Chapter 3
Existing Measurement Instruments for Data Collection

Researchers who wish to measure socio-demographic variables in a cross-nationally comparable way do not always have to develop their own instruments for data collection. In order to fulfil their mission, the statisticians at the UN and its specialised organisations must make cross-nationally comparable data available. Therefore, back in the 1950s they began to develop the necessary measurement instruments. For some three decades now, the Statistical Office of the European Union, Eurostat, has also been engaged in the development of measurement instruments for official statistics purposes. Besides measurement instruments, these internationally active organisations, and other UN working groups, have also developed terminology for educational attainment levels, different types and conditions of employment, and for private household income, etc. Corresponding definitions of categories, which can also be regarded as meaningful groundwork for social research, make the work of cross-national comparative researchers much easier.

However, the statisticians at international organisations are not the only ones to have developed instruments for cross-national comparative purposes. Social researchers, too, have designed a handful of measurement instruments that have established themselves in cross-national comparative research and in official statistics.

The present chapter will provide an overview of the most important developments in this area from the perspective of social research. They comprise:

- An instrument for classification of education developed by UNESCO, the United Nations Educational, Scientific and Cultural Organization, and the simplified version applied in the European Social Survey (see Section 3.1);
- Instruments and definitions for the measurement of occupation and labour status developed by the International Labour Organisation, a specialised organisation of the United Nations that deals with the labour market (see Section 3.2);
- Scales for the measurement of prestige, status and class membership, and an instrument for the measurement of socio-economic status (see Section 3.3);
- Recommendations regarding the measurement of private household income made by a UN expert group (see Section 3.4).

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3.1 International Standard Classification of Education

The International Standard Classification of Education (ISCED) is part of the United Nations International Family of Economic and Social Classifications (UNESCO-UIS, 2011a, p. 3). ISCED was first developed by the UNESCO Institute for Statistics (UIS) in 1976 and was revised in 1997 and 2011. It facilitates the translation of country-specific educational programmes and the qualifications attained in these programmes into internationally comparable categories (UNESCO, 2011, p. 3). In the field of education research, the UIS works closely with Eurostat and the OECD to produce uniform and internationally recognised educational indicators and statistics that facilitate the comparison of education across countries. This was necessary because national education systems vary greatly in terms of structure and content, and researchers and education policy makers were finding it increasingly difficult to compare their own national education systems with those of other countries or to assess progress towards national policy goals.

3.1.1 ISCED 1997

ISCED is designed to be universally valid and invariant to empirical particularities of national education systems. Within ISCED, the term 'education' is understood to mean all deliberate and systematic activities that bring about learning. Therefore, education involves organised and sustained communication designed to bring about learning. The basic unit of classification in ISCED is the 'educational programme'. Within ISCED the term covers sustained and organised formal and non-formal educational activities. Educational programmes are defined on the basis of content as a series of educational activities that are organised in such as way as to fulfil a pre-determined objective or a specified educational mandate (cf. UNESCO, 2003, p. 198). Programmes are classified by 'levels of education'. The individual levels differ in terms of the degree of complexity and specialisation of the educational content of the programmes in question. The individual (sub-) categories group educational programmes that impart equivalent knowledge and require equivalent skills and competencies of the participants if they are to have a reasonable expectation of successfully achieving the programme objectives. The more complex the programme, the higher the level of education (see Table 3.1).

Educational programmes are also allocated on the basis of their educational content to a 'field of education', the second dimension of the ISCED typology (see Table 3.2). There are 25 fields of education, which are organised in nine broad groups.

To enable member states to apply ISCED to their national education systems, the UIS produces 'mappings' for all countries. These mappings help national statistical institutes to code their national educational statistics into ISCED. In 2007, the UIS launched a survey of experts to gather detailed information on the educational structures in the member states in order to facilitate the allocation of levels of education

Table 3.1 ISCED 1997 coding scheme – educational programmes

Code	Name of the level	Main criteria	Subsidiary criteria	Complementary dimensions
0	Pre-primary education	Educational properties, School or centre-based, Minimum age, Upper age limit	Staff qualification	None
1	Primary education, First stage of basic education	Beginning of systematic apprenticeship of reading, writing and mathematics	Entry into nationally designated primary institutions/ programmes, Start of compulsory education	None
2	Lower secondary education, Second stage of basic education	Subject presentation, Full implementation of basic skills and foundation for lifelong learning	Entry after some 6 years of primary education, End of the cycle after 9 years since the beginning of primary education, End of compulsory education, Several teachers conduct classes in their field of specialisation	Type of subsequent education or destination, Programme orientation
A	Programmes designed for direct access to level 3 in a sequence which would ultimately lead to tertiary education			
B	Programmes designed for direct access to level 3C			
C	Programmes primarily designed for direct access to the labour market at the end of this level			
3	(Upper) secondary education	Typical entrance qualification, Minimum entrance requirement		Type of subsequent education/ destination Programme orientation, Cumulative duration since beginning of ISCED level 3
A	Programmes at level 3, designed to provide direct access to ISCED 5A			
B	Programmes at level 3 designed to provide direct access to ISCED 5B			
C	Programmes at level 3 not designed to lead directly to ISCED 5A or 5B			

(continued)

Table 3.1 (continued)

Code	Name of the level	Main criteria	Subsidiary criteria	Complementary dimensions
4	Post-secondary non-tertiary education	Entrance requirement, Content, Age, Duration		Type of subsequent education/ destination, Cumulative duration since beginning of ISCED level 3, Programme orientation
A	Programmes that prepare for entry to ISCED 5			
B	Programmes not giving access to level 5			
5	First stage of tertiary education (not leading directly to an advanced research qualification)	Minimum entrance requirement, Type of certification obtained, Duration		Type of programmes, Cumulative theoretical duration at tertiary, National degree and qualification structure
A	Tertiary programmes that are largely			
B	Theoretically based/ practically oriented/ occupationally specific			
6	Second stage of tertiary education (not leading directly to an advanced research qualification)	Research oriented content, Submission of thesis or dissertation	Prepare graduates for faculty and research posts	None

Source: UNESCO, 2003, p. 203

Table 3.2 ISCED 1997 coding scheme – educational content

General Programmes	
01 Basic programmes	Basic general programmes pre-primary, elementary, primary, secondary, etc.
08 Literacy and numeracy	Simple and functional literacy, numeracy
09 Personal development	Enhancing personal skills, e.g. behavioural capacities, mental skills, personal organisational capacities, life orientation programmes
Education	
14 Teacher training and education science	Teacher training for pre-school, kindergarten, elementary school, vocational, practical, non-vocational subject, adult education, teacher trainers and for handicapped children. General and specialised teacher training programmes. Education science: curriculum development in non-vocational and vocational subjects. Educational assessment, testing and measurement, educational research, other education science
Humanities and Arts	
21 Arts	Fine arts: drawing, painting, sculpture; Performing arts: music, drama, dance, circus; Graphic and audio-visual arts: photography, cinematography, music production, radio and TV production, printing and publishing; Design; Craft skills
22 Humanities	Religion and theology; Foreign languages and cultures: living or 'dead' languages and their literature, area studies; Native languages: current or vernacular language and its literature;
	Other humanities: interpretation and translation, linguistics, comparative literature, history, archaeology, philosophy, ethics
Social sciences, business and law	
31 Social and behavioural science	Economics, economic history, political science, sociology, demography, anthropology (except physical anthropology), ethnology, futurology, psychology, geography (except physical geography), peace and conflict studies, human rights
32 Journalism and information	Journalism; library technician and science; technicians in museums and similar repositories; Documentation techniques; Archival sciences
34 Business and administration	Retailing, marketing, sales, public relations, real estate; Finance, banking, insurance, investment analysis; Accounting, auditing, bookkeeping; Management, public administration, institutional administration, personnel administration; Secretarial and office work
38 Law	Local magistrates, 'notaires', law (general, international, labour, maritime, etc.), jurisprudence, history of law
Science	
42 Life sciences	Biology, botany, bacteriology, toxicology, microbiology, zoology, entomology, ornithology, genetics, biochemistry, biophysics, other allied sciences, excluding clinical and veterinary sciences
44 Physical sciences	Astronomy and space sciences, physics, other allied subjects, chemistry, other allied subjects, geology, geophysics, mineralogy, physical anthropology, physical geography and other geosciences, meteorology and other atmospheric sciences including climatic research, marine science, volcanology, paleoecology
46 Mathematics and statistics	Mathematics, operations research, numerical analysis, actuarial science, statistics and other allied fields

(continued)

Table 3.2 (continued)

48 Computing	Computer sciences: system design, computer programming, data processing, networks, operating systems – software development only (hardware development should be classified with the engineering fields)
Engineering, manufacturing and construction	
52 Engineering and engineering trades	Engineering drawing, mechanics, metal work, electricity, electronics, telecommunications, energy and chemical engineering, vehicle maintenance, surveying
54 Manufacturing and processing	Food and drink processing, textiles, clothes, footwear, leather, materials (wood, paper, plastic, glass, etc.), mining and extraction
58 Architecture and building	Architecture and town planning: structural architecture, landscape architecture, community planning, cartography; Building, construction; Civil engineering
Agriculture	
62 Agriculture, forestry and fishery	Agriculture, crop and livestock production, agronomy, animal husbandry, horticulture and gardening, forestry and forest product techniques, natural parks, wildlife, fisheries, fishery science and technology
64 Veterinary	Veterinary medicine, veterinary assisting
Health and welfare	
72 Health	Medicine: anatomy, epidemiology, cytology, physiology, immunology and immunohematology, pathology, anaesthesiology, paediatrics, obstetrics and gynaecology, internal medicine, surgery, neurology, psychiatry, radiology, ophthalmology; Medical services: public health services, hygiene, pharmacy, pharmacology, therapeutics, rehabilitation, prosthetics, optometry, nutrition; Nursing: basic nursing, midwifery;
	Dental services: dental assisting, dental hygienist, dental laboratory technician, odontology
76 Social services	Social care: care of the disabled, child care, youth services, gerontological services;
	Social work: counselling, welfare n.e.c.
Services	
81 Personal services	Hotel and catering, travel and tourism, sports and leisure, hairdressing, beauty treatment and other personal services: cleaning, laundry, dry-cleaning, cosmetic services, domestic science
84 Transport services	Seamanship, ship's officer, nautical science, air crew, air traffic control, railway operations, road motor vehicle operations, postal service
85 Environmental protection	Environmental conservation, control and protection, air and water pollution control, labour protection and security
86 Security services	Protection of property and persons: police work and related law enforcement, criminology, fire-protection and fire fighting, civil security;
Military	
Not known or unspecified	(This category is not part of the classification itself but in data collection '99' is needed for 'fields of education not known or unspecified'.)

