

# *The Nordic Mobility project: proposals for basic classifications, definitions and preliminary tables (revised paper based on discussion 12-13.2 in Norway)*

## **Introduction**

In the following note we will present some specifications for our further work, based on the discussions in Oslo. One basic element in our work is decomposition of mobility. We will firstly discuss the definitions of mobility to be used in this study. Secondly the definition of the population for the study has to be determined. All persons of a certain age should be included in the study, not only those employed or belonging to the labour force. How should we define the highly qualified personnel in this study. Thirdly we have to agree on a common application of the industrial classification for the analysis. The population for the study has also to be defined in terms of age. The paper ends with some preliminary suggestions for tabulations.

## **Definition**

Firstly we have to determine if we shall analyse mobility out (changes between year  $t$  and  $t+1$ ) or mobility in (changes between years  $t-1$  and  $t$ ). In both cases we have year  $t$  as the base year. In mobility in we are analysing those coming in between  $t-1$  and  $t$  and comparing them with stocks in year  $t$ . In mobility out we are analysing those going out between years  $t$  and  $t+1$  and comparing them with stocks in year  $t$ . The mobility in concept is the only feasible alternative if mobility rates have to be calculated on the basis of labour force surveys, as information is only available for previous year. In the previous Nordic project we operated with mobility out, so that will mean a principal change. Of course there is no conceptual difference between these. Flows from education to employment is more meaningful to follow with the mobility in approach. According to our understanding it is more interesting to analyse this from the employers point of view than from the point of view of the education system.

**We propose to primarily use mobility in in this project in order to achieve maximum possible comparability with possible corresponding analysis from labour force surveys.**

There are two different basic dimensions in the definition of mobility, one narrow on the basis of changes of employers, one wider on the basis of changes of employers or employment status (unemployment, education, outside labour force, immigration). Which categories should be used must be specified. It is proposed to put the main emphasis in the analysis on narrow dimension of mobility rates, but to also use the other dimension. In the mobility matrices for instance, categories for non employment have to be added.

Change of employer can be defined on three different levels:

The widest level is the establishment (local kind of activity unit or local unit). One enterprise could be located in different places, with same or different activities. An advantage with the establishment unit is that it is comparatively stable. A part of mobility, however, might be due to changes from one establishment to another within the same enterprise.

This effect could be eliminated by using the enterprise (legal unit). Both approaches are possible on the basis of enterprise registers. **It is proposed that at least some of the tables are run according to both definitions.**

A third option is to try to separate mobility within groups of enterprises. This is a more difficult task and requires good information on which enterprises belong to the groups. One option is to calculate this indicator for the domestic parts of the biggest and most influential groups (Nokia, Ericsson, Volvo, Saab, Kvaerner)

## Educational classifications

As the idea is to analyse knowledge flows in the innovation system, the main emphasis is on the more highly qualified personnel. Other personnel might be included as reference groups. There are many problems involved with the establishment of comparable groups. The educational systems differ widely between the Nordic countries, which causes difficulties in achieving perfect comparability.

The following groups are defined according to the new ISCED (1997) classification. In connection with the revision of ISCED, most countries are revising their educational classifications to take the new ISCED into consideration. In practise, the new ISCED is the general framework for the comparative analysis but the actual classification of educations has to be based on the national codes. It should be possible to transfer older national education codes to this classification. The national statistical offices are doing this for the moment. The national applications of ISCED in this study should be as close to applications in official education statistics as possible in order to facilitate comparisons.

### *Groups to be included*

#### **ISCED level 6**

##### **PhD-level**

This level is defined as degrees leading to advanced research qualifications preparing for faculty posts in universities offering education on ISCED level 5A. The highest military educations should be excluded according to new ISCED from this category. The specialist degrees in medicine should also be excluded. The licentiate degrees should be included in Finland and Sweden. Degrees at that level normally require between 7 and 9 years of study. The classification of degrees to that level should be as close to national practise as possible.

#### **ISCED 5 level**

For the purpose of our study it is proposed to break this down into three groups

### **a. Long or very long university education (master degrees or equivalent)**

This corresponds broadly to a part of new ISCED 5A (long or very long duration). This usually requires at least 5 years of study in most countries. Also university degrees with only formally 160 weeks of study could be included to achieve maximum comparability if they from the labour market point of view are equal to longer educations in other countries. A whole range of degrees are included here, such as lawyers, civil engineers, basic degrees in medicine, specialist degrees in medicine, highest military degrees. In countries with a two tier degree structure (3-4)+(2-3) the post graduate level is included here. From this level there should also be a direct link to PhD-level education.

### **b. Medium university or other tertiary education of medium duration (bachelor or equivalent)**

These educations correspond to ISCED 5A (medium duration). Here should be included all other tertiary education with at least three years length. The programs could be up to four years of length.

