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Social Mobility among Men

A Comparison of Neo-Marxian and Weberian Class Models

Jiang Hong Li and Joachim Singelmann

In this study we operationalize neo-Marxian (Wright) and Weberian (Goldthorpe) class concepts and compare mobility patterns across three industrial countries (the United States, Sweden, and the former West Germany), using data from the Comparative Project on Class Structure and Class Consciousness. The analysis demonstrates that, despite differences in gross mobility between Wright's and Goldthorpe's class schemes, the within-nation fluidity patterns do not differ by class scheme for these three countries. The results based on Wright's and Goldthorpe's class frameworks lead to essentially the same conclusion about across-country differences or similarities in fluidity patterns. The results based on Wright's framework are informative of expected country differences in class impermeability as structured by the three dimensions of property, skill, and authority, whereas those based on Goldthorpe's reveal cross-country variations in barriers as structured by economic and occupational sectors.

Introduction

The two current and most prominent approaches to the structure of class processes in post-industrial capitalist countries are the class models developed by Wright (1982, 1985) and Goldthorpe (Goldthorpe and Hope, 1974; Goldthorpe, 1987; Goldthorpe and Erikson, 1992). Although both approaches are based on a combination of Marxist and Weberian theories of classes, Wright's model is influenced more by Marxist ideas than by Weberianism, whereas the reverse situation obtains for Goldthorpe's model. Wright's class model is based on four basic structural properties of the Marxist concept of class: 'classes are relational; those relations are antagonistic; those antagonisms are rooted in exploitation; and exploitation is based on the social relations of production' (Wright, 1985: 35). Two central concerns of Wright's class definition are the concepts of *the social relations of production* and *exploitation*, and Wright maintains that these two concepts identify and explain the fundamental source of social inequality and social change (Wright, 1985: 35–37). Specifically, the ownership of the means of production (capital), degree of control over organizational and skills assets, and degree of autonomy constitute the most essential components of Wright's class scheme, for they are the basis for exploitation.

The principles of class differentiation in Goldthorpe's scheme have been mainly derived from Marx and Weber. These principles are the employment relations which are considered as 'crucial to the delineation of the structure of class positions within modern society' (Erikson and Goldthorpe, 1992: 37). For instance, the basic three-fold division of class positions (1 – employers, 2 – self-employed workers, and 3 – employees) serves as the starting-point for Goldthorpe's scheme (Erikson and Goldthorpe, 1992: 37–40), and it illustrates a combination of Marxian and Weberian influences on Goldthorpe's conceptualization.

None the less, the Weberian concept of social class has a greater influence on Goldthorpe's class scheme. For example, its much more elabourate divisions among employees are mainly based on Weber and,

in turn, on Renner (1953) and Dahrendorf (1959, 1964). The main concern here is the difference between two types of employment relations, one which is based on labour contract, and the other which is obtained within organizational bureaucracies. While 'employment relationships regulated by labour contract entail a relatively short-term and specific exchange of money for effort', 'employment relations within a bureaucratic context involve a longer-term and generally more diffuse exchange', and they provide greater economic security and career opportunities (Erikson and Goldthorpe, 1992: 41).

As Evans lucidly summarized (1992: 214), 'the organizing principle of the Goldthorpe schema is the nature of the employment relationship' and 'the distinguishing characteristics of Goldthorpe classes are their conditions of employment, degree of occupational security, and promotion prospects'. Although autonomy and control over the labour process are also relevant characteristics of Goldthorpe's classes, they are not the theoretical principles which divide the employee class (Erikson and Goldthorpe, 1992: 42). In this respect, Goldthorpe's classes clearly differ from Wright's class scheme in that authority and autonomy (organizational assets) are key distinctions among Wright's classes. To the extent that autonomy and authority are significantly related to the nature of the employment relationship, they are considered as secondary distinguishing characteristics of Goldthorpe's classes (Evans, 1992).

These two class conceptualizations not only generate very different class categories, but have been thought to produce different empirical results (Sørensen, 1991; Marshall *et al.*, 1988; Marshall and Rose, 1990). There has been a concern that findings on social mobility patterns and cross-national variation in these patterns would depend on the class model that researchers choose for the analysis. While a large body of literature has discussed this possibility (Mayer and Carroll, 1986; Westergaard, 1989; Marshall *et al.*, 1988; Marshall, 1988; Rose and Marshall, 1986; Marshall and Rose, 1990; Sørensen, 1991; Western and Wright, 1994; Levy and Joye, 1994), little empirical work has been carried out to address the following two questions (an exception being Marshall *et al.*, 1988 about Great Britain):

(1) Do mobility and fluidity patterns differ according to Wright's and Goldthorpe's class schemes within a given country?
(2) How do *cross*-national mobility patterns differ by class schemes?

In this study, we attempt to address these two questions, using data from the Comparative Project on Class Structure and Class Consciousness (Wright, 1982), with a special focus on men 25–65 years of age who were in the labour force at the time survey. For cross-national comparisons, we select three countries with variations in the class structure and political and social institutions: the United States, Sweden, and the former West Germany (referred to as Germany in the remainder of the paper). The data provide a unique opportunity to operationalize both neo-Marxian and Weberian class concepts in order to address the issues raised above.

Class Schemes and Within-Country Mobility

The main objective of Goldthorpe's class scheme is to differentiate positions (social relationships rather than individuals) within labour markets and production units in terms of the employment relations they entail (Erikson and Goldthorpe, 1992: 37, 42). The distinction between those employment relations that are based on a service relationship and those that are based on a labour contract underlies the class division among employees in Goldthorpe's scheme. Wright's conceptualization, on the other hand, is concerned with individuals' relationships among the three productive assets of capital, organizational resources, and skills. Within a Weberian perspective, the central concern is how the control of these productive assets shapes individuals' 'life chances', whereas in a Marxian framework, the central concern is how the ownership of these assets creates 'exploitation' (Western and Wright, 1994). While both 'life chances' and 'exploitation' are ways to conceptualize social inequalities, the main contention of Wright's class concept is that 'exploitation, not simply privileges and disadvantages, divides classes most decisively and makes class relations antagonistic' (Western and Wright, 1994: 607–610).

The two different conceptualizations of inequalities have generated four major disagreements in their class categorizations. First, employers make up a separate class in Wright's scheme, whereas in Goldthorpe's model, large employers are combined with high-grade professionals, managers, and administrators to form the highest class. Second, the manual-vs.-non-manual and farm-vs.-non-farm distinctions are crucial in Goldthorpe's class scheme, whereas Wright's does not make such a differentiation. Third, while the routine non-manual workers make up a separate class in Goldthorpe's classification, Wright does not distinguish them from other workers. Instead, Wright's scheme splits these employee positions into various classes according to their skill and organizational assets levels. Fourth, Wright's class scheme contains three refined categories of managers, supervisors, and skilled workers to reflect different levels of organizational and skill assets on which exploitation is based, whereas Goldthorpe's class scheme does not make such a refined distinction.

Although Goldthorpe's scheme recognizes the importance of property, expertise, and authority (they form the basis for Class I in his scheme), it blurs the division between employer and employee classes which is so essential to Wright's class concept. In this respect, Goldthorpe's class scheme has met criticisms that his class categories are internally heterogeneous in terms of occupational prestige, education, and income (Hout and Hauser, 1992; Levy and Joy, 1994). A differentiation among the three different resources of inequalities (property, skill, and authority), as identified by Wright, might thus prove useful in revealing mechanisms that produce barriers to mobility specific to these class dimensions (Western and Wright, 1994).

These differences between Wright's and Goldthorpe's class mappings have been thought to show different mobility patterns (Sørensen, 1991; Marshall *et al.*, 1988). Marshall *et al.* (1988: 94) reported that on the one hand, Wright's class scheme generated too high a proportion of people in the manager/supervisor class in the British class structure, thus suggesting a seemingly high rate of social mobility among males in modern Britain. On the other hand, by combining routine white-collar employees with rank-and-file manual workers, Wright's class definition would generate a large proportion of working-class people, and thus would lead one to believe that a substantial downward movement into the proletarian class has taken place in the British class structure (Marshall *et al.*, 1988: 139–140).

Contrary to this criticism, we would expect Goldthorpe's class scheme to show higher upward mobility rates than Wright's scheme for the following reasons. The 'service' versus 'labour contract' employment relationship underlies the differentiation among employee classes in Goldthorpe's class scheme and this division itself implies a hierarchy (Erikson and Goldthorpe, 1992: 41–42). As pointed out in Erikson and Goldthorpe (1992: 40), several important and related changes have taken place in advanced industrial countries. First, the number of individual employers has declined as a result of the movement of property towards corporate forms. Second, this decline, in turn, has led to the growth of the employee class. Third, there is a greater differentiation of employer–employee relations as a result of increasing organizational bureaucratization. These changes imply a trend towards increasingly formalized employment relationships (or more 'service'-oriented employment relationships) and hence an increase in structural opportunity for upward mobility.

Marxist theory has less clear expectations about the effects of the changing structure of advanced industrial society on the class structure. It shares Goldthorpe's expectations that the changes towards bureaucratization would imply a numerical decrease in the employer and petty bourgeois class locations. Since Braverman's (1974) degradation theory with regard to work positions has not been confirmed in the aggregate, little can be said about the presumed change in the dimensions of skill assets and organizational assets.

Despite the above-mentioned differences between the two conceptualizations, there are also similarities in their theoretical underpinnings. The newer version of Wright's class model is based on Roemer's (1982) concept of class, which follows a Weberian approach, in distinguishing between alienable and inalienable assets among the propertyless (Sørensen, 1991; Rose and Marshall, 1986). From a Marxian approach, the private ownership of the means of production is central to the distribution of power and privilege in capitalist societies.

