



# Aims and Research Activities

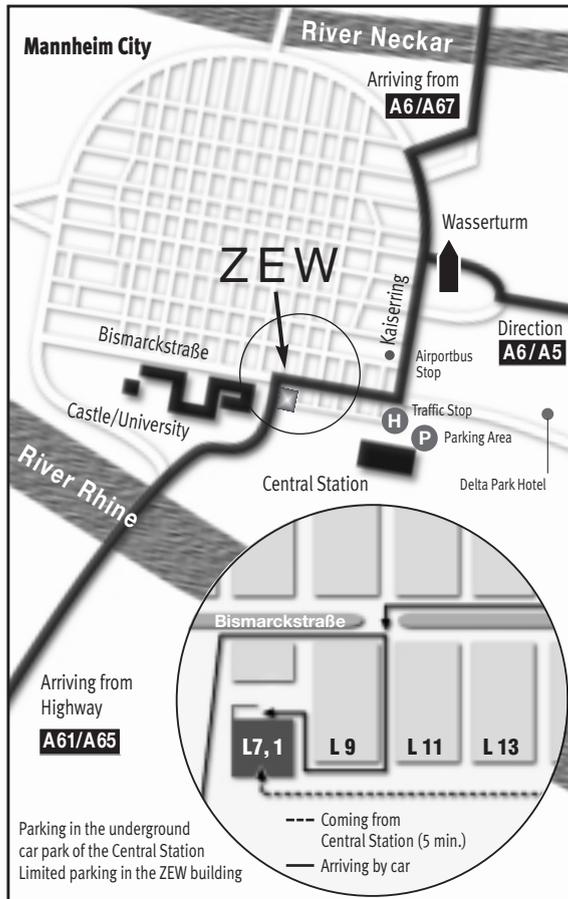
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# ZEW

Zentrum für Europäische  
Wirtschaftsforschung

Centre for European  
Economic Research



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Further information on activities of the ZEW can also be found  
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# Aims and Research Activities

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## **Imprint**

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# About the ZEW

The Centre for European Economic Research – in German: Zentrum für Europäische Wirtschaftsforschung (ZEW) – is a non-profit, non-partisan research institute engaged in the quantitative analysis of economic issues. While the focus is on economic developments in Europe and Germany in particular, comparative work on other economies is carried out, too. An important guideline of our research is to offer policy oriented advice, based on innovative scholarly work, to the public, to private and governmental institutions and organizations as well as to private firms on how to meet the challenges of an integrating world economy. Equally important is the engagement of the ZEW in academia such as publishing the research output in well-established scientific journals and books and participating actively in academic debates.

More specifically, the ZEW started working in 1991. As for 2001, more than 110 people are working at the ZEW permanently. Among them are around 80 scientists mostly, but not exclusively economists. They are supported by some 100 student researchers and other people on a temporary basis. Moreover, the ZEW is grateful for and proud of the engagement of quite a few professors who, in addition to their university affiliation, direct research projects at the ZEW and very

actively give the ZEW their backing. In a more formal way support is also efficiently provided by a scientific advisory council whose members are mostly university professors but also entrepreneurs or high-ranking government officials. In addition, the ZEW is host to many guest researchers who stay for some weeks at the institute in order to join our research efforts and to discuss their work. Finally, the ZEW cooperates with a considerable number of domestic and foreign universities and economic research institutes. Not only do both partners benefit from such a cooperation but it is also a prerequisite to carry out commissioned work for the EU.

The budget of the ZEW amounts to some 10 million € (in 2000) and is financed both by the state government of Baden-Württemberg (around 60 percent) and by funded projects raised by the ZEW. Institutions which commission the ZEW to do research work for them include the European Commission (27 percent), federal ministries (29 percent), firms and private organizations (16 percent), and last but not least science foundations (22 percent), the numbers in brackets referring to the share of each source of commissioned work among its total amount. Funding by the state government enables the ZEW to carry out more basic research and to provide researchers with sufficient means to achieve

higher qualifications such as doctoral degrees. Valuable additional funding by the “Club of ZEW Friends and Sponsors” (Förderkreis Wissenschaft und Praxis am Zentrum für Europäische Wirtschaftsforschung e.V.), which consists of entrepreneurs mostly from the region of Mannheim, the location of the ZEW, is gratefully acknowledged.

Turning to a more detailed outline of the aims and scope of the ZEW, the following aspects deserve greater attention. In sum they distinguish the ZEW from other institutions, whether universities or other economic research institutes. Special attention in the ZEW’s research is given to a microeconomic and microeconomic focus. On the basis of large and, for Germany, unique panel data on existing firms and start-ups, as well as of individual households, the ZEW undertakes research work in the field of industrial and labour economics such as the origins and causes of innovations or the breed of success of newly founded firms as well as the structure of wages and employment and the evaluation of labour market policies, to mention only a few examples.

The microeconomic focus is also visible in the research department International Finance and Financial Management; in fact, among all major economic research institutes outside universities the ZEW is the only one which undertakes research work on financial markets on a large scale. Moreover, corporate taxation is another field of research. Here the ZEW has established the so-called “European Tax Analyzer” which offers computer-aided international tax burden comparisons on an effective basis (in contrast to studies which are restricted to nominal tax rates).

It goes without saying that the emphasis on microeconomics does not exclude macroeconomics. Indeed, the ZEW has developed further both a macroeconomic disequilibrium model and a computable general equilibrium model for the German economy. The first model is used for simulations of al-

ternative policy measures whereas the second is one of the workhorses of our research department Environmental and Resource Economics. Research from this department is devoted to aspects such as sustainable development, environmental policy instruments and international environmental questions.

A considerable part of the research is based on interdisciplinary work and/or carried out as companion work of several research departments at the ZEW. An example for the first aspect is a large research project on wage flexibility which is directed by three professors of economics, business administration and law, respectively. The second aforementioned aspect is highlighted by integrated projects such as on technological competitiveness, venture capital, start-ups and (self-)employment, and the like.

Major efforts are made by the ZEW to establish an efficient knowledge transfer not only to academia but, with a special emphasis, also to firms, governmental institutions, and, of course, to the general public. To this end several scientists at the ZEW give regular lectures at universities and, moreover, the ZEW offers seminars on new developments in research and business as well as conferences, expert training for foreign delegations, and tailored training courses for companies. Several publications such as the ZEW news (available also in English) are intended to inform the public about research output of the ZEW. Finally, the ZEW has established an annual “Economic Forum” and twice a year speeches by CEOs and high-ranking politicians on current economic issues.

A basic essential for all the activities is the high qualification of all employees at the ZEW. In order to continuously improve their qualifications all scientists at the ZEW have to take considerable efforts such as to write their dissertation or habilitation (a postdoctoral qualification), to publish scholarly articles, and to actively participate in (international) scientific conferences. Financial sup-

port for these activities stems from a “qualifications fund” which provides sabbaticals for each scientist.

It goes without saying that this brief description can only cover a rather limited part of all activities. In what follows each department of the ZEW offers a somewhat more de-

tailed overview on its aims and scopes. We hope that the reader will notice our original and wide-spanning research and he or she is cordially invited not only to our website in order to get an up-dated research agenda and listing of our activities but also to feel free to contact us at any time. You are welcome.

Mannheim, December 2000

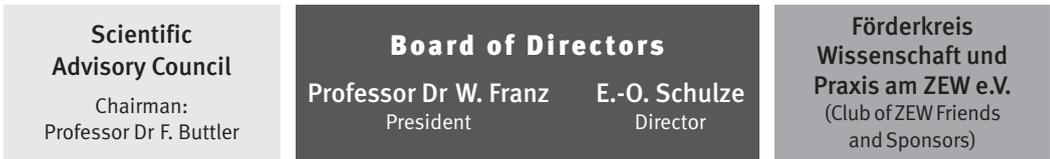


Wolfgang Franz  
President



Manfred Timmermann  
Chairman of the Supervisory Board

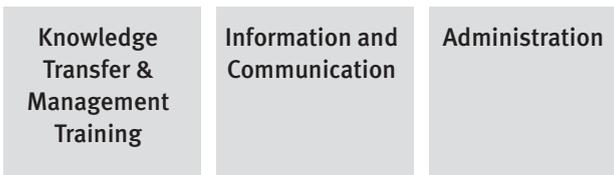




**Research Departments**



**Service Departments**

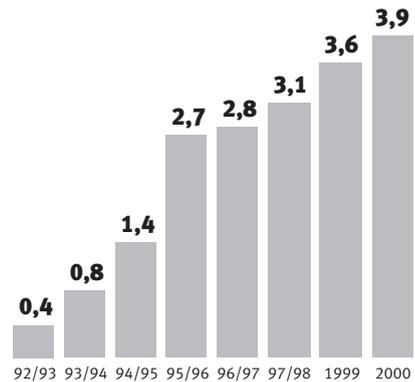
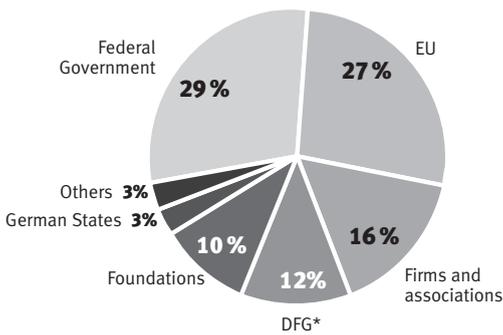


## Personnel and Finance

### ZEW Staff

	Dec '99	Dec '00
Employees: full time/part time	108/14	112/14
of which: scientific staff	74	78
non-scientific staff	34	34
personnel financed by third parties	50	56

### Projects Financed by Third Parties



Projects from 2000 onwards, as of December 2000.

\* German funding organization for academic research

Revenue, including sub-contractors; million Euro.

### ZEW Financial Survey (in million Euro)

	1999	2000 (Estimate)
Personnel/material expenditure	9.5	9.9
Current investments	0.4	0.5
<b>Total budget</b>	<b>9.8</b>	<b>10.4</b>
Funds from State of Baden-Württemberg	5.9	6.2
Third-party funds/other revenue	3.9	4.2
<b>Total funds</b>	<b>9.8</b>	<b>10.4</b>

# The Research and Service Departments: Core Areas of Work

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## The Research and Service Departments: Core Areas of Work

### International Finance and Financial Management

Head of the research department:

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#### ► **European Integration**

- ▷ Effects of the EU's eastward enlargement
- ▷ Economic analysis of the development of financial markets in Eastern European countries
- ▷ Effects of European Monetary Union on capital markets
- ▷ Developments within EMU in terms of economic policy and macroeconomics

#### ► **Capital Market Analysis**

- ▷ The European stock exchange system
- ▷ Monthly survey of financial market experts on their expectations regarding capital markets and the overall economic situation (ZEW Financial Market Test, G-Mind, ECB Watch)
- ▷ Analysis of the process of expectation formation in capital markets
- ▷ Theoretical and empirical analysis of stochastic processes of financial securities
- ▷ Financial market econometrics

#### ► **Financial Management**

- ▷ Structural changes in the banking sector
- ▷ Credit management and online banking
- ▷ Risk management in financial institutions
- ▷ Venture capital financing
- ▷ Corporate governance
- ▷ Financing of old age provisions
- ▷ Real estate financing

## **Labour Markets, Human Resources and Social Policy**

Head of the research department:

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### **► Labour Markets**

- ▷ Labour market effects of European integration and comparative analyses of European labour markets
- ▷ The structure of labour markets, unemployment, and institutional rigidities
- ▷ Wages, employment and working-time arrangements
- ▷ Employment and income effects of labour market policies

### **► Human Resources**

- ▷ Efficiency of the educational/vocational training systems in Germany, especially in comparison with other OECD countries
- ▷ Human capital formation in relation to technological and demographic changes
- ▷ Work organization and personnel policies
- ▷ Continuous training and its effects on wages and mobility decisions

### **► Social Policy**

- ▷ Labour market effects of social security
- ▷ Reform options for the social security system, especially old age pensions
- ▷ Distributional effects of social security and wealth accumulation
- ▷ Competition of welfare systems in an integrating Europe

## **Industrial Economics and International Management**

Head of the research department:

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### **► Innovation Research and Innovation Policies**

- ▷ Determinants of innovation activities at the firm level
- ▷ Innovation indicators
- ▷ Innovation activities in small and medium-sized enterprises
- ▷ Innovation policies
- ▷ Internationalization of innovation activities
- ▷ Research infrastructure and technology transfer
- ▷ Evaluation of research and technology policies

### **► Firm Dynamics**

- ▷ Firm start-ups
- ▷ Firm mortality and survival
- ▷ Determinants of firm growth
- ▷ Evaluation of start-up funding
- ▷ Start-up financing and venture capital
- ▷ Scenarios concerning the development of markets and regions

### **► Corporate Strategy**

- ▷ Global sourcing
- ▷ Projecting development of high-tech markets
- ▷ Lead market analysis

### **► Databases**

- ▷ Mannheim Enterprise Panel
- ▷ ZEW Foundation Panel West
- ▷ ZEW Foundation Panel East
- ▷ ZEW Foundation Panel Austria
- ▷ Mannheim Innovation Panels (manufacturing and mining, as well as service sector)
- ▷ Economic tendency survey in business-related services

## **Corporate Taxation and Public Finance**

Head of the research department:

Dr Robert Schwager

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### **► Corporate Taxation, International Tax Burden Comparison and Comparison of the Legal Forms of Enterprises**

- ▷ International comparison of tax burdens
- ▷ Economic effects and quantification of tax reform
- ▷ Taxation of enterprises in different legal forms
- ▷ Taxation of enterprises with international activities
- ▷ Cross-border investments

### **► Taxes, Investment and Financing**

- ▷ Effects of tax reforms on investment and innovation
- ▷ Benefits and problems of tax-based investment incentives
- ▷ Financing structures of small and medium-sized enterprises
- ▷ Regulation of financial institutes

### **► Fiscal Competition and Federalism**

- ▷ Decision making in fiscal competition
- ▷ Tax competition in the EU
- ▷ Intergovernmental transfers and coordination of fiscal policies in the EU
- ▷ Competition of social security systems

## **Environmental and Resource Economics, Environmental Management**

Head of the research department:

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### **► Innovation and Sustainable Development**

- ▷ Specification of rules, indicators and strategies for sustainable development
- ▷ Analysis of determinants and economic impacts of environmental innovations
- ▷ Analysis of environmental innovation systems

### **► Energy Economics**

- ▷ National regulatory frameworks for the energy markets in Europe
- ▷ New mechanisms to promote renewable energy
- ▷ Quantification and internalization of external costs of energy consumption

### **► Transport and Mobility**

- ▷ Quantification and internalization of external costs of transport
- ▷ Development of concepts for sustainable mobility
- ▷ German Transport Market Panel

### **► International Environmental and Resource Policies**

- ▷ Analysis of institutions for international environmental and resource policies
- ▷ Analysis of trade-offs between international trade and environmental policies
- ▷ International climate and resource policy

### **► Macroeconomic Analysis of Environmentally Relevant Policies**

- ▷ Design of environmental and economic policy instruments and strategies
- ▷ Quantification of trade-offs between environmental and economic goals at the macroeconomic and the sector level
- ▷ Efficiency and equity analysis of environmental tax reform policies, greenhouse gas abatement strategies and energy market regulation

## **Information and Communication**

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- ▷ Information services and public relations
- ▷ ZEW publications, EUmagazin
- ▷ Internet
- ▷ Research on business cycles and analysis of industries

## **Knowledge Transfer & Management Training**

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- ▷ Expert seminars
- ▷ Specific training programmes for enterprises and institutions
- ▷ International management training



# Activities of the Research Departments

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## Research Department International Finance and Financial Management

This research department aims at analysing and solving current economic and business management problems that are related to financial markets. In many cases macro- and microeconomic elements are closely connected, for instance when it comes to devising economically sensible regulations for market and credit risks. In general the research projects are both theoretically and empirically oriented. The empirical methods we use are mostly econometric ones. We develop some of them further to meet our specific needs.

As for the contents of our research projects, a distinction can be made between internally funded and externally funded projects. Most externally funded projects primarily serve to provide economic policy or management recommendations. Although the internally funded projects and the externally funded projects financed by research foundations frequently also tend to be practically oriented, they focus more on solving basic economic questions or on developing methods further.

We regularly organize seminars for further training of practitioners and academic conferences, and engage in active public relations work, all of which makes for an intensive knowledge transfer between the research community and practitioners.

In the following, we will first outline the most important issues which the research department is devoted to. An important impetus for new research subjects is often provided by current national and international economic policies. Examples are the European Economic and Monetary Union, the planned eastward enlargement of the European Union, and the liberalisation of financial markets that has led to far-reaching changes in the internation-

al banking and stock exchange landscape in the past few years. The palpable consequences include the accelerating concentration process among financial institutions and intensifying competition among the various stock exchanges.

In addition, new regulations and mounting competitive pressures are leading to considerable changes in the way banks manage risks. Especially with regard to the monitoring and controlling of credit risks, methods and organizational processes will be redesigned in the not too distant future. In many cases these changes will be modelled on the more advanced area of market risk management.

In 1999 the liberalisation of the electricity market in Germany led to the creation of an electricity exchange halfway through the year and spawned a new research subject in the field of financial markets. The establishment of an electricity exchange means that exchange dealings are being extended to an area where the setting of prices has been tightly regulated. Similar developments may occur regarding the trading in emission permits and the allocation of time units in the liberalised telecommunications market. In the field of financial markets another determinant induced by economic policy is emerging in the form of the forthcoming reform of the state-run pension scheme, which globally is likely to rely much more on private capital investment in the future than it has done. This could dramatically boost the importance of financial markets to the overall economy. These are just some of the most significant issues that are being addressed in the sphere of financial market research and will have to be addressed even more in the future. They thus constitute essential areas which

the research department International Finance and Financial Management has to devote itself to.

In order to solve the above-mentioned questions efficiently, our research is broken down into three focal areas: European Integration, Capital Market Analysis, and Financial Management.

The research area European Integration deals with projects that are strongly geared towards macroeconomics or economic policy. Essentially the projects are related to Europe-wide developments directly or indirectly linked to capital markets. Cases in point are the effects of the EU's eastward enlargement on the accession candidates' capital markets.

The analysis of stochastic processes of financial instruments and of the way expectations are formed in financial markets are at the heart of the research area Capital Market Analysis. Other issues concern institutional processes of change occurring in stock exchanges as well as the advancement of econometric methods.

The research area Financial Management is chiefly geared towards problems facing providers and purchasers of financial services. On the supply side, currently projects dominate which revolve around the risk management of market and credit risks, and around structural changes in the banking sector. Corporate finance, private provisions for old age, and real estate financing are questions that are of interest to both purchasers and providers of financial services.

