Zeitschrift: Schweizerische Zeitschrift für Soziologie = Revue suisse de sociologie = Swiss journal of sociology

Herausgeber: Schweizerische Gesellschaft für Soziologie

Band: 28 (2002)

Heft: 1

Artikel: Theorization, construction, and validation of a social stratification scale : Cambridge social interaction and stratification scale (CAMSIS) for Switzerland

Autor: Bergman, Manfred Max / Lambert, Paul / Prandy, Kenneth

DOI: https://doi.org/10.5169/seals-814394

Theorization, Construction, and Validation of a Social Stratification Scale: Cambridge Social Interaction and Stratification Scale (CAMSIS) for Switzerland[1]

Manfred Max Bergman*; Paul Lambert**; Kenneth Prandy**
and Dominique Joye***

1 Introduction

In recent years, the concepts of social stratification and social class have drawn sharp criticisms from numerous eminent sociologists. Bauman (1992), for instance, suggests that with its futile attempts to detect ordered and stable structural features within societies, orthodox sociological inquiry fails to recognize the importance of the novelty introduced by the "postmodern condition" (see also Touraine, 1988; Lee and Turner, 1996). He states:

> *Previous emphasis on structurally determined constraints to interaction gives way to a new concern with the process in which ostensibly "solid" realities are construed and reconstrued in the course of interaction; simultaneously, the ascribed potency of agency is considerably expanded, the limits of its freedom and of its reality-generating potential pushed much further than the orthodox imagery would ever allow. The overall outcome of such revisions is a vision of a fluid, changeable social setting, kept in motion by the interaction of the plurality of autonomous and uncoordinated agents. (Bauman, 1992, 54–55)*

In other words, according to some postmodern theorists, conventional, i. e. static and deterministic class-based models of social structure, are inadequate because they fail to account for the constructed nature of structure and, consequently, the fluidity of occupational systems across different contexts. Especially in the light

1 This project was funded by SIDOS, Neuchâtel, the Swiss Household Panel, the Swiss National Science Foundation (grant number 500458473) and the Economic and Social Research Council, UK (grant number RO00238265). We would like to thank Bob Blackburn, Véronique Mottier, Erwin Zimmermann, and the two anonymous reviewers for their incisive comments on an earlier draft of this paper.

* University of Cambridge, Faculty of Social and Political Sciences, Free School Lane, Cambridge CB2 3RQ and SIDOS, ruelle Vaucher 13, 2000 Neuchâtel Switzerland

** Cardiff University School of Social Sciences, Glamorgan Building, King Edward VII Avenue Cardiff CF10 3WT

*** SIDOS, ruelle Vaucher 13, 2000 Neuchâtel Switzerland

of global social, political, and economic changes in interactions in both form and content, a postmodern critique of simplistic socio-structural stratification models has been valuable as far as the static models propose predetermined interactions based on a fixed social structure. However, it remains unfeasible to suggest that all social, political, and economic interactions take place *in the absence of structuring constraints*. While some stratification theories may have overemphasized structural determinism, other social theories tend to overstate both the fluidity of modern relations and the agency of individuals. New stratification models are needed, which incorporate the possibility of fluidity, especially with regard to interactive negotiations of relationships and resource allocation across contexts. But this does not mean that social stratification must be abandoned. Instead, socio-structural changes of industrial to post-industrial societies should be studied empirically to either substantiate or refute arguments about agency, social fragmentation and fluidity. Currently, many postmodern critics neglect that (a) resources today are not equally distributed across all members of a society, (b) resources are distributed non-randomly and more specifically, according to social relationships, and (c) the position of members of a society within stratified social systems moderates type and degree of social, political and economic interaction with other members and institutions. Based upon these three considerations, we argue that, as it remains an important aspect of social life and, therefore, an important research topic for the social and political sciences, an understanding of society and its members must include the concept of social stratification. For example, money, love and power are distributed unequally and non-randomly in society, and are dispersed according to regulatory rules that govern their disbursement according to relationships between individuals and institutions. In short, social stratification and relations between individuals and institutions are deeply intertwined. Thus, abandoning the study of social stratification in favor of the individual agent is not unlike suggesting the replacement of a jet engine with goose feathers and a bit of bee's wax. However, this does not mean that we propose to dismiss the contributions of postmodern critiques altogether. Given postmodern insights, a useful agenda for current stratification research may include an examination of the degree, type and dynamics of multiple and coexisting social structures, their causes and consequences, and the limits of structural determination on interactions across context and domain. Rather than engaging in a somewhat fruitless discussion of whether or not social structures exist, we prefer to examine, first, the conditions under which structures become more or less important and, second, the multiple and dynamic natures and consequences of structures. These two goals should be pursued beyond simple enumeration of statistical associations between stratification measures and outcome variables by, for instance, conceptions of more complex theoretical and empirical models which may explain the presence

or absence of socio-structural moderation across domains and contexts (Bergman and Joye, 2002).[2]

Despite its recent criticisms, social stratification research remains of central importance for the social and political sciences. The concept of social stratification is linked fundamentally to concepts of social position, inclusion/exclusion, mobility, life-styles, power and status. That measurements of stratification are imperfect precludes neither the need for an adequate theoretical account of stratification, nor the need for its empirical development (Bergman and Joye, 2002).