Source: UNESCO-UIS, 2011a, pp. 73 ff.

to the national programmes. The aim is to maintain the international comparability of educational statistics (UNESCO-UIS, 2009).

The national statistical institutes produce nationally standardised educational indicators on the basis of their country's ISCED mapping and other ISCED material made available by the UIS. They transmit these national education statistics to Eurostat, the OECD and the UIS, who publish internationally comparable educational indicators (e.g., OECD Statistics Directorate, 2011).

3.1.2 ISCED 2011

In November 2011, UNESCO's General Conference adopted revisions to the International Standard Classification of Education:

> ISCED 2011 covers formal and non-formal educational programmes offered at any stage of a person's life. Qualifications which are recognized by the relevant national educational authorities however they are obtained (e.g. by successful completion of a formal educational programme or via a non-formal educational programme or informal learning activity) are used for the purpose of measuring educational attainment (UNESCO-UIS, 2011a, p. 8).

The changes affected several areas of the 'educational programmes' dimension and were implemented in order to ensure international comparability and to reflect current structures.

The main innovations are as follows:

1. The lowest level of education (ISCED Level 0), which is now called 'Early childhood education', has been expanded to include programmes designed for children below the age of three. Previously called 'Pre-primary education', ISCED 0 encompassed programmes for children aged between three and the official primary school entrance age (start of ISCED Level 1).
2. The classification of tertiary education has been differentiated and redefined in order to better reflect the tertiary structure worldwide, and the structural reform of the European tertiary system within the framework of the Bologna process. Tertiary education is now divided into four levels: ISCED Level 5 encompasses short-cycle tertiary education; ISCED Level 6 comprises programmes leading to Bachelor level or equivalent; ISCED Level 7 encompasses Master level or equivalent; and ISCED Level 8 covers doctoral level and equivalent.
3. The number of orientation categories at ISCED Levels 2, 3, 4, and 5 was reduced from three (general, pre-vocational, vocational) to two. ISCED 2011 differentiates only between vocational and general programmes:

   > Vocational education is defined as educational programmes that are designed for learners to acquire the knowledge, skills and competencies specific for a particular occupation or trade or class of occupations or trades. … General education is defined as educational programmes that are designed to develop learners' general knowledge, skills and competencies and literacy and numeracy skills, often to prepare participants for more advanced educational programmes at the same or a higher ISCED level and to lay the foundation for lifelong learning (UNESCO-UIS, 2011a, p. 11).

Moreover, a new level-completion dimension with four subcategories has been introduced at ISCED Levels 2 and 3 replacing the ISCED 1997 concept of programme destination:

1. No level completion (and therefore without direct access to a higher ISCED level)
2. Partial level completion, without direct access to a higher ISCED level
3. Level completion, without direct access to a higher ISCED level, and
4. Level completion with direct access to a higher ISCED level.
   (UNESCO-UIS, 2011a, p. 12) (see Table 3.3).

In order to better reflect national education systems, the UIS has introduced a second classification into the framework, namely educational attainment levels:

> The educational attainment of an individual is defined as the highest ISCED level the individual has completed. For operational purposes, educational attainment is usually measured with respect to the highest educational programme successfully completed, which is typically certified by a recognized qualification. Recognized intermediate qualifications are classified at a lower level than the programme itself (UNESCO-UIS, 2011a, p. 16).

This yields a new coding scheme based on certified and recognised educational qualifications (see Table 3.4).

Further innovations in the 2011 version relate to the implementation of ISCED. The UIS plans to introduce a mechanism for the peer-review of mappings of national programmes and qualifications in order to avoid inaccurate classifications. The first education data collections using ISCED 2011 are expected to begin in 2013 or 2014. The UIS is planning to publish an operational manual in the near future. It will provide detailed guidelines for the implementation of ISCED 2011 and explanatory examples. The implementation of ISCED 2011 will be supported by training materials that will be made publicly available in electronic form to users of the classification (UNESCO-UIS, 2011a, p. 20) (Table 3.5.)

No changes were made to the classification of fields of education. Like ISCED 1997, ISCED 2011 comprises 25 fields of education organised in nine groups.

3.1.3 Implementation of ISCED in the European Social Survey

The ISCED classifications were developed for official statistics on national education systems, the educational situation of the national population, and the efficacy of national education policies in order to facilitate comparability of the data across countries.

Academically driven survey research in Europe also takes advantage of this. As a rule, survey respondents acquired their education in the educational programmes of the national education system. When comparing the socio-demographic background variable ‘education’, the diversity of national and cultural educational opportunities must be taken into account. It is tempting here to avail of the potential offered by ISCED, as the organisers of the European Social Survey (ESS) did, in order to be able to establish equivalence and comparability.

Table 3.3 ISCED 2011 coding scheme – educational programmes

0 Early childhood education
- 01 early childhood educational development
  - 010 early childhood educational development
- 02 pre-primary
  - 020 pre-primary

1 Primary
- 10 primary
  - 100 primary

2 Lower secondary
- 24 general
  - 241 insufficient for level completion or partial completion and without direct access to upper secondary
  - 242 sufficient for partial level completion and without direct access to upper secondary
  - 243 sufficient for level completion, without direct access to upper secondary
  - 244 sufficient for level completion, with direct access to upper secondary
- 25 vocational
  - 251 insufficient for level completion or partial completion and without direct access to upper secondary
  - 252 sufficient for partial level completion and without direct access to upper secondary
  - 253 sufficient for level completion, without direct access to upper secondary
  - 254 sufficient for level completion, with direct access to upper secondary

3 Upper secondary
- 34 general
  - 341 insufficient for level completion or partial completion and without direct access to tertiary
  - 342 sufficient for partial level completion and without access to tertiary
  - 343 sufficient for level completion, without direct access to tertiary
  - 344 sufficient for level completion, with direct access to tertiary
- 35 vocational
  - 351 insufficient for level completion or partial completion and without direct access to tertiary
  - 352 sufficient for partial level completion and without direct access to tertiary
  - 353 sufficient for level completion, without direct access to tertiary
  - 354 sufficient for level completion, with direct access to tertiary

4 Post-secondary non-tertiary
- 44 general
  - 441 insufficient for level completion and without direct access to tertiary education
  - 443 sufficient for level completion, without direct access to tertiary education
  - 444 sufficient for level completion, with direct access to tertiary education
- 45 vocational
  - 451 insufficient for level completion and without direct access to tertiary education
  - 453 sufficient for level completion, without direct access to tertiary education
  - 454 sufficient for level completion with, direct access to tertiary education

5 Short cycle tertiary
- 54 general
  - 541 insufficient for level completion
  - 544 sufficient for level completion
- 55 vocational
  - 551 insufficient for level completion
  - 554 sufficient for level completion

(continued)

Table 3.3 (continued)

6 Bachelor or equivalent
- 64 academic
  - 641 insufficient for level completion
  - 645 first degree (3–4 years)
  - 646 long first degree (more than 4 years)
  - 647 second or further degree (following a bachelor or equivalent programme)
- 65 professional
  - 651 insufficient for level completion
  - 655 first degree (3–4 years)
  - 656 long first degree (more than 4 years)
  - 657 second or further degree (following a bachelor or equivalent programme)
- 66 orientation unspecified
  - 661 insufficient for level completion
  - 665 first degree (3–4 years)
  - 666 long first degree (more than 4 years)
  - 667 second or further degree (following a bachelor or equivalent programme)

7 Master or equivalent
- 74 academic
  - 741 insufficient for level completion
  - 746 long first degree (at least 5 years)
  - 747 second or further degree (following a bachelor or equivalent programme)
  - 748 second or further degree (following a master or equivalent programme)
- 75 professional
  - 751 insufficient for level completion
  - 756 long first degree (at least 5 years)
  - 757 second or further degree (following a bachelor or equivalent programme)
  - 758 second or further degree (following a master or equivalent programme)
- 76 orientation unspecified
  - 761 insufficient for level completion
  - 766 long first degree (at least 5 years)
  - 767 second or further degree (following a bachelor or equivalent programme)
  - 768 second or further degree (following a master or equivalent programme)

8 Doctoral or equivalent
- 84 academic
  - 841 insufficient for level completion
  - 844 sufficient for completion of level
- 85 professional
  - 851 insufficient for level completion
  - 854 sufficient for completion of level
- 86 orientation unspecified
  - 861 insufficient for level completion
  - 864 sufficient for completion of level

9 Not elsewhere classified
- 99 not elsewhere classified
  - 999 not elsewhere classified

Source: UNESCO-UIS, 2011a, pp. 68 f.