In the following, we will elaborate on the individual focal research areas and comment on recently completed projects, issues we are currently working on, and on future topics of projects.

### **Research Area European Integration**

During the past few years the focus within this research area mainly concentrated on the macroeconomic analysis of the effects of European Monetary Union. In one project we

discovered that in the past interest rate policy significantly contributed to the convergence of cyclical trends in the EU. However, this was only true until the mid-eighties. Therefore, the renunciation of monetary sovereignty on the part of the countries participating in European Monetary Union is unlikely to have been a major loss in terms of the scope for economic policy. Moreover, empirical analyses showed that within the Monetary Union an increase in the mobility of capital is to be expected, something that should further boost coherence among the participating countries. In the future the analysis of the European Central Bank's monetary policy and its effects on the economic development in the euro zone in particular are going to be a key research topic.

In a project sponsored by DFG, Deutsche Forschungsgemeinschaft (the central public funding organization for academic research in Germany) we are studying whether capital markets contain public sector indebtedness effectively, the idea being that higher indebtedness leads to poor ratings which in turn lead to risk premiums for public sector bonds. These risk premiums increase the costs for public authorities, and thus provide incentives to reduce public sector borrowing. This study focuses on the extent to which these incentives actually exist and on whether they are very powerful. The conclusions relevant to economic policy particularly take the conditions in the European Monetary Union into consideration. For instance, the analysis done so far in this project revealed that in a currency union there is a significantly stronger incentive to incur debts, since states can no longer be penalised for excessive national indebtedness by devaluing their currencies.

An activity which we will considerably expand in the future is the analysis of the effects the EU's eastward enlargement has on European financial markets. One project examined the impacts joining the EU has on

the capital markets of the candidates (Estonia, Poland, Slovenia, the Czech Republic and Hungary). The first part of this project was devoted to a comprehensive stocktaking of the organizational structures and regulations for the supervision of stock and bond markets. Using statistical methods, we also analysed the efficiency of the candidates' stock markets as well as their short- and long-term relationships with western stock markets. The second part of the project concerned itself with the effects on Eastern European capital markets resulting from the adoption of the *Acquis Communautaire*, i.e. the common rules of the European Union. Our attention focused on the future developments of financial market institutions and the importance of capital markets to the continuously developing economies in Eastern Europe. We plan to extend these analyses to include other Eastern European countries and to reinforce them considerably.

A research project funded by the VW Foundation examines the impacts of European Monetary Union on the geographical allocation of real capital and the economic development in the EMU zone. More specifically, approaches from New Economic Geography will be applied and advanced.

### **Research Area Capital Market Analysis**

The projects in this research area currently revolve around three issues: the theoretical and empirical study of how expectations are formed in capital markets, the analysis of stochastic processes of financial securities, and the changes in the European and international stock exchange landscape. Thus, this research comprises both quantitative studies of the characteristics of capital market prices and the analysis of institutions and institutional regulations.

For example, one project was about the valuation of stock options assuming that volatility follows a certain stochastic process (GARCH process). A crucial part of the project

consisted in empirically analysing stock volatility and the implicit volatility of stock options, which can be calculated with the help of the Black-Scholes formula. The results can serve to improve the practical valuation of options.

In another project we examined the effect of the increasing importance of institutional investors in stock markets with regard to their role in controlling companies (corporate governance). It became apparent that institutional investors are bound to use stock markets to a much greater extent than in the past as a vehicle for controlling the company and for exerting influence on the management. But we also discovered that institutional investors represent one of the most significant determinants in the European and global competition among stock exchanges, which above all aims at boosting the liquidity of stock exchange dealings. Our research in the field of corporate governance centres on analysing corporate governance structures and their origins in Western and Eastern Europe. Our studies are predominantly based on an analysis of corporate data by means of microeconomic methods.

Since 1992 the ZEW has been conducting a monthly financial market survey ("ZEW Financial Market Test") involving some 400 capital market experts that participate regularly. In this way we have built up a comprehensive database of primary data reflecting expectations, and we use it to analyse the way expectations are formed. The data refer to future trends in international stock markets, interest and exchange rates, and to important macroeconomic variables (overall growth and inflation). For instance, studies on the factors determining exchange rate expectations revealed that the assessment of the future level of economic activity abroad particularly influences the assessment of future changes in exchange rates.

In another project which concerns itself with the theoretical explanation of empiri-

cally ascertained stochastic processes of share prices, expectations are also of major importance. The first part concentrates on examining the connection between expectations and share prices. In the second part utility functions are established that provide the theoretical foundation for the empirically observed connection between expectations and share prices. This way an important gap between theoretical and empirical capital market research is closed.

### **Research Area Financial Management**

The core issue of this research area is the structural change in the banking sector and its effects on the supply of and demand for financial services. The processes of change stemming from the new regulations for risk management in financial institutions provided the starting point for our research. Initially the emphasis was on projects that dealt with measuring the market risk of capital investments. In the meantime credit risk management has come to the fore, both in the research being done and in real-life banking. Researchers can study the adoption and adaptation of concepts from the area of market risk, but numerous specific questions also arise.

In one of the research projects we have been pursuing the question to what extent banks' internal ratings are able to forecast loan defaults and how these ratings could be improved. In doing so, we paid particular attention to eliminating distortions inherent in the concept, which for instance originate from the fact that so far the forecasting accuracy for rejected loan applications has not had any influence on decision-making calculations with a statistical foundation. The empirical basis of this project is made up of a database, which was constructed from a representative selection of loan files from German commercial banks. This project has gained particular topicality on account of the latest proposals made by the Basel Committee

for Banking Supervision on how ratings should be taken into consideration when the necessary equity capital in banks' lending business is calculated. The planned use of banks' internal ratings makes a review and improvement of their forecasting accuracy seem advisable. In this regard, our study will be very helpful.

Structural changes in the banking sector are largely driven by new communications and information technologies. Since many elements of banking services in the broader sense can be characterised mainly as pieces of information, it is possible to offer many of them over the Internet, too. That way many banking products can be offered at much lower prices and business transactions can be conducted faster. Moreover, all over the world the range of banking products being offered becomes much more transparent and the willingness of clients to switch banks may grow. The possible drawback is the reduced demand for employees from particular skill groups, especially because of the scaling down of the classic branch office business. In one project we are dedicating ourselves specifically to the changes brought about by online banking and the use of the Internet in the banks' lending business. In particular, we want to explore the effects a rise in online loans has on the price development of loans and the reaction in terms of the demand for and supply of loans. This project is just the start; in the future we will work on the issue of online banking much more intensively.

On the basis of a project conducted some years ago on improving access to the capital market for small and medium-sized enterprises, our research department is again dealing with the issue of venture capital. The focus is on taking stock of the way venture capital funds manage portfolios and of the methods they use. The findings we produce will serve as a basis for a new project which takes up questions of venture capital financing re-

lated to European Monetary Union and the eastward enlargement of the EU. Our starting points will be the widening of the venture capital market through EMU on the one hand, and the use of risk capital in Eastern European companies, which could help to improve funding conditions on the ground, on the other hand. In terms of methodology and contents, there are links to our research in the field of corporate governance. Both fields are geared towards microeconomics and microeconometrics and draw on a common data basis.

Another issue included in the research area Financial Management concerns changes in private provisions for old age. The pending reform of pension schemes in most industrialised countries is likely to drastically increase the importance of capital markets to the national economies all over the world. A first step in this new field consisted in the CD-ROM “Altersvorsorge KOMPETENT” (“Sound Provisions for Old Age”), to which our research department provided essential inputs. Other projects will emerge due to the change in overall conditions, e.g. in the government’s asset policy, and they will above all check the suitability of certain forms of investment for old age provisions. Apart from methodological and practically oriented research tasks to measure the performance of capital investments, a study seems appropriate on forms of investment that have been rather neglected in the field of financial markets, for instance real estate.

### *Outlook*

Some fields of research that can be described with the headings “online banking” and “provisions for old age” will be taken up again and dealt with in specific research projects. Existing research topics such as the effects of the EU’s eastward enlargement and venture capital financing will be given more weight.

The research department will continue to be oriented towards issues that are strongly related to Europe. We will also continue to emphasize further linking of micro- and macroeconomic questions and solutions.

Our research department offers numerous further-training seminars for practitioners, which make for a two-way knowledge transfer between researchers and practitioners. On top of that we organize academic workshops where recent research findings are presented and discussed.

## Selected Research Projects

### The New Capital Markets in Central and Eastern Europe

#### Commissioned by:

European Capital Markets Institute (ECMI),  
Madrid

#### Project team:

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Professor Ronald MacDonald,  
University of Strathclyde, Glasgow  
Jens Köke, Dr Michael Schröder (coordinator),  
Claudia Stirböck, Tereza Tykvová, ZEW

Ten Eastern European countries are currently conducting negotiations with the EU with the aim of becoming a member of the European Union as soon as possible. When joining the EU, these Eastern European countries are meant to have largely completed the transition to a free market system. The prospect of joining is a factor which makes for a considerable acceleration of this process. At the heart of the project are the changes capital markets experience in the course of adopting the *Acquis Communautaire*. We mainly look at stock and bond markets, but also at foreign exchange markets and – if applicable – at markets for financial derivatives in Estonia, Poland, the Czech Republic, Slovenia, Slovakia and Hungary. Russian capital markets are also included in the analysis.

The study is divided into two parts. The first part is devoted to a comprehensive

stock-taking of the development in capital markets and examines the macroeconomic background as well as the specific structures of the individual capital markets and of corporate finance. An important part of this is the analysis of market efficiency and of the short- and long-term interaction between Eastern European and Western financial markets.

The second part consists of a detailed examination of the effects the adoption of the *Acquis Communautaire* produces. As for macroeconomics, the focus will chiefly be on the future development of the exchange rate systems as well as the development of public finance and the banking system. In addition we will analyse the repercussions that the EU's eastward enlargement has on Russia's economy and capital markets in a separate chapter. The microeconomic analysis refers to expected changes in the regulations governing capital markets, demand and supply effects in the field of corporate finance and diversification advantages investments in Eastern European stock markets offer. The final part is made up of an analysis of competition processes between Eastern and Western European stock exchanges and of an in-depth comparison of the results for the individual Eastern European countries we examined.

#### Publications:

Köke, J. (1999), *Institutional Investment in Central and Eastern Europe: Investment Criteria of Western Portfolio Managers*, ZEW Discussion Paper No. 99-37, Mannheim, and: *Journal for Institutional Innovation, Development and Transition* 4, 15-34.

Köke, J. and D. Salem (2000), *Corporate Finance and Restructuring: Evidence from Central and Eastern Europe*, ZEW Discussion Paper No. 00-21, Mannheim.

Schröder, M. (Ed.) (2001), *The New Capital Markets in Central and Eastern Europe*, Heidelberg.

## ZEW Financial Market Test

### Project team:

Felix Hüfner (coordinator),  
Dr Michael Schröder, ZEW

The ZEW Financial Market Test is a survey that has been conducted since December 1991 in which every month representatives of the German financial sector are polled on their expectations regarding the developments in important international financial markets. The latter encompass the financial markets in Germany, the United States, Japan, Great Britain, France, Italy, and the euro zone. A total of about 400 companies regularly take part in this survey. They include some 250 banks, 50 insurance companies, 50 investment companies, 30 industrial companies and 20 private investment managers. We survey experts working in the finance, research and macroeconomic departments as well as those in the investment and securities departments of these companies. The financial experts are asked specifically about their expectations concerning trends in economic activity, the rate of inflation, the short- and long-term interest rates, share prices and exchange rates in the above-mentioned countries. Moreover, the market experts are asked to assess the earnings position of 13 German industries (banking, insurance, vehicles construction, chemicals and pharmaceuticals, steel/non-ferrous metals, electrical engineering, mechanical engineering, consumer goods and retailing, construction, utilities, service providers, telecommunications, information technology). The findings from the analysis are shown and commented on in the monthly publication “Finanzmarkt-

report”. They also appear regularly in journals and daily newspapers.

Since 1999 there has been a cooperation between ZEW and Finanzplatz e.V., the association representing the interests of the German financial community. In addition to the regular part of the survey, we conduct special surveys on topical issues for this association. For example, questions such as provision for old age, the government’s austerity package, the developments in the “Neue Markt” or an assessment of the Frankfurt stock exchange were included in the questionnaire.

The news agency vwd commissioned us to develop the “G-Mind” indicator, which is published monthly. It is a confidence indicator gauging the opinion about the future development in the German financial market. Furthermore, with “ECB Watch” we created an indicator measuring expectations and reflecting the assessments of the European Central Bank’s interest rate policy. Apart from the collection, processing and publication of the data on the expectations done so far, we analyse the data set systematically. In a first step we examine the data characteristics including their power of forecast. This analysis is done both on an aggregate and on a disaggregate basis on the level of the individual participants. Following these analyses the data is used to help to answer questions on the formation of expectations in capital markets (behavioural finance) and on the behaviour of market participants (market microstructure).

### Publications:

Dornau, R. and A. Szczesny (1999), *250 Analysten, 1 Portfolio? Eine ökonomische Analyse von Empfehlungen zur Gestaltung eines Vermögensportfolios zur Altersvorsorge*, ZEW Discussion Paper No. 99-17, Mannheim (in German).

König, H., R. Dornau and M. Schröder (1999), *Über den Zusammenhang von Finanzmarkterwartungen: USA und Deutsch-*

land, in: Nölling W., K. A. Schachtschneider and J. Starbatty (Eds.), *Währungsunion und Weltwirtschaft*, Stuttgart (in German).

König, H., T. Körting and U. Anders (1998), Zur Bildung von Wechselkurserwartungen – Eine Untersuchung auf der Grundlage des ZEW-Finanzmarkttests, in: Galler, H. P. and G. Wagner (Eds.), *Empirische Forschung und wirtschaftspolitische Beratung – Festschrift für Hans-Jürgen Krupp zum 65. Geburtstag*, Wirtschaftswissenschaften, Vol. 38, Frankfurt/Main (in German).

Schröder, M. and R. Dornau (2000), *Do Forecasters Use Monetary Models? An Empirical Analysis of Exchange Rate Expectations*, Discussion Paper No. 00/14, Center of Finance and Econometrics, University of Konstanz, forthcoming in: *Applied Financial Economics*.

Szczesny, A., R. Dornau and U. Anders (1997), *G-Mind – German Market Indicator*, ZEW Dokumentation No. 97-04, Mannheim.

### **Corporate Governance in Germany: An Empirical Analysis**

#### **Funded by:**

DFG, Deutsche Forschungsgemeinschaft

#### **Project team:**

Professor Axel Börsch-Supan (coordinator), University of Mannheim  
Jens Köke, ZEW

Corporate governance is the complex system of legal, institutional and market-based control devices of large companies. The functioning of this system is, however, only weakly explained by economic theory and there is a lack of empirical analyses. The aim of this project is to contribute to the better understanding of corporate governance in Germany.

In the first phase of the project great effort has been devoted to constructing a database which encompasses important firm-specific information required for any analysis

of corporate governance: data on financial performance, ownership structures, the capital structure, the degree of competition in product markets and basic macroeconomic variables. This has been a central task of the project since such a database had not yet existed for Germany. Initial analyses have already been conducted using this new database.

In the second phase of the project the database will be further extended. Econometric analyses will be conducted on the following topics:

- ▷ What are the determinants of market exit and growth of firms?
- ▷ What are the causes and consequences of friendly takeovers? Is there any difference to hostile takeovers?
- ▷ Which internal and external corporate governance mechanisms ensure the continuous success of firms? Which mechanisms force inefficient firms to exit their markets?

Policy implications are expected for competition policy at the German and European level. But also the role of institutional investors for productivity growth will be explored and hence implications will be derived for the reform of the German pension system.

#### **Publications:**

Börsch-Supan, A. and J. Köke (2000), *An Applied Econometricians' View of Empirical Corporate Governance Studies*, ZEW Discussion Paper No. 00-17, Mannheim.

Januszewski, S., J. Köke and J. Winter (1999), *Product Market Competition, Corporate Governance and Firm Performance: An Empirical Analysis for Germany*, ZEW Discussion Paper No. 99-63, Mannheim.

Köke, J. (1999), *New Evidence on Ownership Structures in Germany*, ZEW Discussion Paper No. 99-60, Mannheim, and in: *Kredit und Kapital* 1.

## Financial Market Restrictions of Fiscal Policy in the Federal System of the EU

### Funded by:

DFG, Deutsche Forschungsgemeinschaft, research programme “governance in the European Union”

### Project team:

Dr Friedrich Heinemann,  
Professor Heinz König (coordinator), ZEW

Fiscal policy within the EU increasingly experiences restrictions resulting from open financial markets. Besides global trends (e.g. growing interdependencies, the boom of derivative markets, the internet) political decisions in Europe such as the introduction of the Euro or the coming enlargement of the Community are changing the framework in which European government is situated.

This project is to contribute to a better understanding of financial market restrictions for fiscal policy in the EU under this changing environment. While the impact of fiscal policy on variables such as interest and exchange rates has for a long time been a traditional focus of research the opposite channel has largely been neglected. How does the exchange rate regime influence budgetary decisions? How do politicians react to changing borrowing costs? These are some of the more specific questions dealt with in the project.

So far the project work has shed light on the impact of the exchange rate regime – an issue particularly relevant in the context of EMU. Theoretical modelling and econometric testing has brought some new insights: While there is weak evidence for the impact of the exchange rate regime on public deficits, other variables such as capital mobility and economic openness are more important. In the EU, the pre-EMU qualification period clearly shows that the Maastricht criteria rather than other restrictions forced consolidation.

Project publications have dealt with the impact of globalization and open capital markets not only on debt and deficits but al-

so on the size of the government sector and the revenue and expenditure structure. While the results indeed show an impact they also are evidence for a continuing substantial national leeway in regard to the determination of the expenditure structure.

In the further course of the project it is planned to focus on the fiscal reactions towards changes in borrowing conditions. These changes occur in the context of varying levels of market interest rates and sovereign risk premia. It is largely unknown how fiscal policy in industrial countries reacts to these variables.

Finally, it is planned to draw from all these new insights conclusions for desirable institutional adjustments in the EU. Topics will include improvements of the European Stability and Growth Pact and the institutions of the capital markets.

### Publications:

Heinemann, F. (2000), Globalization, EMU and Fiscal Discipline: Evidence from OECD Countries, *Aussenwirtschaft* 55 (2), 211-232.

Heinemann, F. (2000), Strategic Lessons from the Maastricht Criteria, *Kredit und Kapital*.

Heinemann, F. (2000), *After the Death of Inflation: Will Fiscal Drag Survive?*, ZEW Discussion Paper No. 00-19, Mannheim.

