INSTITUTE OF PUBLIC FINANCE AND INFRASTRUCTURE POLICY OF THE VIENNA UNIVERSITY OF TECHNOLOGY

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ACTIVITY REPORT

for the academic year 2001/2002

(from 1. 10. 2001 to 30. 9. 2002)

Vienna, January 2003

Contents

1 PROFILE OF THE INSTITUTE

Founded in 1972, the Institute of Public Finance and Infrastructure Policy (IFIP) of the Vienna University of Technology has the following general goals:

1. to transfer existing knowledge of the public sector and its effects on economic and society by teaching students and
2. to contribute to the deepening of knowledge by carrying out research in the fields of public finance, infrastructure economics and planning.

Depending on the amount of available research projects, the staff consists of 8 - 13 people. Economists, computing scientists, planners and engineers are employed at the department according to the interdisciplinary character of the research and teaching fields.

IFIP offers lectures for two masters programs: urban and regional planning, and computer science.

Research studies have been carried out from the very beginning of the institute's history. Over the past thirty years some quite representative clients, such as the Commission of the European Union, several Austrian government departments (transport, finance, environment, research), all the Federal States of Austria, some Austrian cities, the Luxembourg Home Office, the Austrian Federal Railways and private companies (e.g. IBM) have commissioned the Institute to carry out research studies for them. Especially the different sectors of infrastructure economics and planning has proved to be useful for the deepening of knowledge in the individual sectors. The table shows a synopsis of the Institute's 6 main branches of research.

Teaching and research activities include:

- ⇒ Public Finance: public budget, fiscal federalism, revenue sharing systems, theory of state and market failure, regulation and deregulation as well as promotion instruments,
- ⇒ Infrastructure economics and policy particular within the fields of energy, transport, water provision, sewage, hydraulic engineering, telecommunication, waste disposal, social and health services,
- ⇒ Resources and environmental economics: economic evaluation of the use of natural resources and the ecological dimensions of economic processes
- ⇒ Real estate economics: economic analysis of real estate projects of urban or regional economic dimension as well as technology centres,
- ⇒ Sectoral, regional and local economic analysis with regard to the targets of regional planning,
- ⇒ Models, software and information systems for analysis, prognosis and simulation of public budget and several fields of infrastructure.

2. STAFF OF THE INSTITUTE

Univ.-Prof. Mag. Dr. Wilfried ***SCHÖNBÄCK*** (Head of the Institute since 1. 10. 1985), working at the Institute since 1. 7. 1973; study of economics at the University of Vienna; research focuses on: public finance and infrastructure economy, economic valuation of infrastructure projects, organisation and finance of different infrastructure sectors.

A.o. Univ.-Prof. Dipl.-Ing. Dr. Wolfgang ***BLAAS***, working at the Institute since September 1972; study of mathematics at the Vienna University of Technology and study of economics at the Institute for Advanced Studies, Vienna and at the University of Cambridge, England; research focuses on: institutional economics, mathematical and statistical methods in economics, regional economics, real estate economics.

Ass.-Prof. Dipl.-Ing. Dr. Johann ***BRÖTHALER***, working at the Institute since 1. 11. 1984; study of computer science at the Vienna University of Technology; research focuses on: software and model development in the field of public finance and infastructure planning, financial statistics, municipal budget analysis, information systems of the public sector.

Michaela ***ECKHARDT*** (secretary), working at the Institute since 1. 4. 1995.

MSc LLM BSc Nektaria ***EFTHYMIOU***, working at the Institute since 15. 4. 2002; studies of Environmental Management (MSc) and Environmental Law (LLM); research focus on: environmental policy in EU and CEE countries.

Dipl.-Ing. Stephan ***FASSBENDER***, working at the Institute from 1. 4. 1997 to 30. 4. 2002; study of regional planning at the Vienna University of Technology; research focuses on: environmental economics, urban/regional relations, web-site development.

Ralf ***HELMEL*** (student staff), working at the Institute from 13. 8. 2001 to 30. 9. 2002, study of computer science at the Vienna University of Technology; research focuses on: economic forecasting in eastern European countries.

Dipl.-Ing. Gerlinde ***OPPOLZER***, working at the Institute since 16. 8. 2001; study of regional planning at the Vienna University of Technology; research focuses on: urban infrastructure economics, economic structural analyses.

Dipl.-Ing. Claudia ***MUHM-KNABL***, working at the Institute from 1. 4. 2000 to 30. 11. 2001; study of regional planning at the Vienna University of Technology; research focuses on: company organization.

Karin ***NEUMANN*** (secretary), working at the Institute since 3. 9. 2001.

Dipl.-Ing. Dr. Roger ***PIERRARD***, working at the Institute since 2. 9. 1999; study of chemistry and post graduate study of business administration, law and economic science at the Vienna University of Technology; research focuses on: environmental economics, energy economics and waste management economics.

Vertr.-Ass. Dipl.-Ing. Lena ***SIEBER,*** working at the Institute since 1. 9. 1999; study of mathematics at the Vienna University of Technology; research focuses on: econometrics.

Gerd ***STEINER***, working at the Institute from 1. 2. 2001 to 31. 12. 2001, study of physics at the Vienna University of Technology; EDP network care.

Dipl.-Ing. Claudia ***STOISS***, working at the Institute from 1. 2. 1999 to 31. 12. 2001; study of regional planning at the Vienna University of Technology; research focuses on: new real estate instruments for regional planning, regional economics, scarcity of raw materials, urban agriculture.

Robert VARGASON, working at the Institute since 1. 8. 1995; EDP network care.

Vertr.-Ass. Dipl.-Ing. Helmut ***WERNHART***, working at the Institute since 1. 11. 1997; study of regional planning at the Vienna University of Technology; research focuses on: financial rentability simulation models, real estate economics, transport economics.

3 TEACHING PROGRAMME OF THE INSTITUTE

The teaching programme of the Institute of Public Finance and Infrastructure Policy is designed mainly for students of urban and regional planning and computer science (with the focus on economics). Besides our faculty, there are some external lecturers, often experts of private and public enterprises dealing with planning and/or provision of public infrastructure and facilities, who also teach the students and thus pass on the benefits of their practical experience and knowledge.

The courses are designed to enable students with a background in economics to further develop their understanding of those aspects of economic methodology which are relevant to the analysis of their special sector. Moreover, they should gain a broad understanding of the links between planning decisions and effects on the economy, society and environment. Students learn how to apply economic methods to find solutions to practical problems, in order to equip them with the relevant skills for a career in their chosen field.

For further information see: http://www.lzk.ac.at/lva/tuwien/

3.1 SPECIAL COURSES

"Project 3 (course-no. 267.107): Proyecto Río Loco 2002":
Integrated and interdisciplinary regional development project in the Río Loco valley, 2001/2002.
General responsibility: Falch, F.
For further information see: http://www.rioloco2002.org/ or
http://www.ifip.tuwien.ac.at/p3peru/peru2002/

"Project 3 (course-no. 267.107): Urban Renewal, Urban Design and Infrastructure Development in Odessa":
In the countries of Eastern and South Eastern Europe exists a multiplicity of development problems which complicate a rapid economic approach to the European Union. The development of the urban areas in these countries to attractive economic locations - after European standard - can be respected as the essential factor about a positive economic development. The project consists of five working fields, which are all interdisciplinary.

