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*The Annual Report 1999 for the Research Department of Statistics Norway presents the main fields of research in 1999 with complete lists of publications and staff. The Annual Report also gives a brief history of the Department and its role as a social and economic research institution. The Research Department as presented in this report, includes the Social and Demographic Research Unit which administratively is placed in another department in Statistics Norway than the Research Department. Other research activities within Statistics Norway are not included in this report. The reasons for this line of division are partly historical and partly due to the fact that the Research Council of Norway uses this definition of what constitutes a research institute within Statistics Norway.*

*The Research Department welcomes interest in our publications and activities in general. We are happy to provide information as well as publications to both individuals and institutions. Some of our publications, such as Discussion Papers, Economic Survey and Statistical Analyses, are available free at our website at [www.ssb.no](http://www.ssb.no) (english site: [www.ssb.no/en](http://www.ssb.no/en)). All paperpublications can be ordered from our Sales and subscription service or via Internet. Our website is also updated with other information about the research activities at Statistics Norway.*

*Oslo, February 2000*

*Ådne Cappelen  
Head of Research Department*

## Brief history of the Research Department

The research activities of Statistics Norway have roots far back in the history of the institution. The statistical bureau of Norway was founded in 1876 by separating a small statistical office from the Ministry of the Interior.

The first Director General of Statistics Norway, Anders N. Kiær (1876-1913), took an active part in the international statistical cooperation and was a pioneer in the use of representative samples as a basis for statistics, especially with regard to income statistics. The research activity of Statistics Norway in the early years was modest and mostly related to analysis of data from the population census and income statistics. Later on after the turn of the century, statistical investigations of social issues and poverty conditions became an important area of research. After World War I Statistics Norway started to publish regular economic surveys.

A separate Research Department was not established, however, until 1950. In the years just preceding 1950 intensive efforts had taken place in establishing National Accounts, based on production statistics as the primary data source. The pioneering national accounts work of this period was an empirical research frontier which later would provide a basis for macroeconomic modelling and other planning and policy oriented tools. The national accounts system was completed in the early 1950s. At that time as one of very few, which integrated detailed annual input-output tables within the national accounting framework.

During the 50s the research activities of the Research department comprised in addition to national accounts, tax research, monthly and annual economic surveys, and other research activities often directed towards improving methods of economic planning in the postwar period. Towards the end of the 1950s the first macroeconomic model of Statistics Norway—the MODIS I model—was developed as a simple input-output model, but large in relation to the computer capabilities of the time.

Throughout the 1960s and 1970s models of the MODIS family, ever increasing in size continued to be developed and used intensively by policy makers. In addition, applied general equilibrium modelling was included as an important research activity. The 1960s also initiated an era of computer based tax models run by the Research Department as a service directed primarily towards the Ministry of Finance and the Storting (Parliament). Around 1980 a new breed of macroeconomic models were finally developed.

In the 1970s natural resource accounts and energy economics became new adopted research fields, later on after 1980 petroleum economics followed. During the 1980s and even today, a major empha-

sis is placed on developing microsimulation models, combining advances in computer technology, econometric methods, and data availability. These models are useful vehicles for the analysis of societal change as a result of demographic development, economic growth and government policy.

From 1996, research activities and publications of the Division for Social and Demographic Research are included in the Annual Report of the Research Department. In its present form, this research unit was established in 1991 as a separate division for research activities within the Department of Social Statistics. In a historical perspective, however, the present unit continues a more than 100 year long tradition of social and demographic research within Statistics Norway.

Each division has its own responsibilities and research tasks. On an ad hoc basis the divisions join forces to co-operate on major studies or special investigations. A staff unit deals with personnel, finances, publication and computer resources.

### General research objectives

The general objectives of the research activities within Statistics Norway are fourfold:

#### ***Enhanced empirical knowledge***

Statistics alone is an insufficient source of information for understanding social and economic development. Analysis of statistical data by means of relevant theory and analytical methods and the use of models give empirical insight and deeper understanding of the phenomena under consideration.

#### ***Analytical tools for monitoring economic and environmental development***

An important use of empirical insight gained is embodied in the design of tools for government planning, usually in the form of simulation models. Modelling activities are carried out in close contact with user interests and with emphasis on government planning needs.

#### ***Feed-back to the statistics***

Researchers in the Statistics Norway have a unique position close to the sources of data. This provides special opportunities for exploitation of the data expertise in Statistics Norway, for special organization of data material and links to other sources, and for influencing methods of collection of primary data. The analytic use gives feed-back effects to the statistical work and may improve the quality of official statistics.

#### ***Cumulating competence***

Adequate expertise and scientific competence are obvious prerequisites for successful performance of research tasks. The research activity shall give results that can be utilized in the Norwegian society and provide documentation to secure that high scientific standards in the analyses have been maintained.

**Chairman of the Board**  
Åge Danielsen

**Director General**  
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		Social Welfare Statistics
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	Information and Publishing	
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*The Research Department has for many years had the responsibility for serving the Ministry of Finance and the Storting (Parliament) with analyses of taxes and the social security system. The analyses are based on microsimulation models which are also used for income distribution studies. A dynamic microsimulation model is used for projections of the labour force by gender, age and education and analyses of social security rights. Other model tools have been developed for analyses of labour market imbalances, regional development and local government expenditures.*

## Taxes and transfers

Analyses of effects on private incomes and public revenues from the tax system and social security benefits are centered around the tax-benefit model LOTTE. The model is a static microsimulation model, where simulations are based on a sample of income tax returns, with additional information from administrative registers. Household characteristics are recorded by interview. The sample size varies from year to year, but from 1996 the sample has been about 40 000 individuals (14 000 households). The individual records can be aggregated to households and married couples, and the results can be weighted in terms of consumption units. The model keeps track of the link between each individual's incomes, taxes, pension entitlements and pension incomes. For any change in tax or benefit rules, the model simulates taxes, disposable income, and average and marginal tax rates for individuals and households. Model results comprise total tax revenue, as well as effects on tax revenues and income distribution of specified policy changes. LOTTE is extensively used by the government, especially the Ministry of Finance, and by the Storting (Parliament).

From a core module of personal taxation, LOTTE has been developed into a system of models that can be used separately or in combination. A tax law module is used to calculate taxes, disposable incomes, marginal tax rates etc. for households with given characteristics. To calculate the effects of changes in social security schemes, this core module has been extended by a law model for the most important transfers in the national insurance scheme. Now, work is in progress to extend the model system with a module for indirect taxation so that one can analyse the effects of direct and indirect taxes simultaneously. In contrast to other modules, this module takes account of behavioural effects through a link to a general equilibrium model developed at The Division of Macroeconomics.

In recent years LOTTE has been used in analyses of the tax reform for corporate taxation from 1992. This tax reform implied substantial reductions in marginal tax rates at high income levels, and the effects on labour supply among households affected by the reform are analysed by employing various regression techniques. One of the main objectives of the reform was to reduce the discrepancy between formal and actual tax rates, and in another project the change in actual tax progression during the period 1991-95 is analysed.

LOTTE has also been used in analysing the effects on incomes and income distribution from transfers to old age pensioners and to families with children. As part of this work we have estimated a model for female labour supply to simulate labour supply effects of changes in child benefits. We are now extending this work by introducing various modes of child care in the model specifications. This model will be used to analyse other family policy reforms such as the new child benefit program for parents who take care of their children themselves. In two other projects the framework for econometric labour supply analyses are extended by considering households labour supply in a long term perspective. Another completed project has analysed the effect on inequality in personal income distribution of increased labour market participation of married women. This study has been based on data from a sample of income tax returns over the last 20 years.