Heinemann, F. (1999), EMU and Fiscal Discipline: The End of the Depreciation Threat, *Jahrbuch für Wirtschaftswissenschaften/Review of Economics* 50, 109-135.

Heinemann, F. (1999), *Does Globalization Restrict Budgetary Autonomy? A Multidimensional Approach*, ZEW Discussion Paper No. 99-29, Mannheim.

## **Online Banking and Internet Usage in the Credit Business**

### **Project team:**

Carlo Beck, Dr Peter Westerheide (coordinator), ZEW

### **In cooperation with:**

Andrea Szczesny,  
University of Frankfurt/Main  
Timm Körting, ZEW

The research project is concerned with the growing field of online banking and internet-usage in the credit sector. It represents the starting point of a series of projects analysing developments in the area of electronic financial services and electronic commerce.

The first main objective is to elaborate the most important characteristics of internet offers in the credit business. The analysis will distinguish between different market sectors, especially between real estate, business and consumer credit. Subsequently it

will be asked how far business strategies and labour process organization in traditional credit business and in online banking differ. Particular emphasis will be paid to the potential to raise labour productivity and to lower production costs by standardising operating procedures in the online credit business. Eventually – concluding the first part of the project – the current state of development of the German market for online credit will be analysed and perspectives for future development will be worked out.

If the results of this first part suggest that major changes in the credit business will likely occur in the near future, the effects of increased online credit business on the credit market will be analysed in a second part. Leading questions are whether credit prices will decline in the medium and long run, and what the reaction of the credit demand will be. Furthermore, the effects on those groups which are likely to be rationed on the credit market will be scrutinised.



Former EU Commissioner Karel Van Miert at the ZEW Economic Forum speaking about Perspectives of Economic Policy in Europe.

## Research Department Labour Markets, Human Resources and Social Policy

The aim of the research department is to conduct sound theoretical as well as empirical studies of labour-related topics on the one hand, and on the other hand to derive effective labour market and social policies as well as options for the efficient management of human resources.

With respect to labour economics the research department investigates in detail the most important factors for labour market failures where special attention is given to the persistence of unemployment in Germany. In this context, we also analyse the problems of structural disequilibria between labour supply and demand with respect to both regional and qualification mismatch. Another important research topic relates to labour market effects of the European economic integration process. The effects of demographic change and international migration flows on the labour market and on the distribution of incomes are also studied. Another research field is concerned with the evaluation of active labour market policies. The conflict between efficiency and equity in the reform of labour market and social policies establishes a link to our research area Social Policy.

Projects on human resources deal with the constantly changing demands for skills due to technological and economic change. The new knowledge economy necessitates a well-functioning and consistent educational and vocational system. The investigation into efficient investment in human capital is closely interlinked with research on the qualification mismatch in the labour market and on unemployment resulting from a lack of skills. Furthermore, the unfavourable demographic development in Germany demands adjustment processes of both private and public educational and personnel planning.

Issues of Human Resource Management are investigated, where the focus is on optimal incentive schemes, working time and the internal wage structure of firms. On the side of public policy, the chances and risks of an enlarged Single European Market with a variety of educational and vocational systems have to be taken into account.

In another research area we analyse the preconditions for successful social policies. A central condition is the above mentioned efficient functioning of the labour market. This is not only a problem for Germany, but also for other countries in the European Union and in Central and Eastern Europe. In the face of international competition with low wage countries and the aging of society the industrial nations are confronted with the question of how to finance their social security systems in the future. We consider options for a reform of the welfare state taking into consideration allocative, distributional and financial consequences. Here our main interest lies in the long-term viability of the social security system, in particular the pension system, the effects of social security on labour supply and the distribution of income with special focus on demographic and economic change.

These analyses are presently conducted in the context of three special and interlinked research areas, namely Labour Markets, Human Resources, and Social Policy. The analyses in the three research areas and the resulting economic policy recommendations are embedded in comparisons with the development of labour markets in other countries with special emphasis on member countries of the EU, the likely new member states from Eastern Europe and the USA. In general, research in the department is close-

ly linked with economic policy advice. Research often proceeds in close collaboration with other research departments of the institute. Furthermore, the department has close connections and cooperations with other research groups in Germany, in several European countries and in the USA.

### **Research Area Labour Markets**

The economic adjustment processes to business cycle shocks and structural change, such as the ongoing internationalization of the economy as well as demographic and technological changes, are basically determined by the functioning of the labour market. If adjustment to the changed economic environment is hindered by inflexible wage structures, by a low degree of regional and occupational mobility as well as by certain institutional rigidities, unemployment will rise. As a consequence, the structural component of unemployment will increase and the dynamics of employment will decline. At the macroeconomic level, the insufficient adjustment mechanism in the labour markets manifests itself in a high share of persistent unemployment in Germany and other European countries and in slow employment growth in comparison to the US. At the microeconomic level, structural unemployment shows up with respect to certain groups of employees, especially older and low qualified workers. In addition, structural unemployment leads to regional as well as qualification mismatch between labour supply and labour demand and to persistent disequilibrium in certain sections of the labour market, such as the market for apprentices. Within this research area, we identify on the basis of theoretical and empirical analyses the importance of the above mentioned factors and derive proposals how to reduce unemployment and how to increase employment.

Projects with a stronger emphasis on macroeconomics have been performed jointly with other research departments of the ZEW.

Among these projects, research was undertaken on the relationship between growth, employment and unemployment as well as on the labour market effects of the European Monetary Union. In this context, we have analysed the wage bargaining process under alternative exchange rate regimes and the effects of labour migration. Also, the macroeconomic disequilibrium model developed within the department was extended to include the new federal states, and a project investigating the relationship between employment and the real wage was started.

Microeconomic analyses have been performed on topics such as the decline in the demand for low-skilled labour, the labour market situation of youth, the transition to more flexible labour markets and the reduction of working time, the development of the wage structure, and wage convergence between East and West Germany. In several studies, it was shown that an important determinant of the decline in the demand for low-skilled labour in Germany is the low degree of wage differentiation by skills, taking into account the impact of labour-saving technological progress. The analyses of wage convergence showed that the East German wage structure has already partly adapted to the West German structure, but in the East German private sector labour market experience was devaluated to a large extent. For this reason, it is not expected that the East German wage structure will adjust fully to the West German one in the short- and medium-term.

In the case of institutional rigidities and market clearing failure, disequilibrium situations in labour markets are only partly eliminated or are only eliminated in the long-run. Therefore, active labour market policies (ALMP) might be efficient. However, the private and social returns of labour market policies exceed the costs associated with these policies. In all other cases, activist labour market policies can only be justified by distributional aspects or by general political

considerations. Economic reasoning for active labour market policies calls for an evaluation of the labour market effects and the costs associated with the various measures – besides the identification of labour market disequilibrium situations and their causes. On the one hand, the empirical evaluation of the effects of ALMP relate to the microeconomic problem whether the participation in a certain programme will improve the future employment situation of an individual and/or whether the measure will improve an individual's earnings potential (human capital). This problem has already been investigated empirically for several programmes in the US, whereas for Germany and other European countries only a few comparable studies exist. Equally important is the evaluation of macroeconomic effects and costs of ALMP because this implies considering possible substitution effects between participants and non-participants (crowding-out effects) as well as the analysis of the indirect effects which are associated with the financing of the ALMP (general equilibrium effects).

In cooperation with the Institute of Employment Research (Institut für Arbeitsmarkt- und Berufsforschung – the research institute of the German Federal Labour Office), the ZEW analysed the effects of two labour market programmes. The first evaluation study concerned a programme supporting the supply of temporary workers by employment agencies and the second the promotion of unemployed people setting up their own enterprises by bridging allowances. Also analysed was the survival probability of a self-employed person to remain self-employed when the support programme finished. The results of the studies show slightly positive effects for these new instruments of ALMP. In the context of an EU-financed project, research was undertaken to evaluate the employment effects of several ALMPs in Poland. Judged by the success of being re-employed in the primary labour market, positive effects

could only be found for retraining and further education, whereas wage subsidies and job-creation schemes exert negative effects.

In another project, we analysed the potential employment effects of various wage subsidy schemes recently proposed for Germany. The first scheme concerns the reduction of the benefit-withdrawal rate for recipients of unemployment benefits or welfare aids. The second scheme analysed concerns a degressive hourly wage subsidy paid to firms employing low-skilled labour. The results show that in the first case only minor employment effects occur, whereas in the second case the small estimated positive employment effects are associated with large fiscal costs.

We also started a project aimed at critically evaluating the effectiveness and the efficiency of various instruments of active and passive labour market policy. The project (jointly with the research department Environmental and Resource Economics) develops a CGE-model (Computable General Equilibrium-Model) with suitable policy instruments to analyse the macroeconomic effects of labour market policies.

An interdisciplinary research project, financed by the DFG, Deutsche Forschungsgemeinschaft, considers options to improve the flexibility of wages from an economic and juridical perspective. The interdisciplinary approach is intended to improve the understanding of the economic and juridical relations between the system of labour law and the degree of wage flexibility. Furthermore, the project group intends to make proposals to reform the generally binding collective bargaining agreement prevailing in many industries (“Flächentarifvertrag”).

In collaboration with the research department Industrial Economics, a joint research project was initiated to analyse the relationships between market structure, the dynamics of innovation and employment as well as start-ups and self-employment.

### **Research Area Human Resources**

Human capital is the most important comparative advantage of the German economy. Only by maintaining a high level of education and a permanent adjustment of human capital to new technologies and organizational structures by further education and continuous training will Germany remain competitive and maintain a high level of income.

Since the “endogenous growth” theories it is common knowledge in macroeconomics that human capital is one of the most important determinants of growth, if not the most important one. This predominant role is due to the direct productivity effects on the one hand, and the indirect effects via innovation processes at the firm level on the other hand. From a microeconomic point of view the growth contribution of human capital investment depends crucially on the right incentives to invest in human capital. These incentives depend on the economic returns and costs of investment in training and further education. Given that there are no rigidities and externalities, the market mechanism creates these incentives through the wage structure and by rational decisions of individuals and firms for (continuous) education and training. Since in reality the conditions for an optimal allocation are hardly given and distributional aims are an important issue in the public debate, we observe massive public interventions via the tax and transfer systems. In this research area, the determinants of the private and social returns of human capital investments are analysed, also taken into account is the relationship between skill formation and innovative activities at the firm level.

A further research focus relates to the analysis of the structure of incentives within firms. Due to the incompleteness of the labour contract and the diverging interests between agents and principals, an efficient wage system is necessary to guarantee the

success of the firm. With respect to this topic, we concentrate especially on individual incentives for education and training, the way employees behave when innovations are introduced, and the relation between payment system and work effort (efficiency wage hypothesis). These relationships are investigated on the basis of microeconomic models. In the recent past, several studies have been conducted analysing the relationship between technological progress and the structure of qualification, the market for apprenticeship training, and private returns on further education and training.

The relationship between public support of education and private returns on education and training are currently analysed within a joint project with 14 other European countries. Results obtained within this project show that in Germany the average private returns on education range in the middle of the returns obtained in the other countries. Furthermore, between 1984 and 1997, the returns remained rather stable in Germany, and they are higher for women than for men. These results are somewhat modified if cohort effects are taken into account and the private and the public sector are differentiated.

Another project concentrates on the incentive problems related to the introduction of innovation at the firm level. In future, topics within this research area will include the impact of public funding of the education system on private returns on education, on the reform of the dual education system in Germany, and the innovative behaviour of firms.

### **Research Area Social Policy**

In the current economic debate the assumed negative incentives and the costs of the social security systems are often cited as one important cause for the high level of unemployment and the low employment dynamics in European welfare systems. On the one hand, the relatively high level of compensa-

tion payments (unemployment benefits, social aid, pension benefits) in Germany and in other welfare states may cause negative incentives for the supply of labour and may in turn lead to a permanently higher level of unemployment. On the other hand, the financing of public income transfer payments is likely to increase labour costs and thus reduce the demand for labour. This development is the more likely, the lower the claims are people will receive from the social security system in comparison with their contributions. Or put differently, the more important the redistribution component becomes, the less acceptable is the system from the workers' point of view.

In this case, contributions to the social security system are likely to be considered more as taxes than as future claims. Therefore, workers or labour unions will try to achieve compensation by demanding higher wages. If they are successful, employment will decrease and unemployment will increase. For this reason it is generally considered as one of the most important goals of economic policy to stabilise the contribution rate to the social security system. In this context, the pension system deserves special emphasis. The first reason is that the contribution rates for the pension system are highest compared with other social insurance systems. The second reason relates to the future demographic development, which renders it very likely that the contribution rate will rise considerably in the future.

In the research area Social Policy the focus is on the microeconomic analysis of the incentive effect of unemployment insurance and of the pension systems as well as public income transfers on the individual labour supply decision. A second focus concerns the macroeconomic effects on employment and wages induced by the financing of the social security system. Here, possible effects are investigated on the basis of comparative and macroeconomic analyses of the la-

bour market. These analyses are complemented by empirical analyses of the employment and distribution effects of reforms of the social security system. Another research topic relates to the economic analysis of crime.

Recently a simulation model (growth model with overlapping generations) was extended to analyse the macroeconomic and the welfare effects of several reforms of the public pension scheme. Special emphasis is placed on the modelling of different income groups to analyse the distribution effects of the reform steps. In the context of a temporary macroeconomic working group a comparison of different macro models was performed by simulation techniques to study the employment effects of a revenue neutral cut in the social security system. The results of the simulation study show that a revenue neutral cut in the social security system will lead to only small employment effects regardless of the type of model used for the simulation.

Furthermore, the employment effects and the cost of an early retirement scheme as a means to reduce unemployment have been analysed. The results show that the employment effects are rather small. This is due to the low re-employment ratio on the one hand, and the increase in the cost of labour associated with the early retirement on the other. In the research project of the economic study of crime several indicators have been developed which are capable to measure the relationship between crime, social cohesion and economic capability. These indicators have then been used in a study on the socio-economic determinants of crime in Germany.

A tax-transfer-simulation model, developed within a previous research project, was updated and extended to analyse the distribution effects and the fiscal cost of social and tax policies. We intend to use this model to analyse the distribution effects of financing social security reforms by changes in taxes and social security contributions in the future.

## Selected Research Projects

### **Supporting Employment Instead of Financing Unemployment – Analysis and Recommendations for Enhancing the Efficiency and Effectiveness of Labour Market Policy in Germany**

#### **Commissioned by:**

German Federal Ministry of Finance

#### **Project team:**

Tobias Hagen, Dr Viktor Steiner (coordinator), ZEW

In the 1990's the Federal Employment Service and the Federal Government in Germany spent over 400 billion DM on active labour market policy. Other public bodies also spend significant amounts on active measures. Furthermore, expenditures are high for passive labour market policy, i.e. the unemployment insurance system and early retirement programmes.

The study evaluates the employment effects of various active labour market policy measures and the unemployment insurance. Besides the employment effects and fiscal costs of reform options for a subsidised low-wage sector in Germany and an early retirement programme are discussed.

In particular the project has the following objectives:

- ▷ We describe criteria as well as theoretical and empirical methods for evaluating labour market policies, including international experiences.
- ▷ We explain possibilities and restrictions for evaluation in Germany with respect to the availability of appropriate data.
- ▷ Reviewing German and international evaluation studies, we obtain clues for a more effective design of labour market policy.
- ▷ We conduct an aggregate impact analysis to estimate the effect of job creation

schemes and public training programmes on regional unemployment in East and West Germany, taking into account indirect employment effects on non-participants.

- ▷ Finally we point out suggestions for the improvement of the design of labour market policy on the one hand, and for scientific evaluation in Germany on the other.

A short version (in German) of the final report can be downloaded at [www.zew.de](http://www.zew.de).

#### **Publication:**

Hagen, T. and V. Steiner (2000), *Von der Finanzierung der Arbeitslosigkeit zur Förderung von Arbeit – Analysen und Handlungsempfehlungen zur Arbeitsmarktpolitik*, ZEW Wirtschaftsanalysen, Vol. 51, Baden-Baden (in German).

### **Working Hours Flexibility**

#### **Funded by:**

Fritz Thyssen Stiftung

#### **Project team:**

Dr Viktor Steiner (coordinator), Elke Wolf, ZEW

Working hours flexibility is considered by many as a promising public policy to reduce unemployment. However, there is almost no empirical evidence for the potential employment effects of increasing flexibility of working hours. The flexibility of working hours has two different dimensions, that is, the amount of working hours and the timing of paid work. In this project, we will confine ourselves to the flexibility concerning the number of working hours, including marginal jobs, part-time jobs and overtime hours.

An important determinant for demand and supply of part-time jobs is the hourly

wage rate. In the literature, there exist several approaches to explain negative wage differentials for part-time jobs. However, a comprehensive study on wage differentials, taking into account the endogeneity of the labour supply decision is lacking for Germany. Therefore we estimate a simultaneous wage-hours model for West German women.

The share of part-time work depends upon the unions' attitude, the economic structure and labour demand, the preferences of the employees and the social norms. Therefore, we analyse the distribution of working hours in international perspectives. We will concentrate on a comparison between Germany, the Netherlands and Great Britain, because they represent different types of welfare regimes, which we expect to cause differences in preferences, unions' attitude and economic incentives with respect to the labour supply decision. The international comparison is supposed to shed more light on the modest part-time boom in Germany in contrast to the Netherlands and the United Kingdom which are often described as perfect examples concerning the setting-up of a "part-time society". Additionally, we analyse the main determinants of labour supply decisions of men and women and investigate to which extent employees are restricted due to regulations concerning working hours. Based on these results, we can derive conclusions about the driving factors causing international differences in the distribution of working hours.

Another main point of the research project is to estimate the potential welfare and employment effects due to increasing working hours flexibility. Surveys show that employees often work more hours than they actually would like. Thus, total employment is supposed to increase if people could realize their desired working hours. However, this off-hand calculation overestimates the effect of loosening hours constraints, because even in a very flexible labour market there

will exist hours restrictions for certain occupations. Therefore, we will simulate Germans' working hours in a more flexible world, namely the Dutch labour market. Based on these results, we can address the question whether Germans would be better off under the Dutch system and whether an increasing working hours flexibility can contribute to solving the unemployment problem in Germany.

**Publication:**

Wolf, E. (1998), *Do Hours Restrictions Matter? A Discrete Family Labour Supply Model with Endogenous Wages and Hours Restrictions*, ZEW Discussion Paper No. 98-44, Mannheim.

