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### THE EUROPEAN SOCIO-ECONOMIC CLASSIFICATION: A NEW SOCIAL CLASS SCHEMA FOR COMPARATIVE EUROPEAN RESEARCH

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# THE EUROPEAN SOCIO-ECONOMIC CLASSIFICATION: A NEW SOCIAL CLASS SCHEMA FOR COMPARATIVE EUROPEAN RESEARCH

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**ABSTRACT:** As a result of an initiative by the European Statistical Office as part of its Statistical Harmonisation Programme, a prototype of a common European Socio-economic Classification (ESeC) has been created. ESeC is a categorical social class schema based on the concept of employment relations. The paper explains the conceptual basis of ESeC, describes the categories of the classification and how they may be collapsed for analytic purposes, as well as indicating how it is operationalised. The operational variants of ESeC, depending on the data available for its construction, are also discussed. In the second part of the paper some key findings of comparative analyses which use ESeC to examine issues relating to unemployment, education, poverty, deprivation and health across the EU are summarised. These analyses demonstrate the potential of ESeC as a major advance for an improved understanding of the patterns of European social inequalities. As such, this new classification should be of vital importance to both academic and policy researchers.

**Key words:** social class; occupations; health inequalities; poverty; deprivation; unemployment

## 1. Introduction

In 1999, as part of its Statistical Harmonisation Programme, Eurostat (the Statistical Office of the European Communities) commissioned an Expert Group to make recommendations for the development of a new statistical tool for understanding differences in social structures and socio-economic inequalities across the European Union. In their subsequent report to

Eurostat (Rose *et al.* 2001) the group recommended the development of a common socio-economic classification for all EU member states based on the concept of employment relations (see below) and outlined a work programme to achieve this objective.

The research project to develop a prototype version of a harmonised European Socio-economic Classification (ESeC) commenced in 2004, funded under Framework Programme 6. This work is now complete (see the project website for further details: [www.iser.essex.ac.uk/esecc](http://www.iser.essex.ac.uk/esecc)). At a Eurostat meeting in Luxembourg in September 2006, it was recommended that National Statistical Offices across the European Union should seek to implement the classification, subject to the resolution of a number of outstanding statistical issues. These include the need to align the ESeC with changes in national occupational classifications arising through the introduction of a new version of the International Standard Classification of Occupations (ISCO) – the harmonised classification used across the European Union for reporting occupational statistics (see Elias and Birch 1994a,b). A Task Force is being established for this purpose.

While Eurostat has, quite appropriately, taken responsibility for the final stages of the work involved in implementing the ESeC as a harmonised variable within the European Statistical System, the success of this indicator in furthering our understanding of inequalities across the European Union depends upon demonstrating its value as an analytical tool. Therefore, in the first part of this paper we discuss the ESeC in conceptual and operational terms. The second part examines its validity and use in research on education, unemployment, poverty, deprivation and health issues.

## 2. Background: What is a 'socio-economic classification'?

The term 'socio-economic classification' (SEC) is merely a descriptive one. That is, it has no theoretical or analytic status whatever and so may be applied as a generic term for a variety of different measures designed to reflect how societies are stratified. Social stratification refers to social inequalities that may be attributed to the way a society is organised, to its socio-economic structure. SECs all share in common the idea that in market economies it is market position, and especially position in the occupational division of labour, which is fundamental to the generation of social inequalities. The life chances of individuals and families are largely determined by their position in the market and occupation is taken to be its central indicator; that is the occupational structure is viewed as the backbone of the stratification system.

The question then becomes how we use occupation as an indicator of social position in terms of an SEC. Two broad approaches exist, reflecting different aspects of inequality. First there are occupational scales which tend to measure the distributive aspects of inequality and, second, there are categorical schemas intended to measure relational as well as distributive issues (for further details on the different types of SEC, see Prandy 1999; Bergman and Joye 2001; Ganzeboom and Treiman 2003; Rose 2005).

Thus, social scientists have tended to become divided between those who favour categorical approaches to socio-economic classification and those who prefer continuous measures. That is, some favour SECs that divide the population into a discrete number of categories or social positions. Others prefer measures that allow for an unlimited number of graded distinctions between occupational groups which assume that differences between occupational groups can be captured in one dimension' represented by a single parameter. ESeC is a categorical schema.

A number of European countries have their own official categorical socio-economic classifications which they use to illustrate the social patterns associated with a variety of life-chances such as health, education, deprivation, poverty and so on (see Grais 1999). However, until now there has not been an equivalent European classification which would allow researchers to compare the relationship between social organisation and life chances cross-nationally.

### 3. The ESeC classes explained

#### 3.1. Conceptual basis

Conceptually the prototype ESeC is based on a widely used social class schema known as the EGP (Erikson-Goldthorpe-Portocarero) schema (see Erikson and Goldthorpe 1992; Breen 2005). As such, ESeC distinguishes four basic employment positions – (1) employers; (2) the self-employed; (3) employees; and (4) those involuntarily excluded from paid employment. Within the category of employers, a further distinction is made between large and small employers according to the number of people employed, 1–9 = small, 10+ = large. Employees are sub-divided into a number of classes according to the type of contract they have with, and thus the way their work is regulated by employers. Two basic contract types are distinguished – the labour contract and the service relationship. Each is seen as a response by employers to certain problems or hazards they face in ensuring employees perform as required (see Goldthorpe 2007: Ch. 5).

Specifically, different modes of regulating employment emerge on account of two basic problems, those of *work monitoring* and *human asset specificity*. These problems may occur to a greater or lesser extent depending on the kind of work and positions to which employees are contracted. *Monitoring problems* are particularly difficult when the amount and quality of work cannot be monitored directly or easily, as in the case of higher professional and managerial work. Such work can easily be contrasted to, for example, assembly line work which, with its standardised work tasks and fixed production pace, may be easily monitored.

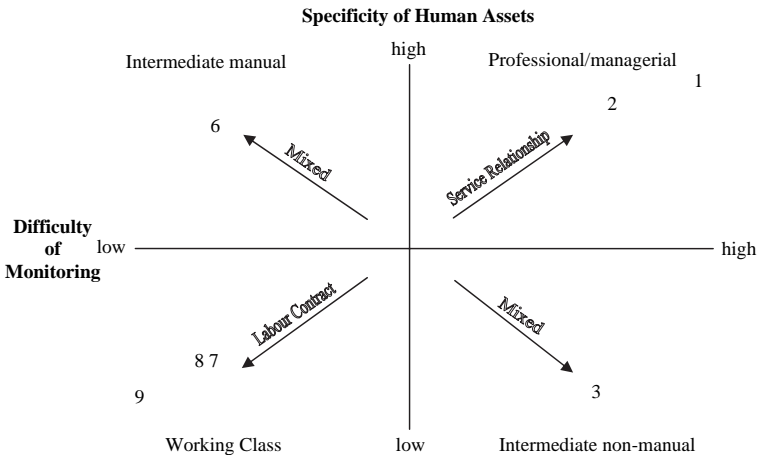
*Asset specificity* involves high amounts of job or organisation specific skills and knowledge ('human capital') and/or high investments by the employer in employee's work competences. This situation encourages both employers and employees to be interested in long term employment relationships.

