The Nordic Model: Monitoring Social Welfare and Health Care Services

Mikko Nenonen, Anu Muuri & Olli Nylander
STAKES, National Research and Development Centre for Welfare and Health
Siltasaarenkatu 18 B
FIN-00531 Helsinki, Finland
mikko.nenonen@stakes.fi
anu.muuri@stakes.fi
olli.nylander@stakes.fi

Johannes Nielsen
NOMESCO & NOSOSCO Secretariat
Sejrogade 11
DK-2100 Copenhagen, Denmark
Nom-nos@inet.uni2.dk

This paper and our presentation at the ISI meeting in Helsinki have three major themes: Presentation of the Nordic model for organising and monitoring social welfare and health care services and the Nordic co-operation (Chapters 1-3), Demonstration of the Nordic model of information steering and easy availability of high quality data (Chapter 4), and Discussion about the future trends in disseminating statistical information (Chapter 5).

1. The Nordic model of social welfare and health care services

In the Nordic countries, the health service is a public matter (NOMESCO 1998). All countries have well-established systems of primary health care. In addition to systems of general practice, preventive services are provided for mothers and infants, as well as school health care and dental care for children and young people. Likewise, preventive occupational health services and general measures for the protection of the environment exist in all countries. The countries generally have a well-developed hospital service with advanced specialist treatment. Specialist medical treatment is also offered outside of hospitals. The health services are provided in accordance with legislation, and they are largely financed by public spending or through compulsory health insurance schemes. In all countries, however, a certain amount is charged for treatment and pharmaceutical products. Salary or cash allowances are payable to employees during illness. Self-employed people have the opportunity to insure themselves in case of illness.

Social protection is also a basic part of Nordic societies (NOSOSCO 1998). During the decades each of the Nordic countries has developed a highly advanced system to achieve a high standard of social protection. It has public financing, and wide acceptance among population. Shared responsibility has been the key element of the system.

2. The Nordic model of register based social welfare and health care statistics

The population size of each of the Nordic countries is relatively small (from 270 000 to 8.9 million). This makes it possible to base the social welfare and health care statistics on the registers covering the whole population instead of sample or surveys based methods. The public financing of the
systems together with unique personal identifiers makes this task easier. Thus the Nordic statistics have a long history, and are detailed and precise. In the Nordic countries it is also possible to link together registered events from different registers and make register based follow-up analyses. All the Nordic countries have strict legislation about data security. This protects the individuals from unethical use of the data but, at the same time, makes administrative analyses as well as developmental and scientific research possible.

3. The role of Nomesco (Nordic Medico Statistical Committee) and Nososco (Nordic Social Statistical Committee) in co-ordination and development of the Nordic social welfare and health care statistics

Decades of close co-operation among the Nordic countries have produced highly comparable and reliable statistics on social welfare and health care. The main elements of this work have been Nomesco and Nososco. They have provided a forum for the officials responsible for national social welfare and health care statistics to discuss their problems and to exchange experiences. They do not form some sort of “northern block” in the European Union or other international organisations. The role is more unofficial and based on expertise. The work of these organisations has been very practical and based on steady development of the quality and content of the statistics. Major projects and dramatic efforts have been avoided.

The aim of Nomesco is to establish a basis for comparable medical statistics in the Nordic countries, partly to take the initiative to develop projects of relevance to medical statistics as well as follow international trends in questions of medical statistics. Nomesco is a permanent committee under the Nordic Council of Ministers, placed under the jurisdiction of the Nordic Committee for Social Policy. It was founded in 1953.

Nososco has similar duties in the field of social welfare statistics. It was set up to co-ordinate the social statistics of the Nordic countries and to make comparative analyses and descriptions of the scope and subject matter of social welfare measures. It was established in 1946 (NOSOSCO 1998).

4. Rural - urban dimension as a continuous variable, an experimental exercise and demonstration based on public and freely available statistical data (SOTKA and Fennica)

To define urban or rural area in a simple way and to achieve a reasonable consensus about classification criteria is not an easy task. There are numerous classifications and criteria depending on the use and user of these scales. Classification may be based on administrative units (municipalities) or geographical units (GIS methods). We concentrate in this paper on administrative units although this is not an ideal way to estimate, for example, municipalities with both dense populated areas and pure agricultural parts or economic entities extending over several municipalities. We must also make a distinction between city/town (administrative or functional definition) and urban area (functional definition).