Main sections:
Survey of the spatial-functional basis structure of the City of Odessa and its most important problems, risks, chances and development options;

Urban design concepts for selected high priority locations;

Urban renewal: technical, socio-economic and legal approaches to the restoration of apartment blocks with business premises;

Private investment in small-scale combined heat and power stations for the self-sufficient production of process heating/cooling and electric current, supplying electric current surplus to the communal grid during peak load period.

General responsibility: Schönbäck, W.
For further information see: http://www.ifip.tuwien.ac.at/p3odessa/

4 RESEARCH CARRIED OUT BY THE INSTITUTE

In recent years IFIP has been doing research studies in several different fields related with economics, as well as urban, regional, and environmental planning. Thereby six main branches have been covered:

1. Public Finance: public budget, fiscal federalism, revenue sharing systems, theory of state and market failure, regulation and deregulation as well as promotion instruments,
2. Infrastructure economics and policy particular within the fields of energy, transport, water provision, sewage, hydraulic engineering, telecommunication, waste disposal, social and health services,
3. Resources and environmental economics: economic evaluation of the use of natural resources and the ecological dimensions of economic processes
4. Real estate economics: economic analysis of real estate projects of urban or regional economic dimension as well as technology centres,
5. Sectoral, regional and local economic analysis with regard to the targets of regional planning,
6. Models, software and information systems for analysis, prognosis and simulation of public budget and several fields of infrastructure.

A sample of recent research projects

4.1 MAIN BRANCH 1: PUBLIC FINANCE

1. *Analysis of the secondary and tertiary revenue share of the Austrian municipalities (Project-No. 111/2002)*

   W. Schönbäck (Project leader), J. Bröthaler, L Sieber, study in co-operation with the KDZ-Centre for Public Administration Research

   Commissioned by: Österreichischer Städtebund (Alliance of Austrian cities), currently in preparation.

   In the light of the Austrian stability programme, in the context of this study financial-economical conditions of the municipalities and financial entwinements with other regional administrative bodies (intragovernmental transfers) are discussed from an allocation- and a distribution-political view. Therefore the appropriate federal and regional laws are studied; the necessary data is collected and prepared for the analysis. An overview of the (primary, secondary and tertiary) revenue share of all federal states is given for. Afterwards the transfers of the secondary and tertiary revenue share of specific fields (social welfare assistance, health, schools, etc.) are examined in detail.

2. *Small sized projects on the Austrian Revenue-Sharing System (FAG): Effects of additional population and additional local tax revenues on the FAG-revenues of the municipality Klosterneuburg (Project-No. 107/2001)*

   J. Broethaler, L Sieber

   Commissioned by: ARG - Arbeitsgemeinschaft Regional- und Gemeindeplanung (working group: regional and municipal planning), final report: 07/2002.

   The effects of additional population and revenues on the revenue share of the municipality Klosterneuburg are calculated using the simulation model SimFAG.

3. *Evaluation of the financial debts of the Austrian local governments (Project-No. 102/2000)*

   W. Schönbäck, J. Bröthaler

   Commissioned by: Austrian Audit Office; final report: 03/2001.

The project covers the electronic entry and editing of the household data of all Austrian municipalities, the quality control of the debt data of the municipalities, the analysis of the debt development from 1992-1999 of all the municipalities, as well as a detailed analysis of the debt accounts for 1999 of selected municipalities. The target of the project is a regionally differentiated analysis of the local debt data with emphasis on the interest charges of the debts. The evaluation is based on detailed debt accounts, which were supplied electronically for the financial year 1999 by 73 % of the municipalities.

4. *Problems concerning the Revenue-Sharing System with regard to function-oriented prospects for the financing of municipalities – Review and options for reform with regard to the graded multiplier (graded population key) (Project-No. 101/2000)*

   W. Schönbäck (Project leader IFIP), H. Bauer (Project leader KDZ), J. Bröthaler, S. Faßbender, L. Sieber (such as further members of KDZ)

   Commissioned by: Österreichischer Städtebund (Alliance of Austrian Cities), final report 05/2001.

   The purpose of the study is (a) to analyse the influence of the Austrian Revenue-Sharing System on municipalities (effects of the primary, secondary and tertiary revenue share in the years from 1993 to 1999), (b) to analyse the development of the municipal financial state, (c) to statistically analyse the functions of local governments (d) to analyse the functions of small-sized municipalities in order to determine a minimal financial requirement such as (e) to compare different European systems of revenue-sharing and finally (f) to form an opinion on the current Austrian Revenue Share Law based on the results of the study and to develop options to reform it.

   The results are based on data of the municipal financial state of all 2,359 Austrian municipalities as well as on data of the final budget of 1,719 municipalties. Further results are based on a survey performed by KDZ.

5. *The situation of Vienna (as a Federal Province) concerning the origin and distribution of public means and services with reference to certain selected public activities in comparison with the other Federal Provinces of Austria (Project-No. 88)*

   W. Schönbäck (Project Leader), M. Eder, Ch. Heschtera, S. Faßbender, C. Prinz, C. Stoiss

   Comissioned by: City of Vienna, final report 12/1999.

   With regard to an impending amendment of the Austrian Revenue Share Law in 2001, the Federal Provincial (and at the same time also local) Government of Vienna suspects it will suffer distributional disadvantages because the other Federal Provinces of Austria are to be favoured. Thus, a partial incidence analysis on the origins and distributions of public means and services is required, especially concerning those matters which are most likely to be distorted – i.e., in particular, (1) hospital financing, (2) water supply and sewage treatment, (3) subsidies on the construction of residential buildings, (4) subsidization of families, (5) subsidization programmes for the European Union and (6) some further specific topics which, however, require less intensive research (e. g. public transport, subsidies for the arts, public emergency funds for natural catastrophes). This analysis should result in a qualitative and quantitative review of distortions concerning the burden, reception and distributional injustice which may be, accordingly, to Vienna's disadvantage *or* advantage.

4.2 MAIN BRANCH 2: INFRASTRUCTURE ECONOMICS AND POLICY

1. *Fiscal flows in and net fiscal burden to the municipal budget from the municipal hospital of the City of St. Pölten (Project-No. 112)*

   W. Schönbäck (Project leader), G. Oppolzer, J. Bröthaler, W. Blaas

   Commissioned by: City of St. Pölten, currently in preparation.

   It has to be studied which gross fiscal flows in and net fiscal burden to the municipal budget are induced, directly and indirectly, by the current operation of the municipal hospital of the City of St. Pölten. Based on an input-output model it will show empirically how the expenditures for wages, input-goods and taxes contribute to those effects for the last year for which data are available.

2. *International comparison of water management systems (IFIP-Project No 109)*

   W. Schönbäck (co-ordinator), G. Oppolzer. In collaboration with Ecologic, Institute for International and European Environmental Policy, Germany, and partner institutes in France, Austria and UK.

