships with respondent's current occupation. Respondents whose father worked in a sales occupation when the respondent was 15 years old show strong ties with occupation of upper and lower white-collar and service occupations. Respondents whose father had a sales occupation are 10.4 times more likely than the average respondent to work in a higher administrative or managerial occupation in their current occupation. They are 3.1 times more likely than the average respondent to work in a clerical position in their current occupation, 5.8 times more likely to stay in sales than the average respondent and 4.2 times more likely to work in a service occupation than the average

respondent. Respondents from sale occupations are 1.7 times (see figure IV: 10.4/ 5.8) more likely to be employed in higher administrative or managerial positions than stay in sale occupations. The are 3.4 times (see figure IV: 10.4/ 3.1) more likely to work in higher administrative or managerial work than to be e a clerical occupation and 2.5 times (see figure IV: 10.4/ 4.2) more likely to be employed in higher administrative or managerial occupations than starting in service occupations. Respondents whose father worked in sales are 1.8 times (see figure IV: 5.8/ 3.1) more likely to be employed in a sales occupation than to work in a clerical occupation and 1.4 times (see figure IV: 5.8/ 4.2) more likely to work in a sales occupation than to work in services. Respondents whose father worked in a sales occupation are 1.4 times (see figure IV: 4.2/ 3.1) more likely to work in a service occupation than clerical occupations in their current occupation.

Fathers from service occupations do not indicate significant relationships with any occupational position in either country. Respondents whose father worked in manual labor are 1.8 times more likely than the average respondent to work in a service occupation in their current occupation, 1.9 times more likely than the average respondent to work in manual labor in their current occupation and 4.8 times more likely than the average respondent to work in agriculture. That is, respondents whose father worked in manual labor are 2.7 times (see figure IV: 4.8/ 1.8) more likely to work in a agricultural position than in a service occupation and 2.5 times (see figure IV: 4.8/ 1.9) more likely to work in agriculture than in a manual labor position.

Respondents whose father worked in a agriculture are 1.7 times more likely than the average respondents to work in manual labor and 4.0 times more likely than the average respondent to work in an agricultural position. That is, a respondent whose father worked in a agricultural position is 2.4 times (see figure IV: 4.0/ 1.7) more likely to stay in agriculture than to work in manual labor in their current occupation.

United States: Father's Occupation to Respondent's Current Occupation

The relationship is illustrated in figure V at the end of this paper. Respondents whose father worked in a professional or technical occupation when the respondent was 16 years old are 1.4 times more likely than the average respondent to work in a professional or technical occupation in their current occupation. Respondents whose father's worked in higher administration or managerial position are 1.5 times more likely than the average respondent to work in professional or technical occupation, 2.2 times more likely than the average respondent to be employed in higher administrative or managerial positions and 1.8 times more likely than the average respondent to enter sale occupations. Respondent's are 1.5 times (see figure V: 2.2/ 1.5) more likely to work in higher administration or managerial occupation than to work in professional or technical occupations in their current occupation and 1.2 times (see figure V: 2.2/ 1.8) more likely to work in higher administrative or managerial occupations than in sales occupations. They are 1.2 times (see figure V: 1.8/ 1.5) more likely to work in sales occupation than in professional or technical occupations.

There are no significant ties between fathers who worked in clerical and service occupations to current occupation of the respondent. Respondents whose father worked in sales occupations are 1.3 times more likely than the average respondent to work in a professional or technical occupation in their current position and 1.7 times more likely than the average respondent to work in a higher administrative or managerial occupation. That is a respondent whose father worked in a sales occupation is 1.3 times (see figure V: 1.7/ 1.3) more likely to work in a higher administrative or managerial position than in a professional or managerial position.

Respondents whose father worked in manual labor are 1.3 times more likely than the average respondent to work in services in their current occupation and 1.4 times more likely than the average respondent to work in manual labor. That is, respondents whose

father worked as manual laborer are about as likely to work in service occupations as in manual labor.

Respondent's whose father worked in agriculture are 1.3 times more likely than the average respondent to work in service occupations in their current position, 1.6 times more likely than the average respondent to work in manual labor and 5.2 times more likely to work in agriculture. That is, they are about four times (see figure V: 5.2/ 1.3) more likely to work in agriculture than in services and 3.3 (see figure V: 5.2/ 1.6) times more likely to work agriculture than in manual labor.

Comparison

More ties between father's occupation and respondent's current occupation exist between upper white-collar occupations in the Untied States than in Germany. German respondents whose father worked in professional or technical occupations are about 2.1 times more likely than American respondents from professional or technical background to work in professional or technical occupation in their current occupation. German respondents whose father worked in higher administrative or managerial occupations are about as likely to enter professional or technical occupations as American respondent's. Besides relationships to professional and technical occupations American respondents have significant rates of total mobility with higher administrative or managerial occupations and sales occupations. While German respondents show stronger ties with professional or technical occupations, they have no significant rates of self-recruitment in administrative or managerial positions compared to Americans.

In both countries no significant ties exist between clerical occupations and service occupations from father's occupation to current occupation of the respondent. German respondents show higher rates of total mobility between father's in sale occupations and various occupations of the respondent. American respondent's coming from sale occupations show strong ties to professional or technical occupations while no significant

relationship exists between Germany respondent and their father's occupation for this current occupation of the respondent. German respondent's whose father worked in sale occupations show stronger ties with higher administration or managerial work as American respondents and in addition they show strong ties with sale and services as current occupation. German respondents whose father worked in sale occupation are 6.1 times (see figure IV: 10.4/ see figure V: 1.7) more likely than American respondents to enter higher administration or managerial positions.