Hence, the boundary between ownership and non-ownership is viewed as the most impermeable one in intergenerational mobility (Wright, 1985; Western and Wright, 1994). Non-Marxist class theorists, however, argue that cultural capital, rather than physical capital, is fundamental to the distribution system in advanced capitalist countries (Bourdieu, 1987: 733).

Cultural capital is legitimated in formal education and transmitted intergenerationally through class-specific parental investments in offspring's educational attainment and through familial socialization. One important outcome is that offspring from different class origins will have different occupational preferences (for example, self-employment (Hout, 1989: 79) and different aspirations for educational attainment. Mobility analysis based on Wright's class concept will capture the property, expertise, and authority dimensions of mobility barriers quite well. Goldthorpe's class scheme does not reflect the property dimension as clearly as does Wright's, but it does capture the mobility patterns as determined by class-specific differentials in cultural capital. For instance, his class mapping contains a clear distinction between manual and non-manual, and farm and non-farm occupations. This distinction is one way to capture cultural capital differentials and sectoral barriers that shape mobility patterns (Erikson and Goldthorpe, 1987, 1992: chap. 4; Erikson *et al.*, 1982; Goldthorpe, 1987: 44; Ganzeboom *et al.*, 1989; Hout and Hauser, 1992; Wong, 1990, 1992). In light of these considerations, we expect that the two classes schemes will produce similar fluidity patterns within each country net of the marginal differences.

Class Schemes and Cross-Country Variation

The selection of Sweden and the United States for this study follows Wright's (1985: 192–193) sociological rationale for his comparative study of class structure of these two countries. They are similar economically but different politically. Economically, they have roughly the same level of technological development, similar average standards of living, and little state ownership of industrial production. Politically, Sweden has the lowest level of real income inequality of any developed capitalist country, while the United States has one of the highest. Moreover, Sweden has the highest level of governance by social democratic parties of any capitalist country, whereas the United States has the lowest (Wright, 1985: 192–193). Findings from recent comparative studies of mobility have shown that Sweden has a somewhat higher rate of social fluidity compared to other industrialized nations (Erikson and Goldthorpe, 1992; Jonsson and Mills, 1993; Ganzeboom *et al.*, 1991; Western and Wright, 1994). It is likely that the relatively greater openness of Swedish society is related to its long-standing social democratic governments over the post-war years which have aimed for greater equality in opportunities for all in Sweden (Jonsson and Mills, 1993; Erikson and Goldthorpe, 1992: 165).

None the less, as we compare Swedish fluidity pattern with those of other developed countries, it is useful to keep in mind the following three points. First of all, despite its deviation (somewhat higher social fluidity) from the common pattern of fluidity of most industrial countries, the Swedish pattern still belongs to the common core pattern (Erikson and Goldthorpe, 1987, 1992: 165). Second, there has indeed been a small increase in social fluidity during the tenure of the social democratic party (1932–76), but that increase has not been consistent over the entire period, nor has the increase been consistent for all occupational classes (Erikson, 1983: 189): Those in urban occupations have experienced some increases in social fluidity, but agricultural occupations have experienced a decrease in social fluidity during the 1950–70 period. Third, it is important to note that educational equality in Sweden during this century mainly involves the first educational transition (from compulsory school to lower secondary school) among farmers and unskilled workers, whereas class differences in educational attainment at higher-level transitions remain unchanged (Jonsson, 1993).

Germany is chosen for the present analysis for two important reasons. First, Germany has a distinctive educational system that shapes its class structure and intergenerational mobility. The apprenticeship system in German education has produced a distinctive class structure that contains not only a

division between manual and non-manual work, but also a sharp division between skilled and unskilled workers within the white-collar and blue-collar sectors (Erikson and Goldthorpe, 1987; Geiger, 1932). The apprenticeship system has professionalized manual work, and the German labour market distinguishes strongly between skilled and unskilled workers. The German industrial labour market was found to be more homogeneous and closed than in other countries where the institution of apprenticeship is absent (Haller *et al.*, 1985). Thus, the distinction between skilled and unskilled work is a salient dimension of the German class structure. Consequently, inequality in income and other life-chance indicators manifests itself more clearly along this line than along other dimensions (Maurice *et al.*, 1982; Müller, 1986; König and Müller, 1986). In comparison to other Western European countries, Germany was found to be the most class-stratified nation (Hout and Hauser, 1992), and sons of unskilled workers face unusually strong barriers to upward mobility across generations (Erikson and Goldthorpe, 1992: 148–150).

Second, the German system of educational certification has a lasting impact on individuals' labour-market outcomes that is not restricted to the initial entry into the labour market but lasts during the course of subsequent occupational careers (Blossfeld and Mayer, 1988). The outcome of this close link between educational credentials and labour-market allocation in Germany is a mobility regime characterized by low overall mobility. This feature of low mobility further distinguishes Germany from other Europeans nations. It results in a high degree of 'socio-cultural' homogeneity among white-collar workers, and the differences between white-collar and manual workers in employment relations in Germany have been much more institutionalized than is the case in other Western European countries (Geiger, 1932; Erikson and Goldthorpe, 1992: 149; König and Müller, 1986).

These factors lead us to expect Germany to be a less mobile and less fluid society than the United States and Sweden. There is evidence that German society, in contrast to the United States and Sweden, is marked by a relatively high rate of intergenerational immobility and more barriers for women to remain in or move into privileged classes (Erikson and Goldthorpe, 1992; Li and Singelmann, 1998). Both Wright's and Goldthorpe's class schemes capture these features of German stratification.

Two key characteristics distinguish the United States from the two European countries. Sweden (Wright, 1985: 203) and Germany have a higher degree of nationalization of large enterprises and of some industrial sectors than the United States. Moreover, they have a higher degree of unionization and centralization in collective bargaining. Both these factors lead to stronger protection of workers and hence a lower rate of downward mobility in Sweden and Germany than in the United States. These institutional and societal differences are likely to have implications for national differences in fluidity patterns. The property dimension of Wright's class scheme may be better able than Goldthorpe's scheme to describe the class stratification of Germany and, to a lesser extent, Sweden. Despite the contention that a more pure capitalist economy (such as the United States) is associated with greater barriers to crossing the ownership boundary (Western and Wright, 1994: 612–613), we believe that there are two reasons why the division between ownership and non-ownership is a more salient dimension of class stratification in Germany and Sweden than it is in the United States. First, in Germany, an apprenticeship and a master certification in a specific occupation are required to become an employer in the crafts and in many other industries. Second, there is stronger state regulation of self-employment in Germany than in the United States. We believe that the same holds true for Sweden, for it has a similar educational system as does Germany (Jonsson, 1993), and self-employment makes up a considerably smaller proportion of the labour force in Sweden than in the United States (Wright, 1985: 196). These factors lead to an expectation that the ownership class is less permeable in the two European countries than in the United States.

Based on the factors discussed above, we expect that Wright's class scheme is more likely than Goldthorpe's model to reveal cross-national differences in the patterns of mobility along the three dimensions of property, skill, and authority. On the other hand, we expect Goldthorpe's class scheme to reveal more clearly national differences in mobility patterns as structured by the sectoral divisions in terms of the nature of employment relations and, to

an important degree, in terms of manual/non-manual and farm/non-farm occupations.

Data and Measurement

The data used for this analysis come from the Comparative Project on Class Structure and Class Consciousness. The US and Swedish surveys were both conducted in 1980, and the German survey was conducted in 1985. All three surveys are nationally representative. The total sample size for the United States is 1,760, for Sweden it is 1,145, and for Germany 1,834. The national surveys were carried out in close co-ordination among the countries and thus have a high degree of comparability.[1] They were especially designed to measure a variety of both Marxist and non-Marxist class concepts and intergenerational and work-life changes in class positions. The samples for the present study include males aged 25–65 who were in the work force at the time of survey. Social origin is measured by the class position of the main income provider of the household in which the respondent lived at age 16. The main provider does not have to be one of the parents – s/he does not even have to be a relative – but there are only few cases in which the respondents named persons other than their parents as the main provider. Based on a modification of Wright's (1985) exploitation-based class model, we collapsed the original twelve categories of Wright's model (Wright 2) into the following six classes:[2]

I. Employers (large and small employers)
II. Expert-managers
III. Experts
IV. Petty bourgeoisie
V. Non-expert managers
VI. Semi-skilled and unskilled workers

We constructed Goldthorpe's seven classes using the same data source. The construction of Goldthorpe classes is based on Goldthorpe's earlier class scheme (Goldthorpe and Hope, 1974: 131–132, 134–143; Goldthorpe and Llewellyn, 1977; Erikson *et al.* 1979; Goldthorpe, 1987). His newer version of the scheme is based on additional information regarding the market and work situation of the individuals. The lack of such information for the countries under investigation in the present study precludes the use of Goldthorpe's new version. None the less, the objective of that new version is exactly the same as that of the original class scheme (Goldthorpe and Payne, 1986: 3), i.e. to differentiate positions within the labour markets and production units in terms of the employment relations they entail. Goldthorpe and Payne (1986) have demonstrated that the class distribution does not differ much between the two versions of the scheme for both the 1972 and 1983 data obtained in Britain. They have further shown that mobility rates (absolute and relative) and the log-linear results of testing the constant social fluidity model based on the 1972 and 1983 data did not differ between the two versions of class schemes.

We collapsed the seven categories of Goldthorpe's class scheme into the following six classes by combining his original Class VI (skilled manual workers) and Class V (lower-grade technicians and supervisors of manual workers) into one single category. We follow the same reasoning as discussed in Erikson and Goldthorpe (1992: 43) for this aggregation. Class V includes lower-grade technicians and lower-level supervisors who work closely with rank-and-file manual employees. Class VI includes skilled manual workers who may be more likely than those in Class VII to be included in 'internal' or 'craft-specific' labour markets. The commonality in skills and responsibility between classes V and VI makes it reasonable to combine them.