The analyses of income inequality have also focused on measurement problems in the data that are derived from income tax records. Particular attention is given to the definition and measurement of capital income. As part of this work a model that can be used to evaluate the distributional effects of a new tax proposal for owner occupied housings has been developed.

Documentation: SA 28, DP 260, DP 262, NOT 99/32, ØA 2/99, ØA 4/99, [76], [77], [81].

## Population, education, labour market and social security

Analyses and projections of household composition, labour force, education and social security are centered around the MOSART model. MOSART is a dynamic cross-sectional stochastic microsimulation model with the calendar year as time unit. The model starts with a one-percent representative sample of the Norwegian population in 1993 based on administrative data, including public pension entitlements in the form of annual labour market earnings since 1967. The life span of each individual is simulated with respect to migration, death, births, household formation, education, labour supply and income, disability pension and retirement. Public pension benefits are calculated from the simulated life cycles, and the current version of the model also includes a simple simulation of income and wealth in general, taxes, transfers, savings and inheritance. The model simulates the entire population for one year, before entering the next year, enabling interpersonal relations and external constraints on the number of events in the simulation. The length of the projection period depends on the purpose of the analysis, usually lying somewhere between year 2010 and 2060. The MOSART model is extensively used by government ministries, especially The Ministry of Finance, in analysing long-run developments in the labour force, public disability and old age pension schemes.

In order to analyse the possibility of disequilibrium in different segments of the labour market a simple submodel to the macroeconomic model MODAG and the microsimulation model MOSART is constructed. In this model supply and demand for different kinds of labour by education are compared by using the number of persons as the unit of measurement. To analyse labour market imbalances in the health and social welfare sector in more detail, a special model is constructed giving projections for supply and demand for 18 professional groups. A corresponding model is constructed for the educational sector to analyse labour market imbalances for four groups of teachers.

Documentation: SES 101, ØA 2/99, ØA 7/99, [80].

## Regional and local government

The regional macroeconomic model REGARD is used to support the analyses and projections of the development in regional labour markets and migration. The present economic part of the model is a simple submodel to the macroeconomic model MODAG where national figures for gross production, gross investments and employment in 28 industries are distributed to 19 counties by coefficients from 1993. A demographic model block takes care of internal migration and labour force

participation. The model provides projections of labour market imbalances, illuminating the implications for regional employment, labour force and population growth of a given macroeconomic scenario and from changes in economic policy. In 1999 the model was used in the preparation of economic surveys for four Norwegian regions. A project analysing regional differences in wages was almost completed.

A research project investigating regional labour market mobility patterns in Nordic countries continued in 1999 in a cooperation with researchers in Finland, Sweden and from 1999 also Iceland. The main approach has been to make comparative analyses of regional migration by using gross-flow-data, analysing the regional labour market mobility patterns decomposed by the migrant's and non-migrant's status of the labour market. Investigations especially dealing with demand-side considerations, analysing interregional labour market mobility through regional vacancy chains have been accomplished. The results from the project are used in analyses for the Norwegian Employment Commission.

In analysis of local government expenditures a macro model MAKKO is used to project employment and the number of clients in local public services in Norway. At the aggregate level, MAKKO contains submodels for services provided by local governments, like kindergartens, primary and secondary education, health care and care for the elderly.

A microeconomic model KOMMODE has been developed to analyse the fiscal behavior of local governments. A linear expenditure system has been applied to the estimation of price and income elasticities for eight service sectors. The econometric model recognises user fees and budget deficits as endogenous variables. Moreover, the model accounts for heterogeneity in local tastes and production costs. A number of projects that applies KOMMODE in analyses of fiscal disparities and income distribution are in progress. The model has also been applied to derive new classifications of municipalities.

A project on the municipal allocation of home care services across individuals was performed in 1999. The results show how service production depends on characteristics of the clients and the economic environment of municipalities. The estimated model of service supply to individuals is applied in analyses of distribution and efficiency in care for the elderly and disabled. Moreover, a detailed analysis of possible measurement errors has been carried out on data for the home care and long-term care sector.

A study of the allocation of expenditures across kindergartens by city district governments in Oslo was in progress in 1999. The aim is to analyse how

costs per child (in full-time equivalents) depend on characteristics of the children in kindergartens and the sociodemographic and economic environment in different city districts.

Documentation: DP 254, NOT 99/73, ØA 5/99, ES 2/99, [10], [37], [49], [60], [74], [75].

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*An important objective of the Research Department the last two decades has been to develop and apply models to analyse the interactions between economic development, energy extraction and use, and environmental consequences. In the last three years we have focused on the functioning of a deregulated Nordic electricity market and the development of a European gas market. Consequences for Norway following the implementation of instruments to restrict the emissions of greenhouse gases according to the Kyoto Protocol have been analysed. Methodological issues concerning the valuation of the environment and calculating the petroleum wealth has also been important subjects, as has analyses of the economic consequences of different waste policies. During the last year we have studied the literature of the importance of norms for economic behaviour.*

## The European and Nordic energy markets

The Norwegian electricity market was deregulated in 1991. This implied a major change for an industry that has been regulated for a hundred years. The empirical evidence of the impacts of this deregulation are to be documented and is an important field for analyses.

The Swedes deregulated their electricity market in 1996, the Fins followed by deregulating in 1997 and Denmark and the rest of Western Europe seem to follow up. This implies that the large power production capacities developed during the regulation period will be part of a competitive market and contribute to lower prices. A change in trade patterns for electricity and the need for installing new capacity diminishes in all countries. Changes in the external conditions alter the relative profitability of the different power production technologies.

Changes in power exchange become more important and this again may influence both prices and price variation by period of use. To be able to analyse elements of these issues we both develop macro economic models for Norway linking the economy and the electricity markets on a yearly basis, and Nordic electricity market models including a time of use and production aspect. These models have been used to study policy issues like the economic consequences of stabilising the Norwegian electricity consumption, balancing exports and imports of electricity in the long run, and the profitability of gas power plants.

Two major electricity consuming sectors are dominant in the Norwegian electricity market. The residential sector constitutes one third of the total market, and its share is sharply increasing. This has challenged politicians to find instruments to reduce the households electricity consumption in Norway. The power intensive industry utilises one fourth of total electricity consumption. This industry has so far had long term contracts with low electricity

prices. Under a market regime this may change, which again may have major impact on the demand for electricity from this industry.

During the last two years we have also applied micro economic theory, and household specific and firms specific data to estimate the households and firms responses to price changes.

Documentation: DP 255, ØA 99/3, ØA 99/5, ES 99/1, ES 99/3 SES 102, [17].

## Climate treaties, the Norwegian economy and national wealth

The close link between the Nordic electricity market and the central European electricity market implies a direct link between the extraction of gas from the continental shelf, and the electricity markets both in Europe and the Nordic countries. To deal with this interaction in our analysis of energy markets we follow two lines: First, we take part in developing a large disaggregated macroeconomic model (under a subcontract to Cambridge Econometrics) taking into account the interaction between economic development, energy markets and environmental problems, like emission to air. Second, we have a partial energy market model, which allows for studying consequences of imperfect markets on energy prices, demand, production and trade. These models also enable us to study the impact on the European energy markets of different regimes for fulfilling the Kyoto protocol.