Different forms of employment relationship are thus conceived as viable responses to the weaker or stronger presence of monitoring and asset specificity problems in different work situations. Work situations with low monitoring problems and low asset specificity can be adequately and efficiently handled by a 'labour contract', in which a quantity of labour is purchased on a piece- or time-rate basis, the most typical example being the case of 'unskilled' ('manual') work. In contrast, for work situations with high monitoring problems and high asset specificity the 'service relationship' is a more adequate and better suited response, that is a contractual exchange of a relatively long-term and diffuse kind in which compensation for service to the employing organisation comprises a salary and important prospective elements – salary increments, occupational pensions, expectations of continuity of employment (or at least of employability) and promotion and career opportunities.

Modified versions of these basic forms of the labour contract and the service relationship are likely to occur with supervisory, technical and routine non-manual workers on the one side, and lower-level professionals and managers and higher level technicians on the other. Figure 1 illustrates the assumed class-specific work situation and the contractual response for both the labour contract (the working classes in 7, 8 and 9) and the service relationship (the professional/managerial/higher technician Classes 1 and 2), as well as for the 'mixed' forms in which elements of both the labour contract and the service relationship are assumed to be present, the intermediate Classes 3 and 6. Table 1 outlines the ESeC classes.

#### 4. The ESeC model summarised

So we can summarise the above by the following brief descriptions. These will later be related to a discussion of the ESeC classes.



**Figure 1.** Difficulty of monitoring, specificity of human assets and the ESeC classes

#### 4.1. The labour contract

Labour contracts involve a relatively short-term and specific exchange between employers and employees of money (a wage) for effort. This is the situation which pertains for the whole working class, although its most basic form is found in the case of ‘unskilled’ occupations, with modified (i.e., slightly more favourable) forms for ‘semi-skilled’ and ‘skilled’ work.

#### 4.2. The service relationship

The service relationship, however, is typical for higher managerial, professional and senior administrative positions, with a slightly less favourable form in the lower levels of managerial and professional groups. This form of contract involves a longer-term and more diffuse exchange in which employees render service in return for both immediate and future compensation.

#### 4.3. Mixed or intermediate forms of employment regulation

Other types of employee, for example clerical and technical workers and lower supervisors, are defined as intermediate in terms of employment regulation, having contracts with elements of both the service relationship and the labour contract.

4.4. The excluded

We can also add a fourth category for those *involuntarily excluded from paid employment*. This category was not specified in the EGP schema. The excluded comprise those who have never worked but would wish to, and the long-term unemployed. However, other non-employed persons, such as those who look after the home, the retired, the short-term unemployed, the sick and disabled, etc., are classified according to their last main occupation. Full-time students may also be treated similarly if desired,

TABLE 1. The European socio-economic classification

|    | <i>ESeC class</i>   | <i>Common term</i>                | <i>Employment regulation</i>    |
|----|---|-----------------------------------|---------------------------------|
| 1  | Large employers, higher grade professional, administrative and managerial occupations                                       | Higher salariat                   | Service Relationship            |
| 2  | Lower grade professional, administrative and managerial occupations and higher grade technician and supervisory occupations | Lower salariat                    | Service Relationship (modified) |
| 3  | Intermediate occupations  | Higher grade white collar workers | Mixed                           |
| 4  | Small employer and self employed occupations (exc agriculture etc)  | Petit bourgeoisie or independents | Not applicable                  |
| 5  | Self employed occupations (agriculture etc)   | Petit bourgeoisie or independents | Not applicable                  |
| 6  | Lower supervisory and lower technician occupations  | Higher grade blue collar workers  | Mixed                           |
| 7  | Lower services, sales and clerical occupations  | Lower grade white collar workers  | Labour Contract (modified)      |
| 8  | Lower technical occupations <sup>1</sup>  | Skilled workers                   | Labour Contract (modified)      |
| 9  | Routine occupations <sup>1</sup>  | Semi- and non-skilled workers     | Labour Contract                 |
| 10 | Never worked and long-term unemployed   | Unemployed                        | Not applicable                  |

<sup>1</sup>. If analysts wish to identify agricultural workers separately from others, classes 8 and 9 may be sub-divided in to 8a, 8b, 9a and 9b. In each case sub-classes 8b and 9b would be for farm workers. ISCO minor groups 600 and 610–613 go to 8b. 614 and 615 could go here if analysts wished to include forestry and fishing workers in 8b. ISCO 920 and 921 form class 9b. Readers should note that in cases where we refer to minor groups ending with a zero (e.g., 600, 610, 920), this refers to the convention that this code is employed where it is not possible (either because of lack of information or because of the need to ensure respondent anonymity) to code occupation more precisely to a particular minor group.

although we do not think this very useful. In this way, it is possible to classify most of the adult population within the ESeC.

## 5. The ESeC classes described

The model we have outlined gives us the following in terms of basic classes.

Since the schema is designed to capture *qualitative* differences in employment relationships, 'the classes are not consistently ordered according to some inherent hierarchical principle' (Erikson and Goldthorpe 2002: 33). However, so far as overall economic status is concerned, Classes 1 and 2 are advantaged over Classes 3, 6, 7, 8 and 9 in terms of greater long-term security of income; being less likely to be made redundant; less short-term fluctuation of income since they are not dependent on overtime pay, etc.; and a better prospect of a rising income over the life course (see Goldthorpe and McKnight 2006).

## 6. Operationalising the model

The information required to operationalise the model relates to occupation, employment status and size of organisation. Occupations are coded to ISCO-88 (COM). A simple employment status variable is constructed to distinguish between employers, the self-employed, managers, supervisors and employees. Size of organisation is used to distinguish between large and small employers and, in some cases, between higher and lower managers. All of this information is readily available on most datasets on which researchers would be likely to want to use ESeC.

Each combination of occupation, employment status and size is then assigned a class position. For employees, supervisors and managers this position was initially determined by the average combined scores of employment relations indicators taken from UK Labour Force Survey data (see Rose and Pevalin with O'Reilly 2005: Ch. 6 and Appendix 7). The resulting allocations were then subject to expert evaluation (see below). For employers, size of organisation is the determining factor. Thus a class derivation matrix table is constructed with occupations in the rows and employment status and size information in the columns. Class allocations are given in the cells. Relevant SPSS syntax based on the matrix is supplied to researchers so that they may then derive the classes from data on occupation, employment status and size. As we shall see later, the classes may also be constructed in the absence of data on size ('reduced

ESeC') or with only information on occupation ('simplified ESeC'). Further details are in the *ESeC User Guide* (Harrison and Rose 2006a) which also explains how a household level ESeC may be created. Later we shall make a few comments on the operational validity of ESeC.