I. Higher-grade professionals, managers, and large proprietors
II. Lower-grade professionals, managers, supervisors, and high-grade technicians
III. Routine non-manual workers
IV. Farmers and farm managers, small proprietors, and self-employed workers
V. Lower grade technicians, supervisors of manual employees, and skilled manual workers
VI. Semi-skilled and unskilled manual workers in manufacturing and construction and agricultural workers

Results

Table 1 shows the class distributions (in percentages) for parents and respondents in the United States, Sweden, and Germany.[3] There is little surprise that Wright's and Goldthorpe's schemes yield quite different class distributions. A key difference between

Table 1. *Class distribution in percentage by class scheme and country*

Country	Class	Wright Parents	Wright Respondent	Wright Δ	Goldthorpe Parents	Goldthorpe Respondent	Goldthorpe Δ
USA	I	16.4	11.8	—	23.7	26.6	—
	II	10.6	22.8	—	4.9	10.6	—
	III	3.9	9.3	—	11.3	12.2	—
	IV	11.5	4.7	—	17.9	13.7	—
	V	18.5	14.7	—	16.2	21.2	—
	VI	39.1	36.8	—	26.1	15.7	—
	N	593	593	17.6	575	575	14.6
Sweden	I	12.1	6.3	—	11.9	15.1	—
	II	9.6	18.6	—	5.1	13.1	—
	III	5.0	9.6	—	5.8	11.7	—
	IV	19.4	6.6	—	28.4	13.9	—
	V	13.9	15.9	—	25.8	25.8	—
	VI	40.1	43.1	—	23.3	20.5	—
	N	397	397	18.6	489	489	17.1
Germany	I	11.9	8.7	—	12.0	6.6	—
	II	4.3	6.3	—	13.6	23.2	—
	III	2.3	5.9	—	11.6	16.1	—
	IV	10.0	2.1	—	11.5	10.1	—
	V	21.6	28.1	—	32.4	30.6	—
	VI	50.9	48.9	—	19.0	13.4	—
	N	861	861	12.1	844	844	14.1

I: Bourgeoisie	I: Higher grade professional, manager, and large proprietor
II: Expert-manager	II: Lower professional, manager, supervisor, and high-grade technicians
III: Expert	III: Routine non-manual workers
IV: Petty bourgeoisie	IV: Farmers and farm managers, small proprietors, and self-employed
V: Non-expert manager	V: Lower grade technicians, supervisors, and skilled manual employees
VI: Worker	VI: Semi-skilled and non-skilled manual and agricultural workers

the two class schemes is a much smaller bottom class category in Goldthorpe's scheme than in that of Wright. The reason for this difference is that the working class in Wright's scheme includes both manual and non-manual workers at the semi-skilled and unskilled levels, whereas Goldthorpe's model contains mostly unskilled manual worker at these levels.

Given the differences in the class definition between Wright's and Goldthorpe's schemes, we cannot make a direct comparison of the two schemes. For instance, Wright's Class I consists of large and smaller employers, whereas Goldthorpe's Class I includes three different groups (higher-grade professionals, managers, and large proprietors). Nevertheless, we can still compare the two class constructions in terms of their socioeconomic hierarchy. Table 2 shows the average values of education, SEI scores (Socioeconomic Index, Duncan 1961), and income for each class category by scheme and by country. For the United States, education is measured in years of schooling; for Sweden and Germany it is measured in rank or ordinal scores. A higher score indicates a higher educational ranking, but it is not comparable in absolute terms to the educational measure for the United States. Although ordinal scales are less informative than other quantitative scales, such as interval or ratio, they do allow for quantitative interpretation (Ott *et.al*, 1987: 29). An appropriate measure of the central tendency of an ordinal variable is the median or, to some extent, the mode which is applicable to both qualitative and quantitative data. But since the median is the most central value regardless of how the distribution of a variable is skewed, it is a preferred measure. SEI is a measure of occupational status

Table 2. *Income, education, and occupational prestige by class scheme (respondents)*

		Wright			Goldthorpe		
	Class	Education	Occupational Status	Income	Education	Occupational Status	Income
USA	I	13.8	50.9	37043.7	15.4	71.6	31104.5
	II	15.3	70.5	28014.7	15.2	64.1	21323.5
	III	15.6	71.5	20704.6	14.0	46.1	20996.6
	IV	12.9	42.0	21009.6	13.2	46.6	28750.0
	V	13.1	39.0	21039.2	12.6	29.5	19028.9
	VI	12.4	29.0	18245.6	11.5	16.4	16048.0
Sweden	I	3	12.6	3962.9	5.5	8.6	4976.3
	II	6	8.8	5498.4	6	7.9	4843.9
	III	6	7.8	4260.9	4	5.8	4337.4
	IV	1.5	11.2	3065.2	2	11.8	3586.2
	V	3	5.9	4326.6	3	3.3	3764.8
	VI	2	3.0	3670.1	2	3.1	3667.6
Germany	I	3	45.7	2869.4	4	62.4	3399.5
	II	5	62.5	3510.5	3	50.1	2508.8
	III	5	58.0	2364.7	2	37.1	2158.6
	IV	2	41.7	2562.9	3	44.5	2715.5
	V	2	41.1	2388.3	2	38.3	2016.7
	VI	2	37.0	1906.2	2	29.8	1679.0

Notes: Education is measured in rank scores for Germany and Sweden: a higher score indicates a higher educational category (level), and the median of the scores is presented in the table. For the USA the education variable is measured in years of schooling.
The income measure for Germany (Marks) and Sweden (Crowns) is the mean of the mid-points of net income categories: a higher mean indicates a higher income category.
Occupational status is measured in SEI for all three countries.

for all three countries. The income measure for Sweden and Germany is the mean of the mid-points of net income categories; for the United States, income is measured in dollars. Since we are not comparing income across the three countries, we report annual dollar income for the United States and monthly income in Swedish crowns for Sweden and German Marks for Germany.

For the United States, the working class is ranked at the bottom in all three socioeconomic measures in both Wright's and Goldthorpe's scheme. For Sweden, workers are also ranked at the bottom of the occupational strata, but their income level is higher than that of Class IV in both class models. For Germany, the working class clearly ranks the lowest in the SEI and income measures, consistent across both class schemes. One criticism of Wright's class scheme is that by allocating employees from the routine non-manual sector into the working class, it artificially inflates the average socioeconomic status of this class. However, this does not hold true for the three countries under consideration. The fact that women are not included in the analysis may explain why it is not the case here.

Another major criticism of Wright's class model is that it over-estimates the proportion of managers/supervisors, especially non-credentialed managers (Marshall *et al.*, 1988: 139–140). Marshall *et al.* (1988: 94) stated that many positions of Wright's managerial and supervisory classes are, in fact, routine manual and non-manual positions with limited supervisory and managerial power, and they should be classified as workers, especially in the case of Great Britain. The findings do not indicate that this is the case for the three countries under consideration here. The US data show that the educational level and occupational status of the expert-manager/supervisor class are comparable to that of the expert class, and that these two classes have the highest rank among all classes. For both Sweden and Germany, the expert-manager/supervisor class clearly ranks the highest in income. Moreover, in all three countries, non-credentialed managers rank higher than the working class in occupational status and income.

Overall, these statistics suggest that Wright's class construction is more robust than it has been considered to be, at least in the case of the three countries.

Although the income ranking in both class schemes does not show a clear-cut hierarchical order for any of the three countries, the occupational ranking indicates a reasonable order among the six class categories especially in Goldthorpe's scheme. In Wright's scheme, the top three classes rank higher than the bottom three classes in education and occupational status for Germany, and for Sweden the same holds true in terms of occupational status. This provides a basis for viewing the movements off the diagonal in terms of upward or downward mobility. However, one must be very careful in interpreting them in such terms because not all such movements reflect upward or downward mobility. Our approach to this issue is to be specific when describing 'upward' or 'downward' mobility.

Gross mobility rates are presented in Table 3. Some elements of the mobility in the lower-diagonal and the upper-diagonal parts of the table reflect downward mobility in terms of socioeconomic status (as shown in Table 2). In both Wright's and Goldthorpe's class schemes for the United States, for example, the movement from the bottom category into the top three classes reflects upward mobility in terms of levels of job rewards (income and occupational prestige) and job-entry requirements (education). Moreover, again taking the USA as an example, the movements among a threefold division (Classes I + II, Classes III + IV + V, and Class VI within the six categories of Goldthorpe's class scheme) also suggest upward or downward mobility in terms of occupational status. On the other hand, not all such movements reflect upward or downward mobility. For example, the movement from Class II or Class III to Class I in Wright's class scheme for the United States does not necessarily constitute upward mobility in terms of education and occupational prestige scores, although it does do so in terms of income.

Overall, the two class models yield the same amount of immobility and total mobility for the United States, and they differ only slightly for Sweden. For Germany, Goldthorpe's class model yields substantially more total mobility than does Wright's model. In regard to off-diagonal mobility, Goldthorpe's model yields more lower-diagonal mobility for all three countries, and about 80 per cent of such mobility involves movement from Classes III, IV, and V into Classes I and II and movement from Class VI into the top two and the intermediate classes (III, IV, and V). Given a reasonable ranking of these three groups of classes in Goldthorpe's scheme (Erikson and Goldthorpe, 1992; Evans, 1992; see also Table 3) in terms of socioeconomic status, it is evident that this 80 per cent of the lower-diagonal mobility does indeed reflect upward mobility. Goldthorpe's scheme also shows less upper-diagonal mobility for the United States and Sweden. Again, viewing Goldthorpe's classes as a three-fold division hierarchy, our calculation (based on the 6×6 raw mobility tables) shows that about 67 per cent of the upper-diagonal mobility reflects true downward mobility in terms of socioeconomic status for the United States, and the corresponding figure is 56 per cent for Sweden.

