de Luca, Deborah, Cinzia Meraviglia & Harry B.G. Ganzeboom. "Construction and Validation of a Relational Scale of Occupational Status for Italy." Pp. 29-51 in: Paul Lambert`, Paul, Roxanne Conelly, Robert M. Blackburn & Vernon Gayle, 'Social Stratification, Trends and Processes', Farnham UK: Ashgate Publishers. ISBN 978-1-4094-30964.

Chapter 3

Measures and Dimensions of Occupational Stratification: The Case of a Relational Scale for Italy

Deborah de Luca, Cinzia Meraviglia and Harry B.G. Ganzeboom

1. Introduction

Occupational stratification is widely recognised as one of the backbones of classic and modern sociology. From the construction of the first status scale (Counts 1925) to today, a vast body of knowledge has been produced concerning the different ways to conceptualise and measure the dimensions of stratification. Since around 1950, occupational hierarchies – in the form of prestige, status or social distance scales – have been used in empirical research as the main indicator of social stratification, for instance in modeling the status attainment process in the style of Blau and Duncan (1967).

The diversity among empirical measures mirrors the diversity in the methods used for their construction. Broadly speaking, three approaches can be singled out. The first uses popular evaluation of occupations to build prestige scales, following more or less closely the method used for the construction of the North-Hatt prestige scale (North and Hatt 1947; Reiss 1961). The second approach originates from Duncan's (1961) socio-economic index (SEI), which gave a prestige score to occupations not included in the North-Hatt scale. As it is well known, Duncan's SEI was later found to be a more valid measure of the socio-economic features of occupations than prestige scores (Featherman, Jones and Hauser 1975); on this ground, it was preferred to prestige measures. A third approach stems from the work of Laumann and Guttman (1966), who estimated a continuous measure from the pattern of association among incumbents of 55 occupational groups. The same approach has been implemented by Stewart, Prandy and Blackburn (1980), who used associational data to build the 'Cambridge Scale', later updated as a group of 'Cambridge Social Interaction and Stratification' scales (CAMSIS) by Prandy (1990) and Prandy and Lambert (2003). Chan and Goldthorpe (2004, 2007) also link their work to Laumann and Guttman's method of building a status measure.

These three approaches seem rather crystallised both in the method used for building the various empirical measures, and in assuming that each measure points to a different theoretical construct (either prestige, social status, or social distance). In this chapter we intend to challenge this assumption, bringing new evidence to

the conclusion – which many students arrived at in the past – that gradational measures of occupational stratification are all indicators of the same underlying construct (Kahl and Davis 1955; Featherman, Jones and Hauser 1975; Featherman and Hauser 1976; Kraus, Schild and Hodge 1978; Treas and Tyree 1979; Stevens and Featherman 1981).

In conducting this critique, we also intend to present a new continuous measure of occupational stratification produced for Italy, named CAMSIS-IT, which has been constructed on the basis of the method used for the CAMSIS scales (Prandy and Lambert 2003). However, as it will become clear in the rest of the chapter, we give a different interpretation to our measure than the Cambridge group, since we consider it a status scale, instead of (or rather, in addition to) a social interaction distance scale.

The work we present and discuss here is part of a broader project on measures and dimensions of occupational stratification which aims at clarifying the conceptual and empirical connections among the different approaches to scale construction. In this framework, the rationale for specifically dealing with the Italian occupational structure is straightforward. Italy is probably one of the European countries where stratification research is weakest. Until recently, researchers interested in the Italian occupational stratification could count on just one measure, designed in 1985 (De Lillo and Schizzerotto 1985); no socio-economic index or status scale has ever been built for Italy. As a consequence, relying only on the 1985 scale, it was not possible to ascertain whether the so-called 'Treiman constant', namely the conclusion reached by Treiman (1977) that prestige hierarchies are invariant through space and time (Hout and DiPrete 2006), held in the Italian case. Nor was it possible to test and possibly extend the findings of Featherman, Jones and Hauser (1975) and Featherman and Hauser (1976) that prestige scales are less valid indicators of the socio-economic features of occupations than Duncan's socio-economic scores. Similarly, no conclusion could be drawn concerning the distinction or the overlap between social status measures and class measures, as has been done in other European countries (Chan 2010; Chan *et al.* 2011).

Together with the recent revision of the 1985 scale (De Luca 2007; Meraviglia 2011; Meraviglia and Accornero 2007), the work we present in this chapter hopefully marks a turning point. At the same time, the new scale we propose for the Italian context is part of a broader project which aims at comparing different gradational measures of stratification at the international level (Meraviglia, De Luca and Ganzeboom 2010). This chapter aims at presenting new evidence concerning the dimensions of occupational stratification relative to a country in which this issue has not been dealt with before, thus reducing the gap between Italy and other European countries as to the availability of gradational measures and the kind of analyses they allow.

We perform these tasks in the framework of a validation analysis: after showing the characteristics and properties of the new scale, we compare it to some criterion variables in order to prove its validity as a continuous measure of the Italian occupational hierarchy. This analysis will also serve our purpose of testing the dimensionality of occupational stratification, as indicated by four gradational measures. To complete

our work, we compare the new scale to the Erikson-Goldthorpe-Portocarero (EGP) class scheme (Erikson, Goldthorpe and Portocarero 1979; Goldthorpe 2007b) in order to show how a continuous measure of social status relates to a discrete measure of a possibly different stratification dimension, namely social class.

2. Status and social distance in relational scales

As it is well known, the basis of a relational scale is the pattern of distance shown by different occupations as found in the social space (Bottero and Prandy 2003). Data on respondents' acquaintances and friends, spouses, or parents, have been analysed using different techniques, either correspondence analysis (Prandy 1990); multidimensional scaling (Laumann and Guttman 1966; Stewart *et al.* 1980; Chan and Goldthorpe 2004; see also Chan *et al.* 2011); or row-column association models (Prandy and Lambert 2003).

