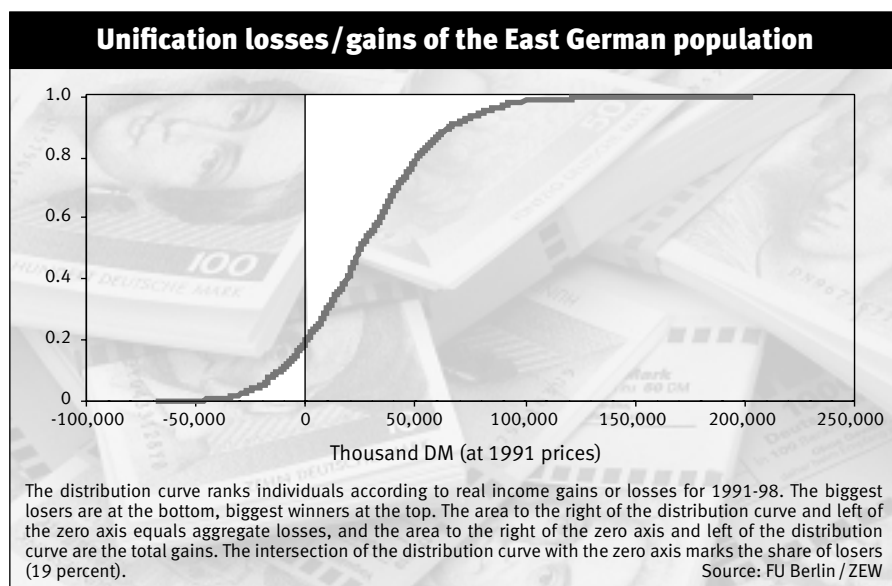


Eastern Germany: Large Income Gains Following German Reunification

Economists from the Free University Berlin and the ZEW have estimated the real income gains and losses among the eastern German population following German unification. Of the eastern German population 25 years and older at the time of unification, 19 percent were found to have experienced lower real income over the period 1991-98 than they would have had under a continuation of the old German Democratic Republic. The aggregate gains were estimated to have been ten times larger than the aggregate real income losses.



■ A recurring theme in the public debate regarding the successes and failures of German economic unification is the distribution of the economic gains and losses that have occurred in the meantime. While there is a broad consensus of the continued need for substantial transfers from the western to eastern states of unified Germany, there remains considerable controversy about both the appropriate scale as well as the effectiveness of the transfers. A critical empirical component has been missing from the entire debate: a reasonable measure of base-

line real income from which to measure gains and losses.

The unification gains estimated in this study compare the present value (as of the date of economic unification July 1, 1990) of the difference between the actual real income over the period 1991-98 for a sample of nearly two thousand east Germans compared to the real income that they could have expected under a continuation of the GDR.

The real income comparisons were carried out by using sophisticated price deflators that have been constructed to

correct for the quantity constraints and price subsidies/indirect taxes characteristic of the socialist system of central planning as well as differences in the general price level. It was found that 19 percent of the east German population above the age of 25 years and older at the time of German economic unification were real income losers following reunification. There are significant differences across age and gender categories in the incidence of unification loss. The highest incidence of unification losers (roughly 28 percent) was found among persons between the ages of 35 and 54 in 1990, the cohorts least able to react to the change in the mix of skills demanded under the new economic sys-

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Research Findings

tem. The biggest contrast is found with the experience of the cohorts 65 years and older in 1990 with an incidence of unification losses of only about one percent. These cohorts were able to immediately enjoy the benefits of the new higher pension benefits under the German social union simultaneously introduced with the monetary and economic union of 1990.