Table 3.4 ISCED 2011 coding scheme – levels of educational attainment

0 Less than primary
01 never attended an educational programme
010 never attended an educational programme
02 some early childhood education
020 some early childhood education
03 some primary education (without level completion)
030 some primary education (without level completion)
1 Primary
10 primary
100 including recognized successful completion of a lower secondary programme insufficient for level completion or partial level completion
2 Lower secondary
24 general
242 partial level completion and without direct access to upper secondary
243 level completion, without direct access to upper secondary
244 level completion, with direct access to upper secondary
25 vocational
252 partial level completion and without direct access to upper secondary
253 level completion, without direct access to upper secondary
254 level completion, with direct access to upper secondary
3 Upper secondary
34 general
342 partial level completion and without direct access to tertiary
343 level completion, without direct access to tertiary
344 level completion, with direct access to tertiary
35 vocational
352 partial level completion and without direct access to tertiary
353 level completion, without direct access to tertiary
354 level completion, with direct access to tertiary
4 Post-secondary non-tertiary
44 general
443 level completion, without direct access to tertiary
444 level completion, with direct access to tertiary
45 vocational
453 level completion, without direct access to tertiary
454 level completion, with direct access to tertiary
5 Short-cycle tertiary
54 general
540 not further defined
55 vocational
550 not further defined
56 orientation unspecified
560 not further defined
6 Bachelor or equivalent
64 academic
644 not further defined

(continued)

Table 3.4 (continued)

65 professional
654 not further defined
66 orientation unspecified
664 not further defined
7 Master or equivalent
74 academic
744 not further defined
75 professional
754 not further defined
76 orientation unspecified
764 not further defined
8 Doctoral or equivalent
84 academic
840 not further defined
85 professional
850 not further defined
86 orientation unspecified
860 not further defined
9 Not elsewhere classified
99 not elsewhere classified
999 not elsewhere classified

Source: UNESCO-UIS, 2011a, pp. 70 f.

Table 3.5 Correspondence between ISCED 1997 and ISCED 2011 levels

ISCED 1997		ISCED 2011	
		0	Early childhood education[a]
			Early childhood educational development[a] (designed for children aged under 3 years)
0	Pre-primary (designed for children aged 3 years and above)		Pre-primary (designed for children aged 3 years and above)
1	Primary (or 1st stage of basic education)[b]	1	Primary
2	Lower secondary (or second stage of basic education)[b]	2	Lower secondary
3	Upper secondary	3	Upper secondary
4	Post-secondary non-tertiary	4	Post-secondary non-tertiary
5	First stage of tertiary	5	Short-cycle tertiary[a]
		6	Bachelor or equivalent[a]
		7	Master or equivalent[a]
6	Second stage of tertiary	8	Doctoral or equivalent[a]

Source: UNESCO-UIS 2011b, p. 4

[a]New in ISCED 2011

[b]ISCED 2011 no longer uses the term 'basic education' in the definition of level

The objective[1] was to measure the highest level of education *achieved* by the respondent. The categories employed correspond to the main ISCED levels of education, which group educational programmes as follows:

0 – Not completed primary education
1 – Primary or first stage of basic
2 – Lower secondary or second stage of basic
3 – Upper secondary
4 – Post secondary, non-tertiary
5 – First stage of tertiary
6 – Second stage of tertiary

In Round 1 of the ESS, the questionnaire item reads:

[Country-specific question and codes for coding into ISCED 97]
F6 EduLvl
CARD 53 What is the highest level of education *you have achieved*? Please use this card.
(ESS round 1 source questionnaire)[2]

There was a country-specific showcard for each country. The card for Austria listed the following options (our back-translation; our explanatory notes in square brackets):

No qualification	1
Compulsory schooling	2
Intermediate leaving certificate [from an academic secondary school]	3
Matura [upper secondary leaving certificate giving access to higher education]	4
Academic degree, degree from a university of applied sciences, or equivalent	5
Other (enter)_____	6
(Don't know)	7

Source: ipr – Sozialforschung, 2003

The question that measures educational attainment in Poland is worded as follows:

F6 Jakie ma P. wykształcenie? Odpowiadając proszę posłużyć się kartą.
KARTA 53

Nieukończone podstawowe	01
Ukończone podstawowe	02
Gimnazjalne	03
Zasadnicze zawodowe (także 2-letnia SPR)	04
Nieukończone średnie (ukończone co najmniej 2 lata nauki)	05
Średnie ogólnokształcące	06
Średnie zawodowe (technikum, liceum zawodowe lub liceum techniczne)	07

[1] The authors would like to point out that neither the respondents, nor – in all probability – the interviewers, and in some cases not even the field institute, were aware of this objective because the information was contained only in the instructions for the national coordinator of the ESS.

[2] Text of item in the Austrian questionnaire: 'F6: What is the highest level of education that you have achieved?' (ipr – Sozialforschung, 2003, our back-translation).

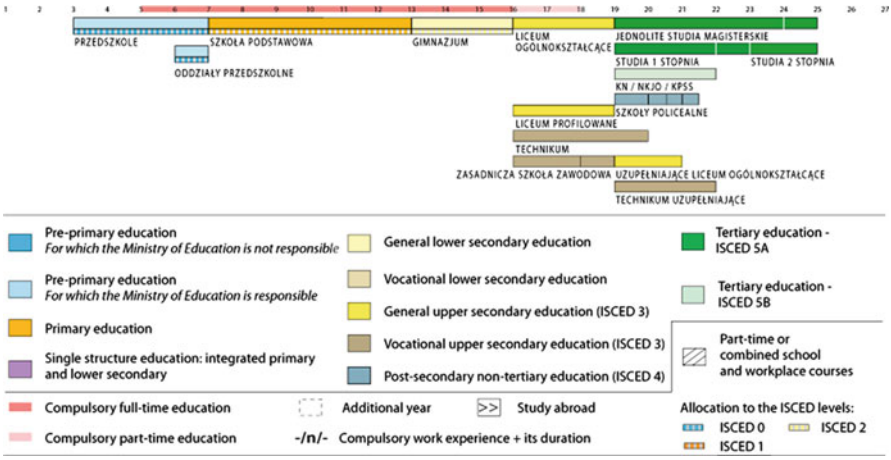

Fig. 3.1 Schematic diagram of Polish education system (Source: Eurydice, 2011c: The structure of the European education systems 2011/2012: schematic diagrams)

Pomaturalne, policealne	08
Licencjackie, inżynierskie	09
Nieukończone wyższe magisterskie lub lekarskie (ukończone co najmniej 2 lata nauki)	10
Ukończone wyższe magisterskie lub lekarskie	11
Inne (***WPISAĆ***)	12
(Trudno powiedzieć)	88

Source: ESS, 2000d: EUROPEJSKI SONDAŻ SPOŁECZNY (Tura 1)

Besides 'highest level' and 'achieved', the question in the national questionnaires contains a wide variety of stimuli, for example 'highest educational certificate', 'level of education completed', 'level of education achieved', 'level of education attended', 'highest education' (our back-translation).

The categories given on the showcards are as diverse as the question stimuli. The number of possible responses varies across countries – from five categories in Austria to 19 in Luxembourg. They group educational certificates and diplomas; they group leaving certificates; they name educational institutions and school types; they give the title and designation of educational programmes; or they confront respondents with the ISCED 1997 categories.

It is obvious that the five Austrian response options cannot be coded into the target categories of the ESS, which renders recoding into ISCED 1997 very difficult. What is more, vocational education programmes are under-represented in some national response lists – or omitted altogether.

To overcome these difficulties, the objective of the measurement of educational attainment was changed in the fifth round of the ESS, which was fielded in

2010/2011[3] (Schneider, 2010). Using country-specific question wording, the highest level of education successfully completed by the respondent was measured. The following interviewer note specifies what is meant by 'successful completion':

> Interviewer Note: Successful completion occurs when either:
>
> - A formal certificate is issued after an assessment indicating that the course has been passed
> - A course or period of education is fully attended but no certificate is ever issued
> - A course or period of education is fully attended and a certificate of attendance is issued (and no other certificates e.g. for passing the course are ever issued) (European Social Survey, 2010b: Question F15).

The target categories harmonised after national data collection capture the national responses in a three-digit code. The first digit represents the eight ISCED 2011 levels. The second digit reflects the programme orientation (general or vocational). The third digit indicates whether or not the programme gives access to the next higher ISCED level. The simplified ESS version of ISCED 2011 merges ISCED levels 0 ('pre-primary') and 1 ('primary completed but less than secondary') and ISCED levels 7 (Master or equivalent) and 8 (doctoral or equivalent).

F15 What is the highest level of education *you have successfully completed*?