We can now look at the classes in more detail and see how each is typified by a particular form of employment relationship. Example occupations are also given for each class.

## 7. The ESeC classes

### 7.1. Class 1: Large employers, higher grade professional, administrative and managerial occupations: 'the higher salariat'

*Large employers:* large employers are allocated to Class 1 on the assumption that their businesses involve a similar degree and exercise of managerial authority to that of higher managers. In this sense, they are seen as different from small employers in Classes 4 and 5. A size rule of 1–9 and 10+ employees is used to distinguish small from large employers.

*Higher grade professional occupations:* These occupations are regulated through a service relationship. Examples of professional occupations which would be typical of Class 1 are lawyers, scientists, higher education teaching professionals and professional engineers.

The self-employed and small employer professionals are allocated to the same class as employees in their profession. That is, we regard professional status as paramount. Professional self-employment is different in nature from non-professional self-employment. Professionals who are self-employed generally have more control over their market situations than non-professionals. They also share more in common with employed professionals than with self-employed non-professionals. And in many professional occupations there is often movement into self-employment as careers progress.

*Higher grade administrative and managerial occupations:* again regulated via a service relationship, the most typical occupations in this part of Class 1 are Chief Executive Officers and the most senior levels of the civil service or state bureaucracies. For other managerial occupations it is much more difficult operationally to distinguish higher from lower grade positions. However, ISCO minor group 123 ('specialist' managers) is more likely to have a preponderance of higher grade managers, e.g., finance managers.

## 7.2. Class 2: Lower grade professional, administrative and managerial occupations: higher grade technician and supervisory occupations: 'the lower salariat'

In the case of *lower professionals*, skills are more readily transferable and less organisationally specific. Hence they do not have the full service relationship but a modified form of it. Most health, welfare and educational professionals (e.g., schoolteachers, social workers, nurses, and medical ancillaries) are thus allocated to Class 2, as are aircraft pilots and journalists for other examples.

For *administrators and managers* (and also *higher grade supervisors*) asset specificity is likely to be high in the sense that people in such occupations possess a high degree of organisation specific knowledge. Here the modified service relationship derives from the fact that work is more routinely monitored. Of course, people working in these occupations will often have career ladders that, if successful, would take them to more senior positions in Class 1. Production and operations managers, seem to be good examples. All managers in small (< 10 employees) organisations are also in Class 2.

*Higher grade technicians* are more similar to lower grade managers etc. That is, it is the degree of asset specificity rather than difficulty of monitoring which is paramount and leads to a modified service relationship. Examples would be computing technicians, physical and engineering science technicians and civil engineering technicians.

## 7.3. Class 3: Intermediate occupations: 'higher grade white collar ('non-manual') workers'

This class has some elements of the service relationship, although overall the form of employment relationship is mixed. The problem here for the employer is not asset specificity but monitoring. Positions in this class exist on the borders of bureaucratic structures and share similar conditions to managers and administrators in terms of salaries, incremental scales and autonomy with regard to time. Typical occupations here include most clerical occupations and administrative assistants, occupations which involve working alongside managers and professionals in ancillary roles. There is no career structure comparable to that found in Classes 1 and 2 (other than, perhaps, into supervisory or very junior managerial Class 2 positions). Often these positions involve employees in adhering to and carrying through bureaucratically defined rules with little in the way of discretion but some emphasis on efficiency.

#### 7.4. Classes 4 and 5: Small employers and self-employed in non-professional occupations: 'petit-bourgeoisie or independents'

These form two of the basic positions in the class schema. Employers buy labour and so have some authority and control over employees. The self-employed neither buy nor sell labour.

Small employers are distinguished from large employers by the size rule 1–9 and 10+ employees. However, professional and higher technician small employers and self-employed go to the same class as employees in the same occupation (classes 1 or 2). Hence, Class 4 refers to non-professional occupations, i.e., self-employed and own account workers. Class 5 refers to the self-employed and small employers in agriculture, fisheries and forestry.

#### 7.5. Class 6: Lower supervisory and lower technician occupations: 'higher grade blue collar ('manual') workers'

This class, like Class 3, has a mixed form of employment regulation, but in distinction from Class 3, Class 6 has mixed regulation because of problems employers have with asset specificity – that is, employees in Class 6 possess an important element of organisation specific skills, that is knowledge of organisational needs. For this reason, some element of an internal firm labour market operates for these occupations.

*Lower supervisors* are found in occupations which, for employees, would place them in Classes 7, 8 or 9. Again they have a certain degree of asset specificity.

*Lower technicians* have greater organisation specific skills than other 'manual' employees. Typical occupations are telegraph and telephone line installers, precision instrument makers and electronics fitters.

#### 7.6. Class 7: Lower services, sales and clerical occupations: 'lower grade white collar ('non-manual') workers'

This class is regulated via a modified labour contract. The precise reasons for this situation are unclear since there appear to be no real monitoring problems for occupations in this class, nor any great issues of asset specificity. It is possible that the expansion and high degree of part-time employment in many occupations in this class has led to a worsening of overall employment contracts compared with Class 3 where many of these occupations might once have been placed (e.g., retail assistants). Equally, for many occupations in this class there may be some positive employment

relations' effects of working in large organisations in the public and private sectors. Typical occupations are shop workers (retail assistants) and care workers.

#### 7.7. Class 8: Lower technical occupations: 'skilled workers'

A modified labour contract is also typical for occupations in Class 8. Here the employer has some monitoring problems with employees in terms of work quality. There might also be a need to induce employees to invest in developing skills that are important to the employer. Those working in 'skilled' or *lower technical occupations* may also have organisation specific skills or skills in short supply in the labour market. For all these reasons, some modifications to the basic labour contract may be required, such as a weekly wage, overtime pay, greater security of employment and so on. Typical occupations in Class 8 would be tool-makers, fitters, plumbers and locomotive drivers.

#### 7.8. Class 9: Routine occupations: 'semi- and unskilled workers'

In this class, a basic labour contract prevails since there are no real issues relating to either monitoring or asset specificity. Work is paid for by either the piece or by time (hourly paid). Both the quality and quantity of work are easily monitored and employees are easily replaced without serious loss of productive value. Typical occupations here include cleaners, labourers, drivers of motor vehicles, assemblers, machine operators, porters and messengers.

#### 7.9. Class 10: Never worked and long-term unemployed: 'unemployed'

This class is defined in terms of its exclusion from employment relations. Members of this class seek work but have not been employed either ever or for a considerable period of time, say 12 months or more. If analysts do not wish to implement this class, then the never worked are excluded and the long-term unemployed are re-classified to their last main paid job, as explained below.

7.10. The non-employed

In order to improve population coverage, ESeC treats those who are not currently in paid employment by allocating them via their *last main paid job*. Thus, for most non-employed persons (the unemployed, the retired, those looking after a home, those on government employment or training schemes, the sick and disabled, etc.), the normal procedure is to classify them in this way. The main exception to this rule is for full-time students who are excluded from ESeC and the never worked/long-term unemployed (see above). Long-term unemployed are those who have been out of work for six months or more. The never worked are those who are seeking work but have never had any paid employment.