German respondent's whose father worked in manual labor are 1.4 times (see figure IV: 1.8/ see figure V: 1.3) more likely to work in a service position and 1.4 times (see figure IV: 1.9/ see figure V: 1.4) more likely to work in manual labor in their current occupation than American respondent's.

Respondent's whose father worked in agriculture are about as likely to enter manual labor in both countries. American respondents whose father worked in agriculture are 1.3 times (see figure V: 5.2/ see figure IV: 4.0) more likely to work in agriculture in their current occupation than German respondents.

This findings indicate that direct rates of mobility from father's occupation to respondent's current occupation differ from rates of mobility separate for each relationship (fathers occupation, respondents education, respondents first and respondents current occupation). Here, American respondents show stronger ties between upper white-collar occupations and lower white-collar occupations. While in Germany only self-recruitment between occupations takes place, American respondents are also likely to enter sales occupations. Self-recruitment is higher for professional or technical occupations in Germany and administrative or managerial work in the United States.

Intermediate occupations, especially for sales occupations, indicate high rates of mobility. Here Goldthorpe's hypothesis can be supported that intermediate occupations can be used as entrance occupations to cross boundaries (Goldthorpe 1985; Goldthorpe

1987 (1980)). Relationships with respondents from sales backgrounds are stronger for Germany than for the United States.

Manual labor and agriculture show similar ties between occupations for both countries. Access to agricultural occupations from manual labor backgrounds are very strong for German respondents but rates of self-recruitment are higher for American respondents.

As noted earlier, the findings presented indicate that processes for social closure are taking place at the upper and lower end of the occupational hierarchy. Upper white-collar occupations indicate rates of self-recruitment and manual and agricultural positions indicate high rates of self-recruitment. Lower white-collar occupations seem to provide increasing access to other occupational groups in Germany and occupy an intermediate position. For the United States strong ties between higher administrative or managerial positions with other upper white-collar and lower white-collar occupations indicate higher rates of total mobility between lower and upper white-collar occupations.

DISCUSSION AND CONCLUSION

The analysis presented focused on educational attainment and occupational attainment and its effect on occupational mobility. It provided new support for mobility research, indicating that rates of occupational mobility do not substantially differ between industrialized countries. But instead of focusing on occupational mobility the main focus in this paper lies on the effect of educational attainment and the structure of educational institutions. It was found that occupational attainment depends on educational attainment and the reason for similar mobility rates should therefore be found in the educational system. Therefore, some thoughts of informal tracking will be added before the concluding remarks.

The findings presented in this paper not only reveal that social background has a strong influence on educational attainment, they also indicate that respondents from high social background are likely to attend institutions of higher education and respondents from lower social backgrounds are likely to receive a high school degree or to drop out of school. It was assumed that if Turner's concept of sponsored versus contest mobility is true that the American educational system should be more open than the German system, enabling respondents from lower social background as well as respondents from privileged social backgrounds to access higher education. However, this does not seem to be the case.

Until the mid-20th century, formal tracking in American high schools was common. "One mechanism that furthered the reproductive role of schools was tracking, the practice of dividing students into programs that rigidly proscribed their courses of study and that admitted little opportunity for mobility from program to program" (Lucas 1999, 1). Formal tracking was abandoned between 1965 and 1975 and by 1981 the majority of high schools in the United States did not have mechanism of formal tracking (Lucas 1999, 1). While European countries have clear paths through the curriculum,

students in American high schools get assigned to individual courses. This system allows stratification within subjects but "breaks the necessary relation across subjects". (Lucas 1999, 8)

In his most recent book Lucas' analysis presents a thorough examination of the influence of school curricula on attainment processes after formal tracking had been eliminated. He concludes that the change in school practice which he refers to as the "unremarked revolution" has not lead to increasing opportunities for all students independent of their social background. On the contrary, he finds that social origin continues to have a strong influence on educational attainment. He uses unremarked revolution to indicate that the change in school practices was recognized, but its implications are only incompletely known (Lucas 1999).

The United States has a decentralized school system which lacks national standards and regulations. The diversity between regulations on state and local levels leads to great variations in the tracking systems across schools. Not only the tracking system but the effects of tracking on educational attainment varies as well. Gamoran provides evidence that tracking has different effects across schools and on individual achievement (Gamoran 1992). Further, Gamoran finds that the curriculum of schools effects students opportunities to learn within schools. Overall, school achievement therefore depends on tracking and courses taken (Gamoran 1986; Gamoran 1987. Kerckhoff provides additional evidence for the importance of informal tracking. Analyzing the effect of ability grouping in Great Britain, he finds that ability grouping effects educational achievement, e.g. in test performance. Students assigned to high ability groups gain more and students assigned to low ability groups gain less compared to each other (Kerckhoff 1986).

In his study, Lucas finds that in general, the track structure is more complex in schools with higher socioeconomic diversity (Lucas 1999, 114). This finding is very important since it implies an interest of the parents to secure their children's social status.

In addition, he shows, that the tracking system after the unremarked revolution is more complex than the earlier formal form of tracking. It enables students to be at different course levels at the same time. As a result, students are exposed to inconsistent socialization. However, they still experience important cognitive and stratification outcomes (Lucas 1999, ch.7).

