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ESSnet-ESeG – Final report

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**ESSnet ESeG
Final Report**

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Object:

Final Report of the ESSnet on
the harmonisation and implementation of a European socio-economic classification:
European Socio-economic Groups (ESeG)

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ESSnet ESeG: Final Report

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Participants



The European Socio-economic Groups (ESEG)

groups and sub-groups

Based on ISCO_2008 and status of employment (e=employee; se= self employed)
(see in VI.3 of this report for more details)

1 Managers (all statuses)

- 1.1 Higher managerial self-employed (ISCO 11, 12, 13 and status=se)
- 1.2 Lower managerial self-employed (ISCO 14 and status=se)
- 1.3 Higher managerial employees (ISCO 11, 12, 13 and 01 and status=e)
- 1.4 Lower managerial employees (ISCO 14 and status=e)

2 Professionals (all statuses)

- 2.1 Science, engineering and information and communications technology (ICT) professionals (ISCO 21,25)
- 2.2 Health professionals (ISCO 22)
- 2.3 Business and administration professionals (ISCO 24)
- 2.4 Legal, social and cultural professionals (ISCO 26)
- 2.5 Teaching professionals (ISCO 23)

3 Technicians and associated professionals employees (status= e)

- 3.1 Science, engineering and ICT technicians and associated professionals (ISCO 31, 35)
- 3.2 Health associate professionals (ISCO 32)
- 3.3 Business and administration associate professionals (ISCO 33)
- 3.4 Legal, social and cultural associate professionals (ISCO 34)
- 3.5 Non-commissioned armed forces officers (ISCO 02)

4 Small entrepreneurs (status= se)

- 4.1 Self-employed agricultural and related workers' (ISCO 6)
- 4.2 Self-employed technicians, clerical support, services and sales workers (ISCO 3, 4, 5)
- 4.3 Self-employed drivers, craft, trades and elementary workers (ISCO 7, 8, 9)

5 Clerks and skilled service employees (status=e)

- 5.1 General and numerical clerks and other clerical support employees (ISCO 41, 43, 44)
- 5.2 Customer services clerks (ISCO 42)
- 5.3 Personal care employees (ISCO 53)
- 5.4 Protective service employees and armed forces, other ranks (ISCO 03 and ISCO 54)

6 Skilled industrial employees (status= e)

- 6.1 Building and related trade employees (ISCO 71)
- 6.2 Food processing, wood working, garment employees (ISCO 75)
- 6.3 Metal, machinery, handicraft, printing, electrical and electronic trades employees (ISCO 72, 73, 74)
- 6.4 Stationary plant and machinery operation and assembly employees (ISCO 81, 82)
- 6.5 Employee drivers and mobile plant operators (ISCO 83)

7 Lower status employees (status= e)

- 7.1 Personal services and sales employees (ISCO 51, 52)
- 7.2 Blue collar employees and food preparation assistants in elementary occupations (ISCO 92, 93, 94, 96)
- 7.3 Cleaners and helpers and services employees in elementary occupations (ISCO 91,95)
- 7.4 Agricultural employees (ISCO 6)

8 Retired persons (and people 65 and over non-employed)

- 8.1 Retired Managers
- 8.2 Retired professionals
- 8.3 Retired technicians and associated professionals employees
- 8.4 Retired small entrepreneurs
- 8.5 Retired clerks and skilled service employees
- 8.6 Retired skilled Industrial employees
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- 8.8 Other persons outside the labour force aged 65 or more

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- 9.3 Unemployed not elsewhere classified
- 9.4 Other persons outside the labour force aged less than 65 years



ESSnet ESeG: Final Report

Abstract:

This report describes the context, work and results of the “ESSnet ESEG” (October 2011 to April 2014). Set up by the National Statistical Institutes (NSIs) of France, the Czech Republic, Italy and Hungary at the request of Eurostat, this network of statisticians has worked with help from many researchers to design the European Socio-Economic Groups (ESeG), a classification that can be applied to the social statistics of the European Union.

The first step (WP1) was to organise the network, access the main data and choose a methodology to elaborate some classification prototypes. The method (a top-down approach) was chosen during the 2nd meeting (in February 2012) and then some prototypes were defined (three eventually by the end of 2012).

The prototypes were elaborated *a priori* (essentially with ISCO2008 with 1 or 2 digits and status of employment), from the characteristics of employment and working conditions and in the light of the well-known debates. They were decided upon after discussions with NSIs and consultation of researchers and other future users. In parallel, the variables necessary to build ESeG (especially ISCO_2008) were assessed in the European Union (WP2: report from Italy)

Proposals for the most aggregated level (level 1) of the classification were built first. Then, different solutions for a more detailed level (level 2) were provided in order to reconcile different options deriving from the more aggregated proposed levels, according to the potential groupings. This more detailed level also aims to take some national particularities into account (WP3).

The proposals were then tested in different domains and social fields, based on the European surveys, and compared to understand family behaviour or some aspects of living habits or choices made by individuals or households (WP4 led by the Czech Republic). The proposed ESeG classification was defined during the last meeting (January 2014).

Throughout the project, statisticians and researchers followed and helped the ESSnet working group: 4 subcontracting agreements were signed with research centres, periodic meetings were held in France with a special group, each NSI of the ESSnet worked with sociologists or experts in classifications, and a special international meeting was organised with European specialists from 10 countries. The discussions during different presentations to the NSIs and users, through European working Groups and meetings and with Eurostat, were also very useful. The tested proposals were therefore discussed in order to converge towards the best and most widely-accepted classification possible.

ESeG, the classification that was chosen, is rather simple. For people in employment, it needs only two variables: the classification of occupations (ISCO_2008, 1 and 2 digit) and the status of employment (employee or self-employed). It is necessary to make both levels of ESeG available to users, however, to allow different groupings, because it is sometimes necessary to adapt the classification, in terms of the social fields and for some national studies.

This report presents and explains ESeG, and gives some recommendations, hoping that this new classification will be promoted by Eurostat and used widely and regularly in European social statistics.





ESSnet ESeG: Final Report

Following a call for grants by Eurostat, an ESSnet project was launched to define a European socio-economic classification. The grant agreement was signed between Eurostat and the NSIs from France, Italy, the Czech Republic and Hungary. The ESSnet was coordinated by INSEE. The contract was signed on October 2011 for two years and extended until April 2014.

The aim of the project was to build a classification which allows the grouping of individuals with similar economic, social and cultural characteristics throughout the European Union (European socio-economic groups - ESeG).

This classification is part of the harmonisation of statistical tools to improve the presentation of social statistics and allow international comparisons within the EU.

I. Background and principles

– I.1 A long road

From the mid-1990s onwards, the European Commission ordered a series of studies on the feasibility of developing a European Socio-Economic Classification. “A harmonised socio-economic classification is important in order to better describe, categorise and compare internationally socio-economic groups,” it was said (meeting of the Directors of Social Statistics)

- A 1999 report by Bernard Grais was presented to a “Harmonisation of Social Statistics” Working Group in April 2000 (minutes of 2-3 May 2000, point 5).

This work provided a good overview of the socio-economic classifications in use in the different National Statistical Institutes in EU and EFTA countries. It was also the starting point for the work coordinated later by the UK National Statistical Institutes (ONS).

- A Eurostat contract was awarded to the ONS (UK) and signed at the end of 1999. It was coordinated in 2000 by Ms. Jean Martin, although the main part of the work on the European Socio-Economic Classification was done by Prof. David Rose and on the occupational classification (ISCO-88 COM) by Prof. Peter Elias.

The objective of the programme was “the development of a European Socio-Economic Grouping of persons, to be used as a general background variable in social statistics.” The variable was intended for use in a wide field of applications within social statistics.

- A European Socio-Economic Classification (ESeC) prototype was defined under the 6th EU Research Framework Programme for the period 2004-2006. The ESeC consortium was led by the ONS, coordinated by two British teams headed by David Rose and Eric Harrison, and mainly made up of researchers (teams from the Universities of Warwick, Essex, Erasmus Rotterdam, Mannheim, Stockholm, Milan and ESRI in Dublin) and INSEE.

- A grant from Eurostat was then awarded to 4 countries (BG, IT, HU and FR) to study:

- the comparability of ISCO data
- the consistency of the full and reduced versions of ESEC;
- the quality and clarity of ESeC

The reports were all finalised in September 2009. A workshop was held, organised by the CNIS (French National Council for Statistical Information, Paris, 14 September 2009).

During the meeting of the Directors of Social Statistics in September 2009, it was decided to launch the ESSnet and to restrict the classification to core variables (written in the outcomes of this meeting)



Focus 1: Main results of the French report on ESEC

Cecile Brousse, De Saint-Pol Thibaut, Gleizes François, Le Ru Nicolas, Marical François, Monso Olivier et Wolff Loup, *Assessment of the European socio-economic classification prototype (ESeC): lessons from the French experience*, INSEE, coll. "Document de travail de l'Insee", n° F1006, 2010

The results of the report highlighted some weaknesses of ESeC, but also presented some tools for assessing a classification (presented by Corinne Prost at the previous ESeG meeting, Paris, 7 February 2011).

Several studies were conducted, using different sources:

- Application to working conditions: Working conditions survey 1998 and 2005; Field: employees, aged 15 +

Classifications tested: national classification; ISCO - 2008; prototype ESeC (full version)

About: work intensity; autonomy at work; checks on working hours; exposure to physical risk

Results: no single classification is better than the others; messages vary from one classification to another

Prototype ESeC reveals a class of employees who combine high work intensity and high exposure to physical risk factors: ESeC 6 (Higher-grade blue collar workers)

National classification identifies workers as having highly atypical working conditions: non-skilled blue-collar workers

Two ESeC classes are quite heterogenous:

ESeC 6 (Higher grade blue collar workers): some workers combine supervision and manual tasks while others are only responsible for supervision

ESeC 9 (Routine occupations): Non skilled blue-collar workers and lower-grade white-collar workers are amalgamated

- Application to cultural practices: SILC 2006 (Statistics on Income and Living Conditions);

Field: population in employment, aged 18+

About: going to the cinema; attending a local event; attending a match, race; going to a concert; going to the theatre; attending another type of entertainment; visiting a museum; visiting a monument or historical site; visiting a natural site.

The results: the full and simplified ESeC versions yield relatively similar results. The supervision dimension does not seem relevant for analysing cultural participation

- Application to occupational mobility: Social mobility survey; field: population in employment in 1998 and in 2003

The results: The ESeC prototype yields results that are fairly consistent with what we know of recent occupational mobility in France; The very high mobility of men classified in ESeC 6 (supervisors) is a limitation. The instability of this group at an individual level makes it difficult to analyse long-term phenomena (e.g. health, property...)

- Assessing the clarity of a classification:

How easy is it to classify oneself in the prototype ESeC? Do the respondents know how to classify their occupation in ESeC?

Specific data source: self-identification survey, 2007 (4,000 persons interviewed); Field: persons aged 18+ currently in employment, or employed in the past

Objective: to assess people's ability to position their current or last occupation

- in the prototype ESeC (two versions)

- in the French classification (PCS)

There were two ways of presenting the draft ESeC (the self-classification test used both versions):

- one for researchers with long headings (version A)

- a simplified version for the general public (version B)

Half the sample answered each version

Do respondents understand the ESeC prototype? Specific survey: 600 respondents; Field: population aged 17 to 65;



a three-step survey:

- 1) Classification of thirty-three "profile cards"*
- 2) Test on the understanding of ESeC*
- 3) Individual questionnaire*

The results:

Respondents make significant use of the criterion of the number of persons supervised, although less extensively than the field of activity, education and status of employment.

The supervision criterion is used more often by managers/professionals and highly educated respondents.

Like "intermediate occupations" in the French national classification, some ESeC classes are not self-evident, like the difference between lower and higher-grade white collar workers (3/7) and the difference between lower-grade employees and higher grade white collar workers (2/7)

The main conclusions of this report:

- ESeC was criticised in the academic field because it was presented with a theoretical framework of "employment relations"*
 - Empirically, it is not bad and not very different from other classifications*
 - However, ESeC is based on ISCO 88 and has a definition of supervisors that is not fully consistent with that in ISCO 08. ESeC therefore needs to be updated.*
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Focus 2: ESSnet contract schedule

The work to be performed was divided into the following main work packages (WP):

- WP0 covered the management work of the ESSnet.
- WP1 was dedicated to elaborating a methodology and accessing microdata.
- WP2 to assessing the necessary variables and specifically ISCO 2008 (led by Italy).
- Within WP3, the consortium elaborated several prototype classifications providing different options, essentially from known elements on employment and occupation.
- WP4 dealt with testing the different prototypes (with the possibility of coming back to the elaboration stage) in order to determine which prototype is the best (i.e. which one discriminates behaviour in a wide set of domains such as demography, cultural activities, consumption, health or social mobility...) (led by Czech Republic).
- WP5 was dedicated to the organisation of networks and to the completion of reports and studies in order to explain and codify the new classification.

Project schedule

		2011	2012				2013				2014	
		Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
WP0	Management											
WP1	Exploration											
WP2a	Evaluation											
WP2b	ISCO2008											
WP3	Prototypes											
WP4	Tests											
WP5a	Network											
WP5b	Dissemination											
	Meetings	x	x			x			x		x	

Meetings:

Five meetings of the 4 European partners were organised during the time of the ESSnet: in Paris (14-15 November 2011), Budapest (20-21 February 2012), Rome (17-18 December 2012), Prague (19-20 September 2013) and Paris (27-28 of January 2014).

The first meeting (Paris) was to launch the project and organise the schedule;

The second (Budapest) was to discuss about the organisation and come to a conclusion on the 1st methodology (WP1 and WP5).

During the third meeting (in Rome) we advanced on assessing the main variables (WP2) and agreed on 3 prototypes (WP3).

Later in Prague, we discussed the more detailed level, presented the first tests, specified a methodology for testing the prototypes (WP4) and excluded the 3rd prototype (WP3).

The last meeting was held in Paris. After tests and discussions, we chose the ESeG classification and planned the outputs (WP5).

(See Minutes of the meetings and The intermediary report in annexes)



– I. 2 Bases of the new contract with Eurostat

The basic rationale of a socio-economic classification is that social identity is built in the workplace. Occupation is decisive for social positioning. Income, lifestyle, and consumption patterns go hand in hand with occupation. Therefore, a good classification should have a high explanatory power when applied to household behaviour.

The main conclusions of the report mentioned in Focus 1 showed that:

- While ESeC was criticised by academics because it was presented with a theoretical framework of “employment relations”, empirically it is not bad and not very different from other classifications.

- Nevertheless, ESeC was based on ISCO-88 and has a definition of supervisors that is not fully consistent with that in ISCO-08.

- We know that ISCO arranges occupations by task content and skill level, from manual unskilled workers to professionals requiring higher-education degrees. ESeC adds three dimensions: status of employment, supervising (for employees) and firm size (for the self-employed).

Status of employment is essential to define social groups and other dimensions could be added

The idea was to develop a new classification,

- Taking account of the previous experience of ESeC

- Starting from ISCO-08 and adding some dimensions which are relevant for defining social groups.