Restrictions on the emissions of greenhouse gases, through for instance the Kyoto protocol, may influence the Norwegian economy along two main dimensions: It will influence the competitiveness of Norwegian industries, and it may reduce the petroleum rent which is very important for the Norwegian national wealth. The question is how much. The models described above may be utilised to analyse the first issue. To answer the second question, dynamic models describing the supply of oil,



gas and coal and the demand for these primary energy sources are applied. The model solution depends on both extraction cost, transport tariffs and taxes. This model also includes different kind of market solutions allowing for analyses of possible OPEC market power etc.

Documentation: Report 99/24, DP 245, DP 248, DP 258, DP 261, ØA 99/2, REE 99, EE 99, SØ 99/5, [9].

### **Positional goods, norms, economic activity and the environment**

Recently there has been much discussion internationally on the environmental Kuznets kurve; the claim that above some threshold level of per capital income, further growth will benefit the environment. Most studies in this literature are based on cross-sectional studies, comparing different countries at any one time, while there is a lack of time series analysis and links to empirical economic models. Since Norway early developed resource accounts and emissions inventories and also has linked environmental issues to economic models, we are in a position to study these questions in a time series perspective. Which environmental conditions have improved with growth and what explains the observed changes in pollution over time?

It has long been recognised that there are important links between growth and search for status or positional goods. This link has important implications for an optimal environmental policy, as resources may be wasted in everybody's effort to 'keep up with the Jones's', a struggle with few or no benefits.

Norms are important for any society to function well. Many externalities are at least partially controlled by norms. What generates these norms? Can the use of economic incentives to control the same externalities crowd out environmental norms, and increase the cost of controlling the externality, or will economic incentives reinforce the norms?

Economic activity generates waste. Model analyses shows that this may be an increasing burden in the future. The question then is whether this challenge should be met by general or more specific instruments. General instruments may be taxes on materials to reduce waste in the context of material balances. More specific instruments may be to influence the rate of recycling, burning of waste for energy purposes etc. A decision of instruments should be based on comprehensive studies comparing minimum cost of all the alternatives.

Documentation: ØA 99/9, Report 99/9, DP 257.

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*The purpose of macroeconomic analysis within Statistics Norway is to study the structure and development of the Norwegian economy by exploiting internal and external data sources and by developing and utilizing macroeconomic models. Key users of the models are the Ministry of Finance and the Storting (Parliament), although general availability to the public of models and results is emphasized. Business cycle analysis reports are published quarterly. Current work is organized under three headings: Business cycle analysis, Macroeconometric models and General equilibrium models.*

## Business cycle analysis

The Research Department publishes an annual economic survey of the preceding year and three quarterly surveys in parallel editions in Økonomiske analyser and Economic Survey. They are also available on Internet. Besides presenting the quarterly national accounts, these surveys also offer a brief presentation of the main international economic trends and forecasts of the macroeconomic development for the Norwegian economy. The forecasts are constructed using the quarterly macroeconomic model KVARTS (see below).

The Research Department is a member of AIECE (Association d'Institutes Européens de Conjoncture Economique) and of the now UN-based LINK system, which links national macro models to a global model. The LINK forecasts provide an important source of information in our forecasting activity. To appraise international economic developments, the Research Department also employs the NIGEM model of the National Institute of Social and Economic Research in London, UK.

Documentation: ØA 1/99, 5/99, 6/99, 9/99, ES 1-4/99, Reprint no. 131, 142, NOT 99/16.

## Macroeconometric models

Most of the macroeconomic research is centered around the development and use of the two large macroeconomic models – KVARTS and MODAG. The KVARTS model is used for forecasting and analysis in our business cycle reports. The model is also used to provide alternative scenarios for the Government appointed Expert Committee for Income Settlements in connection with the annual nation wide wage and income negotiations. In addition, the KVARTS model has been a central tool in various counterfactual/historical studies of Norwegian business cycles, and for policy analysis. The MODAG model, which is based on annual data, is used mainly by the Ministry of Finance for forecast-

ing and policy analysis. Both models are updated using the most recent final national accounts data. The input-output structure and base year of the models are at the moment 1996 and is updated every year. The models have the same input-output structure and level of disaggregation, which currently is based on 28 sectors of production and 46 commodities.

For most private production sectors (22) a set of factor demand equations are specified based generally on Cobb-Douglas production functions but with nested CES-elements for energy commodities (electricity and fuels). The factors specified are labour, energy, other material inputs, and three components of capital inputs (machinery, transport equipment and structures). For each commodity we specify an exogenous world market price, and two endogenous prices (for exports and the domestic market). The modelling of import shares and export volumes is based on the Armington approach.

Households supply labour which is disaggregated by gender and age to take account of large differences in labour market behaviour for various groups. There are substantial "discouraged worker effects" and moderate after tax real wage effects. Household demand is specified using a macroconsumption function and a housing investment equation, both depending on household income, wealth and an after tax real interest rate. The allocation of household demand on consumer categories is based on a dynamic version of the AIDS system. In general, all equations are specified as error correction models.

Based on the input-output structure and the commodity disaggregation, indirect taxes and subsidies are specified in great detail. The same goes for direct personal taxation where the model tax rates are aggregated from a microeconomic model which links the actual tax structure to the large microdatabase of recent tax forms. The Norwegian economy is characterised by a comprehensive public transfers system and the link between labour market variables and parts of these transfers are modelled econometrically while transfers to old age pensioners are treated in a simpler way.

Documentation: REP 99/3, REP 99/17, REP 99/23, DP 243, DP 244, DP 253, DP 256, DP 259, Reprint no.138, DOC 99/12, NOT 99/85, NOT 99/86, ØA 7/99, [13], [76].

## General equilibrium models

The research department has for more than 20 years developed and used successive versions of a Multi-Sectorial Growth (MSG) model. The most recent model, labelled MSG-6, exists in several versions reflecting the need for different model users to design the model simulations according to their particular priorities. The most sophisticated versions

include endogenous labour supply and intertemporal consumer and producer behaviour based on perfect foresight. A special feature of the MSG-6 model is that the production functions of industries reflect the production function of an endogenous number of heterogeneous firms. Thus, the link between firm and industry behaviour is explicitly specified.

Recent studies using various versions of the MSG model include:

- effects of a possible income tax reform
- welfare effects of environmental taxes and emission quotas
- trade reforms and analysis of Effective Rates of Assistance

Documentation: REP 99/14, REP 99/26, DP 251, DP 261, Reprint 133, 139, DOC 99/1, NOT 98/53, ØA 6/99, [8], [32], [35], [38], [55], [56].

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*The Division of microeconometrics has the following basic aims: (1) Obtain knowledge of the Norwegian economy by econometric analyses of micro data collected by Statistics Norway; (2) Application of the microeconomic estimates and hypotheses in macro- and microeconomic simulation models developed in Statistics Norway; (3) Analyses of economic policy problems based on (1-2); (4) Adaptation and development of theories and methods related to (1-3); (5) Development of microdata, databanks and statistics related to (1-3); (6) Cumulating competence in econometrics; (7) Publishing results, with emphasis on international journals.*

## Labour market

The labour market studies are focused on developing empirical models of labour supply, models for structural multistate duration analysis, and equilibrium models of labour supply and demand in a matching market. Analyses of earnings functions is in progress.