In this paper, we outline theoretical and procedural aspects of a stratification measurement for Switzerland, which have not yet been considered by the Swiss research community on stratification (cf. Levy [u. a.], 1997; Joye and Schuler, 1995; Buchmann and Sacchi, 1995; Bornschier, 1987; Lamprecht and Stamm, 2000). We do not intend to present an exhaustive comparison between different theoretical and computational approaches to stratification. Instead, the purpose of this text is to introduce a stratification scale, which has already found successful application in various domains in the social and political sciences, and which represents an interesting theoretical alternative to more conventional class-based schemas. In the following sections we will elaborate on, first, the theoretical underpinnings and assumptions of a relational stratification scale – the Cambridge Social Interaction and Stratification Scale (CAMSIS) –, second, the associated procedural and computational considerations, and, third, the applications and limitations of the scale.

2 Theoretical Underpinnings and Assumptions

Whether by social pro- and prescriptions or by personal preferences, individuals are embedded in social networks within which they engage in social, cultural, political and economic interactions that are qualitatively and quantitatively different from their interactions with people who are more distant from these social networks. Acquaintances, friends and marriage partners tend to be chosen much more frequently as social and economic exchange partners from within a given social network than from without. As both a function and a consequence of selective interchange, which has implications for individuals with regard to many of their values, opinions and behaviors, a social structure is continuously reconstructed. Simultaneously, values, opinions and behaviors affect individual positioning and, consequently, pre- and proscribe certain interchanges with others.

The relational perspective of social, economic and political structuring proposes both a certain *regularity and patterning of interactions*, as well as an *interactive*

2 Cf. Levy, Joye, Guye, & Kaufmann (1997) for a critical study of stratification beyond conventional research practices which, nevertheless, does not propose abandoning the classical paradigm.

negotiation of relations and their consequences. This central feature of CAMSIS is its most important contribution to stratification theory. As resource distribution is not merely seen as a function of a static structure, CAMSIS goes far beyond simple structuralism. Stratification here is conceived of as being constituted of actual and potential relationships within dynamically re-constitutive networks. From this perspective, rather than being *a priori*, social structure is continuously negotiated and reconstructed according to human interactions and the meanings therein ascribed. As such, the CAMSIS approach stands in contrast to traditional class schemas, i. e. the proposition that societies are made up of distinct groups differentiated by material resources or status disparities. By definition, most conventional class schemas have difficulty incorporating societal complexity and fragmentation into their theoretical frameworks. This leads us to consider whether the notion of distinct classes is even necessary to examine social stratification. Could we abandon class categorization all together and look at a continuous quality underlying social categories? Without rejecting outright the concept of class, what we are pursuing here is the most parsimonious model that still accounts for key aspects in social stratification.

The most minimalist assumptions of social stratification are grounded in theoretical propositions and empirical findings within the social and political sciences. As previously explained, the most general theoretical assumptions of CAMSIS are that resources are distributed neither equally nor randomly; instead, they are distributed 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 of social stratification as proposed by the CAMSIS approach is not a structure imposed by resources or institutions, but an interdependent relationship between social networks and resources. In this scheme, resources which determine social positions are thought to be regulated by relationships between social actors and, as a consequence, to determine access to actual and potential social, political and economic resources. But reciprocally, varying access to these resources provide varying access to social networks. As such, social networks, social position, and resources form an interdependent system within which no element may be considered exogenous.

The CAMSIS approach proposes that differential associations between individuals across social, cultural, economic and political spheres may be seen as a way of defining proximity within these social spaces, and that these social spaces may 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 primarily on friendship (i. e. "people with whom you are friendly outside work") as a central form of social interaction (Stewart, Prandy, and Blackburn, 1980). This makes it possible to define more than one social interaction relationship for each individual. Also, it allows for the inclusion of the possibility for individuals to change their relationships as their own circumstances change. These considerations are less applicable if we take marriage as the basic relationship variable (although this was also previously included as a social relationship). While certain limits are imposed upon our theoretical considerations if we take cohabiting couples as indicators for relationship networks, Joye and his colleagues have shown that partner choices tend to come from the same networks as friendship choices (Joye and Schuler, 1995; Levy, Joye [a. o.], 1997; cf. Mitchell and Critchley, 1985; Kalmijn, 1998), substantiating our argument that, for our purposes, cohabitation patterns sufficiently parallel social network patterns. While there exists some additional advantages to analyzing data based upon friendship networks, the financial costs of doing so are prohibitive. Fortunately, data on married or cohabiting couples are readily available from censuses and other large-scale official surveys.

Shared with virtually all other stratification measures, another assumption of CAMSIS 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 remain the single most significant indicator of a person's standing in the overall structure of advantage and disadvantage (Blackburn and Prandy, 1997), as well as a major source of social identity, localizable to individual professions or professional groupings. It is important to understand that 'occupational group' here is defined to include differences in employment status (self-employed or supervisory, for example). Because the basic units for the construction of CAMSIS beyond relationships are occupational titles, as much detail as possible should be retained about the types of occupations. In addition, as having the same occupation may have different implications for a person's social position depending on their gender, CAMSIS involves a gender-sensitive scale calculation that differs for men and women. Beyond gender, other social groupings such as ethnicity, religion, education, language group, level of urbanization or professional qualifications can also be accommodated in future versions.

When we examine the association between occupational information and relationships, we obtain insight into social networks that transcends that which is entailed within the individual occupation and relationship variables; the emerging latent structure, while constituted of occupational information and relationships, transcends these two indicators. In other words, we can reconstitute specific aspects of social space by investigating occupational information *in combination with* relationship data.