It was suggested:

- to change the name of the future classification to distinguish it from the former project and to call it ESeG (European Socio-economic Groups and not Classification like in ESeC)

- to build ESeG from the second aggregation level of ISCO08, by combining sub-major groups and with some other core variables of the European Surveys (Status in employment and possibly some others)

ESeG could comprise a more detailed level (available in LFS, SILC) offering greater flexibility for rearrangements than the first, to reconcile different researcher points of view and possibly, considering the heterogeneity of level 1, to take account of particular contexts required by national studies or for specific social fields.



– **I. 3 The ESSnet and the steps of the project**

The grant agreement was signed on 21 October 2011 between Eurostat and the NSIs from France, the Czech Republic, Italy and Hungary. It was for two years and was extended until April 2014 to allow access to the first data of the Labour Force Survey (LFS_2011) coded with ISCO-08. The ESSnet was coordinated by INSEE.

Taking the previous work as a starting point (i.e. the ESeC prototype and its evaluation), the project was to base the classification on information from existing data and allowing its use in the largest possible number of surveys. The elaboration of ESeG therefore used ISCO-08 (1 or 2-digit version) and the core variables from European surveys (status of employment and activity).

In addition to this, the grant agreement stated that elaborating a more detailed 2-digit version should be envisaged using other variables (such as supervision, or the size of the enterprise or ISCO 3 digit) in order to reconcile different options deriving from the more aggregated level, according to the potential groupings.

An evaluation was to be conducted to assess the variables from which the future classification is derived.

The main steps of the work were (see details of the contract in focus 2):

- A short period of time to elaborate a methodology, organise collaboration with researchers and obtain access to the microdata.

- A first questionnaire was sent to all the NSIs to identify the national socio-economic classifications used in Europe.

- After understanding the different logic applied in national classifications more precisely and following discussions with researchers, we proposed 3 prototypes providing different options, from known elements on employment and occupation.

Some proposals were then made to elaborate a more detailed level with other variables present in the LFS (size of the enterprise, ISCO-08 at 3-digit level, supervision variable).

- In parallel, a second questionnaire was sent to the NSIs to know how profession and activity are coded in the main data used by the consortium to build and test the prototypes and to improve comparability of occupational data, in particular adapting the classification to the revised Occupational Classification ISCO-08.

- Studies were performed by statisticians and researchers to test the prototypes in different social fields and based on different data, in order to determine which prototype is the best, ie: which one discriminates behaviour in a wide range of domains.

- Finally, the ESeG classification was chosen during the last meeting (January 2014) (see the minutes of this meeting and below, point VI). The work of dissemination and explanation was the following. We suggested to the NSIs (DSS) and to a large panel of researchers that they should test ESeG on the data they generally use (in a social field, in one or several countries or in all Europe), and to send us short studies to get a quick insight into some of the advantages and limits of ESeG and see how it can be used. Those short studies will be gathered and available in summer 2014 (and on cross-portal)

- The last steps are to present and explain ESeG to Eurostat, hoping that it will be used widely and regularly in the European social statistics (see conclusion of this report).



II. The context in Europe:

– II.1 The national socio-economic classifications

Questionnaires on the existence of socio-economic classifications were sent by INSEE to all Member States in November 2011. All the MS answered before the end of January 2012.

The aim of this survey was to get a quick idea of the European context regarding national socio-economic classifications.

The questionnaire was sent to the 27 NSIs and to the other ISCO Workshop contributors (CH, NO, HR, IS, TR). Answers were received from the 27 NSIs and CH, NO, HR.

A first version of this short questionnaire was discussed during the first ESSnet meeting and presented at the ISCO workshop at Eurostat. The final questionnaire was short (3 pages, see minutes of the 1st meeting and results in annexes). The questions were grouped as follows:

Q.1. Is there a socio-economic classification used in your NSI?

If not, do you intend to set up a classification?

Q.2- 8. If yes, questions on the description of the classification (and links to ISCO)

Q.9-12. questions about the uses of this classification

Q.13-15. Other useful information about past and further classifications

Among the 27 NSIs:

12 provided detailed answers about their national socio-economic classification:

(AT, DK, EE, ES, FI, FR, HU, IE, NL, PT, SE, UK, and also CH)

12 explained that they did not use any socio-economic classification from which

3 (CY, EL, MT and also HR that were not else in EU) only used ISCO.

3 (CZ, MT, PL) had no classification but intend to build one.

Some NSIs are waiting for the ESeG to build their own classification, or are simply following our work with interest (and wish to be kept informed of it): BE, CZ, MT, PL, RO, SK (+NO)

The answers were consistent with those in the report by Bernard Grais written in April 1999 (the survey was sent at the end of 1998). B. Grais received 12 answers from EU +1 (NO), of which 9 described at least one classification (AT, DK, ES, FI, FR, IE, NL, SE, UK +NO) and 3 said they did not use any classification (DE, IT, LU).

→ The first clear message was that many countries are interested in the work of the ESSnet.

The most frequent criteria given to distribute individuals in the described classification were (Question 6):

Status of employment (self-employed/employee) (11 countries in EU+1),

occupation/profession (8+1), and

skill/qualification (7+1)

The following were mentioned more rarely: employment relationships, power/authority, level of education, economic activity/industry, number of employees if self-employed, size of the enterprise, income or public transfers. Most of these are among the variables the ESSnet consider suitable to build the more detailed level of the classification.

→ This second result strengthened the idea of building a classification based on ISCO 08 (that also takes account of qualifications) and status in employment (both are core variables) and our intention to use other variables to build a more detailed level of the classification.

Many countries isolate the following at the first level of their classification (question 7):

self-employed farmers (6 countries); self-employed other than farmers (5 countries);

professionals (like ISCO major group 2) (4); managers/team leaders (5 countries); blue collar

workers (7 countries); white-collar workers (7 countries); unskilled workers (6 countries).

Supervisors, when there are any, are only isolated at the second level (3 countries).



→The third result, however, was that the splits between classes are not always the same (although they often are) and that supervision is never used in the first level of national classifications.

Further questions showed that national classifications are often used in some fields of social studies like (by order): employment and working conditions, demography, income and living conditions, wealth, education, social mobility, health, cultural participation etc...In most cases, researchers in social or economic fields, marketing institute polls and media use the classification.

Some NSIs built their classification with the help of other institutions or universities.

→ Most of the classifications were not built only for use by the NSIs but also for researchers, marketing surveys, trade unions....

(see table of the answers in annexes)



– II.2 Expertise of the basic variables

A report was drafted by Italy (see technical report about the quality of the basic variables from Francesca Gallo, "WP2_FGallo_Report_Isco_nace_quality_eng" in annexes) to document the quality of the main variables potentially involved in the ESeG prototype, with a particular emphasis on the quality of ISCO2008. As cited in the grant agreement, the aim was to 'test the quality and the strength of the core variables which will be the basis of the Socio-economic classification'. To reach this objective, a specific Work Package was scheduled as part of the action (WP2).

Among the 3 main variables involved in the ESeG classification, the report devotes attention to Occupation and to the Economic sector in employment for different reasons. On the one hand, because data collection and dissemination on occupations and economic activity generally go through the use of International classifications, hence we need a supplementary set of metadata in order to evaluate data quality. On the other hand, because both the Nace and the Isco classifications have gone under an updating process and this may have caused some inconsistencies on the time series that is worthwhile documenting.

Starting from the general framework proposed by Eurostat to evaluate data quality the report puts emphasis on 3 out of the 7 quality dimensions such as accuracy, coherence and comparability.

As far as accuracy is concerned the report aims at giving a panorama on some possible sources of measurement errors, which can eventually contribute to a lack of accuracy on the estimates.

The report presents the main results stemming from a consultation of the NSIs regarding their data collection and processing practices, on the way in which coding is performed and on the way in which the national classification is converted into the international one.

As a general recommendation for an accurate coding of occupation it is important not to limit the data collection only to the job title (as 15% of the countries do) but to use additional information, such as the main tasks or duties performed, type of economic activity of the establishment, whether or not the main aim of the activity is own consumption, the complexity of the tasks performed and leadership/supervisory functions.

Another consideration regards when the coding activity is performed. Most of the countries do the coding after the interview process and this means we miss the opportunity, if needed, to get further details directly from the respondent. It would be preferable to involve the respondent in choosing the code.

The coding activity is usually performed by interviews/experts that have been trained on the general principles of the classifications.

Training is essential to obtain high quality data as well as to equip the interviewers with the best skills to capture the relevant information and to orientate themselves in the classification.

The report gives some suggestions on the several aspects a training course should focus on, such as the cognitive purpose of the questions (what we mean for 'occupation' or 'economic activity'), what we need to capture to code properly, the classification framework, the criteria to order occupations or economic activities and to distinguish them, how to merge all the information and choose the correct code.

In order to guarantee that different users of the classification give the same interpretation of the different codes, training is crucial but it might not be enough.

It is important to get a feedback on the training effectiveness to be aware whether the messages arrived correctly and whether all the people involved in the coding process use the classification in the same way.

Hence, monitoring the interviewers' activities, evaluating their performance and eventually reinforce the main messages is the natural corollary to the training activity.

The report goes through some national experiences and presents the results of the monitoring carried out to evaluate the interviewers performance and to give an estimate of the share of correct coding.



Some national experiences show the benefits that may result from a continuous exchange with the interviewers, not only to improve their performances but also to improve the classification and the survey tools. To pursue this aim it is relevant to set up a feedback system to collect, examine, select and introduce the suggestions coming from the field into the 'tools', i.e. the questionnaire, the classification dictionary, etc. The exchange with the coders is mutual and allows to incorporate new job titles, to improve the descriptions of the taxonomy and to understand the more troublesome areas of a classification.

Another action to implement in order to improve data quality is the development of rules on inconsistencies between variables. Once introduced into the CAPI/CATI software, the rules might warn the interviewer of the quality of the answers given by the respondents and possibly prevent some errors. The report suggests two types of rules developed for the 'occupation' variable:

- hard rules that require corrections by the interviewer; in other words the interview does not proceed if the inconsistency is not resolved by the interviewer modifying a previous code;
- soft rules that do not require any intervention by the interviewer but suggest a further reflection on the answers chosen.

Regarding the time comparability, we have to remind that from the first quarter of 2011 the new Isco08 was introduced. Even though the first hierarchical level of Isco88 and Isco08 classifications maintains the same number and name, the groups they are made up have sometimes changed.

The report gives some elements to assess the impact of the new Isco08 on data distribution presenting the results of some NSIs studies which have alternatively double-coded the same occupation according to Isco88 and Isco08 or have selected the longitudinal LFS sample of individuals who did not change jobs between 2010 and 2011 and afterwards have compared the different codes and distributions. These results might help to highlight the main flows of employees among Major Groups of ISCO-88 and ISCO-08.

As far as the coherence dimension is concerned the report presents the results of a national experience that has taken under consideration the estimates produced by three different statistical processes, such as the labour force survey, the Structure of Earnings Survey and the Adult education survey, and has analyzed how they convey a consistent message.



III. Way of working: sources, methodologies, partnerships, consultations

– III.1 Data used; Conversion table

The ESSnet (and partners) obtained access to microdata (for almost every European country) from the main European surveys for the 6 most recent years (2004 to 2011): contracts were signed with Eurostat for the Labour Force Survey (LFS), the European Union Statistics on Income and Living Conditions (EU-SILC), the Adult Education Survey (AES 2007), with ad hoc modules of these surveys (WP1).

The European Working Conditions Survey (EWCS) from The Dublin European Foundation for the improvement of living and working conditions was also used from the beginning of the project and, more occasionally, the European Social Survey (ESS) from the European Science Foundation, the Structural Earning Survey (from Eurostat) and other national surveys. The whole AES 2011 (with ISCO 2008) will be available too late.

These sets of data were used:

- to elaborate several prototype classifications exploring different options (see “WP3_Proposals-Présentation_Dec2013_eng” in technical annexes and point IV below)
- to test the discriminating power of such prototypes in a wide set of thematic domains
- to evaluate coding of the main variables for studying European societies.

For many surveys which were available during the work, occupation was still coded using ISCO-88; a conversion table from ISCO-88 to ISCO-08, based on the ILO conversion table, was used, however, to work with the new classification. That was necessary because microdata in the new classification were available late (2011 data). Commented SAS programs and Excel tables were provided and put on the ESSnet sites to provide inspiration for users.

The conversion table was also a good tool to introduce ISCO08 into the older LFS data (before 2011) and provide an opportunity to make some comparisons in time. This tool used to transform LFS data-sets with a reference period before 2011 and data coded in ISCO-08, made it possible to examine the homogeneity of ISCO-08 over time (WP2). On LFS microdata, this conversion table used supplementary variables as follows: ISCO-88 3 digits, supervisory activity, highest level of education (as a proxy for qualification), size and economic activity of the firm employing the person, status of employment.

Otherwise, the conversion table from ISCO-88 to ISCO-08 must involve some major group changes (upgrades or downgrades) which cannot be implemented due to the lack of certain items of information (especially about qualification). Finally, the quality of the codes produced with the conversion table was not quite perfect. This tool was very useful, however, for evaluations (WP2), tests and studies (WP3 and beginning of WP4).

More recent data from LFS2011 and SILC were available in ISCO-08, but only after the end of 2012. Thanks to Eurostat, an amendment extended the duration of the grant agreement (initially signed for two years) for 6 months (until April 2014). We therefore had time to work with European surveys coded directly in ISCO-08 and we could use more precise codes (like ISCO-08 3 digit, in LFS2011).

– III.2 Methodology for the definition of the prototypes

In the preliminary step, we discussed the methods to build the prototypes. Several methods were proposed (WP1, see minutes of 1st and 2nd meetings).

Based on the first results of the questionnaire sent to the 27 NSIs, we knew that the most important variables were occupation (ISCO), qualification (included in ISCO) and status of employment. Answers to our questionnaire clearly indicated that the key variables were ISCO and status in employment.

We also knew that national classifications often isolate farmers, self-employed people, white and blue-collar workers, unskilled and skilled workers. It was important to consider these



problems from the beginning of the process when we started building prototypes, rather than at the end.

A top-down approach also seemed to be the right solution with two core variables (ISCO and status of employment) to build the first level of the classification: we start from the two core variables to build prototypes *a priori*, according to the debates conducted before the ESSnet. In this approach, we could propose some prototypes (Level I) which summarise the main issues for discussion. All participants of the ESSnet endorsed this choice.

Criteria used in the field of employment to assess the relevance of prototypes were as follows: status in employment, qualification, level of education, stability of employment (type of contracts), part time, position on the salary scale (only for the employees), supervision and some stability of work over time (turnover).

In the course of the work, we became increasingly of the opinion that we must produce a more detailed level (level 2), possibly using other variables (NACE activity, ISCO 3 digit, size of firm, supervision).

III.3 Methodology for testing the prototypes

Three prototypes for the European Socio-economic Classification were proposed (see below, point IV). The aim then was to test them. This consisted in comparing the amount of information which is provided or lost by using one prototype rather than another. These tests had to be conducted at national and European level.

The main aim was to find out:

- which prototype is the most discriminating (aggregated level), in terms of variables from different social fields
- what are the best criteria to build the detailed level (and the criteria can be different in each aggregated group).