**The International Labour Organization (ILO) as an International Negotiation System: A Political-Economic Analysis**

**Funded by:**

DFG, Deutsche Forschungsgemeinschaft

**Project team:**

Professor Roland Vaubel (coordinator),  
University of Mannheim

Dr Bernhard Boockmann, ZEW

**In cooperation with:**

Professor Beate Kohler-Koch,  
Professor Franz-Urban Pappi,  
University of Mannheim and MZES

Professor Manfred Perlitz,  
Professor Eibe Riedel,  
University of Mannheim

This empirical project deals with decision-making in the context of International Labour Conventions, the most binding instruments available to the International Labour Organization (ILO). Formulated in a complex bargaining process, conventions are adopted by a qualified majority of the International Labour Conference in which governments, trade unions and employer

associations are represented. Conventions may then be voluntarily ratified by ILO member countries. A ratification entails the obligation to ensure the application of the standard formulated in the convention. There are at present 183 ILO conventions on a great number of subjects, such as fundamental workers' rights, working conditions, or social and employment policies.

In a first step, we estimate a hazard rate model of the individual ratification decision. The determinants of ratification are found to differ across groups of countries. For developing countries, cost considerations (i.e., the fear of a loss of international competitiveness) seem to dominate, while in industrialised countries political variables also matter.

Our second empirical analysis is concerned with voting behaviour of the delegates to the International Labour Conference. In future stages of the project, we plan to address the compliance with labour conventions and the effectiveness of the ILO's enforcement system.

The project is part of the interdisciplinary research group "Institutionalization of International Negotiation Systems (IINS)", financed by the DFG, Deutsche Forschungsgemeinschaft. As economists, we adhere to a rational choice model of political decision-making. However, the cooperation with lawyers and political scientists will allow us to compare the explanatory power of our approach with that of others, such as cognitive theories.

#### **Publications:**

Boockmann, B. (2000), *Decision-Making on ILO Conventions and Recommendations: Legal Framework and Application*, ZEW Dokumentation No. 00-03, Mannheim (also: IINS Research Paper No. 2).

Boockmann, B. (2000), *The Ratification of ILO Conventions, A Failure Time Analysis*, ZEW Discussion Paper No. 00-14, Mannheim (also: IINS Research Paper No. 4).

## **Technological Progress, Skills and Labour Demand**

### **Funded by:**

DFG, Deutsche Forschungsgemeinschaft

### **Project team:**

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Technological progress in western economies has contributed to an immense rise in productivity, incomes and goods available over the last hundred years. Though not to the same extent as productivity and wages, population and employment have risen as well. Nevertheless, innovations are often blamed for job destruction and unemployment, with workers historically fighting against technological progress. Since the short and long term impacts of innovation can be different, this does not necessarily imply a contradiction. Negative and positive employment effects occur in various industries at various levels of skill.

The aim of this project, which has been promoted by DFG, Deutsche Forschungsgemeinschaft since 1996, is to improve the theoretical and empirical knowledge of the relationship between innovation, skills and labour demand. To achieve this aim microeconomic and microeconomic models from labour market and industrial economics are employed taking into account institutions and market imperfections. The employment consequences of technological progress will depend on the structure of goods and labour as well as other factor markets, on national labour market institutions which determine wages, and on educational policies.

The empirical analysis is based on aggregate sector data and on individual and firm data. In the last decades Germany experienced a massive upskilling of the labour force. The share of the highly skilled has doubled in

around twenty years, which is a consequence of the educational revolution starting in the early seventies. At the same time the number of unemployed persons rose to 4 millions and unemployment rates are lowest among the highly skilled despite the massive rise in the supply of the highly skilled. The analysis so far shows differential impacts of new technologies on labour demand for different skill groups. While innovations raise the employment prospects of the highly skilled it decreases those of the low-skilled. Overall the employment impacts of innovations have been negative in the early nineties. Despite its good reputation, there is also evidence that the efficiency of the German dual apprenticeship system is deteriorating in the course of technical progress. The system can be criticised for training young people in skills which afterwards are not needed. As a consequence, skilled workers find themselves unemployed or are forced to change occupations. Another critique is that the contents of apprenticeship training quickly become obsolete due to technological change.

The employment impact of innovations are reinforced through imperfections in the labour market which lead to rigid wages. In the case of rigid wage structures the negative employment impacts of technological shocks for the unskilled are higher compared to more flexible wages. The origin of rigid wage structures can lay in imperfect output markets and/or in institutional and economic factors influencing the functioning of labour markets. In that sense wage determination processes and educational policies influence the path of innovations and technical progress and its impact on labour demand.

#### **Publications:**

Franz, W., J. Inkmann, W. Pohlmeier and V. Zimmermann (2000), Young and Out in Germany: On the Youths' Chances of Labor Market Entrance in Germany, in: Blanchflower, D. G. and R. B. Freeman (Eds.), *Youth Em-*

*ployment and Joblessness in Advanced Countries*, Chicago, 381-426.

Inkmann, J., W. Pohlmeier and L. Ricci (2000), Where to Patent? Theory and Evidence on International Patenting, in: Vosgerau, H. J. (Ed.), *Institutional Arrangements for Global Economic Integration*, New York.

Pfeiffer, F. (1999), Human Capital and Innovation in East and West Germany, in: Fritsch, M. and H. Brezinski (Eds.), *Innovation and Technological Change in Eastern Europe*, Cheltenham, 142-165.

### **Dynamics of Gender Differences in Earnings and Labour Market Participation in the U.K. and Germany**

#### **Funded by:**

Hans-Böckler-Stiftung

#### **Project team:**

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Gender differences in earnings and labour market participation are stylized facts of labour markets everywhere in the world. Researchers, politicians, and the public are therefore very much interested in this phenomenon. The project selects the U.K. and Germany as two cases of interest to investi-

gate empirically temporal dynamics of employment, working behaviour and earnings of males and females. Both countries faced a general increase of female employment which was accompanied by changing demographic trends, strengthened employment orientations, and an improved human capital accumulation. At the same time, one can observe quite a persistent gender specific occupational choice. In addition, women still on average earn lower wages than men. Interruptions in employment of females during the family phase are decisive for differences in employment chances and earnings of males and females. Therefore, we want to take into account institutional incentives for and consequences of interruptions in employment regarding participation and earnings. The interplay between the change of employment participation and wages, social security incentives and union policies in Germany and the U.K., as well as selection and composition effects in employment behaviour will be analysed to shed more light on the underlying mechanisms of gender specific labour market processes. The comparison of the U.K. and Germany is expected to provide insights into the effects of differences in social security incentives and the impact of different union policies on female employment and wages.

Course of the project: We will analyse descriptively employment participation and earnings of males and females in a cohort framework, based on British and German micro data. Investigating wages will include the entire wage distribution because wage differentials are related to the position in the wage distribution or analogously to skill level. Traditional decomposition techniques of the gender gap in mean wages probably mix counteracting effects at different wage levels of the entire wage distribution. Selection and composition effects arising through occupational choice, employment interruptions, as well as alternating part-time and full-time

employment episodes will receive special attention. Afterwards, the gender wage gap will be analysed concerning differences in individual characteristics and differences of returns to individual characteristics. The project will be completed by analysing how British and German institutional peculiarities influence employment behaviour, labour market participation and earnings.

**Publication:**

Fitzenberger, B. and G. Wunderlich (2000), *Gender Wage Differences in West Germany: A Cohort Analysis*, ZEW Discussion Paper No. 00-48, Mannheim.



Professor Otmar Issing, Member of the Executive Board of the European Central Bank, and the founding director of the ZEW, Professor Heinz König.

## Research Department Industrial Economics and International Management

Economic growth in the OECD countries not longer converged in the last decade. In addition, economic growth was significantly slower in the nineties than in the seventies or eighties. However, some countries most notably Ireland, Denmark or the USA experienced an acceleration of growth by economizing on globalization and the growing international division of labour. The slowing down of trend growth was especially severe in Germany, Japan and Switzerland which after prosperous years in the seventies and eighties now ranked last in OECD's growth scoreboard.

In policy discussion, the growth slowdown of the German economy is attributed mainly to insufficient framework conditions but also to Germany's national system of innovation and its institutional frame which is seen as not well equipped to meet the challenges of the globalization in industrial production, investment in tangible and intangible assets and innovation. The medium and long-term consequences of the global shifts of economic activity and the resulting consequences for economic policymakers and corporate strategies call for detailed, continuous scientific monitoring, analysis and evaluation.

The need for an adjustment of corporate strategies and the economic impacts of those strategies are visible at the micro-level. Firm level analyses are, therefore, a methodological tool to uncover these adjustment strategies. Given the crucial importance innovation has as reaction to increased globalization and local competition, analysing the innovation strategies of companies is at the heart of our work. Using large firm level data sets we seek to establish stylized facts and test empirical models of the innovation behaviour of manu-

facturing and service companies and its determinants and impacts on the European, national and regional markets. Based on these analytical perspectives it is our aim to develop options for microeconomic policy as well as technology and innovation policy on a regional, national and European level. In addition, we also address company decision makers by developing tools to monitor and trace innovation-related corporate strategies. Our project-based research activities can be grouped under the three main headings Innovation Research and Innovation Policies, Firm Dynamics as well as Corporate Strategy.

### Research Area Innovation Research and Innovation Policies

The research area Innovation Research and Innovation Policy primarily deals with the determinants and characteristics of innovation activities in manufacturing and services. Based on firm level data we aim at disentangling those firm-specific factors which have a crucial impact on the firms' willingness to undertake technological innovation activities, as well as the ability of firms to successfully implement product and process innovation. Thus we study the impact of innovation on growth, survival and profitability of firms. However, looking solely at the characteristics of individual firms in understanding innovation underestimates the crucial contribution of feedback from the market place and the institutional environment as a determinant of the success of innovations.

Therefore, we also investigate the role of competition and cooperation of firms with respect to technological innovation. The institutional frame set by corporate governance structures, financial and labour market institutions, technological infrastructure or the in-

tellectual property rights regime are also crucial for understanding firms' innovation behaviour and, hence, must be taken into account when deriving conclusions for innovation policy. Although these factors change slowly their dynamics has a considerable impact on firms. This is especially important as the globalization of markets also induces more global innovation strategies. Hence, our research also addresses the importance of the national institutional frame and its dynamics for innovation. We assess the strengths and drawbacks of the German institutional frame in comparison with other countries or regions. Thus, we also employ macro-level comparisons although our analyses is mainly based on the micro-level.

Empirical research on the innovation activities of German companies represent the most important part of our work. We continually gather data on innovation in manufacturing and service and regularly add new waves to the Mannheim Innovation Panels. Our yearly reports to the German Federal Ministry of Education and Research based on the innovation survey data give a comprehensive overview on innovation inputs and impacts as well as on firm performance in German manufacturing and services. The information is broken down according to firm size, region and industry. In addition, based on industry-specific analyses we report to all our survey respondents recent industry-specific trends and features of innovation activities.

Recent papers based on these data focus on the interrelation of innovation, information technology (IT) and international trade in service sector firms. Moreover, we analyse the impacts of public research on innovation success of German companies and intensively deal – within a more general framework – with various external sources of innovation-related information such as suppliers, customers or competitors.

ZEW researchers are members of EURO-STAT's task force for the preparation of the

Community Innovation Surveys (CIS III) and also take part in OECD's group of National Experts in Science and Technology Indicators (NESTI). The latter is also involved in harmonizing the OECD member states' activities to collect data on innovation at the firm level.

Important results of our work are published in the yearly report on Germany's Technological Performance which summarizes the outcome of the work of four major German research institutes on innovation and technology policy. This study analyses in detail recent trends in the global technological race and draws conclusions for innovation and technology policy for the federal government.

In addition, we work on the impact of R&D grants to German firms on the performance of German companies. Another project looks at the firms' strategies in patent litigation in order to obtain more refined estimates of the value of the patent system. Finally, closely related to our work on service sector innovation, we deal with the effects of information technology on innovation and productivity in the service and the manufacturing sector. As a precondition for measuring IT productivity we aim at deriving price indices for IT products using hedonic regression techniques.

### **Research Area Firm Dynamics**

The research area Firm Dynamics comprises studies on the determinants of entry, growth, survival and exit of firms. Here, we also look at the impacts of entry and exit processes of firms on the dynamics of industry in terms of market structure, industry growth, and job generation. Special attention is devoted to start-ups in high-technology fields of the manufacturing and the service sector (e.g. biotechnology, information technology, telecommunication). Recent analyses explore the impacts of (regional) infrastructure such as traffic infrastructure, scientific infrastructure (e.g. universities) or technology

parks on the likelihood of new firm formation in various R&D intensive industries. As globalization not only affects large multinational companies we devote special attention to the impacts of globalization on the growth and survival of young and small firms and the ability of small and medium-sized enterprises (SMEs) to compete in international markets. In addition, as pointed out by many scholars of entrepreneurship, the venture capital market is one of the most crucial financial institutions in fostering high-technology start-ups. Therefore, we track those factors which are of importance to the up-rise of the continental venture capital markets and we study their impact on start-up rates and the growth of young high-tech firms.

A crucial result of our research on public policy to increase the start-up rates in Germany stems from a large scale telephone survey of newly founded firms in Germany. Based on this data we are able to show that public grants help start-ups to survive in the market. However, public grants do not have an impact on firm growth within a multivariate regression framework for firms surviving their first eight years. This result confirms previous research on the internationalization of high-tech start-ups showing no significant impact of public grants for starting a firm on the subsequent employment and sales growth. This latter study primarily deals with the reasons for early internationalization of high-tech start-ups. We also have shown that despite significant country-specific differences in the internationalization process the level of internationalization of start-ups seems to be quite similar: Nearly two thirds of surviving start-ups sell on international markets within seven years after start-up. In addition, the factors explaining internationalization are rather similar. Human capital of the founding team and technological characteristics of the product are the most important determinants of the successful internationalization of SMEs.

Another study looks at the factors which are important drivers of the development of multimedia start-ups and mobility services. We develop first methods to identify these firms in large data bases by employing computer linguistic tools in order to identify firms not on the basis of industry codes but on the basis of verbal product descriptions.

### **Research Area Corporate Strategy**

Within our third research area Corporate Strategy we develop methods and tools to enhance the strategy finding process of companies. Here, we are specialized in tools that involve the application of our core competencies in analysing large data bases at firm or product level. Recent research focuses on analyses of product-level data on international trade to identify potential home countries of suppliers with given price-quality portfolio. This type of research is often done in close cooperation with enterprises. On behalf of Heidelberger Druckmaschinen, one of the world largest manufacturers of printing machines, we developed a highly standardized tool for the selection of foreign suppliers. It allows SMEs as well as large firms to economize on the first steps in the selection process of new suppliers. This tool (Global Sourcing Management Tool) is available on request for firms.

In addition, we use the lead market approach to investigate local markets with a specific ability to test and redesign new products. The lead market approach is rooted in our research in the internationalization of R&D and the importance of the selection and information function of markets. The basic idea is that in a highly competitive environment a dominant design will much earlier arise out of a competitive market environment than out of a less competitive one. Early market entry on those markets will help to generate long lasting technological advantages which allow to exploit economies of scale and network economies.

### Firm Level Data Bases

Many research projects use firm level data bases which have been built step-by-step since ZEW's foundation. These data bases are either based on the firm records of Creditreform, Germany's largest credit rating agency, or stem from our own data collection efforts. Historically, the Mannheim Enterprise Panel (MUP) represents the starting point of ZEW's cooperation with Creditreform. It comprises a sample of around 12,000 firms which have been tracked since 1989 by using the firm level information gathered by Creditreform. This data set contains basic firm level data such as sales, employment, legal form, ownership structure, and other information usually gathered by credit rating agencies. Basically, this data set was constructed to track the employment dynamics at the firm level in the spirit of Birch's approach. However, within a few years this primary goal was extended to explore not only the development of incumbents but also the contribution of new firm entries to the development of industries.

So, two new data bases were developed: The first one comprises all new firms in West Germany which are recorded in Creditreform's data base (ZEW Foundation Panel West). Secondly, based again on Creditreform's data we track the awakening and development of the East German economy after unification using data from the ZEW Foundation Panel East. We also extended cooperation with Creditreform to other countries (Austria) for which Creditreform regularly gathers firm level information. A common characteristic of all these data sets is that unlike usual behaviour of a credit rating agency which concentrates on the most recent available data we build historical time series of individual firms by systematically recording the information from Creditreform twice a year.

These basic databases are augmented by regular surveys of firms in manufacturing and services on innovation activities based on

suggestions made in OECD's OSLO manual – the handbook of firm surveys on innovation. This yearly data collection effort – done by mail surveys – represented in 1993 and 1997 the German contribution to the Community Innovation Surveys (CIS) initiated by EUROSTAT.

Finally, we run a special survey revealing short term expectations as well as structural information about a sample of business service firms in order to regularly track the business cycle in this sector. Besides overcoming the lack of information about this sector in Germany, we use this data to analyse the interaction of manufacturing and business services and the interrelation of the business cycle in manufacturing and service.

Maintaining these unique data bases on firm level data in Germany is an important, time and resource consuming task for the department. However, pure data gathering is not the goal of these endeavours. The primary motive for this data collection is to gather firm level information, not elsewhere available in publicly accessible sources, which are necessary to empirically investigate the dynamics of industries in Germany. The data bases often form the backbone of empirical projects within the department. These data sets are also used by other departments in the ZEW. Moreover, for some of the data sets we developed methods to allow a wider distribution within the research community by hiding the identification of firms and keeping as much firm level information within a public use file as possible.

## Selected Research Projects

### Report on Germany's Technological Performance

#### Commissioned by:

German Federal Ministry of Education and Research (BMBF)

#### Project team:

Thomas Eckert, Jürgen Egel, Dr Georg Licht (coordinator), Dr Christian Rammer, ZEW

#### In cooperation with:

Fraunhofer Institute for Systems and Innovation Research (FhG-ISI), Karlsruhe  
German Institute for Economic Research (DIW), Berlin

Niedersächsisches Institut für Wirtschaftsforschung (NIW), Hannover

Wissenschaftsstatistik im Stifterverband für die deutsche Wissenschaft, Essen

The economic structural change taking place throughout the world today is progressively driven by the “intensification of knowledge”. Knowledge accumulation and an economy’s capability to learn, to generate and to diffuse new knowledge are fundamental drivers of growth. The degree to which a society will prosper in the knowledge-driven new economy is largely determined by the characteristics of its innovation system and accumulation of tangible and intangible assets. The objective of this project is to monitor and analyse Germany’s transformation into a learning and knowledge-driven economy. The analyses comprise topics such as

- ▷ R&D and innovation activities of the German economy, based on R&D and innovation survey data, international patent statistics and high-tech trade data
- ▷ Internationalization of the industrial R&D in Germany
- ▷ Efficiency of the public science and research system and technology transfer

and cooperation between the public and industrial R&D systems

- ▷ The dynamics of the R&D-intensive industries as well as their ability to compete in the international market
- ▷ Regional dimension of the knowledge-driven growth in Germany and the effects of catching up technologically in East Germany
- ▷ Supply of and demand for highly skilled workers and the impact of innovation on the skill structure of the workforce
- ▷ Monitoring of investment in education and training by government and private sector.