Values	Categories
0000	Not completed ISCED level 1
113	ISCED 1, completed primary education
129	Vocational ISCED 2C < 2 years, no access ISCED 3
212	General/pre-vocational ISCED 2A/2B, access ISCED3 vocational
213	General ISCED 2A, access ISCED 3A general/all 3
221	Vocational ISCED 2C >= 2 years, no access ISCED 3
222	Vocational ISCED 2A/2B, access ISCED 3 vocational
229	Vocational ISCED 3C < 2 years, no access ISCED 5
311	General ISCED 3 >= 2 years, no access ISCED 5
312	General ISCED 3A/3B, access ISCED 5B/lower tier 5A
313	General ISCED 3A, access upper tier ISCED 5A/all 5
321	Vocational ISCED 3C >= 2 years, no access ISCED 5
322	Vocational ISCED 3A/3B, access 5B/lower tier 5A
323	Vocational ISCED 3A, access upper tier ISCED 5A/all 5
412	General ISCED 4A/4B, access ISCED 5B/lower tier 5A
413	General ISCED 4A, access upper tier ISCED 5A/all 5
421	ISCED 4 programmes without access ISCED 5
422	Vocational ISCED 4A/4B, access ISCED 5B/lower tier 5A
423	Vocational ISCED 4A, access upper tier ISCED 5A /all 5
510	ISCED 5A short, intermediate/academic/general tertiary below
520	ISCED 5B short, advanced vocational qualifications

[3] In the fourth round of the ESS, which was fielded in 2008 (see ESS, 2008e), clarifications were added, the target variable was stated more precisely, and the mappings with which the national educational programmes are coded into the international standard were made available to the survey coordinators.

610	ISCED 5A medium, bachelor/equivalent from lower tier tertiary
620	ISCED 5A medium, bachelor/equivalent from upper/single tier
710	ISCED 5A long, master/equivalent from lower tier tertiary
720	ISCED 5A long, master/equivalent from upper/single tier tertiary
800	ISCED 6, doctoral degree
5555	Other
7777	Refusal
8888	Don't know
9999	No answer

Notes: Coding frame based on detailed ISCED. Harmonised variable generated from country-specific variables
Source: ESS, 2011b: ESS5 – 2010 Documentation Report, Appendix A1 Education

F15A. Generated variable: Highest level of education, ES-ISCED

Values	Categories
0	Not possible to harmonise into ES-ISCED
1	ES-ISCED I , less than lower secondary
2	ES-ISCED II, lower secondary
3	ES-ISCED IIIb, lower tier upper secondary
4	ES-ISCED IIIa, upper tier upper secondary
5	ES-ISCED IV, advanced vocational, sub-degree
6	ES-ISCED V1, lower tertiary education, BA level
7	ES-ISCED V2, higher tertiary education, >= MA level
55	Other
77	Refusal
88	Don't know
99	No answer

Notes: European survey version of ISCED. Recoded from the ESS harmonised variable EDULVLB
Source: ESS, 2011b: ESS5 – 2010 Documentation Report, Appendix A1 Education

Detailed country-specific instructions for coding national measurements of educational attainment into the target categories pre-defined by the ESS are provided in Appendix A1 to the ESS5 – 2010 Documentation Report (European Social Survey, 2011b).

In Poland, five questions were needed to collect the necessary information. This clearly shows the complexity of the measurement instrument. The schematic diagram (Fig. 3.1) of the Polish education system would not lead one to expect such a complex set of questions:

F15. Jakie ma P. wykształcenie? Chodzi o ukończoną przez P. szkołę najwyższego szczebla. Odpowiadając, proszę posłużyć się tą kartą. KARTA 49
UWAGA DLA ANKIETERA: Ukończenie szkoły oznacza, że:
po dokonaniu oceny wyników w nauce wydane zostaje urzędowe świadectwo jej ukończenia osoba uczestniczy w całym kursie lub etapie kształcenia, ale nie zostaje wydane świadectwo osoba uczestniczy w całym kursie lub etapie kształcenia i zostaje wydane świadectwo potwierdzające uczęszczanie (ale nie jest wydane żadne inne świadectwo, np. potwierdzające zdanie egzaminu)

Nieukończona szkoła podstawowa	01
Ukończona szkoła podstawowa 6-klasowa (4-klasowa przed wojną)	02
Ukończona szkoła podstawowa 7 lub 8-klasowa	03
Ukończone gimnazjum	04
Ukończona zasadnicza szkoła zawodowa	05
Ukończone liceum ogólnokształcące bez matury	06
Ukończone liceum ogólnokształcące z maturą	07
Ukończona średnia szkoła zawodowa (technikum, liceum zawodowe, liceum profilowane) bez matury	08
Ukończona średnia szkoła zawodowa (technikum, liceum zawodowe, liceum profilowane) z maturą	09
Dyplom ukończenia szkoły pomaturalnej lub policealnej	10
Dyplom ukończenia kolegium lub studium nauczycielskiego	11
Dyplom licencjacki lub dyplom inżynierski	12
Dyplom magistra lub dyplom lekarza	13
Stopień naukowy doktora, doktora habilitowanego lub tytuł profesora	14
Inne (WPISAĆ))_____	15
(Trudno powiedzieć)	88 PRZEJŚĆ DO F16

F15_1 Czy obecnie uczy się P. w szkole lub studiuje?

Tak	1	ZADAĆ F15_2a
Nie	2	ZADAĆ F15_2b
(Trudno powiedzieć)	8	ZADAĆ F15_2b

F15_2a Chciałbym/-abym zapytać o szkołę, w której obecnie P. uczy się/studiuje.
F15_2b Chciałbym/-abym zapytać o szkołę, do której uczęszczał/-a P. ostatnio, to jest najpóźniej w życiu, niezależnie od tego, czy ją P. ukończył/-a, czy nie.
Jakiego rodzaju jest/była to szkoła? (np. technikum mechaniczne, studium nauczycielskie. Dla wyższych uczelni podać pełną nazwę obejmującą miasto, np. Wyższa Szkoła Zarządzania w Częstochowie)

F15_3 Czy jest/była to szkoła/uczelnia publiczna (państwowa), czy też niepubliczna (np. prywatna, społeczna)?

Publiczna	1
Niepubliczna	2
(Trudno powiedzieć)	8

F15_4. Czy nauka w tej szkole odbywa/-ła się w trybie dziennym, zaocznym, czy wieczorowym?

Dziennym	1
Zaocznym	2
Wieczorowym	3
Korespondencyjnym	4
(Trudno powiedzieć)	8

JEŚLI RESPONDENT OBECNIE UCZY SIĘ (ODP. 1 W PYT. F15_1), TO PRZEJŚĆ DO F16

F15_5. W którym roku zakończył/-a P. naukę w tej szkole (na studiach)?
JEŚLI RESPONDENT NIE JEST W STANIE PRZYPOMNIEĆ SOBIE ROKU, ZAPYTAĆ:
A ile miał/-a P. wtedy lat?
w roku . . . . . .
lub
respondent miał wtedy . . . . . lat
(nie pamiętam, trudno powiedzieć) 8888

Source: ORBS, ESS, 2010: EURIPEJSKI SONDAŻ SPOŁECZNY (Edycja 5)

3.2 Measurement Instruments Developed by the International Labour Organization

The International Labour Organization (ILO), which is based in Geneva, is a specialised agency of the United Nations. Its tasks include the development of international labour standards and the monitoring of their application. For this purpose, it develops instruments for the statistical measurement of labour markets and their specific characteristics.

One well-established ILO tool, which has been used by social scientists for many years, is the International Standard Classification of Occupations (ISCO). ISCO organises occupations on the basis of the tasks performed (ILO, 2004a). Published for the first time in 1958, the instrument was soon availed of by social scientists for use in mobility research. The fourth update – ISCO-08 – was released in 2008. It builds on its predecessor ISCO-88, and reflects current social and technical conditions in the labour market. A change in the logic of the classification took place between the second and third versions, with the result that, since 1988, ISCO is no longer universally applicable. Rather, it is now a tool that is specially tailored to the needs of official statistical agencies. However, in the early 1990s, social scientists started to use it once again as a basis for their instruments for the measurement of social inequality, for example the Standard International Occupational Prestige Scale (SIOPS) (Ganzeboom & Treiman, 2003), the International Socio-Economic Index of Occupational Status, (ISEI) (Ganzeboom, de Graaf, Treiman, & de Leeuw, 1992), and the enhanced Erikson-Goldthorpe and Portocarero (EGP) class categories (1979; see Section 3.3).

3.2.1 The 1958 and 1968 Versions of the International Standard Classification of Occupations (ISCO)

The International Standard Classification of Occupations aspires to provide a systematic classification of all occupations exercised by the whole civilian working population. The first ILO classification of occupations, ISCO-58, was released in 1958. It comprised four levels of aggregation: *major groups*, *minor groups*, *unit groups*, and *occupations*. The uppermost level – major groups – was made up of 12 groups. These 12 major groups were divided into 71 minor groups, which were, in turn, broken down into 200 unit groups. These unit groups were further divided into 1,345 occupations (ILO, 2004b).

Ten years later, ISCO-58 was superseded by ISCO-68, which was released in good time for the 1970 round of population censuses (ILO, 1969; Statistisches Bundesamt, 1971). ISCO was developed with the aim of providing a systematic basis for the cross-national comparison of occupational data. A second objective was to provide a basis for the development of national occupational classification systems or the revision of existing classifications in such a way that they would be convertible to ISCO, and, therefore, cross-nationally comparable. The authors of ISCO-68 were of the opinion that, in the majority of cases, it would be possible to match the ISCO occupational definitions with corresponding occupational national categories used in national classification systems. However, they acknowledged that, in national classifications, some ISCO occupational categories might have to be divided into two or more separate categories (ILO, 1969, p. 3). In this way, the occupational categories could also be used by employment placement services as an instrument for matching job seekers with job vacancies.

