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Manual for surveys using the database of occupations of the EurOccupations project: third reporting period: D-25

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Manual for surveys using
the Database of
Occupations
of the EurOccupations
project

Third Reporting Period – D25

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1 Introduction

Occupation is a key variable in socio-economic research, but two problems are associated with the measurement of occupations. The first one regards a measurement problem in questionnaires and the second is the lack of international comparability of occupational coding systems. Web-surveys may in part solve both problems. Regarding the measurement problem, in contrast to other survey modes, web-surveys can employ three-tier search trees, which allow for respondents' self-identification of their occupational titles by means of a search tree. Our search tree leads from an aggregated list in the first tier to a detailed list of almost 1,600 occupational titles in the third tier. It prevents that occupation data has to be collected by means of an open response format, which requires a huge recoding effort, or by means of a limited, aggregated list of occupational groups. Regarding the comparability problem, web-surveys allow for multi-country surveys if an international comparable, multilingual database of occupational titles is used.

As part of the EurOccupations project, an international comparable, multilingual database of occupational titles and a search tree for respondents' self-identification has been developed. The EurOccupations Database of Occupations departs from the ISCO-2008 occupational classification of the International Labour Office (ILO) of the United Nations (UN). This manual explains how the database can be used for national or multi-country data-collection. Though the database is primarily designed for web-surveys, the search tree can also be used in computer-assisted face-to-face interviews for respondents to identify their own occupation, using the computer screen.

The EurOccupations project aims at building and testing an international comparative occupations database for the eight largest EU member states, notably Belgium, France, Germany, Italy, the Netherlands, Poland, Spain, and the United Kingdom. The database is freely available at www.euroccupations.org/main/researchlab/deliverables. Publications about the database can be found at the same page. Deliverables D01a/b and D25 are related to this deliverable.

Since early 2007, the ISCO2008 draft 3 version of the EurOccupations database has been used for the response to the survey question "What is your occupation" in the WageIndicator web-survey. This web-survey is posted on frequently visited websites in an increasing number of countries in Europe and outside Europe. For more information see www.wageindicator.org.

2 Understanding respondents' behaviour

When asked using an open response format question, the survey question on occupation is mostly phrased like this one: "What is the title of your main paid job?" (European Working Conditions Survey 2005, Eurofound, Dublin). Respondents tend to report their job title as they know it from their employment contract, job classification scheme, collective bargaining agreement, job advertisement, or just from a common understanding in the workplace. However, the aggregation level of the response is likely to vary across respondents. The response may be highly aggregated, e.g. *Clerical worker* or *Teacher,* or highly disaggregated, such as *Lithographic stone grinder*. It may lead to unidentifiable occupational titles, because they are either too firm-specific, e.g. *Appls Prog I,* or not specific at all, e.g. *Employee of department X* or *Dogsbody*. This will lead to aggregation variation in the data.

In order to collect occupation data coded on a 4-digit ISCO level, the Database of Occupations and its search tree must allow for self-identification at at least 4-digit ISCO level. For part of the 4-digit ISCO unit groups, however, disaggregation is needed for valid self-identification. Therefore, the Database of Occupations holds almost 1,600 occupational titles. By using the Database of Occupations, respondents are forced to respond to the level of aggregation offered in the choice-set and the data will not suffer from aggregation variation. Additionally, a disaggregated data collection is particularly useful when large numbers of observations are involved.

3 Explaining the Database of Occupations

The Database of Occupations consists of

1. A source list of occupational titles in English and their codes

2. A search tree

3. Translations

The source list comprises almost 1,600 occupations, classified within the ISCO-2008 classification of occupations. Each occupational title has a 13-digit code. Table 1 details the 13 digits of the code.

Table 1. Breakdown of the occupational code in the Database of Occupations

No	Explanation
1-4	4 digits is the 4-digit ISCO-08 unit group code
5-6	2 digits is a follow-up code, referring to the more detailed occupation within the 4-digit ISCO-08 unit group
7-8	2 digits is a follow-up code, referring to the more detailed occupation within the 4-digit ISCO-08 unit group within a particular country; it remains zero when no country-specific occupational title is added;
9-11	3 digits represent the numerical code of that particular country; it remains zero when no country-specific occupational title is added;
12-13	2 digits represent is always zero; these digits can be used later, if necessary, for example to assign a version code to the occupation when the label of the occupation has been changed.

The search tree is a three-tier search tree. At the first tier it identifies 23 large areas of occupations and industries, such as *Clerks, secretaries, post, telephone*, or *Construction, fitting, housing*. The second tier details each first tier-item into at least 3 and at most 20 categories. The third tier lists at most 30 occupational titles per second-tier item.

The translations include the translations of the occupational titles from the English source list into the language(s) of the country at stake.