The standard testing methods were various kinds of variance analysis, to be divided in principle into infra- and inter-variance referring to the ESeG prototype. The best prototype should have the biggest variance between different ESeG groups and the smallest variance inside an individual group. Analyses were either bivariate or a Multiple Correspondence Analysis (MCA) to study the links between the indicators.

A methodology proposal was developed in France for testing the prototypes. The first step of the suggested methodology consisted in crossing variables of interest with each prototype and in analysing the link with appropriate indicators (like Cramér's V, R²).

To analyse more variables together, the second step consisted in a factorial analysis. Prototypes were entered in the analysis as supplementary variables. Finally a classification could be computed and compare with each prototype. The main part of this methodology was sent (program in SAS) to the partners.

(see also 5.1)



– **III.4 Importance of collaboration and consultation**

The grant agreement specified that the emphasis should be placed on very broad consultation, with the 27 NSIs of the European Union (in 2011) on the one hand and with researchers, experts and potential users of the classification on the other, throughout the duration of the project.

a) Italy, the Czech Republic and France explicitly planned to **work with research laboratories** which were subcontractors or associated to the project (see focus 3).

In France:

A network of researchers and statisticians was created and meetings were held every 6 months (8 February 2012, 23 May 2012, 12 December 2012, 5 June 2013 and 8 January 2014). About 15 people attended and discussed methods and projects. It was very interesting and helpful (see in annexes: the minutes of those meetings are available in French).

Three subcontracting agreements were signed with research centres.

In the Czech Republic:

The INS (CZSO) worked with Jiří Šafr, a sociologist, and signed a subcontracting agreement with his institute, (Prague Institute of Sociology)

In Italy:

A sociologist, Antonio Schizzerotto from the University of Trento, followed the work and participated in the Paris international workshop (see below) where he gave his advice.

b) The international researcher workshop:

A workshop with European researchers was organised in Paris on 19 June 2012 (see focus 3 and minutes in annexes).

This workshop brought together some twenty European researchers. The aim was to explain the work of the ESSnet, present the first studies and discuss the main questions, how to choose the prototypes, how to test them.

This workshop was an important step in the work, while other bilateral partnerships were also useful for consultation. It proved possible to extend some of the collaboration work. The meeting helped us to make progress in our thinking. It also allowed us to reach a consensus on the overall structure of the first level of the classification.

To prepare this workshop, we used the available data (mainly LFS) and the conversion table and built some initial prototypes (see the minutes).

The participants gave us good ideas and useful ways of working:

There was a consensus to assign 3 groups and to choose no more than 3 prototypes to test. The workshop agreed on the principle of building a more detailed level to allow other groupings for different needs (see the minutes of this meeting in annexes).

c) Consultations of NSIs and other users

After the first consultation of the NSIs to know the current national classifications in use (already mentioned), presentations of the work and prototypes were given whenever possible. The most important documents were placed online on the cross-portal.

The ESSnet consortium took parts in several Eurostat meetings to discuss the conclusions at each step and explain the work of the ESSnet:

European ISCO workshop (November 2011) to present the first questionnaires

Classifications working group (November 2012) to present the prototypes

Classifications working group (November 2013) to present the tests

ESSnet workshops (November 2011, December 2012 and January 2014)

Meetings of the Social Statistical Directors (every 6 months)

Working Groups about Income and Living Conditions and LABour MARKET Statistics (June 2014)

Other presentations and discussions were organised with researchers and statisticians:

Workshop of the "Eureka" international group (Nantes, 30-31 May 2013)

INSEE Seminar (Paris, 18 October 2013)

A **presentation to the European Statistical Advisory Committee (ESAC)** took place in Brussels (25 October 2013) and also to the **CNIS** (the french Statistical Advisory Committee) in Paris (10 April 2014).



Focus 3: Subcontracting and the international researcher workshop

Four subcontracting agreements were signed and performed for the project (three in France and one in Czech Republic):

(the results of these studies are more detailed in the annexes)

- With Alexis SPIRE, Director of the CERAPS research centre, CNRS-University of LILLE 2 and Etienne PENISSAT who worked on the preceding tender from Eurostat on this subject:

Testing the relevance of the difference between “public/private” (or a concept close to it) in a European socio-economic classification.

The relevance of a distinction between public and private sectors is to be tested, because it can explain some differences in working and living conditions and in the behaviour of employees. This distinction is identified as very important in some countries, but the debate remains open for European society as a whole. Currently, such a criterion may not be directly available in European data. Even if this criteria does not exist in the variables used to build the prototype, some tests may be performed by indirect methods. In particular, it would be interesting to explore the possibility of using a proxy such as, for instance, an aggregation of activities of general interest (like administration, education, health...).

They first performed a review of international literature on the subject and an analysis of quantitative studies in different European countries was necessary. What are the differences in working and living conditions? How does it make social contexts different?

In a second step, and based on the conclusions of the first one, we performed statistical investigations on European data that INSEE receives from Eurostat, crossing them with the prototypes.

- With Michel Gollac Director of the Quantitative Sociology Laboratory at the CREST-GENES:

This laboratory is renowned for its quantitative methods used in sociology. They are very familiar with French and European data, often collaborate with statisticians from INSEE to build and study French surveys and are involved in many international networks (and European networks like Equalsoc)

They assessed the suitability of our prototypes to the reality of European societies, as soon as these prototypes are available. The tests covered different fields:

The links between training and employment, social origin and education and if possible, social and professional mobility

Other fields were considered, like homogamy (to see proximities between groups) and access to housing (by researchers who already work on these themes, with international preoccupations)

These studies were based on LFS and SILC through the multi-beneficiary agreement of the ESSnet with Eurostat.

- With the team of Frédéric Lebaron, Director at the Center of Research on Public And Political Action - epistemology and social sciences at the University of Picardie-Jules Verne and CNRS, Amiens

They tested prototypes proposed by the ESSnet EseG consortium to compare their relevance on some questions about living conditions and produced a study about a European space of living conditions and relationships with the classifications.

Essentially with data from EU-SILC, they tested some questions about: status in employment, income, savings, housing characteristics, health in order to try and distinguish some forms of social integration, stability or vulnerability, and concrete living conditions.

Is it possible to interpret this space through one or another new prototype?

The team accessed Eurostat microdata and used the multivariate analysis method.



- The subcontracting agreement between CZSO and the Institute of Sociology was signed on 15/12/2012. Jiří Šafr worked on it.

The contract is divided into two stages: the first (2012) was dedicated to a comparative analysis of European social survey microdata, the quality of source variables and the steps to create the ESeG prototypes which should be evaluated; the second stage (2013) focused on testing the prototypes that should be brought in the data sources, and on specific variables which are not included in the current statistical sources (e.g. culture), to recode the in-house databases to the ESeG prototypes and calculate basic characteristics; it should also collaborate on the assessment on the prototypes' viability within various fields, as regards sociological utilization.

An International workshop was held in Paris on 19 June 2012.

Thanks to Michel Gollac and Louis-André Vallet, we contacted European specialists working on social fields in different countries and from different schools of thought, including from the earlier ESEC.

The meeting gathered 20 participants from 10 different countries (sociologists, statisticians...)

Robert Erikson (SOFI, Stockholm University, Se)

Harry Ganzeboom (VU, University of Amsterdam, NL)

Eric Harrison (City University of London, UK)

Dominique Joye (Institut Sciences Sociales, Lausanne University, Ch)

Thomas Maloutas (EKKE, Harokopio Athens University, Gr)

Jiří Šafr (Institute of Sociology, Prague, Cs)

Antonio Schizzerotto (University of Trento, It)

Michael Tåhlin (SOFI, Stockholm University, Se)

Kea Tijdens (University of Amsterdam, NL)

Ana Franco (Eurostat), Francesca Gallo (ISTAT, It)

Thomas Amossé (CEE, Fr), Dorothee Ast (DARES, Fr), Frédéric Lebaron (CURAPP-ESS,

Amiens, Fr), Etienne Pénissat (CERAPS, Lille, Fr), Michel Gollac, Louis-André Vallet (CREST-LSQ, Fr),

Michel Amar, Anne-Claire Laurent-Zuani and Monique Meron (Insee, Fr.)

(See minutes of this meeting in annexes)



– III.5 Work, debates and discussions

What criteria should be used to justify the categories? What are the differences between the groups? The classification has to reconcile the different theories and approaches by combining some dimensions.

To study the homogeneity of a group and then split it into a detailed level, more precise information is required than the first variables used - that is to say ISCO 1 or 2 digit and status of employment - like ISCO 3 digit, size of firm for managers and self-employed people, supervision....

The studies conducted to build the prototypes (see “WP3_Proposals-Présentation_Dec2013_eng.doc” in technical annexes) try to take account of the employment relationship, qualification of occupation, working conditions. For each approach, some variables available in European surveys were proposed (mainly in LFS, but also EWCS, SES, ESS, SILC, AES like already describes in III.1). For each variable, one question is whether it is a characteristic of the job or an individual characteristic? (For example, should we consider the average level of education in the category or the level expected to work in the job?). “...it is essential that ESeG is a classification of positions, not of individuals, that is, the individuals should be classified according which position they occupy, not according to their personal characteristics..” Robert Erikson said. But the right variables are sometimes not available. A special note was done to compare the both variables(level in education of the persons who are in an occupation and level expected for this occupation) in The European social Survey (ESS) (see “WP3_MAmarFGleizes_NoteESS_eng.doc” in technical annexes).

Regarding the **employment relationship**, we can consider employment quality, stability, and supervision. More precisely, we can take account of the proportion of stable jobs, but the question remains of what is attached to the job or to the individual? People often begin with limited-term employment contracts then continue on an open-ended contract. The time spent at work is also important (this characteristic is individual but the average says something about management in the category), as is the importance of part-time and very short part time work (and if the employee wants to work more). About supervision, previous studies show that this variable is not perfect, especially in the LFS. In EWCS and ESS, the questions about supervision are more complete but the samples are smaller.

For **qualification**, there is the information carried by ISCO, first of all, where qualification is one of the criteria. The diploma of the person as a variable is often criticised. A study was performed, combining LFS and ESS (where the question “how many years of education are necessary to hold a position?” is asked). It showed that the differences in the information provided by these variables are not so great at the level we need for ESeG. Even if it would be better to have the variable linked to the job, the big problem is that this information is not available in the main European data where ESeG must be used.

Concerning **working conditions** and, more precisely, **autonomy in the job**, EWCS is the best data. The questions are many but the synthesis is not very easy. Wages can also be interesting.

Those indicators were produced for each item of ISCO (crossed with Status of employment) and for each prototype. Then, the questions were explored more completely in order to specify the detailed level better.

The **public/private divide** is still an important dimension of social stratification in Europe. But there is no variable that directly gives this dimension. It is only possible to approach it by Economic activities (grouping administration, education and health sector) (see focus 4 and studies from Cédric Huguère, Etienne Pénissat and Alexis Spire in complement and annexes).



Some results of discussions to build the prototypes that are described later (in IV):

It is necessary to isolate farmers (employers in agriculture, forestry and fishery), but their weight is very different depending on the country (less than 1% in the UK, more than 20% in Romania). It is easy to isolate this category at the more detailed level among the Self-employed. To identify this category at the first level can be considered a variation of the prototypes.

It is necessary to be able to distinguish blue-collar workers from white-collar workers. As there will be a group of less skilled people in each prototype, we can split it at the detailed level and that can also be a variation of the proposed prototypes.

Characterising the Intermediate group is rather difficult. In ESeC, there are 2 groups: ESEC 3 and ESEC 6. Using ISCO¹, partly built with qualifications and supervision, it could be possible to build only one group (ISCO=3 and Status of employment= employee) that could be split in some populations at the most detailed level. This segmentation could be carried out by a sector-based approach (ISCO=31 for industry and construction, ISCO=32 for care services, ISCO=33, 34, 35 for other services) or, finally, using supervision (ISCO=312 or with the supervision variable but this idea was dropped). Another possibility could be to define a larger perimeter for that category in another prototype, gathering together ISCO=3 and a part (to be defined) of ISCO=4 (clerical workers).

Where should the frontier be between the less skilled workers and the two groups of skilled people (industrial skilled workers and skilled service workers), what are the perimeters of these three groups?

It seemed that there was a consensus to consider (ISCO=7 and status of employment=employee) like skilled workers but it was not the same for ISCO=8. In ESeC, even most of occupations of ISCO=8 are considered as "routine jobs".

It seemed that there was a consensus to group together all the employed administrative staff (ISCO=4) with the skilled employed. But in ISCO=5, the first analysis showed that ISCO=51 (personal service workers) and ISCO=52 (sales workers) could be close to the less skilled occupations. There could be one prototype where the less skilled group would only include the elementary professions (ISCO = 9) and prototypes where other professions (like ISCO= 83, 51, and may be 52) could be included.

Focus 4: Measure of the belonging to the public sector in Europe

The distinction between public and private sector employees is a significant cleavage line in Europe. However, the concept of wage earner in the public sector is not easy to measure. Should we take into account the employee's status (for example: "fonctionnaire" is a special status in France) ? This criterion is complex to use because the status change significantly across countries. Must we take into account the nature of the employer? This criterion seems easier to use and less ambiguous. However, it may contain gray areas : a public institution may hire employees on private jobs and, conversely, a private firm may hire people on public funds. The public companies, though less numerous, are part of this gray area. As Audier and Bacache-Beauvallet (2007) remarked: "The complexity that one faces is aggravated by the fact that it should identify different types of public employment: jobs financed by public funds provided by the state, jobs funded by public funds but provided by private entities (this is often the case in health and education), employees of public enterprises and private employees but enjoying special protection (eg subcontractors of State). This is made even more complex due to the existence of different levels of public decision-making: local and national regional bodies may or may not be included in the total public sector employment".

Some European surveys measured the belonging to the public sector by identifying the

¹ ISCO is described in paragraph VI.3 of this report



nature of the employer. This is the case of the European Working Conditions Surveys (EWCS), funded by the Dublin Foundation.

Questionnaire 2010 (last edition)

Are you working in the ...? (Q10)

- 1 – private sector
- 2 – public sector
- 3 – joint private-public organisation or company
- 4 – not-for-profit sector, NGO
- 5 – other
- 8 – Don't know /no opinion (spontaneous)
- 9 – Refusal (spontaneous)

This is also the case of the European Social Survey (ESS). ESS is an academically driven cross-national survey that has been conducted every two years across Europe since 2001. It is partly funded by the European Commission.

Questionnaire 2012 (last edition)

Which of the types of organisation on this card do/did you work for?(CARD 55) (QF32)

- 1-Central or local government
- 2- Other public sector (such as education and health)
- 3- A state-owned enterprise
- 4-A private firm
- 5-Self-employed
- 6-Other
- 8-Don't know

Unfortunately, the distinction between public and private sector is missing from the Core variables of European surveys. This lack makes almost impossible any comparison between private sector and public sector at European level. This cleavage can be approached by using the Statistical Classification of Economic Activities in the European Community (NACE, 2008 edition): it covers all wage earners in the general government and defence (O), education (P), healthcare and social work sectors (Q). We consider that "public sector" refers to all workers whose job fulfils "public interest functions". This definition is thus based on the assumption that States and governments contribute to a differentiation of social positions, either directly (as an employer) or indirectly (as an originator or as a regulator of public interest functions such as education or healthcare). Indeed the State remains important: it intervenes directly in the recruitment and selection of certain types of profile. This is the case of magistrates, police officers and tax officers. But the State may also delegate certain functions to agencies or non-profit organizations, whilst continuing to regulate and keep responsibility for them, as is often the case in the healthcare field. This measure of "public sector" is extensive because it includes employers who may be from the private sector. However, it is important that the activity (NACE) is present among Core variables because it is the only way to measure the public / private distinction.