Particularly unique in the study is that it goes beyond the counting of winners and losers and attempts to measure the heights of the gains and the depths of the unification losses. When the aggregate real income gains are compared to

the aggregate real income losses, the gains are found to exceed the losses by a factor of ten. In current prices the average loss of the 19 percent unification losers is equal to DM 19,000 and the average gain of the 81 percent unification winners was DM 48,000. Expressed somewhat differently the average net gain of this sample amounted to two years of the average net real income in the GDR in 1990. For the retired population (65 years and older) the corresponding figure was almost 4.5 years of retirement income as a unification bonus. This relative magnitude suggests that it would have at least been theoretically

possible to have redistributed the unification income gains within eastern Germany to have avoided the unification real income losses that have taken place.

The bottom line from the examination of the real incomes of a sample of nearly two thousand east Germans between 1990 and 1998 is that the vast majority of eastern Germans can be counted among the material winners of German unification, though major differences in the distribution of gains and losses between age cohorts are clear as well. ◀

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ZEW Coordinates BLUEPRINT Network

The USA's withdrawal from the Climate Protocol of Kyoto demonstrated that environmental protection and economic growth turn into conflicting goals in times of economic downturns. Innovations and progress in environmental technology may help to resolve this conflict. This, however, requires an improved international harmonization of environmental and innovation policies. For this purpose the EU Commission established the network "Blueprint for an Integration of Science, Technology and Environmental Policy" (BLUEPRINT).

■ Numerous instances prove that innovation and environmental policies are interdependent. For that reason it makes hardly any sense to develop, for instance, three-litre-cars or fuel cell vehicles with high research costs, if no incentives are offered to consumers to purchase these environmentally progressive products. To increase the acceptance of environmental policy it is important that it is not unnecessarily expensive. In this context innovations can help to reduce the costs for environmentally sound vehicles and to improve product quality at the same time. The same applies, for instance, to the development of renewable energies and technologies of rational energy use in climate policy.

Against this background the European Commission as sponsor of the BLUEPRINT network promotes the development of the relevant science and

technology policy (S&T policy) in Europe. The network focuses on analysing S&T and environmental policy interaction, improving the dialogue, and intensifying partnerships between both areas. In addition, it plans the creation of an electronic network which will continue to function after project ended.

Incentives for Political Initiatives

Five workshops and a final conference will deal with the objectives of the BLUEPRINT network. The aim is to draw up after two and a half years a "blueprint" for the integration of science, technology, and environmental policy as a final result which will be presented and discussed at the final conference to give incentives for new political initiatives in Europe.

The core team of the network consists of five research institutes. The ZEW

coordinates the research activities. AVANZI from Milano, the Maastricht Economic Research Institute on Innovation and Technology (MERIT), the Queens University Belfast (QUB), and the Research Centre for the Environment and Health (GSF) in Munich are project partners. National delegates from member states, industry, other institutes, and the European Commission are also members of the network. The European Commission is integrated in the network as sponsor. A management committee and referee system will accompany the workshops and ensure the quality of contributions. At present, a homepage for the network is under construction. You may contact the ZEW for further information. The ZEW also provides information on individual workshops and accepts registrations for them and the final conference. ▶