For the Database of Occupations, see Tijdens and Joyce Jacobs (2009a), Tijdens and Joyce Jacobs (2009b), and Tijdens (2009).

4 Reflections on the search tree

For web-visitors who cannot identify their occupational title, we decided not to include an option 'Other occupation, notably ………'. For some years, this has been used in two WageIndicator web-surveys, notably loonwijzer.nl and lohnspiegel.de. In both countries it turned out that some 25% of the respondents tick this option, using it in part to report another occupational title, but also using it to report about related messages, such as additional tasks in their jobs, about their career aspirations, about their salaries, about their supervisors, and alike. Instead, it is much better to ask web-visitors to tick an occupational title that comes closest to that of their own and use the open response format in case they want to comment upon the ticked occupational title. By analyzing these text strings, it is possible to trace 'new' or 'not-listed' occupations.

It takes time for respondents to search their occupational title in a search tree. To reduce survey time, it might be tempting to reduce the search tree to two tiers for the most frequently mentioned occupational titles. However, such a search tree requires a closer supervision of the data-cleaning process. In addition, the impact on the data has not been

studied, e.g. respondents might prefer a two-tier-option over a three-tier option, regardless its content.

The search tree technique in a web-survey should have two features that increases its user-friendliness. First, it should allow the web-visitor to browse easily back-and-forth in the search tree. Second, in each tier and each language the list of options should be sorted alphabetically, allowing for easy search. One exemption applies. An occupational title that includes the words "all other" is always sorted at the bottom of the list.

5 Applying a search tree in a web-survey

Three ways of presenting a search tree on the web are available. First, Figure 1 shows the unfolding scheme, which is particularly useful for two-tier search trees, and does not fit so well three-tier trees. Second, select boxes posted on one page. In case of a three-tier search tree, the three select boxes have to be posted on one page. Figure 2 shows this type for a two-tier search tree. Third, Figure 3 shows follow-up pages, provided that the "Next" and "Back" buttons allow for and easy back-and-forth browsing through the search tree. This option is particularly feasible in case of a three-tier search tree.

Table 2.   A two-tier search tree folding the second tier instantly. Source: Euroccupations web-survey

We would like to ask you to complete a short web enquiry on a selection of occupations. This takes approximately 15 minutes per occupation.Click on the blue areas of work for the list of key occupations. Then, you can select the boxes of the relevant occupations.
After completing this short registration form, you will receive an e-mail including the weblink(s) to the web questionnaire(s) of the occupations of your choice.

Clerks, secretaries, post, telephone

☐ Administrative services department manager

☐ Cashier

☐ Executive secretary

☐ Filing clerk

☐ Legal secretary

☐ Payroll clerk

☐ Post sorting or distributing clerk

☐ Receptionist

☐ Secretary (general)

Guards, army, police

Legal, administration, inspection, policy adviser

Staff, management, direction

Care, children, welfare, social work

Cleaning, housekeeping, garbage, waste

Health care, paramedics, laboratory

Agriculture, nature, animals, environment (including animal care)

Commercial, shop, buy and sale

Construction, fittings

Table 3.   A two-tier search tree in two select boxes. Source: Personalmarkt.

Berufserfahrung 2 - Ihre Funktion im Unternehmen

Welche Funktion bekleiden Sie?   Hilfe

Berufsgruppe

Berufsgruppe
Allgemeine Funktionen
Personal
FiRe und Controlling
IT
WPG / Stb / Recht
Marketing, PR, Unternehmensentwicklun
Vertrieb / Verkauf
Kundendienst/Customer Service
Einkauf, Materialwirtschaft, Logistik
F&E und Wissenschaft
Technik
Produktion und Handwerk
Qualitätswesen
spez. Berufe: Medien
spez. Berufe: Immobilien
spez. Berufe: Banken
spez. Berufe: Gesundheitswesen
spez. Berufe: Versicherungen
spez. Berufe: Werbung
spez. Berufe: Gastronomie/Tourismus
spez. Berufe: Kunst und Kultur
spez. Berufe: Bildungswesen
spez. Berufe: Behörden/Politik

Funktion

Funktion
Kaufmännische Leitung
Cash-Management / Treasury
Finanz- und Rechnungswesen
Bilanzbuchhalter
Lohn- und Gehalt
Debitoren / Kreditoren Buchhaltung
Controlling
Steuern
Versicherungsmgmt. in Unternehmen
Revision

Positionsbeschreibung: Hilfe

Beschreiben Sie Ihre Position mit 3 bis 5 Worten, sodass unsere Berater einen Anhalt erhalten.
(z. B. Projektleiter IT-Infrastruktur oder Gruppenleiter Strategieberatung).

