



IMPLEMENTING AND UP-DATING THE INTERNATIONAL STANDARD CLASSIFICATIONS OF OCCUPATIONS: ISSUES, EXPERIENCES AND POSSIBILITIES¹

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Introduction

In principle the work to develop a revised *International Standard Classification of Occupations (ISCO)* was completed when the Governing Body of the International Labour Organisation in February 1988 approved the Report from the 14th International Conference of Labour Statisticians which in November 1987 had adopted a Resolution providing a revised structure for ISCO (designated ISCO-88). However, an examination of the 2002 edition of the *Yearbook of Labour Statistics* reveals that only for 62 of the 82 countries reporting statistics on employment by occupation (table 3E) are the latest available statistics presented according to ISCO-88 major groups (up from 45 in the 2000 edition), while the presentation is according to the major groups of ISCO-68 for 20 countries (27 in 2000). The corresponding numbers for ISIC, rev. 3 and rev. 2 are 65 and 30 respectively (53 and 33 in 2000)². The first part of this note will present and discuss the implementation process which has led to this result after a period of more than 10 years.

When advising custodians of national standard classifications of occupations the ILO has always emphasized the need to have a continuous programme for up-dating the classification. The contrast between this message and the actual practices of the ILO and its Bureau of Statistics with respect to ISCO-88 is therefore a bit embarrassing. The second part of this will present how we hope to rectify this situation, within the limited resources that will be available for such work.³

¹ Note prepared for the 18-20 June 2001 meeting of the *Expert group on International Economic and Social Classifications* organized by the United Nations Statistics Division. The views expressed are those of the author and do not necessarily reflect those of the organizers, the ILO or its Bureau of Statistics. The author apologizes for all errors and omissions, and would welcome comments and suggestions for improvements and correction. Address: CH-1211 GENEVE 22, Switzerland; e-mail: hoffmann@ilo.org

² Annexed to this note are illustrations of a simple way of presenting time series when there has been a change in the classification system, used by the *Yearbook of Labour Statistics* since 1996.

³ *Hoffmann, 1999* represents the most recent presentation of ISCO-88 and ILO's work with the classification.

Implementing ISCO-88

First we need to agree on what we mean by “implementing an international statistical classification”: Implicit in the above description of the situation for statistics presented in the *Yearbook of Labour Statistics* is the notion that ‘implementation’ means that relevant statistics are available to users according to the classification. This will also be the point of departure for the following discussion, which will focus on two issues: the process of implementation and the quality of the resulting statistics.

The ‘implementation’ of ISCO-88 in national statistical programmes

There are two stages to a national ‘implementation’ of an international statistical classification: (a) The creation of the necessary tools; and (b) the application of those tools to national statistics. For the first of these stages there are three strategies which a national statistical organisation can use. In order of complexity and resource requirements they can be designated ‘adoption’, ‘mapping’ and ‘adaptation’: For the last two it is necessary to distinguish between (i) the creation of the national instrument and (ii) the application of that instrument to the relevant statistical data sources, while for the first strategy only (ii) is involved.

From the fact that from the 1990 round of population censuses about 115 countries reported that ‘occupation’ was an included variable (see *ILO, 1996*), even if only a few categories are distinguished, we have guesstimated that about 130 countries now are using an occupational classification, at least in this sense. We must assume that in the majority of cases these classifications represent **adoptions** of ISCO-88 or an earlier ISCO version, even if the ILO has never recommended that national statistical offices (NSOs) or employment services (ESs) should use this strategy for obtaining a national standard occupational classification (NSOC). However, we do recognize that to do so may be the only realistic option for those NSOs/ESs that do not already have a NSOC and/or do not have the necessary resources to develop one. That the occupational classification used by a NSO or ES should be able to reflect circumstances and requirements of the national labour markets has always been seen by the ILO as its primary objective. Ease of providing internationally ‘comparable’ statistics should always be a second order consideration.