For Germany, the use of Goldthorpe's scheme results in higher total, lower-diagonal, and upper-diagonal mobility. About 76 per cent of the lower-diagonal movement is upward mobility and about 67 per cent of the upper-diagonal reflects true downward mobility based on the three-division hierarchy. From Wright's perspective, a large portion of the lower-diagonal mobility involves movement from the bottom three classes into the top three, which itself can be considered as upward mobility in terms of one, if not all, of the socioeconomic status indicators (education, occupational prestige, and income). There is no evidence that Wright's scheme predicts higher mobility due to the 'inflated managerial/supervisor classes'. On the contrary, Goldthorpe's scheme tends to predict higher upward mobility than Wright's scheme, especially for Germany.

Gross mobility provides useful information about absolute mobility rates, but it says little about fluidity patterns, since the observed mobility differentials could be attributed to the marginal differences among the three countries in terms of their class structures or the characteristics of the two class models. More information can be obtained from social fluidity, which is measured as internal mobility net of the marginal differences and, as such, is an indicator of the openness of a society. It reveals the extent to which the specific social structure prevents individuals of certain class origins from moving to different class destinations.

Table 3. *Gross mobility by country and class scheme*

		Immobility Total	Mobility Total	Mobility Lower-Diagonal	Upper-Diagonal
USA	Wright	0.31	0.69	0.35	0.34
	Goldthorpe	0.31	0.69	0.38	0.31
Sweden	Wright	0.34	0.66	0.30	0.36
	Goldthorpe	0.37	0.63	0.34	0.29
Germany	Wright	0.45	0.55	0.28	0.27
	Goldthorpe	0.30	0.70	0.39	0.31

Two questions central to our analysis still remain:

1. Does Wright's class model produce a within-country fluidity pattern different from Goldthorpe's?

2. Do the two class models lead to different results regarding national variation in fluidity?

To address these two questions, we now turn to the results pertaining to the transmission of class status.

To investigate class status transmission and differences between class schemes and countries in intergenerational class fluidity, we utilized the association models developed by Goodman (1984) and Clogg (1982). These models are applicable to the two class schemes for the following reasons. First of all, although neither Goldthorpe's nor Wright's classes are constructed around a single principle, they are both mainly concerned with the relative desirability of different destinations and relative advantages or disadvantages of class origins. These theoretical concerns clearly suggest a vertical dimension of mobility and fluidity patterns. In Goldthorpe's class scheme, the basic threefold division among employer, self-employed, and employee classes implies a relative ranking (Erikson and Goldthorpe, 1992: 37–40):

> 1. employers: who buy the labour from others and thus assume some degree of authority and control over them; 2. self-employed workers: those who neither buy the labour of others nor sell their own; 3. employees: those who sell their labour to employers and thus place themselves to some degree under their authority and control.

More importantly, the critical division among employees is based on the nature of employment relationships, which implies a vertical dimension (Erikson and Goldthorpe, 1992: 41–42). There is also a hierarchical ranking among the three classes collapsed from the seven-class version, ranking in terms of prestige, socio-economic status, or 'generalized desirability' (Erikson and Goldthorpe, 1992: 45). Evans (1992: 219) has shown that Goldthorpe's classes are ordered linearly from Class I through Class VI*a* along a hierarchy of occupational characteristics, such as employment conditions, promotion prospects, autonomy, and control over work tasks. In Wright's class scheme, the treatment of the property and expertise dimensions of the class structure suggests a relative ranking, and the dichotomous treatment of the authority boundary implies upward and downward movement (Western and Wright, 1994: 614).

Second, the association models developed by Goodman can be applied to situations where rows and columns are ordered and to those where neither rows nor columns are ordered. In the latter situation, the isotropic property can be used to determine an ordering for the rows and the columns (Goodman, 1984: 143, 147; 1991; 1997: in communication). The Model II version of the association models (Goodman, 1984; Clogg, 1982) which we used for the analysis does not assume a priori and fixed distances between row and column categories. Instead, it estimates the row and column scores from the data. Any interchange between row categories or between column categories have no effect on the test statistics and estimated scores. This means that (*a*) the chi-square statistics measuring the fit of the model to data are not altered by switching categories; (*b*) the parameter, phi, is unchanged (in absolute value); and (*c*) relative distances (in terms of ratios of distance) between row scores and between column scores are unchanged when categories are switched (Goodman, 1984: 205–207).

Third, the association models also capture some non-linear effects implied in both class schemes. For example, the row and column scores can be interpreted as channels for and barriers to mobility when the class categories are not exactly ordered (Wong, 1995: 318). Moreover, the diagonal parameters estimated by the association model reveal important non-vertical effects. Fourth, using either the topological models developed by Erikson and Goldthorpe (1992) or the model by Western and Wright precludes the possibility of comparing the two class schemes. In some ways, the topological model developed by Erikson and Goldthorpe is inadequate for capturing important hierarchial effects of Goldthorpe classes (Hout and Hauser, 1992) and national variations in mobility and fluidity (Sørensen, 1992). A general model, such as the association models, allows us to answer the questions we want to address, and it will overcome some of these weaknesses.

A correct choice of statistical models is crucial for comparisons of class schemes in this analysis, making the model selection criterion an important issue. We opt for the BIC value as our criterion in this paper. The BIC value developed by Raftery (1986) is an approximation to Bayesian factors. It has two important advantages. It overcomes the problems with the conventional p-value criteria (e.g. a standard significance test) which is dependent upon the sample size. While the tests for differences in L^2 serve as a fairly good indicator of how well a particular model fits, the BIC value developed by Raftery (1986) is a stronger indicator because it measures the strength of L^2 relative to the sample size and degrees of freedom (Raftery, 1995; Wong, 1994; Guest *et al.*, 1989). It has been shown that of all selection criteria (L^2, NFI, L^2/df, BIC, and AIC), the BIC value is the most reliable measure of model fit with all sample sizes (Wong, 1994). This strength of the BIC criterion is important for our analysis, since the sample size differs substantially by country.

Second, the BIC value is applicable to comparisons of models that are not nested in one or another (Raftery, 1995). Sometimes the BIC criterion favours a parsimonious model which may not be satisfactory because interesting theoretical differences between groups are not identified in such a model. In such a situation, the best way is to seek an alternative model that uses as few parameters as possible but still identifies group differences of substantive interest. For instance, the global association pattern may not necessarily differ by group even though there are some local variations between groups which are of substantive interest. In this case, an alternative model that identifies the source of variations without over-fitting the data will be the best model even by the BIC criterion (e.g. Hout, 1988; Grusky and Hauser, 1984; Raftery, 1995: 153–154). We will employ such a strategy in our analysis. We use BIC as the main criterion to select a final statistical model for the comparison of class schemes. Generally, the more negative the BIC value is, regardless of degrees of freedom, the better the model fits. To ensure that we do not dismiss significant group differences and, at the same time, not accept idiosyncratic variations, we will run numerous competing models, use substantive importance as an additional criterion, and interpret small changes in the BIC value with caution.[4]

The within-country comparison between Wright's and Goldthorpe's class frameworks was accomplished by replicating the same number of cases. This may potentially inflate the statistical power and generate artificial differences between class schemes. None the less, since our comparisons involve fairly simple statistical models, the potential upward bias in the findings due to case replication is likely to be minimal (Hout, 1995: in communication). Moreover, as we will show, the main findings reveal similarities rather than differences. Despite the lack of direct correspondence between the two sets of class categories, it still is sensible to compare the overall association patterns reflected by the two class schemes. Our main focus for the analysis of within-country fluidity is a comparison of the overall fluidity pattern, rather than specific odds ratios. The key issue addressed there is whether different conceptualizations of class structure predict different patterns of social fluidity. Furthermore, the odds ratios can still be meaningfully interpreted (specific to each class scheme), although not directly compared, if this were desired.

USA

Table 4 shows the findings from a series of association models.[5] The model presented in bold is the

Table 4. *Association between origins and destinations by class scheme*

Model	L^2	df	BIC	D (%)
USA				
Quasi-Independence	91.6	44	−219	9.5
Homogeneous UA	**72.3**	**43**	**−231**	**8.1**
Heterogeneous UA	69.6	42	−227	8.1
Homogeneous RC Effects	51.2	35	−196	6.8
Heterogeneous RC Effects	29.7	26	−154	5.0
Homogeneous EQ RC	66.3	39	−209	7.7
Heterogeneous EQ RC	50.6	34	−190	6.7
Sweden				
Quasi-Independence	110.3	44	−188	11.4
Homogeneous UA	83.8	43	−208	11.1
Heterogeneous UA	83.4	42	−202	11.0
Homogeneous Row-Effects	**56.3**	**39**	**−209**	**8.0**
Homogeneous RC Effects	43.0	35	−195	6.8
Heterogeneous RC Effects	32.3	26	−144	5.8
Homogeneous EQ RC	62.4	39	−202	8.2
Heterogeneous EQ RC	56.2	34	−175	7.3
Germany				
Quasi-Independence	241.1	44	−86	12.9
Homogeneous UA	130.2	43	−190	8.4
Heterogeneous UA	130.3	42	−182	8.3
Homogeneous Column-Effects	**87.2**	**39**	**−203**	**6.5**
Homogeneous RC Effects	67.3	35	−193	5.5
Heterogeneous RC Effects	47.7	26	−146	4.5
Homogeneous EQ RC	121.3	39	−169	8.1
Heterogeneous EQ RC	105.2	34	−148	7.7

Note: All models have class-specific diagonal parameters.

preferred model (the model definitions are presented in Appendix 2). The quasi-independence model predicts cell frequencies with marginal and diagonal parameters (see Table 4). This model assumes that the probability of entering a class destination is largely determined by the marginal parameters. It serves as a baseline for the subsequent models. The Homogeneous UA model significantly improves the baseline model by including one association parameter (for both schemes). With this model, L^2 falls by about 20 points, by expending only one degree of freedom, the BIC value becomes substantially more negative (by more than 10 points), and the number of misclassified cases decreases. This model assumes that the association in each table is uniform and that this uniform association is homogeneous across schemes. This assumption describes the US data reasonably well. The Heterogeneous UA model assumes that the association pattern differs across scheme. By using one more degree of freedom, this model does not improve on the previous model significantly. For instance, it lowers the L^2 value by only 2.7 points, but the BIC becomes less negative, and the per centage of misclassified cases remains the same.