Positionsebene:

Wenn Sie selbstständig sind aber keine eigenen Angestellten haben, geben Sie links bitte
'Budgetverantwortung' an.
In der rechten Box geben Sie bitte den Umfang Ihrer Tätigkeit an.

Positionsebene

Positionsebene
Geschäftsführung/Vorstand
Führung mehrerer Hierarchieebenen
disziplinarische Personalverantwortung mit Budget
disziplinarische Personalverantwortung ohne Budget
fachliche Mitarbeiterführung mit Budget
fachliche Mitarbeiterführung ohne Budget
Mitarbeiter mit Budgetverantwortung
keine Personal- und Budgetverantwortung

Tätigkeit betrifft

Tätigkeit betrifft
kleine Teilprojekte
kleine, interne Projekte
kleine schwierige interne Projekte
große (>20 Mitarbeitern) Projekte
große Projekte mehrerer Firmen
große internationale Projekte
große globale Projekte, >100 MA

Table 4. A three-tier search tree using three web-pages. Source: WageIndicator

Table 4. (Continued) A three-tier search tree using three web-pages. Source: WageIndi-cator

Occupation - Step 2 of 3
Please select your occupation. *

- ○ Agriculture
- ○ Animal husbandry
- ◉ Fishery
- ○ Flowers
- ○ Forestry, nature
- ○ Horses
- ○ Horticulture, gardening
- ○ Livestock
- ○ Mechanic
- ○ Research, consulting

Occupation - Step 3 of 3
Please select your occupation. *

- ○ Algae cultivator
- ○ Coastal waters fisherman
- ○ Deep-sea fishery worker
- ○ First line supervisor fishing workers
- ○ Fisheries manager
- ○ Fishery or aquaculture helper
- ○ Fishery technician
- ○ Inland waters fisherman
- ○ Pisciculture fishery worker
- ○ Seafood farm worker
- ○ Seafood farmer
- ○ Other aquaculture worker

6 The data derived from the search tree

For each respondent, the web-survey will generate data for each tier ticked in the search tree. Thus, a three-tier search tree generates three variables in the dataset. In the data-cleaning process, it is advised to identify the observations with incomplete questionnaires for tracing technical failures, search tree path failures or respondents' dropout patterns.

Regarding the ISCO coding, the 13-digit code can easily be truncated to the 4-digit code of ISCO-08, and subsequently to its 3-digit, 2-digit and 1-digit codes. The occupation's skill level can be coded in four categories, ranging from unskilled (ISCO-major group 9), semi-skilled (ISCO-major group 0 and 4 to 8), skilled (ISCO-major group 1 and 3), to highly skilled (ISCO-major group 2).

7 Using the Database of Occupations

Any researcher aiming to use the Database of Occupations is free to do so. The translations for the countries included in the EurOccupations project can be downloaded from the website. As said before, the EurOccupations database has been applied in the multi-country WageIndicator websurvey. For this reason, the WageIndicator Foundation has translated and checked the database for other countries. Translations currently available for other countries are listed in the Appendix. Most of these translations can also be downloaded from the EurOccupations website.

Users whose country / language version is not yet available, may consider having the occupations list translated. From the EurOccupations website, the Excel file for translating the Source list of Occupations can be downloaded. In case of translations, the following guidelines should be taken into account:

- the occupational title should currently exist in the country at stake

- adequate translations are preferred over literal translations, e.g. in the UK the ISCO unskilled occupation *building construction helper* in the Source list is not used in connection with job titles that describe a supporting or assisting role; in the UK construction industry a typical title would be *building labourer*

- it is advised to use words that are easy understood by the web-visitor

The Database of Occupations is freely available from the Internet. In exchange, users are kindly requested to share their translations or their comments on any occupational titles with the first author of the Database (k.g.tijdens@uva.nl). For the coming years, she will

take care that new or better translations will become available on the EurOccupations website.

8 Adding country-specific occupations to the database

First, within a country specific occupations may be relevant, but not included in the source list. These occupations can be added, provided that 1) an English translation of the job title is provided; 2) a job description is delivered; 3) an ISCO skill level is indicated; 4) the nearest occupational title in the Database of Occupations is indicted. Table 5 details this situation for the Turkish Tripe seller and the Korean tea cook.

Table 5.   Some occupational titles do exists in a particular country only

Code	Source list	tu_TR	ko_KR
5221120179200	TUR Tripe Seller	İşkembeci	
5120180141000	KOR Tea cook		차류 조리사

Second, some occupational titles from the source list may not exist in some countries, e.g. the winegrower in Finland, or the regional police officer in the Netherlands. In that case, this occupational title will not be translated, and thus not shown in the search tree in that particular country. Table 6 shows this case. Not-translated occupations from the source should be limited as much as possible. This principle not only applies to close occupations, but to all occupations of the source list. Any occupation that is not shown to the respondent will not be measured, and will thus hamper cross-country comparisons.