7.11. Six, five and three class models

As illustrated in Figure 2, the 10 class model may be collapsed to 9, 6, 5 or 3 classes. The nine class model does not operationalise the never worked and long-term unemployed in Class 10. In the six class model, Classes 1 and 2 are combined into a single ‘salarial’ class; Classes 3 and 6 combine into an ‘intermediate employee’ class; Classes 4 and 5 become a single class of ‘small employers and self-employed’; Classes 7, 8 and 9 remain as separate classes.

| ESeC Class               | 10 class version | 6 class version | 5 class version | 3 class version |
|--------------------------|------------------|-----------------|-----------------|-----------------|
| Higher salariat          | 1                | 1+2             | 1+2             | 1+2             |
| Lower salariat           | 2                |                 |                 |                 |
| Higher white collar      | 3                | 3+6             | 3+6             | 3+4+45+6        |
| Petit bourgeois          | 4                | 4+5             | 4+5             |                 |
| Small farmers            | 5                |                 |                 |                 |
| Higher grade blue collar | 6                | 3+6             | 3+6             |                 |
| Lower white collar       | 7                | 7               | 7               | 7+8+9           |
| Skilled manual           | 8                | 8               | 8+9             |                 |
| Semi-/unskilled          | 9                | 9               |                 |                 |
| Unemployed               | (10)             | (10)            | (10)            | (10)            |

Figure 2. Collapsing ESeC from 10 to 6 to 5 to 3 Class Models

To make the five class model, Classes 5 and 6 in the six class model are combined into a single class of ‘lower technical and routine occupations’.

In relation to the ten class model, the three class model combines Classes 1 and 2 = salariat; 3, 4, 5 and 6 = intermediate; 7, 8 and 9 = working class. Class 10 may be added as an additional category in any of the models, if desired. However, note that Class 10 is *not* a dump code for cases which cannot otherwise be classified.

At each stage of collapsing, we respect the basic divisions between forms of employment regulation; we never collapse across these; and only the three class model eliminates a self-employed/small employer class.

7.12. The derivation of the ESeC model

Given the distinctions in the model between employers, employees and the self-employed, and the further distinctions within the categories of employers (large and small) and employees (according to employment relations), class derivation is as given in Figure 3.

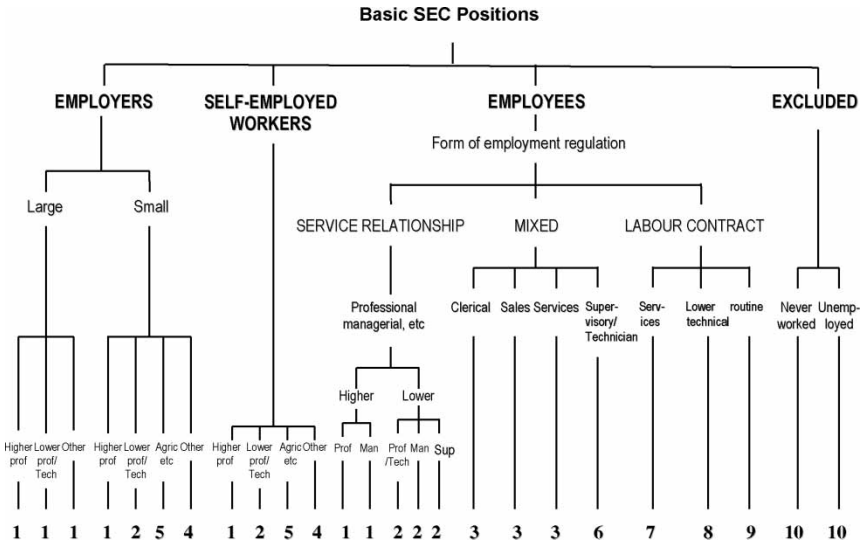


Figure 3. The conceptual derivation of ESeC

## 8. Validating the prototype ESeC

In order to be considered a valid schema, ESeC has to meet three basic criteria. The first of these is *operational validity*, that is whether, in simple operational terms, it ‘works’, i.e., whether it can be constructed and deployed on a variety of datasets. The second is *criterion validity*, i.e., whether it can measure what it purports to measure, in this case multiple dimensions of employment relations. The third test, and that likely to be most relevant to non-specialist users, is *construct validity*, i.e., whether the classes are a helpful way of discriminating between life-chances with regard to a number of areas of social life. Each of these questions is discussed in the following sections. Further details about the three validity tests may be found in Rose and Pevalin with O’Reilly 2005: Appendix 8.

### 8.1. Operational validity

As noted earlier, ESeC has to be derived from existing harmonised European variables and as a result can only be operationalised within the limits that these allow (Rose 2005). Of these by far the most important is ISCO88 (COM), the European Union variant of the International Standard Classification of Occupations. This is the harmonised variable that is included in the main comparative datasets covering the European Research Area: the Labour Force Survey, the European Social Survey and EU-SILC.

Individual EU member states code to their own national occupational classifications. In the majority of cases, these are based very closely on ISCO. In a number of other cases, for instance the UK, Ireland, France and Germany, there is a more distinct national classification that can be ‘mapped’ directly onto ISCO through a conversion table or ‘crosswalk’ (see Rose *et al.* 2001: Ch. 8).

ISCO organises occupations into a hierarchical framework. At the lowest level is the unit of classification – a job – which is defined as a set of tasks or duties designed to be executed by one person. Jobs are then grouped into occupations according to the degree of similarity in their constituent tasks and duties.

As shown in Figure 4, ISCO has four nested tiers reflected in the numbering of the occupational codes:

- Major groups – top-level, broad definitions of occupation, providing the first digit of the ISCO code.
- Sub-major groups – second-level definition of occupation, providing the first two digits.

| Major group | Sub-major group | Minor group | Unit group | Group title  |
|-------------|-----------------|-------------|------------|--|
| 1           |                 |             |            | Legislators, Senior Officials and Managers           |
|             | 12              |             |            | Corporate Managers                                   |
|             |                 | 122         |            | Production and Operations Managers                   |
|             |                 |             | 1222       | Productions and Operations Managers in Manufacturing |

**Figure 4.** Hierarchical structure of ISCO88 (COM)

- Minor groups – third-level definition, providing the first three digits.
- Unit groups – lowest, most detailed definition of occupation, providing the complete four-figure ISCO code.

A comprehensive guide to ISCO88 (COM) is available from <http://www2.warwick.ac.uk/fac/soc/ier/research/isco88/>.

In practice, datasets usually contain ISCO coded to fewer than four digits. This can happen for a number of reasons: respondents may supply insufficient information for the most detailed coding to be achieved; codes may be aggregated to comply with rules on confidentiality; crosswalks may not allow such precise coding. This is why ESeC has been designed to be created using ISCO based on either three or two digits, although we had to create a four-digit matrix in order to achieve this.