The diagonal parameters estimated in the Heterogeneous UA model suggest only a slight difference in the immobility (inheritance) pattern between the two schemes: the overall diagonal effect is 1.205 for Wright's scheme and 1.100 for Goldthorpe's. If the association pattern were to differ significantly across the two schemes, this difference would be mainly attributed to the differences in the row and column effects between the two schemes. We examined various versions of row and column effects models but

found that none of them fit the data well. For example, the Heterogeneous RC and the Heterogeneous Eq RC models which allow the row and column effects to differ by scheme did not significantly improve the baseline model in relation to the degrees of freedom used.

Moreover, the parameter estimates in these models do not suggest substantial differences in the overall association and inheritance patterns between the two schemes.[6] The Homogeneous RC Effects model allows for non-linearity in the relationship between origin and the probability of getting into a higher versus a lower position. It assumes that the overall association pattern differs across schemes but the row and column effects are similar between the two schemes. This model improves over the Homogeneous UA model in terms of the log-likelihood ratio and the index of dissimilarity, but the BIC value has become less negative by more than 30 points, indicating a substantial lack of parsimony (Raftery, 1995). Nor did the Homogeneous Eq RC show a significant improvement in the model fit. Therefore, our choice of the best model remains the Homogeneous UA model which assumes that the association between origin and destination is invariant across the two schemes for the US data.

Sweden

The results for Sweden suggest that the Homogeneous UA model significantly improves the fit upon the baseline model by using only one additional degree of freedom (although about 11 per cent of the cases are still misclassified by the model). The Heterogeneous UA model did not improve the model by allowing the association parameter to differ across the schemes by all criteria. The Homogeneous Row-Effects model elaborates on the Homogeneous UA model by allowing for a non-linear relationship between origin and the probability of moving into a higher versus a lower class position. By using four more degrees of freedom, the log-likelihood ratios decreased substantially, the number of misclassified cases declined by 3 percentage points, and the model remains parsimonious. Other more complex models shown in Table 4 do not fit the data as well. The Heterogenous RC Effects model is the most complex model. It has the lowest log-likelihood ratio, but it also uses the most degrees of freedom. The Heterogenous Eq RC Effects model did not improve the fit in terms of either the log-likelihood ratio or the BIC value (which is substantially less negative). Moreover, in general, the parameter estimates for the more complicated models indicate no substantial differences in the overall association and inheritance between the two schemes. Thus, these models most likely merely show some idiosyncratic rather than real differences.

The Homogeneous Row-Effects model, therefore, is the best fitting model for the Swedish data. This model describes two aspects of the origin and destination association: there is a significant association between origin and destination, and that association is non-linear. One instance of this non-linear probability is that there are more barriers for workers' offspring than for offspring from the professional class to move into the most privileged class. Still, the Homogeneous Row-Effects model assumes a uniform association across the two class schemes. Given the small sample size of the Swedish data, we probed further to ascertain if the small sample affected our ability to detect differences in mobility patterns between two class models. To that end, we examined a larger sample of people aged between 18 and 65 for Sweden, where the N for each class scheme increased by 100 cases (471 for Wright's scheme and 579 for Goldthorpe's). That analysis (not presented here) showed that the Homogeneous Row-Effects model remains the best model. In that further analysis, models which assume different association patterns between two class schemes did not improve the fit significantly, and the parameters for the overall association are very similar between class schemes. For example, the association parameter for Wright's scheme is 2.09 and that for Goldthorpe's is 2.10 under the Homogeneous RC Effects model; and under the Homogeneous Eq RC Effects model, the two association parameters are almost identical (2.166 and 2.168, respectively). Thus, it is unlikely that the relatively small size of the Swedish sample hindered our ability to detect differences between the two class schemes.

Germany

The best fit model for the German data clearly is the Homogeneous Column-Effects model. With 39

degrees of freedom, the BIC value is 203, the L^2 is about 87, and the dissimilarity index 6.5. The Homogeneous Column-Effects model assumes that the probability of moving into a higher versus a lower class position depends on which destination class is being considered. There are more barriers to moving into a higher than to a lower class position. While this assumption may be correct in most societies, it is a more pronounced feature of German society. Still, this model assumes a similar association pattern between the two class schemes.

USA–Sweden

Our next step is to test for common social fluidity among countries, using two different class schemes. The results are presented in Tables 5 and 6. For each comparison, we have tested all versions of association models and selected the best fitting models based on the same criteria as used for the within-country analysis. Based on Wright's class scheme, we found that the Homogeneous UA is the best fitting model. It assumes that the association between origin and destination does not differ between the United States and Sweden. From the point of view of Goldthorpe's model, the best fitting model remains the Homogeneous UA model (see Table 6).

We also examined other possible models which maintain the uniform association but allow the row or column effects to differ by country, but these models did not yield any significant improvement in the fit. We further explored another possibility of modelling by imposing constraints on the diagonal parameters. The models presented so far estimate class-specific parameters for the diagonal, assuming uniformity across countries. While it is likely that the overall association is similar between countries, diagonal effects may still differ. It is also possible that the overall diagonal effects are invariant across countries but that class-specific inheritance pattern may differ by countries. To explore these possibilities, we have restricted the diagonal effects in three different ways: one diagonal parameter for both countries, two general diagonal parameters (one for each country), and 12 parameters for all diagonal cells and for both countries. The model with 12 parameters for the diagonal effects tends to over-fit the data and is the least parsimonious, but it provides information about which class-diagonal cell (class inheritance pattern) differs across countries.

Based on this information and on theoretical differences between countries, we focused on a restricted Homogeneous UA model which assumes a uniform overall inheritance effect across countries but allows some individual class inheritance to differ by country. This was done for both the Goldthorpe and Wright schemes and for all three pairs of country comparisons. For the US–Sweden comparison based on Wright's scheme, we did not find any substantial differences in the diagonal effects. For the same comparison based on Goldthorpe's scheme, we found that a restricted Homogeneous UA model which assumes a uniform diagonal effect but allows for country differences in intergenerational class inheritance for Classes I and IV is the most parsimonious and, at the same time, the most informative one.

The parameter estimates presented in Table 8 show that class inheritance for Goldthorpe's Class I (higher-grade professionals, managers, and large proprietors) is much stronger in Sweden than in the United States, but the holding power of Goldthorpe's Class IV (farm owners, small proprietors, and self-employed workers) is stronger in the United States than in Sweden. None the less, overall, the results for the US–Sweden comparison suggest more similarity than differences between two class schemes.

USA–Germany

The results for the comparison between the USA and Germany based on Wright's scheme suggest that the Heterogeneous UA model is the best fitting model. It assumes that the association pattern differs significantly across the two countries. In this model the heterogeneous effects were left unrestricted and, therefore, it is the simplest form of heterogeneous models (Clogg, 1984: 232). It can be viewed as a baseline model for the more complex heterogeneous models shown in Tables 5 and 6. A comparison between the BIC values for this baseline model and the BIC values for the other heterogeneous models suggests that the more complex versions of heterogeneous models tend to somewhat over-fit the data or lack scientific parsimony, even though the results

Table 5. *Tests of common social mobility among countries: Wright's class scheme*

Country comparison	Model	L^2	df	BIC	D (%)
US–Sweden	Quasi-Independence	82.1	44	−222	9.5
	Homogeneous UA	**69.1**	**43**	**−228**	**8.4**
	Heterogeneous UA	66.8	42	−223	8.5
	Homogeneous RC Effects	42.8	35	−199	6.2
	Heterogeneous RC Effects	28.6	26	−151	4.9
	Homogeneous EQ RC	52.6	39	−217	7.5
	Heterogeneous EQ RC	49.6	34	−185	7.1
US–Germany	Quasi-Independence	117.4	44	−203	10.1
	Homogeneous UA	91.0	43	−222	8.9
	Heterogeneous UA a	68.8	42	−237	6.7
	Heterogeneous UA b	87.9	46	−247	7.6
	Heterogeneous UA c	**73.1**	**44**	**−247**	**6.8**
	Homogeneous RC Effects	58.1	35	−197	6.0
	Heterogeneous RC Effects	44.1	26	−145	4.4
	Homogeneous EQ RC	65.1	39	−219	6.7
	Heterogeneous EQ RC	55.9	34	−192	5.8
Sweden–Germany	Quasi-Independence	118.4	44	−196	10.0
	Homogeneous UA	80.4	43	−227	8.4
	Heterogeneous UA	75.9	42	−224	7.9
	Homogeneous RC Effects	45.7	35	−204	4.5
	Heterogeneous RC Effects	33.9	26	−152	4.1
	Homogeneous EQ RC	59.7	39	−219	6.3
	Heterogeneous EQ RC	47.7	34	−195	5.3
	Restricted Homogeneous UA a	93	47	−242	9.0
	Restricted Homogeneous UA b	**82.6**	**46**	**−246**	**8.1**

Notes: Models have class-specific diagonal parameters unless noted otherwise.
Hetero. UA a has class-specific diagonals, Hetero. UA b has country-specific diagonals, and Hetero. UA c has one uniform diagonal parameter for both countries but allows for country differences in inheritance for Classes III, IV, and V.
Restricted Homo. UA a has two diagonal parameters, one for each country. Homo. UA b specifies one uniform diagonal parameter but allows for country differences in inheritance for Classes III and VI.

from the more complex models are consistent with those from Heterogeneous UA.[7]

To present the Heterogeneous UA model in a more informative and parsimonious way, we estimated two additional versions of Heterogeneous UA models and found Heterogeneous UA/c to be the best model. In addition to overall heterogeneity in the association, this model has one uniform diagonal parameter for both countries but allows for differences in inheritance for Classes III and V between the two countries. The parameters presented in Table 7 show that the average off-diagonal effects (odds ratios) on intergenerational class association are stronger in Germany than in the United States. Moreover, class inheritance for Class III (experts or highly skilled workers) is clearly stronger in Germany than in the United States, and Class V (non-expert managers/supervisors) also exhibits higher class immobility in Germany than in the United States. On the other hand, the petty bourgeoisie class has much stronger holding power in the United States than in Germany.