   Funders: Austrian Chamber of Labour and Austrian Association of Cities, currently in preparation.

   The task of the study is to analyse, compare and evaluate five national systems of water management, which differ largely in terms of settlement structure, organisation and business structure: Austria, France, England and Wales, Germany, Netherlands. One major aim is to identify cross-relations between different criteria (e.g. environmental standards, cost structure, tariffs, subsidies, ownership, water quality and consumers' issues) and to show specific strengths and weaknesses of the different national systems.

   Finally, conclusions are drawn with regard to future prospects of the small-scale, publicly owned Austrian water industry. The study contributes as well to the empirical and scientific foundation of the political discussion on water management in Austria and Europe.

3. *Investigation on the extension of the double-track railway line Maribor - Sentilj. Part: economic evaluation (Project-No. 98)*

   W. Schönbäck (Project leader), H. Wernhart

   Commissioned by: Austria Rail Engineering, final report 7/2000.

   The Graz - Maribor corridor is a section of the important railway line between the most important sea port for Austria, the port of Koper, and Austria. In the context of the overall project, the IFIP elaborates the financial evaluation of the expansion variants in the Maribor – Sentilj corridor.
   The evaluation takes place in each case for the operation and the infrastructure separately with financial investment computing methods.

4. *Additional Costs for Education and Research in University Hospitals (Project-No. 96)*

   W. Schönbäck (Project leader), S. Winkelbauer

   Commissioned by: Federal Ministry of Labour, Health and Social Issues; final report 7/2000.

   The City of Vienna operates the General Hospital ("Allgemeines Krankenhaus") in Vienna, which is also a university hospital. The Central State has to cover the additional costs for university education and research, which cannot be calculated exactly because of the close connection there is between health care and university education and research.
   The goal of the project was to develop a method to determine the additional costs for university education and research based on available data from hospital cost systems and performance statistics. In addition, the financing of university hospitals in other countries was described.

5. *"Feasibility study Sopron - Szombathely " and "Completing investigation of the traffic potentials and enlargement requirements of the railway track Gleisdorf - Szentgotthárd - Szombathely"*
   (Project-No. 90)

   W. Schönbäck (Project leader), H. Wernhart, C. Knabl

   Commissioned by: Austria Rail Engineering, final report 1/2000.

   In the context of the discussion on the building of the Semmering Basistunnel by the Federal Ministry for Science and Traffic, an expert commission was appointed which recommended the inclusion of the " Hungarian flat-track " into the considerations for the development of the southern route. The railway line Sopron - Szombathely – Szentgotthárd - Gleisdorf is an alternative route to the present north-south route over the Semmering, and competes with the project for the development of the Semmering Basistunnel.
   The following sections of the feasibility study are elaborated by the IFIP:
   - considerations over traffic policy development strategies,
   - the editing of the passenger and goods traffic prognoses based on the Austrian traffic master plan for the year 2015,
   - the financial analyses for the alternative versions, as well as
   - the elaboration of institutional options with the establishment and operation of the railway line.

6. *Scientific analytic attendance of the public/private partnership project "ABA Ernsthofen" (Project-Nr: 79/2000)*

   W. Schönbäck (Project leader), S. Faßbender

   Commissioned by: ÖKO-Audit Umweltmanagement Gesellschaft for holistic counselling; currently in preparation.

   The aim of the project is to set up an EDP-supported calculation model to calculate the revenues, expenditures and costs. The model takes into consideration all the essential input variables, such as an exact modelling of the National and Provincial subsidies. Through appropriate assumptions, the different amounts of the costs arising from the organisation form selected, as far as these costs exist, can be portrayed.

7. *Investigation on the extension of the double-track railway line Koper – Divaca. Part: economic evaluation (Project-No. 77)*

   W. Schönbäck (Project leader), H. Wernhart

   Commissioned by: Austria Rail Engineering, final report 12/1999.

   Within the framework of the total project "Investigation on the expansion of the double-track railway line Koper – Divaca" the IFIP have taken on the economic assessment of the expansion variants in the Koper – Divaca corridor. The investigation is carried out using the business management economic investment calculation method from the Slovenian Railways point of view. In a first step, the five expansion variants that have been worked out will be assessed by the static investment calculation method. Using a selection procedure, which takes into consideration the technical, business and economic criteria, the variant to be preferred will be found. In a second step, the preferred variant will be assessed with the aid of a dynamic investment calculation method.

8. *Investigation on the extension of the double-track railway line Graz – Spielfeld – Sentilj – Maribor and Koper – Divaca (Project-No. 73)*

   W. Schönbäck (Project leader), H. Wernhart, J. Bröthaler, C. Heschtera, S. Winkelbauer, M. Reishofer

   Commissioned by: Austria Rail Engineering, final report 12/1998.

   Within the framework of the total project crossing frontiers, the IFIP takes over the part on transport analysis and transport forecasting. Based and constructed on the methodical findings and experience of the IFIP in the field of transport economics, a transport analysis as well as a transport forecast for the year 2010 will be prepared with regard to the relevant corridor transport of the three transport corridors. An individual forecasting model is applied for each of the marketing sectors (short-distance passenger transport, long-distance passenger transport and freight transport). The results of the rail transport forecast serves as an initial value for the technical and economical analysis of a number of expansion variants. The economic analysis of these expansion variants is, from a business management view, again incumbent on the IFIP.

9. *FISCUS - Cost Evaluation and Financing Schemes for Urban Transport Systems (Project-No. 72)*

   W. Schönbäck (Project leader), S. Winkelbauer, Ch. Heschtera

   Commissioned by: The European Commission, DG VII.

   FISCUS is a European project under the responsibility of TIS (Transportes Inovação e Sistemas a.c.e., Lisboa, Portugal), which examines the internal and external costs of public transport in conurbations, and the new financing model which should be developed for this transport sector. Within the framework of the main study, the IFIP is working on the parts WP 1 (methodical framework for the assessment of financing models) and WP 4 (development of new financing models for urban transport), on the integration of the results of these parts in the form of a manual, on public dissemination, as well as on the organisation of a concluding conference in Vienna.

10. *Pricing European Transport Systems (Project-No. 49)*

    W. Schönbäck (Project leader), S. Winkelbauer, C. Heschtera

Commissioned by: The European Commission, DG VII.

Within the framework of the main study, the Institute (together with ECOPLAN, Berne, INRETS, Lyons and IWW, Karlsruhe) is working out a case-study on the freight transport crossing the Alps in which the pricing policy consequences, namely the high above average infrastructure costs and the external costs involved in transport crossing the Alps, are dealt with. Theoretical questions (marginal cost pricing versus full cost coverage) will be discussed with reference to the actual conditions existing in the Alpine region. In order to estimate the effects of different pricing strategies, the operational costs involved in road and rail transport, taking into regard the topographic conditions and the general legal conditions, will be presented. The infrastructure costs of road and rail transport will be established in the same way as the revenues of the infrastructure providers (taxes, tolls, tariffs) and the resulting degree of cost covering. In addition, co-operative work will be carried out to demonstrate the external costs of transport specific to the Alps.