(see the studies from Cédric Hugree, Etienne Pénissat and Alexis Spire in complements and in annexes)



IV. The prototypes of the socio-economic classification

The prototypes were decided after discussions and consultations. After consultation of European researchers in June 2012, the ESSnet decided to keep just 3 prototypes.

Then a 2nd level (detailed level) was provided with other variables (size of firm, supervision, activity...) in order to reconcile different options deriving from the most aggregated level, according to the potential groupings (see more details in "The ESSnet project: proposals for a classification...= WP3_Proposals-Presentation_Dec2013_eng.doc", Technical document in annexes).

– IV.1 Three prototypes for the aggregated level

To establish a social stratification in Europe, theories can differ. However, there is some convergence on the result: there was consensus regarding the perimeter of three groups: *Managers, Professionals, and Self-employed*.

Once these three categories were defined, it seemed obvious that there must be a class for those persons having less skilled occupations, the perimeter of which had to be defined, and that there must be a class for skilled blue-collar and another one for skilled white-collar workers.

Here are the 3 proposals (aggregated level):

	Status of employment	Prototype 1 ISCO08=	Prototype 2 ISCO08=	Prototype 3 ISCO08=
managers	All	1,01	1,01	1,01
professionals	All	2	2	2
self-employed	Self-employed	3,4,5,6,7,8,9	3,4,5,6,7,8,9	3,4,5,6,7,8,9
intermediate group	Employees	3,02	3,02	3,02,41,43, (54&Nace=0)
skilled clerks	Employees	4,5,03	4,53,54,03	42,44,53, (54&Nace ne 0),03
skilled blue-collars	Employees	6,7,8	7,8	7
less skilled workers	Employees	9	9,51,52,6	9,51,52,6,8

% in Europe employment	prototype 1	prototype 2	prototype 3
managers	6	6	6
professionals	18	18	18
self-employed	12	12	12
intermediate group	14	14	20
skilled clerks	24	15	8
skilled blue-collars	17	17	10
less skilled workers	9	19	25

Source: LFS2011

Prototype 1 was directly derived from the structure of ISCO-08, but the level of skills in the group of the Elementary occupations (ISCO 9) is very low for European countries, which leads to a rather small proportion of less skilled workers among the labour force. Prototype 2 tried to correct that. Prototype 3 was elaborated to be close to the ESeC.

– IV.2 The possibilities for a detailed level inside each group in prototypes

The more detailed level must be defined so that different classification approaches may be reconciled. Proposals were made for each group of the aggregated level.



Among *Managers*, the self-employed differ from employees regarding firm size, activity and level of education. Self-employed managers are therefore isolated in the detailed level of the classification.

The proposed segmentation criteria were status of employment, firm size (only for the self-employed managers), professional field (occupation). Splitting the self-employed depending on firm size was favoured in discussions, but it is not a “core variable”; another proposal was to isolate the group (ISCO=14, all status of employment) because this sub-group is very different from the others.

For *Professionals*, the proposed segmentation criteria were the following: Status of employment, ISCO because the professional identity here is essential. To distinguish primary school teachers from University professors, or medical doctors from the nursing and midwifery professionals, ISCO-3 digit has to be used. But using ISCO-3 digit is not available in the main European surveys. So a proposal based on this criterion must be imbricated into a more synthetic proposition. Another proposal was to distinguish between sectors (non-profit/market sectors, similar to the distinction between public and private sectors).

Characterised by their status of employment, the *Self-employed* come from all ISCO groups (except ISCO 1 and 2). They mostly manage a small business. It is important to distinguish the farmers. There are also craftsmen and tradesmen. Discussions were held to decide whether it is interesting to distinguish the family helpers, but they are often associated with coding difficulties and are different depending on the survey.

The *Intermediate group* is different depending on the prototype. Policemen and non-commissioned officers form a coherent whole. For the rest, occupation (ISCO2-digit) determines fairly homogeneous groups.

The group of *Skilled clerks* is different depending on the prototype. The proposed segmentation criteria are ISCO-2 digit (even though we also studied the distinction between public/private sectors), and ISCO-3 digit. Three fine professions - case of ISCO 511 (Travel attendants), 515 (building and house-keeping supervisors) and 512 (Cooks) - proved quite different from their subgroup. Nevertheless we propose to switch to simple choices, using only core variables. (We don't use Isco-3digit or economic activity to separate public and private sector for example)

Among *Skilled blue-collar*s, a dimension according to economic activity was clearly identified; it can partly be found in ISCO (Agriculture, construction, an aggregate with food industries, textile, clothing and wood, other industries); that is also correlated with the size of the firms and the stability of employment. The proposed segmentation criteria can also reach ISCO-3 digit.

Among *Less skilled workers*, the consensus in previous discussions was that we must distinguish blue-collar workers from service workers. As the group is different depending on the prototype, one proposal was made for each prototype.



V. Studying and testing the prototypes for a socio-economic classification

Many studies and contributions were conducted to contribute to ESSnet.

Most were to test the prototypes to determine which is the best in one social field or another and/or in Europe, part of Europe or in one or some countries.

Other studies explored the characteristics of the European labour market or focused on a key subject contributing to build a classification (asking about the differences between public and private sectors in Europe, for instance) or making methodological proposals.

Of course we must not forget all the studies before and alongside us.

Here, we only report on the studies done directly during and for the ESSnet. However, many of them remind us of the theoretical background and fundamental issues, such as why we want a classification, for whom, and how it structures our point of view.

In the studies below, there are therefore tests covering working conditions, living conditions, housing, education, intergenerational transmission or mobility, cultural practices, earnings, health, homogeneity, employment conditions... relating to the whole of Europe, sometimes all the countries, sometimes a group of countries or only one, but with more precise variables... All the contributions were very useful.

– V.1 The principles of the tests

Three prototypes were proposed for the aggregated level of the European socio-economic classification and several possibilities for a more detailed level were provided. The aim was to test them. This consisted in comparing the amount of information which is provided or lost by using one prototype rather than another. These tests must be carried out both at national and European level

The main aims of this phase were to find out:

- Which prototype is the most discriminating (of the aggregated level) in terms of variables from different social fields
- What are the best criteria to build the detailed level (and the criteria can be different in each aggregated group).

Testing the prototypes was the core of the ESSnet activities. Experts from the NSIs worked in close collaboration with subcontracting research institutes.

The three ESeG prototypes prepared in the WP3 were assessed for their discrimination power, meaning that their ability to separate the total variance into the socio-economic groups was investigated in a series of analyses.

In order to ensure that the ESeG classification would be suitable for the whole variety of statistical fields, the testing was performed on three large European databases: Labour Force Survey (LFS); Survey on Income and Living Conditions (EU-SILC) and Adult Education Survey (AES). In addition, national surveys or databases were taken for auxiliary analyses in specific areas such as cultural behaviour, earnings structures and education structures, etc... (see Annexe...) The area of study was chosen to cover a variety of fields, from socio-demographic characteristics to working conditions and income.

The standard methods of testing were various kinds of variance analysis, which was, in principle, to be divided into infra- and inter-variance referring to the ESeG prototype. The best prototype should have the biggest variance between different ESeG groups and the smallest variance inside an individual group. Analyses were either bivariate or a Multiple Correspondence Analysis (MCA) to study the links between the indicators.

Together with the search for the best prototype, evidence was gathered on the appropriate split of the groups into smaller sub-groups, i.e. the ESeG more detailed level. As a by-product of these tests, differences by groups of countries were investigated.

A methodology was proposed (but every author can choose this method or another) to test the prototypes of ESeG by Thomas Denoyelle and Marine Guillerm (INSEE) (see report by Thomas Denoyelle). It consisted in:

- trying to find the most discriminating variables to describe the characteristics of



employment in European society.

- making a typology of the individuals with the results of the first analysis
- comparing the three prototypes with this breakdown

The first step consisted in crossing variables of interest with each prototype and in analysing the link with appropriate indicators (Cramér's V, R²).

To analyse more variables together, the second tool consisted in a factorial analysis. Prototypes were entered in the analysis as supplementary variables. We could then calculate the correlation between the main variability factors found and each prototype. Finally a classification based on the same variables or on axes of the factorial analysis can be computed. This classification can be crossed with each prototype.

(see list and summaries of tests and studies in complement and texts in annexes)



– V.2 The main conclusions of the tests

The ESSnet group summarised the knowledge above at the Paris meeting held on 27-28 January 2014. The ESSnet also took into account the previous discussions during the last meetings of the ESSnet and of the French group, and also some contributions from researchers.

- Generally, all three prototypes seemed suitable, as they all discriminate groups and show differences between separate social classes. But:

- The numbers of studies on the whole variety of topics revealed that prototype 3 was clearly the weakest. It seemed less discriminating than the others for several fields (health, deprivations, working conditions) and in many countries;

- The tests show similarities among European countries, but also some differences. For example, applying the method proposed by INSEE (see above) from the variables of Labour force Survey using a selection of variables about work available in this survey (detailed status of employment, job tenure, worked time, type of part-time, research or not for a new job...). revealed that, in some Baltic and Eastern countries, prototype 1 is a little better, Prototype 3 seems more appropriate in some Northern countries and Prototype 2 is the best in Western and Southern European countries.

- Considering the whole of Europe, prototype 2 is a little closer than the others to the bottom-up classification built regarding working conditions and also living conditions (regarding the method proposed by INSEE). Prototype 1 is the second best and prototype 3 comes last.

- Prototype 1 (ISCO based) was closest to sociological variables such as spouse homogeneity, intergenerational transitions or cultural practices. Prototype 2, on the other hand, was the most explanatory for themes such as living conditions, risk of poverty, earnings levels and quality of employment. It should be emphasised that the differences between these two prototypes were generally very small.

Concerning level 2:

The next task of the ESSnet was to prepare the more detailed level of the ESeG. The basis for this effort was also the results of the research studies which included on recommendations how to split groups into subgroups.

To summarise the discussions:

- some sub-groups were already clear at previous meetings (for example, the need to isolate farmers...)

- managers are split by status of employment

- regarding the variables used at this more detailed level, the size of the firm is not well coded and, in accordance with the tests, we will not use it.

- we hesitated to split employees in the groups of managers and professionals by sector (to distinguish public/private) or by the more detailed ISCO. Among professionals, some occupations are almost like the split by sector (health occupations, teachers). Moreover, the sector is a different variable and it is not sure that it will stay in the "core variables" For caution's sake, we chose to split by the more detailed level of ISCO.

In the end, the ESSnet created a draft classification.

Therefore, the ESSnet members point out that

- sector is an important variable to study employment

- public/private cannot be clearly distinguished in most of the European surveys (and it will be even more true if the sector is not coded)

- in ISCO, some occupations are still very heterogeneous.

- the status of employment (distinguishing employees/self-employed) must be well coded



VI. ESeG: choice and description of a new socio-economic classification

– VI.1 A difficult choice, but a good compromise

As for the remaining two prototypes (1 and 2), the choice was not easy at all. It took two days to decide.

Finally, the dilemma was that prototype 1 is preferable for sociological subjects, but it seems logical to choose prototype 2 which seems better in economic and labour market subjects and also easier to uphold. The classes of prototype 2 are better balanced and seem more suited to studying inequalities in most countries. For example, if we identify tenuous jobs (like part-time, temporary contracts, low wages), we show that the group of "low-skilled" in prototype 1 contains only 30% of those jobs, while the group of "low-skilled" in Prototype 2 covers twice as much.

Another argument was that Prototype 2 is also more adequate for big surveys like LFS or EU SILC. It was therefore agreed to choose prototype 2 as it is also a valuable prototype for the most stable variables anyway.

Even though prototype 1 has a sound theoretical background, this is not important for ESeG, as this classification should be above all "evidence-based". Prototype 2 proved stronger in the priority areas.

To stick closer to the preoccupations of the labour market, because the classes are more balanced in most of countries and in the whole population and because the ESSnet wanted to base the European socio-economic classification primarily on employment criteria, it was finally agreed to prefer the 2nd prototype.

The more detailed level offers the possibility, to some extent, of reconstituting other types of classification at an aggregate level, which can be useful in certain national contexts or in certain research fields. In particular, it is possible to reconstruct prototype 1 from the more detailed level of the final ESeG.

The final ESeG draft has seven groups for economically active people plus two for the inactive in order to cover the whole population under survey. The seven groups are collapsible to three classes: high class (1+2); middle class (3+4) and working class (5+6+7). All groups have also been split into subgroups.

The construction of both ESeG levels (groups and subgroups) only relies on two core social variables for the persons in employment: 2-digit ISCO-08 code and the status in employment distinction (self-employed -included family workers- vs. employees). That should ensure quick and uncomplicated implementation in all statistical sources.

Non-response: this classification is based on a small number of essential variables. Of course, each survey may present some partial non-response or missing coding. In that case, the analysis should be restricted to properly coded records. Of course, such a general guideline may lead to losing the exhaustiveness of the classification, but in such cases, by construction, the lack of exhaustiveness would come from a lack of exhaustiveness on one or two important variables : employment status and/or profession. Such an approach can be justified by the choice of privileging quality of the coding procedure.



– **VI.2 Proposals concerning non-employed persons**

-- Students working and Disabled working should be classified according to their job (among the 7 groups of employed persons).

- Unemployed persons should be classified in general according to their last job (among the 7 groups with employed persons). When this information is not available they should be classified -in 9.3 Unemployed not elsewhere classified,

- Non-active people should be split into 2 groups:

Group 8: this group gathers all “retired people and non-employed people aged 65 or more”

At the detailed level, they should be classified according to their last job (7 sub-groups). If they have never worked or if their last job is unknown they should be classified as “Other inactive aged 65 or more” (8.8)

Group 9: the non-employed people aged less than 65 years should be classified here if they are not classified in the first 7 groups (according to their last job if they are unemployed and the information is available).