ISCO-68 was not only an instrument for official statistics purposes and client-oriented applications. It was also applicable in occupational studies and cross-national comparative research – especially on mobility. The classification has a 4-level hierarchical structure, with each lower level being a subdivision of the one above (ILO, 2004c).

At the top level of aggregation, eight major groups pre-structure the instrument. With the exception of major group 0/1 (*Professional, Technical and Related Workers*), these groups are classified according to economic sector: major group 6: primary economic sector; major group 7/8/9: secondary economic sector; and major groups 2–5: tertiary economic sector. The second level of aggregation – minor groups – comprises 83 broad groupings of occupations, while the third level – unit groups – divides the range of occupations into 284 groups of occupations with similar task characteristics. The fourth level consists of 1,506 occupations. It is of particular interest – and use – to researchers because it identifies types of work. This lowest level of aggregation also provides detailed descriptions of the occupations in question.

The minor groups and unit groups are aggregate categories for the presentation of statistical data. According to the ILO (1969, p. 5), the minor groups cover the entire range of civilian vocational activities in industrialised and developing countries.

Table 3.6 Structure of ISCO-58 and ISCO-68

No.	Level of aggregation	Number of categories	
		ISCO-58	ISCO-68
1	Major groups	12	8
2	Minor groups	71	83
3	Unit groups	200	284
4	Occupations	1,345	1,506

Source: ILO, 1969, p. 1; ILO, 2004c

In ISCO-68, the unit groups comprise 284 groups of occupations related to each other by the similarity of the work they entailed. Because the unit-group level was constructed for statistical use, its degree of differentiation was limited by the necessity to restrict it to a relatively small, manageable number of groups. Therefore, characteristics such as work experience, vocational training, level of performance and supervisory responsibilities could not be included (cf. ILO, 1969, p. 5).

The occupational categories level is the lowest and most differentiated level in ISCO-68. The occupational descriptions provided at this level identify a type of work but not the individual worker. They cover both 'jobs' and 'positions'. While jobs are defined in terms of the tasks and duties to be performed, positions are distinguished from one another by differences in duties, level of supervisory responsibility, or other particularities of the work. In the 1968 revision, the categorisation of occupations was refined further in response to needs expressed by users for finer classifications in the case of some occupations. Therefore, the number of occupations increased from 1,345 to 1,506. However, the structure of ISCO-68 is the same as that of its predecessor. Both tools comprise four levels of aggregation; the lowest level defines occupational activity (see Table 3.6). ISCO – and especially the revision of 1968 – was an instrument that served the needs of mobility researchers very well. Therefore, using ISCO-68 as a basis, the development of prestige and status scales could begin.

3.2.2 International Standard Classification of Occupations 1988 (ISCO-88)

Twenty years later, ISCO was updated once again to reflect the increase in occupational specialisation and differentiation due to greater division of labour and new technologies. Although the main features of ISCO-88 (ILO, 2004d) were adopted by the 14th International Conference of Labour Statisticians in November 1987, it was not released until 1990 (ILO, 1990; see also: Hoffmann, 2003a). Not only did the revised instrument take into account the developments in the world of work in the previous two decades, it also had a new structure. The new version is an instrument that was specifically designed to meet the needs of official statistical agencies.

Table 3.7 ISCO-88 skill levels and education/qualifications

Skill level	Corresponding education/qualifications
First skill level	Primary education (begun at ages 5–7 and lasting approximately 5 years)
Second skill level	Secondary education (begun at ages 11–12 and lasting 5–7 years)
Third skill level	Tertiary education (begun at ages 17–18 and lasting 3–4 years, but not giving equivalent of university degree)
Fourth skill level	Tertiary education (begun at ages 17–18 and lasting 3–6 years and leading to university degree or equivalent)

Source: ILO, 1990; Elias, 1997, p. 7

The focus was no longer on differentiation, but rather on structured reduction (see Geis & Hoffmeyer-Zlotnik, 2000, p. 108). ISCO-88 'groups jobs together in occupations and more aggregated groups mainly on the basis of the similarity of skills required to fulfil the tasks and duties of the jobs' (ILO, 2004d). As a result of the revision of ISCO-68, therefore, mobility researchers lost the instrument of which they had grown so fond. Job placement services had given preference to home-grown instruments and had not made use of ISCO; for official statistics purposes, there was no need to break ISCO down to the level of occupations. Therefore, ISCO-88 stopped at the level that statisticians deemed more manageable for their purposes, namely 'unit groups'.

Designed primarily as an instrument for use by statistical agencies, the focus in the revised version was on the upper levels. Although the ISCO-88 structure still comprises four hierarchical levels providing successively finer detail, the former level 4 (occupations) was done away with, and a new level – sub-major groups – was inserted between major groups and minor groups.

In ISCO-88, a new similarity criterion for classifying occupations at the first level was introduced, namely the skill level needed to fulfil the tasks and duties of the jobs. For the purposes of ISCO-88, 'skill level is a function of the range and complexity of the tasks involved, where the complexity of tasks has priority over the range' (ILO, 2004d, p. 5). Four broad skill levels were defined with reference to the International Standard Classification of Education (ISCED) (see Table 3.7; cf. ILO, 1990, pp. 2–3).

In addition to skill level – the task-related dimension of the skill concept – a second, occupational, dimension of the concept – 'skill specialisation' – was included:

> Skill specialisation reflects the type of knowledge applied, tools and equipment used, materials worked on, or with, and the nature of goods and services produced. It should be emphasised that the focus in ISCO-88 is on the skills required to carry out the tasks and duties of an occupation and not on whether a worker in a particular occupation is more or less skilled than another worker in the same or other occupations (ILO, 2004d).

While the skill-level concept is applied only at the major group (single digit) level of the classification, the occupational criterion 'skill specialisation' is used at all levels of aggregation in ISCO-88.

Table 3.8 ISCO-88 structure

	Major groups	Sub-major groups	Minor groups	Unit groups
1	Managers, senior officials and legislators	3	8	33
2	Professionals	4	18	55
3	Technicians and associate professionals	4	21	73
4	Clerks	2	7	23
5	Service and sales workers	2	9	23
6	Skilled agricultural, fishery and forestry workers	2	6	17
7	Craft and related trades workers	4	16	70
8	Plant and machine operators and assemblers	3	20	70
9	Elementary occupations	3	10	25
0	Armed forces occupations	1	1	1
	ISCO-88 total	28	116	390

Source: ILO, 1990

Because of the fundamental structural differences between the two versions, the major groups (single digit) in ISCO-88 cannot be compared to those in ISCO-68. However, continuity of the time series was aspired to at the unit group level of the revised classification. Comparisons should be possible between the 3-digit-level in ISCO-68 and the 4-digit level in ISCO-88, taking into account the greater differentiation and restructuring of the labour market as a result of social and technological change (see Table 3.8).

The fourth level of aggregation – unit groups – is no longer that of 'jobs' or 'positions' because, in most cases, unit groups comprise more than one occupation. ISCO-88 has only 390 codes at unit group level. However, from an official statistics point of view, it is a more meaningful and informative level than the occupational categories level in ISCO-68 because descriptions of occupations differ from country to country and 'depend on the size of the economy and the level of economic development, the level and type of technology, work organisation and historical circumstances' (ILO, 1990, p. 4).

3.2.3 ISCO-88 (COM)

The variant of ISCO-88 normally used by Eurostat is ISCO-88 (COM), a slightly modified version of the original instrument with a small number of additional codes and several aggregations of existing codes (Elias & Birch, 1991; see also Warwick Institute for Employment Research, 2005). ISCO-88 (COM) was developed in response to problems encountered by countries within the EU in achieving a common statistical interpretation of ISCO-88. These problems related to the distinction between different types of managerial occupations, the treatment of jobs in public administration, and the classification of agricultural occupations (Elias & Birch, 1991, p. 5).

3.2.4 2008 Revision of the International Standard Classification of Occupations (ISCO-08)

ISCO-08 adheres to the rationale of its predecessor, ISCO-88. The Resolution Concerning Updating the International Standard Classification of Occupations (ILO, 2007, p. 1) characterises the revised instrument as follows:

> ISCO classifies jobs. A Job is defined for the purposes of ISCO-08 as a set of tasks and duties performed, or meant to be performed, by one person, including for an employer or in self employment.
>
> An occupation is defined as a set of jobs whose main tasks and duties are characterised by a high degree of similarity. A person may be associated with an occupation through the main job currently held, a second job or a job previously held.
>
> Jobs are classified by occupation with respect to the type of work performed, or to be performed. The basic criteria used to define the system of major, sub-major, minor or unit groups are the 'skill level' and 'skill specialization' required to competently perform the tasks and duties of the occupations.