3 Procedural and Computational Considerations

An elaboration of data considerations, statistical techniques, problem occupations, and scale validation in some detail is necessary for three reasons: to understand the process of construction of the scale, to assess the possibilities and limits of our research design, and to encourage others to expand upon existing procedural and computational work.

3.1 Data Considerations

Two data sets, the 1990 Swiss Population and Housing Census and the 1999 Swiss Household Panel, were used for the construction and validation of CAMSIS.

Every decade, the Swiss Population and Housing Census collects data on demographic and social statistics of the Swiss resident population. Detailed information about the professional occupations of couples co-residing are available, making this data a formidable resource for constructing CAMSIS. Due to availability, quantity and quality of the data, the 1990 Swiss census provided the main data base for the construction of our scale, while Census and Swiss Household Panel data were used to test its validity. Of the available data on 1.68 million couples, .76 million were eventually used for analysis. This discrepancy can be explained by the fact that, for the construction of the scale, occupational data must be available for both partners. Once the scale scores for occupations are calculated, they may be applied to all people who have occupational titles. This, however, highlights a major problem of this and all other major stratification scales since, essentially, stratification studies are based only upon a sub-sample of the population, i. e. employed individuals only. Homemakers, the temporary and long-term unemployed, retirees and students, for instance, are either excluded from, or insufficiently captured by these instruments (Bergman and Joye, 2001). Future research efforts in social stratification will have to seek to examine these sub-populations, which may outnumber the formally employed population. Although not used in this construction, future efforts will include additional categories where unemployment and non-working status classification will take highest level of education into account.

The current CAMSIS version uses information on the 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 may help identify finer distinctions between occupational locations. However, the additional complications of accounting for employment status are considerable, the gain in predictive validity is small, and the change in scores assigned to particular individuals is seldom substantial.

3.2 Statistical Techniques

Based on our theoretical considerations, computational procedures are needed that quantify the *probabilistic relationships between social actors according to information about their occupations.* In our case, a two-way table between occupational titles of couples living in the same household forms our input data set. The arising frequencies between couples' occupations represent a measure of distance between any two occupations, i. e. points. 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 upon the frequency with which individual occupations co-occur between couples. Starting from this analysis of a frequency table, we will be limited to techniques that deal with c^2 decomposition.

One technique suitable for our purposes is correspondence analysis. As part of the family of dimensional analyses, correspondence analysis (CA) is an exploratory statistical technique that analyzes 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 that corresponds closely with an order of social stratification (e. g. Prandy, 2000a). In our case, CA would assign each occupational title a score according to its relative social position as calculated from information about each couple's occupational titles. We may then use the scores given to occupations in such a first dimension as a CAMSIS indicator of the relative location of those occupations.

However, as most dimensional analyses, CA is an exploratory technique, rather than a general modeling 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. Ways to test the viability of the structures explored through CA are lacking in this approach. A modeling framework which allows for nested model comparison and significance testing would 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).

Goodman's RC-II Models constitute an extension of log-linear modeling techniques whereby the expected frequency of the combination of couples' occupational titles, as found in our two-way table, is modeled as a function of the row and column marginal distributions plus the additional multiplicative effect of estimated row and column category scores. In this case, a simple model for tabulating husbands' and wives' occupations is used with row and column scores estimated in one dimension only.[3] As in the case of CA, the scores estimated for the row and column multiplicative effects will represent a measure of distance between occupations in terms of the likelihood of row and column combinations of occupational titles.

3.3 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. This arises because there are a number of variants to the basic model formulation which are of considerable substantive interest in terms of how row and column scores and log-linear parameters may be constrained (e. g. Rytina, 2000). Principal examples investigated in the CAMSIS project concern the treatment of "problem occupations" through design effects on log-linear parameters; the evaluation of models in which row and column score estimates are constrained to be equal rather than separate for men and women, and alternative ways of accounting for employment status variations within an occupational title. All such variations can be modeled, evaluated in terms of fit statistics, and compared with any changes in the derived row and column dimension scores. Furthermore, in such situations it is possible to assess and describe the influence of the factor investigated through a specific model parameter or statistic – something which would be impossible with CA.

Regardless of analytic technique, the social dimension is a function of the way in which occupational titles relate across couples. However, some combinations which may have an unduly strong influence on the calculation of the first dimension 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 which just one or a very few "problem occupations," i. e. occupations for which there exists a high proportion of husbands and wives who have the same, highly related, occupational titles (e. g. agricultural professions). Either explicit modeling or exclusion of these "diagonal" cases in such occupations must occur in order to prevent these cases from unduly influencing the results. When this is done, we obtain a dimensional structure which represents a general pattern of social interactions between

3 These models could include sets of scores in more than one dimension, and variation in the husband and wife relations across values of other variables (cf. Clogg, 1982).

occupations and which excludes specific patterns of exceptionally common occupational combinations.