At the detailed level, a distinction is made between the following: unemployed not elsewhere classified, students, permanently disabled or “other inactive aged less than 65”



To remembering: **ISCO-2008: codes and titles**

code Isco2008 : Titles

1 Managers

11 Chief executives, senior officials and legislators

12 Administrative and commercial managers

13 Production and specialised services managers

14 Hospitality, retail and other services managers

2 Professionals

21 Science and engineering professionals

22 Health professionals

23 Teaching professionals

24 Business and administration professionals

25 Information and communications technology professionals

26 Legal, social and cultural professionals

3 Technicians and associate professionals

31 Science and engineering associate professionals

32 Health associate professionals

33 Business and administration associate professionals

34 Legal, social, cultural and related associate professionals

35 Information and communications technicians

4 Clerical support workers

41 General and keyboard clerks

42 Customer services clerks

43 Numerical and material recording clerks

44 Other clerical support workers

5 Service and sales workers

51 Personal service workers

52 Sales workers

53 Personal care workers

54 Protective services workers

6 Skilled agricultural, forestry and fishery workers

61 Market-oriented skilled agricultural workers

62 Market-oriented skilled forestry, fishery and hunting workers

63 Subsistence farmers, fishers, hunters and gatherers

7 Craft and related trades workers

71 Building and related trades workers, excluding electricians

72 Metal, machinery and related trades workers

73 Handicraft and printing workers

74 Electrical and electronic trades workers

75 Food processing, wood working, garment and other craft and related trades workers

8 Plant and machine operators, and assemblers

81 Stationary plant and machine operators

82 Assemblers

83 Drivers and mobile plant operators

9 Elementary occupations

91 Cleaners and helpers

92 Agricultural, forestry and fishery labourers

93 Labourers in mining, construction, manufacturing and transport

94 Food preparation assistants

95 Street and related sales and service workers

96 Refuse workers and other elementary workers

0 Armed forces occupations

01 Commissioned armed forces officers

02 Non-commissioned armed forces officers

03 Armed forces occupations, other ranks



VI.3 ESeG: description of groups and sub-groups

Based on ISCO_2008 and status of employment (e=employee; se= self employed)

1 Managers (all statuses)

- 1.1 Higher managerial self-employed (ISCO 11, 12, 13 and status=se)
- 1.2 Lower managerial self-employed (ISCO 14 and status=se)
- 1.3 Higher managerial employees (ISCO 11, 12, 13 and 01 and status=e)
- 1.4 Lower managerial employees (ISCO 14 and status=e)

2 Professionals (all statuses)

- 2.1 Science, engineering and information and communications technology (ICT) professionals (ISCO 21,25)
- 2.2 Health professionals (ISCO 22)
- 2.3 Business and administration professionals (ISCO 24)
- 2.4 Legal, social and cultural professionals (ISCO 26)
- 2.5 Teaching professionals (ISCO 23)

3 Technicians and associated professionals employees (status= e)

- 3.1 Science, engineering and ICT technicians and associated professionals (ISCO 31, 35)
- 3.2 Health associate professionals (ISCO 32)
- 3.3 Business and administration associate professionals (ISCO 33)
- 3.4 Legal, social and cultural associate professionals (ISCO 34)
- 3.5 Non-commissioned armed forces officers (ISCO 02)

4 Small entrepreneurs (status= se)

- 4.1 Self-employed agricultural and related workers (ISCO 6)
- 4.2 Self-employed technicians, clerical support, services and sales workers (ISCO 3, 4, 5)
- 4.3 Self-employed drivers, craft, trades and elementary workers (ISCO 7, 8, 9)

5 Clerks and skilled service employees (status=e)

- 5.1 General and numerical clerks and other clerical support employees (ISCO 41, 43, 44)
- 5.2 Customer services clerks (ISCO 42)
- 5.3 Personal care employees (ISCO 53)
- 5.4 Protective service employees and armed forces, other ranks (ISCO 03 and ISCO 54)

6 Skilled industrial employees (status= e)

- 6.1 Building and related trade employees (ISCO 71)
- 6.2 Food processing, wood working, garment employees (ISCO 75)
- 6.3 Metal, machinery, handicraft, printing, electrical and electronic trades employees (ISCO 72, 73, 74)
- 6.4 Stationary plant and machinery operation and assembly employees (ISCO 81, 82)
- 6.5 Employee drivers and mobile plant operators (ISCO 83)

7 Lower status employees (status= e)

- 7.1 Personal services and sales employees (ISCO 51, 52)
- 7.2 Blue collar employees and food preparation assistants in elementary occupations (ISCO 92, 93, 94, 96)
- 7.3 Cleaners and helpers and services employees in elementary occupations (ISCO 91, 95)
- 7.4 Agricultural employees (ISCO 6)

8 Retired persons (and people 65 and over non-employed)

- 8.1 Retired Managers
- 8.2 Retired professionals
- 8.3 Retired technicians and associated professionals employees
- 8.4 Retired small entrepreneurs
- 8.5 Retired clerks and skilled service employees
- 8.6 Retired skilled Industrial employees
- 8.7 Retired Lower status employees
- 8.8 Other persons outside the labour force aged 65 or more

9 Other non-employed persons

- 9.1 Students
- 9.2 Permanently disabled
- 9.3 Unemployed not elsewhere classified
- 9.4 Other persons outside the labour force aged less than 65 years



ESeG: description of groups and sub-groups
(the figures come from LFS2011, field: EU)

For persons in employment:

1 Managers:

Isco=1, 01; all statuses. 6% of employment. 32% are women.

70% are employees, 30% are self-employed.

The employees work in larger firms, the self employed in smaller firms.

Detailed level: the choice was made to distinguish by status of employment and to isolate the "hospitality, retail and other services managers" (Isco 14) :

- 1.1 Higher managerial self-employed (ISCO 11, 12, 13 and status=se)
- 1.2 Lower managerial self-employed (ISCO 14 and status=se)
- 1.3 Higher managerial employees (ISCO 11, 12, 13 and 01 and status=e)
- 1.4 Lower managerial employees (ISCO 14 and status=e)

2 Professionals:

Isco=2; all statuses. 18% of employment. 51% are women.

16% are self-employed. They are highly skilled and 84% have a higher education diploma. Most (51%) work in the sectors of education, health or administration.

Detailed level: the distinction is made by occupation and not by status of employment.

- 2.1 Science, engineering and information and communications technology (ICT) professionals (ISCO 21,25)
- 2.2 Health professionals (ISCO 22)
- 2.3 Business and administration professionals (ISCO 24)
- 2.4 Legal, social and cultural professionals (ISCO 26)
- 2.5 Teaching professionals (ISCO 23)

3 Technicians and associate professional employees:

Isco=3,02; status=employee. 14% of employment. 51% are women

Detailed level: distinction made by occupation, like for professionals, but they are all employees.

- 3.1 Science, engineering and ICT technicians and associated professionals (ISCO 31, 35)
- 3.2 Health associate professionals (ISCO 32)
- 3.3 Business and administration associate professionals (ISCO 33)
- 3.4 Legal, social and cultural associate professionals (ISCO 34)
- 3.5 Non-commissioned armed forces officers (ISCO 02)

4 Small entrepreneurs

Isco=3,4,5,6,7,8,9 and status=self-employed

12% of employment (but very different by country). 34% are women. They are all self-employed and most have no employees.

Detailed level: it is important to distinguish farmers (ISCO 6) because they are numerous in some countries (Poland, Romania, Bulgaria, Greece, Portugal...)

Small traders (ISCO 3,4,5) are separated from craftsmen (ISCO 7,8,9)

- 4.1 Self-employed agricultural and related workers (ISCO 6)
- 4.2 Self-employed technicians, clerical support, services and sales workers (ISCO 3, 4, 5)
- 4.3 Self-employed drivers, craft, trades and elementary workers (ISCO 7, 8, 9)

5 Clerks and skilled service employees

Isco=4,53,54,03 and status=employee

15% of employment. 65% are women (the largest proportion for a single group).

Detailed level: by occupation (administrative, trade, care, army)

- 5.1 General and numerical clerks and other clerical support employees (ISCO 41, 43, 44)
- 5.2 Customer services clerks (ISCO 42)
- 5.3 Personal care employees (ISCO 53)
- 5.4 Protective service employees and armed forces, other ranks (ISCO 03 and ISCO 54)



6 Skilled industrial employees

Isco=7,8 and status=employee

17% of employment (but very different by country). 14% are women (the lowest proportion for a single group).

Detailed level: by occupation, separating industrial, building employees and drivers to some extent.

- 6.1 Building and related trade employees (ISCO 71)
- 6.2 Food processing, wood working, garment employees (ISCO 75)
- 6.3 Metal, machinery, handicraft, printing, electrical and electronic trades employees (ISCO 72, 73, 74)
- 6.4 Stationary plant and machinery operation and assembly employees (ISCO 81, 82)
- 6.5 Employee drivers and mobile plant operators (ISCO 83)

7 Lower status employees

Isco= 9,51,52,6 and status=employee

19% of employment. 60% are women. The highest proportion of part time workers is in this group (36%).

This group comprises the “elementary occupations” (Isco 9), but also agricultural employees (Isco 6) and sales and personal services employees (Isco 51, 52)

Detailed level: allows a distinction to be made between less skilled service workers and less skilled blue collar workers. It also allows Prototype 1 to be rebuilt (where sub-group 7.4 should join group 6 and sub-group 7.1 should join group 5)

- 7.1 Personal services and sales employees (ISCO 51, 52)
- 7.2 Blue collar employees and food preparation assistants in elementary occupations (ISCO 92, 93, 94, 96)
- 7.3 Cleaners and helpers and service employees in elementary occupations (ISCO 91, 95)
- 7.4 Agricultural employees (ISCO 6)

Unemployed persons can be included in the previous group on the basis of their last job, when it is known and coded. The other unemployed are placed in 9.3

For other non-employed persons :

8 Retired persons (and people 65 and over non-employed)

Detailed level: they can be classified on the basis of their last employment when it is known and coded

- 8.1 Retired Managers
- 8.2 Retired professionals
- 8.3 Retired technicians and associated professionals employees
- 8.4 Retired small entrepreneurs
- 8.5 Retired clerks and skilled service employees
- 8.6 Retired skilled Industrial employees
- 8.7 Retired Lower status employees
- 8.8 Other persons outside the labour force aged 65 or more

9 Other non-employed persons

Detailed level: (students or permanently disabled persons who have a job must be classified in groups 1 to 7)

- 9.1 Students
- 9.2 Permanently disabled
- 9.3 Unemployed not elsewhere classified
- 9.4 Other persons outside the labour force aged less than 65 years





VII. As a tentative conclusion ...

ESeG is keenly awaited

By Eurostat which launched this ESSnet

By some NSIs (see the answers to the first questionnaires and interest when we presented to the working groups). Several NSIs have announced a contribution for the additional volume of this report (that will gather some examples of using ESeG)

By researchers, sociologists...who expressed their interest by participating in ESSnet meetings and tests, intending to make comparisons with other classifications...

By users; For example, ESAC wrote:

“ESAC welcomes the ESSnetESeG project aiming at establishing a European socio-economic classification”. In *“Opinion on Work Programme 2015; Advice on the strategic priorities for the draft Annual Work Programme 2015”* European Statistical Advisory Committee, Doc 2013_1142 28 feb 2014

ESeG is a relevant tool to describe socio-economic facts

Built on the characteristics of the occupation and on new tools (Isco2008), ESeG provides a means to describe many social phenomena.

It is a multidimensional classification, not a “pure variable”. It brings something more than ISCO alone, by grouping together individuals with similar economic social and cultural characteristics, improving the presentation of social statistics and allowing international comparisons, in European society but also in every country and for comparison (see “Europeans in employment in seven socio-economic categories” by M.Amar,F.Gleizes and M.Meron in studies annexed (WP5_MAmarFGleizesMMeron_eng.pdf) and, the additional volume).

For instance, ESeG can be used to see, with other variables, unemployment risk, health, homogamy, deprivations and other disparities...

ESeG is easy to use

Only based mainly on ISCO_08 and Status of employment , and we can hope that these two core variables will be robust over time. It is easy to code ESeG from many surveys, including all European surveys launched by Eurostat because it only uses core variables.

We can make the following recommendations:

It is important to provide both levels of ESeG

It is necessary to have enough details to be able to change some groups according to the subjects of studies or for specific countries or groups of countries.

We must not forget that Country is still an essential variable

to understand European society or part of it, or differences and comparisons, regarding the different economic and historic backgrounds of EU Member States.

It is essential that ISCO_08 and Status of employment be well coded and harmonised (see WP2_Italian report in annexes)

Other variables could be useful to go further into the analysis

Isco 3 digit (or 4 digit if possible) are necessary in some cases which are too heterogeneous in Isco 2 digit. For example in ISCO 51, 54, 83 and to distinguish the teachers..

The economic activity is very important. The ESSnet was tempted to use it several times for more details

The public/private divide is still an important dimension of social stratification in Europe. But there is no variable that provides this dimension directly. It is only possible to approach it by economic activity (grouping administration, education and health sector, see focus 4). It lacks for some social studies.



Skill is an important dimension, partly approached by occupation in ISCO_08, and imperfectly approached through the level of education attained (Isced). We can regret that there are no questions about the necessary skill level attached to the occupation, although it is not easy to formulate such a question.

This report will be completed

By an additional volume (available in several weeks),

Starting from the classification and presenting it for a wider audience

Gathering some simple and quick examples of its use from some NSIs and researchers

We hope to disseminate it in the European Statistical System and to users, with help of Eurostat (at least by cros-portal)

The role of Eurostat is essential to make ESeG useful

By systematically using this classification in European statistics

By providing it on its websites and disseminating statistical results (for example, from the Labour Force survey and from the Survey of Income and Living Conditions)

By promoting studies which make use of it

By assessing the suitability of this classification over time and its sustainability according to changes in variables and data



Complements: List and abstracts of tests and studies
(see summaries below and texts in annexes)

WP	Authors	Organism	Data source	subject (Best prototype)	language
Studies and reflexions, building a classification					
3	Francesca Gallo	Istat	LFS-Italy	L1 and The “small entrepr”.in ESEG	English
3	Cédric Hugrée, Etienne Pénissat, Alexis Spire	CERAPS/ CNRS/ Lille 2 and Paris 8 Universities	LFS	difference public/private exists	French and English: provisional
3	Cécile Brousse CB and alii	Insee/Crest-LSQ	SILC	Social space in Europe	French, English: provisional
3	Thomas Amossé et Monique Meron	CEE et Insee/Crest-LSQ	LFS	Men/ women	French
Tests (each study describes its method)					
4	Thomas Denoyelle and Marine Guillem	INSEE	LFS	Method Test L1 (P2 or P1)	French
4	Michel Amar and François Gleizes	INSEE	LFS, SILC	Test L1 (P2)	French, English
4	Michel Amar and François Gleizes	INSEE	LFS, SILC, AES	Test L2	French, English
4	Jiří Šafr	Socio Institute Prague	SILC/AES-CZ (transition of education)	Test L1 (P1)	English
4	Dalibor Holy and Jitka Erhartova	CSO	SES-CZ (earnings)	Test L1 (P2)	English
4	Márta Záhonyi and Ákos Huszár	HCSO	SILC/education	Test L1 (P1)	English
4	Márta Záhonyi and Ákos Huszár	HCSO	LFS/SILC-Hungarian	Tests L1 and L2	English
4	Dorothee Ast then Charline Babet	DARES	EWCS/working conditions	Test L1 (P1)	French
4	Milan Bouchet-Valat	Crest-LSQ/ CNRS&Sc Po/Ined	LFS /homogamy	Test L1(P1) Test L2	English
4	Fanny Bugeja	Crest-LSQ/univ Paris-Nanterre	SILC/housing	Test L1 (P2)	French, English
4	Frédéric Lebaron	CURAPP/ESS	SILC/5themes	Test L1(P2 or P1)	French, English
4	Louis-André Vallet	Crest-LSQ/ CNRS&Sc Po	SILC/intergenerational	Test L1(P1)	English
Panorama (see also an additional volume with first examples using ESeG)					
5	Michel Amar, François Gleizes, Monique Meron	Insee	LFS	level 1 on EU employment	French English

L1=level 1(aggreated); L2= level 2 (detailed)



Studies (WP3) :

Some evidence on the ESEG prototypes stemming from the Italian survey on occupations

Francesca Gallo, ISTAT, Italy

Source: Italian survey on occupations

A presentation was targeted on the skill dimension, using the Italian survey on occupations with some interesting results.