Researchers that use the relational method support their choice mainly by pointing to the greater objectivity of the information base used to create the scale, compared to that of reputational scales. A similar claim is made on conceptual grounds, in that it is maintained that the social interaction distance approach does not single out a pre-defined criterion from which an empirical measure is derived, but gives priority to 'the way in which a structure of inequality persists over time' (Bottero and Prandy 2003: 183), as indicated by the association patterns in social space. More specifically, Bottero and Prandy (2003) have posited that social distance cannot be considered as prestige or status, but that it must be considered as a stratification order in itself, not only related to cultural aspects, but also to economic positions. Similarly, Prandy and Lambert (2003) affirm that this stratification order tells us about the social reproduction of material and symbolic inequalities, as described by the association patterns between incumbents of the various occupations.

Our approach diverges from that of the Cambridge group in a significant respect, for we consider the CAMSIS-IT scale as a measure of social status. We particularly agree with Prandy and Lambert (2003) when they interpret the social space described by the association patterns as the place where inequalities become visible and are maintained. In other terms, we do think that everyday interaction with incumbents of some occupations, but not of others, is one of the ways in which inequality is reproduced; indeed, in the terms of methodological individualism, this is a way to see how the inequality we observe at an aggregate, macro level is maintained and reproduced through actors' behaviour at the individual, micro level. In this sense, the space Prandy and Lambert (2003) refer to is a social structure, which can – in Bourdieu's (1977) terms – fulfill the task of structuring actors' behaviour just because it is structured, that is (we would say) because it is the outcome of a generative process operating in the society.

However, departing from Prandy and Lambert's (2003) standpoint, we believe that the social space inferred from association patterns, as a structure in itself, and as part of the broader social structure, refers to status groups in the Weberian sense.

Weber affirms that a status group is defined by a status situation, that is by that 'typical component of the life fate of men that is determined by a specific, positive or negative, social estimation of *honor*' (Weber 1953: 68), or prestige. He also establishes a connection between the 'social order', or the distribution of prestige, and the 'economic order', or the distribution of control over goods and services, by saying that the former is determined by the latter to a high degree, while at the same time reacting upon it (Weber 1953: 64).

The link between status and the social reproduction of economic inequalities (which is at the heart of the Cambridge group's view) can be further specified by saying that the distribution of power (the political dimension) and of privilege (the economic dimension) influence that of prestige (the symbolic or cultural dimension), though the latter is also influenced by other factors than these two (Lenski 1966). The distribution of prestige becomes visible, so to say, in status groups, which can be detected by analysing life styles and restrictions to social intercourse, which for example can 'confine normal marriages to within the status circle and may lead to complete endogamous closure' (Weber 1953: 69). Hence we trace a path that goes from power to economic privilege, to social honour or prestige, to status groups, the latter being seen as the structural counterpart of the distributive mechanisms which operate in the political, economic and symbolic dimensions.

In this framework, status groups – and the behaviours that mark and reproduce them, among which are restrictions to social intercourses and the lifestyle – are not only the outcome of the mechanisms we have mentioned, but also the *structures structurées* in Bourdieu's (1977) terms, that allow the social reproduction of political, economic and symbolic inequalities.

In sum, the justification of our claim that the relational scale we are going to present can be interpreted as a status scale, is that it is (also) through the patterns of association between occupations as described by marriage (as an instance of the restrictive mechanisms operating on social intercourse on a status basis) that we see how the social structure is reproduced; but the social structure is made up – for what concerns our purposes here – of status positions, which are determined by the interplay of the three Weberian dimensions (political, economical, cultural or symbolic).

3. Research questions and hypotheses

First, we present the features and characteristics of the CAMSIS-IT scale and validate it by showing how it compares to other gradational measures of occupational stratification.

Secondly, we intend to test the hypothesis concerning the dimensionality of the construct which underlies the various measures of occupational stratification. This is achieved by means of structural equation modelling (SEM) of a simplified status attainment process: respondent's occupation is the outcome of his/her father's occupation and his/her own education. At the observed level, four gradational measures are the indicators of fathers' and respondents' occupation: the CAMSIS-IT scale, the

International Socio-Economic Index, ISEI (Ganzeboom *et al.* 1992, Ganzeboom and Treiman 1996), the Standard International Occupational Prestige Scale, SIOPS (Treiman 1977), and the recently updated Italian prestige scale, SIDES05 (Meraviglia and Accornero 2007; Meraviglia 2011). The hypothesis we test is based on the conclusion of Featherman, Jones and Hauser (1975), in that we consider the four scales as indicators – at various degrees of validity – of a single underlying factor, which accounts for the intergenerational transmission of the occupational position.

Lastly, we consider how a status measure like the CAMSIS-IT scale relates to an indicator of social class like the EGP scheme. Within the social interaction distance approach, a recent controversy has been raised concerning the difference between status and class as distinct analytical concepts for the study of stratification. The work of Laumann and Guttman (1966) already addresses the link between status (relationally defined) and class, though they considered their discrete categories more as "regions in the space" (Laumann and Guttmann 1966: 176) than as clearly separated classes. Chan and Goldthorpe (2004) recently claimed that the classical Weberian distinction between status and class is still relevant in modern societies, though the relational approach has often claimed the opposite (Stewart, Prandy and Blackburn 1980). In their work, Chan and Goldthorpe show that, while within some classes there is a high degree of status homogeneity, in other classes status differences are still significant and relevant to life chances and life styles.

The issue of the importance of status and class as distinct conceptual tools for the analysis of contemporary societies would require a much more extensive analysis than that we report in this chapter; nevertheless, we have restricted ourselves to giving some preliminary and indicative results, in order to see how fruitful this line of analysis is.