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Research Findings

Innovations in Germany: Market Novelties Gain Greater Importance

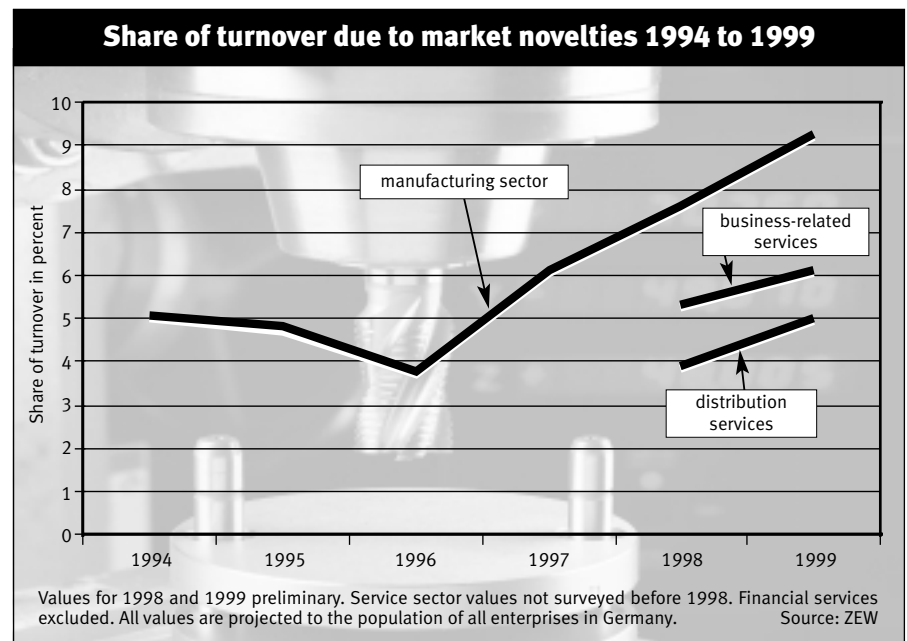
In 1999 the German economy has re-intensified its innovation endeavours. The markets have rewarded the companies' efforts. Turnover shares due to product innovations have risen in nearly all sectors. Against this background, market novelties are increasingly a crucial factor in the product portfolio. This was found in the latest innovation survey that the ZEW conducted on behalf of the Federal Ministry for Education and Research.

■ About 4.000 companies in the manufacturing and service sectors provided information on their innovation activities in the annual ZEW innovation survey. The results were projected to the population of all enterprises in Germany.

In 1999 the share of innovative companies increased in all sectors under review. This share has grown persistently in manufacturing and now reached 66 percent which is a high level even in international comparison. The share of innovators in the service sectors declined in the previous year, but then increased again: in the business-related services (such as banking, insurance, EDP, technical and consulting services) it rose to 64 percent, and in distribution services (trade and transport) to 60 percent. The overwhelming majority of enterprises seems to be well prepared to master economic slowdowns by introducing innovative products, services and production processes. This is reflected in the companies' innovation expenditure, which also increased substantially and amounted to DM 163 billion in 1999. The share of innovation expenditure in turnover remained fairly constant. Only business-related service providers have continuously increased their innovation expenditure in relation to turnover.

Market novelties gain importance

In the context of innovation activities market novelties are increasingly important. In 1999 more than 40 percent of the enterprises in the manufacturing sector introduced market novelties. In the service sectors the share of companies launching market novelties experienced a considerable increase, accompanied by a sharp upturn in research



and development activities. More than 35 percent of business-related service providers introduced new services onto the market. The turnover pattern reflects this development as well. In the meantime, more than nine percent of turnover in manufacturing is generated due to market novelties. In business-related and distribution services this turnover share was slightly lower: it amounted to a good six percent and approximately five percent, respectively. Nevertheless, compared to the previous year, turnover due to market novelties increased in these sectors as well. Until recently the German economy had some catching up to do in the European comparison when it came to market novelties. Now it belongs to the top group.

Innovation activities of East German enterprises correspond largely to West German activities. In 1999 East German enterprises were also able to score more

success with their innovations. Compared to the previous year their turnover share due to market novelties rose to more than seven percent. Nevertheless, it is still slightly below the West German reference value.