3.4 CAMSIS Validation

To examine the variability of the scale across the different technical and data options, eight sets of CAMSIS scores were calculated. These differed according to:

1 national occupational codes (PBER) provided by the Swiss Federal Statistical Office and the international standard classification of occupations (ISCO), proposed by the International Labour Organization
2 model structures, i. e. correspondence analysis using SPSS-CA vs. Goodman's RC Type II Model (no equality constraint between spouses' occupations), using LEM (Vermunt, 1997)
3 two alternative definitions, PO1 and PO2, of problem occupations, i. e. occupations for which a disproportionate number of workers have spouses in the same occupation: PO1 defines problem occupations as those for which both partners are restaurateurs (ISCO = 1225), or are involved in agricultural occupations (ISCO = 61*), or for which the female is an agricultural laborer (ISCO = 9211) and her partner a farmer (ISCO = 6130). The second category, PO2 defines problem occupations as those, in addition to the constraints imposed in PO1, for which both partners are employed in the textile industry (especially for ISCO = 8361 or ISCO = 8262).[4]

The following table summarizes the eight different versions of the CAMSIS scales:

Table 1: Eight Permutations of CAMSIS Scales

	Correspondence Analysis		Goodman's RC-II Model	
	PO1	PO2	PO1	PO2
PBER	PBERCA1	PBERCA2	PBERRC1	PBERRC2
ISCO	ISCOCA1	ISCOCA2	ISCORC1	ISCORC2

Selected statistics of the eight models are presented below. As the correspondence analysis and RC-II approaches have different model formulations, it is not sensible to compare fit statistics between the two statistical techniques. We can, however, use fit statistics to evaluate the suitability of different models within each technique.

4 In RC-II Models, these occupations are dealt with by placing design effects on the log-linear parameters of the diagonal occupational combination, whilst in the correspondence analysis approach these occupations are dealt with by excluding such diagonal cases from the sub-sample analysis.

Table 2: Summary Statistics from Correspondence Analysis

	Number of categories	Number of cases	Dimension 1 Pearson's χ^2	Cramer's V	Singular value	% of total inertia (sum inertia)
ISCOCA1	253	727'940	2'023'115	0.0110	0.508	0.093 (2.779)
ISCOCA2	253	726'869	1'888'837	0.0103	0.506	0.098 (2.599)
PBERCA1	382	727940	2'866'457	0.0103	0.523	0.069 (3.938)
PBERCA2	382	726'869	2'648'840	0.0095	0.520	0.074 (3.644)

From the statistics produced by CA, we may observe that the models using the PBER schema and those using the PO1 definition of problem occupations have higher χ^2 statistics, suggesting that the independence model is a worse fit for them. In contrast, the non-independence described with the correspondence analysis dimension scores is greater, resulting in more substantial CA descriptions. The Cramer's V statistics which contextualize the size of the χ^2 statistic by the degrees of freedom and sample size, suggest that the models for which the most non-independence is described are the ISCO and the PO1 definition of problem occupations.

However, the evaluation in terms of the χ^2 statistic takes no account of the *suitability* of the correspondence analysis dimension descriptions. This can be shown by the final columns of the table. We see from the values for the sum of inertia described by the first dimension (i. e. χ^2/n), that the analysis using the PBER measures deal with more row to column association (greater sums of inertia), in a more consistent way through the first dimension (larger singular values). We also see from the percent of inertia explained that the models using the PO2 definitions of problem occupations deal with relatively more non-dependence in the first dimension. *For these combined reasons, the descriptive statistics from the correspondence analysis options seem to favor PBERCA2.*

Table 3: Summary Statistics from Goodman RC-II models

	N. of categ.	N. of cases	df	Pearson's χ^2	Likelihood ratio χ^2	Log-likeli-hood	Dissimilarity index	BIC1 (like-ratio)	BIC2 (log-like)
ISCORC1	253	762'467	62'962	864'948	241'930	-5'824'284	0.1'603	-610'846.9	11'662'737.1
ISCORC2	253	762'467	62'960	876'309	237'705	-5'822'172	0.1'587	-615'045.0	11'658'539.0
PBERRC1	382	762'467	144'263	1'333'988	310'559	-6'263'401	0.1'792	-1'643'383.5	12'549'286.1
PBERRC2	382	762'467	144'260	1'376'174	306'250	-6'261'246	0.1'777	-1'647'652.4	12'545'017.4

With regard to the association model statistics, we can observe from this table that, although the sample size is fixed across models, the number of degrees of freedom varies. Thus, the degrees of freedom reflect the number of categories and the number of log-linear parameters used in defining problem occupations. Unlike CA, the formulation of the RC-II Models is such that closer model fit indicates a better fitting model overall. In this respect, three of the four aggregate measures of fit (the likelihood ratio χ^2 statistic, log-likelihood, and dissimilarity index) demonstrate the same pattern, namely that less unexplained variation is seen in models that use ISCO rather than PBER codes, and in those that use the PO2 rather than the PO1 definition of problem occupations. The Pearson's χ^2 statistic indicates a reverse pattern with regard to the problem occupation definitions only; this arises because the predicted values compared for the χ^2 statistic do not account for the properties of the problem occupation log-linear parameters.

A better evaluation of the model fit to the RC-II Models would take into account the variation in the number of degrees of freedom between models. This could be accomplished with statistics such as the Bayesian Information Criteria which compare the magnitude of either the likelihood ratio χ^2 (BIC1) or the log-likelihood (BIC2) with the number of model parameters, the degree of freedom and the sample size (cf. Hagenaars, 1990; Vermunt, 1997). The last two columns of table 3 show these statistics, where in both cases the more negative values indicate better relative model fit. *These statistics therefore suggest that the optimum models are those using ISCO codes and the PO2 definition of problem occupations, and specifically favor the ISCORC2 solution.* Unlike the results obtained from CA, there are no statistics at the aggregate level which suggest that using the PBER rather than ISCO coding of occupations is a worthwhile practice in the RC-II Models. Although the PBER categorizations must by definition carry more information than the ISCO re-codes, these statistics are consistent with the view that the bulk of associations are sufficiently captured in the ISCO coding.