The labour supply models are designed to account for non-standard budget constraints (such as kinked and non-convex tax systems), and non-pecuniary job-attributes (such as type of work). A framework for multistate duration analysis, which is under development, is currently being considered for publication in an international journal. This framework is currently being applied to analyse labour supply behaviour for married women in an intertemporal context.

Documentation: DP 265.

## Welfare and inequality

The labour supply model developed in the project above has been applied extensively for welfare analysis of tax reforms. The labour supply model and tax reform analysis have also been applied to other countries, in particular Italy. A joint project with the Nordic countries comparing the development of inequality of disposable income in Denmark, Finland, Norway and Sweden during the recent 15 years, when inter alia unemployment rose dramatically, has been completed.

Documentation: DP 252, Reprint 135, 140, [1], [19], [28], [36], [78].

## Consumer behaviour

Systems of household demand functions are estimated, tested, and implemented into a network of macro- and microeconomic simulation models, and used for policy analysis.

Statistics Norway carried out their first household expenditure survey in 1888 and has collected such data every day since January 1, 1973. The survey design includes a module of two-year rotating panels since 1975. In a long term project we construct and document detailed datasets from these surveys, including expenditures on 700 items, and combine them with price data from the consumer price index and income data from tax files.

Two ongoing PhD projects exploit the detailed databanks from the Household budget surveys. One is studying the demand for health related goods, with focus on tobacco. The other is studying the development of the level and composition of consumption in Norway and its effects on the environment and welfare.

Systems of Engel functions with demographic effects, using 9, 37, 149, and 478 commodity groups, have been estimated. The results have been used to discuss distributional effects of indirect taxes, including electricity taxes, green taxes, food subsidies, and VAT on services.

A household consumer demand model, based on a five level quasi-homothetic utility tree with demographic effects has been calibrated, exploiting inter alia our microeconomic estimates and national accounts data. This demand system, with 29 goods including 15 transportation goods, has been aggregated across all Norwegian households, implemented in an applied general equilibrium model (MSG-6), and applied for analysing environmental problems.

Documentation: NOT 99/20, [68].

## Producer behaviour and productivity

Studies are conducted on R&D, education, scale economies, investment, job creation and productivity. Studies on job creation and the relationship between job creation and innovation have been completed. Work is going on to develop a new framework for studies of the relationship between R&D, profits and productivity. A PhD project studies "skills as a factor of production". Completed studies have examined returns to education across cohorts, sectors and over time, and the relationship between productivity, wages and education profiles at the plant level, on the basis of a matched panel with plant and individual worker information. Further studies look at the relationship between firm-specific seniority and wages, and heterogeneity in returns to education.

Documentation: [2], [11], [12], [15], [16], [39], [66].

## Discrete and continuous choice

Many important choice settings can be formulated as discrete and continuous choice processes where heterogeneous decision makers face different and partly unobservable choice constraints. This is a typical challenge with which the theory of discrete choice is concerned.

The research activity in this field includes the development of theory and methodology for structural analysis of data generated by individual choice from a continuous or finite set of alternatives. In particular, it is focused on topics such as

- characterization of transition probabilities for individual choices;
- modeling two-sided search/matching behaviour in markets with flexible contracts and limited information;
- characterization of models for discrete and continuous choice;
- development of models of consumer demand for commodities with unobservable quality attributes;
- application of the methodology in empirical analysis, and in the construction of price indexes;
- stochastic models for choice among strategies when the outcomes are uncertain.

Documentation: DP 246, DP 247, DOC 99/13, NOT 99/87.

## Econometric methods for panel data

Parallel to empirical studies of panel data in the fields mentioned above, studies on methods and models for panel data are carried out. Topics covered include latent variables, measurement errors, unbalanced panel data, and heterogeneity in coefficient structure including stochastic coefficients. A PhD study was finished, developing methods for ML estimation of VAR models for panel data with dynamic processes for the latent components, using ECM and Kalman filter techniques.

Documentation: ØA 9/99, [2], [47], [51], [52].

## Staff

Aasness, Jørgen, Director of Research

Dagsvik, John K., Senior Research Fellow

Biørn, Erik, Professor\*

Hægeland, Torbjørn, Research Fellow

Klette, Tor Jakob, Senior Research Fellow\*

Larsen, Erling Røed, Economist

Li, Yun, Economist

Raknerud, Arvid, Research Fellow

Sommervoll, Dag Einar, Mathematician

Wangen, Knut Reidar, Economist

Wennemo, Tom, Adviser (EDP)

\* Part time.

*The general objective is to analyse demographic development and changes in economic and social living conditions of the population. The research activities combine a microanalytical approach focusing on demographic and socioeconomic processes, with a macro level approach directed at describing changes in social and demographic structure. Research results from demographic analyses also serve as input for revising model structure and parameters of forecasting and simulation models in Statistics Norway. The division is responsible for BEFREG (Statistics Norway's model for national and regional population projections).*

## Population projections

### **BEFREG—population projections 1999-2050**

A new set of projections was made in the fall of 1999 for each municipality (1999-2020), county (1999-2030) and the whole country (1999-2050). Assumptions and results from three main and eight additional variants were published in *Ukens statistikk* (Weekly Bulletin of Statistics) 48/99, and on the home pages of Statistics Norway, <http://www.ssb.no/folkfram/>.

### **Stochastic forecasts**

A method has been developed for computing predictive intervals for future age-specific fertility. Similar work on mortality is in progress. The ultimate aim is to produce confidence intervals around the outcomes of national population forecasts for Norway. The project will be finalised during the spring of 2000.

Documentation: [65], forthcoming: Keilman, N. and D. Q. Pham: Predictative intervals for age-specific fertility. *European Journal of Population* 2000.

## Demographic research

A substantial part of research activities over the recent years has focused on structural changes in central demographic processes, in particular fertility and family formation (nuptiality). Retrospective surveys have been major data sources for these analyses. With time, however, it is increasingly important to supplement these surveys with more recent data sources. Since 1994, survey data on consensual unions are collected on a regular basis through Statistics Norway's Omnibus Surveys. Survey data are also supplemented with more recent data from registers, and more and more projects are based solely on linked registerdata. The organisation and use of registerdata from different registers is an important part of the activities of the division, and we are also advising external colleagues in such matters.

### **Family formation in post WWII Norway demographic change, historical and sociological perspectives**

The main objective of this project is the growth in consensual unions, which is considered as the most important change in the family formation pattern in the post-war period. The analysis is interdisciplinary combining demographical data, sociological theory and historical knowledge.

Documentation: SSP 4/99.

### **Fertility and labour force participation in the Nordic countries - a comparative analysis of Norwegian, Swedish and Finnish women**

The main purpose of this project was to study the determinants of female fertility and after-birth employment in the Nordic countries by comparing the development in Norway, Sweden and Finland since the late 1960s. The study gave special emphasis to the effects of family policies, in particular the parental leave programmes. The analyses were based on longitudinal data from similar Family and Fertility Surveys containing complete retrospective life histories on childbearing, cohabitation and marriage, educational activities and employment.

Documentation: DP 263, [69], [70].

