

**Comparing Social Stratification Schemas:
CAMSIS, CSP-CH, Goldthorpe, ISCO-88, Treiman, and Wright**

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Abstract

The purpose of this article is to inform researchers in the social and political sciences about the main social stratification scales in use today. Six stratification schemas are described in this text: the Cambridge Social Interaction and Stratification Scale (CAMSIS), Swiss Socio-Professional Categories (CSP-CH), John H. Goldthorpe's class schema, the International Standard Classification of Occupations (ISCO-88), Donald J. Treiman's prestige scale, and Erik Olin Wright's class structure. Their theoretical backgrounds and assumptions are discussed, as are their structural and methodological aspects. General problems of contemporary stratification research are covered, and suggestions for future research directions within this field are proposed.

Contents

1	Introduction.....	5
2	ISCO-88.....	6
3	Goldthorpe's Class Schema.....	11
4	Wright II & III Class Structure.....	18
5	Treiman's Prestige Scale.....	26
6	CAMSIS.....	34
7	CSP-CH.....	40
8	Summary and Conclusion.....	43
9	References.....	47

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1 Introduction

Few themes have been as central to the social sciences as the conceptualisation and study of inequality and the distribution of social and economic resources since the inception of sociology as a discipline by August Comte, and Marx's outline of the exploitative nature of class relations. Based in part on empirical evidence and in part on custom, most contemporary approaches to stratification and mobility within modern complex societies emphasize professional occupational titles as the primary defining criterion of social position. Thus, all schemas described in this text are based largely on occupational titles. Where they diverge, however, is in the explanation of how these titles relate to stratification. For example, occupational titles can have stratifying functions due to (a) the socio-economic relations which individuals share with each other on the basis of their occupations, (b) class interests based on the differential relations of occupations to authority and capital, (c) scarce, yet desirable, resources in the form of skills and knowledge that go along with these occupations and that can be transformed into advantage and power, and (d) differential social status or prestige that represent the symbolic value of occupations and correspond to variations in advantage and power.

Conceptualisations of social stratification or inequality are inseparable from measurement issues, regardless of whether these constructs are conceptualised as subjective perceptions or scarce, yet desirable resources, or whether they focus on descriptive, comparative, or mobility questions. Before we can look at the form and function of status or at resource diffusion and its change over time and context, we have to consider, first, what is stratified, and second, how to measure it. Only if we are rigorous in the consideration of these fundamental aspects of the phenomenon can we begin to look at its variations and change.

Conceptualisation and measurement of social stratification is at once one of the best established, most complex, and most disputed areas in the social sciences. This text aims to explore and compare the main features of the most popular international stratification schemes: the Cambridge Social Interaction and Stratification Scale (CAMSIS), John H. Goldthorpe's class schema, the International Standard Classification of Occupations (ISCO-88), Donald J. Treiman's prestige scale, and Erik Olin Wright's class structure. There are good reasons to question the validity of stratification schemas, which have been constructed from one specific national context and subsequently applied to others, and thus, national scales may play an important part in highlighting idiosyncratic national stratification characteristics. For this reason, we have included the Swiss Socio-Professional Categories (CSP-CH), a stratification schema that is sensitive to the idiosyncratic characteristics of Switzerland.

This article is limited to an outline of the key characteristics and theoretical background of some stratification schemes, their key assumptions and structure, a selection of relevant critiques, and references for further study. In no way can this text be considered an exhaustive description and critique of social stratification measures; the complexity of stratification as a whole and the scales described herein in particular transcend the limits of this text. Instead, this article aims to inform social and political scientists unfamiliar with the details of the social stratification literature about social stratification schemes in order to encourage, first, the inclusion of this dimension into their substantive research and, second, further development in this vital area of the social sciences.

2 International Standard Classification of Occupations (ISCO-88)

2.1 Background and Structure

The nature of the work performed by a worker has been used widely as a factor that can be grouped in meaningful ways so as to reflect social stratification within a society. Therefore, numerous attempts have been made to describe, label, and classify occupational titles. For mobility and cross-national studies in particular, a standard classification system had to be developed, which would be detailed enough

to account for the tremendous variety of work performed by workers, standardized enough for work tasks to be meaningfully compared across various contexts, and sufficiently stable that temporal or geographic variations could be attributed to variations in stratification, rather than to variations in the classification of work. ISCO-88, a further development of two previous efforts – ISCO-58 and ISCO-68 – has been developed to facilitate international comparison of occupational data and is now the most widely used occupational classification standard. Aiming for a harmonization of national occupational classifications across the member states of the European Union, a European version of ISCO-88 has come into existence: ISCO 88 (COM). According to the International Labour Office, these two schemes should not be considered as different from each other, but instead, reflect a coordinated effort to produce from the ISCO-88 scheme a pan-European scheme based on occupational data from 12 member states. ISCO-88 classifies work according to, first, tasks and duties related to an occupation and, second, relevant skills that are necessary for fulfilling the formal and practical requirements of a particular occupation (International Labour Office, 1990; Elias, 1997a; 1997b). The most recent version emphasizes four skill levels, encompassing both formal education and informal training along with work experience as important classification criteria. The links between formal education/qualification and skill levels for a quasi-hierarchical structure are summarized by the following reproduced table (International Labour Office, 1990):

Table 1: Skill Levels of ISCO-88.

<i>Skill Level</i>	<i>Education Qualification</i>
First Skill Level	Primary Education (approximately 5 years)
Second Skill Level	Secondary Education (between 5 and 7 years)
Third Skill Level	Tertiary Education (between 3 and 4 years): not leading to a university degree
Fourth Skill Level	Tertiary Education (between 3 and 6 years): Leading to a university degree or equivalent

Incorporating the four skill levels into its occupational classification scheme while, simultaneously, adjusting for cross-national variations in definitions of education and skill, the ISCO-88 scheme classifies occupations into ten major groups at its broadest aggregate level, as can be seen from table 2:

Table 2: Major Groups and Skill Level of ISCO-88.

Code	Major Groups	Skill Level
1	Legislators, senior officials, and managers	n/a
2	Professionals	4th
3	Technicians and associate professionals	3rd
4	Clerks	2nd
5	Service workers and shop and market sales workers	2nd
6	Skilled agricultural and fishery workers	2nd
7	Craft and related trades workers	2nd
8	Plant and machine operators and assemblers	2nd
9	Elementary occupations	1st
0	Armed forces	n/a

Within a hierarchical framework, major groups (1-digit code) are subdivided into 28 sub-major groups (2-digit), which are subdivided yet again into 116 minor groups (3-digit) and 390 unit groups (4-digit). A unit group consists of a number of occupations that share similar skills and duties, which, finally, subdivide into jobs. For example, a nuclear physicist belongs to the unit group 2111 (physicists and astronomers), which are part of the minor group 211 (physicists, chemists and related professions), who belong to the sub-major group 21 (physical, mathematical and engineering science professionals), who are part of group 2 (professionals). A specific set of tasks and duties, in conjunction with a relevant degree of acquired formal and on-the-job skills, form a job. Grouping jobs according to similarities in skills and duties, regardless of their output, forms occupations. Hypothetically, ISCO-88 can be expanded to give

up to six levels: major groups, sub-major groups, minor groups, unit groups, occupations, and jobs. In practice, however, occupational titles are coded into 4-digit unit groups, which, due to their nested design, can be collapsed easily into 3, 2, or 1-digit versions.

2.2 Strengths and Weaknesses

ISCO-88 represents an impressive effort to create an international standardized classification system for occupations; a prerequisite for studying occupational structures cross-nationally and across time. To reduce the considerable cost associated with classification and coding of occupational information, a number of shortcuts have been devised, most notably by limiting the classification and coding to a sample of a population, by distributing a self-classification survey, or by computer-assisted procedures or automated coding routines (see Elias, 1997a; 1997b for a discussion). Elias (1997b: 13) summarizes problems relating to the validity and reliability of the ISCO-88 classification schema as follows:

- The extent and quality of the occupational data to be coded. The data to be coded may be too brief for application of a relevant occupational code, uninformative or may be ambiguous in its interpretation;
- Instruments for the application of coding rules may be poorly formulated, leading to differences in their interpretation by different coders;
- Poor coder training procedures may lead to errors in the application of coding rules;
- Human error, which may be a result of fatigue and boredom – coding occupational information is usually a difficult and unrewarding task;
- The classification itself may be poorly constructed, or may rely upon distinctions which cannot be readily operationalised in a particular context.

Obviously, the higher the level of aggregation, the less frequent are coding errors since variations in coding are more likely to fall within broader categories. Conversely, however, the more detailed the information to be sorted into

occupational groupings, the less reliably individual cases are assigned to categories. Hence, mobility studies or cross-national comparative studies using ISCO-88 coding schemas at the detailed 3- or 4-digit level could be less reliable than usually assumed, since variations across time or space are likely to be biased due to coding errors, which may have consequences on the validity of ISCO-88-based scales. However, using codes at the 1- or 2-digit level, while more reliable than the more detailed levels, would result in a tremendous loss of information, which would compromise the utility of the schema.

