



7 th WORKSHOP ON LABOUR FORCE SURVEY METHODOLOGY

## DATA PROCESSING AND DATA QUALITY

**Madrid, Spain, 10 – 11 May 2012**

**B. Data processing: Coding of economic activity, occupation and educational attainment**

**B2– Coding of economic activities (NACE) and occupations (ISCO) according to alternative titles**

Ondrej Nyvlt- Czech Republic

**Coding of economic activities (NACE)  
and occupations (ISCO) according to alternative titles**

**LFS Workshop on methodology  
10<sup>th</sup> – 11<sup>th</sup> May 2012  
Madrid, Spain**

**Drobilíková Petra  
Nývlt Ondřej  
Savko Lukáš**



## ***Abstract***

Correct coding of economic activities and occupations is one of the most complex parts of LFS. Applying the method of coding according to alternative titles contributes mainly to the most accurate coding of economic activities and occupations. It allows us to code at the lowest level of classification possible and significantly lowers time pressure. Such a method is based on a simple principle: for each code there are various alternatives possible for coding (e.g. detailed descriptions of particular occupations). Also, this approach implicitly includes a searching for the connection and links between both classifications. The only condition under which Alternative searching would work properly is an accurate and appropriate description from users. As a result, we are able to eliminate mistakes at the major groups (ISCO) or sections (NACE) level which has a positive influence on final data processing.

---

## ***Alternative searching of titles***

Coding of economic activity and occupation is one of the most important elements in relation to the Labour Force Survey. Gaining such information is, of course, the most complex part of interviewing. In national economy, there is an enormous number of occupations and economic activities and regarding the statistical data processing it is necessary to determine the correct code of particular classifications. Such a work is generally done by qualified experts. This is a little bit in contrast with the situation during the interview, when there is less time for coding. The question is: “How to solve it?”

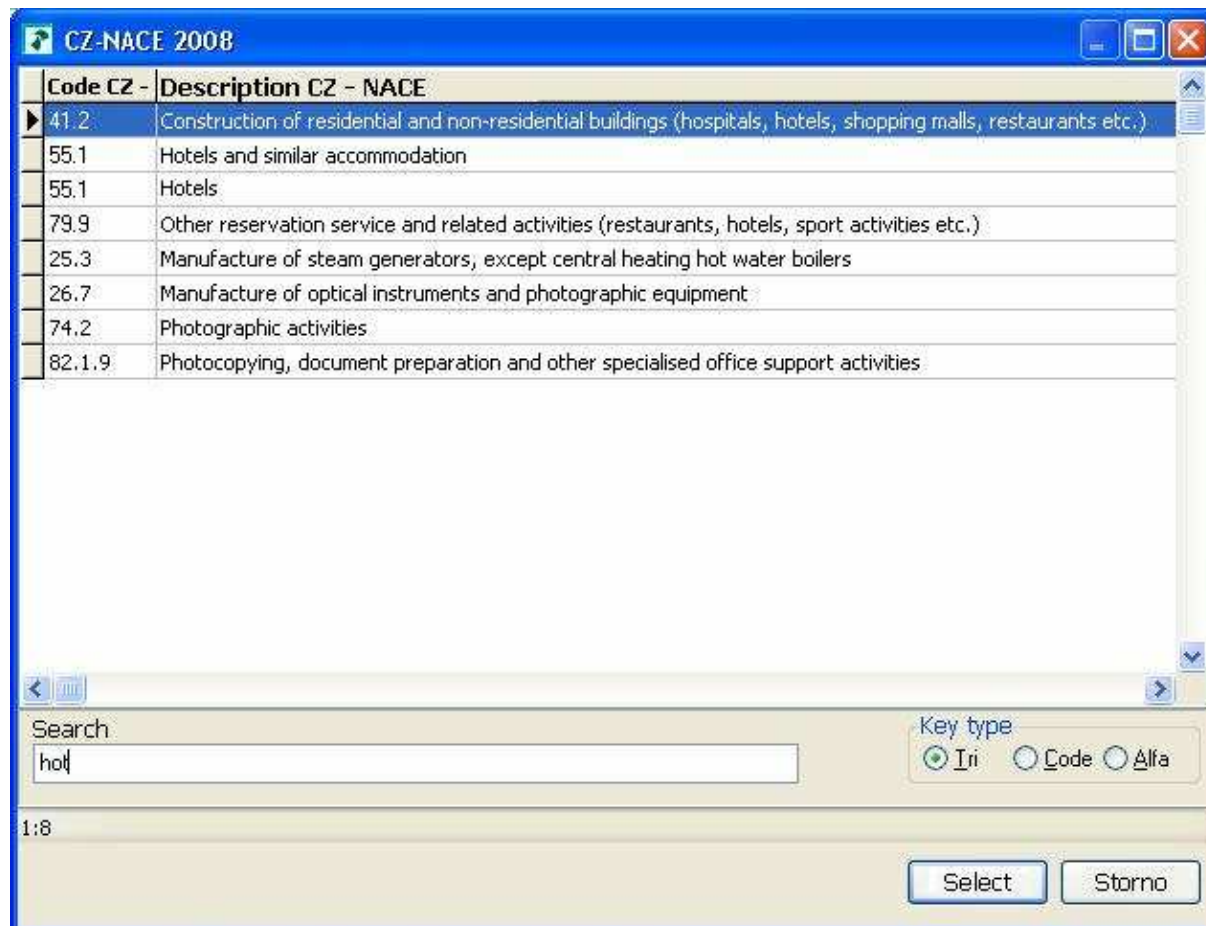
Naturally, the first possibility how to gain time while coding is to use/fill the field for the description of occupation or economic activity during the interview and to choose the correct code from the list of classification afterwards (at workplace). At the first glimpse, this might seem as a good solution, but there are obviously certain issues. The interviewer can find, that the description is not sufficient to choose the particular code of occupation or economic activity classification correctly. In fact, there is another problem. For interviewers, it can be often very difficult to choose the correct code. For instance, the names of codes are less specific and detailed and there is certain probability, that the interviewer might choose a wrong code for classification of economic activity or occupation.