### **Register analyses of recent fertility trends**

From mid-1998 the division launched a new project on the recent developments of fertility trends. The project is based on a continuation and extension of earlier analyses on register data for the period 1935-1990. The data are made available through the BEBAS-system (Statistical micro-data base with information from the population registration system). For more complex analyses of fertility trends and new patterns of family formation, population register information will be linked to various sources containing explanatory variables (education, income, immigration status). Activities in 1999 include a study of regional variation in fertility trends and preliminary analyses of differential pattern of fertility by educational attainment (level and type). We have also started the planning of an analysis of fertility among immigrant women.

Documentation: REP 99/7, SSP 2/99, SSP 5/99.

### **Mortality and residential history – recent Norwegian experiences**

Underlying many studies examining associations between regional patterns of mortality and hypothesised causal factors, is the assumption that residence in a region at the time of death can be equated with prevailing exposure to local conditions. Migration violates this assumption. To reduce this problem one might apply a residential history approach.

The main objective of this project is to explore the relationship between residential history and regional mortality for Norwegian men and women, using a life history approach. Four partly overlapping strategies will be applied in this endeavour.

- 1) Examine total and cause specific mortality related to different types of residential history.
- 2) Investigate time dependence of the effects of migration on the risk of dying.
- 3) Evaluate regional mortality differences in Norway controlling for migration.
- 4) Describe how urban-rural mortality differences are influenced by migration.

## Immigration and social change

During the 1990s, the Department of Social Statistics has carried out the so-called «Immigration Statistics Project», under financial support from and in collaboration with the Ministry of Local Government and Regional Development. Present projects include an on-going study of the development of attitudes towards refugees and immigrants. From 1993, yearly opinion data are collected and published. From the Survey of immigrant level of living, a final report was published in 1998, and as an effect of that project we are involved in a parallel one in Denmark. In immigration research we are in close contacts with internal and external colleagues, f. i. through the IMER programme in the Norwegian Research Council.

Documentation: NOT 99/61, [53].

### **Residential concentration of immigrants**

A project to analyse the development of immigrant concentrations in Oslo and to uncover social causes and effects of such concentrations was initiated in 1998, supported by IMER-programme of the Research Council in Norway. By means of register data, the inter- and intra-urban migration patterns of different population groups in the time interval 1988-1998 are being analysed with regard to demographic and socioeconomic variables, and the significance of cultural preferences in the choice of dwelling area, as opposed to economic factors, are investigated by means of interview data from the 1996 Survey of immigrant level of living.

Documentation: [4], [30], [54].

## Social research

The activities under this heading is increasingly focusing on more specialised analyses and research projects and less on social reporting. Analyses of living conditions of particular population groups and analyses of effects of social welfare policies will constitute a larger part of our research activities. It is also a challenge for the division to combine commissioned research activities with continued and cumulative research efforts on distributional processes and changes in social structures.

### **Welfare changes, living conditions and social integration. Norway 1973-1995**

This project aims at studying the development and consequences of social integration in Norway the last 20-25 years. Are there tendencies towards social isolation and disintegration, and for which groups? Can such tendencies explain the growth in «new» welfare problems, like suicide and violence?

This project has given input to the Governmental Value Commission (Verdikommisjonen).

Documentation: [50].

### **Moving towards the good society?**

This is a project for the Governmental Value Commission (Verdikommisjonen), and for the Long-term planning process in the Ministry of Finance. The project aims at contrasting some of the societal ideals that can be found in Norway, with the corresponding social realities. To what extent are core values like equality, environmental protection and having a healthy life achieved, and how can a better achievement be reached?

Documentation: NOT 99/23, SSP 4/99.

### **Parents' time use and time use preferences. Variety, change and conceptual discussions**

The project discusses changes and variations in Norwegian parents' time use patterns and time use preferences, focusing mainly on unpaid work. It is based on various data sources. Time use studies play an important role. Differences and new divisions between groups of women and groups of men as far as the organization of unpaid work is concerned, is a main theme in the project. The purchase of private services in the household is analysed, especially changes and variations in the use of private cleaners. There is also a theoretical discussion of various understandings of some aspect of unpaid work, and of the concepts and measures used in various data sources. Generally, research on changes and variations in people's allocation of time supplement surveys of level of living by focusing on the opportunities and limitations inherent in their living standards. The division contributes to the planning of a new Time Use Survey, starting in February 2000.

Documentation: SSP 4/99, Reprints 130, [25].

### **Labour market adjustment during lone parenthood**

The project studies the employment pattern of Norwegian lone parents during the last decades as compared to groups of married/cohabiting mothers and fathers. The analysis will partly be based on time series of cross sectional data; Labour Force Surveys and several other sample surveys. In addition, individual employment careers before, during and after lone parenthood will be analysed, using Statistics Norway's register based longitudinal data on individuals (FD-Trygd). The analysis will map early effects of changing social benefit regulations

on the employment of lone parents. Some comparisons will be made to other countries.

Documentation: DOC 99/22.

***Evaluating the cash-for-care reform: Impacts on female labour supply, child-care demand and the division of household labour***

The project is part of an extensive evaluation of a new Norwegian family policy programme: the cash-for-care benefit - a cash transfer to parents of children aged 1-2 who do not use subsidised day-care. Our project addresses short-term effects on mothers' employment, day-care use and parents' division of household work. We estimate a model of discrete choice where employment and child-care choices are assumed to be made simultaneously, and where the division of household work follows from these choices. The analyses are based on data from two sample surveys that were designed to evaluate the cash-for-care reform, one conducted just before and one just after the introduction of the programme.

***Early exit out of the labour force – main focus on firm characteristics***

Empirical studies of retirement behaviour generally focus on the influence of economic factors such as pensions, social security benefits, wages and wealth. The intention of this project is to study retirement decisions when both individual and firm characteristics, such as firm size, worker turnover, union membership, firm specific and general training, are considered. Main emphasis will be put on exits into early retirement, but medically related retirement and unemployment will both be considered as separate exits.

***Life chances in the melting pot***

The project analyses status and development of economic living conditions and activities over the period 1990-1995 for younger generations (defined as the birth cohorts 1961-1975), with focus also on longitudinal changes in socioeconomic structures and demographic processes, and their contribution to differences in opportunity structures and individual adjustment of young women and men in the transitional period from adolescence to (established) adulthood. The main data sources are register data from the Tax and Income Registers 1990, 1993 and 1995, supplemented with survey data from the Level of Living Surveys 1991 and 1995. The project will be finalised in 2000 by a forthcoming publication in the SA series

Documentation: NOT 99/33, SSP 2/99, SSP 3/99, DOC 99/20, Reprint 146, [41], [45], [46], [72].

***Living conditions of the agrarian population***

This project is part of a joint project with Division of Public Economics: "Living conditions and income distribution of the agrarian population". The project analyses the living conditions of the Norwegian agrarian population relative to the living conditions of the Norwegian population in general,

at individual and household level. The analyses are based on data from respectively "Survey of Level of Living of the agrarian population, 1995", and "Survey of Level of Living 1995". Data from Tax and Tax and Income Register 1994 are linked to the sample data from the Survey of level of living of the agrarian population 1995, at individual and household level. The project also includes a longitudinal analysis of the income development of the agrarian population over the period 1989-1995, based on data from Tax and Income registers. The cross-sectional analyses were reported in 1998. The project will be finalised in 2000 with the reporting of the longitudinal analyses.