To illustrate the coding problems, an interviewer may simply know that the person in question is a ‘corporate manager’ (sub major group 12). Where information is aggregated in this way there can be a problem if the minor groups within group 12 have different class positions. In this case the modal class for ISCO 12 employees is used. The SPSS syntax deals with these instances automatically, based on frequency distributions from pooled aggregate data in rounds 1 and 2 of the European Social Survey. If analysts are comparing only a small group of countries, or doing a single nation study, they might be advised to calculate modal values for each country.

In the process described above, some minor groups in ISCO will move between ESeC classes depending upon their numerical significance within a larger aggregate group. This in turn will lead to minor differences in the distributions for the ESeC schema.

In addition to the overall ‘shape’ of the ESeC distribution, analysts will be interested in two further pieces of information: first the overall ‘level of agreement’ between derivations, that is to say the number of cases that stay in the same class regardless of the level of ISCO coding; and second

the proportion of cases that move between each individual class as we shift from four- to three- to two-digit ISCO. Mutual exchange between any two classes will cancel each other out and so may not be apparent when comparing distributions.

Taking data from the first round of the European Social Survey, the overall agreement between ESeC based on three- and two-digit ISCO is 86 per cent. The correspondences between classes are shown in Table 2. Short range moves between adjacent classes are unlikely to cause problems for analysts; of more concern will be exchanges of cases between classes with different forms of employment regulation, for instance between Classes 2 and 6 or 3 and 7. In validating ESeC it has been found that much of the 'churning' caused by incomplete information about employment situations takes place within regulation types. This means that the five 'collapsed classes' (see above) most likely to be used by analysts are extremely stable.

In a situation where there is three-digit ISCO but no information about establishment size, the overall agreement is 99.4 per cent. The only groups affected by the absence of this information are the self-employed and employers.

In circumstances where there is three-digit ISCO but no information about supervisory responsibility, the overall agreement is 88 per cent. While most datasets identify large numbers of 'supervisors', many of these in groups 1, 2 and 3 of ISCO will remain in the same class by virtue of their status as managers, professionals or associate professionals. The only classes affected are Class 2 containing higher supervisors and Class 6 containing lower supervisors. The effect is to reduce Class 6 to a 'rump' with the cases being shared fairly evenly between the bottom three classes (see Table 3).

Where ISCO is the sole information available, users produce the 'simplified' ESeC by allocating cases to a class based on the modal employment status for that occupation. This is in the majority of instances that for employees.

The overall agreement between a full three-digit ESeC and a simplified three-digit ESeC for the whole workforce is 79.7 per cent. The effects of the absence of supervisory information are compounded by the absence of employment status. The main outcome is the redistribution of a large proportion of cases into the appropriate classes for employees performing the same type of work. The detailed correspondences are shown in Table 4.

## 8.2. Criterion validity

The second test for ESeC is how accurately it measures the concepts that underlie it in terms of employment relations, criterion validity. This was

TABLE 2. Correspondence between 3- and 2-digit ('full') versions

| ESeC from 3-digit ISCO |      |      |      | ESeC from 2-digit ISCO |     |      |      |      |      |
|------------------------|------|------|------|------------------------|-----|------|------|------|------|
|                        | 1    | 2    | 3    | 4                      | 5   | 6    | 7    | 8    | 9    |
| 1                      | 91.2 | 8.8  |      |                        |     |      |      |      |      |
| 2                      |      | 72.1 |      |                        |     |      |      |      |      |
| 3                      |      |      | 99.9 |                        |     |      |      |      |      |
| 4                      |      | 0.8  |      | 99.0                   |     |      |      |      | 0.2  |
| 5                      |      |      |      |                        | 100 |      |      |      |      |
| 6                      |      | 13.9 |      |                        |     | 86.1 |      |      |      |
| 7                      |      |      | 21.9 |                        |     |      | 77.2 |      | 0.9  |
| 8                      |      |      |      |                        |     |      |      | 93.5 | 2.7  |
| 9                      |      |      | 3.1  |                        |     |      | 11.9 |      | 85.0 |

Source: European Social Survey Round 1.

TABLE 3. Correspondence between full version and one without information on supervision (3-digit ISCO)

| ESeC From 3-digit ISCO |  | ESeC 3-digit without information on supervision |      |      |     |     |     |      |      |      |
|------------------------|--|---|------|------|-----|-----|-----|------|------|------|
|                        |  | 1   | 2    | 3    | 4   | 5   | 6   | 7    | 8    | 9    |
| 1                      |  | 100   |      |      |     |     |     |      |      |      |
| 2                      |  |   | 81.7 | 17.2 |     |     | 1.1 |      |      |      |
| 3                      |  |   |      | 100  |     |     |     |      |      |      |
| 4                      |  |   |      |      | 100 |     |     |      |      |      |
| 5                      |  |   |      |      |     | 100 |     |      |      |      |
| 6                      |  |   |      |      |     |     | 6.8 | 29.1 | 34.3 | 29.8 |
| 7                      |  |   |      |      |     |     |     | 100  |      |      |
| 8                      |  |   |      |      |     |     |     |      | 100  |      |
| 9                      |  |   |      |      |     |     |     |      |      | 100  |

Source: European Social Survey Round 1.

TABLE 4. Correspondence between Full and Simplified ESeC (3-digit ISCO)

| ESeC from 3-digit ISCO |  | Simplified ESeC (3 digits) |      |      |      |      |     |      |      |      |
|------------------------|--|----------------------------|------|------|------|------|-----|------|------|------|
|                        |  | 1                          | 2    | 3    | 4    | 5    | 6   | 7    | 8    | 9    |
| 1                      |  | 94.7                       | 2.3  | 0.4  | 1.2  | 0.1  |     | 0.3  | 0.5  | 0.4  |
| 2                      |  |                            | 73.2 | 19.8 | 6.0  |      | 1.1 |      |      |      |
| 3                      |  |                            |      | 99.9 |      |      |     | 0.1  |      |      |
| 4                      |  | 2.4                        | 1.2  | 7.5  | 30.4 |      | 1.5 | 19.8 | 23.6 | 13.6 |
| 5                      |  |                            |      |      |      | 92.3 |     |      | 1.8  | 5.9  |
| 6                      |  |                            |      |      |      | 2.4  | 6.8 | 29.1 | 31.9 | 29.8 |
| 7                      |  |                            |      |      | 0.9  |      |     | 99.1 |      |      |
| 8                      |  |                            |      |      |      | 10.9 |     |      | 89.1 |      |
| 9                      |  |                            |      |      |      |      |     |      |      | 100  |

Source: European Social Survey Round 1.

explicitly examined by members of the project team, but the exercise revealed the limitations of existing cross-national data.