Table 6.   Some occupational titles do not exists in a particular country

Code	Source list	fi_FI	nl_NL
5412050000000	Regional police officer	Alueellinen poliisi	
6112030000000	Winegrower		Wijnbouwer

Third, within a country and within an ISCO skill level, one occupational title from the source list may fall apart into two or more occupations with distinct ISCED levels. In Germany, for example, the 'Archivar/in, Diplom (FH)' is distinct from the 'Archivar/in, Diplom (Uni)' and associated with skill levels at higher vocational training respectively university level. Table 7 details this situation. Note that the country code of Germany is 276 and the country abbreviation is DEU.

Table 7. Distinct national occupational titles within one ISCO skill level

Code	Source list	de_DE	en_UK
2621010000000	Archivist	Archivar/in	Archivist
2621010127600	DEU Archivist Archivar, Diplom FH	Archivar/in, Diplom (FH)	
2621010227600	DEU Archivist Archivar, Diplom Uni	Archivar/in, Diplom (Uni)	
2621010327600	DEU Archivist Archivar, Fachschule	Archivar/in, Fachschule	

Fourth, within a country, an occupational title from the source list may fall apart into two occupations with distinct ISCO skill levels or an occupational title may be qualified at a distinct ISCO skill level. Here, the first procedure can be used. The Database of Occupations does not refer to country-specific differentiations of the ISCO skill levels. To our opinion, this is a huge undertaking. It would require a good operationalisation of the four skill levels for multi-country purposes and it would require an empirical testing of both required skill levels of occupations and attained skill levels of job holders at the detailed level of 4-digit ISCO occupational titles, assuming sufficient observations per occupation per country. The WageIndictor database allows in part for such an empirical investigation. It has the jobholder's attained educational level, it has years of experience and it has a self-assessed skill level in relation to the required skill level. However, an analysis of this data was no part of the EurOccupations project. In conclusion, the measurement of country specific skill levels of the ISCO 4-digit unit groups can be designed, but it needs a separate project to undertake such an investigation. The result would be country-specific columns, indicating the occupations skill level at national level, for example ISCOlvl_UK, ISCOlvl_DE, etcetera.

9 References

Tijdens, Kea and Joyce Jacobs, 2009a, A manual for surveys using the Database of Occupations of the EurOccupations project. Deliverable 25 EurOccupations project, available at www.eurocupations.org

Tijdens, Kea and Joyce Jacobs, 2009b, Note on the search tree and translations used for the Extended list of occupations. Deliverable 1b1 EurOccupations project, available at www.eurocupations.org

Tijdens, Kea, 2009, Update of the underlying principles of the Database of Occupations of the EurOccupations project. Deliverable D01a1 EurOccupations project, available at www.eurocupations.org

Appendix: Translations available

Country code	Country letters	Country	Language 1	Language 2
24	AGO	Angola	Portuguese	
32	ARG	Argentina	Spanish	
51	ARM	Armenia	Russian	
31	AZE	Azerbaijan	Russian	
112	BLR	Belarus	Russian	
56	BEL	Belgium	Dutch	French
72	BWA	Botswana	English	
76	BRA	Brazil	Portuguese	
152	CHL	Chile	Spanish	
156	CHN	China	Chinese	
170	COL	Colombia	Spanish	
203	CZE	Czech Republic	Czech	
208	DNK	Denmark	Danish	
246	FIN	Finland	Finnish	
250	FRA	France	French	
268	GEO	Georgia	Russian	
276	DEU	Germany	German	
320	GTM	Guatemala	Spanish	
348	HUN	Hungary	Hungarian	
356	IND	India	English	Hindi
360	IDN	Indonesia	Bahasa	
380	ITA	Italy	Italian	
398	KAZ	Kazakhstan	Russian	
410	KOR	Korea, Rep.	Korean	
417	KGZ	Kyrgyzstan	Russian	
484	MEX	Mexico	Spanish	
508	MOZ	Mozambique	Portuguese	
516	NAM	Namibia	English	
528	NLD	Netherlands	Dutch	
578	NOR	Norway	Norwegian	
600	PRY	Paraguay	Spanish	
616	POL	Poland	Polish	
643	RUS	Russian Federation	Russian	
703	SVK	Slovakia	Slovakian	
710	ZAF	South Africa	English	
724	ESP	Spain	Spanish	
752	SWE	Sweden	Swedish	
762	TJK	Tajikistan	Russian	
792	TUR	Turkey	Turkish	
795	TKM	Turkmenistan	Russian	
804	UKR	Ukraine	Russian	
826	GBR	United Kingdom	English	
840	USA	United States	English	Spanish
860	UZB	Uzbekistan	Russian	
894	ZMB	Zambia	English	
716	ZWE	Zimbabwe	English	