All the findings are interpreted in an international context and it will be discussed, which consequences follow from the identified dynamics. However, technological performance does not change on a year-by-year basis. The impact of the investment in intangible assets on the macroeconomic outcomes becomes evident only in the medium and long term. Accordingly, it is necessary to take a more long-term view when assessing such changes. For this reason, continuity in the monitoring activities and analyses of indicators presents an essential prerequisite for the yearly report on technological performance.

#### Publications:

BMBF (Ed.) (2000), *Zur technologischen Leistungsfähigkeit Deutschlands, Zusammenfassender Endbericht 1999*, Bonn (in German, available also from [www.zew.de/tl99](http://www.zew.de/tl99)).

BMBF (Ed.) (1999), *Zur technologischen Leistungsfähigkeit Deutschlands, Zusammenfassender Endbericht 1998*, Bonn (in German).

Legler, H., G. Licht and A. Spielkamp (2000), *Germany's Technological Performance*, ZEW Economic Studies, Vol. 8, Heidelberg.

## **Innovation Surveys in Manufacturing and Services**

### **Commissioned by:**

German Federal Ministry of Education and Research (BMBF)

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Fraunhofer Institute for Systems and Innovation Research (FhG-ISI), Karlsruhe

Institute for Applied Social Studies (infas), Bonn

OECD (Paris), EUROSTAT (Luxembourg), STATCAN (Ottawa) and various national statistical agencies in Europe

Step Group, Oslo

### **Advisory board:**

Pia Brugger,  
Federal Statistical Office, Wiesbaden

Professor Hariolf Grupp,

FhG-ISI, Karlsruhe

Dr Harald Legler,

NIW, Hannover

Professor Hans Georg Gemünden,  
Technical University Berlin, Berlin (chairman)

Professor Dietmar Harhoff,

University of Munich

Professor Gerd Ronning,

University of Tübingen

Dr Susanne Krebs,

VDMA German Machinery and

Plant Manufacturers

Since 1993, the ZEW has been conducting annual surveys on innovation activities in manufacturing and mining in Germany (Mannheim Innovation Panel, MIP). In 1995 the survey on innovation activities of distributive and business-related service sector firms (Mannheim Innovation Panel – Services, MIP-S) was initiated. In collaboration

with infas, representative data bases have been built up and maintained. In 1993 and 1997, the surveys represented the German contribution to the Community Innovation Surveys (CIS) of the European Commission.

Every year, approximately 2,500 firms take part in each of both surveys. The same firms are included in the survey every year (panel survey) to enable the observation of developments at firm level. Every second year, recently established firms are added to the survey population to capture the dynamics of industry structure.

The concept of the survey incorporates questions which are repeated every year, e.g. questions on the implementation of product/service and process innovations, the economical impact of innovations as well as the size of innovation expenditure and R&D. Furthermore, additional topics are thoroughly analysed every second year, e.g. form and content of technology diffusion and spillovers, sources of innovation, cooperation and factors hampering innovation activities.

In regular reports to the German government the ZEW outlines the innovation behaviour in Germany on the basis of the MIP. In this way, the panel contributes to covering the information demand of technology and economic policy in respect to innovation processes. In the reports, starting points for political measures to strengthen the innovation potential are indicated.

The data are available in a strictly anonymized version to external users for non-commercial basic research. Currently, more than 40 researchers utilize the public use file. In spring 2000, the first MIP user conference was held at Mannheim.

### **Publications:**

Beise, M. and H. Stahl (1999), Public Research and Industrial Innovations in Germany, *Research Policy* 28, 397-422.

Ebling, G., S. Gottschalk, N. Janz and H. Niggemann (1999), *Services in the Future – Innovation Activities in the Service Sector.*

*Survey 1998*, Centre for European Economic Research (ZEW), Mannheim.

Ebling, G., S. Gottschalk, N. Janz and H. Niggemann (1999), *Prospects of the German Economy – Innovation Activities in the Manufacturing Sector. Survey 1998*, Centre for European Economic Research (ZEW), Mannheim.

Ebling, G. and N. Janz (1999), *Export and Innovative Activities in the German Services Sector, Empirical Evidence at the Firm Level*, ZEW Discussion Paper No. 99-53, Mannheim.

Kaiser, U. and G. Licht (1998), *R&D Cooperation and R&D Intensity: Theory and Micro-Econometric Evidence for Germany*, ZEW Discussion Paper No. 98-32, Mannheim.

Licht, G. and K. Zoz (1998), Patents and R&D, An Econometric Investigation Using Applications for German, European and US Patents by German Companies, *Annales d'économie et de statistique* 49/50, 329-360.

Professor Jack Triplett,  
The Brookings Institution, Washington  
Professor Konrad Stahl,  
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Professor Dietmar Harhoff,  
University of Munich

During the last few years the importance of the information and communication technology (ICT) has increased considerably. In the OECD countries, the expenditures for ICT as a percentage of GDP have grown from 5.9 percent in 1992 to 6.9 percent in 1997. While there was an intensive discussion on the productivity paradox of ICT in the early nineties, more recently the ICTs are often considered as the driving force of the “New Economy” leading to enormous growth with low inflation as observed in the USA but also in some European countries such as Finland or Ireland.

ICTs are an excellent present day example of a “General Purpose Technology” comparable to the steam engine or electricity nearly 100 years ago. It may take several decades until such a technology has diffused throughout the economy and its huge impact on productivity, the generation of new products and services, employment etc. becomes visible. Exploring the economic impact of ICT goes far beyond the limits of a single research project and, hence, is a topic of a family of projects conducted at the ZEW.

On behalf of the Federal Ministry of Education and Research we carry out a detailed survey on the use of different ICT in German manufacturing and marketed services. The survey describes in detail the diffusion of ICT in Germany and characterizes early and late adopters of ICT as well as factors which delay the adoption of ICT. The survey also looks at the shortages of IT-specialists in Germany and estimates the demand gap for IT-specialists. To assess the demand for IT labour as well as the IT-related demand for skilled and unskilled labour we use a telephone survey of

## **Impacts of Information Technology on Productivity and Innovation**

### **Funded by:**

DFG, Deutsche Forschungsgemeinschaft  
German Federal Ministry of Education and Research (BMBF)

### **Project team:**

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### **In cooperation with:**

Institute for Applied Social Studies (infas), Bonn

International Data Corporation (IDC)

Deutschland GmbH, Frankfurt/Main

Professor Erik Brynjolfsson,

Massachusetts Institute of Technology

(MIT), Boston

Dr Paul Schreyer,

OECD, Paris

about 4,000 German firms. This survey includes detailed data on IT jobs, vacancies and the determinants of labour demand. The reasons for the current shortage of IT-labour and the firms' reactions are analysed. Furthermore, the project also analyses the interrelation of the ICT diffusion and skill shifts in labour demand.

The tremendous decline of the costs of ICT was one of the driving forces of the rapid diffusion of ICT in the last decades. However, the measured price decline only partly reflects the real decrease in costs of using ICT because existing methods of price measurement fail to adequately reflect the rapid improvement in quality of ICT products. In the project we develop price indices for different ICT products using hedonic regression models. Especially, we are interested in relaxing some standard assumptions of hedonic regression models taking into account intertemporal variation in the marginal utility of product characteristics or the pricing of new features of ICT products.

Knowledge of the development of price and quality is a prerequisite for untangling the productivity impact of ICT. Estimating the productivity impact of ICT is a second goal of this project. Our results show that productivity impact depends crucially on the type of ICT (mainframe or PCs) used. For instance, productivity models which regard IT as an aggregate block, regularly failed to identify productivity impacts of IT giving rise to the discussion of a productivity paradox.

#### **Publications:**

Harhoff, D. and D. Moch (1997), Price Indexes for PC Database Software and the Value of Code Compatibility, *Research Policy* 26 (4,5).

Licht, G. and D. Moch (1999), Innovation and Information Technology in Services, *Canadian Journal of Economics* 32 (2), 363-383.

## **Survival, Growth and Fast Growth of Start-Ups in Germany**

#### **Funded by:**

DFG, Deutsche Forschungsgemeinschaft

#### **Project team:**

Professor Josef Brüderl, Susanne Prantl, Professor Konrad Stahl (coordinator), Dr Michael Woywode, University of Mannheim  
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#### **In cooperation with:**

Professor Rolf Sternberg, University of Cologne  
Professor Joachim Wagner, University of Lüneburg  
Professor Michael Fritsch, University of Technology, Freiberg

This project which started in October 1998 is part of the DFG main topic "Interdisciplinary Research into Firm Foundation". The main objective of the project is the evaluation of the post entry performance of young firms founded in the early 1990s. Moreover, it focuses on the different development patterns of start-ups in East and West Germany, on the determinants of various market exit choices as well as on the factors that influence the emergence of fast growing firms.

A computer assisted telephone survey was conducted in 1999 to investigate the above mentioned research questions. The sample comprises 12,000 firms having started between 1990 and 1993 in East and West Germany. The ZEW Foundation Panels for East and West Germany represent the parent population for the sample. In the survey, firm representatives as well as other persons involved in the firm have been addressed. The survey yielded about 3,700 interviews. In addition, in a considerable number of cases at least the information whether the firm still exists or has dropped out of the market is available.

Comprehensive analyses regarding survival and employment growth were carried out using the survey data set as well as information available in the ZEW Foundation Panels for East and West Germany. Our results confirm the influence of several determinants on the survival and growth of young firms that proved to be of importance in a number of previous empirical analyses for other countries, industry classifications and time periods. Apart from these quantitative analyses, case studies with in-depth interviews were performed to learn more about firm internal conditions and actions that contribute to the fast growth of a firm.

Based on the survey data set, extended analyses dealing with survival and growth (e.g. panel data models, models that simultaneously monitor survival and growth) represent one main focus in the second project stage. Moreover, the search for factors that influence the innovativeness of young firms, processes of organizational change on the firm level and the overall economic impact of start-ups on mid-term employment developments are aspects of further research activities.

### **Lead Markets: Regional Starting Points of Global Dominant Designs of New Products**

#### **Funded by:**

Förderkreis Wissenschaft und Praxis am Zentrum für Europäische Wirtschaftsforschung e.V.

#### **Project team:**

Marian Beise (coordinator),  
Dr Thomas Cleff, ZEW

In the international diffusion of innovations one can observe that a particular technological design such as the facsimile machine, the personal computer or the mobile cellular telephone is often adopted by one country or region, called the lead market,

much earlier than by other countries which follow this country subsequently. In general, a lead market is defined as a regional or national market which adopts an innovation that is subsequently adopted world-wide. When different designs of an innovation with the same function compete internationally, the design preferred in the lead market becomes the global dominant design. Former research suggests that the subsequent adoption of an innovation design preferred in the lead market by other countries can be traced back to peculiar demand preferences and the market conditions in the lead market.

Based on microeconomic concepts of modern innovation theory, the lead market concept suggests that there is a system of country-specific attributes that constitute a lead market role of a country. Lead markets can be explained by five basic lead market factors: anticipatory prices, a high degree of domestic competition, the ability to transfer preferences abroad, the export orientation of domestic firms and anticipatory needs. In this instance, a lead market is a regional market that foreshadows future global needs. Firms in the lead market have a competitive advantage. Once local innovations have been developed to fit the needs of local users, they can also be successfully introduced into most other regional markets. Lead markets lead the industry's world-wide prevailing evolution because they first mirror impending global technical changes and shifts of demand and prices.

The lead market concept is an important strategy of the location decision for innovation activities, because multinational firms are still faced with different country-specific demand preferences and market conditions. At the same time, firms in high-tech industries are pressured into introducing global products into the world market in order to reap economies of scale of production and profit from vast R&D investments for new

products. This study suggests that multinational firms can harness lead markets for the generation of global products. Firms that align their innovation activities towards the lead market context can subsequently introduce their innovations successfully in other countries as well. Firms can react at several levels to lead markets: from locating sensing resources in the lead market to assigning R&D tasks within the multinational company to those affiliates which are located in the lead market. By locating R&D units in the lead market and developing and refining innovations in close interaction with the local environment a firm can economize on feed-

back loops. They can thus lower the risk of locking-in to idiosyncratic environments and generate truly global innovations through locally leveraged innovations.

This project attempts to develop and test a method for the identification of lead markets for certain innovation projects. Firstly, the case of the international diffusion of the cellular mobile telephone industry is studied in detail. Secondly, this case is employed to evaluate the theoretical concept developed by the research team in the past. Through this evaluation process a quantitative method of identifying and predicting lead markets *ex ante* is to be derived.



Minister President Erwin Teufel and Minister of Science, Research and Art, Klaus von Trotha, of the State of Baden-Württemberg visiting the ZEW.

## Research Department Corporate Taxation and Public Finance

In most European countries, governments traditionally have been taking an active role in the economy. Taxes, social security systems, regulation, but also expenditures for infrastructure and education influence key economic variables such as growth, investment, household and firm locations, employment, or income distribution. Since the 1990s, however, governments increasingly have to think internationally. European integration and the globalization of markets have decreased the power of any single national authority. This may be welcomed since firms can nowadays more easily escape harmful government intervention, but on the other hand, fiscal competition may also reduce the governments' ability to cope with social and economic problems.

The department analyses fiscal policy in the international context. The research aims at providing policy advice both on the German as well as on the European level. To study these issues, firstly the perspective of the private sector agents is taken. Using this approach, the research areas Corporate Taxation, International Tax Burden Comparison and Comparison of the Legal Forms of Enterprises as well as Taxes, Investment and Financing evaluate the effects of taxes on firms. Secondly, in the research area Fiscal Competition and Federalism the unit of observation is the jurisdiction which competes with neighbouring jurisdictions or other levels of the state.

The study of public finance and corporate taxation requires microeconomic and econometric methods. In addition to that, however, a detailed knowledge of public sector institutions such as tax laws and the rules of intergovernmental grants is a key factor in this field. The department emphasizes the

necessary connection between these three methodological approaches.

Since the state intervenes almost everywhere in the economy, and since little goes untaxed, the department is never short of potential areas of cooperation with the other departments in the ZEW. Examples for such cooperation include the taxation of start-ups and their employees, the interaction of social policy and labour markets, the coordination of monetary and fiscal integration in Europe, and green taxes.

### **Research Area Corporate Taxation, International Tax Burden Comparison and Comparison of the Legal Forms of Enterprises**

The specific contribution of the ZEW to the ongoing debate on international comparisons of tax burdens consists of a software tool developed in cooperation with the University of Mannheim, called European Tax Analyzer. This programme simulates the assessment of a representative firm taking into account all relevant taxes, their interaction, and special features of the tariffs such as tax credits and reduced tax rates. The tax systems of five countries (Germany, France, UK, the Netherlands, and USA) are modelled; industry specific results can also be obtained.

By varying the initial conditions, the tax liability of a representative company can be traced back to specific provisions in the tax code, and to industry specific characteristics. Moreover, the quantitative effects of tax reforms can be simulated. Consequently, the department gives advice to policy makers and the public on issues of corporate taxation on a regular basis.

Beyond its involvement in topical issues in tax policy, the department also works on the extension of the methodological basis for the assessment of tax burdens. Thus, in addition to the European Tax Analyzer, effective marginal tax rates are used so as to evaluate the attractiveness of various countries for corporate investment. Moreover, the European Tax Analyzer is being extended to cover partnerships in addition to incorporated firms. Finally, the taxation of transnational investment activities and parent-subsidiary relationships are being integrated.

### **Research Area Taxes, Investment and Financing**

The theme of this research area is the influence of public policies on the investment and financing decisions of firms. The methodological focus in this area is on microeconomic studies of such decisions. In particular, we analyse how taxation affects investment and the choice between different sources of finance, and how the regulation of the banking sector shapes bank-firm relationships.

In contrast to most existing research, investment decisions are modelled using firm-specific user costs of capital, taking the variation in asset structures and sources of finance into account. In addition, firm-specific effective marginal tax rates are derived. This approach allows to obtain precise estimates of the influence of taxes on investment decisions.

The second focus of this research area is on banking relationships of firms, and the influence of banking regulations on these relationships. An empirical evaluation of banking relationships of small and medium-sized firms is carried out using data from a survey. In addition, the banking systems of Germany and the USA are compared, focusing on the special role of the German savings banks.

### **Research Area Fiscal Competition and Federalism**

This research area deals with the competition between jurisdictions and the coordination of fiscal policies in federal states. The key question is whether fiscal competition indeed leads to a general reduction of tax levels and, thereby, to an erosion of the financial basis for public policies.

A first focus in this area is on the tax competition between municipalities in Germany. This is not only of interest for local public policy in Germany. In addition, it provides a particularly well documented laboratory for the study of fiscal competition. Thus, the existence of competition among local jurisdictions has been established. Further issues studied are the revenue effects of unilateral cuts in the tax rate, and the impact of international tax competition in border regions.

In an international perspective, this research area addresses two key policy issues. Firstly, the systems of social policy are compared across European countries. This lays the basis for an analysis of the impact of factor and household mobility on the shape of these systems. Secondly, the department addresses the benefits and risks of greater harmonization of taxes and other fiscal policies at the European level. This aims at explaining and evaluating the forces which lead to a centralization of fiscal responsibilities, both from a theoretical as well as from an institutional and a historical point of view.

## Selected Research Projects

### Taxation of Partnerships

#### Project team:

Prof. Dr. Dr. h.c. mult. Otto H. Jacobs  
(coordinator),  
Dr Christoph Spengel (coordinator),  
University of Mannheim  
Gerd Gutekunst, Rico Hermann,  
Thorsten Stetter, ZEW

Using the European Tax Analyzer, a computer-simulation programme, one can compare the corporate tax and social burdens in various countries. The actual model was created using the present social tax systems for corporations in Germany, France, the United Kingdom, the Netherlands, and the United States. The European Tax Analyzer so far is only capable of calculating, comparing and analysing the tax burden of corporations but not of companies in other legal forms.

Therefore, the purpose of this study is to extend the European Tax Analyzer, in all considered countries, by the legal form of the partnership.

Expected results are:

- ▷ National tax reform consideration, especially the planned 2001 corporate taxation reform in Germany, can be better judged when based on corporations and partnerships.
- ▷ The extension of the European Tax Analyzer creates a comprehensive methodical instrument to judge planned national and international tax reforms as well as tax changes at the EU level.
- ▷ The situation of medium-sized companies can be better determined.
- ▷ The spectrum for international tax burden comparisons will be expanded, setting the framework to compare the international competitiveness of German companies.

- ▷ The study extends current research both with respect to methods and to contents.