### 8.3. Employment relations indicators

As the previous discussion of the conceptual model suggests, the most important indicators of the type of employment regulation contained or implied in contracts are form of payment (incremental salary against weekly wage calculated by time worked or payment by the piece), perquisites (final salary pension, private health care, company car, profit related bonuses, etc or none of these) control over working time/pace of work (whether this is determined mainly by the employer or the employee), job security (for example, length of notice required to terminate contracts, protection against redundancy) and promotion/career opportunities (an internal organisational career ladder). However, such indicators are not easily available in either European or national datasets.

Hence, two different types of indicator were used to validate ESeC: (1) indicators that capture the weaker or stronger *presence of the basic problems* of monitoring and asset specificity; (2) indicators that relate to the assumed *response to these problems*, i.e., indicators for the assumed contractual relationship, given by a labour contract or a service relationship. Examples include:

1. measuring aspects of the *autonomy* employees have in their work situation to indicate the presence of *monitoring problems* at their work;
2. measuring the *qualifications required* from employees and the training given in order to indicate extent of *asset specificity* immanently required for performing work tasks;
3. measuring *career prospects and long-term employment* that are understood as core elements of the presence of a *service relationship* contract; and
4. indicators of the presence of *piece-wise or time-related compensation* of work in order to examine the presence or absence of *labour contract* elements in contractual arrangements.

In addition, we called upon expert knowledge. Both members of the Consortium and other European experts were asked to review the allocations of occupations to classes and comment on their appropriateness by reference to available information on employment relations.

We do not propose to discuss the criterion validation findings here, but full details of this work are reported on the project website (Bihagen and Nermo 2006; Harrison 2006; Harrison and Rose 2006b; Hausen *et al.* 2006).

## 8.4. Construct validity

Part of the enduring appeal of social class schemas is their ability to structure and discriminate in respect of a range of outcome variables. Here we summarise work done by the project teams as part of the overall validation exercise, focusing on five measures: educational attainment, unemployment risk, poverty, deprivation and ill health. More details on the link between the conceptual model and life chances may be found in the relevant discussions by Erikson and Goldthorpe (2002), Goldthorpe (2007) *passim*; Goldthorpe and McKnight (2006); Rose and Pevalin (2000, 2003) and Rose and Pevalin with O'Reilly (2005).

*8.4.1. (a) Educational attainment:* Schizzerotto and Barone (2006) used data from five waves of the Italian Households Longitudinal Study (ILFI) between 1997 and 2005 to study three types of conditional educational transition (Mare 1981) and their relationship with class of origin. Table 5 shows the proportions of each ESeC class taking these paths. They confirm the hierarchical structure associated with class-based inequalities, but they also demonstrate the value of the distinctions made between, for instance, white- and blue-collar working class jobs. Children with parents from Class 7 are much more likely to proceed at each stage than those from backgrounds in the skilled or unskilled manual strata in Classes 8 and 9. In subsequent conditional logistic models Schizzerotto and Barone supplement ESeC with controls for gender, birth cohort, region of residence and parental educational qualifications. Again the pattern of class advantage is confirmed. As the authors note in respect of the first transition, 'all significant parameters have a negative effect on the odds of the dependent variable to take the value 1, when compared to class 1'. In addition their model shows that in all three transitions the most disadvantaged are those children of the self-employed in agriculture, a finding consistent with previous work.

*8.4.2. (b) Unemployment risk:* In an earlier stage of the validation process, Schizzerotto *et al.* (2006) undertook a comparative analysis to establish the relationship between the risk of unemployment and membership of ESeC classes. Using data from the European Community Household Panel from 1994 to 2001, they selected Denmark, Germany, Italy and the UK as exemplars of different models of labour market regulation. They find that with regard to both the likelihood of experiencing unemployment and the actual duration of unemployment, every ESeC class compares favourably with the reference class of routine occupations. In every one of the four countries, Classes 7, 8 and 9 show the highest incidence rates of unemployment. Schizzerotto *et al.* note that when the results are observed more closely, 'it can be seen that their distribution, in the case of

**TABLE 5. Conditional educational transitions by father's ESeC class, ILFI 2005**

|  | <i>Transition to<br/>lower secondary<br/>school</i> | <i>Transition to<br/>secondary<br/>school</i> | <i>Transition to<br/>university</i> |
|--|---|---|-------------------------------------|
| Origin: <b>ESeC 1</b> -Large employers, higher professional and higher technical occupations | 98.2  | 92.3  | 72.7                                |
| Origin: <b>ESeC 2</b> -Lower professional and lower technical occupations                    | 96.5  | 90.6  | 59.8                                |
| Origin: <b>ESeC 3</b> -Intermediate occupations  | 98.5  | 90.9  | 53.0                                |
| Origin: <b>ESeC 4</b> -Small Employers and self-employed (except agriculture)                | 86.5  | 61.9  | 24.6                                |
| Origin: <b>ESeC 5</b> -Small employers and self-employed in agriculture                      | 52.6  | 25.7  | 8.1                                 |
| Origin: <b>ESeC 6</b> -Lower supervisory and lower technician occupations                    | 91.3  | 77.7  | 44.6                                |
| Origin: <b>ESeC 7</b> -Lower service, sales and clerical occupations                         | 91.0  | 72.7  | 34.2                                |
| Origin: <b>ESeC 8</b> -Lower technical occupations   | 78.2  | 47.6  | 14.5                                |
| Origin: <b>ESeC 9</b> -Routine occupations   | 74.4  | 41.1  | 11.7                                |
| <i>N</i>   | 7,743   | 5,395   | 2,392                               |

Source: Schizzerotto and Barone (2006).

dependent workers, does not increase monotonically moving from higher to lower classes in every country' (2006: 5). More specifically in Germany Class 6 has a higher average unemployment incidence than Classes 7 or 8; in the UK Class 6 are less likely to experience unemployment than those in Class 3 or even in Class 2 (see Table 6).

Some critics may seize upon the absence of hierarchy as a shortcoming in the class scheme. After all, if the categories represent a linear distribution of market power, should inequalities of distribution not also produce a linear order? Schizzerotto and his colleagues reject this suggestion. '... some contingent phenomena (such as level of unionisation, proportion of incumbents of specific occupations hired by large or small firms, and the like) can alter the linear order even in the case of distributive inequalities ...' This being the case, they argue, 'what counts more in a construct validity study of a class scheme is that clear discontinuities between classes can be detected whatever the shape of the hierarchy they possibly form' (2005: 5).