***Housing consumption, capital accumulation and housing standard in a life course and generation perspective.***

The project analyses the development and changes in housing standard (consumption), housing expenditure, home-ownership and corresponding capital accumulation of the Norwegian population over the last three decades, based on longitudinal data from the periodical surveys on Housing Conditions (1967 -) and Level of Living (1973 -). The project utilises a life course and generation approach, where the respondents of each survey are grouped into fixed ten-year birth cohorts (synthetic cohort design).

**Staff**

Østby, Lars, Director of Research  
Barstad, Anders, Research fellow  
Blom, Svein, Research fellow  
Brunborg, Helge, Senior Research Fellow (from April 1999)  
Hansen, Liv, Executive Officer  
Hetland, Arve, Senior Executive Officer (Graduate Student, Informatics)  
Keilman, Nico, Senior Research Fellow (part time)  
Kitterød, Ragni Hege, Research fellow  
Kjeldstad, Randi, Research Fellow  
Lappegård, Trude, Sociologist  
Løwe, Torkil, Sociologist  
Noack, Turid, Research Fellow  
Nymoen, Erik H., Geographer  
Rønsen, Marit, Research Fellow  
Sevaldson, Per, Adviser (former Director of Research, Sociodemographic Research Unit)  
Skrede, Kari, Senior Research Fellow  
Tysse, Tone Ingrid, Economist



## Personnel and budget

The total staff in the Research Department in 1999 was 85 in total number of persons. The distribution by division is given by the table below.

The financial resources of the research activities stem partly from the government budget as allocated within Statistics Norway. About 38 per cent of total expenditures in 1999, or Nok 13,5 million are project financed. The bulk of the project revenues comes from research grants from the The Research Council of Norway and from contracts with Ministries, primarily the Ministry of the Environment, the Ministry of Finance, the Ministry of Petroleum and Energy, the Ministry of Local Governments and Regional Developments, and the Ministry of Foreign Affairs.

## Staff

Olsen, Øystein, *Assistant Director General, Head of Research Department (until Feb. 99)*

Ådne Cappelen, *Assistant Director General, Head of Research Department (from March 99)*

Malo, Solfrid, *Senior Executive Officer*

Salvesson, Sigmund G., *Clerical staff*

Skoglund, Anne, *Clerical staff*

Veiby, Tone, *Executive Officer*

Vaagen, Otto Gerhard, *Head of Administration*

Walseth, Aud, *Clerical staff*

Aaberge, Rolf, *Senior Research Fellow*

## Distribution of operating costs in 1999. 1000 Nok

	Government Budget	Project	Total
Personnel	19 723	11 848	31 571
Office expenses etc.	2 705	1 690	4 395
<b>Research Department</b>	<b>22 428</b>	<b>13 538</b>	<b>35 966</b>
Social and Demographic Research	3 093	3 538	6 631

## Personnel in Research Department in 1998

Division/Unit	Government Budget	Project	Total
Head of Department and Administration	6	1	7
Public Economics	12	7	19
Resource and Environmental Economics	15	7	22
Macroeconomics	18	9	27
Microeconometrics	6	4	10
<b>Research Department</b>	<b>57</b>	<b>28</b>	<b>85</b>
Social and Demographic Research	7,5	8,5	16

## Age structure of persons working in the Research Department (including personnel on leave). Women, Men

Division/Unit	20-29		30-39		40-49		50-59		>60	
	W	M	W	M	W	M	W	M	W	M
Head of Department/Administration and Computer Services	1	1	2	0	1	2	1	3	0	1
Public Economics	1	1	3	3	1	7	2	0	0	0
Resource and Environmental Economics	2	4	8	6	1	4	0	0	0	0
Macroeconomics	0	1	6	6	1	4	4	1	0	0
Microeconometrics	0	0	0	5	0	1	0	1	0	0
<b>Research Department</b>	<b>4</b>	<b>7</b>	<b>19</b>	<b>20</b>	<b>4</b>	<b>18</b>	<b>7</b>	<b>5</b>	<b>0</b>	<b>1</b>
Social and Demographic Research	1	1	1	1	1	3	5	3	0	0

Statistics Norway monographs are published in the series *Social and Economic Studies and Statistical Analyses*, other research reports and documentation in the *Report series* or as *Documents/Notater*. The *Discussion Papers series* comprises research papers intended for international journals or books. There is also a *Reprint series of journal articles and book chapters* by staff employees. The Research Department publishes two periodicals: *Økonomiske analyser*, in Norwegian with 9 issues a year, and *Economic Survey*, in English with 4 issues a year.

## Social and Economic Studies (SES)

- 102 **Bye, T., M. Hoel and S. Strøm:** *Et effektivt kraftmarked - konsekvenser for kraftkrevende næringer og regioner* (An efficient power market - consequences for energy intensive industries and regions in Norway).

## Statistical Analysis (SA)

- 28 **Aslaksen, I., E. Fjærli, J. Epland and E. Kirkpatrick:** *Inntekt, skatt og overføringer* (Income, tax and transfers).
- 30 *Natural Resources and the Environment 1999.*

## Reports (REP)

- 1999/1 **Hansen, A.C.:** *Fremskrivning av støybelastning fra veitrafikk* (Projection of noise exposure from road traffic).
- 1999/3 **Boug, P.:** *Modellering av faktoreterspørsel i norske næringer* (Modelling factor demand in Norwegian industries).
- 1999/5 **Rosendahl, K.E.:** *Vurdering av skadefunksjonsmetoden til bruk på vegprosjekt - en case-studie* (Evaluating the use of damage cost functions on road projects - a case study).
- 1999/7 **Lappegård, T.:** *Regionale variasjoner i fruktbarheten i Norge* (Regional variations in fertility in Norway).
- 1999/8 **Halvorsen, B., B.M. Larsen and R. Nesbakken:** *Energibruk i husholdningene 1974 - 1995. En dokumentasjon av mikrodata etablert for økonometriske formål innenfor prosjektet "Fleksibel energibruk i husholdningene"* (Energy consumption in households 1974-1995. A documentation of micro data for econometric analyses).
- 1999/9 **Medin, H.:** *Valg av måleenhet i verdsetting av miljøgoder. Empiriske eksempler* (Units of measurement in environmental valuation. Empirical examples).

- 1999/14 **Jørgensen, J.-A., B. Strøm and T. Åvitsland:** *Effektive satser for næringsstøtte 1996* (Effective rates of assistance).
- 1999/17 **Benedictow, A.:** *Norsk eksport av metaller* (Norwegian exports of primary metals).
- 1999/19 **Rees, P., L. Østby, H. Durham and M. Kupiszewski:** *Internal Migration and Regional Population Dynamics in Europe: Norway Case Study.*
- 1999/22 **Bøeng, A.C. and R. Nesbakken:** *Energibruk til stasjonære og mobile formål per husholdning 1993, 1994 og 1995. Gjennomsnittstall basert på forbruksundersøkelsen* (Stationary and mobile energy consumption per household 1993, 1994 and 1995. Average energy consumption based on the consumer expenditure survey).
- 1999/23 **Eika, T. and K. Moum:** *Aktivitetsregulering eller stabil valutakurs: Om pengepolitikens rolle i den norske oljeøkonomien* (Activity regulation or a stable exchange rate. Monetary policy in petro economy).
- 1999/24 **Bye, T., J. Larsson and Ø. Døhl:** *Klimagasskvoter i kraftintensive næringer. konsekvenser for utslipp av klimagasser, produksjon og sysselsetting* (Tradable emission quotas in energy intensive industries. Consequences for emissions, employment and production).
- 1999/26 **Bye, B., E. Holmøy and B. Strøm:** *Virkinger på samfunnsøkonomisk effektivitet av en flat skattereform: Betydningen av generelle likevektseffekter* (Efficiency effects of a transition to proportional income tax. The significance of general equilibrium effects).
- 1999/32 **Bruvoll, A. and K. Ibenholt:** *Framskrivning av avfallsmenger og miljøbelastninger knyttet til sluttbehandling av avfall* (Forecasts of waste and pollution from waste treatment).