One aspect of validation of a sociometric scale relates to its ability to predict various demographic, attitudinal and behavioral variables, which, according to previous research and theory, it should be able to predict. This was accomplished by using 41 variables of the first wave of the Swiss Household Panel, a multipurpose annual survey of a nationally representative sample of more than 5000 households and all of their members older than 14. To examine the validity of the scale not only across the different technical and data options, but also according to predictive criteria, the eight sets of CAMSIS scores were subjected to predictive validity testing, using the Swiss Household Panel data set. The following section relates to predictive validity, i. e. the ability of a scale to predict different positions of variables that are believed to be linked to social stratification. Predictive validity was assessed by examining the association of the eight preliminary CAMSIS versions with 41 variables from the Swiss Household Panel including income, educational

attainment of ego and ego's parents, consumer behavior, political values and attitudes, housing conditions, work and relationship satisfaction, etc.

Our findings may be summarized as follows:

1) The scales differ little with regard to predicting other variables, i. e. no relationship is highly significant for one CAMSIS version and not significant for another. The largest differences of association between the 41 variables across the eight CAMSIS versions never exceed .25% of accounted variance.
2) If the eight scales are ranked according to best, second best and third best predictor for the 41 variables, some clear tendencies emerge, and may be observed in table 4.[5]

Table 4: Predictive validity assessment

	ISCOCA1	ISCOCA2	ISCORC1	ISCORC2	PBERCA1	PBERCA2	PBERRC1	PBERRC2
best	1	4	2	3	10	13	10	11
third best	5	3	4	4	1	2	10	7
top three	9	11	9	10	20	21	22	21

We may note that the four scales calculated from the national occupational codes (PBER) are consistently better predictors than the ISCO-based scales. If we deduct the number of third-best predictions from the number of best predictions, we find that *scales based on the PBER codes, using CA are the best predictors.* It needs to be emphasized that these results are based upon rank ordering, yet the degree of association between each of the eight scales and the 41 variables does not differ significantly.

All eight scales tend to be extremely similar across technical, data and predictive validity considerations. Nevertheless, based on all of the above, we propose to adopt both ISCORC2 *as well as* PBERRC2. Although similar results from both are expected, *we suggest the use of ISCORC2 for research work involving international comparison and the use of PBERRC2 for studies with a national focus.*[6]

5 The rankings do not add up to 41 because the measures of association between the CAMSIS scales and the other indicators can be equally high to two digits after the decimal. In this case, they were given an equal ranking.

6 A CAMSIS look-up table for PBER and ISCO codes and a SPSS syntax file that transforms PBER and ISCO codes into CAMSIS is available at www.sidos.ch.

4 Application and Limitations

A social stratification scale is only as good as it may be applied to substantive research questions. Not only is it important to provide a solid theoretical basis for a stratification scale, but its ultimate value must be judged based on its applicability to interest areas in the social and political sciences. Closely linked to the second part of the previous section, i. e. the validation of the scale, this section serves to illustrate the wide range of applicability of CAMSIS across various research domains within the social and political sciences. Toward the end of this section, we will outline future strategies for advancing stratification research in Switzerland.

Especially in Britain and North America, CAMSIS has been successfully applied to research on social mobility (e. g. Prandy, 1998; Blackburn and Prandy, 1997; Rytina, 1992; 2000), gender (e. g. Bottero, 1998), health (e. g. Chandola, 1998; 2000; Prandy, 1999; Sacker, et al. 2000), political behavior (e. g. Prandy, 2000b) and education (e. g. Blackburn and Marsh, 1991; Blackburn and Jarman, 1993). To illustrate its multiple use for Swiss data, we have calculated a number of bivariate associations[7] with a selection of indicators available in the SHP. Like all bivariate measures of association, our results must be interpreted with care, because they tend to oversimplify the complexity of relationships between social indicators. Some significant bivariate relationships may be spurious or become insignificant once we include interactions with further variables, while other, non-significant relations may become significant in a more sophisticated multivariate application. Obviously, theoretically based, multivariate analyses will render far richer and more valid findings than a simple list of association measures. Nevertheless, the power of social stratification in general, and CAMSIS in particular, may be illustrated by the following table (table 5) which subdivides a number of variables from the SHP into the domains of demography, religion, work, health, politics, lifestyles, relationships and networks, and societal values and attitudes:

From this table, we can clearly see that the two CAMSIS scales form many statistically significant relationships with SHP indicators across central research domains in the social and political sciences. Once again, the purpose of this table is not to present substantive findings but, instead, to encourage the Swiss and the international research community in the social and political sciences to incorporate stratification scales into their research projects, wherever relevant.

7 Due to CA computations, CAMSIS scores may be treated as continuous and display excellent sociometric properties, which may be exploited in parametric statistics. The skewness for ISCORC2 and PBERRC2 are .515 and .605, respectively, and their kurtoses are .049 and .133.