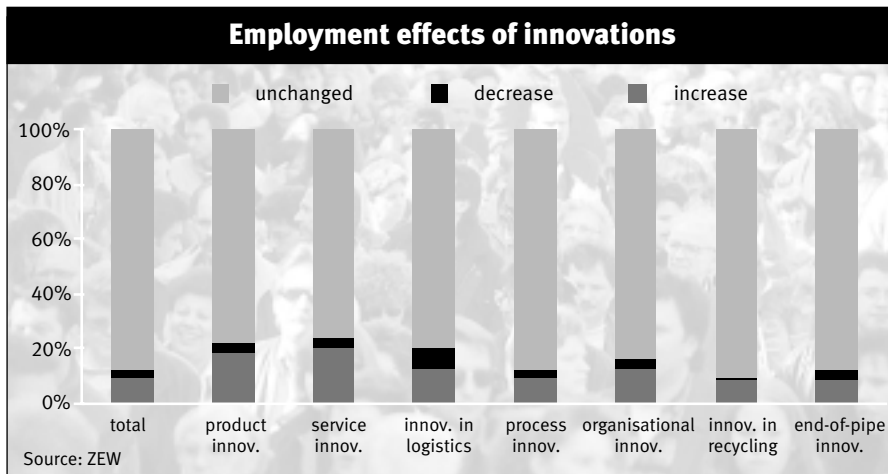
Business-related services, which are important for innovation activities, continue to be one of the weak points in the East German innovation system. In this sector crucial innovation indicators still lag far behind the nation-wide trend. Although, compared to the previous year, the share of innovative companies rose to 56 percent, it is still comparatively low, and innovation expenditure stagnates. The share of companies introducing market novelties and the related turnover shares have risen considerably, but started out at a very low level. Therefore one cannot say that East Germany has caught up with West Germany. ◀

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Research Findings

Ecological Products Create New Jobs

Political debate time and again raises the question to what extent the change towards a more environmentally sound production entails the creation of jobs. A recent study has shown that the number of jobs gained through environmental innovations is limited. However, when looking at the different types of innovation it is obvious that especially product integrated environmental protection has the potential to create new jobs.



■ The recently concluded research project "The Impact of Cleaner Production on Employment – A Study Using Case Studies and Surveys" (IMPRESS) investigates the employment effects of environmental innovations in detail. A total of 1,500 companies in Germany, England, Italy, the Netherlands and Switzerland were questioned about the employment effects of innovative actions in environmental protection. The actions included technical and organisational innovations.

The companies that participated in the interviews mainly carried out product or process integrated innovations and measures pertaining to the recycling system and waste disposal. 88 percent of the companies reported that environmental innovations had had no major impact on employment. Nine percent stated that the employment impacts had been positive. As many as three percent were of the opinion that the employment figures had decreased compared to the situation prior to the innovations.

When distributing the employment impacts to the various types of innovation, above average employment impacts can be identified for product and service innovations (18 percent and 20 percent respectively). Interestingly, in-

novations in recycling entail almost no negative employment impacts. This can be explained by the fact that recycling, as a rule, generates new levels of added value (collecting, separating, recycling) which involve a higher input of labour. The greatest rationalization effects are achieved in logistics, especially in the field of transportation. This result is plausible as any measures implemented in this field are not so much the consequence of government regulations but are rather inspired by business interests. Overall, however, the net employment impacts of innovations in the logistics sector show a slight upward trend.

In order to understand which effects environmental innovations have on the job market it is also important to know how company price and cost structures as well as sales volumes have changed. Statements given by the companies on prices, cost and sales volumes show a similar structure as the results regarding employment impacts. 82 percent of the companies did not notice any changes in prices or sales. Therefore we can conclude that the above-mentioned impacts of environmental innovations on employment due to rising or falling prices may be neglected. 16 percent indicated

that they had been able to achieve higher sales after introducing the innovation. Nine percent of the firms interviewed reported product price increases, with 60 percent of these companies stating that the price increases were below five percent.

When looking at cost structure a different picture is revealed, though. 34 percent of the companies were able to reduce their energy costs by introducing environmental innovations, 52 percent reporting savings of more than five percent. The cost effects of innovations with regard to the material used for production are less marked. 58 percent of the businesses questioned said that material costs had remained unchanged and in the other cases the changes were marginal. Thus material costs will hardly have any employment impacts.