### Cross-Border Investment

#### Project team:

Prof. Dr. Dr. h.c. mult. Otto H. Jacobs  
(coordinator),  
Dr Christoph Spengel (coordinator),  
University of Mannheim  
Gerd Gutekunst, Rico Hermann,  
Thorsten Stetter, ZEW

Corporate investment decisions by corporations are influenced by taxation in many ways. The various tax systems, types of taxes, means of calculation and tariffs must be taken into account. With the European Tax Analyzer (ETA), a computer based model-firm approach, which was developed in a joint research project by the Centre for European Economic Research (ZEW) and the University of Mannheim, one can measure the tax burden of corporations. Until now, the ETA has been limited to purely nationally based firms and restricted to the measurement of average tax burdens.

The purpose of this research project is to, firstly, discern which form of tax burden (effective or average marginal) for various types of decisions is relevant. Secondly, the ETA will be expanded to calculate effective tax burdens. Finally, cross-border corporate investments will be introduced into the model to examine the taxation effects on location, financing and investment decisions. The goal of this research is to expand the analysis spectrum for national and international tax burden comparisons. In addition, average marginal and effective tax burdens can be

simultaneously ascertained based on the effects of corporate taxation decisions. The corporate taxation effects on decisions will be more comprehensively covered. This will allow for a broader analysis of the effects of a national tax reform, as well as harmonization considerations within the EU, on corporate decisions.

### **Financing Constraints Under Asymmetric Information and Their Impact on Investment and Innovation**

#### **Funded by:**

DFG, Deutsche Forschungsgemeinschaft

#### **Project team:**

Professor Dietmar Harhoff (coordinator),  
University of Munich

Timm Körting, Fred Ramb, ZEW

This project basically consists of two main parts. The first part of the project focuses on the empirical investigation of lending relationships of small and medium-sized enterprises (SMEs). Moreover, an in-depth comparison between Germany and the United States is intended. For this purpose, a survey was conducted among 1,500 German SMEs similar to the surveys undertaken by the US Small Business Administration. The data resulting from the German survey includes comprehensive information on the lending practices towards SMEs in Germany as well as the lending relationships and general characteristics of these firms. The results obtained as of yet suggest that lending relationships are advantageous to German SMEs regarding credit availability and credit conditions. Also, the results show considerable similarities between SMEs in Germany and the USA when compared to previous studies for the USA. In both countries, borrowing of these

firms is highly concentrated on a few banks and the quality of lending relationships has greater impact on collateralisation and credit availability than on price conditions.

The central objective of the second part of the project is to analyse the nexus between corporate investment and taxation. For this purpose, based on a description of the recent theoretical and empirical literature the effects of firm taxes, rates, and tax base on the investment decision will be discussed. The empirical analysis will provide a comprehensive list of the taxation framework for the investigated periods 1985 to 1999, and furthermore the formulation and development of structural investment models as well as the panel econometric estimation. We intend an integration of the user costs of capital and the taxation regime in existing reduced form models and structural models. For our estimation we use data from the Bundesbank's statistics on corporate balance sheets and newer panel econometric methods. The estimation result for the elasticity between investment and the user cost of capital is about -0.42. The estimate is in the middle range of previous estimates for the USA. But this measure is conservative, since it does not take tax asymmetries into account.

#### **Publications:**

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Harhoff, D. and F. Ramb (2001), Investment and Taxation in Germany – Evidence from Firm-Level Panel Data, forthcoming in: Deutsche Bundesbank (Ed.), *Investing Today for the World of Tomorrow*.

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## **Fiscal Competition: Theory and Empirical Evidence**

### **Researcher:**

Dr Thiess Büttner, ZEW

The economic forces of integration are increasingly challenging the European countries' national economic policies. On the revenue side, individual governments face difficulties in raising funds from mobile tax bases such as internationally mobile capital. On the expenditure side governments are forced to take into account the effects of the supplied bundle of public goods and services on investors' decisions on the location of a business.

This situation of fiscal competition is sometimes regarded as beneficial since it raises the pressure on governments to increase efficiency in the public sector. However, it is also argued that competition among governments will give rise to distortions, which undermine public sector efficiency.

The aim of the project is to contribute to this discussion by means of empirical research on the characteristics and consequences of fiscal competition. However, international fiscal competition is hard to analyse because of the complexities of the national tax systems and because of the difficulties to monitor transboundary factor movements. Therefore, the project exploits the fact that the lower fiscal tiers in existing federations show substantial fiscal autonomy in a highly integrated economic setting, and it studies some of the issues in greater detail at the local level. In particular, the project exploits a large panel data set of jurisdictions in Germany, which show partial autonomy in expenditures and taxation (business tax).

In a first step, the focus is on the question of whether fiscal competition can be identified in the taxing and expenditure decisions of local jurisdictions and EU governments. In a second step, the fiscal consequences of the identified types of competition are explored.

### **Publications:**

Büttner, T. (2000), Local Business Taxation and Competition for Capital: the Choice of the Tax Rate, forthcoming in: *Regional Science and Urban Economics*.

Büttner, T. (1999), Determinants of Tax Rates in Local Capital Income Taxation: A Theoretical Model and Evidence from Germany, *Finanzarchiv* N.F. 56, 363-388.

## **Social Policy in Fiscal Federalism**

### **Project team:**

Dr Thiess Büttner, Dr Margit Kraus (coordinator), Dr Robert Schwager, ZEW

In addition to the competition of European tax schemes, current discussion increasingly centres around the competition of social security systems. This subject addresses the financial restrictions as well as the effectiveness of social security systems with respect to their social and distributive goals. The aim of this project is to comparatively analyse the European systems of social security with regard to their effectiveness in social policy terms, keeping in mind restrictions of funding. The issue is related to the question whether a unified European social policy may be considered feasible and desirable from a theoretical and empirical point of view.

In the project's first phase a systematic of European systems of social security is developed. For this purpose, various strategies of social security are identified, traced back to their traditional roots and evaluated from the viewpoint of economic and social theories on social security. Subsequently, the prevailing systems of social security in Europe are characterised with respect to the social security strategies implemented. This is done on the basis of information on their institutional features as well macroeconomic data on revenue and expenditure schemes, amongst

others. A set of indicators for classifying the systems is developed that may be used in further empirical investigations.

Subsequently we intend to evaluate the consequences of different strategies for the income distribution on the basis of cross-sectional data. To this end, for different European countries various measures of poverty and income inequality will be calculated and the effectiveness in reducing poverty and inequality will be assessed. In this context, we also in-

tend to examine whether the income distribution is affected by the varying degrees of decentralization in different countries.

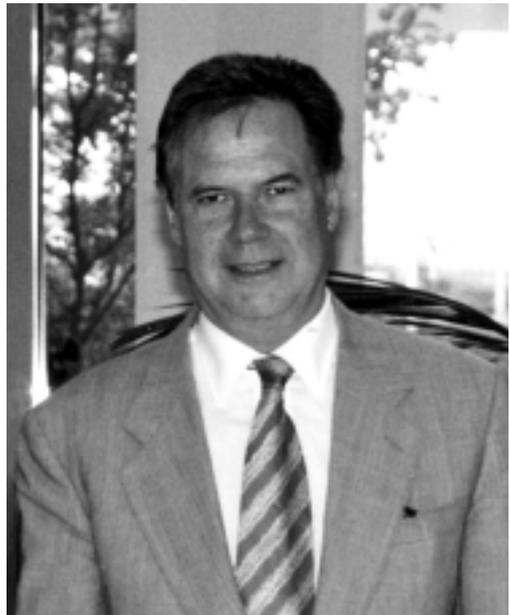
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Kraus, M. (2000), *Social Security Strategies and Redistributive Effects in European Social Transfer Systems*, mimeo.

Kraus, M. and R. Schwager (2000), *EU-Enlargement and Immigration*, ZEW Discussion Paper No. 00-09, Mannheim.



“Federalism has promoted internal unity in Germany”, Professor Georg Milbradt, Minister of Finance in Saxony, at the ZEW Economic Forum.



“What we need is a constructive competition between the German federal states”, Gerhard Stratthaus, Minister of Finance in Baden-Württemberg, at the ZEW Economic Forum.

## Research Department Environmental and Resource Economics, Environmental Management

During the past few years the pressing problems in the field of environmental and resource protection have shifted from the national to the international level. The reason for this is not just that key environmental problems such as climate warming, loss of biodiversity, overfishing of the oceans or water shortages are transnational in nature and thus require a supranational or global solution. Rather, intensifying globalization of economic activities also means that nowadays when national political strategies are formulated, greater account needs to be taken of the international repercussions than in the past.

In this context, the issue is often to what extent the capital mobility and differences in international regulation influence the economic (e.g. decline in competitiveness) and the environmental impacts (e.g. environmental dumping, race-to-the-bottom) of unilateral policy measures. Increasing attention is also paid to the issue of environmental policy as a strategic tool of foreign trade policy and development aid.

All this has far-reaching implications for academic research and policy recommendations: On the one hand, environmental policy has to take greater account of the strategic behaviour of important members of its target group. On the other hand, there is a growing need to achieve internationally binding agreements between sovereign nations. It is easier to find stable coalitions if the allocation of potential costs and benefits of environmental and resource policies is accepted as “fair”. Therefore, the research community is not only required to seek economically efficient solutions, but also to identify strategies which are perceived as fair. Because of the long-term nature of many environmental

and resource problems, this challenge not only exists on a national or bilateral level, but also on an intergenerational level.

Against this background, our research department aims at analysing environmental and resource problems on a level that is scientifically sound and supports politically feasible solutions. Problem analysis and development of economic policy options are based on the concept of sustainable development. We check to what degree current economic systems or changes induced by policy measures are ecologically sustainable, economically viable (“efficient”) and socially conforming (“fair”). An operationalization of the complex sustainability concept presupposes the specification of rules and indicators for sustainable economic activities. For policy recommendations to be derived, researchers additionally have to assess how appropriate measures induce changes in technologies (technological progress), infrastructures, lifestyles and institutions with a view to sustainable production and consumption patterns.

Our research department works on three problem levels which are inherently linked to each other. Firstly, we develop environmental policy concepts for sustainable economic activities. Secondly, we quantify the economic and ecological effects of environmentally relevant policies. Thirdly, we analyse how political processes and the institutional framework influence the way environmental policies are devised and implemented. The currently covered key issues of environmental and resource economics are as follows:

In the research area Innovation and Sustainable Development rules, indicators and strategies for sustainable economic activities are specified. Furthermore, determi-

nants and economic impacts of environmental innovations are analysed (also in the service sector).

The research area Energy Economics revolves around further developments in the national regulatory frameworks for the energy industries in Europe prompted by environmental policy. Devising new mechanisms to promote renewable energy without distorting competition is one of our main activities. In addition, we identify the external effects resulting from the use of energy, and develop suitable internalization strategies.

The research area Transport and Mobility deals with the issue of how transport and mobility requirements can be met in a sustainable manner. In order to achieve this, we derive on the basis of external cost accounting, instruments and combinations of measures capable of influencing transport activities.

The research area International Environmental and Resource Policies is devoted to examining and designing control systems for sovereign states to institutionalize transnational and global environmental and resource policies. This includes codified rules such as the principles of international environmental law or concrete problem-specific regulations such as the Montreal Protocol and the Framework Convention on Climate Change. In addition, the analysis of international treaties indirectly related to the environment such as multilateral trade or investment agreements is increasingly receiving attention.

The research area Macroeconomic Analysis of Environmentally Relevant Policies deals with the design and impacts of environmental and economic policy measures from a macroeconomic perspective. Based on large-scale quantitative models we determine the potential trade-offs between environmental and economic goals at the macroeconomic and the sector level. Apart from efficiency and equity analyses of national policies, the major focus is on the assessment of multilateral policies for transnational or

global problems using multi-sector, multi-country models of the EU and the world economy.

For our analysis we adopt a microeconomic approach. Essentially, we explain environmental and resource problems as well as the reaction to policy measures from the perspective of individual rationally behaving economic agents (households, enterprises, associations, the media, the government etc.) and their interaction. In this context, it is necessary to link environmental and resource economics to other economic disciplines such as public finance, the new trade and growth theories, industrial organizations, and political economy. An interdisciplinary dialogue with the natural sciences is also required, whenever questions are studied that concern the ecological carrying capacity or the limited substitutability of natural capital.

The individual research areas interact with other ZEW research departments. A close cooperation takes place with the research department Labour Markets, Human Resources and Social Policy when employment effects of environmental innovations are analysed, and with the department Industrial Economics and International Management when it comes to examining the factors determining environmental innovations. Our research area Macroeconomic Analysis of Environmentally Relevant Policies benefits from considerable synergies from cooperating with the research departments Labour Markets, Human Resources and Social Policy and Corporate Taxation and Public Finance: The empirical foundation of labour market mechanisms as well as the detailed description of tax and transfer systems within the quantitative macroeconomic models increase the policy relevance of our simulations. Another example of in-house synergy effects is the existing cooperation with the research department International Finance and Financial Management in questions regarding the implementation and effects of

emissions trading, tradable quotas of renewable energies or exchange dealings involving electricity.

Through journal publications and presentations, the findings our research produces have some influence on the discussion in the research community. In addition, we inform political decision-makers, companies and the interested public about our research activities in an appropriate manner (project reports, newsletters, books, workshops), and give policy recommendations on specific questions. The ultimate goal is to make valuable contributions to both scientific progress as well as decision-making in environmental policy.

### **Research Area Innovation and Sustainable Development**

Sustainable economic systems require environmentally relevant innovations in the sense of far-reaching and long-term changes in technologies, infrastructures, lifestyles and institutions. We focus our attention on whether and how it is possible to stimulate such innovations by regulation. We also investigate the economic impacts of environmental innovations, especially their impacts on employment. On the theoretical front this research area largely draws on neoclassical approaches in environmental, innovation and labour market economics. Whenever we consider these approaches to be too restrictive to explain real-life innovation processes, we supplement them with new approaches in evolutionary economics. Our empirical work is based on company interviews that we conduct and analyse, some in the form of broad surveys in industry and the service sector, some in the form of in-depth case studies. Another focal aspect of our work consists of specifying rules, indicators and strategies for sustainable development. Once again our theoretical starting point is the neoclassical viewpoint to which, however,

we add important aspects of ecological economics, e.g. when environmental policy goals have to be derived, or very long-term environmental problems (raising the problem of intergenerational fairness) have to be solved.

In the course of projects commissioned by the EU Commission and the German Federal Ministry of Education and Research (BMBF), we analysed the findings of European and American research programmes investigating the connection between environmental regulation and innovation. Among other things, it was found that whereas R&D policy is mainly capable of boosting invention, environmental policy is more likely to foster the diffusion of environmental innovations. Secondly, it is the instrument mix and the way it is designed that determine the success of the policy, not the choice of a single policy instrument. Strategically oriented, long-term environmental policies support innovation, a fact that emphasizes the importance of setting long-term and binding environmental goals. In this context the research area also contributed a chapter on “incentives and obstacles to environmental innovations” for the 1999 BMBF report on technological capabilities. We studied the employment effects of environmental innovations in various projects, e.g. the EU project IMPRESS (Impact of Clean Production on Employment in Europe – An Analysis Using Surveys and Case Studies). The result was that these impacts are positive but small. One of the objectives was to develop a methodological framework for an EU-wide analysis of the effects integrated environmental technology has on employment (see also project homepage <http://www.impress.zew.de>).

In the sphere of basic questions concerning sustainable development, ZEW conducted a project called “The economic dimension in an integrated concept of sustainable development” to examine how sustainable development needs to take into

account social and economic requirements apart from ecological goals.

### **Research Area Energy Economics**

Energy utilization plays a decisive role in solving environmental problems and in implementing sustainable economies in the medium to long term. At the centre are the emissions resulting from energy conversion, and their environmental impacts such as global warming, i.e. the external effects the energy industry produces. Another issue is the scarcity of the resources currently used.

In our projects, we try to integrate aspects of environmental and resource economics into a concept of a sustainable energy use. The transnational and intergenerational nature of environmental and resource exploitation in the energy sector makes it rather difficult to find solutions. Besides, the institutional parameters in the national, European and global energy markets play an important role when policy recommendations have to be formulated.

One of the priorities of our projects is a comparative analysis of alternative support mechanisms for renewable energies on a national and European level. The result that is emerging is that support for renewable energies through obligations is advisable from a regulatory policy standpoint if the quota compliance is made flexible by means of trading certificates for “green” energy. On the issue of nuclear energy phase-out we firstly simulated the sectoral costs of alternative policy proposals. In the process, we discovered that – depending on the arrangement – not only do the total costs vary greatly, but the impact on the owner-companies’ competitiveness also differs dramatically. Secondly, we developed a public choice model of the energy consensus talks, which was empirically tested and revealed that public opinion significantly influenced the politicians’ behaviour. In the future we will

further develop conceptual ideas on the promotion of renewable energies in connection with climate policy (especially in the form of trading in emission rights). If the ambitious goals of the Federal Government and the European Union for renewable energies and climate protection are to be achieved, far-reaching policy measures are required. Since these can have considerable macroeconomic effects, we plan to integrate the aspect of renewable energies into the research department’s macroeconomic models.

### **Research Area Transport and Mobility**

Environmental burdens caused by traffic have increased in the past few years due to the rise of passenger and freight traffic combined with a shift towards motorised road transport. In Germany, just like in the entire European Union, transportation becomes the major source of pollution. Hence, with regard to sustainable development, the question is how transport and mobility requirements still can be met with less environmental impacts. We develop environmental or sustainability criteria with which it is possible to assess alternative transport policies and to derive a cost-efficient mix of instruments influencing transport activities.

The quantification of external costs for passenger and freight traffic – specific to certain routes and transport technologies – gives an idea of the required governmental Pigovian taxes and constitutes an important precondition for an environmentally sound transport policy. On the basis of the two former EU projects QUITs (Quality Indicators for Transport Systems) and CAPRI (Concerted Action on Transport Pricing Research Integration), we plan to advance the analysis of external costs in the field of transport within the new project RECORDIT (Real Cost Reduction of Door-to-Door Intermodal Transport). In doing so, we will employ an impact pathway approach for the distance-related calculation of external costs.

The “German Parcel Transport Market Barometer by Prognos/ZEW” is an on-going project that we developed together with the Prognos AG. During the panel survey, time series data are generated on transport volume and freight traffic prices. They enable us to create volume and price forecasts with quantitative methods.

For the purpose of detailed analysis of freight transport markets as well as of the effects, pricing and administrative measures have on transport behaviour, we plan to develop and implement a new survey based on the Transport Market Barometer.