The changes in ISCO-08 vis-à-vis ISCO-88 reflect, on the one hand, technological developments in the world of work. Mechanics are being displaced by electronics; workers who operate machinery in a factory now stand at a control console or sit in front of a computer; the machine operator has become a technician. On the other hand, the transition from an industrial society to a service society has changed job profiles. While the range of jobs in the service sector has become more diverse, the once numerous fields of activity in the trades sector are successively declining and being replaced by 'service providers'. Another area that is in the process of differentiation is the field of academic jobs. This is reflected in the strong increase in the number of unit groups for academic professions and the fact that, nowadays, more and more young people are going to university.

The number of categories for low-skilled jobs has also increased strongly. In the past, ISCO was more an instrument for the analysis of the labour market in industrial and post-industrial societies. Developing countries – the so-called 'Third World' – were disadvantaged in the classification system. The situation improved as a result of the updating of ISCO – an improvement reflected, not least, in the revisions of the unit groups for non-skilled jobs and jobs in agriculture.

Table 3.9 clearly shows that, while the rationale of the instrument remains the same, the classification and differentiation have changed considerably as a result of the latest updating – except in the case of *skilled agricultural, fishery and forestry workers.* The number of codes in ISCO-08 has also increased vis-à-vis ISCO-88 at levels 2, 3 and 4 of the classification. In other words, the conversion from ISCO-88 to ISCO-08 is not quite as trivial as the conversion table produced by the ILO suggests (ILO, 2009).

3.2.5 ISCO-08 (COM)

Because the European Union wants its statistics to be comparable with countries outside the EU that use the ILO's version of ISCO-08, the European Commission (European Commission & Eurostat, 2008, p. 6) decided that, in contrast to

Table 3.9 ISCO-08 structure

	Major groups	Sub-major groups	Minor groups	Unit groups
1	Managers, senior officials and legislators	4	11	28
2	Professionals	6	24	89
3	Technicians and associate professionals	5	20	86
4	Clerks	2	9	28
5	Service and sales workers	2	12	40
6	Skilled agricultural, fishery and forestry workers	2	6	18
7	Craft and related trades workers	5	16	66
8	Plant and machine operators and assemblers	3	13	42
9	Elementary occupations	6	11	33
0	Armed forces occupations	3	3	3
	ISCO-08 total	38	125	433

Source: ILO, 2011a

ISCO-88, it would not be necessary to develop a (COM) variant of ISCO-08 for Eurostat. Since 2011, ISCO-08 has been applied without adaptation in all EU surveys.

3.2.6 Other ILO Instruments

The International Labour Organization regularly issues guidelines containing rules and definitions relating to specific labour market themes. Because these definitions have been developed for international use, they can prove very useful to social scientists engaged in cross-national research. However, the fact should not be overlooked that the ILO's instruments and definitions have been developed for the statistical observation of labour markets across all countries. Therefore, we shall limit ourselves here to the two guidelines that we consider to be most meaningful for social surveys.

International Classification of Status in Employment (ICSE-93)

Published in 1993, the International Classification of Status in Employment (ICSE) 'classifies jobs held by persons at a point in time' (ILO, 1993). It offers a number of precisely defined categories of the variable 'type of contract of employment that a person concludes with other persons or organisations' (see ILO, 1993, 2011b).

The groups of the classification are defined with reference to the type of economic risk involved and the type of authority that the contract confers on the incumbent. ICSE-93 distinguishes, first, between 'paid employment' and 'self

employment'. It then defines the following groups (the exact definitions can be found in Hoffmann, 2003b, pp. 128ff. and in ILO, 1993, pp. 2f.):

1. *Employees*: those persons who hold 'paid employment jobs'. A sub-group thereof is constituted by employees with stable contracts. And a sub-group of this group comprises 'regular employees', who not only have a stable contract, but whose contract is subject to national labour legislation.
2. *Employers*: those persons who work on their own account or with one or more partners and who have engaged one or more employees on a continuous basis during the reference period.
3. *Own-account workers*: persons who work on their own account or with one or more partners, and who may or may not have engaged employees on a non-continuous basis during the reference period.
4. *Members of producers', cooperatives*: self-employed persons who produce goods or services in a cooperative in which each member has an equal say in all organisation-related matters.
5. *Contributing family workers*: self-employed persons who hold a job in a market-oriented enterprise that is run by a related person from the same household. However, what distinguishes contributing family workers from other groups is the fact that they do not have the same say as the person who operates the enterprise.
6. *Workers not classifiable by status*: those about whom sufficient information is not available or who do not fit into one of the aforementioned categories.

This is followed by a statistical treatment of particular groups of workers, some of which are sub-groups of individual groups defined above while others cut across two or more of these groups (for definitions see ILO, 1993 and Hoffmann, 2003b, pp. 128–131):

- Owner-managers of incorporated enterprises
- Regular employees with fixed-term contracts
- Regular employees with contracts without limits of time
- Workers in precarious employment
- Casual workers
- Workers in short-term employment
- Workers in seasonal employment
- Outworkers
- Contractors
- Contract workers (workers who hold contracts of 'paid employment' from one organisation but who work at the site of, or under instructions from, a second organisation)
- Work gang (crew) members
- Persons participating in public or private employment promotion or job training schemes on terms of employment that correspond to 'paid employment' jobs or who receive support from such schemes to start their own business and are therefore classified as self-employed.

- Apprentices or trainees
- Employers of regular employees
- Core own-account workers
- Franchisees
- Sharecroppers
- Communal resource exploiters
- Subsistence workers.

As can be seen from this list, sub-groups constitute jobs that, for the most part, are not covered by the six main categories. Therefore, when using this classification, it is important to pay attention to the respective national definitions.

Extended Absences from Work

The 'Guidelines concerning treatment in employment and unemployment statistics of persons on extended absences from work' (ILO, 1998) set out types of 'extended absence' and the circumstances under which persons on extended absence should be classified as employed, unemployed, or not economically active. These are the three categories into which the ILO labour force status concept classifies persons of working age (see Section 5.2.2).

The first type of extended absence dealt with is maternity leave. The Guidelines recommend that women 'who have the assurance to return to work should be classified as employed.' If they do not have such an assurance, they should be classified either as unemployed or not economically active, depending on their current availability for, and efforts to find, work.

The second category of persons on extended absence comprises 'employees on unpaid leave initiated by the employer (including leave paid out of the government budget or social security funds).' Whether the person should be classified into the employed or the unemployed labour force category depends on whether they have an agreed date for return to work and on the elapsed duration of their absence. Examples of absences of this kind are short-time working, pre-retirement, etc.

The third category of extended absences comprises 'employees on other types of extended leave'. They are classified as employed if they have an assurance of a return to work, their employers continue to pay all or part of their salary, and the duration of their absence has not exceeded a specified national time limit. (Parental leave is one example.) Those who do not fulfil these criteria are classified either as unemployed or economically inactive, depending on their availability for, and efforts to find, work.

The fourth category of persons on extended absence is made up of 'seasonal workers not at work during the off-season'. If they have an assurance of a return to work at the beginning of the next season and the employer continues to pay them during the off-season, they are classified as employed. Otherwise they are deemed to be either unemployed or economically inactive depending on whether or not they satisfy certain criteria.

3.3 Academic Instruments

In addition to the instruments for the generation of cross-nationally comparable statistics developed by specialised agencies of the United Nations such as the ILO or UNESCO, a number of tools for the measurement of socio-demographic variables in cross-national comparative survey research have been developed by groups of academic researchers.

3.3.1 Prestige and Socio-Economic Status Scales, and Nominal Class Categories

The scales of prestige or socio-economic status most suitable for use in cross-national comparative social research are:

- Treiman's Standard International Occupational Prestige Scale (SIOPS) (Treiman, 1975, 1977),
- Ganzeboom et al.'s International Socio-Economic Index of Occupational Status (ISEI) (1992), and
- The enhanced Erikson, Goldthorpe and Portocarero (EGP) class categories (1979; see also Erikson & Goldthorpe, 1992), which were applied to cross-national comparative research by Ganzeboom, Luijkx, and Treiman (1989).

The International Standard Classification of Occupations (ISCO) is a prerequisite for the implementation of these scales because occupational prestige, socio-economic status, and nominal class categories are all derived from occupational data.

Wolf (1995) and Ganzeboom and Treiman (2003) provide a comparison of the various prestige, socio-economic status and class measures.

Treiman's Standard International Occupational Prestige Scale (SIOPS)

Those scales developed for the study of social mobility that rank occupation according to one dimension, namely prestige or socio-economic status, were inspired by Peter M. Blau and Otis Dudley Duncan's seminal study entitled *The American Occupational Structure* (1967). This was the first national intergenerational survey that sought to gain a scientific understanding of the structure and development of work-related mobility patterns in the United States. Between World War II and the mid-1970s, some 85 occupational prestige studies were carried out in 60 countries – from highly industrialised countries to agricultural societies (Treiman, 1977, p. 25). In all cases, respondents were asked to 'rate or rank a set of occupational titles with respect to their prestige or social standing' (Treiman, p. 25). Treiman integrated the resulting national prestige scales into a standard international scale: In a first step,

he matched the occupational titles from 55 countries to ISCO-68 codes. He then generated a standard prestige scale by averaging the national prestige scores rescaled to a common metric of 0–100 (see Treiman, Chapters 8 and 9). In Treiman's scale, each occupation is assigned the same value in each country. This presupposes that 'hierarchies of prestige are more or less invariant across time and space' (Treiman), which Treiman assumes to be the case. He claims that the Standard Scale enables the occupational prestige hierarchy in all countries to be validly estimated, and he supports this claim with reference to the fact that the average correlation between the Standard Scale and the national prestige scales of these countries was 89. When computing the correlation between the Standard Scale and each national scale, the country in question was omitted from the Standard Scale. Treiman (1979, pp. 139ff.) warns against constructing SIOPS on data coded into national occupational classifications, because these classifications are not usually cross-nationally comparable. Therefore, a precondition for the application of his prestige scale to comparative research is that occupations be measured and coded in a differentiated and internationally comparable way. This has been possible in principle only since the advent of ISCO, as the Treiman prestige scale can be meaningfully used only with data that have been coded, or remapped, into that classification.