Lucas also illustrates that class of origin continues to have a strong influence on the educational attainment of students. Middle class parents are more likely to get involved in the decision making process, for example about the question of which courses their children should attend. Since most middle-class parents have college degrees, they have adequate information about what requirements are necessary for college attendance, and can provide assistance for their children. Students from lower social origins can less often rely on their parents for advice because their parents are less likely to have attended college. Their expectations might be restricted, or even wrong, due to their lack of information. (Lucas 1999, 131ff.) This finding supports earlier results by Gamoran and Mare (Gamoran and Mare 1989). The authors conclude that tracking has an effect on existing differences between students. However, they find that tracking seems to compensate for preexisting differences between races and sexes and produce less inequality between similar blacks and non-blacks and male and female students as if randomly assigned to tracks (Gamoran and Mare 1989, 1177).

The analysis presented is not able to measure informal tracking. However, the arguments provided indicate that a combination of tracking with occupational mobility research would add to the overall understanding of similar rates of mobility in both countries. In addition it would provide an argument to rethink the existing ideology of equality as already encouraged by the tracking literature.

In sum, processes of educational and occupational attainment are not substantially different from each other in Germany and the United States. In both countries, social origin has a strong influence on educational attainment. Educational attainment defines

access to an occupation and restricts mobility opportunities. It was found that higher education was strongly tied with upper white-collar occupations. In assuming that social origin influences educational attainment, and educational credentials define access to occupation, social origin has an indirect influence on occupational attainment itself. It was found that occupations on the top and the bottom of the occupational hierarchy indicate strong ties between first and current occupation. This finding was interpreted has high level of self-recruitment indicating social closure. In other words, upper white-collar occupations and agriculture are relatively closed to access from outside.

It was expected that formal tracking in Germany creates stronger ties with entry occupations than American high schools as result of the latter lacking of a formal tracking system, which would provide higher rates of relative mobility. This hypothesis could not be supported. To understand why rates of mobility do not substantially differ between these countries, a brief discussion of informal tracking system in the United States was introduced. The discussion of tracking refers back to Turner's discussion of sponsored and contest mobility. It should be asked if his understanding of the different systems is still appropriate. Since the findings between countries were very similar, it seems reasonable to postulate that formal and informal tracking may create the same outcome. In other words, schools in Germany and the United States have mechanisms to reproduce social structure, Germany through a formal tracking system and the United States through an informal system of tracking.

It was found that two class locations emerge in the analysis of father's occupation through education to respondents first and current occupation. It was argued that social origin defines life chances on the basis of available resources and opportunities. Respondents from privileged backgrounds have higher opportunities compared to those from lower social origin. Parents influence their offspring in their decision making processes and have an interest that their children at least support the status quo of their

status group or even improve their position. High rates of social reproduction are therefore expected.

It was shown that German respondents have stronger ties between education and first occupation compared to the United States, but rates of relative mobility are about the same between first and current occupation. This finding supports most recent mobility research which indicates that mobility rates do not differ substantially between Western societies (Checchi 1997; Erikson and Goldthorpe 1992a; Erikson and Goldthorpe 1992b; Goldthorpe 1985; Goldthorpe 1987 (1980); Kerckhoff, Campbell and Winfeld-Laird 1985; Kleining 1971; Lipset and Bendix 1959).

The analysis presented is not complete and requires further research. First, a separate analysis for males and females should be conducted. This analysis is important since there is evidence to suggest that different patterns of mobility exist between males and females. Second, because tracking is an important part of the American high school system, it is necessary to measure it and include it in the analysis. To include informal tracking will explain in more detail how mobility is restricted to education and how social origin influences educational attainment.

NOTES

[1] Statistical discrimination theory, derived from human capital theory, argues that employers judge on imperfect information if employment decisions are made. Certain cues like education, experience, etc. are used to minimize the risk of a bad match. Race and sex are used as cues as well. It is expected that on average women or members of minorities are less productive. The employer is therefore interested in hiring people who are more likely to increase productivity than others even though there is a chance to miss some potential good female workers or members of minority groups (Tomaskovic-Devey 1993, 134-137)

[2] No separate analysis was conducted for skilled and unskilled laborers, therefore, craft-specific labor markets can not be discussed separately.

[3] Further research should also consider adding Pierre Bourdieu's discussion of cultural capital to the discussion of life chances (Bourdieu 1990). However, due to limited space and restricted information in the data this extension is not possible at this point.

[4] Parkin prefers using the terms individualistic and collectivist instead of "achieved" for the former and "ascribed" characteristics the latter. In his opinion achievement assumes non-discriminatory selection processes and the use of achievement over ascription is often used in reference to the shift of ascribed to achieved as moral process. By using more general terms, Parkin tries to avoid this problem. (Parkin 1974, 16, note 6)

[5] As described earlier, the number of categories for education differs between the countries. I already pointed out that the strength of the association between the variables is effected by the number of categories, however, the model stays the same.

[6] The comparison between countries will provide a more detailed information on gender differences in an occupation.

BIBLIOGRAPHY

Allmendiger, Jutta. 1989. "Educational Systems and Labor Market Outcomes." *European Sociological Review* 5:231-250.

Alwin, Duane F. and Arland Thornton. 1984. "Family Origins and the Schooling Process: Early Versus Late Influence of Parental Characteristics." *American Sociological Review* 49:784-802.

Baker, David P, Yilmaz Esmer, Gero Lenhardt, and John Meyer. 1985. "Effects of Immigrant Workers on Educational Stratification in Germany." *Sociology of Education* 58:213-227.