The critiques above have focused mostly on coding accuracy. However, further examination of the coding frame itself raises questions that have not been considered fully. The creators of this classification scheme implicitly assume that, first, an occupation can be reduced to a specific set of isolated tasks and duties, and that skills can be reduced to formal and informal education and on-the-job training schemes; second, that the tasks, duties, and skills of each occupation have been captured sufficiently; third, that tasks, duties, and skills neither interact nor can each of these compensate for another in the successful performance of a job; and, fourth, that a set of tasks, duties, and skills relating to an occupation are invariant across time and cross-national contexts. In other words, it is assumed, for instance, that disk jockeys, media interviewers, and radio announcers share the same tasks, duties, and skills, as do Porsche factory mechanics in Wiesbaden and Jiffy Lube mechanics in the Pecos, Texas. What information are we losing by deconstructing a job into a set of disparate tasks, which we define as relevant to the performance thereof? What criteria are applied in order to cluster jobs according to a general set of skills and levels of formal and informal education? Are the tasks and qualifications behind the occupational codes indeed invariant across national and other contexts and insensitive to interactions between markets, organizational structures, industrial sectors, and national context?

Due to the empirical vigour and international acceptance of this classification system, many social stratification schemes use ISCO-88 as a convenient classification of occupational titles, although their authors or those who adapt authors' schemas to existing data sets, regroup these occupational groups according to rules that reflect alternative theoretical or practical considerations.

3 John Goldthorpe's CASMIN Schema

3.1 Background and Structure

Despite its paradigmatic dominance of the conceptualisation and empirical application of social class in the late 20th century, the Goldthorpe class schema has been through numerous incarnations, starting from the late 1970s to its most recent exposition in 1997. This text will focus on the elucidation and critique of the latest version.

Although Goldthorpe and his colleagues are critical toward neo-Marxist notions of class structure while, also, pledging allegiance to Weberian thought, their class schema is influenced by ideas that draw on both Marx and Weber (see Marshall et al., 1988 for further elaboration). Central to Goldthorpe's class schema are employment relations – cast in a functionalist perspective – in industrial societies, i.e. societies, which, according to Goldthorpe and his colleagues, operate on the basis of technical and economic rationality. According to the authors of the class schema, industrialized societies are highly stratified because of an increase in the differentiation of labour compared to pre-industrial societies, which gave rise to a differentiation and net increase in training and education, a multiplication of scarce, yet desirable, technical and professional skills, and, thus, an emergence of a prominent middle-class. All these elements, in combination with an increase in managerial and administrative requirements due to complexities and bureaucratisation inherent in industrial societies, produce a diversification of occupations, which can be classified according to the relations they form with each other.

3.1.1 Classification of Stratification Measures

Goldthorpe divides social stratification schemas into models that focus on either *class structure* or *social hierarchy*. Class structure refers to conceptualisations relating to the social positions of actors as identified by their relations within the labour market. In contrast, social hierarchy refers to an approach that, according to

Goldthorpe, is interested in a single hierarchical dimension, e.g. prestige, status, economic resources, etc. He places his class schema into the former category and objects to the latter because it suggests a “vertical,” i.e. ascending/descending, dimension and, thus, is either too limited for his various purposes or misleading as far as social structure is concerned. For instance, he argues that skilled industrial workers, small proprietors, and minor officials may occupy a similar position in a hierarchy, but may be subjected to very different technical and economic realities (e.g. innovations or governmental policies) as far as their class position is concerned. Members within classes, in contrast, are relatively homogeneous in kind and level of resources, have similar experiences with regard to socio-structural fluctuations and, accordingly, are marked by similar class-specific interests.

3.1.2 Goldthorpe’s Class Structure and its Derivatives

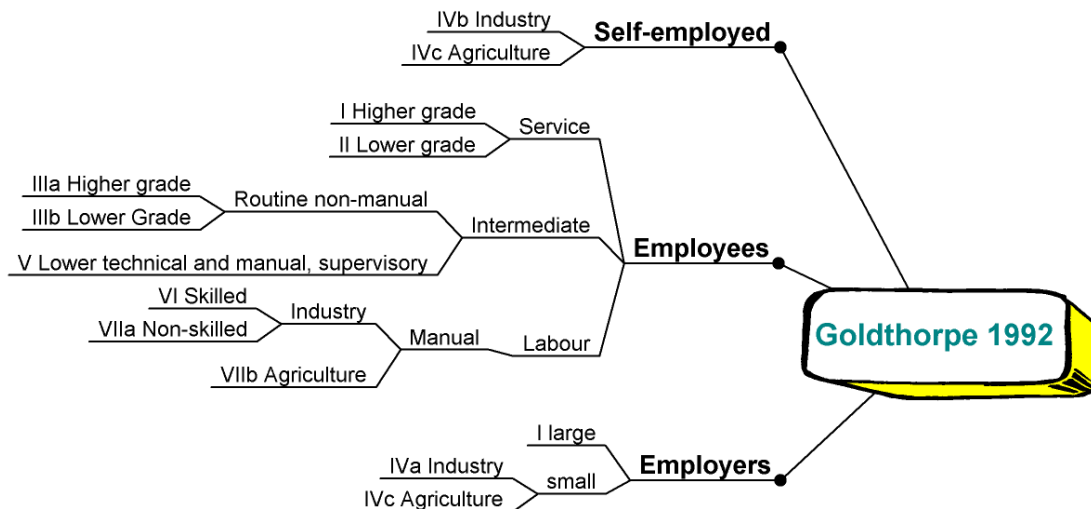
Fundamentally, Goldthorpe’s class schema rests on a tripartite thematic division: employers, who purchase labour from employees and, thus, have authority over them; self-employed workers without employees, i.e. those who neither buy nor sell labour; and employees, who sell their labour to employers and, thus, are under their authority. From this starting point, various adjustments and elaborations were made to expand on this triad. Considerations which entered into the construction of Goldthorpe’s class schema, include:

- Transformation of property into corporate forms.
- Bureaucratisation of labour and organizations.
- Authority, specialized knowledge, and expertise.
- Sectorial divisions of occupations, especially with regard to agriculture vs. other sectors.
- Job rewards and job-entry requirements.
- The nature of the labour contract and the conditions of employment.

Based on an “eclectic” and “selective” application of these considerations, Goldthorpe proposes not a “definitive ‘map’ of the class structures of individual

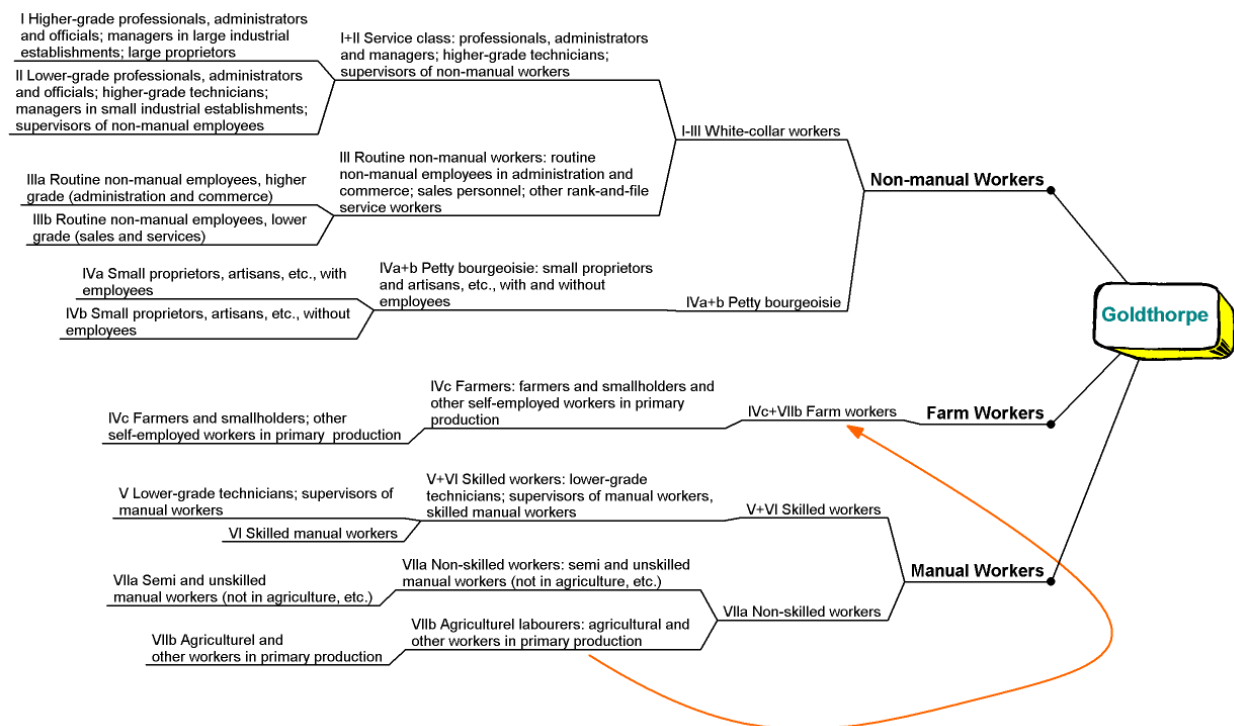
societies, but essentially ... an *instrument de travail*' (Erikson & Goldthorpe, 1992: 46). To illustrate some of the theoretical rationale behind his class schema from a *thematic* viewpoint, he suggested the following subdivisions:

Figure 1: Thematic illustration of Goldthorpe's class structure.