It recommended a minor change to the order of the ESeG groups – transfer of self-employed downwards – to respond closely to the reality of today. (This view has subsequently been confirmed by findings on cultural capital or poverty). The new order should be:

Managers / Professionals / Intermediate / Self-employed (independent) / Skilled services and sales workers / Skilled industrial workers and operators / Less skilled workers. It also showed a large gap between managers in ISCO14 and the others, and a possible distinction for subsequent groups.

The aim of the document is to give some evidence that might help to come up with a choice among the three prototypes proposed so far.

The analysis presented in the document places the emphasis on job content, characteristics and requirements as the rationale is to validate the prototypes through the description of the real world of work. The validation of the discriminatory power of the prototypes through the analysis of the individual characteristics like income, education, health etc is not the aim of the following analysis.

We get evidence for or against the 3 prototypes from the Italian Survey on occupations, which has recently been completed.

A bibliographical survey on the divide between public and private sector in Europe *(in French)*

Cédric Huguée, Cresppa-CSU (CNRS/Paris 8 University), Étienne Penissat and Alexis Spire, Ceraps (CNRS/ Lille 2 University), France

In most inquiries about social structure and inequalities in Europe, the divide between public and private workers is not a mentioned topic. Several reasons can explain this situation. First, being employed by the public sector does not mean the same reality in every European country. In addition, after the new public management turn, working conditions have become more similar in these two sectors. In spite of these observations, this article aims to point out that there are still substantial differences between public and private workers. At a European level, the European Working Conditions Survey is the only tool available to provide an overview about employment's sector, however focused on working conditions only.

In this paper, we present several significant results from the social sciences literature in four countries: Germany, France, Great-Britain and Sweden. In every European country, public workers have an average aggregate employment tenure higher than private workers. The proportion of women in the public sector is significantly higher than in the private sector and the proportion of high skilled workers is also higher. Beyond these global differences, we point out that the divide between public and private sector is differently shaped, according to the country and to the social status. Belonging to the public sector implies a specific relationship to the State and to the general interest.

Differences between public and private sector in Europe:

A comparative study based on the social morphology of wage earners. *(provisional: not still for dissemination)*

Cédric Huguée, Cresppa-CSU (CNRS/Paris 8 University), Étienne Penissat and Alexis Spire, Ceraps (CNRS/ Lille 2 University), France

Source: LFS2011

Field: employed

Trend: The employees in the public sector are older, more often women and more skilled, even in a same socio-economic group. Differences appear between countries and serve to



build a typology of public employees in Europe. The literature review seemed to suggest that the public/private distinction is relevant in many European countries, in spite of management convergences.

This paper aims to show that the public/private divide is a secondary, yet important dimension of social stratification and of the relationships between social groups in Europe. In order to study the range of public sectors in Europe, this article is based on the 2011 edition of the Labour Force Surveys (LFS) of European countries. We highlight the relatively specific nature of the European public-sector workforce stemming from occupational factors and sociological factors. We also look in more detail at the variations within public sectors in Europe according to types of social stratification, institutional context and the national history specific to each country. We then put forward a typology of European public-sector workforces which distinguishes four main types: a public workforce of “street-level bureaucrats”, a public workforce of care workers, a public workforce of law enforcement officers, and a public workforce of highly qualified personnel.

Is there an European socio-occupational space ? (provisional: not still for dissemination because of submission to a European academic review)

Cécile Brousse, Insee and Crest-LSQ

Source: SILC2010,

Field: employed in 24 countries

Thoughts about the limit of a European socio economic Classification and the importance of the country.

This paper evaluates the link, in Europe, between occupational structure and inequalities in terms of cultural and economic capital. The main question is whether there is a European social space organised around occupational categories. That will lead us to ask the question of whether divisions in the EU based on country membership are secondary compared to divisions based on social classes? In the first part of the study, the distribution of different forms of capital is measured at individual level. In the second part of the study, occupational inequalities are analysed at countries level. Finally, in the third part, occupational inequalities are described at the European Union level. Economical and educational inequalities are first measured at individual level. Countries are compared and classified according to the intensity of these two forms of inequality (net disposable household income per CU and number of years of education). Then, using cluster analysis, countries are classified according to the share of occupational groups in the population. Furthermore, the relative distances between occupational groups are measured at country level, according to the mean income and educational attainment of their members. Following Louis Chauvel's study, we try to verify whether the position of each occupational group compared to each other is the same whatever the country. To reconcile micro approach (individuals) and macro approach (occupations) we break down educational and economical inequalities measured with the Theil index into inter, intra occupational group inequalities and we compare these breakdowns between Member States. Thanks to this breakdown, we look to see whether it is easy or not to highlight a common social structure. Thirdly, we focus on the EU as a whole, rather than individual States. Disposable incomes were standardised through the EU with Parity Purchasing Power (PPP). We then compare distances between all country-occupational groups (27*24) in terms of economic and cultural capital and we group them into clusters using geometrical analysis. In addition, the Theil index (applied to incomes and years of education) is broken down for all occupational groups into inter and intra-country inequalities. The final question is the following: in the EU, are distances bigger between occupational groups or between countries? Most of this study is based on a socio-economic classification containing 24 sub-groups, which is close to the French occupational classification (PCS) as well as to the International Standard Classification of Occupations (ISCO). The classification contains two dimensions already present in ISCO: skill level and skill specialisation (including the distinction between public and private sector), to which has been added the status distinction between employees and self-employed. Within the self-employed category, heads of small enterprises (less than 5 employees) are distinguished from heads of large enterprises. SILC 2011 and LFS 2011 are used to measure years of



education and to evaluate income, at individual and occupational level. The field of the study includes people in employment age 25 and over.

A project of European socioeconomic nomenclature: a scholarly project confronted with national variations of the understanding of social space (in French, in *Sociologie* 2013 vol.4, PUF, pp373-393; on www.cairn.info)

Alexandra Filhon, Jérôme Deauvieu, Laure de Verdalle, Agnès Pelage, Tristan Poullaouec, Cécile Brousse, Martine Mespoulet, Karolina Sztandar Sztanderska

This article studies the categorization of social space in five European countries (Germany, Belgium, Spain, France and Poland). It relies on the analysis of the reception of a prototype conceived by social science researchers for Eurostat: the European Socioeconomic Classification (ESeC). Beyond the comprehension of the logics governing this prototype, our work points out how “ordinary” people understand the structuration of social space in different national contexts. And indeed, by studying how interviewees react when they are confronted with ESeC categories, we are able to simultaneously address how they develop their own categories to orient themselves in social space. Through an experimental research based on a list of professions, classified according to the ESeC categories, we test the selfconsistency of the prototype when it is submitted to uninitiated people. Our results demonstrate that the main organization principles of ESeC are not easy to understand for our interviewees. We conclude by questioning the capacity of such a European nomenclature to take into account the various national socioeconomic realities that still characterize the European Union.

The gender of occupations in Europe (in French)

Thomas Amossé (Centre d'études de l'emploi, Paris and Maison des Sciences de l'homme Nantes) and Monique Meron (INSEE and Crest-LSQ)

Source: LFS2011

Field: 27 countries of EU

In the European Union, 46% of jobs are occupied by women. But the repartition of women is still very uneven by occupation. Statistics show how professions are gendered everywhere; At the same time, we can see national specificities, reflecting different demographic and economic backgrounds.



Tests (WP4) :

Factorial analysis of groups of observations and comparison of prototypes of classification (in French)

Thomas Denoyelle, Insee, France

Source: LFS2011

Field: employees in 29 countries

Trend: proposed methodology; regarding job characteristics, prototype 2 (P2) is more discriminating in Europe and in 12 countries (out of 29)

The French Institute of Statistics and Economic Studies, INSEE, is currently leading a work group for Eurostat aiming to construct a European social-economical classification: ESEG. Three prototypes have been proposed, distinguished by the boundaries between the following groups: qualified employees (white collars), qualified workers (blue collars) and "low-qualification" employed people.

In this context, our work had a twofold aim: on the one hand, conceive a methodology to compare those prototype classifications in terms of their potential to explain various social and economic characteristics; on the other, to apply it to the data on employed people in 29 countries which participated to the European Labour Force Survey, regarding characteristics of employment.

During an explanatory step, we carried out several multiple correspondence analyses (MCA) to detect the most discriminating variables to describe the characteristics of employment in European society.

A first analysis using eight active variables highlighted the splits between full-time/part-time and permanent contract/temporary contract as decisive, as well as atypical or not characteristic of working time and the sector of activity.

A second MCA with the level of education as an active variable highlighted its decisive nature. However, that variable was too closely correlated with the prototype classifications and had to be put aside for the rest of our work, to avoid making comparisons misleading.

Finally, a third MCA revealed the importance of the salary decile. However, as that variable is only available for 13 of the 29 countries, it could not be kept for the rest of the work, to avoid excluding any countries.

Those analyses already showed, via graphical projections of the groups of the various prototypes, that those prototypes were close to each other, and that on a European level, given the factorial plans, they appear to be useful for the analysis of employment data.

We then defined a typology of the individuals based on the results of the first MCA. That typology consisted in the creation of a breakdown then an ascending hierarchical classification, finally resulting in nine classes.

In order to compare the three prototype classifications, we tested their correlation with that breakdown in nine classes, found empirically. The analysis of Cramer coefficients revealed that the three prototypes are correlated with the empirical breakdown, the correlation being slightly stronger with the second prototype. That prototype appeared the most decisive (on the basis of the characteristics of employment) both for European society in its entirety and for 12 of the 29 countries, especially the most populated ones (France, Germany, United Kingdom).

A problem raised by the MCA is that our method gives advantage to some countries over others. That is what the graphical projections of the prototypes by country revealed: for some countries, nearly all the dots are located on the same side of the axes. We therefore used a relatively new method, the dual multiple factorial analysis (DMFA). It performs the same analysis as an MCA but giving the same importance to all countries.

We implemented a method with the SAS software allowing us to perform a DMFA on qualitative data, applying a principal components analysis (PCA) on data standardised by country and using specific weights so that our results can be compared with those obtained by the MCA.



With that method, the projection of the prototypes by country gave us scattering plots where the dots are well spread around the origin of the axes, proof of an equal importance of the country in the analysis.

We made a new typology using the results of the DMFA. The breakdown into 11 classes that was obtained appeared to be very similar to the one based on the first MCA. From the examination of the Cramer coefficients found by the crossing of our prototypes and this breakdown, which were higher than the previous ones, it again appeared that the second prototype is slightly more decisive than the others for the characteristics of employment, for the whole of Europe and for most of the 29 countries.

Results of tests on aggregate and detailed level of Eseq from employment data (LFS 2011), data on living conditions (SILC 2011) and data on social and cultural practices (AES 2006)

Michel Amar and François Gleizes (INSEE, France)

Tests L1

The method of T. Denoyelle is applied

1) source LFS2011, variables: diploma, timing quantity, type of contract, job tenure, turnover, sector

field: employees (27 countries)

trend: P2 better than P1

2) source SILC2011, 4 groups of variables (employment, housing, health, deprivation, level, standard of living in the household)

Field: employees in 25 countries (EU except Malte and Irland)

trend: P2 better in Europe and in 20 countries, P1 better in 4 countries, P3 better in UK.

The scope was restricted to the employees only, because P1, P2 and P3 do not differ for the treatment of the self-employed.

Mr Amar and Mr Gleizes conducted several studies: the first was on the quality of employment using LFS data. Prototype 2 was the best in the EU and in 18 countries. P1 was the best in 5 countries (BG, LT, LV, PL, SK) and P3 was best for 4 countries (CY,DK,,NL,SE). The second study was on the living conditions using SILC data.

Prototype 2 was the best, but with smaller differences (by Cramer coefficient). P2 was the best in 21 countries versus 3 for P1(CY, EE, FI) and one (UK) for P3.

Tests L2

The method of T. Denoyelle was applied in each class with LFS data then with SILC data.

To complete the test, AES 2006 was used (field reduced to 13 countries, ISCO 2008 obtained by a conversion table, variables about social participation and cultural practices).

Employee Managers:

Regarding LFS, the distinction by sector (close to public/private) is a little better than the one founded on ISCO; the same regarding AES

Regarding SILC, it is more or less the contrary → impossible to decide with those criteria

Self-employed Managers:

Regarding LFS and SILC, the distinction founded on ISCO is clearly better than the one founded on the size of the firm

Professionals:

Regarding LFS and also AES, the proposal based only on ISCO is better; regarding SILC, the one using the sector (to isolate public/private) is a little better.

Independents:

Regarding the 3 data, the simplest proposal based on ISCO is clearly better than the one trying to isolate the family helpers.

Intermediate group:

The proposition grouping ISCO 31 33 35 is a little better than that one isolating ISCO 33.

Skilled clerks:

Regarding LFS and SILC, the second proposal is a little better



Educational tracking, intergenerational class mobility and differences in cultural participation. Testing ESeG prototypes in the Czech Republic using EU-SILC and AES 2011
Jiří Šafr, Institute of Sociology of the Czech Academy of Sciences

Source: EU-SILC 2011, AES 2011

Field: Czech Republic, for education: children aged 15-21; for mobility: persons aged 30-59; for cultural participation adult population

Trend: The most fitting is prototype1 for all fields, however the differences between P1 and P2 are small.

We examined performance of ESeG prototypes in Czech Republic in three spheres assumed to be widely related to social class reproduction.

1. Educational tracking was studied as enrolment in upper secondary education (ISCED97 3A, B in comparison with 3C or employment/unemployment) for children aged 15 to 21 depending on their parents' social class – ESeG prototypes. In EU-SILC 2011 data, due to restriction to narrow age cohort of children we can analyse only 640 families therefore the ESeG classes of parents have small counts and that's why the same three upper classes in all prototypes were merged into one.

2. Intergenerational class mobility for persons aged 30 to 59 (data EU-SILC 2011 module Intergenerational transmission of disadvantages) was handled in terms of odds ratios for different classes destination – ESeG prototypes (the first three classes are again merged) depending on the class position of family of origin (for which only the 1st prototype could be constructed because for parents only 1digit ISCO is available).

3. Cultural participation was studied in terms of class differences in (data AES 2011, persons aged 18–69):

(1) frequency of attending cultural events and places of culture (composite index of visiting concerts/theatre, cinema, cultural sites/museums/galleries in the last 12 months) and

(2) amount of books a person read during the past year.

Generally, the results for the Czech society show that there are rather small differences among the prototypes in all spheres studied, though the first prototype proved to have somewhat the most discriminatory power moreover constantly in all domains.