Baker, Threse L and William Vélez. 1996. "Access to and Opportunity in Postsecondary Education in the United States: A Review." *Sociology of Education* Extra Issue:82-101.

Becker, Gary. 1975. *Human Capital. A Theoretical and Empirical Analysis. With Special Reference to Education,* Edited by N. B. o. E. Research. New York: National Bureau of Economic Research.

Becker, Mark P. and Clifford C. Clogg. 1989. "Analysis of Sets of Two-Way Contingency Tables Using Association Models." *Journal of the American Statistical Association* 84:142-151.

Becker, Rolf. 1994. "Intergenerationale Mobilität im Lebenslauf oder Ist der öffentliche Dienst ein Mobilitätskanal zwischen Generationen?" *Kölner Zeitschrift für Soziologie und Sozialpsychologie* 46:597-618.

Blau, Peter M. and Otis Dudly Duncan. 1967. *The American Occupational Structure*. New York: John Wiley & Sons, Inc.

Blossfeld, Hans-Peter. 1986. "Career Opportunities in the Federal Republic of Germany: A Dynamic Approach to the Study of Life-Course, Cohort, and Periodic Effects." *European Sociological Review* 2:208-225.

Blossfeld, Hans-Peter. 1987a. "Entry into the Labor Market and Occupational Career in the Federal Republic. A Comparison with American Studies." *International Journal of Sociology* XVII:86-115.

Blossfeld, Hans-Peter. 1987b. "Labor Market Entry and the Sexual Segregation of Career in the Federal Republic of Germany." *American Journal of Sociology* 93:89-118.

Blossfeld, Hans-Peter. 1993. "Changes in Educational Opportunities in the Federal Republic of Germany. A Longitudinal Study of Cohorts Born Between 1916 and 1965." Pp. 47-74 in *Persistent Inequality. Changing Educational Attainment in Thirteen Countries*, edited by Y. Shavit and H.-P. Blossfeld. Boulder, San Fransisco, Oxford: Westview Press.

Blossfeld, Hans-Peter and Karl Ulrich Mayer. 1988. "Arbeitsmarktsegmentations in der Bundesrepublik Deutschland. Eine empirische überprüfung von Segmentationstheorien aus der Perspektive des Lebenslaufs." *Kölner Zeitschrift für Soziologie und Sozialpsychologie* 40:262-283.

Blossfeld, Hans-Peter and Karl Ulrich Müller. 1988. "Labour Market Segregation in the Federal Republic of Germany: An Empirical Study of Segregation Theories from a Life Course Perspective." *European Sociological Review* 4:123-141.

Bourdieu, Pierre. 1990. *Reproduction in Education, Society and Culture*. London; Newbury Park, California: Sage in Association with Theory, Culture and Society, Department of Administrative and Social Studies Teesside Polytechnic.

Brauns, Hildegard, Walther Müller, and Susanne Steinmann. 1997. "Educational Expansion and Returns to Education. A Comparative Study on Germany, France, the UK, and Hungary." Mannheimer Zentrum für Europäische Sozialforschung (MZES), Mannheim.

Brauns, Hildegard and Susanne Steinmann. 1999. "Educational Reform in France, West-Germany, and the United Kingdom: Updating the CASMIN Educational Classification." Zentrum für Umfragen, Methoden und Analysen (ZUMA), Köln.

Brauns, Hildegard, Susanne Steinmann, Annick Kieffer, and Catherine Marry. 1999. "Does Education Matter? France and Germany in Comparative Perspective." *European Sociological Review* 15:61-89.

Checchi, Daniele. 1997. "Education and Intergenerational Mobility in Occupations: A Comparative Study." *American Journal of Economics and Sociology* 56:331-351.

Clogg, Clifford C. 1982. "Using Association Models in Sociological Research: Some Examples." *American Journal of Sociology 88:114-134*.

Clogg, C. Clifford, Scott R. Eliason, and Robert J. Wahl. 1990. "Labor-Market Experience and Labor-Force Outcomes." *American Journal of Sociology* 95:1536-1576.

Collins, Randall. 1979. *The Credential Society. An Historical Sociology of Education and Stratification*. New York, San Francisco, London: Academic Press.

Davies, Mark and Denise B. Kandal. 1981. "Parental and Peer Influences on Adolescents' Educational Plans: Some Further Evidence." *American Journal of Sociology* 87:363-387.

Day, Jennifer C. and Andrea E. Curry. 1998. "Educational Attainment in the United States." U.S. Department of Commerce, Washington D.C.

DiPrete, Thomas A. and David B. Grusky. 1990. "Structure and Trend in the Process of Stratification for American Men and Women." *American Journal of Sociology* 96:107-143.

Doeringer, Peter B. and Michael J. Piore. 1971. *Internal Labor Markets and Manpower Analysis*. Lexington, MA: Heath Lexington Books.

Eliason, Scott R. 1990. "The Categorical Data Analysis System." Iowa City, IA (USA).

Eliason, Scott R., Kevin T. Leicht, Teri Fritsma, and Heather Wendt. Unpublished Manuscript. "Labor Market Experiences and Labor Force Outcomes: Fifteen Years of Race and Sex Inequality, 1982 to 1996." .

Erikson, Robert and John H. Goldthorpe. 1985. "Are American Rates of Social Mobility Exceptionally High? New Evidence on an Old Issue." *European Sociological Review*. 1:1-21.

Erikson, Robert and John H. Goldthorpe. 1992a. "The CASMIN Project and the American Dream." *European Sociological Review* 8:283-305.

