Occupational Coding for the Field Test

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Open-ended Occupation Questions

Student Questionnaire

• StQ CBA Booklet 1 – Students receive either:
  – ST322 (1 parent)
  – ST248 (2 parents)
  – ST249 (3 parents)
  – ST329 (3 parents)
• StQ CBA Booklet 2 – Students receive both of:
  – ST014 Mother
  – ST015 Father
• StQ PBA Booklet 1 – Students receive:
  – ST249 (3 parents)
• StQ PBA Booklet 2 – Students receive:
  – ST014 Mother
  – ST015 Father
• StQ PBA Booklet 2
  – ST329 Expected occupation
• StQ CBA Booklet 1
  – ST329 Expected occupation

Parent Questionnaire

All parents receive question:
  – PA192 (Main job, description for 3 parents)
Parental occupation question types

The following two questions concern your parent or guardian’s job:

*If your parent or guardian is not working now, please tell us their last main job.*

What is your parent or guardian’s main job?
(e.g. school teacher, kitchen-hand, sales manager)

*Please type in the job title. ___________________________ 01*

What does your parent or guardian do in their main job?
(e.g. teaches high school students, helps the cook prepare meals in a restaurant, manages a sales team)

*Please use a sentence to describe the kind of work they do or did in that job.*

_________________________________________________________ 01
The following questions concern your parents’ or guardians’ jobs.

(Please type one response in each row. If a parent or guardian is not working now, please tell us their last main job.)

<table>
<thead>
<tr>
<th>ST248</th>
<th>Parent or guardian #1</th>
<th>Parent or guardian #2</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST248Q01JA</td>
<td>Job Title: What is this parent or guardian’s main job? (e.g. school teacher, kitchen-hand, sales manager)</td>
<td>__________ 01</td>
</tr>
<tr>
<td></td>
<td>Please type in the job title.</td>
<td></td>
</tr>
<tr>
<td>ST248Q02JA</td>
<td>Job Description: What does this parent or guardian do in their main job? (e.g. teaches high school students, helps the cook prepare meals in a restaurant, manages a sales team)</td>
<td>__________ 01</td>
</tr>
<tr>
<td></td>
<td>Please use a sentence to describe the kind of work they do or did in that job.</td>
<td></td>
</tr>
</tbody>
</table>
What kind of job do you expect to have when you are about 30 years old?

(Please type in the job title or describe the kind of work you expect to do in that job.)
Introduction to ISCO-08

• What is ISCO-08?
  – First main objective for developing ISCO was “to facilitate international communication about occupations by supplying national statisticians with a tool to make national occupational data available internationally”.
  – The second main objective stated by ILO was “to make it possible for international occupational data to be produced in a form which can be useful for research”
  – Provides a framework for countries to create national classifications of occupations that have international comparability
Introduction to ISCO-08

• Hierarchically structured classification comprising:
  – 10 major groups (1\textsuperscript{st} digit)
  – 43 sub-major groups (1\textsuperscript{st} and 2\textsuperscript{nd} digits)
  – 130 minor groups (1\textsuperscript{st}, 2\textsuperscript{nd} and 3\textsuperscript{rd} digits)
  – 436 unit groups(1\textsuperscript{st}, 2\textsuperscript{nd}, 3\textsuperscript{rd} and 4\textsuperscript{th} digits)
• Classification is organized into groups according to skill level and skill specialization:
  – Skill level is applied mainly at the top (major group) level of the classification.
  – Within each major group occupations are arranged into unit groups, minor groups and sub-major groups, primarily on the basis of aspects of skill specialization.
• For analysis, ISCO codes can be recoded further (for example into the International Socio-economic Index)
ISCO Classification Structure

1  Managers
   11 Chief Executives, Senior Officials and Legislators
   12 Administrative and Commercial Managers
   13 Production and Specialized 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 Services and Sales Workers
   51 Personal Services 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
ISCO Classification Structure

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, Woodworking, 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
ISCO Classification Structure

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 Services 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
Auxiliary codes for PISA 2021

• 9701 - Doing housework, bringing up children
• 9702 - Learning, studying
• 9703 – Retired, pensioner, on unemployment benefits
• 9704 – I do not know, it’s hard to say
• 9705 – Answer too general or vague (e.g. good job, well paid job, employee, worker)
• 9997 – Not applicable
• 9998 – Invalid
• 9999 – No response

Make sure your national manuals contain these codes, these aren’t standard to ISCO-08!
Auxiliary codes for PISA 2021

• Other studies have shown that sometimes coders make excessive use of auxiliary codes

• Specific auxiliary codes for home duties, unemployed etc. should only be used when no other information is available
  – If parent is currently not working, but their usual occupation is provided, then code according to the occupation!
  – For example, “My father is a car mechanic but currently out of job” should receive the code for “car mechanic” (7231), not “unemployed” (9703)!
Approaches to coding ISCO-08

• Three ways to code into ISCO-08:
  – Directly using the international classification
    • Not ideal
    • Collaborating with similar neighbouring countries may be an option
  – Developing and adapting a classification scheme based on ISCO-08 to suit the national context (note this is more than a direct translation of ISCO)
  – Using a national classification that is as or more detailed than ISCO-08 (i.e. has no mergers) and converting this classification into ISCO-08.
Coding using a national classification scheme