4.3 MAIN BRANCH 3: RESOURCES AND ENVIRONMENTAL ECONOMICS

1. *DANUBS - Nutrient Management in the Danube Basin and its Impact on the Black Sea (Project-No. 105/2001)*

   Schönbäck, W. (IFIP-Project Leader), Blaas, W., Pierrard, R., Fassbender, F., Heimel, R.; Overall Project Leader: Institute of Water Quality and Waste Management, Technical University of Vienna (There are another 17 project partners within this project)

   Commissioned by: European Commission, DG Research: project within the Fifth Research and Technological Development Framework Programme "Environment and Sustainable Development (1.1.4) / Strategic planning and integrated management methodologies and tools on catchment scale (1.1.1)", currently in preparation (Start: 2/2001, End: 2003).

   Mismanagement of nutrients in the Danube Basin has led to severe ecological problems, among them the deterioration of groundwater and the eutrophication of rivers, lakes and especially the Black Sea. These problems are directly related to social and economic issues (e.g. the drinking water supply, tourism and fishery as suffering sectors; agriculture, nutrition, industry and sewage management as responsible sectors). In order to recommend proper management for the protection of the water system in the Danube Basin and the Black Sea, the interdisciplinary analysis of the Danube catchment, the Danube River system and the mixing zone of the River Danube in the western part of the Black Sea has to be further developed.

   IFIP is responsible for WP 9 (Consideration of socio-economic aspects) and will evaluate different solutions for future nutrient management strategies taking into consideration socio-economic developments in the Danube Basin.

2. *RELIEF - Environmental Relief Potential of Urban Action on Avoidance and Detoxification of Waste Streams through Green Public Procurement (Project-No. 104/2001)*

   W. Schönbäck (Projektleiter), R. Pierrard, S. Faßbender, L. Sieber
   Project partners within this Project are: ICLEI (International Council for Local Environmental Initiatives); IVM/VU (Institute for Environmental Studies, The Vrije Universiteit Amsterdam); dk-TEKNIK; IFZ (Interuniversitäres Forschungszentrum für Technik, Arbeit und Kultur); CES (Centre for Environmental Studies, Budapest); TU-Dresden (Chair for business administration, environmental economics in business) and the cities of: Miscolc (Hungary), Kolding (Denmark), Malmö (Sweden), Hamburg (Germany), Stuttgart (Germany), Zurich (Switzerland).

   Commissioned by: European Commission, this project is funded under the 5th Framework Programme; Thematic Programme: Energy, Environment and Sustainable Development, Key action: City of tomorrow and cultural heritage, currently in preparation.

   The main target of the RELIEF Project is the analysis of the influence of public procurement concerning the development and availability of environmentally preferable products. Therefore the most relevant product groups, associated with public procurement, for environmental relief are identified in the RELIEF cities. Methodologies for analysis and quantification of the environmental relief potential and

socio-economic aspects are developed. As a result of the project, environmental relief potentials are calculated for different scenarios on the European level. These results will be used for an integrated strategy of European cities in the field of green purchasing to catalyse the implementation of recommendations for European policy as well as to provide guidelines for green purchasing practices

3. *Green purchasing of municipal capital and consumer goods (Project-No. 91)*

   W. Schönbäck (Project leader), M. Eder, S. Faßbender, R. Pierrard

   Commissioned by: City of Vienna, MA22 – environmental protection, department of waste management, final report 12/1999.

   The purpose of this study was to identify those sectors within the municipal procurement sector where currently a change is being made towards green procurement. Furthermore, the experiences of municipal purchasers in the field of green purchasing should be investigated. In the first part, a questionnaire was developed, which was forwarded to national and international purchasers, to obtain an overview of the present practice in the field of green purchasing. In the second part, the criteria and methods for the evaluation of the environmental compatibility of products and services in public procurement were *compared to find evaluation techniques for the validation, not only for investment but also for consequential costs, especially in the field of green procurement.*

4. *National economic analysis of changes on the beverages and soft drinks market and conclusions drawn on the drinks quotas of the target stipulation on waste packing material (bottles) (Project-Nr. 87)*

   W. Blaas (IFIP-internal Project leadership), C. Prinz, H. Wernhart, S. Faßbender; together with GUA – Gesellschaft für Umweltfreundliche Abfallbehandlung Ges.m.b.H.

   Commissioned by: Verband der Getränkehersteller Österreichs (Union of Austrian Beverages and Soft Drinks Producers), The Federal Ministry for Environment, Youth and Family, Federal Ministry of Economic Affairs; final report 7/2000

   The aim of the study is to analyse the national economic effects, over the period 1997 to 2004, of probable changes in the Austrian beverages and soft drinks market, which consist essentially in 4 actual transitions concerning the kind of packaging used. The economic analysis involves a cost-benefit analysis (comparison of the ecologically beneficial and harmful effects with the costs of changes resulting from the kind of packaging used) as well as an analysis of the employment and added-value effects. Moreover, besides the bottling of beverages and soft drinks, deposit bottle processing, trade and transport and all the intermediate input, all the waste management processes connected with this question will be examined. The main task of the IFIP is to carry out an employment- and value-added calculation with reference to the different branches, as well as scientifically accompanying the cost-benefit analysis, which the GUA is to carry out. From the results of this analysis, conclusions should be drawn concerning the further development and/or sense of re-usable-quotas for beverage and soft drink bottles within the framework of an official stipulation on waste packing material (i.e. bottles).

5. *Evaluation of economic waste management measures with the aim of creating an authorized refuse disposal site which does not require any after-care (Project-Nr. 86)*

   W. Schönbäck (IFIP-internal Project Leadership), M. Eder, S. Faßbender, R. Pierrard, C. Prinz; together with AWS (Institut für Wassergüte und Abfallwirtschaft der TU Wien)[1] and GUA (Gesellschaft für Umweltfreundliche Abfallbehandlung Ges.m.b.H.)

   Commissioned by: Umweltbundesamt[2], the Office of the Federal Provincial Government of Upper Austria, the Office of the Federal Provincial Government of Styria, the City of Vienna; currently in preparation, final report 9/2000.

   Because the fundamental aim to make the principle of precaution obligatory has been laid down in the Austrian Waste Management Law, waste can, in future, be deposited exclusively in a permanent storage depot. The quality of the materials to be disposed of is therefore of especial relevance/importance. It is the aim of that part of the study which IFIP is working on – with the help of the cost-benefit

[1] AWS = Institute for Water Quality and Waste Management of the Technical University of Vienna

[2] Federal Office for Environmental Matters

analysis and other possible evaluation methods - to look into the question of whether additional expenditure for technically demanding/ambitious treatment of waste (taking into consideration the external effects) is, in the long run, economically more or less preferable to expenditure on renewal and remedial measures for refuse disposal sites with little waste or non-pre-treated waste. Over and above this, the application limits of the cost-benefit analysis should be demonstrated and other evaluation methods be suggested which could be useful to analyse different processes in the management of waste. In this way, it should be possible to work out objective bases on which decisions may be made which appear suitable for deciding on a successful strategy for the realisation of the principle of precaution.