One of the simplest and controversial definition for a city is the one used by European Union in Labour Force Survey: more than 50 000 people and more than 500 people / km². This definition leaves e.g. some of the largest cities in Finland on the rural side of the classification. The other end of this continuum is the Finnish tradition of denoting a municipality as a city or town if itself judges this reasonable. Thus we have dozens of towns with very few characteristics of an urban area. The problem of all these classifications is that they are on/off classifications. To be able to study different phenomena (urban indicators) on the rural-urban axis we need a continuous and robust indicator. This indicator may not be so good in placing one single municipality into right class but it may give us more
information on urban problems and the benefits of urban setting. To demonstrate the availability of statistical information in the Nordic countries we created an experimental, continuous urban rural index. This index is highly hypothetical and by no means free of weaknesses. There were three elements behind creating this index:

- The free and public availability of statistical data at municipality level. Only variables freely available were used in this task to demonstrate the easy availability of data. All these analyses could have been done by nearly any Finn (if he/she only had interest in this subject).
- The idealistic vision of the authors about urban area
- Factor analysis which was used to identify three main factors depicting urban dimensions of Finnish municipalities. These were: a highly educated population and a large proportion of people working in service industry, investments in culture and education, size and population density. The fourth, rural, main factor was the amount of farming and voting for agricultural-, language- or local parties in local elections.

Nine different variables representing these factors were summarised to yield a rural-urban index. The validity of the index was checked against about 60 municipalities familiar to the authors. There were no major flaws. The index seems, however, to overestimate to a minor extent the urban dimension of municipalities with universities and municipalities next to major cities. However, 22 of 39 urban municipalities identified by a national expert group (Kaupunki-indikaatorityöryhmä 1998) were ranked among the 28 most urbanised municipalities and only nine of 39 were not included among the first 50 urban municipalities in this index.

This use of the index is illustrated here through two different phenomena: crimes against property and expenses on health at municipality level. Both these indicators are believed to be somehow linked with urban – rural dimension. The amount of crimes against property in Finland (1996, Figure 1.) has a significant correlation with the rural – urban index (Pearson correlation 0.68, p=0.0001). Stepwise regression modelling also is the strongest explainable variable for variation in the amount of crimes and alone explains nearly 50% of the variation (p for the model 0.0001).

The situation with the municipality level expenses on health was more complex. As noticed before (Muuri, Nenonen et al. 1997), (Nenonen 1997) there is no clear and universal correlation between expenses on health and other variables. Still the rural-urban index is among the best variables tested this far. It had a statistically significant inverse correlation (Figure 2.) with the expenses (Pearson

**Figure 1.**

Crimes against property on rural-urban dimension in Finland 1996

**Figure 2.**

Expenses in health on municipality level on rural-urban dimension in Finland 1996
coefficient \(-0.3, p=0.0001\). All the same, stepwise regression model explained only about 10\% (p for the model 0.001) of variation between municipalities. Half of the variation (51\%, \(p=0.0001\)) was explained by a model consisting of the rural-urban index, number of families with children and the use of private health care services (negative correlation), the financial status of the municipality, expenses on education and culture and percentage of workers in service industry (positive correlation). In real life this probably means the effect of historical development.

This experimental and hypothetical index illustrates the wide range of statistical information freely available in the Nordic countries. It also shows the importance of this kind of a tool in an international context. The next step is to calculate the index for other countries. The index is also tested against other definitions and indices. The established urban indicators (Kaupunki-indikaattorityöryhmä 1998) are to be also plotted against it. This index is not absolute. Thus a municipality with rural-urban index +15 in one country may be totally different from another municipality with the same index in other country. In different countries the variables used to calculate the index may be different because of cultural differences. In Finland e.g. percentage of industrialised workers was only a weak component in the most important urban-rural factors and acted opposite to percentage of people engaged in farming. The index, however, will make it possible to compare most urban or rural municipalities across nations.

5. Use of different techniques in presenting health care and social welfare parameters

Many Nordic routine statistics are published at municipality level and many are published on a routine basis, even as maps, providing an easy overlook of the differences in the indicator. The new means of data dissemination, like Internet databases (see http://info.stakes.fi/nettihilmo) have already been created. Statistical data is also available as CD-ROMS (see http://sos.se/epc). In our vision of the future we will offer an integrated system on the Internet, CD-ROMS, written reports etc. This will form an information centre for citizens, professionals and researchers in the Nordic countries and abroad

6. References

www.nom-nos.dk/ The homepages of Nomesco and Nososco
www.stakes.fi/english/index.html The homepages of Stakes in English
www.stakes.fi/tilre/tilfacts.htm The homepage of Statistics and Registers Unit at Stakes, "Facts about Finland" reports and SOTKA
www.stat.fi The homepage of Statistics Finland
www.fennica.ascentia.fi/vertailu.htm Fennica database
www.statistice.is The homepage of Statistics Island
www.scb.se The homepage of Statistics Sweden
http://sos.se/epc The homepage of National Board of Health and Welfare Sweden