• National classification schemes are useful when:
  – No translation of ISCO manual into country’s language are available
  – Centre has coders who are familiar and experienced with national classification
  – Using national classification makes data more useful for national analysis
National classification schemes

• If a national classification is used as a starting point, both the national codes AND the converted ISCO-08 are required to be entered
  – Do not only submit data coded using a national classification: Invalid data!
• Coding with ISCO-88 followed by later conversion into ISCO-08 is not recommended given the many splits/mergers
National classification schemes

• When using national classifications instead of ISCO-08
  – Obtain national coding instructions from relevant office for statistics in your country or supra-national bodies
  – Check possibilities to convert into ISCO-08 without losing information
  – Add specific coding instructions for auxiliary occupational categories
In-house coding

• Advantages of in-house coding
  – Greater control over process
  – May be more cost/time efficient if staff are well trained

• If your organization has the resources to conduct occupational coding, you should:
  – Ensure you have an appropriate national classification scheme (if available) OR
  – Adapt ISCO-08 for your national context
Outsourcing Occupation Coding

• Advantages of outsourcing:
  – Job will likely be done quicker
  – The quality of the coded data will likely be better
  – You do not need to employ and train your own staff
  – You do not need to find consultants that can help you with unclear cases
  – You will free your own staff for other tasks that have to be dealt with under the very busy PISA schedule

• Consider national bureau for statistics may have experience in this area

• Some private organizations may have experience in this area
Outsourcing Occupation Coding

- Ensure appropriate confidentiality/data security arrangements are in place
- Export your Occupational Coding data from the DME (details to be provided in data management manual)
- Provide your subcontractor with additional codes used in PISA (refer to the PISA Occupational Coding Manual).
- Your subcontractor should return the data with the 4-digit ISCO codes (where possible) for every case
- Codes must be contained within Occupational Coding Workbook
Computer assisted coding

• Computer Assisted Coding
  – Coder starts entering some characters of key words in the response
  – Options that best match the keywords are displayed
  – Coder chooses the one most applicable
  – Relatively inexpensive to set up as an aid for coders

• Automatic coding software
  – Matched automatically by program, without human intervention
  – Can be used as a check, but not as a replacement to human coders
Recruitment

• ISCO coders should be:
  – Literate and cooperative
  – Clerically accurate and careful
  – Willing and able to follow detailed instructions conscientiously
  – Not likely to alter procedures in order to reduce the amount of work
  – Persistent and willing to work steadily for long periods
  – Know how to ask questions when required
• Previous experience in Occupational Coding preferable
• Background in psychological measurement/assessment
Recruitment

• Screening test may be used during recruitment to check some of the criteria recommended by the ILO
• It is recommended to have at least two coders and one supervisor
• Ensure support from specialist with experience in this area (if available)
Experts and queries

• Try to engage an expert in national labor force statistics to help with training, coding, and esp. resolving queries about difficult to code strings

• This person should not be directly involved in coding but give advice to supervisor in especially difficult cases

• ACER (ISCO@acer.org) will try to help with any queries, but national experts will have greater knowledge regarding country-specific coding problems
Training

• Training materials
  – National/translated PISA coding instructions
    • Guidelines for using the Excel workbook
    • Guidelines for how/when to apply rules (e.g. more than one job listed, auxiliary codes)
    • Guidelines for solving typical problems
  – Relevant coding scheme and manual (ISCO/National)
  – Consider optimal balance of paper-based and electronic materials
  – Try not to overwhelm with too many materials
  – Consider already available training resources
Training

• Use experiences from last cycle (if applicable)
  – E.g. producing a list of 50 or so most commonly used ISCO codes from the previous survey
  – Problems responses and solutions
• Describe procedures for recording and resolution of queries
Training

• Training should mainly consist of practical instruction under close supervision
• If this is not the first time your institution has conducted coding, consider what went right and what went wrong previously
• Use example responses from earlier cycles/other studies (if available)
• It is recommended not to start coding until coders are fully trained
Quality Control

• Double coding
  – Strong recommendation to double code data for minimum of 10% of responses (across different question types) but higher rate advised
  – Double coding needs to be done independently (ie. no coder should code the same response twice)
  – Review double coded data for preparations for Main Survey
Quality Control

• Early monitoring and intervention
  – Identify problems that coders are having early
• Involve national experts for problem
• After Field test process is completed, consider what worked well, what didn’t for Main Survey or other studies
  – Including gaining feedback from coders about training
Useful resources

• ISCO-08 Manual (volume 1)
  [link]

• Coding Scheme
  – Structure
  – Group definitions
  [link]

• Harry Ganzeboom website
  [link]
Thank you! Khàawp-khun!

Any questions?

For any Occupational Coding Queries, please contact us:

ISCO@acer.org
tim.friedman@acer.org
Practical Exercise

• Using the handout, fill in the ISCO code (4 digits) for each of the 31 questions
  – For the first 20 questions, the major group (first digit) is suggested
  – Q21 – Q28 contain typical examples of commonly asked questions
  – Q29 – Q31 are examples of student’s expected occupation