In contrast to the thematic illustration of the class schema (figure 1), Goldthorpe's class schema consists of four quasi-nested classifications, of which he prefers the seven-class variant. The following figure represents the four class schemas according to Erikson and Goldthorpe (1992: 38-39):

Figure 2: Goldthorpe's class schema.



The full 11-class version can be collapsed to fit researchers' needs and data limitations. Because the versions are quasi-nested, they can be simply recoded from the 11 classes into a 7-, 5-, or 3-class version. The terminology is not always consistent; Goldthorpe and his colleagues often stress that the labels "manual workers" and "non-manual workers" are too simplistic because the fundamental distinction should be understood not in terms of work activity, but rather as a function of employment contract.

3.2 Strengths and Weaknesses

When Runciman (1990) asked "How many classes are there in contemporary British society?," he received this response: "As many as it proves empirically useful to distinguish for the analytical purposes in hand" (Erikson & Goldthorpe, 1992: 46). In recognizing the ideological minefield around a theoretical elaboration of a class schema, especially with regard to the appropriateness of categories and their location, Erikson and Goldthorpe attempt to extricate themselves from the battle thus:

We take the view that concepts – like all other ideas – should be judged by their consequences, not by their antecedents. Thus, we have little interest in arguments about class that are of merely doctrinal value. (Erikson & Goldthorpe, 1992: 35)

Leaving aside the fact that sound theories go far beyond mere indoctrination, this version of pragmatism may lead to at least two pitfalls: first, one of the goals in the social sciences is to explain social phenomena, including the antecedents, form and function, as well as the consequences, of social stratification and mobility. This goal seems difficult to attain by a recitation of statistical coefficients in the absence of explanatory tools in the form of an empirically grounded social theory.

Second, an emphasis on the results of a class schema during its construction may seduce its creators into adjusting the class categories *post hoc* in order to improve their fit to a desired set of empirical results. A construction of a class schema according to such strategies will surely render the current reincarnation empirically impressive, yet force the constructors to reshuffle the classes according to the vagaries of data fluctuations across samples, to fashions, or to pet theories. Furthermore, fitting classes according to a set of *a priori* expectations may make it difficult to validate the schema or, worse, will invite tautologies: if, for instance, a class schema is based on the degree of occupational authority, economic rewards, or skills, then measures of association between this class schema and measures of authority, economic rewards, or skills cannot be used to validate the schema. Related to this point is the possibility of detecting spurious relations: for example, if a class schema uses ownership as its fundamental component and, subsequently, reveals that education, income, or some form of power are associated with it, then it is not clear which may be the substantive finding: their association with class or with ownership.

These pitfalls may be avoided through explicit operational definitions and clear elaborations of the components of a class schema – elements that have been somewhat neglected in Goldthorpe's work. Obviously, Goldthorpe and his colleagues are far too sophisticated to commit such errors when *they* apply their own schema. Others, who may not know the exact composition of the Goldthorpe class

schema, may be more likely to suffer the consequences. The following quote certainly leaves some cause for concern:

The class schema that we have developed ... is in its inspiration rather eclectic. We have drawn on ideas, whatever their source, that appeared to us helpful in forming class categories capable of displaying the salient features of mobility among the populations of modern industrial societies – and within the limits set by the data available to us. (1992: 46)

Beyond pragmatism, there are a few other criticisms:

- The various adjustments to the Goldthorpe class schema, combined with unclear procedural descriptions, raise concern about *post hoc* data fitting and the reliability of the current version. Originating from work presented in Goldthorpe and Hope (1972) and especially in Goldthorpe and Llewellyn (1977), substantial modifications and adjustments were made in Erikson, Goldthorpe, and Portocarero (1979) and Goldthorpe (1980) “for purposes of the comparative mobility analysis” (Erikson & Goldthorpe, 1992: 37). Adjustments were made yet again in the most recent version (Erikson & Goldthorpe, 1992).
- Goldthorpe claims to be uninterested in “gains and losses” as studied within a “hierarchical position” perspective to the extent to which he finds questions about upward or downward mobility sociologically limited or uninteresting. For instance, he states that mobility across classes represented by a promotion from the rank-and-file to supervisor represents a more interesting phenomenon than the extent to which such mobility represents a gain or loss in some form of hierarchy. This is difficult to understand, however, since he describes the quality of this change in terms of income, working hours, or authority – three hierarchies. His aversion to hierarchies is even more confusing, considering that his class schema was constructed in part under considerations of hierarchies (e.g. authority and working conditions). More generally, it seems difficult to conceive of a class schema, which is independent of hierarchy, which distinguishes qualitatively the classes from each other, but which relies on hierarchies as fundamental building blocks. In other words, occupations are sorted into classes according to some

rules which, ultimately, seem to be strongly linked to various hierarchies (e.g. degree of authority, ownership, number of employees, etc.; cf. Goldthorpe, 1997). If hierarchies and class schemas are so different, why do they correlate so highly? Evans and Mills (1998; 2000), for example, speak of a “class gradient”, which implies nothing if not a hierarchical schema.

- Different occupations may indeed occupy similar positions in a hierarchy and, concurrently, be subjected to different technical or economic realities. However, this does not invalidate hierarchies. Instead, a counter-argument could be made, which also does not invalidate the class schema: occupations subsumed in one class in Goldthorpe’s class schema may be located on completely different positions in hierarchical positions of prestige, status, etc. For instance, if we consider the seven-class schema, which Goldthorpe seems to prefer, we find that supreme-court judges and shift-supervisors of fast-food restaurants occupy the same class, but hold very different positions on various hierarchies (e.g. prestige, income, cultural capital, authority, etc.).
- Goldthorpe claims that within-class homogeneity exists both in degree and kind, especially with regard to the kind and level of resources, similar experiences with socio-structural fluctuations, and similar class-specific interests. Such claims are questionable. Even if the most detailed 11-class schema is considered, one wonders how homogeneous the groupings across these dimensions really are (cf. Goldthorpe, 1997; Prandy, 1998).
- It is not quite clear why farm workers should be as predominant in his tripartite subdivision (see figure 2), i.e. independent from skilled or unskilled manual workers, while, concurrently, large-scale employers find themselves in the same class as rank-and-file service workers.
- For practical reasons, most users of the Goldthorpe schema collapse it from the 11 class version into either the 5 class version or, after “hiding” the farmers, into 4 classes. Erikson and Goldthorpe themselves even advocate a “threefold hierarchical division” (e.g. 1992: 45-46). The fewer classes to classify occupational titles, the less likely we find homogeneity within the classes, the more confusing is the meaning of the class schema, and the less convincing is a class structure from both a theoretical and empirical point of view.

Overall, Goldthorpe has had an impressive influence on the conceptualisation and measurement of social stratification and mobility. The 5-class version in particular is both parsimonious and has high face validity. Nevertheless, conceptual clarification is needed of its overall theoretical basis as well as of its methodological construction in order to judge the appropriateness of its application to various substantive problems within the social and political sciences. Recent publications relating to the validation of the Goldthorpe class schema (e.g. Evans & Mills, 1998; 2000) have attempted to address some of these issues but have ultimately fallen short of rectifying most of the shortcomings listed above.

4 The Wright Class Structure

4.1 Background and Structure

Marxist and post-Marxist writers of late have been struggling to account for a number of incongruences: the difficulty of detecting empirically the presence of, and the antagonistic relations between, classes; the failure of the bourgeoisie to succumb; the presence of a strong middle class; and the success of capitalism over socialism. Erik Olin Wright's model of social stratification can be described as a materialist and neo-Marxist conceptualisation of class structure with occasional Weberian leanings. He offers an innovative attempt to integrate into his Marxist perspective, first, the presence in contemporary capitalist society of a substantial middle class in both size and socio-structural significance, and, second, the apparent arrest of the ostensibly inevitable movement from capitalist society through socialism to communism.

According to Wright (1985; 1997; 1998a; 1998b), Marxist writers of late have adopted at least four strategies to deal with the middle class, which impinge on one of the central tenets of Marxist ideology – a polarization of antagonistic class relations between the bourgeoisie and the proletariat: (1) the middle class as an ideological illusion; (2) as a segment of another class (e.g. the “new petty bourgeoisie” or “new working class”); (3) as a new class, distinct from the bourgeoisie, proletariat, or petty bourgeoisie; or (4) the middle class as belonging to more than one class, simultaneously. As we shall see, Wright's mapping of class structure clearly belongs to (4).