If and when the NSO or ES has a NSOC with which they and their clients are reasonably satisfied and/or comparability over time is an important quality concern for national users of the relevant statistics, then the appearance of a revised international classification will not in itself be a strong argument for modifying the corresponding national classification.⁴ In that case **mapping** from the national classification to a revised international classification may be the preferred strategy for ‘implementing’ the latter for the purposes of international reporting of statistics. Such mapping will most frequently be needed for statistics which are already available according to a particular set of categories in the national classification, and *Hoffmann, 1994* provides advice on the mapping from a NSOC to e.g. ISCO-88.⁵

4 Of course, the actual degree of ‘comparability’ over time may be much less than most users expect, unless the custodian of the NSOC has managed to up-date the classification on a regular basis.

5 Must better ‘mapping’ will be achieved if the coding tools have been constructed to allow coding to more

Because the creation of the necessary ‘cross-walks’ between a NSOC and e.g. ISCO-88 requires a good understanding of both classifications as well as of the structure of the national labour market the ILO has offered to review and advise on draft cross-walks to ISCO-88 prepared by NSOs. However, there have been very few such requests.

It is interesting that ILO has received many more requests for advice concerning the **adaptation** of ISCO-88 to develop a NSOC based on this model than for mapping to ISCO-88, although adaptation is normally the most resource demanding strategy for implementing the international classification in a national context. Thus the adoption of the adaptation strategy reflected a need for a (new) NSOC as well as the convenience of using ISCO-88 as a model and point of departure. It may even be seen as a recognition of its qualities.

The support provided by the ILO has taken various forms: It proved impossible to produce the promised Manual on how to develop and use NSOCs, but the effort resulted in some hopefully relevant and useful documents, see e.g. *Embury et al, 1997, Hoffmann, 1994 and Hoffmann et al, 1995*. There have been direct contacts with the relevant authorities in about 55 countries and territories which have developed, or have been in the process of developing, a NSOC using ISCO-88 as a model or the same principles. (There have also been contacts with the authorities in nine countries where it has been decided to use another model when revising the national classification, usually that of the previous one.)

Advisory visits have been made to about 20 countries and officials from three countries visited the ILO⁶. National and regional training seminars have been organized for China, Costa Rica, Kyrgyzstan and Thailand as well as for CIS member states, South East Asian countries and South Pacific countries⁷. Countries where a national classification based on ISCO-88 has been developed with the assistance of an ILO sponsored or back-stopped resident expert include Trinidad & Tobago, Tanzania, Namibia, Mauritius and Fiji.⁸

As custodian of ISCO-88 ILO has also provided advice for three efforts to develop common regional classifications based on ISCO-88: (i) ISCO-88(COM), developed for Eurostat and

than one classification, e.g. by assigning the codes of all relevant classifications to each entry in the coding index. The Federal Statistical Office of Switzerland has reported that it is using a coding index with the codes of ISCO-88(COM) as well as to both the new and the previous version of the national occupational classification, neither of which was/is based on ISCO.

⁶ Visited: Argentina, Bahrain, Belarus, Brazil, Costa Rica, Croatia, Dominican Republic, Estonia, Indonesia, Kenya, Kyrgyzstan, Paraguay, Peru, Russian Federation, Slovenia, Sweden, Thailand, Tunisia, United Kingdom and the United States. Visitors came from Somalia, Switzerland and Ukraine.

⁷ Preparations were made for a project to develop a regional classification for the island countries in the South Pacific, but the necessary funds could not be found.

⁸ An ILO advisor helped the Ministry of Labour in Papua New Guinea develop a NSOC based on ISCO-68 while the National Statistical Office developed a classification based on ISCO-88 to be used for the 1990 Census. Neither activity was known to the other institution or to the ILO Bureau of Statistics until the results were published.

the European Union by the *Institute of Employment Research (IER)* of the University of Warwick (United Kingdom); (ii) ISCO-88(CIS) developed for the *Statistical Committee of the Commonwealth of Independent States (CIS STAT)* and (iii) ISCO-88(OCWM) developed for the ILO/UNDP Asian Regional Programme on International Labour Migration.