Because the primary data from which the Standard Scale was constructed came from both industrialised and agricultural societies, Treiman claims that it is universally valid and invariant over time. However, if countries cease to be market oriented because, for example, a socialist system has been introduced, popular evaluation of occupations changes and so, too, does the occupational hierarchy. In other words, if the perceived social importance of the production of goods rises, and if services go down in people's estimation, this changes the way in which occupational titles are evaluated and gives rise to an occupational hierarchy that deviates from the norm. As a result, Treiman's Prestige Scale is no longer valid for that type of country (cf. Geis & Hoffmeyer-Zlotnik, 1991).

The current version of the Treiman Prestige Scale is the Standard International Occupational Prestige Scale (SIOPS) (see Ganzeboom & Treiman, 2003, pp. 170f.). Originally derived from data coded into ISCO-68, it was later recoded into ISCO-88 by Ganzeboom and Treiman (1996). A tool for mapping ISCO-08 into SIOPS was not available at the time of writing (mid-2012).

International Socio-Economic Index of Occupational Status (ISEI)

In 1992, Harry B.G. Ganzeboom, Donald J. Treiman et al. developed the International Socio-Economic Index of Occupational Status (ISEI) as a complement to SIOPS (Ganzeboom et al., 1992). ISEI does not measure occupational prestige, but rather socio-economic status. It does so by combining occupation with the requisite education for, and the expected income of, the occupation in question. The original index was constructed on the education, occupation, and earnings data of some 74,000 full-time employed male respondents between the ages of 21 and 64

(Ganzeboom et al., 1992, pp. 13f.). These data were collected within the framework of 31 studies conducted in 16 countries. The rationale behind the scale is that each occupation calls for a certain level of educational attainment and – in a market economy – commands, as a rule, a certain level of earnings. As in the case of SIOPS, the occupational titles on which the index is based are coded into ISCO-88 at the unit group level. However, although ISCO-88 skill levels are reflected in the ISEI scale, they are not a constituent element thereof (Ganzeboom & Treiman, 1996).

Erikson-Goldthorpe-Portocarero (EGP) Class Categories

The third instrument used in the cross-national comparative study of social inequality is EGP, a tool for the measurement of nominal class categories that is called after its authors, Erikson, Goldthorpe, and Portocarero (1979). Initially devised by Goldthorpe (1980, 2000), the class schema explains the social action of individuals on the basis of their status in the labour market. According to the authors, employment is regulated by social relationships in the workplace, i.e., service relationship or labour contract, whereas relationships among employees themselves are dependent on the degree of autonomy enjoyed by the individual when performing his work tasks. An employee's work situation depends on whether the employment is regulated by a labour contract, which regulates everything from job content to payment; by a service relationship, which allows autonomy in performing work tasks; or by a mixture of both. The employee's position on the service-relationship/labour contract continuum determines his social status.

The nominal typology for the combination of occupation with information on employment status was originally devised on the basis of national studies for the analysis of British data. Later, the classification system was generalised for international use on the basis of data from Britain, France, and Sweden. The current version is the result of Erikson and Goldthorpe's (1992) comparative work in the Comparative Analysis of Social Mobility in Industrial Nations (CASMIN) project (see Brauns, Scherer, & Steinmann, 2003). The variables needed for the construction of 'class position' are the occupation practised by the respondent (for cross-national comparability it should classified according to ISCO), and his employment status differentiated according to 'self-employed', 'employed', and 'unpaid family worker' (see Table 3.10).

In the 1990s, Harry B.G. Ganzeboom generated EGP class categories from ISCO-88 codes and supplementary information so that they could be used in cross-national comparative survey research. The allocation of the 390 ISCO categories to 11 EGP categories proved difficult. Therefore, as a first step, the occupational titles were provisionally allocated to class categories. These classifications were then corrected on the basis of supplementary information – where available – concerning employment status (employed, self-employed), and supervisory status (in the case of persons with supervisory responsibilities). The index is now widely used in national and cross-national comparative studies – not only in the social sciences but also in medical research.

Table 3.10 EGP class categories

Category	EGP 11	Description
I	1	Higher managerial and professional workers
II	2	Lower managerial and professional workers
IIIa	3	Routine clerical work
IIIb	4	Routine service and sales work
IVa	5	Small self-employed with employees
IVb	6	Small self-employed without employees
V	7	Manual supervisors
VI	8	Skilled manual workers
VIIa	9	Semi- and unskilled manual workers
VIIb	10	Agricultural labour
IVc	11	Self-employed farmers

Source: Ganzeboom & Treiman, 2003, p. 172

3.3.2 The European Socio-Economic Classification (ESeC)

The European Socio-economic Classification (ESeC) is an instrument for the measurement of the socio-economic status of persons and households. It was developed for use in EU comparative research by an international group of researchers headed by Eric Harrison and David Rose (2006) of the University of Essex, which comprised teams from England, Germany, Italy, Sweden, Ireland, the Netherlands, and France.

The instrument is based on the Erikson-Goldthorpe-Portocarero (EGP) schema described in Section 3.3.1 above. It 'aims to differentiate positions within labour markets and production units in terms of their typical "employment relations". Therefore ESeC recognises four basic positions: employers, the self-employed (own account workers), employees, and those involuntarily excluded from the labour market' (Harrison & Rose, 2006, p. 4). Very diverse employment relations and conditions exist among employees, depending on their labour market situation and their work situation. The latter depends on whether the employment is regulated by a 'service relationship', a 'labour contract', or a mixture of both forms (2006, pp. 4f.).

ESeC is based on data coded into the minor group level of ISCO-88 (COM). To derive ESeC, the ISCO-88 (COM) minor groups are distinguished on the basis of supplementary information according to whether the target person is an employer, own account/self-employed without employees, or an employee; if an employer, whether the organisation has less than 10, or 10 or more, employees; and, if an employee, whether or not he has supervisory responsibilities (2006, pp. 12f.).

ESeC is created by asking eight questions (2006, pp. 12f.). Questions 1–3 are open-ended and serve to collect information on occupation for coding into ISCO-88 (COM):

1. 'What did the firm/organization you worked for mainly make or do (at the place where you worked)?'
2. 'What was your (main) job?'
3. 'What did you mainly do in your job?'

Table 3.11 The 10 ESeC Classes

	ESeC class	Common term	Employment regulation
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	–
5	Self employed occupations (agriculture etc.)	Petit bourgeoisie or independents	–
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	Skilled workers	Labour contract (modified)
9	Routine occupations	Semi- and non-skilled workers	Labour contract
10	Never worked and long-term unemployed	Unemployed	

Source: Harrison & Rose, 2006, p. 5

Questions 4–8 collect information on the respondent's employment status and, in the case of employers, the size of the organisation. Question 4 is also a filter question. Questions 5 and 6 are asked if the respondent is an employee, and questions 7 and 8 if the respondent is self-employed:

4. 'Were you working as an employee or were you self-employed?'
5. 'In your job, did you have any formal responsibility for supervising the work of other employees?'

   If yes, go to question 6.

6. 'How many people worked for your employer at the place where you worked?'
7. 'Were you working on your own or did you have employees?'

   With employees, go to question 8.

8. 'How many people did you employ at the place where you worked?'

The 10-class model (see Table 3.11; Fig. 3.2) can be regarded as the basic model. The ten classes can be collapsed to six, five or three classes (2006, pp. 9f.):

- 'In the 6-class model, classes 1 and 2 are combined to form class 1, "the salariat"; classes 3 and 6 combine into an "intermediate employee" class 2; classes 4 and 5 become a single class 3 of "small employers and self-employed"; class 7 becomes class 4; class 8 becomes class 5; class 9 becomes class 6.'
- In the 5-class model, 'classes 5 and 6 in the six class model are combined into a single class of "lower technical and routine occupations".'

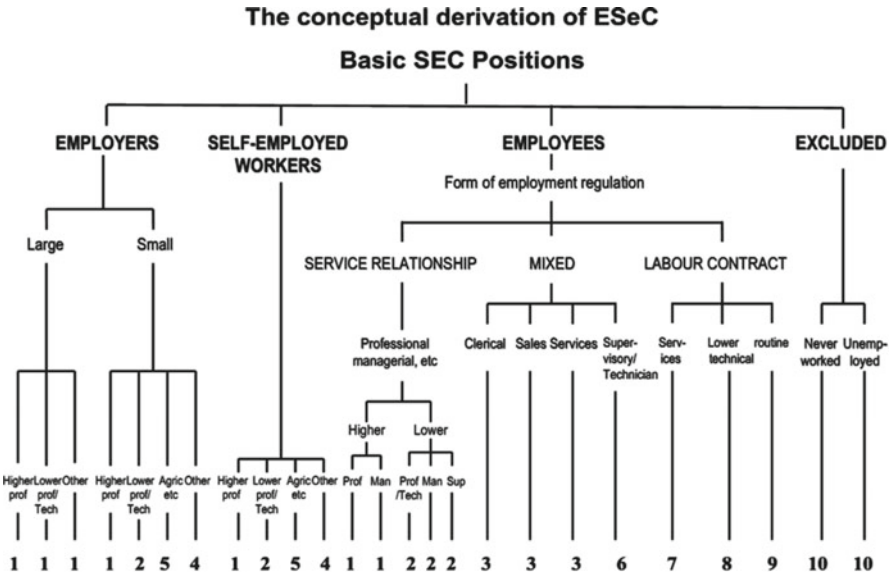

Fig. 3.2 Allocation of the individual employment status categories to the ESeC classes
Source: Harrison & Rose, 2006, p. 22.