### **Research Area International Environmental and Resource Policies**

The need for an international coordinated environmental policy is increasing. Reasons are the globalization of economic relations and the growing significance of transnational and global environmental and resource problems. So far one of the focal points of our studies concerned the efficient design of multilateral sets of rules for international environmental and resource problems. Our research projects combine qualitative (regulatory) and quantitative analyses, and aim at concrete recommendations for the practical implementation of specific policy measures. For instance, we evaluate the cost-effectiveness of volunteer agreements or shape concepts for intra-industrial emission trading. Communication between researchers, policy makers and industrial managers on environmental issues such as greenhouse gas abatement is warranted by ZEW-organized international conferences (e.g. conference volumes 1, 3, 4, 11 of the ZEW Economic Studies on climate policies).

Theoretical research focuses on the institutionalization of multilateral environmental treaties based on non-cooperative game theory. Within a large interdisciplinary research project financed by the DFG, Deutsche Forschungsgemeinschaft (public funding organi-

zation for academic research) we try to explain the economic mechanism driving international climate protection treaties such as the Kyoto Protocol (<http://www.mzes.uni-mannheim.de/arbZ/iins/IINSStart.htm>). We are extending the range of topics related to resource economics in the field of “water” by looking into conflicts and possible solutions for the use of transnational water resources.

### **Research Area Macroeconomic Analysis of Environmentally Relevant Policies**

The operationalization of policies for a sustained protection of natural resources requires quantitative assessments of their environmental and economic effects. It is mainly a matter of quantifying potential trade-offs between environmental and economic goals such as safeguarding international competitiveness and the preservation of jobs or economic growth versus improving environmental quality. To that end, we further develop and apply macroeconomic tools for the economy-wide analysis of environmental policy measures. Apart from a powerful system of large-scale general equilibrium models (GEM-E3, PACE) with different breakdowns in terms of sectors, regions and time horizons, our set of quantitative tools also encompasses an econometrically estimated dynamic input-output model (DIOGENES) which features a variety of different emissions and incorporates detailed technological information on the energy sector. The complementary application of these models enables us to analyse environmentally relevant issues comprehensively on a macroeconomic level. Moreover, using DIOGENES we are able to create trend or reference scenarios which can be used as a starting point for counterfactual policy simulations with the equilibrium models.

As part of several ongoing international projects for the EU, we analyse the efficiency and distribution effects of alternative strategies for the achievement of climate gas re-

duction targets. One policy-relevant insight from these research activities is that in the medium to long term abatement efforts made by industrialised countries to reduce emissions will have considerable negative spillover effects on developing countries, which, however, can be markedly lessened through coordinated action (international trading in emission rights). Within an international research project financed by the EU Commission we will investigate the interactions between trade policies and climate protection policies. At the national level, a major focus is on evaluating environmental, employment and efficiency implications of environmental tax reforms. It became apparent that on account of counterproductive exemption regulations, the environmental tax re-

form currently implemented in Germany is expected to produce only minor environmental benefits. The chances of an upturn in the labour market are also seen as fairly slim.

The methodological extensions of the equilibrium models centre on the integration of imperfect market structures for the purpose of a microeconomic foundation of unemployment and international trade, and on the inclusion of approaches from industrial economics in order to depict competition among locations. As for the econometrically estimated dynamic input-output model, we focus on a microeconomically oriented depiction of mechanisms in labour and capital markets as well as on continuing the integration of technological innovation and diffusion processes on a macroeconomic level.



“The protection of the climate is one of the most important priorities of our time”,  
Dr Werner Müller, Federal Minister of Economics and Technology speaking at the ZEW.

## Selected Research Projects

### **The Impact of Clean Production on Employment in Europe – An Analysis Using Surveys and Case Studies (IMPRESS)**

**Commissioned by:**

European Commission, DG Research, TSER Programme

**Project team:**

Sandra Gottschalk, Dr Norbert Janz, Suhita Osório-Peters, Dr Klaus Rennings (coordinator), Dr Thomas Zwick, ZEW

**In cooperation with:**

Matteo Bartolomeo, Fondazione Eni Enrico Mattei (FEEM), Milan  
 Anthony Arundel, René Kemp, Maastricht Economic Research Institute on Innovation and Technology (MERIT), Maastricht  
 Professor Najib Harabi, Professor Mathias Binswanger, Olten School of Economics  
 Professor Ian Miles, Victoria University of Manchester

The primary objective of the IMPRESS project is to establish a Europe-wide methodological framework for analysing the impact of clean production on employment. In addition, the project will produce empirical results on impacts of cleaner production on employment through its own research. This consists of:

- ▷ Examination of the relationship between eco-innovation, employment and competitiveness based on an analysis of European innovation data banks,
- ▷ in-depth case studies conducted within selected industrial and service sectors,
- ▷ standardized surveys on firms' eco-innovation,

- ▷ comparative analysis of the survey and the case study results.

The case studies deal with energetic use of biomass (Italy), refrigerator recycling (Germany), energy saving windows (Switzerland), biotechnology (Netherlands) and green financial services (United Kingdom). An internet discussion group on the topic of clean technology and employment has been installed (<http://www.impress.zew.de>). Also papers on the IMPRESS methodology and case study results can be downloaded from the website. The principal deliverables of IMPRESS will take the form of publications in books, journals, newspapers and magazines aimed at European researchers, policy makers and entrepreneurs.

### **The Role of an Integrated Tradable Green Certificate System in a Liberalising Market (InTraCert)**

**Commissioned by:**

European Commission, DG XVII

**Project team:**

Wolfgang Bräuer, Isabel Kühn (coordinator), Marcus Stronzik, ZEW

**In cooperation with:**

Dr Maroeska Boots, Netherlands Energy Research Foundation (ECN), Petten  
 Dr Lise Nielsen, Risø National Laboratory, Roskilde  
 Professor Alfredo Cadenas, Universidad Autonoma de Madrid  
 Dr Catherine Michell, University of Sussex, Brighton

The instrument of tradable certificates is the focal point of this research project. So far, the trading of 'green' certificates for promot-

ing renewable sources of energy has mainly been discussed for the electricity sector, and several EU member states are in the process of implementing such schemes.

In the InTraCert project, we examine if it is meaningful and possible to expand this support scheme for renewable energy sources to the gas as well as the heat sector. Another important part of InTraCert is to analyse the interaction between a tradable green certificates system and the realization of the Kyoto mechanisms. Finally, we look at the existing regulatory instruments in the EU member states in the fields of climate, environmental and energy policy, and check their compatibility with the new instruments of certificate trading. The objective of the project is to determine the main elements for the optimal design of an integrated European certificates system.

**Publications:**

Bräuer, W., M. Stronzik and A. Michaelowa (2000), *Die Koexistenz von Zertifikatmärkten für grünen Strom und CO<sub>2</sub>-Emissionen – wer gewinnt und wer verliert?*, HWWA Discussion Paper No. 96, Hamburg (in German).

Kühn, I., W. Bräuer and M. Stronzik (2000), *InTraCert Country Reports – The Role of an Integrated Tradable Green Certificate System in a Liberalising Market*, ECN-C-00-085, November, Petten.

**Real Cost Reduction of Door-To-Door Intermodal Transport (RECORDIT)**

**Commissioned by:**

European Commission, DG TREN

**Project team:**

Georg Bühler, Sigurd Weinreich (coordinator), ZEW

**In cooperation with:**

Cranfield Centre for Logistics and Transportation, Cranfield University, Bedford

Ecole Nationale des Ponts et Chaussées – LATTs, Cité Descartes, Paris

Gruppo CLAS, Milano

Institut für Energiewirtschaft und Rationelle Energieanwendung (IER),

University of Stuttgart

Istituto di Studi per l'Informatica e i Sistemi (ISIS), Rome

National Technical University of Athens, Department of Transportation (NTUA), Athens

Tetraplan, Copenhagen

TNO Inro, Delft

The ultimate objective of RECORDIT is to improve the competitiveness of intermodal transport in Europe through the reduction of cost and price barriers which currently hinder its development, while respecting the principle of sustainable mobility. This project on behalf of the European Commission – DG TREN – uses extensively the bottom-up valuation methods, allowing to appropriately account for the time-, space- and technology-dependence of intermodal costs in comparison with unimodal road transport. Ten working packages are defined including the accounting framework, a methodology for the analysis of mechanisms of cost and price formation, the specific methodology for calculating resource and external costs for three selected routes, an analysis of taxes and charges as well as an analysis of imbalances and inefficiencies of the current pricing system. It is planned to develop a computerised decision support module, to indicate all possible cost reduction options, and finally to point out actions to promote intermodal transport.

ZEW is in charge of WP 1 dealing with the overall accounting framework for RECORDIT. This includes an analysis of the state of the art summarising the principles of a modern cost-benefit analysis and sustainability criteria, the classification of intermodal chains and assessment of the corresponding cost structure as well as the methodology for da-

ta collection and cost calculation of both, the internal (resource) cost and the external costs. Besides, ZEW will contribute to several other working packages, especially by collecting data for German and Swiss parts of the selected routes. Access to further information: <http://www.recordit.org>.

**Publication:**

Weinreich, S., G. Bühler, R. Friedrich, S. Schmid, A. Ricci, R. Enei, O. Baccelli, C. Vaghi, R. Zucchetti and M. Henriques (2000), *Deliverable 1: Accounting Framework, D1 of RECORDIT – Real Cost Reduction of Door to Door Intermodal Transport*, Mannheim.

**International Negotiations on Climate Protection in the Context of Domestic Climate Policy**

**Funded by:**

DFG, Deutsche Forschungsgemeinschaft

**Project team:**

Dr Christoph Böhringer (coordinator),  
Dr Andreas Lange, Carsten Vogt, ZEW

The bargaining positions of several parties to the UN Framework Convention on Climate Change (UNFCCC), e.g. the USA and Japan, cannot be explained solely by assuming that governments are trying to maximise national welfare by minimising the sum of costs and benefits of climate protection. The project puts forward the hypothesis that the bargaining positions of the countries involved reflect the self interests of governments, particularly the interest to be re-elected. A second hypothesis to be tested asserts that the negotiation outcome can be traced back to the institutionalization of the international negotiations on climate protection through a “cascade effect”, as we can often observe that in the course of international negotiations on environmental issues the degree of cooperation increases over time. A typical

cascade effect consists of a framework convention followed by a procedural agreement and again followed by a binding protocol laying down concrete reduction targets.

The governments’ negotiations can be modelled in a non cooperative game theoretic framework. In a first approach, governments’ targets are represented by a modified payoff function which reflects the weights the median voter may attach to the costs and benefits of climate protection. The influence of the cascade effect could, for example, be modelled by a multi-stage game with incomplete information. In latter phases of the project we plan a test of the entire model and the hypotheses included in the model by trying to reproduce the offers and agreements observed in the international climate negotiations – at first qualitatively, then quantitatively.

**Climate Change Policy and Global Trade (CCGT)**

**Commissioned by:**

European Commission, DG XII

**Project team:**

Dr Christoph Böhringer (coordinator),  
Frauke Eckermann, Andreas Löschel, ZEW

**In cooperation with:**

Professor Pantelis Capros,  
ICCS of National Technical University of Athens (NTUA), Athens

Professor Anil Markandya,  
Metroeconomica Ltd., Bath

Professor Dirk Willenbockel,  
Middlesex University Business School,  
London

Professor Joseph F. Francois,  
Tinbergen Institute, Erasmus University,  
Rotterdam

Professor Michael Rauscher,  
University of Rostock

The project aims at providing advice to European policy makers about the best strat-

egy for climate change mitigation, within the framework of the Kyoto protocol and the provided flexibility instruments, focusing on the interrelationships with global trade agreements. Based on rigorous quantitative analysis with a General Equilibrium Model of the world economy, the study will investigate how trade agreements interfere with climate change mitigation policies. Interaction between various trade regimes and climate change policies will be quantified in terms of efficiency implications as well as distributional consequences at the regional and sectoral level. With respect to the use of the Kyoto flexible instruments the project will identify the optimal mix between domestic emission limitation actions in the OECD countries and foreign abatement action considering transaction costs and risk premia associated with capital transfers outside the OECD.

### **Publications**

Böhringer, C. (2000), Cooling Down Hot Air – A Global CGE Analysis of Post-Kyoto Carbon Abatement Strategies, *Energy Policy* 28, 779-789.

Böhringer, C. (2000), *Industry-Level Emission Trading Between Power Producers in the EU*, ZEW Discussion Paper No. 00-46, Mannheim.

Böhringer, C., K. Conrad and A. Löschel (2000), *Carbon Taxes and Joint Implementation*, ZEW Discussion Paper No. 00-45, Mannheim.

# Activities of the Service Departments

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## Information and Communication

Knowledge transfer is of high importance to the ZEW. The institute therefore engages in various activities to inform firms, politicians and the administration, the scientific community, organizations and the public in general about its research work. In this context it is the responsibility of the service department Information and Communication to work up research results of the ZEW for press releases and articles, to establish contacts between print

formation and Communication department is also involved in the organization and promotion of ZEW lecture series as well as annual events such as the ZEW Economic Forum or the ZEW Summer Workshop. Furthermore it is responsible for the presentation of the ZEW and its research activities at national and international conferences and meetings of economists. Apart from the aforementioned activities the Information and Communication department is in charge of the ZEW's EDP (a network of about 250 PCs, servers and workstations). It also comprises the ZEW's library.

Last but not least the service department Information and Communication engages in the observation and analysis of the development of the German national economy and of the business cycle in EU member states.

### Publications

Besides publishing in national and international scientific journals as well as participating in current political and economic debates by contributions in print and electronic media, the ZEW also informs about its research results in its own following publications:

#### Publication Series

Among the book series edited by the ZEW, the *ZEW Economic Studies* are published in English. They are monographs on theoretical, empirical and methodological problems in economics. Series in the German language are *ZEW Wirtschaftsanalysen* and *Umwelt- und Ressourcenökonomie*.

#### Working Papers

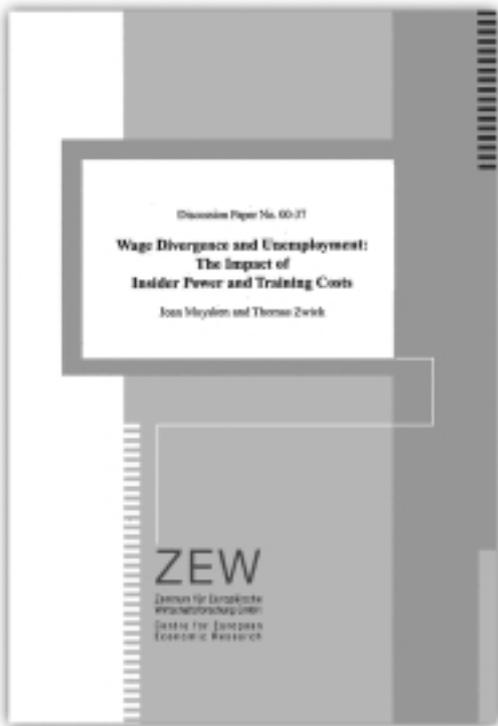
##### ▷ *ZEW Discussion Papers*

Discussion papers (nearly all of them in



and electronic media and ZEW researchers, to continually update the ZEW's website, to edit and, on a DTP-basis, to produce all of ZEW's own publications.

To give the ZEW effective publicity, and to contribute to public-policy discourse the In-



English) provide information on recent ZEW research for the scientific community. They are earmarked for publication in national and international scientific journals.

- ▷ **ZEW Dokumentation**  
Non-technical analyses and surveys on selected economic topics, mainly in German.

**Publications for the General Public/  
Publication of Survey Results**

With the exception of the ZEWnews English edition the following publications are only available in German.

- ▷ **ZEWnews/ZEWnews English edition**  
The ZEWnews contains general information on current research results, ongoing activities and recent publications as well as dates of ZEW events. The ZEWnews, in German, is published ten times a year. The ZEWnews English edition is published quarterly.

- ▷ **EUMagazin**  
The magazine is published by the ZEW and the Nomos Publishing Company, Baden-Baden. Ten editions every year provide general-interest articles concerning European economic developments and politics. The EUMagazin also contains the special supplement “ZEWaktuell” informing the readers about recent ZEW research results.
- ▷ **ZEW Konjunkturreport**  
Quarterly published analyses of macroeconomic topics including forecasts by European research institutes on business developments in their respective countries.
- ▷ **ZEW Finanzmarktreport**  
A monthly report presenting the current results of the ZEW Financial Market Survey with assessments and expectations by financial experts regarding developments on national and international financial markets.



- ▷ *ZEW Branchenreport Innovation*  
Annual reports on innovations in selected sectors of manufacturing and service industries based on the ZEW innovation survey.
- ▷ *ZEW Branchenreport Dienstleistungen*  
A quarterly report on current and anticipated developments in business-related services.
- ▷ *ZEW Jahresbericht*  
The annual report of the ZEW presenting the institute's activities in the previous year with an emphasis on research outcome and activities by the service departments as well as on ongoing and completed research projects.

### Electronic Media / Internet Services

Expertise and research results of the ZEW as well as data collected by regular surveys are not only published in printed publications but also by electronic media. Interested persons can inform themselves about research work and surveys by contacting the website of the ZEW on the internet. Furthermore the ZEW produces information programmes dealing with current economic issues.

The ZEW website ([www.zew.de](http://www.zew.de)) gives general information on ZEW's organization and its work, particularly in the various research areas. It provides an overview of current and completed research projects. It informs about all ZEW publications and makes available selected ZEW publications and documents for retrieval as PDF and/or text files. The website also contains information on further training seminars, lecture series and scientific workshops offered by the ZEW. Last but not least, all ZEW employees can be looked up on the website and can be contacted by e-mail.

### Databases

At the ZEW several databases exist which the institute established and updates regularly. Extracts from some of these databases can be made available to scientists for research work only with observance to individual data protection rules.

- ▷ *Mannheim Enterprise Panel (MUP)*  
Firm level data based on a representative sample by sectors, firm size categories, and regions for East and West Germany.
- ▷ *ZEW Foundation Panels*  
Firm level data for analysing business start-ups, growth, and liquidations. The panel contains information on about 1,870,000 firms in West Germany and 720,000 firms in East Germany.
- ▷ *Mannheim Innovation Panel (MIP)/ Mannheim Innovation Panel Services (MIP-S)*  
This database contains particulars on the innovative activities of companies in the industrial and service sector in Germany, based on an annual survey.
- ▷ *Survey on the Economic Situation in Business-Related Services*  
These data display results from quarterly surveys of companies of the business-related service industries on their assessment and expectations with regard to their present and future economic situation.



- ▷ *European Tax Analyzer*  
Database with detailed information on tax systems in several European countries and the US. The database can be used to compute the effective tax burden of firms in various EU countries and the US.
- ▷ *Bond and Interest Rate Segments of the DFDB*  
This excerpt from the German Financial Database (DFDB) contains all master data and prices of DM bonds including interest rates.
- ▷ *ZEW Financial Market Survey*  
The monthly survey displays the assessments and expectations of experts for national and international financial markets' developments and the economic situation.