Table 5: Bivariate relationships between CAMSIS and selected variables (Swiss Household Panel)

Variable	Spearman	ANOVA (A) t-test (t)	n	Direction
Demography				
Age [age99]	.04**/.03		5'024	Older resp. = higher CAMSIS scores.
Gender [sex99]		(t) 1.96*/2.40*	5'024	Women = scores.
Highest level of education achieved. Incomplete compulsory to university degree) [educat99]	.49***/.50***		5'011	Higher education = higher scores.
Was your father employed? at age 15) [p99o07]		(A) 2.72**/2.63**	4'699	Higher scores if father was employed
Was your mother employed? at age 15) [p99o24]		(t) 1.95^/1.89^	4'748	Higher scores if mother was employed
Which language do you relate to and master best? G. vs. F.) [p99e16]		(t) 3.23***/3.35***	4'239	French = higher scores.
Religion				
Currently, what is your confession or religion? Prot.vs. Cath.) [p99r01]		(t) 3.24***/3.24***	3'993	Catholics = lower scores.
How often do you currently discuss religious or spiritual matters (with spouse) [p99r07]	.08***/.08***		3'935	frequent discussions = higher scores
How often do you currently discuss religious or spiritual matters (with friends) [p99r11]	.12***/.13***		5'011	frequent discussions = higher scores
State should include in school curricula dealing with the religious traditions. (0 = disagree to 10) [p99r14]	.14***/.15***		4'910	Higher scorers support religious educ.
Work				
How long are the journeys between home and workplace? [p99w84]	.15***/.15***		4'475	Longer travel distance = higher scores
Are you satisfied with your financial situation? (0 = not at all to 10) [p99i01]	.12***/.12***		5'002	Higher scorers are more satisfied.
How many days of holidays have you taken (past year)? [p99w99]	.18***/.18***		4'761	Longer holidays = higher scores.
Health				
How do you feel right now?*(1 very well to 5)* [p99c01]	-.06***/-.06***		5'023	Lower scorers feel less well.
Have you suffered from bad back or lower back problems? [p99c23]		(t) 4.62***/4.72***	5'024	Lower scorers are more likely to suffer.
Practicing physical activities which make you slightly breathless? [p99a01]		(t) 7.74***/8.10***	5'018	Lower scorers do less likely exercise.

Politics				
Let's suppose there are 10 federal polls each year? How many do you usually take part in? [p99p06]	.15***/.15***		4'233	Lower scorers participate less likely.
Have you taken part in a political assembly? (in the last 12 months) [p99p30]		(t) 8.09***/8.04***	5'014	Participants = higher scores.
Have you signed a popular initiative or referendum? (in the last 12 months) [p99p29]		(t) 8.56***/9.23***	4'214	Lower scorers sign less likely.
Have you taken part in a strike? (in the last 12 months) [p99p33]		(t) 5.59***/5.35***	5'018	Lower scorers = less likely to strike.
Generally, how interested are you in politics? (0 not at all to 10) [p99p01]	.26***/.26***		5'018	Lower scorers = less interested.
Satisfied with the way democracy works? (0 = not at all to 10) [p99p02]	.09***/.09***		4'878	Lower scorers = less satisfied.
How frequently do you try to convince other people to adopt your political opinions? (1 often to 8) [p99p25]	-.13***/-.13***		4'999	Higher scorers try to convince more.
Demography				
Confidence in the Federal Government? (0 = not at all to 10) [p99p04]	.11***/.11***		4'871	Lower scores = less confidence.
Confidence in the organization for the defence of Human Rights? (0 = not at all to 10) [p99p28]	.13***/.14***		4'852	Lower scores = less confidence.
When they talk about politics, people mention left and right. Where is your position? (0 = left to 10) [p99p10]	.17***/.18***		4'284	Lower scores = more right.
Lifestyle				
How much free time per week do you have on average (in hours) [p99a41]	-.08***/-.08***		4'881	Lower scores = more free time.
How frequently do you eat out? [p99a56]	-.17***/-.17***		4'881	Lower scores = less likely to eat out.
How frequently do you practice an individual sport? (1 = every day to 5) [p99a55]	-.12***/-.12***		5'014	Lower scores = less likely to practice.
How frequently do you invite friends (1 = every day to 5) [p99a58]	-.10***/-.10***		5'009	Lower scores = less likely to invite.
How frequently do you go to the cinema? (1 = every day to 5) [p99a19]	-.21***/-.21***		5'017	Lower scores = less frequent.
How frequently do you make music? (1 = every day to 5) [p99a10]	-.17***/-.17***		5'019	Lower scores = less frequent.
How frequently do you go to the theater, opera, or an exhibition? (1 = every day to 5) [p99a18]	-.35***/-.36***		5'015	Lower scores = less frequent.
How frequently do you read? (1 = every day to 5) [p99a09]	-.16***/-.16***		5'017	Lower scores = less frequent.

Variable	Spearman	ANOVA (A) t-test (t)	n	direction
Relationships and Networks				
How many good and close friends do you have? [p99n24]	.11***/.11***		4'969	Lower scores = fewer friends.
Do you have honorary or voluntary activities [p99n35]		(t) 5.20***/5.40***	5'021	Higher scores = more activities.
Hours per months usually devoted to voluntary activities? [p99n38]	.09***/.10***		4'571	Higher scores = more activities.
Member (active, passive, or not) of a political party? [p99n43]		(A) .13***/.13***	5'016	Higher scores related to membership.
Member (active, passive, or not) of an environmental protection organization? [p99n44]		(A) 100***/113***	5'020	Higher scores related to membership.
Member (active, passive, or not) of a charitable organization? [p99n45]		(A) 63***/64***	5'017	Higher scores related to membership.
Member (active, passive, or not) of a syndicate or employee association? [p99n42]		(A) 22***/22***	5'013	Higher scores related to membership.
Societal values and Attitudes				
In favour of a diminuiltion of the Confederation's social spendings? [p99p13]		(A) 31***/36***	4'766	Score related with opinion.
In favour of Switzerland opening towards other countries? [p99p40]		(A) 103***/107***	4'875	Score related with opinion.
In favour of Switzerland offering foreigners the same opportunies? [p99p15]		(A) 123***/129***	4'832	Score related with opinion.
In favour of Switzerland being more concerned with the protection of the environment? [p99p16]		(A) 19***/21***	4'847	Score related with opinion.
In favour of an increase of the taxes on high incomes? [p99p17]		(A) 10***/9***	4'828	Score related with opinion.
In favour of Switzerland having a strong army? [p99p12]		(A) 69***/78***	4'848	Score related with opinion.

