UNITED NATIONS

ECONOMIC
AND
SOCIAL COUNCIL

STATISTICAL COMMISSION and ECONOMIC COMMISSION FOR EUROPE

CONFERENCE OF EUROPEAN STATISTICIANS

Thirty-fourth plenary session
(16-20 June 1986)

Item 4 of the provisional agenda

THE DANISH LAW MODEL
ESTIMATING THE CONSEQUENCES OF PLANNED LEGISLATION

Report by Danmarks Statistik 1/

1. Introduction

It is an important task for the central statistical offices to supply data which can be used in calculating the consequences of law amendments. The purpose is to determine in advance the effects that proposed or adopted new legislation will have on individuals, families or other groups of persons and on the nation as a whole (e.g. the effects on central government accounts).

These calculations must often be performed at very short notice and by means of statistical data that are not immediately available to the public administrators, or not available in the right form.

Until a few years ago the calculation of consequences of law amendments in Denmark was a very cumbersome task, not only because of missing data, but also because effects due to interaction with other fields of legislation could not easily be quantified. In recent years this situation has improved substantially, owing to the introduction of the Law Model.

2. The Law Model

The Law Model is a computerized tool intended to assess the immediate consequences of existing or planned legislation, both as regards the redistribution of income and as regards budgets and accounts of central and local government. The term "immediate consequences" implies that the Law Model does not take into account the fact that legislative changes may also cause changes in the behaviour of individuals (e.g. changes in saving propensity).

The Minister of Economic Affairs is responsible for the Law Model, and to advise him he has appointed a Law Model Board composed of representatives of various ministries and government institutions. The Law Model calculations are carried out on Danmarks Statistik's computer. Each ministry - there are now ten ministries and departments involved - is responsible for making its own calculations using terminals connected to the computer.

3. Structure of the Law Model

In principle, the Law Model consists of three components:

- the calculations system, containing a model of the legislation which is going to be analysed, e.g. tax laws,

- the Law Data Bank, containing values of parameters of the laws, e.g. taxation rates and deduction amounts,

- the statistical data, from which it is possible to calculate how many and to what extent persons and families are affected by the different rules of the law.

When the model is used, the different parts are linked together and calculations and analyses are carried out by the computing system. In addition to drawing on the common facilities, each user may create and record his own statistical data.

3.1. The calculations system

The rules of the legislation - actual or planned - are organised in "modules": Income Tax Module, Children's Allowances Module, etc. Each module contains the structure of the law, phrased in the computer language SAS (Statistical Analysis System).
When the desired values of variables such as taxation rates and income brackets are entered from the Law Data Bank, the modules can calculate the effects: Income tax, children's allowances, etc. for each person or family.

3.2. The Law Data Bank

The Law Data Bank contains actual and historical values of a large
number of law parameters. It also contains expected or planned
future values. These values are kept apart from the calculations
system to make it easy to analyse the effects of changes in values.

3.3. The statistical data

This is the most important component of the Law Model. Without the
statistics on the actual (or expected future) population and its
income, number of children in the family, etc., the Law Model would
be like another "pencil and paper" model.
The statistical data makes it possible to calculate how many people
are influenced by one particular rule in a law; or how many will
simultaneously be affected by a number of rules in different laws.
It is also possible to use the statistical data to produce aggregate
figures for the effects of a law, e.g. total revenues or total ex-
penses for the government.
The statistical data must be flexible. It must be easy to compile
new data combinations when a new law is introduced. This has led to
organizing the data as a number of Model Populations.
Each Model Population contains "micro"-information on a population
sample (normally about 1-3 %). For each person or family, a large
number of variables such as income, housing, and family composition,
can be combined. It must be emphasised that the individual persons
in the Model Populations are not identifiable.
Each Model Population is aimed at calculating the consequences of
law amendments in one area, such as pensions legislation; so the
Model Population contains the specific data that may be necessary
for this purpose. In addition to these subject-oriented Model Popu-
lations, there is however one 'big' Model Population, combining some
of the most important data relating to the various subjects. This
makes it possible to analyse roughly the combined effect of taxa-
tion, social benefits, housing allowances, etc.
The Model Populations are based on extensive extracts from a large
number of administrative registers which are processed by Danmarks

Statistik to produce the official population and housing statistics,
income statistics, etc. The Model Populations are "by-products" from
the process of making the ordinary statistics. And the Law Model can
be seen as one among several ways to disseminate official stati-
stics.

4. Practical experience

The structure of the present Law Model was agreed upon in 1980. The
following year the services of the model were offered to government
departments. In its first version the scope of the system was limi-
ted to tax legislation. Because of this, only a couple of depart-
ments subscribed to the model from the beginning, and the use was
rather sparse. Later on the scope has been considerably widened. The
greatest problem has been to enrich the statistical background data
sufficiently, but this has eventually been overcome. Today the Law
Model is considered an effective and necessary tool in the daily
work of government departments preparing legislation on taxation,
housing, and social benefits.

As mentioned earlier, the model is being used by 10 departments. The
budget of the Law Model is at present US$ 2/3 million per year.
About one third of this amount is paid by the departments as a fee
to Danmarks Statistik for using the model.

Model Populations at present cover the following areas:

> Income tax
> Real estate tax
> Housing allowances
> Pensions
> Children's allowances
> Use of kindergarten, etc.

It is expected that some new subjects will be covered in the near
future:

- Public health policy (use of hospitals and health insurance).

- Agricultural policy.