

# 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

ST332

**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.)*

ST332Q01JA

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

*Please type in the job title.* \_\_\_\_\_ 01

ST332Q02JA

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.*

# Parental occupation question types

**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.)*

ST248

*Parent or guardian #1*

*Parent or guardian #2*

Job Title: What is this parent or guardian's main job?

ST248Q01JA

(e.g. school teacher, kitchen-hand, sales manager)

\_\_\_\_\_01

\_\_\_\_\_02

*Please type in the job title.*

Job Description: What does this parent or guardian do in their main job?

ST248Q02JA

(e.g. teaches high school students, helps the cook prepare meals in a restaurant, manages a sales team)

\_\_\_\_\_01

\_\_\_\_\_02

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

# Student expected occupation

ST329

**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.)*

ST329Q01JA

01

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# Introduction to ISCO-08

- What is ISCO-08?
  - International Standard Classification of Occupations (2008 edition) developed by International Labor Office
  - 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<sup>st</sup> digit)
  - 43 sub-major groups (1<sup>st</sup> and 2<sup>nd</sup> digits)
  - 130 minor groups (1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> digits)
  - 436 unit groups (1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> 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



# ISCO Classification Structure

## **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

# ISCO Classification Structure

## **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](mailto: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 I)

[http://www.ilo.org/global/publications/ilo-bookstore/order-online/books/WCMS\\_172572/lang-en/index.htm](http://www.ilo.org/global/publications/ilo-bookstore/order-online/books/WCMS_172572/lang-en/index.htm)

- Coding Scheme

- Structure
- Group definitions

<http://www.ilo.org/public/english/bureau/stat/isco/isco08/index.htm>

- Harry Ganzeboom website

<http://www.harryganzeboom.nl/ISCO08/>



# Thank you! Khàawp-khun!

Any questions?

For any Occupational Coding Queries, please contact us:

[ISCO@acer.org](mailto:ISCO@acer.org)

[tim.friedman@acer.org](mailto: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

<http://www.ilo.org/public/english/bureau/stat/isco/isco08/index.htm>