6. *Peer Review on the project "Total economic costs and benefits of the management of waste from households in Austria" (Project-Nr. 82)*

   W. Schönbäck (IFIP-internal Project Leader), M. Eder, S. Faßbender, C. Prinz; externally: H. Hutterer (Project Leader; GUA – Gesellschaft für Umweltfreundliche Abfallbehandlung Ges.m.b.H.)[3]

   Commissioned by: The Federal Ministry for the Environment, Youth and the Family, Section III/4, final report 7/1999.

   The EDP model for the project "Total economic costs and benefits of the management of waste from households in Austria" was worked out together with the GUA Co. Ltd. and is subjected to a Peer Review. It is the IFIP's task in this project to express an opinion on the suggestions and criticisms made by the Peer reviewers with regard to the method of national economic evaluation, and also, if need be, to implement this model.

7. *Evaluation of the Austrian Model for Elaborating the Cost-Benefit Analysis in the Field of Waste Management and Recycling on the Level of National Economy in Comparison to other Models*
   (Project-Nr. 78)

   W. Schönbäck, C. Prinz, S. Faßbender, M. Eder, H. Hutterer (GUA – Gesellschaft für Umweltfreundliche Abfallbehandlung Ges. m. b. H.)

   Commissioned by: DKR – Deutsche Gesellschaft für Kunststoffrecycling m. b. H. (German Society for plastic recycling), final report 2/1999.

   The task of this research project is to analyse different models developed in Europe to obtain the total economic costs of treating waste material. In the course of this, 6 different models to obtain the costs incurred in the waste material economy are to be analysed and compared with the ‚Austrian Model' (Total economic costs in the treatment of waste material – IFIP project, 63/1997) worked out by the GUA and IFIP. The IFIP contribution consists, in the main, in an analysis of the points of departure used in the study to comprehend the cost-benefit effects and the costs of damage of various different utilization and disposal options, as well as in the processing and demonstration of the underlying methods. The comparison of models, and the inclusion of internal as well as external beneficiary effects and costs for damages will be examined in detail.

8. *Effects of the Austrian Energy Tax on Natural Gas*

   W. Schönbäck, J. F. Mayer, M. Kosz

   Commissioned by: STATOIL, Norway.

   In this study, the energy taxes introduced in 1996 on the production of gas and electricity, and the economic effects of these will be presented. The tax load for 22 industrial branches will be worked out taking into consideration the ‚upper limit (ceiling) regulation'. Further to this, the effects on private households – differentiated according to whether they have gas-heating already or other forms of heating – will be examined.

[3] GUA = Society for the Environmentally Sustainable Treatment of Waste Matter Co. Ltd.

4.4 MAIN BRANCH 4: REAL ESTATE ECONOMICS

1. *Implications of the development in the service sector on the urban structure of Vienna (Project-Nr. 106/2001)*

   W. Blaas (Project leader), G. Oppolzer, in co-operation with K. Puchinger, M. Rosenberger and A. Hergovich (Regional Consulting GmbH)

   Commissioned by: City of Vienna, Dep.18 – Strategic city planning, final report: 01/2002.

   Both the tendency towards tertiarisation and the use of advanced technologies in telecommunication and IT have had a high impact on the economic and urban structure of the city of Vienna. This can be shown in the new requirements for office buildings, of both a quantitative and qualitative nature. The study analyses these tendencies with a special focus on business services, as a most important and dynamic sector in the Viennese economy, from two points of view: First, those developments in the service sector are to be identified which have a clear impact on the choice of location. Secondly, the study documents and analyses important real estate projects in Vienna over the last 5 years, and their impact on the economic and spatial structures are shown. Finally, in a synthesis of both approaches, conclusions are drawn on new challenges for city planning.

2. *Trade centres in the blocked city of Vienna (Project-Nr. 97/2000)*

   J. Bröthaler (Project leader), W. Blaas, H. Wernhart

   Research Promotion: Fonds "150 Jahre TU Wien" - Technik Preis der Wiener Wirtschaft (Fund “150 years TU Vienna” – technology prize from the Vienna Chamber of Economics, final report: 06/2001.

   Based on three recent projects on the same topic (projects No. 58, 70, 71) a synopsis of the accumulated knowledge and furtherconsolidation of some main topics takes place in this project. This project is research sponsored by the Chamber of Economics.
   The following topics will be discussed:
   - Documentation of the trade centre policy of the City of Vienna.
   - Investigation of the implementation of trade promotion in compliance with the EU law.
   - Compilation of a real estate dictionary with special consideration for the net yield terms.
   - Enlargement of the existing financial simulation model.
   - Documentation of the total know-how.

3. *Regional economic stock-taking and political-economic analysis of the Flachgau Technology and Trades Centre (Project-No. 76)*

   W. Blaas

   Commissioned by: IBM, final report 1/2000.

   A feasibility study was commissioned by IBM for the planned Flachgau Technology and Industry Centre Neumarkt/Strasswalchen (Flachgauer Technologie- und Gewerbezentrum Neumarkt/ Straßwalchen (FTGZ), and in the framework of which the Institute has two parts to work on. First of all, the economic status of the region in which the FTGZ is to be erected is to be recorded and described (Part 1 of the study): then the individual economic perspectives of the communal, regional and political-economic effects of this project ensuing from the FSGZ are to be examined (Part 2 of the study).

4. *Austrian participation in the EXPO in Hannover. Economic aspects*

   W. Blaas

   Commissioned by: Secretariat of the Austrian Participation in EXPO 2000 in Hannover.

   Economic (and other) aspects of world exhibitions have been examined frequently but, until now, only from the viewpoint of the organizer, the organizing country or organizing locality. In contradistinction to this, this project is concerned with questions on the economic aspects of participation in a world exhibition, as well as how participation appears from the point of view of a single, participating country.

5. *ACCESS Business Park Gmünd-Ceske Velenice*

   W. Blaas (Project leader), S. Mayer

   Commissioned by: The Institute for Trade and Commerce Research in Halle, Germany, final report 10/1998.

   Within the framework of the project on "The establishment of special business zones (SBZ), especially in border regions; feasibility and effects", commissioned by the German Ministry of Trade and Commerce, the Institute is working on the following aspects of the case example "Border-crossing Business Park Gmünd/Ceske Velenice". Classification of the case example in the spectrum of SBZ possibilities (e.g. special tax zones, border-crossing business parks, or suchlike); the SBZ and their relationship to existing regional economic policies; the regional economic situation at the SBZ locations; presentation of the SBZ example: concept – realisation – effects.

4.5 MAIN BRANCH 5: SECTORAL, REGIONAL AND LOCAL ECONOMIC ANALYSIS

1. *Improvement of economic policy co-ordination for full employment and social cohesion in Europe (Project No. 108/2001)*

   Project leader J. Huffschmid (Bremen), Project leader IFIP-part: W. Blaas

   Commissioned by: European Commission, currently in preparation (1. 9. 2001 – 31. 8. 2004).