Note

1 Cells follow the format "x/y". For Pearson's r, ANOVA, and t-test: the first coefficient (i. e. x) signifies the measure of association between a variable and CAMSIS as calculated from ISCO codes, and the second coefficient (y) signifies the measure of association between a variable and CAMSIS as calculated from the national occupational codes as provided by the Federal Statistical Office.

2 Significance levels: ^: $p < .1$; *: $p < .05$; ** $p < .01$; ***: $p < .001$.

5 Conclusion

In this article, we have described the construction, validation and application of a social stratification scale which, as its base, theorizes that the selectivity of social interchanges between acquaintances, friends and marriage partners give rise to social, cultural, political and economic structures. It is equally important to emphasize that a particular position within a social network pre- and proscribes the form and content of social interactions. The character of the interdependence within a network of relationships between social position and multiple resources has important consequences for perceptions, attitudes, motives, values, roles and behavior.

Based on this interdependent and relational proposition, CAMSIS may be considered as a theoretical alternative to conventional class-based schemas. Moreover, stratification studies using more than one scale have shown CAMSIS to be no less, and often more efficient in predictive terms than class schemas (e. g. Chandola, 2000; Sacker et al., 2000; Prandy, 2000b). Also, because CAMSIS scores can be considered as locations or social positions on a continuous measurement scale, they reflect social reality more convincingly than do more conventional class schemas. An additional advantage rests in the fact that, by its nature of construction, CAMSIS is measured on an interval scale and may, thus, be used in parametric statistics.

Our future research efforts with regard to CAMSIS, as well as stratification in general, will have to address shortcomings inherent in this field, especially with regard to sensitizing the scale to subgroups, including homemakers, students, retirees and the unemployed. Second, CAMSIS is unidimensional, while it could be argued that stratification in modern societies is more complex and fragmented; if stratification is indeed multidimensional, it may be possible to adapt CAMSIS or, alternatively, to propose other measures that may be better at predicting certain stratification domains. Finally, CAMSIS, as well as most other stratification scales, is based upon a section of population that is formally employed. Additional theoretical models and measures will have to be developed to take into account those not currently captured by stratification scales. Yet another empirical question is posed by the changing nature of work in terms of commitment, content, and function leading us to question the centrality of occupation as the basis for a measure of social stratification.

Future research will seek to unveil the significance of such caveats, but regardless of the adjustments and alternatives that lie ahead, as long as resources are distributed unequally and non-randomly, the study of social stratification will remain central to the social sciences.

6 References

Bauman, Z. (1992), *Intimations of postmodernity*, London, Routledge.

Bergman, M.M., and Joye, D. (2002). Comparing social stratification schemas: CAMSIS, CSP-CH, Goldthorpe, ISCO-88, Treiman, and Wright. *Cambridge Studies in Social Research*, 9, 1–37.

Blackburn, R.M., Brooks, B., and Jarman, J. (1999), *Gender Inequality in the Labour Market: the vertical dimension of occupational segregation*, Cambridge, Cambridge Studies in Social Research.

Blackburn, R.M., and Jarman, J. (1993), Changing inequalities in access to British universities, *Oxford Review of Education*, 19, 197–215.

Blackburn, R.M., and Marsh, C. (1991), Education and social class: revisiting the 1944 Education Act, *British Journal of Sociology*, 42, 507–536.

Blackburn, R.M., and Prandy, K. (1997), The reproduction of social inequality, *Sociology*, 31, 491–509.

Bornschier, V. (1987), Soziale Schichtung im keynesianischen Gesellschaftsmodell, in V. Bornschier (Ed.), *Das Ende der sozialen Schichtung?*, Zurich, Seismo.

Bottero, W. (1998), Clinging to the wreckage? Gender and the legacy of class, *Sociology*, 32, 469–490.

Buchmann, M., and Sacchi, S. (1995), Mehrdimensionale Klassifikation beruflicher Verlaufsdaten: Eine Anwendung auf Berufslaufbahnen zweier Schweizer Geburtskohorten, *Kölner Zeitschrift für Soziologie und Sozialpsychologie*, 47, 413–442.

Chandola, T. (2000), Social class differences in mortality using the new UK National Statistics Socio-Economic Classification, *Social Science and Medicine*, 50, 641–649.

Chandola, T. (1998), Social inequality in coronary heart disease: a comparison of occupational classifications, *Social Science and Medicine*, 47, 525–533.

Clogg, C.C. (1982), Using association models in sociological research: some examples, *American Journal of Sociology*, 88, 1, 114–134.

Goodman, L.A. (1979), Simple models for the analysis of association in cross-classifications having ordered categories, *Journal of the American Statistical Association*, 74, 537–552.

Hagenaars, J.A.P. (1990), *Categorical Longitudinal Data: Log-linear Panel, Trend and Cohort Analysis*, Newbury Park, CA, Sage.

Joye, D., and Schuler, M. (1995), *Sozialstruktur der Schweiz: Sozio-professionelle Kategorien*, Bern, Bundesamt für Statistik.