As part of and in direct continuation of its work with ISCO-88(COM) IER has also provided advisory services to the statistical authorities in both member countries of the *European Economic Area (EEA)* as well as countries in central and eastern Europe receiving support from the PHARE programme. IER has also organized regional seminars for officials from the statistical offices in the two groups of countries, two and six respectively. Thus IER represents a second international centre of competence for work on occupational classifications, and the six seminars organized for PHARE countries represent the only sustained activity of cooperation and exchange of information between officials in a group of countries on methodological problems and results in this subject matter area.

In the period from mid-1994 to end-1988 the ILO allocated about 2 work-years (wy) per year to work with statistical classifications, mostly to the development and finalization of ISCO-88. Since then about one wy per year has been allocated to work with classifications, including the support for the 'implementation' of ISCO-88 in national statistical programmes described above. Based on the experience that the availability of various forms of statistics tend to generate demand for them it is tempting to assume that more ILO resources dedicated to this work would have resulted in faster and/or wider implementation of ISCO-88, although the process has been demand-driven and virtually all requests for support have been given a positive response. However, with more resources this work could have been made more visible, to more NSOs and ESs as well as to economic and social researchers and private sector users of internationally comparable occupational information, such as private recruitment agencies and multi-national companies. From time-to-time we observe the use of ISCO-88 by such users, but we have no mechanisms for observing this in a systematic manner.

Quality issues

One of the stated objectives of ISCO-88 is to facilitate communication about occupations by supplying national statisticians with a tool to make national data available internationally in a manner which will help make them comparable with those of other countries. However, that ISCO-88 has been 'implemented' as described above will not be sufficient to ensure that national occupational statistics in fact will be comparable to a degree which is satisfactory to the users of such statistics. One reason for this is that the degree of comparability will depend on a larger number of factors which are not related to the occupational classification used, such as the methods of data collection, the units being observed, the definitions used to delineate the populations observed etc. These factors will not be discussed here. However, there are also some reasons which are directly related to 'implementation strategy' used and to the manner in which it has been used.

With the **adoption** strategy the main concern may be the extent to which the use of a classification which is not adapted to the local circumstances may result in the ‘forced’ assignment of a significant number of observations to categories which were not designed with such situations in mind. The seriousness of this problem is a function of the clarity of the principles used to define the distinctions between the categories of the international classification and the extent to which these principles are general enough to cover all the situations encountered. ‘Flexible’ criteria for distinctions which leave decisions to the subjective judgements will of course undermine the possibility for having comparable statistics, even if the procedures used to apply the classification in the respective surveys, censuses or administrative recordings are satisfactory.⁹ So far we have not seen any systematic evaluation of the extent to which the conceptual basis for ISCO-88 and the definitional descriptions it provides can be said to be satisfactory in this respect. An interesting issue will be whether improvements in this respect should be regarded maintenance and up-dating of the classification or as revisions.

Mapping is the ‘implementation’ strategy which should lead to the most serious quality concerns: One reason for this is a lack of transparency about the procedures used to establish the necessary ‘cross-walks’, and in particular about the principles used to allocate or distribute categories, e.g. from a NSOC to ISCO-88, which contains elements which should be classified to more than one category in the target classification. Another reason is the frequent practice of mapping only to highly aggregate categories in the target classification, leaving undocumented the good correspondence which may exist between many individual detailed categories in the two classifications. The fact that NSOs do not consult with ILO when mapping from their NSOC to ISCO-88 means that we have virtually no knowledge about how serious the problems of comparability are e.g. for the statistics on employment illustrated by the annexed examples, but we suspect that they are serious even at these aggregate levels, and frequently underestimated by the users of these statistics. One indication of this is the results of the limited examination of the comparability of occupational statistics on employment from the European Labour Force Survey undertaken at the IER and summarized in *Elias, 1997*.