4. Data and variables

The data set used for estimating scores of the CAMSIS-IT scale is made up of the first and third waves of the Italian Labour Force Survey (LFS) fielded in 2006 by the Italian Institute of Statistics (ISTAT); this survey runs once every quarter on partially overlapping (rotating) samples, and yields a large data set. The original file underwent a double selection process: first, we selected respondents whose partner had valid information concerning her/his job. Second, since part of the two samples overlapped, we identified each case univocally and purged the duplicated cases. The original file had 125,844 cases; after the first selection, we had 30,476 couples with both partners working; finally, after cancelling the duplicated cases, we got a sample of 25,598 couples. ISTAT provides the LFS data with a weight, which is both a post-stratification and a population weight. In order not to inflate the number of cases, we divided the original weight by a factor of 188, getting to the actual number of sampled couples having valid information concerning their occupations.

The spouses' occupations were pre-coded by ISTAT according to the Classification of Occupations 2001 (CP2001) (Scarnera 2001) at 3-digit level, which counts 121 occupational groups, to which we added two codes concerning

family helpers (121.1 and 131.1). A preliminary set of analyses were conducted to ascertain whether any of the occupational units was severely under-represented either among husbands or wives, to avoid the distance pattern found between the two spouses' occupations – the pattern emerging from the crosstabulation of the two variables – being the product of a contingent feature of the sample. Thus, following Prandy (1990), we aggregated the groups which had a very low frequency (less than 20 cases) to neighbouring and similar groups, obtaining a total of 82 occupational units.

A partial exception to this procedure concerns family helpers, who are particularly numerous in Italy (Flaquer 2000). We formed a separate category for those respondents who are family helpers and whose partner/spouse is a manager of large or small business (respectively groups 121 and 131 in CP2001); hence we added two more occupational units to the previous 82 – one for husbands and one for wives falling into this case – getting to a total of 84 units.

In line with the literature on the Italian labour market (Chiesi 1997; Reyneri 2005), women are under-represented among the occupations typical of the petty bourgeoisie (group 6, left panel of Table 3.1) and among semi-skilled manual workers (group 7), while they are more numerous among the skilled non-manual workers in the tertiary sector (group 5), clerks (group 4), technicians (since group 3 includes nurses, secretaries, social workers and, mostly, teachers as associate professionals), and unskilled manual workers (group 8).

A different dataset was used for validating the CAMSIS-IT scale and comparing it to the EGP classes, namely the European Social Survey (ESS), whose 1st and 2nd rounds were fielded in Italy in 2003 and 2006. In the original file the information concerning respondent's occupation is provided in the form of a 4-digit ISCO-88 code; we gave parents' occupation an ISCO-88 code on the basis of the original job descriptions, which are available on the ESS website.

By joining the two rounds we obtained a total of 2,022 cases with valid information on both respondent's and their father's occupation. Though we are fully aware of the importance of including mothers' occupation in analysis of the status attainment process (e.g. Meraviglia and Ganzeboom 2008), in the present instance we decided not to do so because it would have meant discarding about two thirds of the available cases due to non-response (in the case of the ESS, where respondents are asked to report on their mother's job when they were 14 years old, the true numbers of working mothers may be under-stated as many may have a paid job before or after that particular point in time).

The distribution of respondent's and fathers' occupation in the ESS data file is shown in the right-hand panel of Table 3.1. As it can be seen, among fathers far more are classed in group 1 than is true for respondents (18 per cent versus 3 per cent); this is for two reasons. Firstly, in group 1 we find managers of small and micro agricultural businesses (ISCO-88 code 1311), who – of course – are far more numerous among fathers than respondents. Secondly, entrepreneurs of micro-enterprises (which in Italy employ a greater share of the workforce than the European

Table 3.1 Distribution of occupations in the LFS and ESS data sets

LFS 2006			ESS 2003-06		
CP2001	Husbands	Wives	ISCO-88	Fathers	Respondents
1 Legislators, managers, entrepreneurs	7.8	3.5	1 Legislators, managers, entrepreneurs	17.8	3.4
2 Professionals	10.8	11.5	2 Professionals	4.8	10.8
3 Technicians	22.9	27.8	3 Technicians	6.8	16.0
4 Clerks	7.9	15.8	4 Clerks	9.0	13.6
5 Non manual tertiary	11.2	19.4	5 Nonmanual tertiary	4.1	17.0
6 Craftsmen, skilled manual, agriculture workers	21.9	7.6	6 Skilled agriculture workers	12.7	2.3
			7 Skilled manufacturing workers	18.5	11.9
7 Semi-skilled manual workers	11.8	4.6	8 Semi-skilled manual workers	9.2	9.5
8 Unskilled manual workers	5.6	9.8	9 Unskilled manual workers	17.0	15.6
N	4,726,932	4,813,312	N	2,091	2,022

average, see for example Eurostat 2009) are coded mainly in group 1 in the case of fathers, while in the case of respondents we find them mainly in groups 3 and 5. Having all occupations coded in ISCO-88 categories at the 4-digit level, we computed the scores for all the scales and measures used in our analyses, namely CAMSIS-IT, SIDES05, ISEI, SIOPS and EGP.[1] In the structural equation models we also used respondent's years of full-time education completed, as provided by the original ESS file.

5. Estimating the CAMSIS-IT scale

The actual construction of the scale followed the procedure used by Prandy and Lambert (2003). We estimated the scale scores by means of an RC-II association model (Goodman 1985, 1987, 1991; Hauser 1984). As Prandy and Lambert (2003) recall, Goodman (1985) showed that these kinds of log-linear models are analogous

1 The conversion from ISCO-88 to SIDES05 follows the work of Meraviglia and Accornero (2007). In the case of ISEI, SIOPS and EGP we used the conversion files written by Ganzeboom (2010).

to a correspondence analysis which scores the rows and columns of a cross-tabulation in order to maximise the association between them. In practical terms, an RC-II association model typically estimates a parameter accounting for the overall degree of association between rows and columns, plus a set of parameters expressing the distance between the categories of the row/column variable. This set of parameters can be constrained in various ways to achieve a meaningful and parsimonious representation of the observed data; since in our case rows and columns represent the same occupational categories, the constraint we placed on them is that the row scores should be equal to the column scores. Thus the estimated distances between the row/column categories represent the scores of the CAMSIS-IT scale.