4.1.1 Theoretical Preliminaries

Wright differentiates two possible ways in which the relationship between the classes can be cast: domination or exploitation. Especially in his earliest writings, Wright argued that domination is a defining characteristic of the relationship between classes, especially since exploitation presumes domination. In later texts, however, he changed sides and not only agreed with writers such as Roemer (1982) on exploitation as the key feature in the relationship between the classes, but modified and expanded Roemer's ideas to develop the latest version of his own stratification model.

The rejection of domination as the defining feature was based on two insights: first, he conceded that domination does not automatically include exploitation (e.g. parents often dominate their children without necessarily exploiting them); second and more importantly, he understood that neo-Marxist models based on domination of one class over another in conjunction with, for instance, gender or ethnicity, become fractured, multifaceted, context-bound, and entangled in complex authority and power relations beyond materialist and realist perspectives (cf. Dahrendorf, 1959). In contrast, he insists, Marxist and neo-Marxist theorization must remain materialist and realist and, thus, focused on exploitative relations and antagonistic interdependencies of material interests, rather than domination. In other words, opposing material interests must remain at the heart of a Marxist conceptualisation of modern capitalist societies.

Two elements had to be elaborated in order to present a map of class structure in contemporary capitalist societies according to these premises: an elaboration of exploitation and an extension of classical Marxist thought that could accommodate the middle class.

4.1.2 Exploitation

Exploitation, according to Wright, who bases this part of his model on Roemer, depends on two conditions: first, the material welfare of one class has to depend on

the exploitation of another class. This condition, according to Wright, merely describes economic oppression – a necessary but insufficient condition for exploitation. Second, the material welfare of one class must depend on the efforts of another class, i.e. the rich appropriate surplus value from the labour of the poor. This second condition provides the interdependency between the classes and the possibility to appropriate surplus value from labour by owners of means of production, with the exception of the petty bourgeoisie, which does not have any employees. These two conditions – economic oppression and acquisition of surplus value – constitute materialist exploitation. Accordingly, Wright presents the following definition: classes are “positions within the social relations of production derived from these relations of exploitation” (1998: 13).

4.1.3 Extension of Marxist Thought

Because Wright insists on a materialist and realist exploitation between the classes, he concentrated on assets, which are used as tools of exploitation or as commodities to be exploited. Assets that define the bourgeoisie and the proletariat are ownership of means of production and of labour, respectively. So what assets could the middle class have that would either make them exploiters or exploited? Wright suggested two different assets that are prevalent in modern capitalistic societies, especially due to the division of labour: bureaucratically controlled organizational assets and skills. The inclusion of these two additional assets represents a departure from classic Marxism and is quite Weberian in nature. In Wright’s work, organizational assets are often used interchangeably with relationships to authority, and here Wright returns to domination as a defining characteristic of this dimension (especially Wright, 1997). Domination does not describe the antagonistic relations between classes on the whole, as he proposed in his earliest work, but is introduced as one of two stratifying dimensions that subdivide wage labourers. However, organizational assets bestowed upon individuals on the basis of their position as managers or supervisors in an organization or institution are different in nature from assets based on means of production and labour, since the latter two can be owned while it is difficult to conceive of ownership of organizational assets. Nevertheless, the organization of

the means of production and, thus, the differential relationship to authority creates surplus value beyond its expenditure in terms of labour or means of production.

Skills, although these can be owned individually, also produce surplus beyond the expenditure of acquiring the skills, especially if unions, associations, professional credentials, or bureaucratisation protect such skills via, for instance, institutional accreditation and certification. Organizational assets can be used to extract surplus labour, as can skills, as long as a skill differential is protected and maintained between the experts and the non-experts, and as long as the value of the skills outweighs the cost of acquiring these skills. In other words, income from organizational assets (i.e. relationship to authority) and skills is greater than the cost of organizing and acquiring the skills and is thus exploitative in nature. However, these two additional assets do not define separate classes, as would ownership of the means of production, but instead stratify the wage labourers.

4.1.4 Wright's Class Structure (Wright II)

Wright now rejects key elements that made up his first attempt in formulating a Marxist-based class structure (Wright I; see Wright, 1978; 1985; 1998a), so this text will focus on his revised schema only. According to Wright's most recent work, the following are the conditions responsible for the class structure in modern complex societies:

- In line with Marxist thinking, owners and wage labourers form two distinct meta-classes, where the owners of the means of production exploit the wage labourers by appropriating the surplus value produced by wage labourers.
- In modern capitalist societies, assets are not limited to the ownership of production and labour, but include skills and organizational assets, which produce amongst the wage labourers a differential ordering of social structure according to the latter two assets.

If the owners of the means of production are divided into separate categories, which reflect the extent of ownership (i.e. bourgeoisie, small employer, and petty

bourgeoisie, separated according to the number of their employees), and if wage labourers are divided across two axes (i.e. low, medium, and high skills; low, medium, and high organizational assets), a mapping of a class structure emerges that includes twelve classes: three owner classes and nine wage labourer classes, separated by ownership in the first instance, and sub-dividing the wage labourers across two dimensions – skill and relationship to authority. The following reproduced table (e.g. Wright, 1997; 1998a; 1998b) illustrates Wright’s class structure (Wright II):

Table 3: Wright II Class Structure.

Owners	Wage Labourers			
1 bourgeoisie	4 expert managers	7 semicredentialed Nonmanagers	10 uncredentialed Managers	+
2 small employers	5 expert supervisors	8 semicredentialed Supervisors	11 uncredentialed Supervisors	Management Assets
3 petty bourgeoisie	6 expert nonmanagers	9 semicredentialed Workers	12 proletariat	-
	+		-	
	Skill/Credentialed Assets			

Source: Western & Wright (1994)

Only class 1, class 3, and class 12 remain true to classical Marxism. All others are engaged in complex relationships with each other, in which they are both exploiting and exploited. Skilled professionals, for instance, control exploitable assets and are thus in a position to extract surplus produced from others’ labour. At the same time, these groups do not have assets in the means of production and are, thus, open to exploitation by the owners of the means of production, who, themselves, extract surplus from the labour of the skilled professionals. Wright employed ideas regarding “contradictory class locations” (Carchedi, 1977) to describe the mutual exploitation of some classes, thus offering the most pronounced departure from classical Marxism.

From this perspective, it could be argued that a society which manages to produce wage labourers who are either marginally skilled or have a minimum of organizational assets will profit from exploiting each other, while, concurrently, being exploited by the owners of production. Such an arrangement is likely to be stable despite its exploitative nature, since the exploited concurrently profit, at least marginally or occasionally, from the labour of others. This important insight by Carchedi and Wright accounts for both the relative stability of the social structure in modern complex societies and the presence and dominance of the middle class.

4.1.5 Simplification (Wright III)

Three dimensions form the basis of Wright's full thesis on social structure (Wright II) from which he derives his twelve classes: property, expertise, and authority. Although problematic due to its neglect of property not associated with production (e.g. real estate, securities, stocks, bonds, etc.), property is measured from survey questions relating to employment status, and, if respondents are self-employed, focussing on how many workers they employ. Educational attainment or occupational codes are often used to determine respondents' expertise. Authority is the most complicated and contested dimension. This dimension has been constructed from answers to questions relating to self-classification about management tasks at respondents' places of work, participation in workplace policy decisions, or the ability to impose sanctions on subordinate workers. Mostly due to data limitations, sample size for empirical applications of his class schema, or cross-national comparability, Wright has reduced the 12 *classes* to either 8 (Wright & Cho, 1992) or 7 (Western & Wright, 1994) "*locations* within a structure of class relations. Some of these are class locations, others are contradictory locations within class relations" (1994: 608).

The following table illustrates Wright's simplified class structure (Wright III; cf. Western & Wright, 1994).

Table 4: Wright III Class Structure.

Owners		Employees		
Employers	petty bourgeoisie	manager- experts	professionals	Experts
			semi- professionals	Semi- Experts
		Managers	workers	Nonexperts
Managers	Nonmanagers	Managers and Supervisors	Nonmanagers	

Source: Western & Wright (1994)

Reducing the prerequisites for the construction of the Wright class structure allows for its construction for a greater number of data sets as well as its wider application in empirical cross-national studies.

4.2 Strengths and Weaknesses of Wright’s Class Structure

While Wright’s class schemas (Wright II & Wright III) represent the most convincing effort to operationalise and empirically apply (post-)Marxist class theory to the study of social stratification, the following are arguments against his model:

- As with all class-based schemas, it is inherently difficult to locate the line of demarcation between the classes. For instance, what is the cut-off for skill or management assets that allow us to unambiguously assign individuals to a particular class? What, precisely, is the dividing line between small employers and the bourgeoisie? In other words, little convincing arguments have been put forth to justify the chosen criteria that ostensibly demarcate classes; instead, if continua are suggested by the theory, why not work with continua empirically (cf. Halaby & Weakliem, 1993)?
- In modern capitalist societies, means of production as an asset must be managed with skill because assets of this nature are far more volatile and

subject to market fluctuations. Thus, ownership of the means of production cannot be separated from skills or management assets because many owners are also skilled managers. Furthermore, successful managers and experts nowadays acquire ownership of means of production, for example through various stock options, profit sharing schemes, or simply through purchasing a part of the organization. Hence, the dividing line between owners and wage labourers may be more blurred than suggested by Wright.