Erikson, Robert and John H. Goldthorpe. 1992b. *Constant Flux: Comparative Analysis of Social Mobility in Industrial Nations*. Oxford: Clarendon Press.

Featherman, David L. and Robert M. Hauser. 1978. *Opportunity and Change*. London: Academic Press.

Gamoran, Adam. 1986. "Instructional and Institutional Effects of Ability Grouping." *Sociology of Education* 59:185-198.

Gamoran, Adam. 1987. "The Stratification of High School Learning Opportunities." *Sociology of Education* 60:135-155.

Gamoran, Adam. 1992. "The Variable Effects of High School Tracking." *American Sociological Review* 57:812-828.

Gamoran, Adam and Robert D. Mare. 1989. "Secondary School Tracking and Educational Inequality: Compensation, Reinforcement, or Neutrality?" *American Journal of Sociology* 94:1146-1183.

Ganzeboom, Harry B. G., Donald J. Treiman, and Wout C. Ultee. 1991. "Comparative Intergenerational Stratification Research; Three Generations and Beyond." *Annual Review of Sociology* 17:277-302.

Goldthorpe, John H. 1985. "On Economic Development and Social Mobility." *British Journal of Sociology* 46:549-573.

Goldthorpe, John H. 1987 (1980). *Social Mobility and Class Structure in Modern Britain.* Oxford: Clarendon Press.

Haller, Max, Wolfgang König, Peter Krause, and Karin Kurz. 1985. "Patterns of Career Mobility and Structural Positions in Advanced Capitalist Societies: A Comparison of Men in Austria, France and the United States." *American Sociological Review* 50:579-603.

Hardes, Heinz-Dieter. 1981. *Arbeitsmarktstrukturen und Beschäftigungsstrukturen im Internationalen Vergleich. Theoretische und Empirische Analyse am Beispiel von USA, Großbritannien, und der Bundesrepublik Deutschland*, Edited by E. v. Böventer, B. Gahlen, and H. Hesse. Tübingen: J.C.B. Mohr (Paul Siebeck).

Heller, Donald E. 1997. "Student Price Response in Higher Education. An Update to Leslie and Brinkman." *Journal of Higher Education* 68:624-659.

Henz, Ursula and Ineke Maas. 1995. "Chancengleicheit durch die Bildungsexpansion?" *Kölner Zeitschrift für Soziologie und Sozialpsychologie* 47:605-633.

Hout, Michael, Adriane E. Raftery, and Eleanor O. Bell. 1993. "Making the Grade. Educational Stratification in the United States, 1925-1989." Pp. 25-49 in *Persistent Inequality. Changing Educational Attainment in Thirteen Countries*, edited by Y. Shavit and H.-P. Blossfeld. Boulder, San Francisco, Oxford: Westview Press.

Kerckhoff, Alan C. 1976. "The Status Attainment Process: Socialization or Allocation?" *Social Forces* 55:368-381.

Kerckhoff, Alan C. 1986. "Effects of Ability Grouping in British Secondary Schools." *American Sociological Review* 51:842-858.

Kerckhoff, Alan C., Richard T. Campbell, and Idee Winfeld-Laird. 1985. "Social Mobility in Great Britain and the United States." *American Journal of Sociology* 91:281-308.

Kleining, Gerhard. 1971. "Struktur- und Prestigemobilität in der Bundesrepublik Deutschland." *Kölner Zeitschrift für Soziologie und Sozialpsychologie* 23:1-33.

König, Wolfgang and Walther Müller. 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.

Krymkowski, Daniel H. 1991. "The Process of Status Attainment Among Men in Poland, the U.S., and West Germany." *American Sociological Review* 56:46-59.

Labaree, David F. 1997. *How to Succeed in School Without Really Learning. The Credential Race in American Education*. New Haven, London: Yale University Press.

Lipset, Seymor M. and Reinhard Bendix. 1959. *Social Mobility in Industrial Society*. Berkeley: University of California Press.

Lucas, Samuel R. 1999. *Tracking Inequality: Stratification and Mobility in America High Schools*, Edited by G. Natriello. New York, London: Teachers College, Columbia University.

Mare, Robert D. 1980. "Social Background and School Continuation Decision." *Journal of the American Statistical Association* 75:295-305.

Mare, Robert D. 1981. "Change and Stability in Educational Stratification." *American Sociological Review* 46:72-87.

Mare, Robert D. 1991. "Five Decades of Educational Associative Mating." *American Sociological Review* 56:15-32.

Mare, Robert D. 1993. "Educational Stratification on Observed and Unobserved Components of Family Background." Pp. 351-376 in *Persistent Inequality. Changing Educational Attainment in Thirteen Countries*, edited by Y. Shavit and H.-P. Blossfeld. Boulder, San Francisco, Oxford: Westview Press.

Mayer, Karl Ulrich and Glenn Carroll. 1987. "Jobs and Classes: Structural Constrains on Career Mobility." *European Sociological Review* 3:14-38.

Mincer, Jacob. 1993. *Studies in Human Capital. Collected Essays of Jacob Mincer*, vol. Volume 1, Edited by M. Perlman and M. Blaug. Cambridge: University Press.

Müller, Walther, Paul Lüttinger, Wolfgang König, and Wolfgang Karle. 1990. "Class and Education in Industrial Nations." Pp. 61-91 in *Class Structure in Europe. New Findings from East-West Comparison of Social Structure and Mobility*, edited by M. Haller. Armonk, New York, London, England: M. E. Sharpe, Inc.