From a comparability perspective the quality problems associated with the **adaptation** strategy, assuming good the application procedures all around, seem likely to be less serious than those associated ‘mapping’, but perhaps marginally more serious than with a simple ‘adaption’ strategy because of the adaptation to national circumstances which is the point of the strategy. Included in the PHARE supported seminars mentioned above has been a sequence of comparisons of tables with statistics on employment by occupation and industry (major groups by tabulation categories) from Labour Force Surveys for the participation countries. Assuming (without evidence) that the ISIC, rev.3 implementations have been impeccable these comparisons have suggested (i) that the initial national adaptations of ISCO-88 contained significant differences in the understanding of ISCO-88 groups; and (ii) that these differences have been significantly reduced over the period of consultations represented by these seminars. See e.g. *Elias & Birch, 1996*.

Updating ISCO-88: Issues and plans

⁹ This is a big IF, as NSOs that cannot afford to adapt the international classification to national circumstances seldom have the capacity to develop adequate coding tools and procedures

When the proposal for the conceptual framework for ISCO-88 was prepared one hoped that stability in the classification's basic structure and principles over a long period would be one of the benefits, and that it would be possible to ensure that occupational consequences of the continuous changes in technology and work organisation could be accommodated through a process of updating within and extension of the established structure. Unfortunately, systematic work to up-date and extend ISCO-88 has been modest, even though the *World Health Organization* has provided new descriptive definitions for the following groups of *nursing* occupations: 223, 2230, 323, 3231, 3232 and 5133. In the future these and other updated descriptions will be found on the ILO website as they are being developed.

There are two main reasons for the lack of progress in up-dating ISCO-88 so far: (i) The limited resources devoted to ISCO-related work. With about one work-year per year, divided between two persons, having been allocated to this work in the ILO most of the efforts have had to be devoted to providing guidance on understanding of ISCO-88, as well as on the development of NSOCs and on their effective use to obtain reliable occupational statistics. (ii) As custodian of ISCO-88 ILO is even further removed from the realities of the world of work which the classification is supposed to reflect than are the custodians of NSOCs¹⁰. On a worldwide basis these realities are also much more varied than those of a national labour market. Thus, even if ILO had allocated ample human and financial resources for this work one would be faced with difficult methodological issues: Where do we find relevant information, given that few national custodians have established systematic procedures for updating their NSOCs, and that those who have do not necessarily inform ILO about their activities and findings?¹¹ What are the criteria by which we can judge whether a reported development is (sufficiently) significant and widespread to be reflected in ISCO-88?. Do we need to make such judgements?

Current plans

10 The custodians of NSOCs have many possible sources of information about the appearance of possible new occupations' and changes in relevant aspects of existing ones: responses to statistical surveys and advertisements for vacant jobs placed in newspapers, professional journals or web-sites being the most prominent ones. In particular the last source seems to have the potential to dramatically improve a custodian's capacity to follow and organize information on new occupations, because accompanying descriptive text will already exist in electronic form (i.e. very little data entry will be needed) and because employers using new forms of employment and new occupations may be more likely than others to use this medium when searching for employees. Unfortunately, we in the ILO have neither world-wide surveys nor relevant web-sites to support the up-dating of ISCO-88, thus we'll depend upon the possibilities for synthesizing the outcome of national efforts. (It may be possible to benefit from the vacancy announcements being made through the European Union's *Eures* system, but so far it has not been possible to establish the necessary contacts with the secretariat for this system.)

11 One exception to the first part of this statement is represented by the *Occupation Information Unit (OIU)* in the *Office for National Statistics (ONS)* in the United Kingdom, see e.g. *Elias & McKnight, 2000*. However, the OIU does not represent an exception to the second part, as there is virtually no spontaneous communication from the OIU to the ILO, nor have the ILO been placed on whatever mailing lists OIU may have.