- Wright's class schema is fundamentally based on the classification of economic agents, which may be too narrow in scope with regard to modern societies or phenomena that class-based schemas attempt to explain (e.g. class-consciousness and political mobilization).
- As with Goldthorpe's class schema, users tend not to use the full range of classes as proposed by the author. This point is less a critique of the schema itself but a criticism toward some applications: a reduced specification of a Wright-derived schema can be found in the literature (e.g. Martin, 1994; Wright, 1979; Savage et al., 1992), which uses only four classes: owners, experts, managers, and workers. A four-class schema, however, does not account sufficiently for the variation in the data nor to the wealth of the theory developed by Wright.
- Fitting Marxist notions to complex contemporary capitalist societies has become a difficult undertaking, especially for those few (neo-)Marxists, who attempt to find empirical evidence for their models. One wonders if such theoretical and ideological baggage may introduce unnecessary complications while, neglecting other stratification phenomena. In particular, the scheme depends entirely on the labour theory of value because, otherwise, exploitation has little meaning.

Goldthorpe and Wright share an assumption about social stratification in that they assume a static and class-based structure. Where they differ most significantly, however, is in theoretical elaboration: while Wright has invested admirably in an elaboration of the form and function of social stratification, Goldthorpe is more pragmatic. The advantages and disadvantages of these two strategies have already been elaborated above. The next two schemas reject the idea of distinct classes.

Instead, they propose continuous scales, although they differ significantly with regard to their theoretical and methodological proposals.

5 Treiman's Prestige Scales

5.1. Background and Structure

According to Donald J. Treiman (1977: 1), the answer to the question “‘What sort of work do you do?’ provides the single best clue to the sort of person one is” in the sense that it not only positions individuals within a social structure based on their occupation, but, moreover, allows inference of attitudes, experiences, and life-style from prestige ratings of their occupations. Treiman's work inscribes itself in the Chicago school of stratification, that is, a structural-functional perspective that borrowed ideas from especially Talcott Parsons and Emile Durkheim. More specifically, Treiman proposes a very general stratification model for modern complex societies based on occupational prestige ratings that are supposedly independent of locality and invariant to national, social, and cultural settings. His work in this area culminates in the construction and validation of the Standard International Occupational Prestige Scale. Using the four nested levels of the International Standard Classification of Occupations (ISCO), Treiman's occupational prestige scores for each occupation within an ISCO level are averaged to produce a score for occupational groups as summarized by ISCO. The most recent versions have been constructed in collaboration with Harry Ganzeboom and are markedly more sophisticated with regard to their methodological rigor (Ganzeboom & Treiman, 1992; 1996).

5.1.1 Precursors to Treiman's Prestige Scales

The ranking or rating of occupations according to their subjectively perceived prestige most likely started with Counts (1925) “goodness” ratings of a small set of occupations. In subsequent individual and comparative research into the subjective prestige (sometimes also referred to as “status”) of occupations, researchers

discerned a high degree of uniformity of occupational ratings across research settings and contexts, leading many to either propose, or accept from empirical evidence of these proposals, a single, yet universal, dimension of occupational prestige (e.g. Cattell, 1942; North & Hatt, 1947; Inkles & Rossi, 1956; Reiss et al., 1961; Duncan, 1961).

A seminal study in occupational prestige research was the North-Hatt NORC study: in the 1940s and under the auspices of the National Opinion Research Center (NORC), North and Hatt (1947) set out to examine the relative prestige of 90 occupations in the US, which they considered representative of all US occupations. A prestige score (i.e. the NORC score) was calculated from 5-point prestige rating scales, although it was neither clear what the selection criteria for the occupations were, nor what led to the specific algebraic manipulations (e.g. multiplication of percentages; addition of these products; etc.) of these ratings. Mainly for reasons of interpretability and validity concerns, another more simple scoring system, the Prestige Increment (PI) score, was calculated subsequently by taking into consideration only two of the five points of the prestige rating scale: ratings relating to “excellent” or “good” levels of prestige.

The desire to apply these PI scores to all occupations in the US Census led Duncan (1961) to estimate the prestige for the missing occupations based on regression weights calculated from the North and Hatt data. The predictors for PI scores were education level and income because, in the original data, these two predictors accounted for an impressive 83% of the total variance in PI scores. Plugging the holes of the occupations listed in the US Census from estimates based on the North and Hatt data produced a more complete list of occupational prestige scores, which Reiss and his colleagues referred to as the Socio-Economic Index (SEI).

Despite subsequent failures to replicate similar levels of goodness-of-fit when regressing education level and income on subjective prestige rating (e.g. Featherman & Stevens, 1982), SEI and its derivative, the ISEI (Ganzeboom & Treiman, 1992; 1996) have enjoyed great popularity in the social and political sciences. ISEI, for instance, scores occupations according to their average educational and income levels, reflecting how occupational location influences the ability to convert educational levels into income. In practice, these socio-economic indexes are closely correlated with the Treiman scale although the former give

primacy to the education-occupation-income relationship, whereas prestige scores give primacy to prestige rankings. Stewart, Prandy, and Blackburn (1980) provide an extensive review of attempts to measure prestige and status by reputational ratings (cf. Stewart & Blackburn, 1975).

5.1.2 Assumptions of Treiman's Prestige Scales

Treiman's *Theory of Occupational Prestige* rests on six implicit and explicit propositions:

- All complex modern societies are organized into similar societal functions in order to maximize efficiency (e.g. production of goods including foodstuffs, transport, surplus management, differentiated education, etc.) (cf. Durkheim, 1933; Aberle et al., 1950; Blau, 1964).
- Efficient logistic organization of these functions is satisfied through a similar division of labour across all complex modern societies (cf. Aberle et al., 1950). Thus, due to the similar organization of functions, modern complex societies divide labour similarly, which gives rise to similar occupational roles across these societies.
- Division of labour creates a social stratification due to the differential in control over scarce, yet desirable, resources (e.g. knowledge and skills, authority or legitimate control over activities of others, property, etc.).
- Differentials in control over these resources produce differentials in power (i.e. the ability to achieve whatever ends are desired; cf. Weber, 1947; Treiman also quotes Shils, 1968: 110-111).
- Differentials in power (i.e. control over scarce and desired resources) result in differentials in privileges for the members of societies. Two processes are in operation to turn resources (e.g. skills, authority, economic resources, and power) into privilege: first, some resources such as skills are rare and valued, so the value of these skills is increased on the labour market and the price for some work relative to another increases; second, differential control over these scarce resources is bureaucratically enforced through, for example, professional

licensing, certification, and accreditation. Such control is wealth enhancing because it allows favoured (i.e. protected) occupations or skills to maximize their advantage by reducing professional access or acquisition of skills. Due to the first two propositions, differences in privileges within societies are similar across all complex modern societies.

- Power and privilege are highly valued in all societies. Thus, powerful and privileged occupations are associated with high prestige ratings and prestige ratings for all occupations do not vary within or between modern complex societies.

In sum, the subjectively attributed prestige of a specific occupation is (a) linked to the privilege and power which individuals enjoy based on their occupational titles, (b) invariant across social and cultural groupings, and (c) similar across all complex modern societies. If, and only if, these six propositions hold, can Treiman propose a single universal prestige scale based on the subjective prestige ratings of occupations, which will be indicative of the relative objective power and privilege of (individuals holding) specific occupations, and which is also invariant across all social and cultural groups, as well as across all complex modern societies. In other words, under these six conditions, the subjective prestige attributed to a dentist or to a welder's assistant allows for inference of the relative but objective power position and privilege that these two occupational titles enjoy, not only within their society, but also across all complex modern societies.

To defend these six claims, Treiman invests considerable effort in reanalysing data, which ostensibly reject the Cultural Hypothesis, i.e. that prestige hierarchies reflect cultural values and thus vary across different value systems and cultures. For instance, Treiman claims that because the prestige ratings of selected occupations across 85 studies within 60 societies correlate at $r=.79$ ($s=.14$), the Cultural Hypothesis can be safely rejected. Empirical evidence, again mostly based on correlations, is also offered to reject the Diffusion Hypothesis, i.e. the claim that occupational prestige scores are homogeneous across all modern complex societies because of the spread and hegemony of Western values, especially relating to occupational prestige.

A third defence of these six propositions consists of a discussion of "exceptions, which prove the rule," i.e. of occupations, which obviously do not share

the same prestige level across all societies (e.g. clerks, soldiers, police officers, primary and secondary school teachers, etc.).