Since the cells of the main diagonal in a cross-tabulation like ours tend to have a greater number of cases than the off-diagonal cells, Prandy and Lambert (2003) advise fitting the frequency of the diagonal cells exactly, in order to prevent them from disproportionately affecting the estimation of the scale scores. The same treatment is suggested for handling combinations of husband-wife occupations which may artificially inflate the degree of association, and hence the entire estimation process. They are the so-called pseudo-diagonal cells, which refer to couples who hold an occupation in common (farmers and farm labourers, shop owners and shop helpers or cashiers, and the like), though not falling in the same (diagonal) occupational group.

Using the software LEM (Vermunt 1997), we first estimated an independence model as our baseline. A second model fitted the parameters of the main diagonal, whose standardised residuals were checked for detecting any fit problem. Then we added to the fitted cells the off-diagonal ones whose standardised residuals were significantly high at the previous step, and had a frequency of 50 cases or more; this step was repeated until a satisfactory model was found. In the final model, a total of 90 cells were fitted, 84 referring to the diagonal cells and 6 to pseudo-diagonal cells. The baseline model (in which no diagonal or pseudo-diagonal cell was fitted) clearly has a worse fit than the final model (L^2=11,965, df=6,972, BIC=-58,805 for the baseline; L^2=6,675, df=6,882, BIC=-63,181 for the final model), though the two sets of scores (that is, the baseline and the final version of the CAMSIS-IT scale) correlate up to 0.96.

Scores for the occupational units of the CP2001 at the first and second digit were also separately estimated, following the strategy described above.[2] The advantage of this choice is that the 84 groups of the CAMSIS-IT scale can be reduced to 37 (2 digits) or 9 (1 digit) groups, thus allowing the use of the scale even when data are coded in broad occupational categories.

2 Since we estimated the 1-, 2- and 3-digits version of the scale independently, each group or unit at each level has a score, even in those cases in which the 2-digits category coincides with the 3-digits level. As a consequence these groups (for example, the armed forces) have differing scores at different levels. The inconsistency between scores is usually minor and it is easily solved using that score of the level of disaggregation (either 1st, 2nd or 3rd digit) most suited to the available data.

6. Some properties of the CAMSIS-IT scale

The scores of the CAMSIS-IT scale for the units of the Italian occupational classification (CP2001) are shown in Table 3.2. To aid comparison with analogous national and international scales, the ISCO-88 codes corresponding to each unit of the CP2001 are also listed.

Table 3.2 The CAMSIS-IT scale

121.1	522	Family helpers in medium & large firms	42.61
122	122	Corporate managers of large private firms	70.84
123	123	Department managers of large private firms	75.51
13	13	Managers of small firms	56.07
131	131	Entrepreneurs, managers & chiefs of small firms	54.23
131.1	522	Family helpers in small firms	42.19
2	2	Professional	80.09
21	211	Professionals in natural sciences	72.68
211	211	Mathematicians, physicians & natural scientists	72.28
22	214	Professionals in engineering & architecture	81.27
221	214	Engineers	79.67
222	214	Architects, town planners & specialists in l& conservation & recovery	80.16
23	221	Professional in life sciences	74.87
231	221	Life science professionals	73.68
24	222	Professionals in health science	83.15
241	222	Health specialists: Physicians	80.84
242	223	Nursing & midwifery associate professionals	27.91
25	24	Professionals in human, legal & social sciences	73.39
251	241	Business, management & banking professionals	71.24
252	242	Legal professionals	79.72
253	244	Social science professionals	79.72
254	245	Linguistics, literature & related professionals	69.83
255	245	Art & artistic disciplines professionals	69.83
256	246	Religious professionals	69.83
26	23	Professionals in teaching & research	76.65
261	231	University teaching professionals (full & associate professors)	94.88
262	235	Researchers & graduated technicians	82.82

Table 3.2 (continued)

263	232	Secondary & post-secondary education teaching professionals	77.42
264	233	Primary & pre-primary education teaching professionals	62.48
265	235	Other education & teaching profess. (graduated) (inspectors, principals, etc.)	70.73
3	3	Technicians	58.49
31	31	Associate professionals in natural sciences & engineering	55.96
311	311	Quantitative sciences, physics & chemistry technicians	55.83
312	311	Engineering sciences technicians	55.83
313	314	Ship & aircraft technicians	69.28
314	313	Optical & electronical equipment operators	55.83
315	315	Safety, quality & environmental protection technicians	55.83
32	32	Associate professionals in health care & life sciences	66.05
321	322	Health care associate professionals	55.83
322	321	Life sciences technicians	65.98
33	34	Associate professionals in business & administration	58.95
331	343	Administrative & management associate professionals	58.39
332	341	Finance & insurance technicians	67.72
333	342	Trade brokers	58.39
334	342	Business services agents & related associate professionals	58.39
34	34	Associate professionals in public & personal services	62.26
341	341	Tourism & hospitality associate professionals	57.33
342	331	Primary, pre-primary & special education teaching associate professionals	62.79
343	347	Athletes, trainers & related professionals	61.75
344	347	Entertainment & cultural services technicians	64.92
345	346	Social work technicians	64.92
346	344	Security & public services technicians	64.92
4	4	Clerks	51.67
41	41	Office clerks	53.85
411	411	Secretaries & keyboard-operating clerks	52.69