- The 3-class model is derived directly from the 10 class model. It combines classes 1 and 2 to form class 1, 'the salariat'; classes 3–6 become the 'intermediate' class; and classes 7–9 combined to form the 'working class'.
- 'Class 10 may be added as an additional in any of the models.'

ESeC is now routinely applied in diverse EU surveys.

3.4 International Standards for the Measurement of Household Income

In 1993 and 1994, statisticians from the UN and Eurostat, and the ILO's labour statisticians recognised the need to standardise the measurement of income in order to improve the analytical possibilities of comparing income statistics across countries and to revise the hitherto applicable provisional guidelines (United Nations, 1977).

An International Expert Group on Household Income Statistics, known as the 'Canberra Group' was constituted in 1996. Its aim was to tackle the conceptual and practical problems encountered by statistical institutions when briefing policy makers and administrations on cross-national differences in income distribution, income indicators and poverty measurement. The 'Final Report and Recommendations' of the Canberra Group was published in 2001. The recommendations were taken up

by the EU Statistics on Income and Living Conditions (EU-SILC) project, which was initiated in the same year. In 2003, the Seventeenth Conference of Labour Statisticians (ICLS) adopted a 'Resolution Concerning Household Income and Expenditure' (ILO, 2004e), which followed to a large extent the recommendations made by the Canberra Group. A second, updated and expanded edition of the Canberra Group's recommendations was published in 2011 under the title *The Canberra Group Handbook on Household Income Statistics, Second Edition* (Canberra Group, 2011).

The Canberra Group's concept of household income is primarily an economic one, as is that employed by the ILO labour statisticians. In the aforementioned ILO resolution of 2003, household income is defined as follows:

> Household income consists of all receipts whether monetary or in kind (goods and services) that are received by the household or by individual members of the household at annual or more frequent intervals, but excludes windfall gains and other such irregular and typically onetime receipts. Household income receipts are available for current consumption and do not reduce the net worth of the household through a reduction of its cash, the disposal of its other financial or non-financial assets or an increase in its liabilities (ILO, 2004e, para. 4).

The aim of the Expert Group was to develop standards for internationally comparable household income statistics that would facilitate the analysis of economic prosperity in national economies. It was assumed that an individual's standard of living is determined by the level of income of the household in which he lives because individuals normally share their income with other household members. Therefore, it is necessary to collect data about the income of all the persons living in the household, irrespective of the source of this income.

In surveys of household income, 'income' refers to all regular monetary receipts received by a household as a whole or by individuals who are members of that household. The most common income components are: income from paid and self-employment, interest on and dividends from financial and non-financial assets, and pensions, social assistance benefits, and other monetary transfers. Table 3.12 shows how multifaceted the economic concept that underlies the measurement of household income in socio-economic surveys actually is. The Expert Group on Household Income Statistics defines each individual income component, specifies the income sources included, and lists the additional elements of the money received.

A closer look at the EU Statistics on Income and Living Conditions (EU-SILC) survey for the income reference period 2008[4] reveals that the majority of the abovementioned income components are included. The EU-SILC deviates from the recommendations of the Canberra Group with regard to (1a8) 'Severance and termination pay', (1b2) 'Goods produced for barter', (2c) 'Royalties', (3b) 'Value of unpaid domestic services', and (3c) 'Value of services from household consumer

[4] The field interviews were conducted in the course of 2009.

Table 3.12 Income components and sources

1	Income from employment
	1a Employee income
	1a1 Wages and salaries
	1a2 Cash bonuses and gratuities
	1a3 Commissions and tips
	1a4 Directors' fees
	1a5 Profit-sharing bonuses and other forms of profit-related pay
	1a6 Shares offered as part of employee remuneration
	1a7 Free or subsidised goods and services from an employer
	1a8 Severance and termination pay
	1a9 Employers' social insurance contributions
	1b Income from self-employment
	1b1 Profit/loss from unincorporated enterprise
	1b2 Goods produced for barter, less cost of inputs
	1b3 Goods produced for own consumption, less cost of inputs
2	Property income
	2a Income from financial assets, net of expenses
	2b Income from non-financial assets, net of expenses
	2c Royalties
3	Income from household production of services for own consumption
	3a Net value of housing services provided by owner-occupied dwellings and subsidised rentals
	3b Value of unpaid domestic services
	3c Value of services from household consumer durables
4	Current transfers received
	4a Social security pensions/schemes
	4b Pensions and other insurance benefits
	4c Social assistance benefits (excluding social transfers in kind, see 10)
	4d Current transfers from non-profit institutions
	4e Compulsory and quasi-compulsory inter-household transfers received
5	Income from production (sum of 1 and 3)
6	Primary income (sum of 2 and 5)
7	Total income (sum of 4 and 6)
8	Current transfers paid
	8a Direct taxes (net of refunds)
	8b Compulsory fees and fines
	8c Compulsory and quasi-compulsory inter-household transfers paid
	8d Employee and employers' social insurance contributions
	8e Current transfers to non-profit institutions
9	Disposable income (7 less 8)
10	Social transfers in kind (STIK) received
11	Adjusted disposable income (9 plus 10)

Source: Canberra Group, 2011, p. 127

Table 3.13 EU-SILC target variable 'income'. Percentages of valid responses for 2008: household income items

Household income items	Valid %
Total household gross income	99.7
Total disposable household income	99.8
Total disposable household income before social transfers other than old-age and survivors benefits	98.6
Total disposable household income before social transfers incl. old-age and survivors benefits	93.7
Imputed rent (net)	48.9
Income from rental of a property or land (net)	5.0
Family/children related allowances (net)	16.4
Social exclusion not elsewhere classified (net)	3.4
Housing allowances (net)	5.8
Regular inter-household cash transfer received (net)	3.6
Alimonies received (net)	2.3
Interests/dividends/profit from capital investment in uncorporated business (net)	30.9
Interest repayment on mortgage (net)	12.6
Income received by people aged under 16 (net)	1.3
Regular taxes on wealth (net)	20.5
Regular inter-household cash transfer paid	3.8
Alimonies paid (net)	1.0
Tax on income and social contribution	17.0
Repayments/receipts for tax adjustment (net)	37.6
Imputed rent (gross)	80.9
Income from rental of a property or land (gross)	6.4
Family/children related allowances (gross)	24.7
Social exclusion not elsewhere classified (gross)	6.6
Housing allowances (gross)	9.6
Regular inter-household cash transfers received (gross)	5.5
Alimonies received (gross)	2.6
Interests/dividends/profit from capital investment in uncorporated business (gross)	44.8
Interest repayments on mortgage (gross)	22.9
Income received by people aged under 16 (gross)	1.6
Regular taxes on wealth (gross)	37.8
Regular inter-household cash transfer paid (gross)	6.4
Alimonies paid (gross)	2.6
Tax on income and social contributions (gross)	89.2

Source: EU-SILC user database, version 01-08-2011, own calculations

durables'. Some 88 % of persons interviewed within the framework of the EU-SILC receive income from employment. In 37.3 % of these cases the net amount was reported, in 50.7 % of cases the gross amount. Income from old-age pensions is the other main type of income in the EU Statistics on Income and Living Conditions (EU-SILC, 2011) (see Tables 3.13 and 3.14).

Table 3.14 EU-SILC target variable 'income'. Percentages of valid responses for 2008: personal income items

Personal income items	Valid %
Employee cash or near cash income (net)	37.3
Non-cash employee income (net)	7.6
Company car (in euros)	0.6
Contributions to individual private pension plans (net)	6.2
Cash benefits or losses from self-employment (net)	7.2
Value of goods produced for own consumption (net)	10.5
Pension from individual private plans (net)	0.4
Unemployment benefits (net)	5.0
Old-age benefits (net)	18.7
Survivors benefits (net)	1.3
Sickness benefits (net)	2.0
Disability benefits (net)	2.8
Education-related allowances	1.1
Employee cash or near cash income (gross)	50.7
Non-cash employee income (gross)	9.9
Company car (in euros)	1.4
Employers social insurance contribution (in euros)	37.9
Optional employer social insurance contributions (in euros)	1.3
Contributions to individual private pension plans (gross)	9.2
Cash benefits or losses from self-employment (gross)	9.8
Value of goods produced for own consumption (gross)	10.9
Pension from individual private plans (gross)	1.0
Unemployment benefits (gross)	5.9
Old-age benefits (gross)	25.6
Survivor benefit	1.6
Sickness benefits (gross)	3.0
Disability benefits (gross)	4.2
Education-related allowances (gross)	2.0
Gross monthly earnings for employees (gross)	25.9

Source: EU-SILC user database, version 01-08-2011, own calculations