5.2 Strengths and Weaknesses

While the following points of critique are grouped into theoretical and empirical considerations, it is obvious that, conceptually, they cannot be separated this clearly. This division serves only to classify the different points in order to facilitate discussion.

5.2.1 Theoretical:

- Treiman suggests too many *ad hoc* explanations for disconfirming evidence. Exceptions to his model fall into at least four categories: (1) if occupational prestige ratings of one society differ significantly from others, the society may be declared not modern or complex (i.e. not similar enough to the US, since all other countries' occupational prestige scores are standardized to occupational prestige ratings as attributed in the US); (2) alternatively, divergence may be attributed to reduced data quality or measurement imprecision; (3) if prestige ratings of some occupations diverge across societies or social groups within society, they are declared "exceptions that prove the rule" (e.g. teachers, clerks, soldiers, police officers); (4) some divergences, e.g. the greater inter-societal agreement on prestige of white-collar occupations, compared to blue-collar work (i.e. the inter-societal variation in the social organization of manual work), are either ignored or insufficiently discussed. With so many "fitting tools" at his disposal, it does not come as a surprise that his empirical evidence seems to fit many of his theoretical propositions.
- Social stratification may not be captured by one single universal prestige scale. Prestige may in fact be a by-product of the social position, which is bestowed differentially upon occupations.

- Treiman goes to great lengths to argue for the universality of occupational prestige because he believes that if prestige ratings vary across societies, then societies can no longer be compared because of the impossibility to attribute variations between societies to either variations in measurement or variations in societal structures. However, it could be argued that if, indeed, prestige is a reflection of power and privilege (where the highest scorers have the most access to power and privilege, and the lowest scorers have the least access to power and privilege), then it should not matter if the prestige of occupations differ since it is the power and privilege, which is ultimately of interest. On the contrary, if the exact level of power and privilege is *not* associated with exactly the same occupation across societies, then attributing a universal occupational score would lead to the misattribution of power and prestige to occupations. In other words, because studies in social stratification, even as conceptualised by Treiman, are interested mostly in differentials of power and privilege, and are less interested in differentials in subjective prestige *per se*, the prestige of occupations should be used only as a vehicle to assess the level of these latent constructs. Hence, universality is not necessary and, more importantly, may not be sustainable both theoretically and empirically. Worse yet, imposing universality on the scale may contaminate the measure.
- The causal chain embedded in Treiman's theoretical proposition is complex and often difficult to falsify. While he argues that division of labour begets differential access to resources, differential access to resources begets differentials in power, differentials in power beget differentials in privilege, and differentials in privilege beget differentials in prestige, one could imagine the causal stream between the couplets to reverse or to interact with a third element. For instance, privilege may have an effect on power but little effect on prestige; some forms of privilege may be more difficult to exchange for either power or prestige; coercive power may have an effect on privilege but an adverse effect on prestige; some highly prestigious occupations may not be based on much power; high subjective prestige may be transformed into privilege and power; etc.

- If it were indeed true that most modern societies must accommodate the same functions, it is not clear that this invariance would hold across all levels of the causal chain, from power through privilege to prestige. Moreover, if prestige ratings from any given occupation were indeed the same across all societies, it is not clear that this similarity in subjective evaluation leads automatically to the conclusion that societies must share a similar division of labour and have to fulfil equivalent societal functions. For instance, pharmacists in the Netherlands perform functions reserved for doctors in the UK, illustrating the fact that similar functions may be organized into different occupations.
- Does subjectively assigned prestige reflect sufficiently access to power and privilege? If it does not, prestige is of little use to social stratification research; and if it does, why not measure privilege and power more directly?

5.2.2 Empirical:

- It is not clear which criteria Treiman used to select his list of occupations. Most frequently, the compiling of an occupational list is accomplished by both reproduction of occupational titles from previous research and *ad hoc* selection/deselection of individual occupations; either of these strategies is problematic with regard to constructing and validating a stratification model (cf. Coxon & Jones, 1974).
- Grouping the scores of Treiman's Standard International Occupational Prestige Scale into the International Standard Classification of Occupations (ISCO) roster is only defensible if ISCO groupings do share characteristics that have as their basis a dimension similar to prestige, thus power and privilege. If, however, these groupings do not reflect a similar logic as that which is embedded in the Treiman scale, then the grouped scores based on the Treiman scale are of very limited use. Also, insufficient explanations are given on the reasoning behind the regrouping of "atypical" representatives of ISCO groups, which caused the author to reclassify selected occupations.

- Some of the studies of occupational prestige that were used to validate the occupational prestige scale were crude in their occupational coding, sampling of raters and occupations, and measurement. Depending on the sensitivity of the individual ranking or rating scales, as well as the (lack of) methodological rigor, an exaggerated convergence reflected in inflated correlations may be falsely attributed to the universal validity of occupational prestige.
- Occupations, which were not present in all societies, were either grouped into existing classifications or dropped from the calculations. This, of course, strengthens the universalistic claims of the prestige scale because it may cover up social and cultural variations.
- Although Treiman claims invariability of occupational prestige ratings across societies, as well as across social groups and context (e.g. gender, age, education, income, occupational group, raters' values and attitudes), numerous studies produce counterevidence that shows variation across some of these groupings and dimensions (cf. Coxon & Jones, 1978; 1979a; 1979b). Additionally, because some evidence seems to suggest that subjective prestige may not be linked as strongly as expected to privilege or power (e.g. income, educational attainment, management assets), further studies may have to clarify and, possibly, qualify some of Treiman's findings.

The Treiman Prestige Scale differs from Wright and Goldthorpe's class schema not only in that it measures subjectively attributed prestige as an indicator of access to structural and functional power, but also because it explicitly models a prestige hierarchy. In other words, underlying all occupations is a prestige continuum that cannot be accommodated into a relatively small set of social classes. The next scale to be discussed shares this quality, but rejects subjective evaluations as appropriate indicators of social location and does not impose equivalent scales between countries.

6 Cambridge Social Interaction and Stratification Scale (CAMSIS)

6.1 Background and Structure

According to the CAMSIS approach, individuals are embedded in socially moderated networks of relationships within which they engage in social, cultural, political, and economic interactions, which are qualitatively and quantitatively different from interactions with persons who are more distant from these networks. For instance, acquaintances, friends, and marriage partners tend to be chosen as social and economic exchange partners much more frequently from within a given social network than from without (e.g. Mitchell & Critchley, 1985). As both a function and consequence of selective interchanges, a social structure is continuously reproduced, and this has implications for individuals with regard to many of their values, opinions, and behaviours. Furthermore, values, opinions, and behaviours assist in positioning individuals and, thus, pre- and proscribe certain interchanges with others. Ultimately, relationship networks are constituted by, and reproduce, hierarchical inequalities.

This relational perspective of social, economic, and political structuring proposes a certain *regularity and patterning of interactions*, as well as an *interactive negotiation of relations* and their consequences. This central feature of CAMSIS is its most important contribution to stratification theory because this scale goes beyond simple structuralism, as resource distribution is not merely seen as a function of a static structure. Instead, stratification here is conceived of as being constituted in actual and potential relationships within dynamically re-constitutive networks in the sense that social structure is continually reproduced – in contrast to the usual static conceptions. From this perspective, social structure is not something given *a priori*, but continuously negotiated and reconstructed according to human interactions and the meanings, which they ascribe to these. As such, the CAMSIS approach stands in contrast to traditional class schemas (e.g. Wright and Goldthorpe), underpinned by the proposition that societies are made up of distinct groups, which are differentiated through material resources or status differences. Almost by definition, most conventional class schemas have difficulty incorporating societal complexity and fragmentation into their theoretical frameworks. Although not necessarily ruled out, the CAMSIS perspective suggests that an overemphasis

on distinct classes may represent an unnecessary appendage in the conceptualisation and examination of social stratification.

The most general theoretical assumptions of CAMSIS are that resources are distributed systematically and unequally, according to socially regulated relationships within particular networks. Social stratification, then, is a function of unequal and non-random distribution of resources according to relationships within social, political, and economic networks. Accordingly, the basic unit of analysis within social stratification as proposed by the CAMSIS approach is not a structure imposed by resources or institutions, but interdependent relationships within social networks. On the one hand, resources are considered to be regulated through relationships between social actors, which thus determine social position and, as a consequence of these socially regulated relationships, differential access to actual and potential social, political, and economic resources arises. On the other hand, varying access to these resources engenders variations in access to social networks. Accordingly, social networks, social position, and resources form an interdependent system, within which no element can be considered exogenous.

The CAMSIS approach proposes that differential associations between individuals across social, cultural, economic, and political spheres can be seen as a way of defining proximity within these social spaces, and that these social spaces can be reconstructed from the relationships and interactions between social actors. At its most basic level, social interaction will occur most frequently between persons who are socially close to one another and relatively infrequently between those who are socially distant.