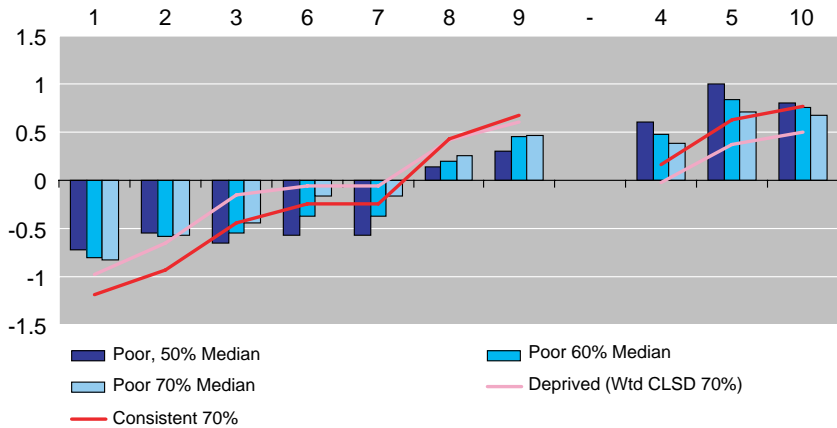
**TABLE 6. Average incidence rates (% with confidence intervals) of unemployment by ESeC classes and countries in the period 1994–2001**

| <i>ESeC classes</i>                                   | <i>Country</i> |             |      |           |             |      |           |             |      |           |             |      |
|---|----------------|-------------|------|-----------|-------------|------|-----------|-------------|------|-----------|-------------|------|
|   | <i>DK</i>      |             |      | <i>DE</i> |             |      | <i>UK</i> |             |      | <i>IT</i> |             |      |
| 1: Higher salariat occupations                        | 0.73           | <b>0.81</b> | 0.91 | 1.76      | <b>1.86</b> | 1.97 | 0.81      | <b>0.87</b> | 0.94 | 1.30      | <b>1.39</b> | 1.49 |
| 2: Lower salariat occupations                         | 1.43           | <b>1.55</b> | 1.68 | 1.58      | <b>1.67</b> | 1.77 | 0.91      | <b>0.98</b> | 1.05 | 1.37      | <b>1.45</b> | 1.53 |
| 3: Intermediate occupations                           | 3.47           | <b>3.67</b> | 3.89 | 2.73      | <b>2.87</b> | 3.01 | 1.61      | <b>1.71</b> | 1.81 | 1.88      | <b>1.97</b> | 2.07 |
| 4: Self employed and small employers                  | 1.44           | <b>1.70</b> | 2.02 | 1.08      | <b>1.20</b> | 1.34 | 1.10      | <b>1.21</b> | 1.33 | 2.47      | <b>2.57</b> | 2.67 |
| 5: Self employed and small employers in agriculture   | 0.00           | <b>0.00</b> | 0.00 | 0.09      | <b>0.24</b> | 0.63 | 0.58      | <b>0.97</b> | 1.61 | 0.62      | <b>0.82</b> | 1.07 |
| 6: Lower supervisory and lower technician occupations | 2.28           | <b>2.58</b> | 2.91 | 4.61      | <b>4.79</b> | 4.97 | 0.77      | <b>0.88</b> | 1.01 | 2.51      | <b>2.71</b> | 2.92 |
| 7: Lower services, sales and clerical occupations     | 4.52           | <b>4.79</b> | 5.08 | 3.33      | <b>3.46</b> | 3.60 | 2.49      | <b>2.64</b> | 2.79 | 4.64      | <b>4.82</b> | 5.01 |
| 8: Lower technical occupations                        | 3.53           | <b>3.80</b> | 4.09 | 4.02      | <b>4.14</b> | 4.27 | 2.67      | <b>2.85</b> | 3.05 | 5.70      | <b>5.84</b> | 5.99 |
| 9: Routine occupations                                | 4.67           | <b>4.95</b> | 5.25 | 5.71      | <b>5.94</b> | 6.17 | 3.60      | <b>3.77</b> | 3.96 | 9.07      | <b>9.32</b> | 9.58 |

Source: Schizzerotto *et al.* (2005).

8.4.3. (c) *Poverty and deprivation*: Watson *et al.* (2006) set out to test the validity of ESeC by using data on a range of measures of poverty and deprivation. Their argument proceeds thus: ‘Given the manner in which employment relations vary across classes, and the associated differences in reward packages both current and prospective, we anticipate that class position will provide a relatively stable indicator of command over resources and related life-chances’. If one accepts this premise, they continue, then ‘we anticipate that class relationships will be stronger the more the indicator with which we are concerned relates to stability or persistence’ (2006: 5). While research has revealed that movement in and out of poverty is a much more widely experienced phenomenon than once thought, Watson and her colleagues produce a range of hypotheses predicting that the more one focuses on material deprivation rather than income flow, and on persistent rather than transient states, the stronger should be the class differences.

Using data for fourteen countries in the European Community Household Panel (ECHP), Watson *et al.* undertake a comparison of the odds of being in different categories of poverty and deprivation. Figure 5 shows three different measures of income poverty, using the 50, 60 and 70 per cent of median equivalised household income, plus a weighted deprivation threshold and a consistent poverty measure which combines both an income and deprivation threshold. The results confirm their initial hypothesis, namely that as the level of material disadvantage becomes more severe, the class differentials become starker.

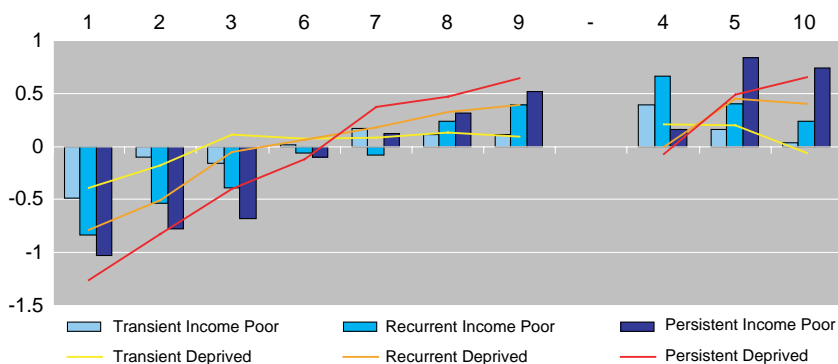


**Figure 5.** Risk of Income Poverty and Deprivation All ECHP Countries, Log Ratio to Average  
Source: Watson *et al.* (2006).

In addition to the broad shape of class-based inequalities, there are some features worthy of comment. In both cases the position of the self-employed is distinctive. Small employers and own account workers both inside and outside agriculture are more likely to experience income poverty than even those in the lowest manual classes; in this respect they look more similar to the unemployed. On measures of deprivation they remain in an unfavourable position relative to Classes 1–3 but the gap between them and Classes 8 and 9 closes.

Watson *et al.* move on to study patterns of persistent poverty and deprivation by using the first five waves of ECHP. Using a threshold of 70 per cent of median income, they identify a typology that distinguishes the transient poor, the recurrent poor and the persistent poor. A similar typology is constructed in relation to lifestyle deprivation (for more details of the definitions of these categories, see Watson *et al.* 2006: 23). Once more as Figure 6 shows, the gradient of the differences between the higher and lower classes steepens as material circumstances move from bad to worse. However, the introduction of a longitudinal element to the data has the effect of opening up a gap between the top three classes and the rest. There is also a marked difference in the situation of the self-employed outside agriculture when the focus moves from transient or recurrent to persistent disadvantage. This is probably a reflection of unpredictable patterns of income flow compared to those in dependent employment. However this appears to be offset by their overall level of resources which reduces their likelihood of dropping into persistent poverty or deprivation.