Parkin, Frank. 1974. "Strategies of Social Closure in Class Formation." Pp. 1-18 in *The Social Analysis of Class Structure, Explorations in Sociology*, edited by F. Parkin. London: Tavistock Publications.

Rumberger, Russell W. 1983. "The Influence of Family Background on Education, Earnings, and Wealth." *Social Forces* 61:755-773.

Sewell, William H. and Robert M. Hauser. 1980. "Sex, Schooling, and Occupational Status." *American Journal of Sociology* 86:551-583.

Sewell, William H. and Vimal P. Saha. 1967. "Socioeconomic Status, Intelligence, and the Attainment of Higher Education." *Sociology of Education* 40:1-23.

Statistisches Bundesamt. 1999. "Datenreport 1999. Zahlen und Fakten über die Bundesrepublik Deutschland." In Zusammenarbeit mit dem Wissenschaftszentrum Berlin (WZB) und dem Zentrum für Umfragen, Methoden und Analysen, Mannheim (ZUMA), Mannheim.

Temple, Mark and Kenneth Polk. 1986. "A Dynamic Analysis of Educational Attainment." *Sociology of Education* 59:79-84.

Tomaskovic-Devey, Donal. 1993. *Gender and Racial Inequality at Work. The Sources of Consequences of Job Segregation*. Ithaca, New York: ILR Press.

Turner, Ralph H. 1960. "Sponsored and Contest Mobility and the School System." *American Sociological Review* 25:855-867.

Volkwein, Fredericks J., Bruce P. Szelest, Alberto F. Cabrera, and Michelle R. Nabpierski-Parcel. 1998. "Factors Associated with Students Loan Default Among Different Racial and Ethnic Groups." *Journal of Higher Education* 69:206-235.

Warren, John Robert and Robert M. Hauser. 1997. "Social Stratification Across Three Generations: New Evidence from the Wisconsin Longitudinal Study." *American Sociological Review* 62:561-572.

Weber, Max. 1978 (1921)-a. *Economy and Society*, vol. II, Edited by G. Roth and C. Wittich. Translated by Ephraim Fischoff, Hans Gerth, A. M. Henderson, C. Wright Mills, Talcott Parsons, Max Rheinstein, Guenther Roth, Edward Shils, Claus Wittich. Berkeley, Los Angelos, London: University of California Press.

Weber, Max. 1978 (1921)-b. *Economy and Society*, vol. I, Edited by G. Roth and C. Wittich. Translated by Ephraim Fischoff, Hans Gerth, A. M. Henderson, C. Wright Mills, Talcott Parsons, Max Rheinstein, Guenther Roth, Edward Shils, Claus Wittich. Berkeley, Los Angelos, London: University of California Press.

Wilson, Kenneth L. and Alejandro Portes. 1975. "The Educational Attainment Process: Results from a National Sample." *American Journal of Sociology* 81:343-363.

Winkelman, Rainer. 1996. "Employment Prospects and Skill Acquisition of Apprenticeship-Trained Workers in Germany." *Industrial and Labor Relations Review* 49:658-671.