## Discussion Papers (DP)

- 243 **Naug, B.E.:** *Modelling the Demand for Imports and Domestic Output.*
- 244 **Sexton, J. and A. Rygh Swensen:** *ECM-algorithms that converge at the rate of EM.*
- 245 **Berg, E., S. Kverndokk and K.E. Rosendahl:** *Optimal Oil Exploration under Climate Treaties.*
- 246 **Dagsvik, J.K. and B.H. Vatne:** *Is the Distribution of Income Compatible with a Stable Distribution?*
- 247 **Johansen, R. and J.K. Dagsvik:** *The Dynamics of a Behavioral Two-Sex Demographic Model.*

- 248 **Søberg, M.G.:** *Asymmetric Information and International Tradable Quota Treaties. An experimental evaluation.*
- 249 **Grepperud, S., H. Wiig and F.R. Aune:** *Maize Trade Liberalization vs. Fertilizer Subsidies in Tanzania: A CGE Model Analysis with Endogenous Soil Fertility.*
- 250 **Brekke, K.A. and N.C. Stenseth:** *A Bio-Economic Approach to the study of Pastoralism, Famine and Cycles. Changes in ecological dynamics resulting from changes in socio-political factors.*
- 251 **Fæhn, T. and E. Holmøy:** *Welfare Effects of Trade Liberalisation in Distorted Economies. A Dynamic General Equilibrium Assessment for Norway.*
- 252 **Aaberge, R.:** *Samling Errors and Cross-Country Comparisons of Income Inequality.*
- 253 **Svendsen, I.:** *Female labour participation rates in Norway - trends and cycles.*
- 254 **Langørgen, A. and R. Aaberge:** *A Structural Approach for Measuring Fiscal Disparities.*
- 255 **Halvorsen, B. and B.M. Larsen:** *Changes in the Pattern of Household Electricity Demand over Time.*
- 256 **Boug, P.:** *The Demand for Labour and the Lucas Critique. Evidence from Norwegian Manufacturing.*
- 257 **Rege, M.:** *Social Norms and Private Provision of Public Goods: Endogenous Peer Groups.*
- 258 **Lindholt, L.:** *Beyond Kyoto: CO2 permit prices and the markets for fossil fuels.*
- 259 **Bjørnstad, R. and R. Nymoen:** *Wage and Profitability: Norwegian Manufacturing 1967-1998.*
- 260 **Thoresen, T.O. and K.O. Aarbu:** *Income Responses to Tax Changes - Evidence from the Norwegian Tax Reform.*
- 261 **Bye, B. and K. Nyborg:** *The Welfare Effects of Carbon Policies: Grandfathered Quotas versus Differentiated Taxes.*
- 262 **Kornstad, T. and T.O. Thoresen:** *Means-testing the Child Benefit.*
- 263 **Rønsen, M. and M. Sundström:** *Public Policies and the Employment Dynamics among new Mothers - A Comparison of Finland, Norway and Sweden.*
- 131 **Bjørnland, H.C.:** *The Economic Effects of North Sea Oil on the Manufacturing Sector.*
- 132 **Bjerkholt, O.:** *Interaction between Model Builders and Policy Makers in the Norwegian Tradition.*
- 133 **Bye, B.:** *Optimal miljøbeskatning - teori og empiri (Optimal environmental taxation - theory and empirical basis).*
- 134 **Bruvoll, A. and K. Ibenholt:** *Green Throughput Taxation. Environmental and Economic Consequences.*
- 135 **Aaberge, R. and I. Melby:** *The Sensitivity of Income Inequality to Choice of Equivalence Scales.*
- 136 **Glomsrød, S., M.D. Monge A. and H.Vennemo:** *Structural Adjustment and Deforestation in Nicaragua.*
- 138 **Jore, A.-S., T. Skjerpen and A. Rygh Swensen:** *Testing for Purchasing Power Parity and Interest Rate Parities on Norwegian Data.*
- 139 **Holmøy, E. and T. Hægeland:** *Effective Rates of Assistance for Norwegian Industries.*
- 140 **Aaberge, R., U. Colombino, S. Strøm and T. Wennemo:** *Evaluating Alternative Tax Reforms in Italy with a Model of Joint Labor Supply of Married Couples.*
- 141 **Aaberge, R., U. Colombino and S. Strøm:** *Labour Supply in Italy: An Empirical Analysis of Joint Household Decisions, with Taxes and Quantity Constraints.*
- 142 **Bjørnland, H.C.:** *Structural Breaks and Stochastic Trends in Macroeconomic Variables in Norway.*
- 143 **Gjerde, J., S. Grepperud and S. Kverndokk:** *Optimal Climate Policy under the Possibility of a Catastrophe.*
- 144 **Biørn, E. and T.J. Klette:** *The Labour Input Response to Permanent Changes in Output: An Errors-in-Variables Analysis Based on Panel Data.*
- 145 **Aslaksen, I. and H.A. Gravningsmyhr:** *Staten - en alternativ forsørger for barn (The government as alternative provider for children).*
- 146 **Skrede, K.:** *Levekår i støpeskjeen - er den enkelte fortsatt "sin egen lykkes smed"? (Life chances in the melting pot - are young people to day still "architects of own fortune"?)*

## Reprints

- 130 **Kitterød, R.H.:** *Kjøp av rengjørings-tjenester - større sosial ulikhet blant kvinner? (Use of private cleaners - increasing social inequality among women?)*

## Documents (DOC)

- 99/1 **Holmøy, E., B. Strøm and T. Åvitsland:** *Empirical characteristics of a static version of the MSG-6 model.*

- 99/5 **Søberg, M.G.:** *Experimental Economics and the US Tradable SO<sub>2</sub> Permit Scheme: A Discussion of Parallelism.*
- 99/12 **Lindquist, K.-G.:** *The Importance of Disaggregation in Economic Modelling.*
- 99/13 **Li, Y.:** *An Analysis of the Demand for Selected Durables in China.*
- 99/14 **Tysse, T. and K. Vaage:** *Unemployment of Older Norwegian Workers: A Competing Risk Analysis.*
- 99/18 **Zhang, L.-C. and J. Sexton:** *ABC of Markov chain. Monte Carlo.*
- 99/20 **Skrede, K.:** *Gender Equality in the Labour Market – still a Distant Goal?*
- 99/22 **Kjeldstad, R.:** *Lone Parents and the "Work Line": Changing Welfare Schemes and Changing Labour Market.*