These findings are consistent with our expectation that the apprenticeship institution unique to the German educational system makes the expertise boundary more impermeable in Germany than in the United States. Accordingly, we expected to find a stronger holding power for the employer class in Germany than in the United States due to more entry barriers faced by offspring from non-employer origins and more state restrictions on self-employment in Germany.

Table 6. *Tests of common social mobility among countries: Goldthorpe's class scheme*

Country comparison	Model	L^2	df	BIC	D (%)
US–Sweden	Quasi-Independence	124.8	44	−182	12.3
	Homogeneous UA	88.4	43	−211	10.8
	Restricted Homogeneous UA	**84.5**	**46**	**−236**	**9.9**
	Heterogeneous UA	85.8	42	−207	10.6
	Homogeneous RC Effects	51.8	35	−192	7.5
	Heterogeneous RC Effects	29.7	26	−152	5.3
	Homogeneous EQ RC	74.7	39	−197	9.5
	Heterogeneous EQ RC	68.3	34	−169	8.8
US–Germany	Quasi-Independence	201.8	44	−118	12.4
	Homogeneous UA	122.6	43	−190	9.9
	Heterogeneous UA	115.7	42	−189	9.0
	Homogeneous RC Effects	**57.3**	**35**	**−197**	**7.0**
	Heterogeneous RC Effects	23.3	26	−166	4.0
	Homogeneous EQ RC	111.3	39	−172	9.3
	Heterogeneous EQ RC	91.0	34	−156	8.9
Sweden–Germany	Quasi-Independence	222.8	44	−94	14.8
	Homogeneous UA	136.5	43	−173	11.1
	Heterogeneous UA	135.4	42	−167	10.8
	Homogeneous RC Effects	**59.0**	**35**	**−193**	**7.1**
	Heterogeneous RC Effects	42.7	26	−144	6.0
	Homogeneous EQ RC	133.0	39	−148	10.6
	Heterogeneous EQ RC	112.9	34	−132	9.6

Notes: Models have class-specific diagonal parameters unless noted otherwise.
Restricted Homogeneous UA specifies one uniform diagonal parameter for both countries but it allows for country differences in inheritance for Classes I and IV.

An examination of the country- and class-specific diagonal effects (not shown) suggests that the employer class does indeed have stronger retention power in Germany than in the United States. However, these barriers may not affect the inheritance pattern of the petty bourgeoisie whose class members are self-employed but who themselves have no employees. The greater immobility of the self-employed class in the United States must be accounted for by other factors than the barriers mentioned above. Different preferences associated with class origins for educational attainment and occupations have an important impact on class destination. Offspring from the self-employed class have especially strong preferences to remain in the same class (Hout, 1989; Wong, 1992) or tend to have certain educational and occupational aspirations which will eventually lead them to the same class destination. This tendency appears to be stronger in the United States than in Germany.

Based on Goldthorpe's class scheme, the results for the same country comparison suggest that the Homogeneous RC Effects model is the best fitting model. This model assumes heterogeneity in the overall association pattern but homogeneity in the row and column effects. The row and column effects mean that the association between origin and destination is non-linear. That is, the probability of getting into a higher versus a lower class position depends on which origin and which destination is under consideration. The parameters show (see Table 8) that the overall association is much stronger in Germany than in the United States. The product of row and column scores can be interpreted as barriers or channels of association (Wong, 1995: 318). A positive product suggests that mobility is more likely to occur across class boundaries, and a negative product indicates the opposite. Thus, $(-0.551) \times (-0.232) = 0.128$ suggests channels of movement between Class I and Class II. Similarly,

Table 7. *Parameter estimates for selected models in Table 5, according to Wright's scheme*

Country comparison	Class	Inheritance effects		
US–Sweden (Homogeneous UA)	I	1.43		
	II	1.90		
	III	2.60		
	IV	4.01		
	V	0.92		
	VI	1.09		
US–Germany (Heterogeneous UA c)		All	USA	Germany
Off-diagonal effects (odds ratio)			1.03	1.12
Inheritance effects		1.41	—	—
	III	—	3.26	5.89
	IV	—	4.39	1.84
	V	—	0.67	1.15
Sweden–Germany		All	Sweden	Germany
Restricted Homo. UA a (inheritance effects)			1.26	1.47
Restricted Homo. UA b (inheritance effects)		1.52	—	—
	III	—	1.92	5.95
	VI	—	0.70	1.47

$(-0.551) \times (-0.052) = 0.029$ suggests hardly any movement between Class I and Class III (the routine non-manual class). The product scores for the remaining three classes are: 0.173, −0.129, and −0.432.

Overall, these scores suggest that the probability of moving into Class I is higher for offspring from Class II and Class IV than for offspring from the class of routine non-manual workers, and that the barriers for movement are the strongest for offspring from the bottom two class origins. It seems that there is indeed a barrier which separates white-collar workers from the bottom two manual classes. Within the white-collar working class there is a further division between those who have either property or skills and those who have neither (the routine non-manual class). On the whole, the results based on the two class schemes lead to essentially the same conclusions that the social fluidity pattern differs between the United States and Germany.

Sweden–Germany

Based on Wright's scheme, by the BIC value criteria, the Homogeneous UA model is the best fitting model, which assumes a similar fluidity pattern for Sweden and Germany. By giving up one more degree of freedom, the Heterogeneous UA model did not improve the fit. Other more complex heterogeneous models and row and column effects models did not improve the fit either: the changes in the BIC value towards less negative values are larger than 5 points, suggesting a lack of parsimony. The acceptance of the Homogeneous UA model would seem inconsistent with previous findings that Sweden has a higher rate of social fluidity than other industrialized countries, possibly due to Sweden's longstanding social democratic government (Erikson, 1983; Erikson and Goldthorpe, 1992; Jonsson, 1993; Jonsson and Mills, 1993; Ganzeboom *et al.*, 1991; Western and Wright, 1994).

In contrast, Germany has been found to be a more immobile society (Erikson and Goldthorpe, 1992; Li and Singelmann, 1998). On this ground one would expect a different association pattern between Sweden and Germany. On the other hand, as we have discussed earlier, Sweden and Germany share similarities in various factors related to social mobility. Both have a high degree of nationalization of large enterprises and a high level of unionization and centralization in collective bargaining. They

Table 8. *Parameter estimates for selected models in Table 6, according to Goldthorpe's scheme*

Country comparison	Class	Inheritance effects	
US–Sweden (Restricted Homogeneous UA)	All	US	Sweden
	1.40	—	—
	I	0.54	1.47
	IV	2.93	1.76
US–Germany (Homogeneous RC Effects)		US	Germany
Overall association (phi)		2.40	3.91
Row scores (both groups)	−0.551 −0.455 −0.010 0.279 0.140 0.633		
Column scores (both groups)	−0.421 −0.232 −0.052 −0.313 0.234 0.784		
	I	0.513	
	II	1.684	
	III	1.422	
	IV	3.602	
	V	1.558	
	VI	0.645	
Sweden–Germany (Homogeneous RC Effects)		Sweden	Germany
Overall association (phi)		2.59	3.20
Row scores (both groups)	−0.631 −0.297 −0.207 0.424 0.220 0.493		
Column scores (both groups)	−0.424 −0.251 −0.005 −0.405 0.497 0.588		
Inheritance effects (both groups)	I	0.788	
	II	1.845	
	III	1.539	
	IV	3.552	
	V	1.228	
	VI	1.233	

also have similar educational systems. These factors are likely to have contributed to a similar overall pattern of fluidity as structured by the property and skill dimensions of the class structure between the two countries. However, within similarity in general association pattern, there may still be other interesting differences between the two countries.

To explore these differences, we have estimated two restricted versions of homogeneous uniform association models (see Table 5). The restricted Homogeneous UA/*a* model has two diagonal parameters, one for each country, and the *b* version of this model specifies one uniform diagonal parameter but allows for country differences in inheritance for Classes III and VI. While both models improved the fit and reveal country differences in inheritance effects, the restricted Homogeneous UA/*b* model is the preferred model based on all criteria.

The parameters for the restricted Homogeneous UA/*a* model presented in Table 7 show that the overall class inheritance is stronger in Germany than in Sweden. More specifically, the parameters for restricted Homogeneous UA/*b* show that this difference is mostly attributed to the differences in self-recruitment of Class III (experts) and Class VI (workers) between the two countries.

