Economically Active Population Survey

Double encoding matrices CNO94-CNO11

Background

Each quarter, the Economically Active Population Survey (EAPS) collects, among many other variables, information regarding the occupation or type of work carried out by employed persons (in both the main employment, and as may be the case, the secondary employment) and, for those persons who are not employed but have professional experience, the activity of the establishment where they last worked, if they stopped working one year ago or less.[1].

These variables are encoded following the corresponding official statistical classifications.

Up until 2010 inclusive, the classification of occupations used was CNO-1994. As of the first quarter of 2011, was introduced in the EAPS the new CNO-2011. A brief reference regarding the change to this classification may be viewed at:
http://www.ine.es/en/daco/daco42/clasificaciones/nota_epa_cno11_en.pdf

This change in classification assumed that it is not possible to directly link the information classified by type of occupation carried out at work without specific instruments would make it possible to go from one classification to another.

In order to tackle this problem, throughout 2010 the EAPS was double-encoded in its occupation variables. One the one hand, as has been said, the National Classification of Occupations 1994 (CNO-94) was used. But also throughout that year, the same occupation variables was encoded in central services with the new classification CNO 2011, thereby obtaining for the four quarters of 2010 double-encoded occupation results (CNO-1994 and CNO-2011), that have used for linking the old series of results with the new one.

In order to enable the transition between the two classifications to periods other than 2010, there has been prepared[2] on the dedicated EAPS website of the INE, a conversion matrix, calculated by taking the **double encoding of the occupation variables for persons carrying out an occupation or type of work in one of the four quarters of 2010**. It is considered that this group was the most ideal for providing a robust estimate of the empirical correspondence between the two classifications.

In any case, when using the matrix to go from one classification to another, be taken into account that **the correspondence between both classifications**, for those groupings in which there is no conceptual identity in their content (that is, when there is no one-to-one correspondence), **tends to be less robust the more it is separated**

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[1] It also obtains information regarding the occupation for those persons with professional experience who stopped working eight years ago or less, but only in the case of those persons who are on their last interview. This information is used in the annual subsample file of the EAPS, and does not offer quarterly results. The annual file also offers information on the activity of the occupation one year prior.

[2] A first version of the conversion matrix was published in April 2011 exclusively with the results of the double encode performed in 2010, the current matrix is revised based on information obtained effectively with the CNO-2011 in the four quarters of 2011

from the period in which the double encoding has been performed (the year 2008, in this case).

The following describes the matrix and how the retrospective series from the 2000-2010 period were calculated with CNO-2011, in view of the information obtained during 2011 with the coding of occupation in the EPA with the new classification.

Description of the matrix

The conversion matrix has been determined for a **breakdown to two digits in both classifications**, considering this election to be the optimum point between the degree of detail necessary and the reliability of the estimates.

Clusters of occupation to one digit has been made by aggregation of the corresponding two-digit occupations that constitutes.

The matrix has been calculated taking as a starting point the **annual average of the four quarters of 2010, tabulating the main occupation of the total employed persons on a division level (two-digit codes) of both classifications**. There are 66 divisions in CNO 1994 and 62 in CNO 2011. The information obtained in 2010 can be used for both retrospective estimates with CNAE-2011 and future estimates with CNAE-1994, by simply applying the adequate percentage distribution. This therefore provides, for the aforementioned division breakdown level, a transition matrix from CNAE-2011 to CNAE-1994, and another from CNAE-1994 to CNAE-2011.

To facilitate the use of the matrix, it has been developed "sequentially", by virtue of the distribution of each of the categories of one classification in those of the other.

Use

The use of the matrices is, conceptually, very simple. It is a simple transformation of vectors, multiplying one vector (that of the occupation categories according to a CNAE one) by the resulting matrix of the other vector (that of the activity categories according to the other CNO one).

We can illustrate the use of the matrix with an example. We will use the CNO 1994 to CNO 2011 transition matrix corresponding to the activity CNO2011=36, 'Administrative support professionals; security force technicians', in order to estimate the proportion of employed persons in Q2-2009 carrying out that occupation as of CNO1994=34, 'Administrative support professionals':

The number of persons employed in this subgroup in Q2-2009 (INEBASE results) is:

Economically Active Population Survey		
CNO-94 series (Tables of final results obtained with National Classification of Economic Activities 1994)		
Employed by sex and occupation. Absolute values and percentages as compared with the total for each sex		
Thousands of persons and percentage		
	Both sexes	
	Absolute value	
	2009QII	
34 administrative management		817.6

We will use the sequential development of the matrix for CNO94=34;

CNO-94	CNO-11	Percentage	Subtotals.
34	34	3.6632	
34	36	52.8500	
34	37	6.4858	
34	41	16.0000	
34	43	11.0000	
34	45	10.0000	
			100

The preceding matrix indicates that the total number of persons employed in administrative management in accordance with CNO 94, 3.6632% is distributed in CNO2011=34 ('Support professionals in finance and mathematics'), 52.85% in CNO2011=37 ('37 Legal, social, cultural, sports and services support professionals and similar services), 16% CNO2011=41 ('Accounting, finance services, and production and transport support services employees') and 11% in CNO2011=43 ('Other administrative employees who do not deal with the public not classified in other epigraphs).

Thus, the total persons employed in Administrative Management in Q2-2009, according to CNO2011 would be:

Result:

817.6 x 52.85%= 432.1016

Aside from the use itself that each user may make of these matrices for the transition between classifications, it is always possible to ask the INE information services to execute the tables ad-hoc, using the customary paperwork.

The results obtained will, in any case, be those resulting from the application of this double-encoding matrix to two digits, except for the occasional rounding errors caused by precision in thousands of persons in the INEBASE database.

Madrid, 20 January 2015