The analysis on transition to upper secondary education as well as on intergenerational class mobility showed that the most fitting is the prototype 1, since the models with this prototype have the biggest fraction of variance explained. Moreover, for the educational tracking the odds ratios are ordinalized here the most according to ranking of ESeC classes, although as a whole classes are hierarchical in only a limited way. Similarly, the first prototype has the most explanatory power in models for the summative index of cultural visits as well as for the number books read in the last year. Also this prototype features highest association with each of four cultural activities.

In detailed view looking on ISCO08 2-digit and differences in cultural capital (factor score comprising all items of cultural attendance and book reading), at least two occupational groupings seem rather internally culturally inconsistent. First, Managers/legislators who compared with Professionals feature lower level of cultural capital (namely ISCO 14 – hospitality, retail and other services managers) which is also accompanied by high variation. Second, the highest variation can also be found in the group of Sales and service workers. Here occupations in ISCO 53 and 54 (personal care/ protective services workers) are slightly below-average whereas groups ISCO 51 and 52 (personal/ sales service workers) are above-average. This disjointedness is somewhat inconsistent with construction of prototype 2 and 3 which degrades these occupational groupings (51, 52) to the lowest class of Less skilled workers.

Moreover from the practical point of view, the prototype 1 seems the most convenient with regard to its construction not only for its construction simplicity but also due to the fact that when only 2digit ISCO08 is available it provides – at least for the Czech environment – the most conceptual robustness. In this context it is necessary to express that more valid ESeG construction would be possible when more adequate distinction of occupations on the level of



3digit ISCO codes should be taken into account. This problem is especially located in the group ISCO 5 consequently in composition of the ESeG class 5. Skilled clerks.

The analysis of Czech earnings and comparison of prototypes of ESeG classification
Dalibor Holý and Jitka Erhartová, Czech Statistical Office, Czech Republic

Source: Czech national Structure of Earnings Survey 2012; the earnings levels by 2-digit ISCO groups and the structure of earnings plus numbers of employees.

Field: paid employees in the Czech Republic

Trend: Both the earnings variability and the distribution of employees into prototypes are the best in the P2.

The analysis was based on the 2012 Structure of Earnings Statistics (SES) data for the Czech Republic. The survey results cover only standard employees paid either by monthly salary or hourly wage rates; they do not cover self-employed persons or short-term employees, nor employees which have less than 35 hours/week contract. For this reason, the earnings levels are fully comparable among occupational groups. The SES data have been collected annually by the Ministry of Labour and Social Affairs and the results have been made public by the Czech Statistical Office;

(see: <http://www.czso.cz/csu/2013edicniplan.nsf/engp/3109-13>).

Micro-data on employees are classified by the ISCO codes onto the 5-digit level of the national CZ-ISCO classification which is fully compatible with the ISCO-08 international standard up to 4-digit level. The coding of CZ-ISCO is done by the HR experts within the enterprises. The survey results are primarily split by economic sphere: business and public. The earnings are expressed in table results as an arithmetic mean, in CZK/month.

As regards the numbers of employees by ESeG prototype, there is great discrepancy for the Less Skilled Workers group, where the percentage ranges from 6% (in prototype 1) to 32% (in prototype 3), and in the Skilled Clerks group, where the percentage ranges from 31% (in prototype 1) to 6% (in prototype 3). Prototype 2 seems visually the most acceptable as it is well-balanced regarding the proportions of groups.

As for the earnings level, the analysis is based on the relative distances among various occupational groups based on 2-digit ISCO-08 (sub-major groups). Generally, the variances are smallest in prototype 2.

Managers are the most inconsistent group: ISCO11 (Chief executives) have the highest earnings; ISCO14 should be detached from the rest, as they have the lowest earnings and different structure (high share of basic pay and small bonuses).

As for Professionals, the most outlying group is Teaching professionals, whose earnings level is only two thirds of others' mean.

The intermediate group (ISCO-3) seems huddled enough, but there are differences within inner structures of earnings: Information and communications technicians have an extraordinary high share of standby duty pay and are closer to the Science and engineering associate professionals; Health associate professionals have more than 10% of their earnings made of other differential and extra pay, plus the highest overtime pay.

In the ISCO4+5 group (Skilled clerks and service workers), the lowest earnings can be found in ISCO51+52, roughly on the earnings level of ISCO6 and ISCO9, which is consistent with prototype 2.

As for the Skilled blue collars: it is reasonable to group ISCO7+8 together on the first level of ESEG; ISCO6 has a lower earnings level. The most outlying group within ISCO7 is ISCO 75 (Food processing, wood working, garment and other craft and related trades workers) with the lowest earnings, followed by ISCO71.

For the Less skilled workers, prototype 3 covering ISCO51+52+6+8+9 seems inconsistent and too wide, while prototype 1 covering only ISCO9 is too restrictive. Prototype 2 covering ISCO51+52+6+9 seems the most suitable (see above). The most outlying group downwards is ISCO94 (Food preparation assistants), where the earnings level is the lowest of all and more than 80% is made of basic wages; the most similar group is ISCO 91. The most outlying group upwards is ISCO6.



Assessment of the prototypes

Marta Zahonyi and Ákos Huszár, Hungarian Central Statistical Office, Hungary

Sources: Hungarian LFS and SILC

The aim of this investigation was to assess the 3 ESeG prototypes in respect of some dimensions of employment and living condition on Hungarian LFS and SILC data. First we looked at the distributions according to the 2 data sources and compared with EU results. Then, on LFS data, we analysed the prototypes along some indicators reflecting labour-market and other socio-economic inequalities. Then we analysed the 2-digit ISCO-08 groups involved into the class construction with special respect to education and income on the basis of SILC data, and regarding employment characteristics on LFS data.

Test of the 2nd level of the ESeG prototypes on Hungarian LFS and SILC data among the employed

Marta Zahonyi and Ákos Huszár, Hungarian Central Statistical Office, Hungary

Sources: Hungarian LFS and SILC

In this paper we show the findings of testing of different proposals for the more detailed level of ESeG classification. We used Hungarian LFS 2011 and SILC 2012 data and examined basically two dimensions, education and income. We also used the results of our previous analysis, presented in Rome and Prague, in connection with the characteristics of ISCO08 2-digit groups regarding some employment and labour market characteristics, educational attainment and income. In our analysis we used equalised disposable household income. On the basis of these results some remarks and questions were noted in connection with the ESeG classification.

Regarding managers, the distinction between self-employed and employees among managers is relevant. Division of self-employed managers by company size seems to be important, but our results were not clear in this regard. Designation of the relevant dividing line is problematic, and even within a country by economic section.

It is notable that self-employed professionals have higher education. Since the employee–self-employed distinction is a main element of the ESeG classification, it seems to be logical to apply this type of split in the case of professionals as well.

Separation of agricultural workers from self-employed is well-founded. In Hungary, educational attainment of the self-employed as agricultural workers is significantly lower than that of the others. Nevertheless, it should be taken into consideration that the education of agricultural workers reflects wide variance by country.

As to skilled workers, grouping of 2-digit groups of ISCO-08 MG 4 seems to be problematic in this class. The proposed versions are not convincing. According to our results, ISCO 2-digit group 44 is in the worst position regarding education and income, while ISCO 2-digit groups 42, 43 are in the best. In the Hungarian context, proposal 2 seems to be better, where client contact type occupations are classed separately.

The Less skilled workers' class shows a much more homogeneous picture if personal service and sales workers are not classified among them. This is because MG9 differs significantly from the other major groups as regards all the previously investigated dimensions relevant in terms of life prospects and chances. Nevertheless, MG6 has similar characteristics in Hungary in respect of educational attainment and income as well.

Testing of the ESeG prototypes in respect of education

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Sources: SILC

Field: Germany, Greece, Romania and Sweden

The aim of the investigation was to give an overview of the educational, occupational and socio-economic structure of the selected countries: Germany, Greece, Romania and Sweden. By testing the expected variation in respect of educational attainment between the ESeG groups we can contribute to finding the best (in regard of discriminatory power) grouping of ISCO-08 2 digit groups, which results in the greatest variation between ESeG groups and the most homogeneity within the groups.



In the course of the work the following fields were investigated:

- Educational and occupational structure of the employed
- Relationship between occupation and education
- Manifestation of the former in the ESeG structure
- Comparison of the ESeG prototypes
- Detailed investigation of the intermediate and bottom class categories by analysing those ISCO-08 2 digit groups which are grouping in different ways in the different prototypes

The main findings were as follows:

- Educational and occupational structures in the investigated countries are very different, which has a strong effect on their ESeG structure and its characteristics.
- Different class position associates with different educational composition in the single countries. The most notable is group 3 of the Self-employed in this regard.
- Classification of agricultural workers seems to be problematic because this group has very different weights in the observed countries and their qualification is also varied.
- Based on our results, we would not suggest merging ISCO-08 51, 52 occupations into the 'Less skilled category'.
- Regarding the qualification of the ISCO 2-digit groups concerned, we would suggest keeping ISCO-08 MG 8 in the 'Skilled industrial workers' category.
- On the basis of the test, we would suggest keeping the whole MG4 in the 'Skilled service class'.

Working conditions in Europe. Comparison of the three one-digit ESeG prototypes on the theme of working conditions using EWCS 2010 survey (*in French*)

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Source: EWCS 2010

Field: employed workers in 27 countries ; only at the European level.

The correlation between the prototypes and several synthetic indicators on 10 dimensions of working conditions (autonomy, painfulness of work, job content, socio-economic insecurity, social relationships at work, conflicts, emotional demands, constraints of timetable, time pressure and acknowledgement).

Trend: only slight differences between the prototypes except for 4 indicators (in 10) where prototype 1 seems better.

The purpose of the tests was to determine the most relevant one-digit ESeG prototype for the analysis of working conditions in Europe.

The study used the European Working Conditions Survey (EWCS) conducted in 2010. In this survey, 44,000 workers aged 15 years and over (16 and over in Spain, the UK and Norway) from 34 European countries were interviewed on their working and employment conditions. The tests were performed only on the working population of the EU27 for whom information required for the classification in the ESeG groups were properly filled in. The study therefore focused on 33,770 people. The results were presented only for the EU27 as a whole because samples were too small to provide reliable estimates for each country individually.

Using the EWCS, prototype 2 led to a more balanced distribution of occupied workers between ESeG categories.

Ten topics related to working conditions were then studied: autonomy, painfulness of work, job content, socio-economic insecurity, social relationships at work, conflicts, emotional demands, constraints of timetable, time pressure and acknowledgement. For each of these themes, a synthetic indicator, taking values between 0 and 1 and then divided into four classes by quartile, was constructed from several questions of the survey.

In order to determine the most appropriate prototype to describe working conditions in Europe, all three prototypes, as well as ISCO, were crossed with each indicator. Two



criteria were studied: Cramer's V measures the links between each prototype and each indicator, and adjusted R² measures the explanatory power of each prototype. Prototypes 1 and 3 appeared to be alternately the most relevant for these indicators. More specifically, prototype 1 largely outperformed the other ESeG prototypes for the levels of emotional demands, and the prototype 3 outperformed the other prototypes for the levels of constraints of timetable and the levels of wealth of job content. Moreover, all ESeG prototypes largely outperformed ISCO for the occurrence of conflicts and the levels of autonomy, while for other indicators, ISCO performed better than the ESeG prototypes.

A Multiple Correspondence Analysis (MCA) was then used to study the links between the indicators. It allowed to identify three main variability factors. The study of the links between the factors and each prototype showed that the ESeG prototypes had better explanatory powers than ISCO for the second and third axes of the MCA, and among the three prototypes, prototype 1 was the best one to distinguish the different ESeG categories on these axes.

Finally, a classification was implemented to create homogeneous groups of people in terms of working conditions. The eight classes obtained were projected onto the MCA factors in order to bring them closer to the ESeG categories. In addition, the study of the Cramer's Vs in the crossing of the empirical classification with each prototype highlighted that the prototype 1 was the one that had the strongest links with the classification obtained.

In short, in the bivariate analysis, the prototypes 1 and 3 were alternately the most appropriate to describe working conditions in Europe. In the MCA, the prototype 1 was better than the other ESeG prototypes to distinguish and relate working conditions on the factors. Finally, prototype 1 was the closest prototype to the empirical classification conducted to create homogeneous groups of people in terms of working conditions. As a result, even if the results were often close for the three prototypes, these analysis seemed to point to prototype 1 as the most relevant ESeG prototype to study working conditions in Europe.

Socio-economic Homogamy in the European Union

Assessment of ESeG Level 1 Prototypes and Indications Regarding Level 2 Categories, Using Data from the European Labour Force Survey

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Source: LFS 2011

Field: heterosexual couples, where one partner is between 30 and 59 years old, in 23 countries.

Measure of homogamy of the classes, regarding the prototype.

Trend: homogamy is higher with prototype 1 in 22 countries (on 23).

After studying the detailed level (N2), a prototype P1' is proposed where agricultural workers join the less skilled group.

Taking homogamy as an index of the objective and subjective consistency of social groups, we consider that the best classification as regards this particular criterion is the one with which the measured degree of homogamy of socio-economic groups is the highest. According to this principle, and measuring homogamy using a marginal-free index derived from odds ratios, the first prototype is to be preferred for 22 out of the 23 countries of the European Union we study. This is due to the very strong homogamy of the group of the least-skilled occupations (7-LES) when taken in its strictest definition; the broader definitions retained by prototypes two and three dramatically decrease the measured homogamy of this group. Other categories are not significantly affected by the variations between prototypes.

We then turn to a finer exploration of the level 2 ESeG categories, which also provides further guidance about the definition of level 1 groups. We start from a detailed ad-hoc classification made up of 53 categories, crossing one- and two-digit ISCO groups, activity sector (NACE Rev 2) and number of employees. Using a log-multiplicative association model with layer effect (RC-L), we evidence three major dimensions of the European socio-economic space.

A few salient conclusions can be drawn from this model. Regarding the managers (1-Man), self-employed and salaried are clearly separate; among self-employed managers, the number of employees is an important line of divide. Among professionals (2-Pro), a



distinction between private sector and public or social sector categories seems to be the most relevant. Within the self-employed (3-Ind), farming and non-trades tertiary activities are opposed, and well distinct from craft and trades. Drawing the line between intermediate occupations (4-PI) and skilled white collar workers (5-WCS) proves quite difficult; what is clear is that ISCO major group 4 should not be split, and instead be included in full into intermediate occupations. ISCO major group 5 is relatively detached from groups 3 and 4 for women, but not so clearly for men. Finally, while the group of the least skilled occupations (7-LES) is again quite separate from skilled blue collar workers (6-BCS), gendered differences are too strong to allow for a finer analysis; we can only note that some categories of the ISCO major group 7 appear closer to the least skilled group.

As a final step, we show that the studied European countries share a common structure of homogenous association, with quantitative rather than qualitative differences. Countries differ up to a factor of 3 with regard to the strength of the social status scale, and much less with regard to other, secondary dimensions. Founding or longer-standing European Union Member States do not differ in any systematic way from those that joined recently; rather, Northern countries exhibit weaker homogeneity, while the reverse is true of Southern or Latin countries. We conclude that describing the whole of “European society” using a common socio-economic classification appears to be justified to a large extent.