Intergenerational class inheritance for the expert class is five times as strong in Germany as in Sweden. Interestingly, despite the similarity in educational systems between Sweden and Germany, the expert class remains much more impermeable in Germany. Differences in the labour-market structure and political institutions between the two countries are plausible explanations. The tendency of self-recruitment for the working class is twice as high in Germany as in Sweden. These results are consistent with previous findings which show that Germany is the most class-stratified nation in comparison with other Western European countries (Hout and Hauser, 1992), and that sons of unskilled workers face unusually strong

barriers to upward mobility across generations (Erikson and Goldthorpe, 1992: 148–150).

Using Goldthorpe's scheme for the same country comparison, we found the Homogeneous RC Effects model to be the best fitting model. This model assumes different association patterns but homogeneous row and column effects for Sweden and Germany. The parameter estimates presented in Table 8 show that the overall association is stronger in Germany than in Sweden, although this difference is smaller than that between the United States and Germany, which suggests more similarity between Sweden and Germany than between the United States and Germany. The product of row and column scores suggests the same pattern of barriers and channels for mobility as found in the USA–Germany comparison.

The product scores for mobility between Class I and other classes are as follows: 0.158 for Classes I and II, 0.003 for Classes I and III, 0.256 for Classes I and IV, −0.314 for Classes I and V, and −0.371 for Classes I and VI. The product of these scores may be modified by the overall association parameter (phi) specific to each country so as to reveal differences in mobility barriers across countries (Wong, 1995: 318–319). Given a large overall association parameter for Germany, the modified product of the row and column scores then suggests that the barriers for the bottom two classes to move up are stronger in Germany than in Sweden.

Discussion and Conclusion

In this study we compared Wright's and Goldthorpe's class schemes by examining within- and between-country mobility patterns among three industrialized countries that have distinct social and institutional features: the United States, Sweden, and Germany. The findings reveal the following points. First, the class-specific average value for education, occupational prestige, and income in Wright's class scheme suggest that his class model is more robust than has been thought. There is no evidence that the size of the managerial/supervisory classes has been inflated so as to generate artificially high upward mobility in Wright's scheme.

Second, gross mobility based on Goldthorpe's class construction appears to show a higher rate of upward mobility than that based on Wright's. This is likely to reflect the fact that more changes between generations may have taken place in the occupational structure and the nature of employment relationship which underlies the division among most of Goldthorpe's classes than they have in the class structure as defined by Wright's three dimensions of property, expertise, and authority. Despite these differences, our findings pertaining to origin and destination associations showed that the relative mobility rates (fluidity patterns) do not differ by class scheme within each of the three countries under investigation. Thus, the mechanisms captured by both Wright's and Goldthorpe's class conceptualizations are important in shaping intergenerational class fluidity.

The third point concerns national variation in fluidity. For the US–Germany comparison, the results do not differ fundamentally across the class schemes, except for some variations concerning mostly the row and column effects. In Goldthorpe's class scheme, the non-linear effects of social origins on destinations are much more pronounced than they are in Wright's model. Despite these variations, the results based on both class schemes lead to the same conclusion. Germany is a more immobile society than the United States. It not only has a different fluidity pattern as structured by the economic sectors and cultural barriers of the class structure, but it also has a distinct pattern as structured by the property and expertise dimensions of the class structure.

Moreover, the authority barriers at the low-skill level were found to be more impermeable in Germany than in the USA. For the USA–Sweden comparison, the findings based on both class schemes overall show similarity rather than differences in the fluidity pattern between the two countries. The lack of significant differences in social fluidity between Sweden and the United States may reflect a mixture of institutional features in the Swedish case. On the one hand, Sweden has greater equality in income and much more comprehensive social-welfare provision than the United States. These factors have positive implications for social fluidity and may make Sweden a more open society than the United States. On the other hand, Sweden

resembles other more rigid societies in terms of class differences in access to secondary and post-secondary education (e.g. England (Jonsson and Mills, 1993)). Our findings based on Goldthorpe's class scheme show that immobility for Class I, which includes a large portion of high-grade professionals, is higher in Sweden than in the United States, thereby negatively affecting social fluidity. Moreover, stronger dominance of the public sector, especially in service industries, is likely to make the property boundary less permeable in Sweden than in the United States. When these various factors are combined, however, Sweden appears to be similar to rather than different from the United States in terms of social fluidity.

With regard to the Sweden–Germany comparison, the Goldthorpe and Wright schemes yield, on the one hand, different, and on the other hand, similar results. While the results based on Goldthorpe's model suggest that origin–destination association is stronger in Germany than in Sweden, the findings based on Wright's model suggest a similar overall association pattern between the two countries. However, the preferred model based on Wright's scheme revealed important country differences in class inheritance: the expert class is found to be much more impermeable, and the working class has stronger holding power in Germany than in Sweden.

Thus, on the whole, the findings based on both class schemes lead to basically the same conclusion: despite the national similarities in the educational system and other institutional features (e.g. the level of unionization and the level of state control over the economy), Germany remains a more rigid and immobile society than Sweden. In comparison to both the United States and Sweden, the skill barriers are much more impermeable in Germany. This is a finding which attests to the strong impact of the apprenticeship system on the German class mobility regime. It also supports the view that the distinction between skilled and unskilled work is a salient dimension of the German class structure.

In sum, these findings have implications for future mobility research in national comparisons. Despite their distinctive features, both Wright's and Goldthorpe's conceptions of social class more often than not reveal the same fluidity pattern, for they both capture important mechanisms which shape the social fluidity process.

Notes

1. Singelmann was one of the principal investigators of the German Class Project.
2. Given the constraints of the sample size and limited data on the authority dimension for parents (origins), the collapsing of Wright's 12-category class scheme (Wright 2) was necessary. We do not have as refined data on the authority dimension for parents as for respondents. For this reason we cannot distinguish between managers and supervisors for parents. To preserve the symmetry between origin and destination, we had to combine the two categories into one for both parents and respondents. The construction of the class of origin was based not just on occupational information but also on other information about the ownership of means of production, employment type, managerial/supervisory position, and skills. The occupational variable was used mainly to identify professionals whose occupations require post-undergraduate degrees.

   Despite the modification, the basic conceptual framework of Wright's class, namely the framework of multidimensional relations of exploitation based on property, expertise, and authority (Wright, 1985: 87–92; Western and Wright, 1994: 608), remains intact. More specifically, the six class categories which we used distinguish those who own the means of production from those who do not (the employer and petty bourgeoisie classes versus others). Among the employees they distinguish between those who have skills versus those who do not (experts and expert-manager versus others, especially uncredentialed managers and workers), and they also distinguish between those who have authority (organizational assets) and those who do not (expert-manager, uncredentialed manager, and employers versus experts and workers).
3. The smaller number of cases for Wright's class model in Sweden is due to a larger proportion of respondents who had missing information on parents' employment type and organizational assets (authority) in the Swedish sample than, for example, in the US sample. So two important questions need to be addressed: (1) Are the missing cases different from the valid cases which are included in the analysis for Sweden? (2) Does the sample for Wright's class scheme differ from that for Goldthorpe's? We have looked at a few important socioeconomic and demographic characteristics of these samples (see Appendix 1). We found that the missing cases on average have somewhat lower education and have a somewhat lower level of income than the valid cases. They are also about 2 years older than

the other cases. In terms of occupational prestige scores, the missing cases are not different from the valid cases. Overall, the missing cases are not very different from the sample on which the analysis is based. Moreover, these characteristics of the two samples (one for Wright's class model, and the other for Goldthorpe's) are almost identical. Thus, it is highly unlikely that we are analysing two different populations.

4. Raftery (1995: 139) considers BIC differences between two models in a range from 0 to 2 points as weak, from 2 to 6 points as positive, from 6 to 10 points as strong, and greater than 10 points as very strong evidence for significant improvements of the model. Wong (1994) recommended that changes in the BIC value within 5 to 10 points for large samples (N > 1,000) be interpreted carefully.
5. We have run two versions of models: the free diagonal and class-specific diagonal versions. The free diagonal version of the model estimates 12 parameters for all 12 diagonal cells (6 categories in each scheme). The log-likelihood ratio, L^2, is generally lower in the free diagonal version than in the class-specific version of the models, but many more degrees of freedom were expended and the BIC values are also less negative in the former than the latter. For this reason, we chose the class-specific version of the association models which estimates six diagonal parameters, one for each class category, assuming no country differences in these parameters.
6. For instance, in the Heterogeneous Eq RC model, the parameter for the overall association is 1.54 for Wright's scheme and 1.89 for Goldthorpe's; the parameter for the overall diagonal effects is 1.07 for Wright's and 1.04 for Goldthorpe's. The stronger overall association for Goldthorpe's scheme probably comes from larger row–column effects revealed in Goldthorpe's than in Wright's scheme.
7. For example, the parameters (not shown) estimated from the more complex models, such as Homogeneous EQ RC Effects model, in general clearly show that intergenerational class association is much stronger in Germany than in the United States.

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References

Blossfeld, H.-P. and Mayer, K.-U. (1988) Labour-market segmentation in the Federal Republic of Germany: an empirical study of segmentation theories from a life-course perspective. *European Sociological Review*, **4**, 123–140.

Bourdieu, P. (1987) What makes a social class: on the theoretical and practical existence of groups. *Berkeley Journal of Sociology*, **32**, 117.

Braverman, H. (1974) *Labor and Monopoly Capital: the Degradation of Work in the Twentieth Century*. Monthly Review Press, New York.

Clogg, C. C. (1982) Using association models in sociological research: some examples. *American Journal of Sociology*, **88**, 114–134.

Clogg, C. C. (1984) Applications of association models, III: some models for the analysis of association in multiway cross-classifications having ordered categories. Pp. 224–260 In Goodman, L. A. (ed.) *The Analysis of Cross-Classified Data Having Ordered Categories*. Harvard University Press, Cambridge, Mass.