412	412	Numerical clerks (administrative, financial, management)	52.69
413	413	Material-recording & transportation clerks	52.69
414	414	Library, mail & related clerks	52.69
42	42	Customer services clerks	55.60
421	421	Cashiers, tellers & related clerks	55.48
422	422	Receptionists & information clerks	55.48
5	5	Service workers & shop & sales workers	43.30
51	522	Shopkeepers & salespersons	47.62
511	522	Wholesale shopkeepers & related workers	47.36
512	522	Salespersons in retail trade	42.80
513	522	Models, demonstrators & related workers	42.80
52	512	Restaurants, bars & hotels workers	43.26
521	511	Hospitality, tourism & related services workers	50.11
522	512	Restaurants & retail trade workers	42.80
53	7	Instructors & masters of craftmanship & artistic products	58.09
531	7	Instructors & masters of craftmanship & artistic products	51.26
54	323	Health care skilled workers	35.71
541	323	Health care skilled workers	35.10
55	51	Personal services, security, professional cleaning, & recreational services workers	43.64
551	5	Entertainment & cultural services skilled workers	45.47
552	514	Laundry & dyeing skilled workers	36.15
553	514	Personal services & related skilled workers	43.97
554	516	Protective services & related workers	43.97
6	7	Craftmen, skilled manual workers, agricultural workers	33.45
61	71	Extraction & building skilled workers	29.03
611	711	Miners, shotfirers, stone cutters & carvers	38.16
612	712	Building frame & related trades workers	30.79
613	713	Building finishers & related trades workers	30.79
614	714	Painters, building structure cleaners & related trades workers	30.79
615	714	Building caretakers, window & related cleaners	24.03
62	72	Metal, machinery & related skilled workers	36.37

Table 3.2 (continued)

621	721	Metal moulders, welders, sheet-metal workers, structural- metal preparers, & related trades workers	37.01
622	722	Blacksmiths, tool-makers & related trades workers	37.01
623	723	Machinery mechanics & fitters (except industrial assembly-line workers)	37.01
624	724	Electrical & electronic equipment mechanics & fitters	37.01
625	723	Ship engine mechanics & fitters	45.6
63	73	Precision, h&icraft & printing skilled workers	42.44
631	731	Metal, machinery & related trade workers	49.52
632	732	Potters, glass-makers & related trades workers	40.54
633	733	H&icraft workers in wood, textile, leather & related materials	46.37
634	734	Craft printing & related trades workers	40.84
64	6	Agricultural & fishery skilled workers	37.84
641	611	Skilled agricultural workers	37.37
642	612	Skilled animal producers	37.37
643	613	Mixed crop & animal producers	37.37
644	614	Skilled forestry workers	37.37
645	615	Fishery workers & hunters	43.35
65	74	Food, wood, textile, garments, leather skilled workers	33.03
651	741	Food processing & related trades skilled workers	34.18
652	742	Wood treaters & related trades skilled workers	34.18
653	743	Textile, garment & related trades skilled workers	34.18
654	744	Leather & shoemaking trades skilled workers	34.18
66	74	Craftmen & manual workers in the entertainment business	51.07
661	74	Craftmen & manual workers in the entertainment business	51.04
7	8	Semi-skilled manual workers	32.87
71	81	Industrial plant operators	34.43
711	811	Mining & mineral-processing-plant operators	41.81
712	812	Metal-processing-plant operators	31.71
713	813	Glass, ceramics & related plant operators	31.71

714	814	Wood-processing- & papermaking-plant operators	31.71
715	815	Chemical-processing plant operators	44.12
716	816	Power-production & related plant operators	42.34
717	817	Automated-assembly-line & industrial-robot operators	35.65
72	82	Stationary plant semi-skilled operators, assemblers, line operators	30.50
721	821	Metal & mineral-processing-plant operators	34.06
722	822	Chemical products machine operators	34.72
723	823	Rubber- & plastic-products machine operators	25.75
724	824	Wood-products-plant operators	27.92
725	825	Printing-, binding- & paper-products machine operators	22.55
726	826	Textile-, fur- & leather-products machine operators	31.75
727	820	Industrial products assemblers	32.83
728	820	Assembler machines operators	27.64
73	827	Agriculture stationary plant operators	35.57
731	827	Agriculture machine operators	34.46
732	827	Food & related products machine operators	36.79
74	83	Drivers & mobile plant operators	33.13
741	831	Locomotive engine drivers & related workers	48.86
742	832	Motor- & animal-drawn vehicles drivers	34.37
743	833	Motorised farm & forestry plant operators	34.37
744	83	Mobile-plant operators (excl. agricultural)	34.37
745	834	Ships' deck crews & related workers	29.11
8	9	Unskilled manual workers	30.49
81	915	Messengers, doorkeepers & related	35.52
811	915	Unskilled office clerks	43.26
812	915	Communication & storage unskilled workers, freight h&lers	32.41
82	913	Restaurants & hotels unskilled workers, street vendors	38.14
821	911	Streer vendors	45.80
822	913	Touristic services unskilled workers	27.68
83	915	Unskilled workers in schools & public buildings	38.18

Table 3.2 (continued)

831	914	Janitors & related workers	38.34
832	915	Porters & related workers	38.34
84	91	Personal services unskilled workers	23.62
841	91	Entertainment & cultural services unskilled workers	38.34
842	913	Unskilled cleaners & launderers	22.69
843	913	Domestic, personal & institution-based services helpers	22.69
844	915	Security services unskilled workers	26.98
85	92	Agriculture unskilled workers	28.39
851	921	Unskilled agricultural labourers	28.83
852	921	Unskilled fishery, forestry, animal breeding & hunting labourers	28.83
86	93	Mining, extraction & building unskilled workers	23.52
861	931	Unskilled labourers in mining	26.23
862	931	Unskilled labourers in construction & related trades	26.23
863	932	Unskilled labourers in industrial manufacturing & related trades	26.23
9	01	Armed forces	53.16
90	011	Armed forces	53.10
900	0110	Armed forces	53.83

If we consider the CAMSIS-IT scores at the second digit of the CP2001, it becomes clear that the ordering of the scale categories follows a status criterion. Non-manual occupations occupy the top positions of the scale, while at the bottom we find manual occupations; in the the middle are occupations in the service sector. Apart from the non-manual-to-manual order, and similarly to the findings of Chan *et al.* (2011) for Norway, six among the first ten positions are held by professionals, while legislators and public officials rank second, though very close to the top position. Managers and owners of large private firms come eighth, while managers of small firms rank 13th, very close to clerical jobs. All but one of the categories of group 5, containing occupations in the service sector, fall into the grey zone where jobs can have both a manual and non-manual content; health care skilled workers (group 54) actually rank much lower. The very bottom of this reduced version of the scale is held by unskilled workers in mining and extraction, and by unskilled personal services workers (that is, domestic helpers and cleaners, garbage collectors, shoe cleaners, janitors, and the like).