For this reason, it is necessary to create the tool for interviewers, which improves the coding of the economic activities or occupations. Therefore, we have created and implemented so-called Alternative searching of titles (for occupations and economic activities classification) as a part of the CAPI for the household surveys, such as Labour Force Survey. Alternative searching of titles has been in use since 1<sup>st</sup> quarter 2011.

In the Czech Republic, 5-digit national classification of occupation (CZ-ISCO) was implemented on 1<sup>st</sup> January 2011, which was created on the basis of the international classification ISCO-08. These two classifications are the same down to 4-digit level. Alternative searching of titles is based on the 5-digit CZ-ISCO classification, which is more detailed and more accurate. However, the 5-digit national classification is not the only base for alternative codes. In economy, we can find an enormous number of occupations or alternative names for one job and, therefore, we try to continuously collect all titles possible for such coding. This approach requires a close cooperation between the experts on methodology and fieldworkers as interviewers could find a more specific and detailed description of occupation than the official list of occupations contains.

CZ-NACE is the same as NACE Rev.2 and in this case the alternative searching of titles is based on the 4-digit level. Coding of economic activity is even more complex than coding of occupation. While coding of occupation is based on the simple description of the job, the classification of economic activity requires knowing of description of economic activity from the respondent's point of view. The names of codes, in general, consist of economic activities, which are not identical with the respondent's description.

### *Trigram searching*



The screenshot shows the 'CZ-NACE 2008' window. It contains a table with two columns: 'Code CZ -' and 'Description CZ - NACE'. The table lists several economic activities, with the first one highlighted. Below the table is a search bar with the text 'hotl' and a 'Key type' section with three radio buttons: 'Iri' (selected), 'Code', and 'Alfa'. At the bottom right, there are 'Select' and 'Storno' buttons.

| Code CZ - | Description CZ - NACE                                                                                           |
|-----------|-----------------------------------------------------------------------------------------------------------------|
| 41.2      | Construction of residential and non-residential buildings (hospitals, hotels, shopping malls, restaurants etc.) |
| 55.1      | Hotels and similar accommodation                                                                                |
| 55.1      | Hotels                                                                                                          |
| 79.9      | Other reservation service and related activities (restaurants, hotels, sport activities etc.)                   |
| 25.3      | Manufacture of steam generators, except central heating hot water boilers                                       |
| 26.7      | Manufacture of optical instruments and photographic equipment                                                   |
| 74.2      | Photographic activities                                                                                         |
| 82.1.9    | Photocopying, document preparation and other specialised office support activities                              |

Search: hotl

Key type: ☒ Iri ☐ Code ☐ Alfa

1:8

Select Storno

This method is based on the relation among the description of interviewer, the alternative codes and the classification of occupation and economic activity. During the interview, respondent declares the occupation or economic activity by their description. As a part of the electronic questionnaire, trigram search is implemented. Trigram search is a method of searching for text when the exact syntax or spelling of the target object is not precisely known. Thus, the trigram search looks for all possibilities where there are three equal consecutive letters in description filled by interviewer and the alternative codes (titles). After the description is given the program displays all possibilities and interviewer chooses the correct alternative title. The process is based on the fact that the program recognizes the link between given alternative name and the particular code for the classification of occupation or economic activity.