Dahrendorf, R. (1959) *Class and Class Conflict in Industrial Society*. Routledge, London.

Dahrendorf, R. (1964) Recent changes in the class structure of European societies. *Daedalus* (Winter), **93/1**, 225–270.

Erikson, R. (1983) Changes in social mobility in industrial nations: the case of Sweden. *Research in Social Stratification and Mobility*, **2**, 165–195.

Erikson, R. and Goldthorpe, J. H. (1987) Commonality and variation in social fluidity in industrial nations: part I and part II. *European Sociological Review*, **3**, 54–77, 145–166.

Erikson, R. and Goldthorpe, J. H. (1992) *The Constant Flux: A Study of Class Mobility in Industrial Societies*. Clarendon Press, Oxford.

Erikson, R., Goldthorpe, J. H., and Portocarero, L. (1979) International class mobility in three Western European societies. *British Journal of Sociology*, **33**, 415–441.

Erikson, R., Goldthorpe, J. H., and Portocarero, L. (1982) Social fluidity in industrial nations: England, France and Sweden. *British Journal of Sociology*, **33**, 1–34.

Evans, G. (1992) Testing the validity of the Goldthorpe's class schema. *European Sociological Review*, **8**, 211–232.

Ganzeboom, H., Luijkx, R., and Treiman, D. (1989) Intergenerational class mobility in comparative perspective. Pp. 3–84 In Kalleberg, A. L. (ed.),

Research in Social Stratification and Mobility, viii. JAI Press, Greenwich, Conn.

Ganzeboom, H., Treiman, D., and Ultee, W. (1991) Comparative intergenerational stratification research: three generations and beyond. *Annual Review of Sociology*, **17**, 277–302.

Geiger, T. (1932) *Die Soziale Schichtung des deutschen Volkes*. Enke, Stuttgart.

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

Goldthorpe, J. H. and Hope, K. (1974) *The Social Grading of Occupations: A New Approach and Scale*. Clarendon Press, Oxford.

Goldthorpe, J. H. and Llewellyn, C. (1977) Class mobility: international and worklife patterns. *British Journal of Sociology*, 28/3.

Goldthorpe, J. H. and Payne, C. (1986) Trends in international class mobility in England and Wales, 1972–1983. *Sociology*, **20**, 1–24.

Goodman, L. A. (1984) *The Analysis of Cross-Classified Data Having Ordered Categories*. Harvard University Press, Cambridge, Mass.

Goodman, L. A. (1991) Measures, models, and graphical displays in the analysis of cross-classified data. *Journal of the American Statistical Association*, **86**, 1085–1111.

Grusky, D. B. and Hauser, R. M. (1984) Comparative social mobility revisited: models of convergence and divergence in sixteen countries. *American Sociological Review*, **49**, 19–38.

Guest, A. M., Landale, N. S., and McCann, J. C. (1989) Intergenerational occupational mobility in the late 19th century United States. *Social Forces*, **68/2**, 351–378.

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

Hauser, R. M. (1995) Better rules for better decisions. *Sociological Methodology*, **25**, 175–183.

Hout, M. (1983) *Mobility Tables*. Sage, Beverly Hills, Calif.

Hout, M. (1988) More universalism, less structural mobility: the American occupational structure in the 1980s. *American Journal of Sociology*, **93**, 1358–1400.

Hout, M. (1989) *Following in Father's Footsteps: Social Mobility in Ireland*. Harvard University Press, Cambridge, Mass.

Hout, M. and Hauser, R. M. (1992) Symmetry and hierarchy in social mobility: a methodological analysis of the CASMIN model of class mobility. *European Sociological Review*, **8**, 239–266.

Jonsson, J. O. (1993) Schools reforms, educational expansion, and educational attainment: trends toward equality in Sweden. Pp. 101–132 in Shavit, Y. and Blossfeld, H.-P. (eds) *Persisting Inequality: Changing Educational Stratification in Thirteen Countries*. Westview Press, Boulder, Colo.

Jonsson, J. O. and Mills, C. (1993) Social mobility in the 1970s and 1980s: a study of men and women in England and Sweden. *European Sociological Review*, **9**, 229–247.

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

Li, J. H. and Singelmann, J. (1998) Gender differences in class mobility: a comparative study of the United States, Sweden, and West Germany. *Acta Sociologica*, **41**, 315–333.

Levy, R. and Joye, D. (1994) What is Switzerland's stratification like: classes, prestige gradation, professional categories. *International Sociology*, **9**, 313–335.

Marshall, G. (1988) Classes in Britain: Marxist and official. *European Sociological Review*, **4**, 141–154.

Marshall, G., Newby, H., Rose, D., and Vogler, C. (1988) *Social Class in Modern Britain*. Hutchinson, London.

Marshall, G. and Rose, D. (1990) Out-classed by our critics? *Sociology*, **24**, 255–267.

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

Mayer, K.-U. and Carroll, G. R. (1986) Job-shift patterns in the Federal Republic of Germany: the effects of social class, industrial sector, and organizational size. *American Sociological Review*, **51**, 323–342.

Müller, W. (1986) Soziale Mobilitaet: die Bundestrepublik im internationalen Vergleich. Pp. 339–354 in Kaase, M. (ed.) *Politische Wissenschaft und Politische Ordnung: Analysen zu Theorie und Empirische Demokratischer Regierungsweise*. Westdeutscher Verlag, Opladen.

Ott, L., Larsson, R. F., and Mendenhall, W. (1987) *Statistics: A Tool for the Social Sciences*. Buxbury Press: Boston, Mass.

Raftery, A. E. (1986) Choosing models for cross-classifications. *American Sociological Review*, **51**, 146–147.

Raftery, A. E. (1995) Bayesian model selection in social research. *Sociological Methodology*, **25**, 111–164.

Roemer, J. E. (1982) *A General Theory of Exploitation and Class*. Harvard University Press, Cambridge, Mass.

Rose, D. and Marshall, G. (1986) Constructing the (W)right classes. *Sociology*, **20**, 440–455.

Sørensen, A. B. (1991) On the usefulness of class analysis in research on social mobility and socioeconomic inequality. *Acta Sociologica*, **34**, 71–87.

Sørensen, J. B. (1992) Locating class cleavages in intergenerational mobility: cross-national commonalities and variations in mobility patterns. *European Sociological Review*, **8**, 267–281.

Westergaard, J. (1987) Review of Erik Olin Wright: *Classes*. *European Sociological Review*, **3**, 85–88.

Western, M. and Wright, E. O. (1994) Class boundaries and intergenerational mobility among men. *American Sociological Review*, **59**, 606–629.

Wong, R. S. (1990) Understanding cross-national variation in occupational mobility. *American Sociological Review*, **55**, 560–573.

Wong, R. S. (1992) Vertical and nonvertical effects in class mobility: cross-national variations. *American Sociological Review*, **57**, 396–410.

Wong, R. S. (1994) Model selection strategies and the use of association models to detect group differences. *Sociological Methods and Research*, **22**, 460–491.

Wong, R. S. (1995) Socialist stratification and mobility: cross-national and gender differences in Czechoslovakia, Hungary, and Poland. *Social Science Research*, **24**, 302–328.

Wright, E. O. (1982) The comparative project on class structure and class consciousness. In *The Comparative Project on Class Structure and Class Consciousness, Technical Paper Series, No. 1*. University of Wisconsin Press, Madison, Wis.

Wright, E. O. (1985) *Classes*. Verso, London.

Appendices

Appendix 1. Socioeconomic and Demographic Characteristics of the Swedish Sample

Table A1. *Socioeconomic and demographic characteristics of the Swedish sample*

	Wright's class		Goldthorpe's class
	Valid cases	Missing cases	Valid cases
Education	3.5	3.0	3.4
Occupation (SEI)	6.1	6.1	6.1
Income	4142.5	4101.1	4149.9
Age	41.6	44.0	42.1
N	399	167	489

Appendix 2. Model Definition

1. Quasi-independence: Social class transmission is largely random, apart from the tendency to inherit parental class. Cell frequencies are a function of marginal and diagonal parameters. It serves as a baseline model.
2. Homogeneous UA: The homogeneous uniform association model includes all parameters from the quasi-independence model but it adds one association parameter for two mobility tables (one is based on Wright's scheme and the other on Goldthorpe's scheme). This model assumes that the association between origin and destination is invariant across two tables (groups).
3. Heterogeneous UA: The heterogeneous uniform association model assumes that the relationship between origin and destination differs across two mobility tables.
4. Homogeneous Row-Effects: This model allows for a non-linear relationship between origin and the probability of moving into a higher versus a lower destination. The chances of moving into a higher versus a lower class position depends on what social class one comes from.
5. Homogeneous Column-Effects: The probability of moving into a higher versus a lower class position depends on which destination class is being considered.
6. Homogeneous RC Effects: The overall association pattern differs by mobility table, and the effects of origin on destination depend on which origin and which destination are under consideration; but the row and column effects do not differ by table.
7. Heterogenous RC Effects: The overall association pattern differs by table, and the non-linear effects of row and column also differ by table.
8. Homogeneous Eq RC: The relationship between origin and destination is different across two mobility tables, but the relative social standing of the classes is similar between two tables.
9. Heterogeneous Eq RC: The association between origin and destination differs across two mobility tables and so does the relative social standing of the classes.

Authors' Addresses

Jiang Hong Li, Institute of Social Policy, University of Göttingen, Platz der Göttinger Sieben 3, D-37073 Göttingen, Germany.

Joachim Singelmann, Department of Sociology and Rural Sociology, Louisiana State University, Baton Rouge LA 70803, USA.

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