In the face of these problems the ILO's medium term strategy will continue to be one of "muddling through" on the basis of the following activities:

Collecting information

We expect that an ISCO-dedicated web-site, which we hope to establish before the end of 2001 (already delayed by more than one year), will be our main channel of communication with those who are closer than we are to the world of work. The web-site will be used to display answers to queries on ISCO-88 and its use, as well as proposals for up-dates and extensions. We hope to establish hyper-links to similar web-sites for NSOCs.

However, the experience since the adoption of ISCO-88 by the 14th ICLS seems to demonstrate quite clearly that we at the ILO cannot expect much information to come our way spontaneously. In this respect it will not help much to be able to receive and disseminate information electronically more cheaply from/to a much wider audience than in the past. Most of our correspondents will have to be reminded about our existence and our needs. In connection with the establishment of the ISCO web-site we therefore hope to send out a request for information about the current situation with respect to (a) NSOC(s) to all national statistical offices and employment services. In addition to asking for the co-ordinates of the custodian(s) of the national classifications as well as whether the NSOC represents an adoption or adaptation of a variant of ISCO, we will ask for information about procedures and tools used for implementing the classification in national data collection programmes and for ensuring that these tools and the classification itself is regularly up-dated. Based on the information received we hope to be able to establish a 'data-base on NSOCs in connection with the ISCO web-site, and to be able to up-date this data-base regularly through the information received later, either spontaneously or through reminders, e.g. annually.

Forms of up-dating of ISCO-88

As a result of the information received number of more detailed occupational classes may be presented as subdivisions of appropriate ISCO-88 unit groups, with a two digit "-xy" extension to the unit group code. Such extensions will be proposed where it has been made clear that international exchange of occupational information, including statistics, on these groups will warrant their separate identification within the ISCO-88 structure. This may happen e.g. (i) at the initiative of e.g. international federations of organizations of people working in particular professions who can make a case for the separate identification of these professions in ISCO-88 as important for the international recognition of such occupations¹²; (ii) because new occupations have emerged as a consequence of technological developments common to a number of countries; or (iii) because exchange of information between several countries for e.g. recruitment, job placements and the international migration of workers will be facilitated by references to detailed standard occupational classes.

¹² One example is the proposal to create a group 2111-11 *Medical Physicist*

Regional adaptations of ISCO-88 may introduce new unit and/or minor groups to the ISCO-88 structure, to bring together and highlight some important categories of occupations which in ISCO-88 are "hidden" in one or more unit groups, or which it is difficult to place within the ISCO-88 structure¹³.

Procedures for evaluating the relevance and significance of proposed up-dates to ISCO-88

On this very important point we have not yet been able to come up any proposals which seems satisfactory. The best option may be to try to establish a network of volunteer national 'specialists' who we can consult on specific proposals. Available experience seems to indicate, however, that many such specialists find it very difficult to evaluate proposals which do not correspond closely to their national experience and procedures. It will therefore be necessary to also make more use of regional workshops of the type organised by IER and PHARE for transition countries in Central Europe. The difficulty will be to ensure the necessary funding for such workshops around the world. It is encouraging that the UN Statistics Division found funds to organize such workshops for Asia and the Pacific and for the Caribbean (in 1999) and for English-using Africa (in 2000) on classifications in general and ISIC, rev. 3 in particular, but this does not provide a precedence which can be used to argue for workshops on occupational classifications, unfortunately.

Concluding remarks on plans for ISCO-88

The results of the activities described above will be presented to the *17th International Conference of Labour Statisticians (ICLS)*, tentatively scheduled for 2003-04, with an invitation for the delegates to consider whether proposals for a comprehensive revision of ISCO-88 should be prepared for discussion at the 18th ICLS in 2008-09. Obviously, all this will depend on whether a minimum of qualified staff and other resources will be allocated to the relevant activities. We are currently (May 2001) searching for qualified consultants to review relevant experiences of both ESs and NSOs with NSOCs and similar instruments as basis for preparing for the discussion of these issues at the 17th ICLS. **Suggestions will be gratefully received.**

¹³ One example is the group 247 *Public service administrative professionals* created for ISCO-88(COM).

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