### **c. All other tertiary education**

These educations correspond to ISCED 5A (short duration) or ISCED 5B (only short duration existent in Finland). Vocational education of a mainly practical nature and short university programs are included here. The programs are usually less than three years.

#### **ISCED 3+4 levels**

All other education beyond basic education

#### **ISCED 1+2 levels**

Only basic education

With basic education is meant the 9 years compulsory education

The primary focus for our study should be the first four groups.

A big and complicated question is how to handle educations upgraded during the time period we are interested in. For example a nurse seems to go to either ISCED 5A and 5B (our proposed groups b or c) depending on when the exam is taken. From our analytical point of view this is not good, but we have to live with the official registration routines.

For the moment the field of science (study) classification to be used is open. We have to decide what we want. After that, the categories have to be defined using the detailed field categories in ISCED (around 100) to determine which national codes to be included in each category.

## **Industrial classification**

In the previous study two different levels of aggregations for the industrial classification was used one with 41 groups and one with 11 groups. In this

study, it is proposed to also use two levels of aggregation, one level which could be used for countries operating with register data, another level which could be used by countries operating with LFS or corresponding sample survey based data.

In the study on the use of LFS data to analyse mobility was found that mobility rate in ICT sectors was considerably higher. Compared to the OECD definition of ICT sectors, the definition is somewhat more narrow as it is based on 2-digit NACE codes with one exception. It could therefore be a reason to separate these sectors also in this study. The proposal for industrial classification to be used in the Nordic study is as follows

### **ICT sectors**

Office accounting and computing machinery and electronic equipment	30, 32
Telecommunications	642
Computer and related activities	72

### **Agriculture, mining, manufacturing (excl. ICT), utilities, construction**

Agriculture, forestry, fishing	01,02,05
Mining, quarrying	10-14
<i>Oil extraction</i> <i>(additional specification for Norway)</i>	11
Consumer goods	15-19,
Wood, pulp and paper, printing, oil refining chemical industry, rubber, plastics	20-25
Metals, machinery (not ICT)	27, 28,29,31,33,34,35
Other manufacturing n.e..c.	26,36,37
Energy and water	40,41
Construction	45

### **Trade, hotels, restaurants, transport, communications, financial intermediation, other services (excl. ICT, educational and research institutes)**

Wholesale and retail trade, hotels, restaurants	50, 51, 52,55
Transport, storage, post, communications	60-63, 641
Financial intermediation	65, 66, 67
Other services	70, 71, 74

**Educational and research institutions**

Universities	national subgroup 80
Other educational institutions	other 80
Research institutes	73

**Other community services**

Health activities	85
Other community services	75-95 (not 80,85).

This will give 20 detailed industries and 5 aggregated industries. Due to different educational systems the distinction between universities and other educational institutions might be difficult. One criterion for making the distinction could be giving of PhD education or not.

In addition the following categories for non-employed are suggested for use in the matrices suggested below.

Unemployed  
 In education  
 Outside labour force, other  
 Abroad (those not residing in the country the previous year)

**Classification of age**

It is proposed to limit the study to the population aged 20 –74

The classification could be

20-24  
 25-29  
 30-34  
 35-44  
 45-54  
 55-64  
 65-74

**Tables****1. Stock tables**

At least the following stock tables are needed in the beginning of the project to start with

The whole population by education and industry group 1990-98 (6 educational groups and 20 industry groups), one table for each year

The whole population by education and age group and sex for 1990-98, one table for each year

## 2. General mobility matrixes

For the selected population mobility matrixes by industry (20x20 and aggregated 5) for 1990-1998 for totals and selected educational categories (groups 1,2 and 3). A general model for the layout of the matrix is suggested below.

Model mobility matrix

	Status year t				
	Employment sectors .....	Total employed	Un- employed	Education	Not in labour force
Status year t-1					
(1) Same employer					
(2) Different employer					
Sectoral breakdown of (2)					
(3) Unemployed					
(4) Education					
(5) Not in labour force					
(6) Immigrants					
(7) Totals year t	100 % .....	100 %	100 %	100 %	100 %

Narrow mobility rate  $(2)/(1)+(2)$

Wide mobility rate  $(2)+(3)+(4)+(5)+(6)/(7)$

Possible further breakdowns according to specific analytical needs.

## 3. Decompositions

For a selected year 1997 or 1998 construction of mobility matrixes under 2 not considering as mobility, job shifts between two establishments with different numbers if at least 30% of the personnel has shifted between the establishments (or other rules which have to be discussed)

For a selected year 1997 or 1998 construction of the mobility matrixes under 2 according to the enterprise as a statistical unit

The same, not considering flows within groups of firms as mobility

The same, not considering as mobility job shifts between enterprises with different numbers, if at least 30 % of the personnel has shifted between the enterprises (or other rules, which have to be discussed)

Finland will try to carry out this analysis and present a paper on this at the OECD June meeting.