**8.4.4. (d) Health:** The prevalence and importance of socio-economic inequalities in health has been long established by research and has been of

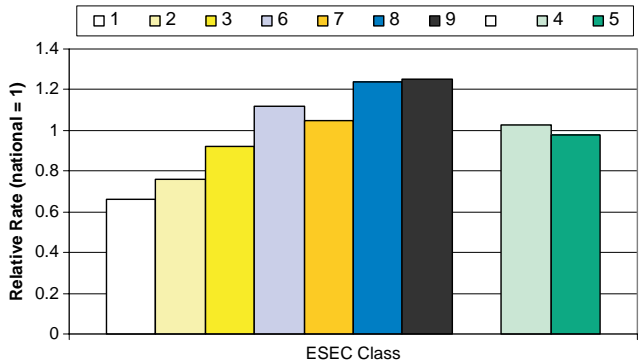


**Figure 6.** Persistent Poverty & Deprivation All ECHP Countries  
Source: Watson *et al.* (2006).

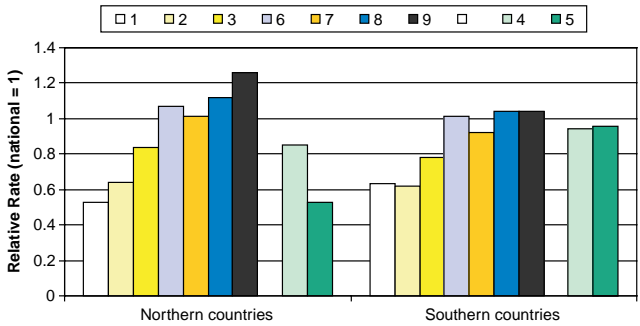
great concern to European policymakers. As part of the validation programme, Kunst *et al.* (2006) used ECHP data from eleven countries to examine the relationship between the ESeC categories and the health of men and women, as captured by an indicator of ‘self-assessed health’, a measure found to have high reliability and to predict risk of death better than objective measures of health. The team calculated age-standardised prevalence rates (ASPR) for each ESeC class. The ASPR is defined as ‘the prevalence of health problem that a specific ESeC would have if that class would have the same age structure as the European standard population’ (Kunst 2006: 11).

Three aspects of the Dutch team’s analysis are important for the validation of ESeC. First they produce figures separately for men and for women, an important feature given the different class distributions of the two groups. Second they explore patterns separately for the Northern and Southern countries of Europe. Third they control for education and income levels to isolate the class-specific effects on health.

Figure 7 shows a distribution of men’s self-reported health, organised to show the self-employed separately. It shows a now familiar pattern in which the top three classes have rates of poor health below the average while the two bottom classes have the highest rates. As was the case with the studies of Schizzerotto *et al.*, there is not a linear hierarchy. One can speculate that the contrast between blue-collar and white-collar work environments may explain the better health outcomes of Class 7.



**Figure 7.** Proportion of respondents with ‘poor’ health according to ESEC class. Men, all countries  
*Source:* Kunst *et al.* (2006).

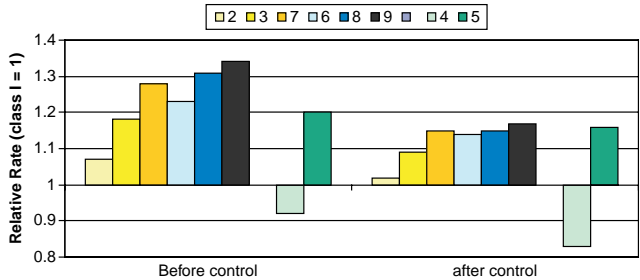


**Figure 8.** Prevalence of 'poor' health by ESEC Class. Northern compared to southern countries. Men  
*Source:* Kunst *et al.* (2006).

Figure 8 demonstrates an intriguing anomaly that will influence future work with the ESeC, namely the distinctive patterns of health inequalities for North and South. While the North has a regular health gradient, that of the South 'takes the form of a contrast between lower rates of poor health in Classes 1, 2 and 3 compared to equally high rates in Class 8 as well as Class 9' (Kunst *et al.* 2006: 15).

There are two possible explanations for these patterns. Either the ESeC works less well in the context of the socio-economic structures of Southern Europe, or it is measuring real regional differences in health inequalities. More research is needed using different datasets to see if these patterns are replicated.

A third contribution of Kunst *et al.*'s work is to show that even after allowing for differences in other predictors of health, there is a distinctive class effect. Figure 9 demonstrates this in relation to smoking in each class.



**Figure 9.** The prevalence of smoking compared to class 1: controls for education, income and wealth/deprivation  
*Source:* Kunst *et al.* (2006).

Kunst *et al.* conclude that the ECHP data demonstrate health differences along the entire occupational hierarchy, from the most to the least advantaged classes. The health differences were generalised, i.e., found among both men and women, within different age groups, and within different countries. After controlling for education and income ESEC class had independent effects on self-assessed health, obesity and smoking.

## 9. Conclusions

In this paper we have explained and described the prototype ESeC schema and we have discussed a number of the validation studies undertaken by members of the ESeC Consortium. Far more details on all our work may be found on the project website.

Of course, additional work needs to be undertaken before we can be completely confident that we have the best possible categorical SEC for the EU context. In particular we would like to undertake further work on the criterion and construct validity of ESeC for southern and central EU member states. We shall also have to re-base the classification on the new version of ISCO, due to be released in 2008. Moreover, we intend to develop a second level of ESeC, 'socio-economic groups', which will separately identify the component elements of each class so that analysts may look within classes as well as between them.

Nevertheless we believe that the prototype ESeC as it currently stands should prove to be a valuable and useful new analytic tool for those researchers who wish to undertake analyses relating to comparative socio-economic inequalities in the EU context. From that viewpoint ESeC has the following advantages:

- a. it is conceptually clear and rigorous;
- b. it is fully documented and simple to operationalise;
- c. through both its variants (10, 9, 6, 5 and 3 class models) and its full, reduced and simplified forms, it is very flexible in use;
- d. when fully operationalised, it enables complete population coverage;
- e. it provides the possibility of a standardised tool for use in government and academia and may be of use to the private sector;
- f. it is better validated than most social science measures; and
- g. above all, it provides both government and academic users with a tool which lends itself to the explanation of relationships, and thus to both more lucid policy recommendations and a better understanding of social processes.

Finally, ESeC has advantages over the existing international versions of EGP. ESeC is more transparent, better documented, more user-friendly and is based on the most recently available evidence on employment relations. We have no doubt that ESeC will set new puzzles for analysts and will uncover fresh avenues of exploration.

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