### Notater (NOT)

- 99/2 **Ibenholt, K. and K.A. Brekke:** *Rammevilkår for produksjon av brunt papir* (Economic conditions for production of brown paper).
- 99/7 **Søberg, M.G.:** *Instruksjonar til og data frå eksperiment om internasjonal kvotehandel* (An experimental test of international quota trading: Instructions and data).
- 99/16 **Isachsen, A.J., S.O. Stoknes and G.H. Bjønnes:** *Den store gjettekonkurransen* (The great forecasting contest).
- 99/20 **Halvorsen, B. and K.R. Wangen:** *Dokumentasjon av utdrag fra skattestatistikken 1975-1985 for kobling mot forbruksundersøkelsen* (Documentation of the extraction of a subsample from the tax statistics 1975-1985 to merge with the Norwegian expenditure survey).
- 99/21 **Halvorsen, B.:** *Dokumentasjon av analysefiler til prosjektet "Fleksibel energibruk i husholdningene". Prisdatabaser for varer og tjenester (1975-1994), husholdningstariiffer for elektrisitet (1975-1996) og temperaturdata (1957-1996)* (Documentation of data for use in the project "Flexibility in household energy consumption". Price data for goods and services (1975-1994), household tariffs on electricity (1975-1996) and temperature data (1957-1996).
- 99/22 **Halvorsen, B.:** *Dokumentasjon av analysefiler til prosjektet "Fleksibel energibruk i husholdningene". Forbruksundersøkelsen 1974-1995* (Documentation of data for use in the project "Flexibility in household energy consumption". Norwegian expenditure survey 1974-1995).
- 99/23 **Barstad, A.:** *På vei mot det gode samfunn? Om opplegget for en publikasjon som beskriver verdilandskapet i Norge* (Moving towards the good society? Making a publication that describes the landscape of values in Norway).
- 99/32 **Fjærli, E.:** *"Ulikhet og inntektens sammensetning - betydningen av uregistrerte formuesinntekter for observert inntektsulikhet", I Birkeland (red.): Forskjeller i levekår* (The importance of unregistered capital incomes for inequality), In Birkeland (ed.): (Differences in living conditions).
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- 99/75 **Halvorsen, B. and M.I. Hansen:** *Dokumentasjon av utdrag fra skattestatistikken 1974-1994 for kobling mot forbruksundersøkelsen* (Documentation of the extraction of a subsample from the tax statistics 1974-1994 to merge with the Norwegian expenditure survey).
- 99/80 **Bye, T., Ø. Døhl and J. Larsson:** *Klimagasskvoter i kraftintensive næringer. Konsekvenser for utslipp av klimagasser, produksjon og sysselsetting. Regionale konsekvenser* (Tradable emission quotas in energy intensive industries. Consequences for emissions, employment and production. Regional consequences).
- 99/85 **Choudhury, R., T. Eika and L. Haakonsen:** *KVARTS i praksis II. Systemer og rutiner i den daglige driften* (The KVARTS model systems and routines).
- 99/86 **Frøiland, G.:** *Økonometrisk modellering av husholdningenes konsum i Norge. Demografi og formueseffekter* (Econometric modelling of household consumption in Norway. Demographic and wealth effects).
- 99/87 **Li, Y.:** *Beregning av elementæraggregater i konsumprisindeksen ved hjelp av generalisert gjennomsnitt* (Computing elementary aggregates in the Consumer Price Index using generalised means).

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- 1/99 *Økonomisk utsyn over året 1998* (Economic survey 1998).  
**Østby, L.:** *Folkemengde og flytting* (Population and migration).
- 2/99 **Søberg, M.G.:** *Kyoto-protokollen og internasjonale handel med utsløppskvoter. Er marknadsmakt noko problem?* The Kyoto Protocol and international quota trading. Does market power cause any problems?  
**Fjærli, E.:** *Betydningen av uregistrerte formuesinntekter for observert inntektsulikhet* (The importance of unregistered capital incomes for inequality).  
**Rogdaberg, G. and N.M. Stølen:** *Tilbud og etterspørsel for ulike typer helsepersonell* (Supply and demand for different kinds of health personnel).  
**Gallefoss, D.A.:** *Forsikring i Norge* (Rate of return in the Norwegian power sector).
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**Lindholt, L.:** *Rammevilkår for energigjenvinning av plastavfall* (Legislative and economic framework for energy recovery from plastic).  
**Edvardsen, H.M.:** *BNP og husholdningenes inntekter: En regional analyse* (Value added and household income: A regional perspective).
- 4/99 **Langset, B. and T.O. Thoresen:** *Økningen i minstepensjonen. Er pensjonistenes inntekter blitt jevnere fordelt?* (The increase in the minimum pension level. The impact on the distribution of income among pensioners).  
**Kornstad, T. and T.O. Thoresen:** *Universell eller inntektsavhengig barne-trygd?* (Universal or income dependent child benefit?)  
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**Halvorsen, T.:** *Reviderte nasjonalregnskapstall for 1996-1998* (Revised National Accounts statistics 1996-1998).  
**Olsen, T.:** *Offentlig forvaltnings inntekter og utgifter i 1998* (General government revenue and expenditure, 1998).
- 5/99 *Konjunkturtendensene* (Business cycle report).  
**Langørgen, A.:** *Noen kommuner er mer like enn andre kommuner* (Some municipalities are more equal than other municipalities).  
**Halvorsen, B. and B.M. Larsen:** *Hvilke faktorer har betydning for veksten i hush-*

- oldningenes elektrisitetsforbruk?* (Factors determining the growth in residential electricity consumption).
- 6/99 *Konjunkturtendensene* (Business cycle report).  
**Fæhn, T. and E. Holmøy:** *Velferdsvirkninger av multinasjonale handelsavtaler* (Welfare effects of multinational trade agreements).  
**Døhl, Ø.:** *Temperaturens betydning for energiforbruket* (The impact of temperature on energy consumption).
- 7/99 **Stølen, N.M.:** *Tilbud og etterspørsel for ulike typer arbeidskraft* (Supply and demand for different kinds of labour).  
**Boug, P.:** *Etterspørsel etter arbeidskraft i industrien* (The demand for labour in Norwegian manufacturing).  
**Myran, K. and L. Sandberg:** *Matvarepriser i Norge, Sverige og Danmark* (Food prices in Norway, Sweden and Denmark).
- 8/99 **Nordby, J.:** *Pensjonsordninger utenom folketrygden* (The Pension Financing System apart from the National Insurance Scheme).  
**Brekke, K.A.:** *Sjølvbilde, statusjag og miljøydelegging* (Identity, Status and environmental Degredation)
- Medin, H. and K. Nyborg:** *Hva er nytten av et godt miljø? Noen regneeksempler* (What is the benefit of a good environment? Some examples).
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**Sørensen, K.Ø. and H. Sjølie:** *Grønne skatter belyst ved nasjonalregnskapet* (Green taxes in the National Accounts).  
**Bruvoll, A., K. Flugsrud and H. Medin:** *Økonomisk vekst treng ikkje gi dårlegare miljø* (Economic growth does not necessarily increase pollution).

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- 1/99 *Economic survey 1998.*  
**Bye, T. and B. Halvorsen:** *Economic objectives and results of the Energy Act.*
- 2/99 *Economic trends.*  
**Edvardsen, H.M.:** *Value added and household income: a regional perspective.*
- Stambøl, L.S.:** *Interregional labour force mobility in Norway. Gross-stream analysis and supply-side adjustment.*
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1/99 **Søbye, E.:** *Kristianiakrakket 1899* (The Kristiania crash of 1899), 15-20.

**Barstad, A.:** *Skjegg, ungdomsopprør og statistikk* (Beard, rebellious youth and statistics), 2-6.

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