   The *overall objective* of this Thematic Network is to propose improvements of European economic policy co-ordination which contribute to the achievement of full employment and stronger social cohesion in an enlarged European Union. To achieve the overall objective, three sub-objectives will be pursued: (1) A *first sub-objective* is the clarification and comparative analysis of the historical development, the current pattern of economic policy co-ordination in the member state, the EU and the accession country level in three major fields (macro-economic, social and structural policies). (2) A *second sub-objective* is the elaboration of improved mechanisms for economic policy co-ordination in these three areas within the "old EU" (EU15) and the enlarged new EU. (3) A *third sub-objective* is to establish close and continuous contacts between the network and the scientific community as well as a broad spectrum of policymakers and social groups on the European and national levels, which should, on the one hand,have an impact on the activity of the network and, on the other hand, be a medium for the dispersal of work results.

2. *Estimation of income elasticities, price elasticities and cross-price elasticities for consumer goods in Austria with particular focus on non-alcoholic beverages (Project-No. 95)*

   W. Blaas (Project leader), L. Sieber

   Commissioned by: Verband der Getränkehersteller Österreichs (Union of Austrian Beverages and Soft Drinks Producers); final report 5/2000.

   The purpose of this study was to estimate income elasticities, price elasticities and cross-price elasticities for consumer goods in Austria. A particular focus of the study was the group of beverages, which have been analysed in more detail.
   The econometric approach to estimate these elasticities was to employ an "Almost Ideal Demand System" (AIDS) as the basic model which delivered, in a first step, the demand parameters. In a second step, the elasticities where then calculated with these parameters. The data set was provided by the Austrian Central Statistical Office and by the Austrian Institute of Economic Research. The data included prices, incomes and consumption from 1966 to 1995 on a quarterly basis.

3. *Development of Options for agriculture and horticulture in Vienna (Project-No. 94)*

   W. Blaas (Project leader – economic), L. Maurer (Project leader, Ludwig Boltzmann Institute), C. Stoiss, (IFIP) and other research fellows from the Ludwig Boltzmann Institute, the Department for Rural Development at University for Agricultural Sciences, the Department of Social Ecology at the Institute for Interdisciplinary Studies of Austrian Universities)

Commissioned by: Federal Ministry for Education, Science and Culture, final report: 01/2002.

Agriculture in Vienna faces, as the agricultural sector in general, major problems. As a consequence of the European Union, the market for agricultural products has become highly competitive and, in the long run, the enlargement towards Eastern Europe will cause an even more difficult situation for Viennese farmers. Moreover, there are lots of different claims on the urban agricultural area. It is repeatedly jeopardized by being designated for a usage of higher order, such as housing or business premises. Changes in the transport, storage, and production of food increase the possibilities of producing agricultural products in the most favoured places and for carrying them thousands of kilometres to consumer-markets.
Based on the thesis that agricultural and horticultural areas are influenced by different agents (farmers, administration, environmental groups etc.) with conflicting interests, the aim of the study is to reveal the development of farming in Vienna in the last few decades. The examination under the economical point of view considers the income situation of farmers as well as the land market in those specific areas which are jeopardized by other potential uses. In a second phase, the different teams will work together on several options to maintain urban agriculture in Vienna.

4. *Regional employment and value-added effects of the production of windows made of wood or fibre glass, respectively (Project-No. 89).*

   W. Blaas (Project leader), A. Luptacik

   Commissioned by: Österreichische Arbeitskreis Kunststoff-Fenster (Austrian Fibreglass Windows Workshop); final report 11/1999.

   The aim of this study is a comparison of employment and value-added effects resulting from the production of windows made of wood and those made of fibreglass. These effects should be determined on the regional level, for which the Federal Province is taken as the regional-economic unit. The regional economic effects in the Federal Provinces of Carinthia and the Tyrol are to be demonstrated in a concrete way.

5. *The city environs problem in the agglomeration of Vienna, and innovative problem-solving strategies: preparatory study on conflicts in public fulfilment of tasks in this context (Project-No. 85)*

   W. Schönbäck (Project Leader), M. M. Fischer (Project Leader, WSG = Institut für Wirtschafts- und Sozialgeographie der Wirtschaftsuniversität Wien)4 of Economic- and Social Geography of the University of Economics, Vienna), S. Faßbender, M. Schneider (WSG)

   Commissioned by: Dr. Karl Lueger-Institut; final report 10/1999.

   The main object of this study, to be carried out together with the WSG, is to identify the most important incentive mechanisms which trigger off the agglomeration problems well known to Vienna and the environs around, and to categorize their effects.

6. *Evaluation of the New Austrian Mining Law from an Economic, Legal, and Administrative Point of View (Project-No. 84)*

   W. Schönbäck (Project leader: economic part), B.-C. Funk (University of Graz; project leader: law part), I. Fänerich (University of Graz), C. Stoiss

   Commissioned by: Fachverband der Stein und keramischen Industrie (Representative of the Stone and Quarry Industry), final report 3/2000.

   Since 01. 01. 1999 a new Austrian mining law (Mineralrohstoffgesetz BGBl. Nr. 38/1999) has come into force. The new legal norms have been causing quite a problematic situation for the stone and quarry branch of the mining industry; the most important mining sub-sector in Austria. Since the new law, it is more time-consuming and expensive for the mining companies to obtain a mining licence because the neighbours, communities and Federal Provinces which are affected have more legal opportunities to participate in the procedure to grant mining licences and thus to influence the decision. Furthermore, land dedication around the mineral exploitation becomes an important issue. Thus, the study

[4] WSG = Institute of Economic- and Social Geography of the University of Economics, Vienna),

examines the following questions: Is there, as a result of the stricter legal standards for the issue of mining permits/licences, a significant reduction in the quantity of exploited stone and earth materials? How do private companies react (reduction in staff, decreases in investments etc.)? What are the economic impacts caused by the probably reduced national supply (imports, increase of price, substitution by other building materials, changes in the amount of employees)? Are parts of the law not in compliance with constitutional rights? How do communities and Federal Provinces align their city and regional planning to the new legal standards? How did they secure mineral resources in the past? Is the responsible administrative body able to handle an approval procedure when neighbours and communities with highly local interests are participating and where technical knowledge in the field of mining is necessary?

7. *The effects of selected communal investments on employment (Project-No. 83)*

W. Schönbäck (Project leader), M. Schneider, C. Prinz

Commissioned by: The Head Association of Austrian Savings Banks, final report 4/1999.

The aim of this study was to calculate the employment effects and value-added effects of selected communal investments in municipalities with less than 5,000 inhabitants. Based on a survey of investment projects made by the Communal Science Documentation Centre, and on a detailed public poll in the municipalities selected, the employment effects and value-added effects were estimated by means of an input-output model for the Austrian economy.
In addition, the employment effect of the corresponding private consumption was determined. By comparing these two results, it was possible to quantify the contribution Austrian municipalities make to securing employment. Moreover, the regional distribution of contracting persons receiving these investments was examined in order to find out what share of the investment sum for a project financed by a municipality remains, on average, in the municipality itself and/or in the region.