We now turn to the comparison between the CAMSIS-IT scale and other gradational measures of stratification, namely the Italian prestige scale, SIDES05, the international prestige scale, SIOPS, and the international socio-economic status index, ISEI.

As a first measure of association, we examine the correlation coefficients between the four scales. Comparing the four scales at ISCO-88's fourth digit, we find that the highest correlation (r=0.91) is between the CAMSIS-IT scale and the ISEI, while the new scale correlates 0.87 with SIDES05 and 0.84 with SIOPS. Since these correlations refer to ISCO-88 units unweighted by any actual frequency, to get a more realistic picture we weight them using the ESS data on respondent's and father's occupation, as shown in Table 3.3. Here we see that the correlation between CAMSIS-IT and ISEI is a bit lower, but on the whole – both in the case of respondent's and father's occupation – the new scale follows ISEI more closely than the two prestige scales, SIDES05 and SIOPS.

Let us now have a closer look at the properties of the CAMSIS-IT scale by considering Figures 3.1 and 3.2, which plot the ISCO-88 groups at the 2nd-digit level, using as coordinates the scores of the three scales, as if the new scale was respectively a prestige measure (in the bi-dimensional space described by SIDES05 and CAMSIS-IT) or a socio-economic status measure (in the bi-dimensional space described by ISEI and CAMSIS-IT). If the new scale was a reasonable measure of either construct, the ISCO-88 groups ought to lie along a more or less straight line. As we can see, there are some departures from this hypothetical state. By and large, when the CAMSIS-IT scores are plotted against the SIDES05 scores (Figure 3.1), we can group the ISCO-88 categories into four clusters and two outliers (groups 91-51 and 42). It is worth noting that the three outlying groups just mentioned are occupations in the service sector, which score much lower on the prestige scale than on the CAMSIS-IT scale. If we were to remove the three outlying groups when computing the correlation coefficient between CAMSIS-IT and SIDES05, we would get a coefficient even higher than that between our scale and ISEI (0.95 vs. 0.92). The pattern seems more straightforward when CAMSIS-IT forms a bi-dimensional space with ISEI, as Figure 3.2 shows, since a couple of large clusters group all ISCO-88 categories. Groups 33 and 22 could be seen as outliers; however the latter seems more an extreme value than an outlier, while group 33 is not dramatically distant from neighbouring points on the scatterplot.

On the basis of these descriptive analyses, we can draw the preliminary conclusion that the CAMSIS-IT scale is closer to a socio-economic status measure like ISEI than to a prestige measure like SIDES05; and that what most separates the new scale from the latter is the ranking of those occupations that require direct contact with customers.

Table 3.3 Correlations between the four scales for fathers' and respondents' occupation (ESS R1&2, N=2022)

CAMSIS-IT		Father's occupation				Respondent's occupation				
		SIDES05	ISEI	SIOPS	CAMSIS-IT	SIDES05	ISEI	SIOPS	EDUC	
Fath.'s Occ.	CAMSIS-IT	1.000								
	SIDES05	0.845	1.000							
	ISEI	0.894	0.874	1.000						
	SIOPS	0.825	0.856	0.857	1.000					
Resp.'s Occ.	CAMSIS-IT	0.366	0.355	0.391	0.304	1.000				
	SIDES05	0.334	0.326	0.358	0.278	0.864	1.000			
	ISEI	0.362	0.356	0.402	0.300	0.893	0.855	1.000		
	SIOPS	0.338	0.328	0.365	0.292	0.869	0.890	0.867	1.000	
	EDUC	0.396	0.389	0.445	0.329	0.633	0.579	0.614	0.584	1.000

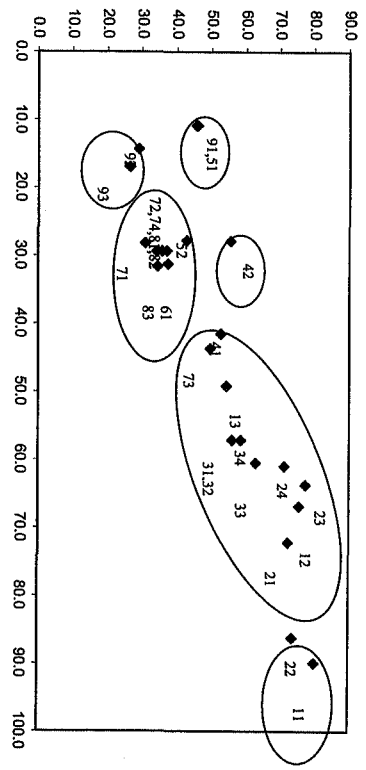

Figure 3.1 CAMSIS-IT and SIDES05 scores for ISCO-88 sub-major groups (2-digits)

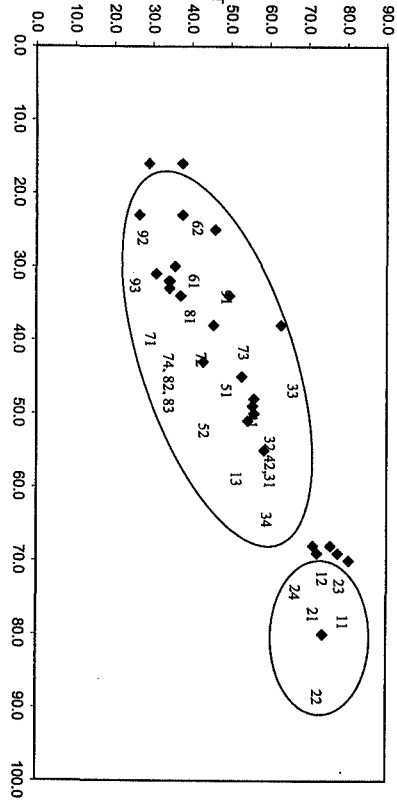

Figure 3.2 CAMSIS-IT and ISEI scores for ISCO-88 sub-major groups (2-digits)