### Lecture Series and Special Events

For the discussion of current economic problems the ZEW organizes lecture series and an annual conference. Twice a year in "Wirtschaftspolitik aus erster Hand" a distinguished representative of German politics or economics is invited by the ZEW to provide an insight into current economic developments. In the lecture series "Mannheimer Wirtschafts- und Währungsgespräche", which is organized three times a year by the ZEW in cooperation with the University of Mannheim, the banks' association of the Rhine-Neckar region and a regional academy, CEOs of financial institutes give lectures on developments in the banking sector. The annually organized "ZEW Wirtschaftsforum" is a one-day conference which serves as a forum for entrepreneurs, representatives of business associations and state institutions to discuss current economic-political questions. On this occasion lectures are given by prominent representatives of politics and economics from Germany and abroad. Last but not least, the ZEW every year organizes the "ZEW Summer

Workshop" of three days. During this event young scholars have the chance to present results of their current research work and to discuss them with leading economists who give lectures on the topic of the workshop. Further information concerning the "ZEW Summer Workshop" and application conditions is given on the ZEW website in the internet.



"The code of industrial relations may not be allowed to become excessively bureaucratic, slow and expensive", Dr Dieter Hundt, president of the Confederation of German Employers' Associations, speaking at the ZEW.

## Knowledge Transfer & Management Training

The activities of the Knowledge Transfer & Management Training department focus on the intensive exchange between research and business experience. In line with its mandate the ZEW makes a valuable contribution to further education by offering training courses to employees in business and administration. An appropriate form of training is provided for each chosen topic to ensure an efficient transfer of knowledge from research into business practice.

### Expert Seminars

Seminars are held by experts reporting on selected research results and methods applied by ZEW's researchers for participants from firms, institutions and other research and administrative facilities. As a rule seminars are held by members of the ZEW together with experts from businesses in order to attain the highest level of relevance for practical business applications.

A further aim of these seminars is to encourage the dissemination of fundamental background knowledge concerning current economic views among management representing both small and medium-sized firms. These events offer their participants a forum at which they can acquire current knowledge as well as discuss its practical applications in entrepreneurial terms together with experts. Besides this, the participants are able to establish contacts and exchange experience with business people from other organizations.

### Specific Training Programmes for Enterprises and Institutions

Upon request from companies and other institutions the ZEW can provide tailor-made training programmes. These are based upon the specific training requirements and economic issues that concern the client. In general these programmes cover the following three stages:

- ▷ Analysis of the specific corporate training requirements.
- ▷ Conception and implementation of the training programme.
- ▷ Evaluation of the success of the training programme.

On request the ZEW can conduct empirical studies on the topic of a particular training programme.

### International Management Training

With a view to the increasing trade liberalization and economic transformation in various countries the ZEW is working for instance in conjunction with the German Foundation for International Development (DSE) and provides extended training in German and English language to future management executives in particular from Asia, Africa and Eastern Europe. The management training includes visits to enterprises and practical training in firms.

# Conferences and Workshops

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*In addition to the ZEW's publications, the institute holds quite a number of conferences and workshops allowing researchers to exchange ideas and information on recent research results. Some of the topics provide an opportunity to invite also experts from business and government and to discuss important policy issues with each other. The ZEW's annual summer workshop brings together young economists and experienced researchers to cooperate on research currently being carried out at the ZEW. A few examples of conferences or workshops that were organized by members of the ZEW are given below.*



Participants of the 2<sup>nd</sup> ZEW Summer Workshop in June 2000.

## Econometric Evaluation of Active Labour Market Policies in Europe

On 24 June, 1999 the ZEW held a conference, organized in cooperation with Professor Michael Lechner, University of St. Gallen, in which researchers from Europe and the USA discussed results of their work on active labour market policies applied in European countries as well as on evaluation methods. Part of the papers presented at the conference have been published in the ZEW Economics Studies, Vol. 13, edited by Michael Lechner and Friedhelm Pfeiffer.

### Invited lecture

*Chair: Wolfgang Franz*

The Economics and Econometrics of Active Labour Market Programmes

*James J. Heckman, University of Chicago; discussant: Guido W. Imbens, University of California, Los Angeles*

### Session 1

*Chair: Wolfgang Franz*

Instrumental Variables Estimates of the Effects of Subsidized Training on the Quantiles of Trainee Earnings

*Joshua Angrist, MIT, Cambridge and Guido W. Imbens, University of California, Los Angeles; discussant: Geert Ridder, John Hopkins University, Baltimore*

Programme Evaluation as a Decision Problem

*Rajeev H. Dehejia, University of Columbia; discussant: James J. Heckman, University of Chicago*

### Session 2:

*Chair: Friedhelm Pfeiffer*

Assessing the Effects of Labour Market Training in Norway

*Arild Aakvik, University of Bergen; discussant: Almas Heshmati, Stockholm School of Economics*

Training Effects on Employment when the Training Effects are Heterogeneous: An Application to Norwegian Vocational Rehabilitation Programmes

*Arild Aakvik, University of Bergen and James J. Heckman, University of Chicago; discussant: Almas Heshmati, Stockholm School of Economics*

Vocational Training in Wallonia: Does it Speed up the Transition Rate out of Unemployment?  
*Bart Cockx and Isabelle Bardoulat, University of Louvain, Louvain-La-Neuve; discussant: Jan C. van Ours, Tilburg University*

**Session 3:**

*Chair: Friedhelm Pfeiffer*

An Analysis of Paid Leave

*Karsten Albæk, University of Copenhagen; discussant: Jeffrey A. Smith, University of Western Ontario*

Estimating the Effects of Vocational Rehabilitation Programmes in Sweden

*Almas Heshmati, Stockholm School of Economics; discussant: Kenneth Carling, Office for Labour Market Policy Evaluation, Uppsala*

**Session 4:**

*Chair: Viktor Steiner*

Advantage through Training? A Microeconometric Evaluation of the Employment Effects of Active Labour Market Programmes in Poland

*Patrick A. Puhani, ZEW; discussant: Martin Eichler, University of St. Gallen*

Effects of Active Labour Market Programmes on the Transition Rate from Unemployment into Regular Jobs in the Slovak Republic

*Jan C. van Ours, Tilburg University; discussant: Denis Fougère, CREST, Paris*

**Session 5:**

*Chair: Viktor Steiner*

The Impact of Non-Profit Temping Agencies on Individual Labour Market Success in the West German State of Rhineland-Palatinate

*Michael Lechner, University of St. Gallen, Friedhelm Pfeiffer, Hannes Spengler and Matthias Almus, ZEW; discussant: Enrico Rettore, University of Padova*

Using Matching Estimators to Evaluate Alternative Youth Employment Programmes: Evidence from France, 1986-1988

*Thomas Brodaty, Université Paris I, Bruno Crépon and Denis Fougère, CREST, Paris; discussant: Bernd Fitzenberger, University of Mannheim*



James J. Heckman, Nobel laureate and professor at the University of Chicago presented a paper at the ZEW conference on “Econometric Evaluations of Active Labour Market Policies in Europe”.

**Session 6:**

*Chair: Michael Lechner*

The Determinants and Effects of Work Related Training in Britain

*Richard Blundell and Costas Meghir, Institute for Fiscal Studies, London; discussant: Joshua Angrist, MIT, Cambridge*

Why Do Subsidized Firms Survive Longer? An Evaluation of a Programme Promoting Youth Entrepreneurship in Italy

*Enrico Rettore, University of Padova; discussant: Winfried Pohlmeier, University of Konstanz*

**Session 7:**

*Chair: Michael Lechner*

Predicting the Efficacy of Future Training Programmes Using Past Experiences

*Guido W. Imbens and Julie H. Mortimer, Department of Economics, Los Angeles; discussant: Costas Meghir, Institute for Fiscal Studies, London*

Is the Threat of Training More Effective than Training Itself? Experimental Evidence from UI Claimant Profiling

*Jeffrey A. Smith, University of Western Ontario; discussant: Rajeev H. Deheija, Columbia University*

## **Government Programmes to Support the Development of Small Business: Review of Current Policy and Research**

On February 11, 2000 the ZEW and the American Board on Science, Technology, and Economic Policy of the National Research Council (NRC) co-organized a workshop on governmental support of innovation in small and medium-sized enterprises (SMEs). Approximately 30 social scientists and representatives from German and US departments attended the workshop. The focal point of the workshop was the interchange of know-how about existing programmes and new approaches towards the stimulation of the innovation activities of SMEs.

### **Panel I: Improving Government Support for Innovative Small Business**

*Chair: Wolfgang Franz, ZEW*

Government-Industry Partnerships: Analysing US Programmes

*Charles Wessner, National Research Council, Washington*

Federal R&D Support to SMEs in Germany

*Andreas Fier, ZEW*

Public Policy and the Recent Evolution of Venture Capital in Europe

*Georg Licht, ZEW*

### **Panel II: Technology Transfer: From the Laboratory to the Marketplace**

*Chair : Kurt Hornschild, DIW Berlin*

Seeking Low Cost Innovation: Support for Small Business at the Department of Defense

*John Horrigan, National Research Council, Washington*

Speeding Commercialization of Department of Defense SBIR Projects

*Peter Cahill, BRTRC*

Interaction of Universities and Industrial Enterprises in Germany and the United States – A Comparison

*Ulrich Schmoch, FhG-ISI, Karlsruhe*

### **Panel III: Stimulating Entrepreneurship at Universities**

*Chair : Jim Turner, House Science Committee, Washington DC*

Changing Career Paths: Researchers to Entrepreneurs – The Impact of SBIR Awards

*David Audretsch, Indiana University, Baltimore*

Stimulating Entrepreneurship at German University: The EXIST Programme  
*Uta Paffhausen Valente da Cruz, German Federal Ministry of Education and Research (BMBF)*

**Panel IV: Sectoral and Regional Perspectives of SME Support**

*Chair : David Audretsch, Indiana University*

The Role of Department of Defense SBIR Awards in Building Biotechnology Expertise  
*Maryann Feldman, Johns Hopkins University, Baltimore*

Patterns of Firm Participation in the SBIR Programme in Southwestern and Mountain States  
*Reid Cramer, Office of Management and Budget, Executive Office of the President*

**Panel V: R&D and Investment Spillovers**

*Chair : Max Keilbach, ZEW*

R&D Spillovers in German Industry  
*Dietmar Harhoff, University of Munich*

Fostering Enabling Technologies: The Role of the Advanced Technology Programme  
*Marc Stanley, National Institute of Standards and Technology*

**Panel VI: Roundtable on Current Policy Issues**

*Chair : Georg Licht, ZEW; Charles Wessner, National Research Council*

Panelists:

Marc Stanley, National Institute of Standards and Technology

James Turner, House Science Committee

David Audretsch, Indiana University

Hans Wirth, German Federal Ministry of Economics and Technology (BMWi)

Johannes Velling, German Federal Ministry of Education and Research (BMBF)

## MIP User Conference – Scientific Research with the Mannheim Innovation Panel

On May 5th and 6th 2000, the first conference for the users of the data of the Mannheim Innovation Panel (MIP) was held at the ZEW. This conference was organized in conjunction with the scientific advisory board of the ZEW innovation surveys. Wolfgang Franz, president of the ZEW, and Hans Georg Gemünden, University of Technology at Berlin and chairman of the advisory board, emphasized the importance of the MIP for empirical innovation research.

The Mannheim Innovation Panel: Survey Methodology and Empirical Research  
*Norbert Janz, ZEW*

Innovations in the Service Sector: Typology and Industrial Classification  
*Hariolf Grupp, FhG-ISI, Karlsruhe; discussant: Marian Beise, ZEW*

Panel Estimation of Export Activities in the Service Sectors: Empirical Results from the Mannheim Innovation Panel  
*Günther Ebling, ZEW; discussant: Martin Falk, ZEW*

Innovative Firms Show Sluggish Demand for Non-Academic Skilled Workers  
*Peter Jacobebbinghaus, ZEW; discussant: Arnd Kölling, IAB Nürnberg*

The Impact of Innovations on Private Sector Further Training  
*Johannes Ludsteck, ZEW; discussant: Joachim Inkmann, University of Konstanz*

The Role of the Quality Standard ISO 9000 for Innovative Service Firms in Germany  
*Knut Blind, FhG-ISI, Karlsruhe; discussant: Christian Rammer, ZEW*

Implementaion of Innovations: Do Not Count on Your Employees But with Them  
*Thomas Zwick, ZEW; discussant: Michael Fritsch, University of Technology, Freiberg*

Financing Constraints and the Timing of Innovations in the German Service Sector  
*Martin Kukuk, University of Tübingen; discussant: Bettina Peters, ZEW*

Econometric Analysis of Anonymized Micro-Data: Basic Problems and Applications with MIP-Data  
*Sandra Gottschalk, ZEW*

The Impact of Vertical R&D Cooperation on Firm Innovation: An Empirical Investigation  
*Najib Harabi, Olten School of Economics; discussant: Georg Licht, ZEW*

Innovation and Market Exit: Evidence from Panel Data under Conditional Mean Independence  
*Winfried Pohlmeier, University of Konstanz; discussant: Irene Bertschek, ZEW*

Research Cooperations and Research Expenditure with Endogenous Absorptive Capacity: Theory and Microeconomic Evidence for the German Service Sector  
*Ulrich Kaiser, ZEW; discussant: Harald Stahl, Deutsche Bundesbank*

An Empirical Test of Asymmetric Models on Innovative Activity: Who Invests More into R&D – the Incumbent or the Challenger?  
*Kornelius Kraft, University of Essen; discussant: Max Keilbach, ZEW*

## Fiscal Competition and Federalism in Europe

The current discussion on federalism in Germany and Europe in the context of increasing fiscal competition between states or regional jurisdictions was a motive for the ZEW to organize on June 2-3, 1999, the following conference:

### Invited Lectures

Fiscal Competition and European Union: Contrasting Perspectives  
*Wallace E. Oates, University of Maryland; discussant: Gebhard Kirchgässner, University of St. Gallen*

Factor Mobility and Fiscal Policy in the EU: Policy Issues and Analytical Approaches  
*David E. Wildasin, Vanderbilt University, Nashville; discussant: Kai A. Konrad, Freie Universität Berlin*

Local Revenue Hills: A General Equilibrium Specification with Evidence from Four US Cities  
*Robert P. Inman, Wharton School, University of Pennsylvania, Philadelphia; discussant: John M. Quigley, University of California, Berkeley*

Generational Accounting and Immigration in the United States  
*Alan J. Auerbach, University of California; discussant: Wolfgang Wiegard, University of Regensburg*

### Contributed Papers

Harmonization of Corporate Income Taxation in the EU (*Bernd Genser, Andreas Haufler, University of Konstanz*)

Tax Competition and Tax Coordination in a Median Voter Model (*Clemens Fuest, Bernd Huber, University of Munich*)

Fortress Building in Global Tax Competition (*Kai A. Konrad, Freie Universität Berlin*)

Budget Constraints and Tax Competition: Empirical Analysis of Local Tax Policy in Germany (*Thiess Büttner, ZEW*)

A Model of Welfare Competition with Evidence from AFDC (*Luz A. Saavedra, University of South Florida*)

Income Tax Competition at the State and Local Level in Switzerland (*Lars P. Feld, Gebhard Kirchgässner, University of St. Gallen*)

Interjurisdictional Competition and Public Infrastructure (*Kersten Kellermann, University of Zurich, Carsten-Henning Schlag, Institute for Business Cycle Research, Swiss Federal Institute of Technology Zurich, ETH Zurich*)

Public Procurement in the Presence of Capital Taxation (*Alfons J. Weichenrieder, University of Munich*)

Government Debt Spillovers and Creditworthiness in a Federation (*Stuart Landon, Constanze E. Smith, University of Alberta*)

The Competition of Competition Laws (*Hans-Werner Sinn, CES, University of Munich*)

Double Bertrand Tax Competition: A Fiscal Game with Governments Acting as Middlemen (*Andreas Wagener, University of Siegen*)



Dr Rolf-E. Breuer, Spokesman of the Board of Deutsche Bank Group, speaking at the ZEW on new dimensions of competition in the EMU.

Tax Competition and Tax Structure in Open Federal Economies: Evidence from OECD Countries with Implications for the EU (*Timothy J. Goodspeed, Hunter College, CUNY, New York*)

Vertical Income Tax Externalities and Fiscal Interdependence: Evidence from the US (*Albert Solé Ollé, University of Barcelona*)

Federations' Alternative Tax Constitutions and Risky Education (*Panu Poutvaara, University of Helsinki*)

Pure Public Goods and Income Redistribution in a Federation with Decentralized Leadership and Imperfect Labour Mobility (*Richard C. Cornes, Keele University, Emilson C. D. Silva, University of Oregon*)

Government Decision-Making and the Incidence of Federal Mandates (*Katherine Baicker, Dartmouth College, Hanover*)

Public Good Mix in a Federation with Incomplete Information (*Richard C. Cornes, Keele University, Emilson C. D. Silva, University of Oregon*)

Optimal Secession Rules (*Massimo Bordignon, Università Cattolica Del Sacro Cuore, Milan*)

Endogenous Policy Decentralization: Testing the Central Tenet of Economic Federalism (*Felix Oberholzer-Gee, The Wharton School, University of Pennsylvania, Philadelphia*)

## 2<sup>nd</sup> ZEW Summer Workshop: Applied Public and Environmental Economics

On June 19-21, 2000, the ZEW held its annual summer workshop at its premises in Mannheim. Lectures and papers on the following subjects were presented:

### **Lectures by Key Speakers**

Unemployment and Taxation.  
Public Pension Reform: Efficiency and Redistribution.  
*Wolfgang Wiegard, University of Regensburg*

Fiscal Competition: Suburbs.  
Fiscal Competition: Cities.  
*Robert P. Inman, Wharton School, University of Pennsylvania, Philadelphia*

Partial Equilibrium Approaches to Externalities in the Transport Sector.  
General Equilibrium Approaches to Externalities in the Transport Sector.  
*Stef Proost, Center for Economic Studies, University of Leuven*

## **Papers by Young Participants**

Social Security Strategies and Redistributive Effects in European Social Transfer Systems  
(*Margit Kraus, ZEW*)

Capital Mobility Within the European Union (*Joeri Gorter, Netherlands Bureau for Economic Policy Analysis*)

Tax Administration Under Different Federal Settings: Leviathan or Benevolent? (*Alex Esteller-Moré, University of Barcelona*)

An Empirical Analysis of Vertical Tax Externalities: The Case of Personal Income Taxation in Canada (*Albert Solé-Ollé, University of Barcelona*)

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