8. *Full Employment in Europe (Project No. 64/1997)*

Project leader Prof. Dr. J. Huffschmid (Bremen), Project leader IFIP-part: W. Blaas (former: E. Matzner)

Commissioned by: European Commission, TSER Programme, final report: 12/2001.

The general objective of the thematic network (TN) was "to re-introduce and substantiate the concept of full employment into the economic policy discussion in the EU...".This objective was broken down into three sub-objectives, covering (a) an analytical understanding of why full employment had been abandoned as a policy objective, (b) "elaboration of the necessary modifications and differentiations" for an adequate contemporary concept of full employment and (c) "the concretisation of the instrumental and institutional side of an appropriate full employment strategy...". At the end of the lifetime of the TN it can be stated that the concept of full employment has been widely re-introduced into the economic policy discussion – obviously not primarily because the TN has worked to that purpose. While the network members find it encouraging that full employment has been re-instated as a policy objective, there is, in their opinion, still much to be wished for and much to be criticised as to the way in which this has been done and as to the content and context of the process. These critical points and their policy implications as well as alternatives were explored, and formulated and exposed to critical discussion in three subgroups of the TN, dealing with (a) the concept of full employment, (b) the macro-economic requirements for full employment and (c) the structural aspects of full employment

9. *Analysis of the experiences gained from technology transfer institutions in Europe and examination of the possibility of their implementation in Austria*

W. Blaas

Commissioned by: WEG Wirtschaftspark Entwicklungs Ges.m.b.H. (Business Park Developing Company), final report 7/1998.

Different aspects in connection with technology transfer institutions will be dealt with. These include the analysis of the economic policy's need for measures to support technology transfer in Austria; the summarization of findings on the measures of technology transfer obtained from specialized literature; the development of a 'duties notebook' to analyse technology transfer institutions both at home and abroad; the summarization of the current existence of technology transfer institutions in Austria, including an analysis of their strengths, deficits and development tendencies; the analysis of selected

foreign technology transfer institutions (e.g. in Germany, Switzerland and France), and cooperation in the development of suggestions concerning measures.

4.6 MAIN BRANCH 6: MODELS, SOFTWARE AND INFORMATION SYSTEMS

1. *GemBon - Analysis and information system for the evaluation of the budgets of the Lower Austrian municipalities (Project-No. 103/2000)*

   W. Schönbäck, J. Bröthaler, F. Badjgholi, L. Sieber, H. Zarakowitis

   Commissioned by: Office of the Federal State Government of Lower Austria; running project.

   The aim of the project is the application of the budgetary analysis and information system GemBon in the office of the Federal State Government of Lower Austria. The project covers the methodical and software-technical adjustment as well as empirical realization in four areas: **1.** GemBon software and database, **2.** budgetary information system for administration of the local account data, **3.** hierarchical system of municipal budgetary indicators for the systematic description of the financial situation of the Lower Austrian municipalities and, **4.** a system of evaluation and analysis for the analysis and presentation of the budgetary data and for support in the evaluation of the municipal financial situation.

2. *SIMFAG – Simulation Model of Revenue-Sharing System Version 2.1/2.2*

   W. Schönbäck, J. Bröthaler, M. Schneider, A. Weiser

   Commissioned by: Federal Provincial Government of Upper Austria and Salzburg, City Innsbruck, Austrian Institute for Regional Studies and Spatial Planning.

   SIMFAG is a simulation programme, which comprehends the whole Revenue-Sharing System (RSS) between the central government, the federal provinces and the local governments of a country. It is an interactive programme with full menu and dialogue control and context-sensitive assistance. It provides several functions to build up the database for the RSS and the RSS model itself. It also includes comprehensive facilities for the presentation and analysis of input data, the model itself and the results. SIMFAG can be applied for the empirical analysis of the distributional effects of the existing Revenue-Sharing System and of changes in revenue-sharing policy as well as forecasting revenue shares of all public bodies consequent on predicted changes in tax revenues, economic or demographic changes.

5. SURVEY OF THE MAIN BRANCHES IN RESEARCH AND TEACHING

Fields of research	Methods applied or developed (examples only)	Examples of research projects undertaken	Lectures in which the results are used
Main branch 1: Public Financ			
1.1. Analysis and forecast of public revenues, expenditures and fiscal indicators, fiscal federalism	1. System of indicators to judge the situation of public budgets 2. Descriptive model of the system of revenue-sharing between Central, State and Local governments 3. Cost and revenue analysis of public services and setting administrated prices within a 4-goal-system (to cover costs, to promote industries, to support private households, to influence demand)	1. Inquiry into the fiscal performance of central State and local governments 2. Inquiry into the procedures and effects of revenue-sharing mechanisms and their changes 3. Inquiry into the causes and patterns of demand, price and income elasticities of demand for public services 4. Cost analysis of municipal services and possibilities to finance their provision 5. Equalization of local fiscal capacity through the Austrian Revenue-Sharing System	1. Public Finance 2. Infrastructure costs (contribution to projekt 1) 3. Economic policy of local governments (contribution to project 2) 4. Infrastructure economics and public enterprises (Theory of public service production and of regulating the private provision of infrastructure services)
1.2. Regional distribution of Central State revenues from shared taxes and of Central State expenditures	Regional tax yield/allocation calculation (RTAC)	1. Method of the regional tax yield/allocation calculation (RTAC). 2. RTAC for all federal provinces in Austria (accounting year: 1983, 1986)	
1.3. Elements of a socio-economic theory of productive behaviour (markets, laws, social norms, habits etc.)	1. Socio-economic context analysis as alternative to the ends-means-approach of theoretical reasoning 2. Functional analysis of State activities	1. The Welfare State of tomorrow 2. Complementarity of the State, market and autonomous sector 3. Transformation of Eastern Europe after the market shock 4. Unemployment risk and employment chances of technological change 5. Europe of regions – new decision levels 6. Beyond Keynesianism: The socio-economics of production and full employment	1. Introduction to macro-economics 2. Public Finance 3. Regional economic policy 4. Socio-economic aspects of European Integration 5. Sectoral economic policy 6. Real estate market
Main branch 2: Infrastructure economics and policy			
Branch 2.1: Methods and techniques			
2.1.1. Methodological research	1. Forecast of demand for infrastructure services 2. Analysis of costs and benefits of the provision of infrastructure services and their impact on income, employment and fiscal revenues on local, regional, national and EU level („hierarchical economic analysis of infrastructure provision“) 3. Input-Output Analysis 4. Fiscal effects analysis (requirements of infrastructure investments and their impacts on public budgets) 5. Incentive management and organisational analysis		1. Public Finance 2. Infrastructure economics and public enterprises 3. Theory and techniques of economic planning 4. Investment theory 5. Infrastructural and financial planning