7. Validation analyses

We now turn to the validation of the CAMSIS-IT scale, which we perform by estimating a simplified status attainment model, in which father's occupation influences both respondent's education and occupation, and education influences respondent's occupation. This forms the latent level of a structural equation model (SEM), while at the observed level the two occupations in the model are indicated by the four occupational stratification measures (CAMSIS-IT, SIDES05, ISEI, SIOPS). In the case of education, the latent and observed levels

coincide, since the latent variable is indicated only by years of completed full-time education.

The aim of this analysis is two-fold. First, we intend to have a closer empirical look at the similarities and differences shown in the descriptive part of our analysis by the CAMSIS-IT scale in comparison with the other stratification measures. As we saw, the new scale – which we interpret as a general status measure – corresponds more closely to ISEI than to the two prestige scales; now we want to ascertain how large this similarity is, so we intend to assess whether the CAMSIS-IT scale is as valid an indicator of the latent construct implied by the intergenerational transmission of the occupational position as ISEI has been already proved to be (Ganzeboom and Treiman 1996). The second aim is more general, and addresses the long-standing debate about the construct which underlies the different (continuous) measures of occupational stratification: we believe that the construct is unique, and we test this hypothesis by means of the structural equation model in which all four measures are entered as indicators of occupational position.

More specifically, the issue of the number and nature of the dimensions common to competing stratification measures can be dealt with in a model in which associated occupations occur repeatedly. If so, the dimensionality of constructs can be read from the degree to which indicators are correlated between constructs. If for instance a prestige indicator represents occupational status transfer in a truly different way than a socio-economic indicator, we would expect the correlation between constructs (that is between parents' and offspring's occupations) to have a part that is unique to the specific measure. In structural equation models, in which observed measures appear simultaneously with latent constructs, we can indeed separate such unique and common components to a correlation by fitting residual correlations.

The correlations between the indicators of occupation are shown in Table 3.3. The baseline model for these correlations is the model in which associations only occur between the latent variables, and no additional associations arise between measured variables (Table 3.4). This baseline model fits the data with a chi-square of 394.4 with 28 degrees of freedom and an RMSEA of 0.081, which indicates a significant misfit by all accounts.

The residuals of this baseline model (not shown) suggest at least one major source of misfit: the correlations between the two reputational measures (SIOPS and SIDES05) is underrepresented by the baseline model. If we introduce correlated residuals between SIOPS and SIDES05 within father's and respondent's occupation, the model fit improves dramatically (chi-square of 135.6 with 26 degrees of freedom, RMSEA of 0.046, which can be regarded as a closely fitting model). The estimated residual correlations are around .05 for both father's and respondent's occupation. While this step suggests that the two prestige measures have a unique commonality that is not shared by CAMSIS-IT and ISEI, it is important to note that this unique commonality is not a unique part of the correlation between fathers and offspring. The effect of introducing the residual correlation is that the estimated measurement

Table 3.4 Estimates and goodness of fit of the status attainment SEM

	Baseline	Correlated residuals
Structural model		
F-OCC® EDUC	0.450	0.452
F-OCC® OCC	0.157	0.160
EDUC ® OCC	0.577	0.583
Measurement model		
F-OCC ® F-CAMSIS	0.962	0.955
F-OCC ® F-SIDES05	0.927	0.904
F-OCC ® F-ISEI	0.951	0.952
F-OCC ® F-SIOPS	0.924	0.902
OCC ® CAMSIS	0.956	0.962
OCC ® SIDES05	0.927	0.904
OCC ® ISEI	0.951	0.952
OCC ® SIOPS	0.924	0.902
Residuals		
F-SIDES05 « F-SIOPS	-	0.050
SIDES05 « SIOPS	-	0.060
Model fit		
DF	28	26
Chi-square	394.5	136.6
RMSEA	0.081	.046

Note: The "F" denotes variables which refer to fathers.

loadings for SIOPS and SIDES drop significantly, from 0.94 to 0.90. Thus, the unique commonality of the two reputational measures is not reproduced between generations and should therefore rather be interpreted as bias in measurement.

A more explicit test of multidimensionality can be obtained by allowing identical measures to correlate across constructs, which turns the model effectively into a Multi-Trait Multi-Method Model (MTMM). This step does little to improve the model fit (chi-square of 113.6 with 22 degrees of freedom, RMSEA of 0.046), although two of the four estimated residual correlations are (marginally) significant. These significantly correlated residuals arise for the international ISEI and SIOPS measures, and not for the two country-specific scales (CAMSIS-IT and SIDES05),

a somewhat unexpected result. However, the estimated coefficients are trivial in size (.011 and .013) and do not change the overall conclusion that there is an overwhelming one-dimensionality underlying the four status measures.

In sum, our validation model renders the following conclusions. First, CAMSIS-IT, ISEI, SIDES05 and SIOPS all represent the same underlying construct of occupational status, as long as the transfer of position between generations is concerned. Second, there is no indication of a part of intergenerational status transfer that is unique to one or the other measure. However, and finally, the four measures vary somewhat in the degree to which they represent the underlying common construct: both SIOPS and SIDES05 are weaker indicators (measurement loadings of around 0.90) than either ISEI or CAMSIS-IT (measurement loadings of around 0.95). The difference in measurement loadings is statistically significant and amounts to 5 per cent attenuation of relationships.