Figure I: The Educational Systems of Germany and the United States

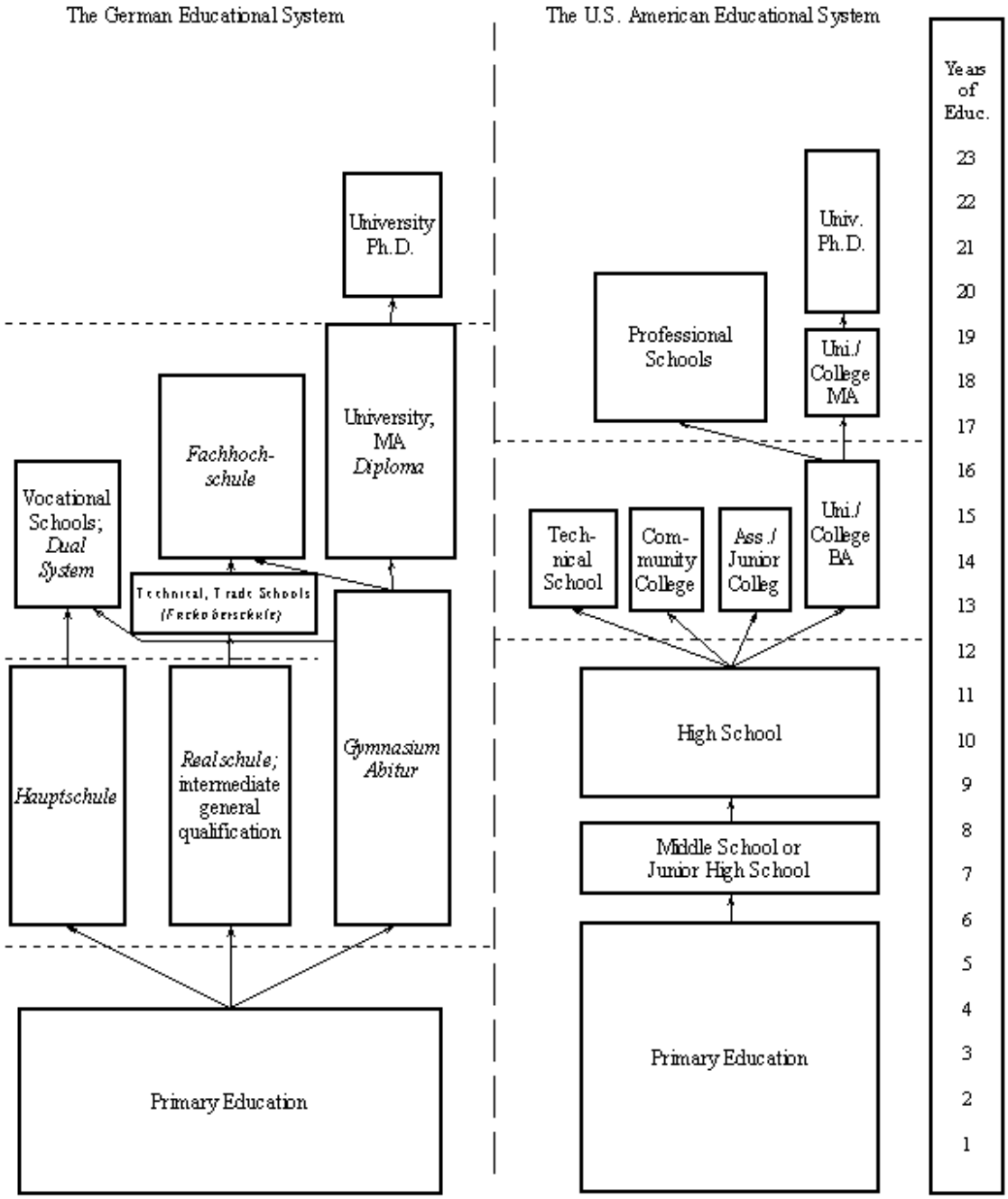

Figure II: Rates of Relative Mobility, Germany 1987

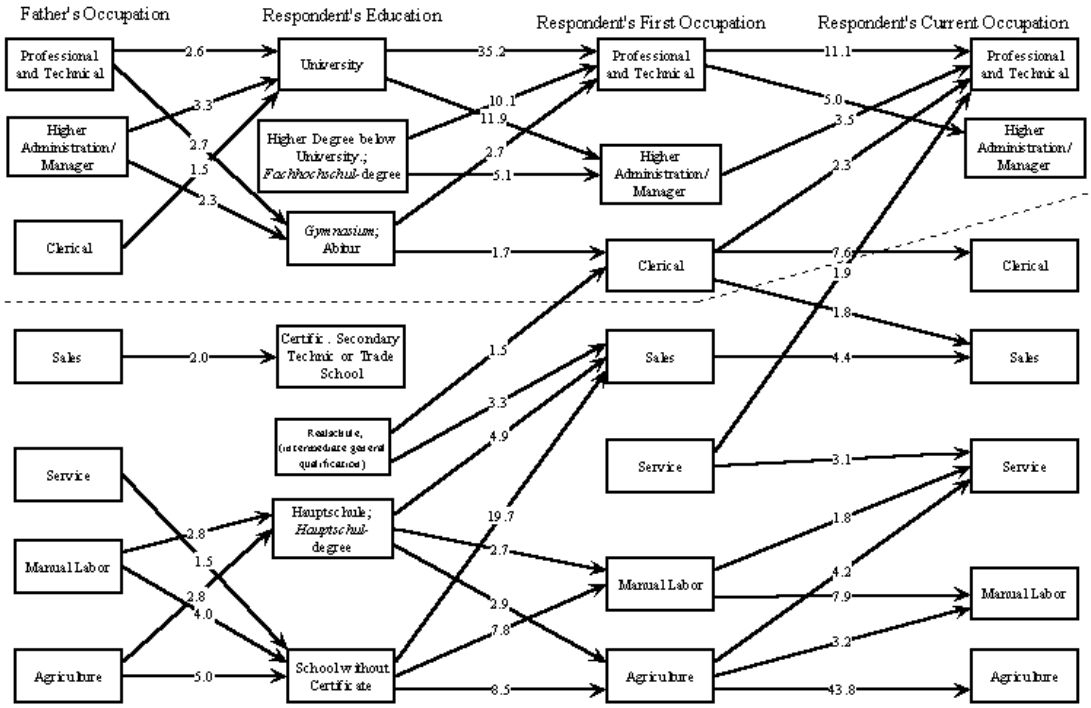