	6. Market failure and Government failure analysis 7. Space-time model (T. Hägerstrand) 8. Infrastructure-cost-database		

Fields of research	Methods applied or developed (examples only)	Examples of research projects undertaken	Lectures in which the results are used
Branch 2.2: Transport Economics			
2.2.1 Evaluation of very large transport projects	See above: methods 1 to 4	1. Hierarchical cost-benefit analysis of completion of the A9 Pyhrn motorway link 2. Evaluation of a new rail transversal through the Alps (Brenner base tunnel) 3. Passenger transport model and profitability calculations of the Austrian Federal Railways high performance transport measures 4. Forecasting high-speed passenger train services on several routes	1. Transport economics 2. Theory and techniques of economic planning
2.2.2 Allocation of time and space	Time-space-model by T. Hägerstrand	1. Theory of allocating space and time 2. Effects of transport infrastructure on people´s possibilities of acting in time and space – empirical research in Vienna and other Austrian towns	
2.2.3 Legal instruments for archieving economic efficiency and safety in transport		1. A concept of the reorganisation of legal competences and financing the Austrian transport sector 2. Assessment of road transport regulations - demonstrated in the case of general speed limits	Transport economics
2.2.4 Finance of transport infrastructure		1. Draft Master Plan for Transport of Vienna - Taxes and other public revenues as financial resources and steering instruments 2. Pricing European Transport Systems	
2.2.5 Organisation and management of local and regional passenger transport facilities		1. Central State intervention to promote regional transport cooperation 2. Transport Cooperation in Graz and the surrounding region 3. FISCUS - Cost Evaluation and Financing Schemes for Urban Transport Systems	Public transit and regional transport cooperation
2.2.6 Computer-based transport Planning	1. Direct demand model for total travel demand 2. Logit model for mode choice 3. Knowledge-based model estimation	All research projects mentioned above under branch 3.2.1	
Branch 2.3: Further areas of infrastructure planning and policy			
2.3.1 Water provision and sewage disposal	1. Capital stock estimation 2. Production cost estimation	1. Cost and funding of water supply and sewage disposal 2. Prices and cost coverage of the public water utilities	Economics of water-supply

2.3.2 Energy provision	1. Cost-benefit-analysis of alternative energy power stations 2. Least Cost Planning (LCP)	1. Hydro-electric versus caloric power stations 2. Hydroelectric power stations in sensitive preservation areas 3. Determinants of profitability of biomass district heating systems 4. LCP-Study on the nuclear power plant Mochovce	Hierarchical economic analysis of energy provision

Fields of research	Methods applied or developed (examples only)	Examples of research projects undertaken	Lectures in which the results are used
Branch 2.3: Further areas of infrastructure planning and policy (continued)			
2.3.3 Waste collection, recycling and disposal		1. Local government revenues from waste disposal locations 2. Cost-benefit analysis of alternative beverage wrappings 3. Assessment of scenarios for the disposal of synthetics	
2.3.4 Health and social services	Market failure analysis in insurance markets	1. Cost and funding of hospital care in the context of fiscal federalism and parafiscal autonomy 2. Is there a market for the care of old-age people? 3. Determinants of individual decisions to enter voluntary old-age pension schemes 4. Compensation for child-care in families: impacts of a special 'cheque' on public budgets and supply outside of families	
2.3.5 Telecommunication	Cost estimation	Cost reduction in industries resulting from using telecommunication facilities	Economics of Telecommunication
2.3.6 Military and civil security services		1. Cost-efficiency of alternative defence strategies in Austria 2. Cost and employment effects of protecting the population from disasters 3. Cost saving through voluntary fire-brigades	
Main branch 3: Resources and Environmental Economics			
3.1 Efficient protection of the environment by instruments of environmental policy (services and money transfers; behavioral incentives, standards, taxes, permits etc.)	1. Modelling the economic and ecological impact of environmental instruments 2. Employment impacts of environmental protection	1. Environmental taxes and charges for a sustainable development in Austria	1. Environmental Economics 2. Economic Methods for Environmental Planning
3.2 Cost-benefit analysis and the environment (including evaluation of natural goods)	1. Cost-benefit analysis including shadow pricing for non-market goods ('evaluation' by means of travel-cost or contingent-valuation approaches)	1. Cost-benefit analysis of the national park 'Donau-Auen' 2. Hierarchical economic analysis of thermal insulation of buildings in Austria. 3. Evaluation of economic waste management measures	
3.3 Operationalisation of the concept of a 'Sustainable Development' for Austria	1. Defining the (sustainable) environmental space along the carrying capacity of eco-systems	1. Towards Sustainable Austria: the Environmental Space Concept.	
Main branch 4: Real estate economics			
4.1 Economics of real estate	1. Econometrics 2. Statistics	1. Explaining determinants of real estate prices in Vienna 2. Perspectives for the location of craft and trade on premises in densely built-up areas of Vienna	
4.2 Economics of housing		Housing policy in Austria	Economics of housing

4.3. Regional analysis of business parks	Empirical/statistical analysis	Economic rentability and regional effects of the cross-border business park in Gmünd	

Fields of research	Methods applied or developed (examples only)	Examples of research projects undertaken	Lectures in which the results are used
Main branch 5: Sectoral, regional and local economic analysis			
5.1 Calculation of the yields of shared taxes and their distribution among regions or local governments		Comparison of the yields of shared taxes with their distribution by Federal Provinces in Austria	1. Regional economic policy 2. Urban ecomics 3. Economics of tourism 4. Real estate market
5.2 Regional impact of sports/touristic events	Empirical/statistical analysis	Economics of sports/touristic events (Formula 1-GP, World Ski-jumping Championship)	
5.3 Regional economic analysis and forecast	Shift and share analysis		
Main branch 6: Models, software and information systems			
6.1 Travel demand forecasting	Transport demand modelling, discrete choice models for mode choice, model estimation	EPVM - European passenger transport model for Central and Eastern Europe	1. Mathematical planning models and applied system analysis 2. Public finance 3. Economic policy of local governments (contribution to project 2) 4. Theory and techniques of economic planning 5. Databases for regional planning 6. Infrastructure costs (contribution to project 1) 7. Computer-based practical course for infrastructural and financial planning
6.2 Revenue-sharing system	Modelling of fiscal distribution rules for governments of different levels	SIMFAG - Simulation model of the Austrian Revenue-Sharing System	
6.3 Analysis and planning of public budgets	Development of an hierarchical system of indicators for the fiscal strain in public budgets	KOMFINAP - Budget analysis and planning for local governments and federal provinces GEMBON - Assessment of local government budgets in Upper Austria	
6.4 Economic evaluation of infrastructure projects	Hierarchical economic analysis of infrastructure provision (see branch 3.1)	Profitability appraisal, input-output analysis, cost-benefit-analysis, fiscal effects analysis multicriteria analysis	
6.4 Databases and simulation for infrastructure planning and regional economics	Simulation of the economic effects of infrastructure projects on local government budgets	ISKODAT - Database for infrastructure costs, Database for regional economic data	
6.5 Geographic information systems (GIS)	Application of GIS in public finance and infrastructure planning	GIS for regional and local data, thematic mapping(planned)	