Kalmijn, M. (1998), Intermarriage and homogamy: causes, patterns, trends, *Annual Review of Sociology*, 24, 395–421.

Lamprecht, M., and Stamm, H. (2000), Soziale Lagen in der Schweiz, *Schweizerische Zeitschrift für Soziologie*, 26, 2, 261–295.

Lee, D.J., and Turner, B. S. (Eds.) (1996), *Conflicts About Class: Debating Inequality in Late Industrialism: A Selection of Readings*, London, Longman.

Levy, R., and Joye, D. (1994), What is Switzerland's stratification like: classes, prestige, gradation, professional categories, *International Sociology*, 3, 9, 313–335.

Levy, R., Joye, D., Guye, O., and Kaufmann, V. (1997), *Tous égaux? De la stratification aux représentations*, Zurich, Seismo.

Mitchell, J.C., and Critchley, F. (1985), Configurational similarity in three class contexts in British society, *Sociology*, 19, 1, 72–92.

Prandy, K. (2000a), The social interaction approach to the measurement and analysis of social stratification, *International Journal of Sociology and Social Policy*, 19, 215–249.

Prandy, K. (2000b), Class, the stratification order and party identification, *British Journal of Political Science*, 30, 237–258.

Prandy, K. (1999), Class, stratification and inequalities in health: a comparison of the Registrar-General's Social Classes and the Cambridge Scale, *Sociology of Health and Illness*, 21, 466–484.

Prandy, K., and Bottero, W. (2000), Reproduction within and between generations: the example of nineteenth-century Britain, *Historical Methods*, 33, 1–15.

Prandy, K. (1998), Class and continuity in social reproduction: an empirical investigation, *Sociological Review*, 46, 154–178.

Rytina, S. (2000), Is occupational mobility declining in the United States?, *Social Forces*, 78, 1227–1276.

Rytina, S. (2000), A keynote of hierarchy, an echo of class: the full texture of mobility in England and Wales, Fifth International Conference on Logic and Methodology (International Sociological Association's RC33 conference presentation), Cologne.

Rytina, S. (1992), Scaling the intergenerational continuity of occupations: is occupational inheritance ascriptive after all?, *American Journal of Sociology*, 97, 1658–1688.

Sacker, A., Firth, D., Fitzpatrick, R., Lynch, K., and Bartley, M. (2000), Comparing health inequality in men and women: prospective study of mortality 1986–96, *British Medical Journal*, 320, 1303–1307.

Stewart, A., Prandy, K., and Blackburn, R.M. (1973), Measuring the class structure, *Nature* 245, 5426, 415–417.

Stewart, A., Prandy, K., and Blackburn, R.M. (1980), *Social Stratification and Occupations*. Macmillan.

Touraine, A. (1988), *Return of the Actor: Social Theory in Postindustrial Society*, Minneapolis, University of Minnesota Press.

Vågerö, D. (2000), Health inequalities in women and men: studies of specific causes of death should use household criteria, *British Medical Journal*, 320, 1286–1287.

Vermunt, J. K. (1997), *EM: A General Program for the Analysis of Categorical Data*, Tilburg, Netherlands, Tilburg University Press.

Le social *en lecture*

Salon du livre de Genève 2002
(Stands entre les rues Andersen et Balzac Nos. 13, 15 & 17)

À l'occasion du *Salon international du livre, de la presse et du multimédia* qui se tiendra à Genève du mercredi 1er au dimanche 5 mai 2002, des maisons d'éditions, des diffuseurs et des institutions actives dans la production et la diffusion de la documentation et de l'information sociale ont décidé de tenir un stand commun sous le sigle « Le social en lecture ».

Cette démarche est soutenue par la prise de conscience qu'il est nécessaire à l'heure actuelle de regrouper les efforts de tous les partenaires dans la promotion et la diffusion de l'information sociale. Cette coopération entre les acteurs de l'information sociale vise à favoriser l'accès à une information de qualité non seulement aux professionnels, mais aussi à un large public.

Un catalogue réunissant des titres et des nouveautés, ainsi que des informations sur les éditions partenaires et sur d'autres ressources en information sociale, sera publié et distribué à l'occasion du Salon du livre de Genève.

Vous êtes cordialement invité à visiter le stand « Le social en lecture » où vous trouverez des ouvrages, des nouveautés, des documents, de l'information sociale en abondance et où vous pourrez rencontrer les partenaires suivants :

- Diffusion Albert le Grand SA, Fribourg
- Librairie Albert le Grand SA, Fribourg
- Les Cahiers de l'EESP, Éditions de l'École d'études sociales et pédagogiques de Lausanne
- Éditions d'en bas, Lausanne
- Éditions Charles Léopold Mayer, Paris
- ENSP, Éditions de l'École nationale de la santé publique, Rennes (France)
- Hospice général (HG), Institution genevoise d'action sociale
- IES éditions, Institut d'études sociales de Genève
- Interact Verlag für Soziales und Kulturelles, Hochschule für Soziale Arbeit Luzern
- Page deux, Lausanne
- Les Éditions La Passerelle, Centre social protestant-VAUD
- Éditions Réalités sociales, Lausanne
- La SASSA, la Conférence suisse des hautes écoles spécialisées et des écoles supérieures de travail social, et la collection « Travail Social »
- Editions Seismo, Sciences sociales et problèmes de société, Zurich
- www.socialinfo.ch, ARTIAS, Yverdon-les-Bains