The original Cambridge scale was based on friendship (i.e. 'people with whom you are friendly outside work') as a central form of social interaction (Stewart, Prandy, & Blackburn, 1973; Stewart, Prandy, & Blackburn, 1980). This makes it possible to ask for more than one social interaction relationship for each individual. Also, it allows for the inclusion of the possibility for individuals to change their relationships if their own circumstances change. Neither of these considerations applies if we take marriage as the basic relationship variable (although this was also included subsequently as a social relationship). While certain limits are imposed on the theoretical considerations if cohabiting couples are taken as indicators for relationship networks, numerous studies have shown that partner choices tend to come from the same networks as do friends (e.g. Mitchell & Critchley, 1985; Levy,

Joye, Guye, & Kaufmann, 1997; Kalmijn, 1998), which, thus, substantiates our argument that, for our purposes, cohabitation patterns parallel sufficiently social network patterns. Whereas there exist some additional advantages to analysing data based on friendship networks, the financial costs of doing so are prohibitive. Fortunately, data on married or cohabiting couples are readily available from censuses or other large-scale official surveys.

Another assumption of CAMSIS, shared with virtually all other stratification measures, is that occupational groups are formidable indicators of social stratification because employment still provides the major mechanism by which social and economic rewards are distributed directly or indirectly in modern societies. Occupations are still the single most significant indicator of someone's location in the overall structure of advantage and disadvantage (Blackburn & Prandy, 1997), as well as a major source of social identity, which can be localized to individual professions or professional groupings. It is important to understand that 'occupational group' here is defined so as to include differences in status in employment (self-employed or supervisory, for example), in addition to occupation as normally understood. Because, beyond relationships, the basic units for the construction of CAMSIS are occupational titles, as much detail about the types of occupations as possible should be retained. In addition, CAMSIS is gender-sensitive, i.e. different scales are calculated for men and women, since holding the same occupation may have different implications for the persons' social position, depending on their gender. Beyond gender, other social groupings can also be accommodated in future versions, such as ethnicity, religion, education, language group, level of urbanization, or professional qualifications.

6.1.1 Procedural and Computational Considerations

Detailed information from census data on, amongst other things, professional occupations of couples residing in the same household make this data the resource of choice for constructing CAMSIS.

Most CAMSIS versions use information on occupations of cohabiting couples (married or unmarried). An alternative unit is constituted by the cross-classification of occupational titles with measures of employment status, e.g. full- vs. part-time

employment, which can be expected to identify more subtle distinctions between occupational locations.

Based on these theoretical considerations, computational procedures are applied that quantify the *probabilistic relationships between social actors according to information about their occupations*. In this case, a two-way table between occupational titles of couples living in the same household forms the input data set. The arising frequencies between couples' occupations represent a measure of distance between any two occupations, in terms of points, where points are the frequency values of the combination of occupations. More precisely, cell frequencies are relative to other cell frequencies within rows or columns. Differences across all such frequencies represent distances between points, i.e. row distributions for column points and column distributions for row points. This two-way table displays the relations in the form of probabilistic frequencies between occupational categories, depending on the frequency with which individual occupations co-occur between couples. Starting from this type of analysis of a frequency table, analytical techniques are limited to techniques that deal with χ^2 decomposition.

One of the techniques suitable for this purpose is correspondence analysis, although the original scale was calculated from smallest space analysis. As part of the family of dimensional analyses, correspondence analysis (CA) is an exploratory statistical technique that analyses the structure within simple two-way (and multi-way) tables from some measure of association between rows and columns. CA scores categories over a series of dimensions according to which category values relate more or less to each other within the structure of a particular dimension in the sense that the scores maximize the row/column correlations. When the scores in the first (most influential) dimension show an even ordering of all occupations, they tend to reflect an order to patterns of social interaction, which corresponds closely with an order of social stratification (e.g. Prandy, 2000).

However, as with most dimensional analyses, CA is an exploratory technique, rather than a general modelling framework, which means that it constitutes only a very simple statistical model and the scoring of categories is attained by describing the deviations from that model. Lacking in this approach are ways to test the viability of the structures explored through CA. A modelling framework, which allows for nested model comparison and significance testing could allow us to examine the

data structure of alternative models more rigorously. Such an alternative technique, which also generates scores for occupational categories as a summary of social distance, can be found in Goodman's Class of RC-II Association Models (Goodman, 1979). Prandy and his colleagues are currently testing the advantages of this estimation method over previous efforts that used Correspondence Analysis.

6.1.2 Problem Occupations

An additional attraction of Goodman's RC-II technique is the ability to compare various fit statistics produced by alternative structures in order to assess the suitability of competing models (e.g. Rytina, 2000; Bergman et al., 2001). Principal examples investigated in the CAMSIS project concern the treatment of "problem occupations" through design effects. Regardless of analytic technique, the social dimension is a function of the way in which occupational titles relate across couples. Here, some combinations may have an unduly strong influence on the calculation of the first dimension, but are of little theoretical interest. In other words, the first dimension in CA or RC-II Models may be dominated by patterns of interaction in just one or a very few "problem occupations," i.e. occupations where there exists a high proportion of husbands and wives who have the same, or highly related, occupational titles (e.g. in agriculture). Either explicit modelling or exclusion of these "diagonal" cases in such occupations must take place in order to prevent these cases from influencing unduly the results.

6.2 Strengths and Weaknesses

Overall, CAMSIS represents an alternative to both class-based conceptions as well as subjective prestige scales. Theoretically, it is most closely related to symbolic interactionism. While the scale conceives of stratification as a single dimension, other considerations may be incorporated into the schema in order to test whether demographics have any influence on stratification (e.g. gender, ethnicity, geography, etc.). This stratification schema does have a few weak points as well:

- Because at the base of its scale are relationships of a specific population – in most cases these are national samples – the stratification scores for each occupation are sensitive to the idiosyncrasies of this population. In other words, unlike other schemas, CAMSIS scores calculated for one population cannot be simply transposed to another, but must be calculated specifically for this population. Beyond the methodological complexity that this brings with it, we also have to ask about the criteria that should be used to define a population. While the same sensitivity is incorporated into the idea of nation-specific stratification scales, of which the CSP-CH is one example, we must question the flexibility with which population can be defined. If CAMSIS scales can be constructed that are sensitive not only to gender and ethnicity, but also to regional differences, and if gender, ethnicity, and regional differences interact, how many scales do we need to describe a country? While Treiman’s scale was accused of imposing uniformity across national scales, CAMSIS can be accused of comparing apples with oranges. In other words, because the scores are calculated for each population separately, occupations may no longer be comparable between populations.
- Although many ideas relating to CAMSIS have been around since the early 1970s (Stewart, Prandy, & Blackburn, 1973), it is one of the less established international stratification schemas. Within the last few years, this scale has nevertheless enjoyed increased empirical validation and is now available for eight countries. However, it lags behind other schemes with regard to cross-national validation and application to studies in the social and political sciences.
- Estimation procedures for scores within a stratified society according to occupational titles are still improved upon, as are variables that need to be included for its calculation (e.g. occupational status). While this may eventually become one of the selling points of the scale, current users may question the stability of the scores across methodological considerations.
- As with most other scales, some tinkering goes into the construction of the scores. For instance, the exclusion or deliberate modelling of so-called “problem occupations” – selected at the discretion of the scale constructor – may introduce important variations with regard to both model fit and stratification scores. More clearly defined selection criteria would help defend these necessary choices.

- Despite its parsimony, or probably because of it, CAMSIS has met strong resistance from those who are deeply immersed in the assumptions of and narratives around the concept of class: for many, stratification automatically implies distinct classes. While theoretically and empirically convincing, CAMSIS is less attractive to an established narrative in the social sciences. This is compounded by the fact that many social scientists would like to preserve the theoretical distinction between class and status and, thus, incorrectly classifying CAMSIS as a status-based schema. By its nature, however, CAMSIS denies the distinction between class and status.

Nevertheless, CAMSIS offers a theoretically sound and methodologically elegant alternative to other mainstream stratification schemas.

7 Swiss Socio-Professional Categories (CSP-CH)

7.1. Background and Structure

The Swiss Socio-Professional Categories (CSP-CH) schema has been developed, first, to improve on both the eclecticism and complexity inherent to the construction of other international stratification schemes (notably Erik Olin Wright and John H. Goldthorpe's class schemas), second, to produce a stratification scheme within the limitations of the data available in Switzerland, and, third, to examine idiosyncratic characteristics of social stratification in Switzerland, which may be lost if applying a standardized schema to Swiss data. Drawing its inspiration in part from the reasoning of French sociologists, national classification schemes supposedly can incorporate national idiosyncrasies that do not translate into other countries (cf. Desrosières & Thévenot, 1988; Jones & McMillan, 2001). In other words, international classification schemes may either mask specific socio-structural phenomena within a particular society, or require information not available in specific national contexts.