In case of classification of economic activity it is possible to ask for the name of enterprise unit or the name of government agency (searching according to name). However, there is a slight difference in methodology between the Labour Force Survey and enterprise statistics, because the LFS is based on the workplace method, while enterprise statistics is based on the prevailing economic activity. This method is, therefore, not suitable for enterprise unit, but can be applied for government agency. In such cases, the government agency is defined by a single workplace. Government agency employees are assigned identical code according to the workplace method and according to the prevailing economic activity method. Because of the difficulty of assigning codes to governmental agencies, the use of this method is compulsory.

If the respondent refuses to describe the economic activity of the company and is only willing to state the name of his/her employer, it is possible to mention the company and assign the code later at workplace. The following link may be used for subsequent code-assignment.

| Kód CZ-NACE | Popis CZ-NACE                                                                     |
|-------------|-----------------------------------------------------------------------------------|
| 01.4.9      | Chov zvířat v zájmovém chovu (kromě ryb): koček, psů, ptáků, křečků atd.          |
| 10.9.2      | Výroba krmiv pro zvířata v zájmovém chovu, vč. psů, koček, ptáků, ryb atd.        |
| 01.4.3      | Chov koní a jiných koňovitých                                                     |
| 01.4.9      | Chov kožesinových zvířat                                                          |
| 01.4.9      | Chov králíků a ostatních kožesinových zvířat                                      |
| 03.2.2      | Chov korýšů, mlžů, měkkýšů jakož i ostatních vodních živočichů ve sladkých vodách |
| 01.4.5      | Chov ovcí a koz                                                                   |

Hledat:

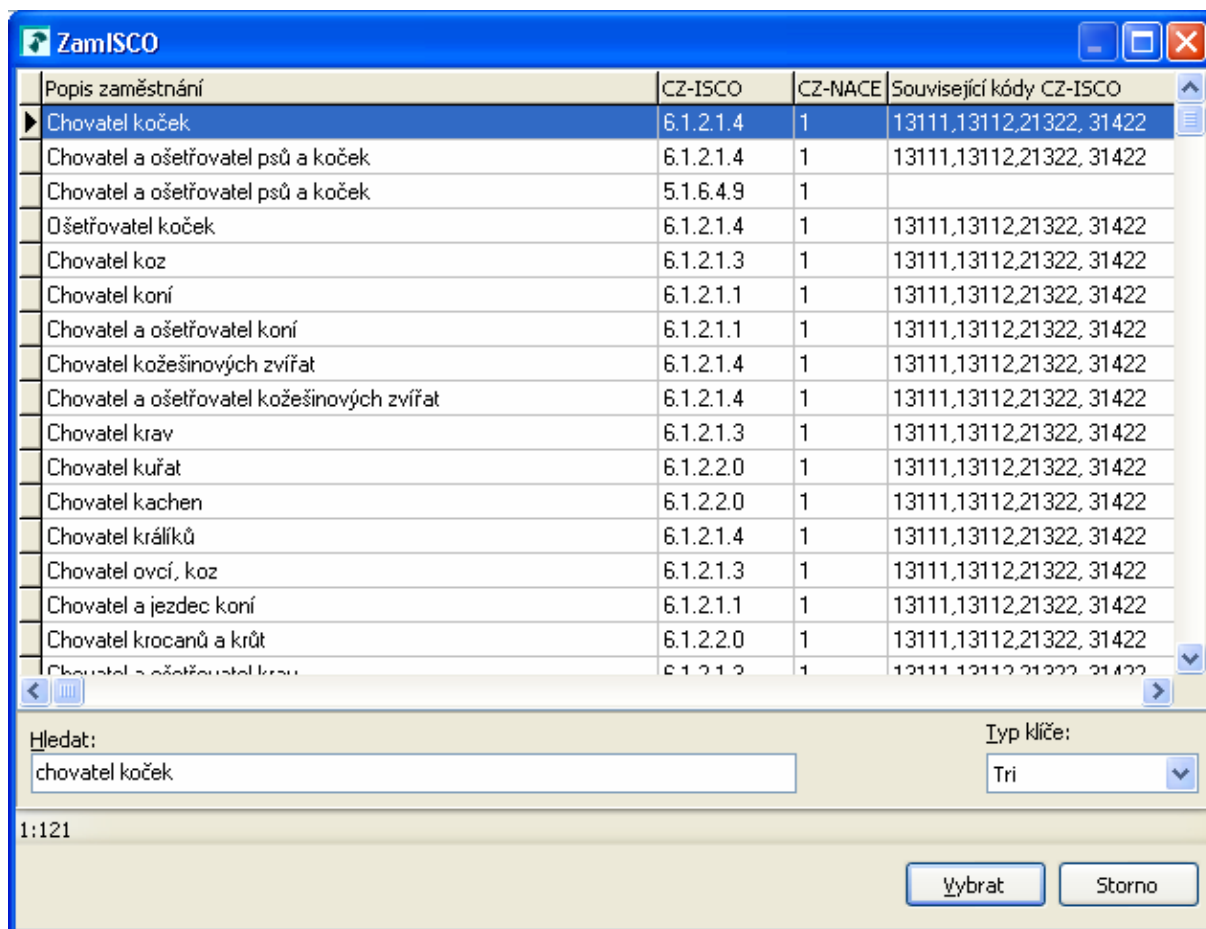
Typ klíče: ☒ Iri ☐ Code ☐ Alfa

1:7

## Why use Alternative searching of titles?

The main purpose of alternative searching of titles is to:

- *simplify* work with classifications
- *code the most accurate option possible* – at the lowest level of classification (CZ-ISCO at 5-digit level, CZ-NACE at 4-digit level), it comes with *higher quality data*
- *make CAPI easy to operate*. Working with Alternative searching of titles *does not require an exhausting knowledge of methodology* to choose the economic activity or occupation correctly. After interviewer fills the description of the economic activity or occupation (e.g. production of toys) in the searching engine, it immediately provides respondent with one code or several codes corresponding to proper code.
- *save time* while working with codes (simple and fast orientation for users)
- *use interconnection* between both classifications (CZ-ISCO and CZ-NACE). After interviewer fills the description of occupation in the description field (e.g. raising of cats) it provides him/her not only with the proper code (61214) and title (Fur animals producers and keepers) but also a corresponding code for CZ-NACE (01) and all other corresponding codes through particular sections (13111,13112,21322,31422).



| Popis zaměstnání                           | CZ-ISCO   | CZ-NACE | Související kódy CZ-ISCO |
|--------------------------------------------|-----------|---------|--------------------------|
| Chovatel koček                             | 6.1.2.1.4 | 1       | 13111,13112,21322, 31422 |
| Chovatel a ošetřovatel psů a koček         | 6.1.2.1.4 | 1       | 13111,13112,21322, 31422 |
| Chovatel a ošetřovatel psů a koček         | 5.1.6.4.9 | 1       |                          |
| Ošetřovatel koček                          | 6.1.2.1.4 | 1       | 13111,13112,21322, 31422 |
| Chovatel koz                               | 6.1.2.1.3 | 1       | 13111,13112,21322, 31422 |
| Chovatel koní                              | 6.1.2.1.1 | 1       | 13111,13112,21322, 31422 |
| Chovatel a ošetřovatel koní                | 6.1.2.1.1 | 1       | 13111,13112,21322, 31422 |
| Chovatel kožešinových zvířat               | 6.1.2.1.4 | 1       | 13111,13112,21322, 31422 |
| Chovatel a ošetřovatel kožešinových zvířat | 6.1.2.1.4 | 1       | 13111,13112,21322, 31422 |
| Chovatel krav                              | 6.1.2.1.3 | 1       | 13111,13112,21322, 31422 |
| Chovatel kuřat                             | 6.1.2.2.0 | 1       | 13111,13112,21322, 31422 |
| Chovatel kachen                            | 6.1.2.2.0 | 1       | 13111,13112,21322, 31422 |
| Chovatel králíků                           | 6.1.2.1.4 | 1       | 13111,13112,21322, 31422 |
| Chovatel ovcí, koz                         | 6.1.2.1.3 | 1       | 13111,13112,21322, 31422 |
| Chovatel a jezdec koní                     | 6.1.2.1.1 | 1       | 13111,13112,21322, 31422 |
| Chovatel krocanů a krůt                    | 6.1.2.2.0 | 1       | 13111,13112,21322, 31422 |
| Chovatel a ošetřovatel kras...             | 6.1.2.1.3 | 1       | 13111,13112,21322, 31422 |

Hledat: chovatel koček

Typ klíče: Tri

1:121

Vybrat Storno