Figure III: Rates of Relative Mobility, United States 1994

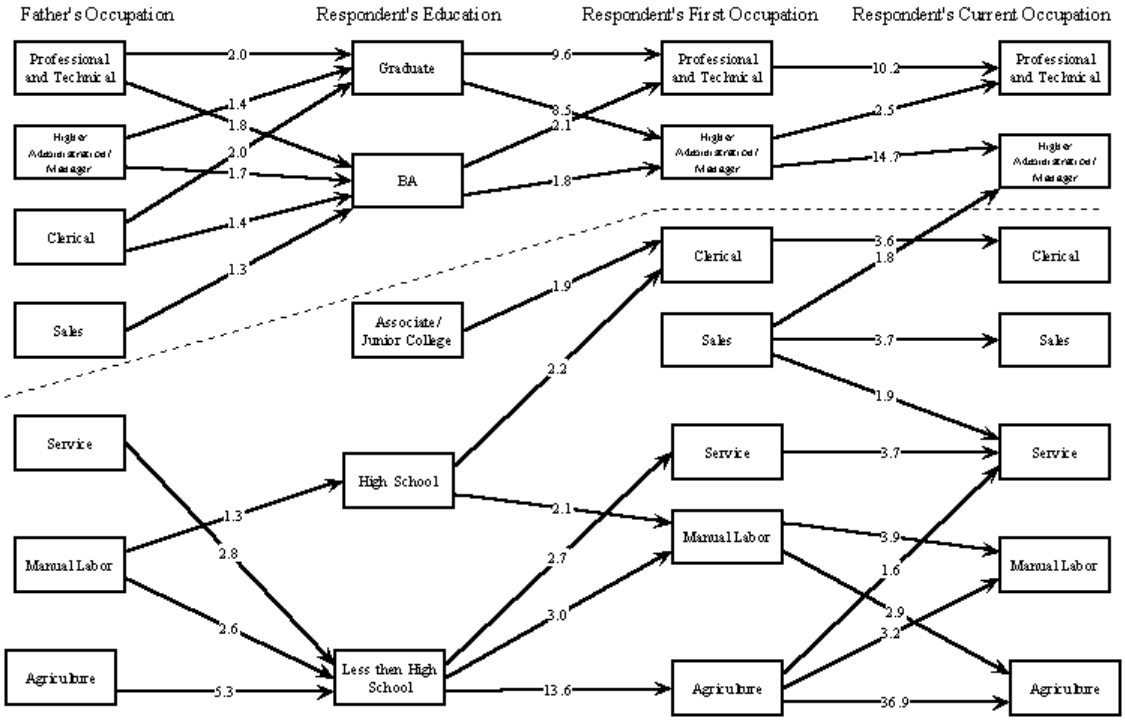

Figure IV: Rates of Total Mobility: Germany

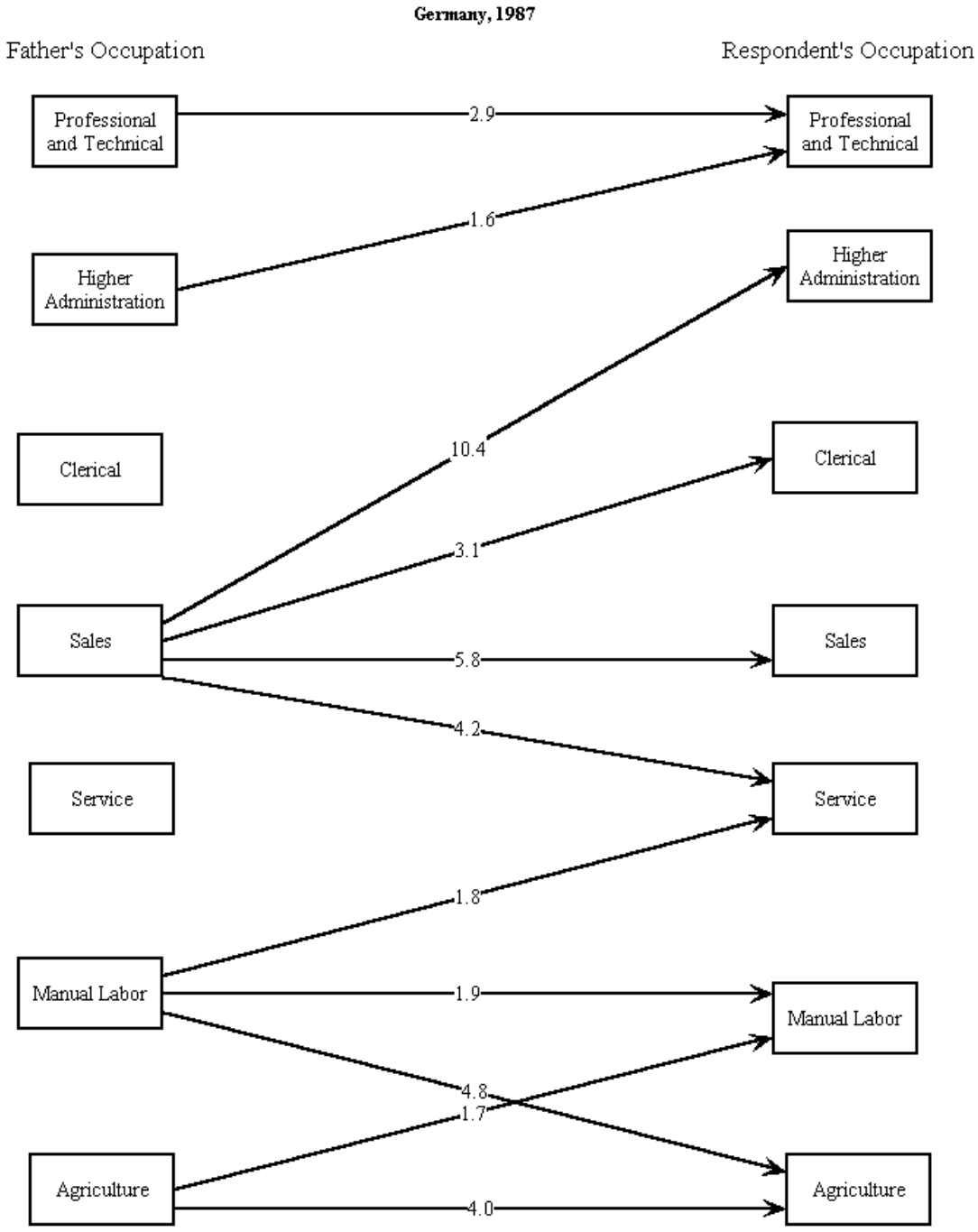

Figure V: Rates of Total Mobility: United States