The points of departure for the CSP-CH are stratifying dimensions similar to Wright's class schema with the following adjustments: instead of emphasizing skills, it uses the highest attained education level as one of its components. In applying

Wright's class schema, previous researchers were forced to make the same decision due to the lack of other skill indicators. Second, instead of emphasizing ownership of property and the means of production, it incorporates the idea that in modern industrial societies, ownership is transferred into corporate forms (cf. Goldthorpe, 1992: 40), i.e. most owners are salaried employees in their own corporation. Hence, in terms of social stratification, most owners are in a similar position to executive directors and high-level managers. In some sense, the CSP-CH is a transparent Wright-inspired classification schema with a Goldthorpien twist.

Although in its basic version, the CSP-CH includes eight classes, an extended version has also been elaborated (Joye & Schuler, 1996).

7.1.1 Class Structure of the CSP-CH

The CSP-CH subdivides occupations mainly according to (a) the highest attained level of education and (b) a mixture between authority over subordinates and employment status. The use of information on educational attainment is quite subtle in that it takes into account not only its absolute level, but also its relevance to a specific occupation. For instance, a university degree will have a stronger effect on the classification of an occupation, if advanced formal education is related to the tasks and career trajectory of that specific occupation (e.g. journalist vs. welder). The following table illustrates this schema:

Table 5: CSP-CH classification schema.

Education position	university	technical and professional	Apprenticeship	Compulsory education at most
Top executives	1) top executives			
self-employed	2) liberal professions	3) self-employed		
Wage-earners	4) intellectuals and managers	5) middle employees	Skilled:	8) unskilled
			6) non-manuals 7) manuals	

7.2 Strengths and Weaknesses

The construction of CSP-CH has been well documented (Joye & Schuler, 1996) and distinguishes itself further in that it requires far fewer variables for its construction than do both Goldthorpe and Wright's class schemas. As a national scale, similar to CAMSIS, it is able to explore national characteristics of stratification that may be left undetected, if codes from professional occupations of the country where the schema was constructed are applied to other countries. Moreover, certain national concepts that are embedded in the narratives around social position are difficult to translate. Thus, the English term "Professional" has no clear semantic equivalent in French or Spanish, nor does the French term "cadre" have a cultural equivalent in English. While both terms tap into important professional classification markers in their respective cultures, these finer distinctions get lost when scales are standardized across different national contexts and cultures. The CSP-CH is not hampered by this shortcoming (nor CAMSIS, since the scales are constructed for each national context) but, instead, can examine more carefully idiosyncratic national stratification systems.

Pending empirical validation through substantive application, as well as comparisons with other schemas (cf. Levy et al., 1997), methods and ideas employed by the CSP-CH may be an attractive alternative for data sets, which suffer from limitations similar to those found in Switzerland, for research, which desires to explore the national stratification characteristics in more detail.

Nevertheless, a few shortcomings also mark this approach:

- The lack of sufficiently detailed indicators goes against the ideological goals of the creator of the schema. Claims about the inclusion of the multidimensionality and fragmentation of social stratification (cf. Bourdieu, 1980) are curtailed by the limits of indicators in national Census data. In the end, occupations are classified according to education level and a dimension similar to authority in Wright's schema.
- Despite its overall transparency, especially in comparison to other international schemes, some classification decisions were made based on the subjective judgment of the creator.

- Because this scale is based on the idiosyncrasies of one single Swiss Census, it is applicable to the national context only, and renders this classification unsuitable for cross-national comparative research.

8 Summary and Conclusion

The stratification schemes discussed in this text display a tremendous variety in terms of their theoretical underpinnings and methodological constructions. Despite this variation, it is surprising how strongly they correlate with each other and how similar they are with regard to predictive validity. Except for the CSP-CH, they have been applied successfully in many different studies across time and in different national contexts. They differ not only in the theoretical and methodological approaches that were used in their construction, but also in how they can be used in applied research. From a methodological viewpoint, they vary with regard to the measurement scale. CAMSIS and Treiman are considered measures on an (ordered-)interval scale, while ISCO and Goldthorpe's schema are nominal. Wright II, Wright III, and CSP-CH are nominal as well, although embedded sub-dimensions within the class schema (for Wright II and Wright III: management assets and skills/credentialed assets; CSP-CH: highest achieved education level) make them something between an ordinal and a nominal scale. Consequently, it is difficult to compare their effectiveness in predicting other variables. However, their effectiveness in terms of the maximization of explained variance (i.e. the fetish around the R^2) is often overrated and misused as evidence to discredit competitors. Instead of wrestling a bit more unexplained variance away from tortured variables, it may be of great theoretical and substantive interest to explore why some schemes predict specific phenomena better than others.

From a substantive point of view, various indicators other than occupational titles were used to construct these schemas. In order to avoid tautologies, the user must take care not to use these scales in models, which include these indicators twice; first as part of the scale and second as part of the model. For instance, highest achieved education level should not be used in the same model as ISCO-88 or the CSP-CH class schema since these schemas use education level as a component within their construction.

The stratification schemas share a number of general shortcomings, which should be mentioned here:

- Some of the references in this text seem dated, as are methods used to calculate the different schemes. This is caused by the fact that many authors have elaborated in detail on the construction of a schema in the distant past and have used the schema subsequently without further explicit adjustments. Thus, we refer to the most recent source that elaborates on the reasoning and choices relating to the construction of a scheme, regardless of its age. However, some of the schemas could benefit from empirical re-examination against new insights and using improved methodological tools.
- Because all schemas described in this text classify individuals based on their occupational title, they under-theorize or omit entirely population segments that do not hold a full-time occupation. In other words, in most national contexts, stratification theories have little to say about the majority of the population, including the unemployed, homemakers, and the retired. While pragmatism has led some to substitute a former occupation to the unemployed or retired, and spouses' occupation to homemakers in order to assign a position in a stratification schema, it is not quite clear to what extent we skew our data and how valid such substitutions are, especially since the schemas have been constructed from a population that is qualitatively divergent from that to which these scores are applied. In other words, depending on the inference we are trying to make, we may not be able to claim that physicists or CEOs occupy the same position in a social structure as their non-employed spouses. Similarly, retirees, who were employed as tailors or grade school teachers 30 years ago are likely to have held a different position then compared to what is currently assigned to these occupations. Thus, substitutions introduce insufficiently explored biases, while working with employed individuals excludes from analysis the majority of the population.
- All schemas herein assume that work has primacy over the definition of someone's social standing. This assumption may not have taken into account sufficiently changes in the external context (markets, technology, or workforce demographics), organizational context (organizational restructuring, employment

relations), content and structure of work (blue-collar, service, management, military, and professional and technical work) and their interaction with each other (Committee on Techniques for the Enhancement of Human Performance, 1999).

- Practically all stratification schemas are based on occupational titles of *individual positions*, which contradicts the original notion of class as a *collective social phenomenon* (cf. Blackburn, 1998).
- As Goldthorpe (1997) observes, all schemas attempt to classify actual employment circumstances into a stratification schema by way of some national job unit schema (e.g. ISCO-88). The less reliable the job unit schema (and Elias, 1997a; 1997b raises precisely this concern with ISCO-88), the less reliable will be a stratification schema that is based on it. Both the classification into national job units and the classification of these units into a stratification schema result in approximations and error.
- While some schemas recognize the multi-dimensionality of stratification in terms of educational achievement, employment status, authority, etc., they tend to be uni-dimensional in terms of their implicit or explicit assumptions about resource distributions across most contexts (i.e. economic, political, civic, social, cultural, etc), as well as about the homogeneity across a national population, irrespective of, for example, ethnicity or geographic variations. However, while sociology has demonstrated quite convincingly that these dimensions tend to relate to each other, their relationship may be overstated, especially as far as stratification is concerned. Further work is needed to examine more carefully the dimensionality and context-specificity of social stratification.
- It is exceedingly difficult to find all the necessary information in modern data sets and censuses that would allow for the calculation of class boundaries or social position according to the theoretical propositions. Shortcuts and substitute information tend to reduce predictive power and to weaken the link between theoretical propositions and their empirical applications, especially for class-based schemas.
- Large-scale social changes, especially due to migration, globalisation, and changes in the form, function, and centrality of work, may have had important, but as yet undetected or under-theorized effects, since most stratification scales are fundamentally based on occupational titles and full-time employment.

A large literature exists that discusses in detail the conceptual, theoretical, and methodological shortcomings of the ways in which stratification is studied. Readers interested in an elaboration of critiques or in additional arguments can refer to, for example, Burawoy (1998); Laclau and Mouffe (1985); Lee and Turner (1996); Rose and Marshall (1998); Rose and O'Reilly (1997); and Stewart, Prandy, & Blackburn (1980).

Overall, the field of social stratification has benefited from admirable efforts by theorists and empiricists. Few areas in the social sciences can claim the analytical rigor that is found in this field. Nevertheless, many theoretical, conceptual, and methodological problems remain in stratification research. Other problems have begun to play an increasingly important role due to social, political, and institutional changes across modern societies. This state of affairs leaves too many members of societies mis- or unclassified. Moreover, many dimensions of stratification and inequality remain unexplored. Future research will need to revisit the conceptualisation and measurement of social stratification, especially since national and international socio-structural and political changes may necessitate revising these well-established schemas.

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