8. Occupational stratification measures and social class

In the last part of our empirical analysis we focus on the issue of the persistence of a status order in the Italian society, again using the ESS data. As for measurement, we use a nine-class version of the EGP schema (Table 3.5), while our status measure will be the CAMSIS-IT scale. In addition, still following the logic of validation, we examine the performance of the CAMSIS-IT scale in relation to that of SIDES05, ISEI and SIOPS, in order to detect any peculiarity of the former, as well as to ascertain whether it is a better tool for this kind of analysis than other gradational measures.

On the basis of the CAMSIS-IT scores, a status order among the nine EGP classes is easily identified. The upper classes (I, II, IIIa) show a higher status on the scale compared to manual workers' classes (V, VI, VIIab). In general, the CAMSIS-IT scale allows good separation among non-manual classes (I, II and III), despite some variability found within class II. However, some classes overlap, as can be seen considering the status range of manual classes (from V to VIIab); as a matter of fact, self-employed workers, manual supervisors and skilled workers cannot be distinguished along the status dimension as represented by the CAMSIS-IT scale. Moreover, the self-employed with employees (IVac) show, on average, a slightly lower status than the self-employed with no employees (IVb), a finding that may be due to the presence of farmers, whose status is generally low.

Therefore on the basis of our status measure, and with the partial exception of class IVac, which includes occupations involving some manuality, we can conclude that the non-manual classes can be nicely ordered along the status dimension. However the same cannot be said for the manual classes, which do not show any clear ordering along the status measure.

Table 3.5 Mean and standard deviation of the four scales for respondent's occupation within the EGP classes (ESS R1&2, N=2022)

	CAMSIS-IT		SIDES05		ISEI		SIOPS		N
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
1 I Higher controllers	78.0	6.1	78.5	8.5	75.0	8.3	66.3	8.6	122
2 II Lower controllers	61.5	9.4	54.3	12.5	53.4	10.1	49.9	8.2	388
3 IIIa Routine nonmanual	55.9	4.6	45.1	11.5	45.4	7.4	46.0	6.4	207
4 IIIb Lower sales-service	47.4	5.3	23.9	6.4	38.8	7.9	31.7	6.8	202
5 IVac Self-employed, with employees	40.5	10.5	30.1	13.6	33.8	13.5	34.7	8.6	232
6 IVb Self-employed, no employees	43.1	11.0	31.9	14.7	40.0	11.5	34.3	8.4	212
7 V Manual supervisors	38.7	5.0	28.2	7.8	34.4	6.0	36.0	4.9	47
8 VI Skilled workers	36.5	4.6	30.3	6.6	33.4	5.4	35.3	6.1	153
9 VIIab Unskilled workers	30.9	7.2	20.9	8.7	25.1	7.2	25.6	7.2	459

As we see in Table 3.5, the concurrent measures of occupational stratification have even more difficulty in maintaining class separation and ordering, especially for the routine non-manual sales and service class (IIIb). As a marginal note, it is also worth saying that the dispersion within the classes is lower using SIOPS, while it is higher when using SIDES05.

As a concluding remark concerning the distinction between status and class, we cannot say that either hypothesis – whether status is still distinct from class or not – is fully confirmed; or rather, we should say that status and class (if the former is measured by the CAMISIS-IT scale, and the latter by the EGP scheme) refer to roughly the same dimension when non-manual occupations are concerned, while among manual workers the class scheme makes distinctions that are not registered by the status measure. This result might be a starting point in re-considering the importance of the distinction between class and status, which we hopefully will explore in future work.

9. Conclusion

In this chapter we have presented a new gradational measure of the Italian occupational hierarchy, the CAMSIS-IT scale. In doing so, our aims were at the same time specific and general. We specifically dealt with the Italian case in order to make available the first status measure suited for the representation of the Italian occupational structure. As we said previously, Italian stratification research is particularly weak compared to what we find in some other European countries. The new CAMSIS-IT scale contributes to filling this gap, both by being a research tool in itself, and allowing comparisons between national and international continuous measures of the Italian occupational stratification in the style we showed in the previous pages. Our descriptive analyses show that the CAMSIS-IT scale is a very good measure of occupational stratification, when compared to analogous existing measures. In particular, the new scale shows marked similarities with ISEI, which models the relationship between education and income for each occupation.

The new scale also performs very well in the structural equation model which estimates our simplified status attainment model. Here the CAMSIS-IT scale performs as well as ISEI, a measure which is known to be a more accurate indicator than prestige scales of the underlying construct in the intergenerational transmission of occupational position (Featherman, Jones and Hauser 1975; Featherman and Hauser 1976).

The second important result of the structural equation model concerns our more general aim, namely the dimensionality of the construct underlying the various measures: we did not find any evidence of that construct being multidimensional. This means that – as far as our results are concerned – the two prestige scales (SIDES05 and SIOPS), the status scale (CAMSIS-IT) and the socio-economic index (ISEI), though being built with different methods and covering analytically

distinct conceptual areas, are all indicators of the same latent construct, namely occupational stratification.

Our future research on this theme will take three main directions. First, we intend to pursue the validation of the CAMSIS-IT scale by showing its peculiarities when used as an independent variable in analysing of social behaviour and attitudes (cultural and material consumption, voting, religious attitudes and beliefs, and so on) as compared to other gradational measures, and in particular to the new Italian prestige scale, SIDES05. This will show whether the CAMSIS-IT scale is a better research tool than other scales as a status measure, or whether all measures are equivalent in predicting behaviours and attitudes which express a lifestyle.

Second, and again with the purpose of bringing out the features of the CAMSIS-IT scale, we will compare it to relational scales designed for other national contexts; at present, a total of 20 national CAMSIS-like scales forms an excellent data basis for comparative purposes.

Finally, we will continue our work assessing the dimensionality of the latent construct underlying the various gradational measures of occupational stratification, since more evidence is needed on this issue to give a sound basis to our conclusions. The findings we present in this chapter have already been confirmed by analogous analyses carried out for the validation of an international status scale, I-CAM (Meraviglia, De Luca and Ganzeboom 2010). Further work will concern comparative analyses for assessing whether our conclusions hold in the case of other European countries.