Housing inequalities in Europe. An analysis of social stratification according to the ESeG classification (European socio-economic Groups)

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Source: SILC2011

Field: the households in which the person of reference is employed, 14 countries (in EU at 15)

Trend: a typology of the countries regarding housing models is established (4 classes) and the prototypes are tested to report on the different models. P2 seems a bit better to analyse the social segmentation of housing access.

First we elaborated a typology of housing models based on factorial analysis with several dimensions: distribution of housing tenure, the role of social tenancy, housing allowances and public transfers, the share of household income devoted to housing and their perception of these expenses. As a result, 4 housing models are shown within EU-15: conservative, familiarist, social and liberal, linked to the welfare regimes established by Esping-Andersen. Then we aim to describe social stratification systems and housing inequalities in each model, highlighting the role of institutional and political factors. This provides a good opportunity to test the 3 ESeG (European Socio-economic Group) prototypes on housing questions and at the household level. Regardless of the housing question, the 3 prototypes are tested first according to their capacities to describe social structure in each welfare regime. The second prototype has several clear advantages: it suggests structures with homogeneous classes, though does not disregard the lower class nor put too much focus on the middle class. Each model keeps its specificity while still offering these same advantages. Then, we review how relevant the prototypes are to describe a structural homology between positions on the labour market and housing market (housing tenure: home owners without and with mortgage, private and social tenants). Without any hesitation, prototype 2 offers the most reliable parallel within each model. For example, in the liberal one, the proportion of mortgagors systematically increases with social position whereas the one of public tenants decreases. Finally, this prototype is also the most appropriate to create a similarity between social position and housing cost. Whatever the underlying housing model, the higher the social and economic position, the less the share of housing in household incomes. However, the differences between countries remain and can be partly explained by the institutional differences between housing models. To deal with housing question in Europe, the second prototype is clearly the most adequate to discriminate employed and active households.



The social space of living conditions in Europe in 2011.

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Source: SILC 2011, 15 questions grouped into 5 sections about living and working conditions are systematically studied (study presented at the 4th meeting)

Field: employed in 26 countries

Trend: the prototypes are close to each other but P3 is clearly less appropriate, P2 seems better correlated with the dimensions linked to the living environment and working conditions, while P1 is better to distinguish between individuals on income-linked variables.

In order to test the three prototypes, this paper begins by the construction of a European social space on the basis of EU-SILC 2011 data about employed persons in 26 countries.

The social space is constructed with the help of a specific Multiple Correspondence Analysis applied to a set of 15 questions, grouped in 5 headings: poverty-exclusion, environment-security, housing, health, employment conditions. The aim of this selection is to provide a really multidimensional vision of the quality of life, in line with Stiglitz-Sen-Fitoussi recommendations.

Three principal axes define the resulting space.

The first axis corresponds to an axis of poverty-exclusion and health and can be interpreted as an index of quality of life in Europe.

The second axis is related to housing and environment. It corresponds to the opposition between urban and rural conditions of life.

The third axis is related to employment. It is an axis of stability and "quality" of employment, opposing stable wage-employment on one side, casual wage-employment and self-employment on the other side.

We then proceed to a structured data analysis, studying the factor "prototype" in the constructed space.

The first prototype is the one which "explains" the most the dispersion along Axis 1, but the differences with the two other prototypes are low.

On the second and the third axes, the second prototype gives the best performances, again with relatively small differences with the two others.

As we think multidimensionality is a main stake in social sciences, we therefore tend to prefer the second prototype.

Assessing the performance of the three one-digit Eseg prototypes with the 2011 EU-SILC Module on the intergenerational transmission of disadvantages

Contribution to the European Statistical System network for the elaboration of European socio-economic groups (ESeG)

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source: module of SILC2011 giving ISCO and the best level of education of the both parents and indications about the financial situation of the original family (9 variables built). It allows us to study the intergenerational transmission of disadvantages

Field: 25-59ans, employed in 26 countries.

The correlation between this set of variables and the socio-economic class of the individual is studied and the different prototypes are compared.

Trend: from this set about the intergenerational transmission of disadvantages, prototype 1 seems better.

This contribution assesses the relative performance of the three one-digit ESEG prototypes taking advantage of the 2011 EU-SILC module on the intergenerational transmission of disadvantages. As families are unequally equipped to provide their offspring with the assets that will help them gain access to the most desirable and rewarding occupations, we can expect that some degree of association will be visible between each one-digit ESEG prototype and the various background variables that can be built on the basis of the 2011 EU-SILC module. Starting from the viewpoint that a valuable ESEG prototype should be able to describe and reflect the level and pattern of the intergenerational transmission of advantages



and disadvantages, we should prefer the ESEG prototype that is most strongly associated with the set of background variables derived from the 2011 EU-SILC module.

In the 2011 EU-SILC PFILE dataset (version 2 of August 2013), considering data from all EU Member States (except Ireland and Malta), our working sample is composed of 186 043 individuals aged 25 to 59 whose self-defined current economic status is either employee working full time or part time, or self-employed (including family worker) working full time or part time. For this sample, we build the following nine background variables: Highest level of education attained by the father (respectively the mother and the parents), Occupational class of the father (respectively the mother), Dominant occupational class of the parents, Managerial position of the parents, Financial situation of the household, Ability to make ends meet. Cross-classifying each of the three one-digit ESEG prototypes with each of the nine background variables, we compute and examine a set of measures of association that are based on different logics: the Phi coefficient and Cramer's V are derived from the Pearson chi-square statistic; the Gamma coefficient, Kendall's Tau-b and Stuart's Tau-c are appropriate for ordinal variables; the Lambda symmetric coefficient and the Uncertainty symmetric coefficient are appropriate for nominal variables.

We first apply this analytical strategy to the whole European Union (except Ireland and Malta). All computed coefficients have the expected sign and reflect a statistical association between the ESEG prototypes and the different background variables. They also clearly suggest that the ESEG prototypes are more strongly linked with the education or occupation of the parents than they are with the financial situation within the family of origin.

As regards the relative performance of the three ESEG prototypes, the same pattern systematically emerges for all background variables with no exception. In each case, both coefficients based on the chi-square statistic (Phi and V) are slightly larger with ESEG Prototype 1 that adopts the most restricted definition of the lowest group in the occupational hierarchy than with the other two prototypes. The conclusion is exactly the same with the three measures of association for ordinal variables (Gamma, Tau-b and Tau-c). Only the coefficients that assume we have no more than nominal variables deliver a contradictory and somewhat different message. While the Uncertainty symmetric statistic would also incline us to prefer ESEG Prototype 1, albeit by a very small margin for a few background variables, this is not the case with the Lambda symmetric coefficient that clearly favours either Prototype 2 or Prototype 3.

However, on the basis of the strong ordinal dimension that lies behind the ESEG prototypes and our background variables, it is certainly reasonable to put more emphasis on the result delivered by the Gamma, Tau-b and Tau-c coefficients and confirmed by the Phi and V statistics. In this first analysis based on the whole European Union and the view point of the intergenerational transmission of disadvantages, we conclude that ESEG Prototype 1 should be preferred. It seems that this prototype is more able than the others to describe the specificities of the lowest group within the occupational hierarchy (ESEG group 7).

Then we replicate the previous analysis separately per country, using a restricted set of background variables and a restricted set of measures of association. Regarding background variables, we select the most synthetic educational and occupational variables that take into account information about both parents (ParentEd and DomClass) and the financial variable which is most strongly associated with the ESEG prototypes (Ability). As for measures of association, we only consider Cramer's V, the Gamma coefficient and the Uncertainty symmetric coefficient.

As regards the highest level of education attained by the parents, the three measures of association unambiguously select ESEG Prototype 1 for 18 out of 26 countries. This is also the case for 18 countries with the dominant occupational class of the parents and for 17 with the 'ability to make ends meet' variable. Moreover, in 13 out of 26 countries, this is ESEG Prototype 1 that exhibits the strongest association with all three background variables. This situation characterizes Belgium, Bulgaria, Cyprus, Finland, France, Hungary, Italy, Lithuania, Poland, Portugal, Romania, Slovakia and Spain. In some other countries – Croatia, Germany, the Netherlands, Slovenia, Sweden and the United Kingdom – ESEG Prototype 1 can certainly be chosen although we can also hesitate with another prototype for at least one of the three background variables. This is only for a last group of 7 countries – Austria, the Czech Republic, Denmark, Estonia, Greece, Latvia and Luxembourg – that the criterion of the strongest association would result in selecting different ESEG prototypes for at least two of the three background variables.



All in all, the analysis per country rather unambiguously confirms what the analysis based on the whole European Union has already suggested. With regard to the description of the intergenerational transmission of advantages and disadvantages, ESEG Prototype 1 that adopts the most restricted definition of the lowest group within the occupational hierarchy (ESEG group 7) seems to be more efficient than the others. According to our data that cover men and women aged 25 to 59 currently working full time or part time, ESEG group 7 represents 7.5% of the European workforce. This percentage ranges from 3.6% in Sweden, 4.3% in the Netherlands, 4.4% in Finland, 4.7% in the Czech Republic and 4.8% in Romania to 10.4% in Spain, 10.8% in Bulgaria, 10.9% in France, 11.6% in Portugal, 12.4% in Latvia, 12.6% in Luxembourg and 14.3% in Cyprus.



Panorama (WP5):

Europeans in employment in seven socio-economic categories

Michel Amar, François Gleizes, Monique Meron (INSEE)

In 2011, 218 million people aged 15 or over were working in the 27 countries of the European Union (EU). It would be inadequate to describe the workings of this labour market solely through the prism of economic activities (agriculture, industry, services, etc.). A new tool combining economic and social views enables us to provide a deeper analysis of this complex space that is the European Union, by dividing the labour force into seven homogenous socio-economic groups, ranging from managers to the less skilled employees. This interpretative framework is useful, for example, in analysing the labour market in each country (risk of unemployment, part-time work, mobility, etc.) as well as the impact of the economic crisis on its evolution.

An additional volume starting from the new classification resulting of this work and gathering some first examples of using EseG is elaborated and added to this contractuel work.



List of annexes and documents attached to the report:

Minutes of the meetings

<http://www.cros-portal.eu/content/eseg-report-annexesminutes-meetings>

- Five ESSnet meetings: Paris (14-15 November 2011), Budapest (20-21 February 2012), Rome (17-18 December 2012), Prague (19-20 September 2013) and Paris (27-28 of January 2014).
- The international meeting of researchers: 19 June 2012
- The meetings of the French group: 8 February 2012, 23 May 2012, 12 December 2012, 5 June 2013 and 8 January 2014 (in French)

Expertise of the basic variables and other technical documents

<http://www.cros-portal.eu/content/eseg-report-annexestechicaldocuments>

- Expertise of the basic variables (report from Francesca Gallo, Italy) for WP2 (see II.2 in this report)
"WP2_FGallo_Report_Isco_nace_quality_eng.pdf"
- Intermediary report (WP5)
"WP5_Intermediary_report_Oct2012_eng.pdf"
- Table of answers about national socio-economic classifications for WP1 (see II.1 in this report)
"WP1_Questionnaires-résultats_28fev2012.xlsm"
- The ESSnet ESeG project: proposals for a classification (Description of the prototypes, december 2013) for WP3 (see IV in this report)
"WP3_Proposals-Présentation_Dec2013_eng.doc"
- The European Social Survey (ESS) for WP3 (see III.5 in this report)
"WP3_MAMarFGleizes_NoteESS_eng.doc"
- Technical documents about ESeG for WP5 (see VI.2 in this report)
 - o ISCOxStatusxESeG tables "WP5_Table-IscoStatus-ESEG.xls"
 - o Program to build ESEG in LFS "WP5_ProgramEsegForLFSc.doc"
 - o Program to build ESEG in SILC "WP5_ProgramEsegForSILCc.doc"

Studies and tests (final texts, see list in Complements of this report)

<http://www.cros-portal.eu/content/eseg-report-annexesstudies>

- *Some evidence on the ESEG prototypes stemming from the Italian survey on occupations*, **Francesca Gallo**
"WP3_FGallo_IT_eng.doc"
- *A bibliographical survey on the divide between public and private sector in Europe (in French)* **Cédric Huguée, Étienne Penissat and Alexis Spire**
"WP4_EPénissatChugreeASpireRFS_fr.pdf"
- *Differences between public and private sector in Europe: A comparative study based on the social morphology of wage earners* **Cédric Huguée, Étienne Penissat and Alexis Spire (later)**
- *The gender of occupations in Europe (in French)* **Thomas Amossé and Monique Meron**
"WP3_ThAmosséMMeron_def_fr.pdf"
- *Factorial analysis of groups of observations and comparison of prototypes of classification, (in French)* **Thomas Denoyelle**
"WP4_ThDenoyelle_fr.pdf"
- *Results of tests on aggregate and detailed levels of Eseg from employment data (LFS 2011), data on living conditions (SILC 2011) and data on social and cultural practices (AES 2006)*, **Michel Amar and François Gleizes**
"WP4_MAMarFGleizes_Note tests_eng.doc"
- *The analysis of Czech earnings and comparison of prototypes of ESeG classification*, **Dalibor Holý and Jitka Erhartová**
"WP4_DHoly-eng.docx"
- *Educational tracking, intergenerational class mobility and differences in cultural participation* Testing ESeG prototypes in the Czech Republic using EU-SILC 2011 and AES 2011 ; **Jiří Šafr**
"WP4_Jsafr_ESeGprot_test1_eng.pdf"



- *Assessment of the prototypes*, **Marta Zahonyi and Ákos Huszár**
 “WP4_MZahnyiaHszar_HUL1_eng.doc”
- *Test of the 2nd level of the ESeG prototypes on Hungarian LFS and SILC data among the employed*, **Ákos Huszár and Marta Zahonyi**
 “WP4_MZahnyiaHszar_HUL2_eng.doc”
- *Testing of the ESeG prototypes in respect of education*, **Akos Huszar and Marta Zahonyi**
 “WP4_MZahnyiaHszar_Educ_eng.doc”
- *Working conditions in Europe* Comparison of the three one-digit ESeG prototypes on the theme of working conditions using EWCS 2010 survey *(in French)* **Charline Babet**
 “WP4_CBabet_def_fr_.pdf”
- *Socio-economic Homogamy in the European Union* Assessment of ESeG Level 1 Prototypes and Indications Regarding Level 2 Categories Using Data from the European Labour Force Survey **Milan Bouchet-Valat**
 “WP4_MBouchetValat_def_eng.pdf”
- *Housing inequalities in Europe*. An analysis of social stratification according to the ESeG classification (European socio-economic Groups) **Fanny Bugeja-Bloch**
 “WP4_Fbugeja_def-eng.pdf”
- *The social space of living conditions in Europe in 2011*. **Frédéric Lebaron**.
 “WP4_FLebaron_def_eng_relu.pdf”
- *Assessing the performance of the three one-digit ESeG prototypes with the 2011 EU-SILC Module on the intergenerational transmission of disadvantages* Contribution to the European Statistical System network for the elaboration of European socio-economic groups (ESeG) **Louis-André Vallet**
 “WP4_LAVallet_def_eng.pdf”
- *Europeans in employment in seven socio-economic categories* **Michel Amar, François Gleizes, Monique Meron**
 “WP5_MAMarFGleizesMMeron_eng.pdf “

(all can also be downloaded from www.cros-portal.eu, Topic: Eseg)



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