Shift to integrated environmental protection is recommended

The IMPRESS study thus shows that environmental programmes and labour market policies do not de-rhyme. As environmental innovations only have minor employment impacts, however, one cannot expect environmental modernisation to make a substantial contribution to a reduction of unemployment. Nevertheless, the extent to which the different types of innovations have an effect on employment leads us to recommend a further shift from end-of-pipe technologies and clean-up measures to an integrated concept of environmental protection. Not only because it aims at reducing pollution and thus proves to be the best way to protect the environment, but also due to its potential to create jobs, in particular by developing products and services that are more beneficial to the environment. ◀

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Research Findings

Tax Burdens in Germany and the US

When comparing it to the USA, Germany’s tax competitiveness as an industrial site has markedly improved. As a recent ZEW-study shows, a German corporation in the manufacturing sector now has a tax burden disadvantage of only 0.2 percent. Specific tax burden differences were reduced in many sectors.

■ One of the intents of the tax reform recently implemented in Germany was to strengthen Germany’s competitiveness by reducing the tax burden of companies in Germany. The reduction of income and corporate tax rates was at the heart of the reform. Depreciation allowances were restricted to finance these measures, but still comply with international standards. In addition, the former full imputation system was replaced with a shareholder relief system under which individual shareholders will have to include only 50 percent of their dividends in their taxable income (half income system).

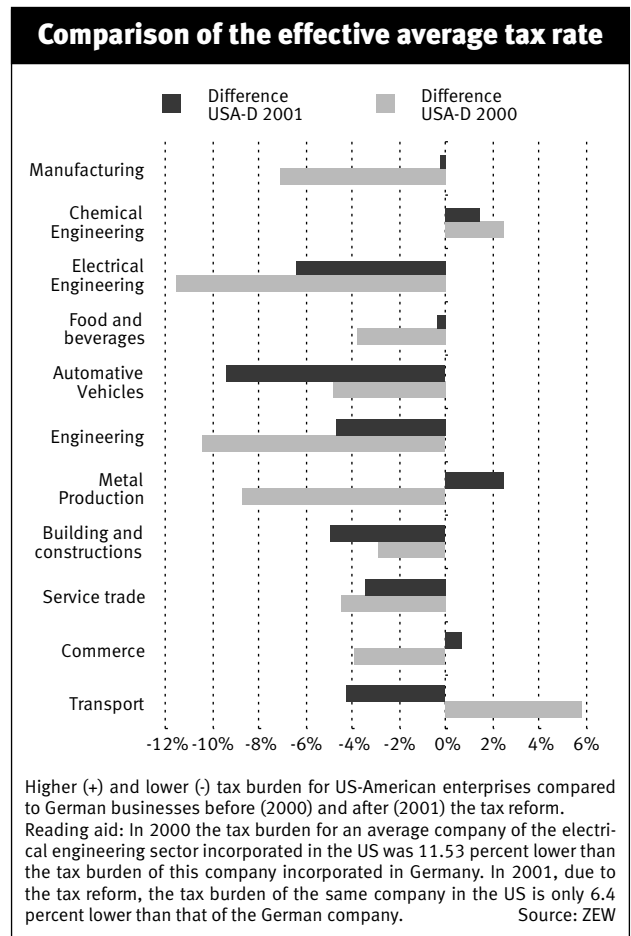
European Tax Analyzer

The ZEW determined the effects of the tax reform on the tax burden of corporations in Germany with the "European Tax Analyzer" and compared it with the tax burden on US-American corporations (incorporated in California) in order to evaluate the impact of these measures on the German tax burden on corporations and the competitive position of German enterprises compared to US-American businesses. The European Tax Analyzer is a computer simulation programme which the ZEW developed in cooperation with the University of Mannheim. It calculates and compares the tax burden for companies incorporated in different states and also includes their shareholders in the imputations.

Due to the reform the tax burden for a representative German corporation in the manufacturing sector (total assets: Euro 34.9 million, revenues: Euro 44 million, pre-tax profit: Euro 2.2 million) is now reduced by 6.97 percent. Thus, Germany’s fiscal disadvantage against the USA drops from 7.7 percent to 0.2 percent. Thereby nearly half of the measures taken in the reform to ease the tax burden are neutralized by the measures im-

plemented to finance the tax reform. Simulation calculations show that capital intensive enterprises suffer from the tax reform because they are strongly affected by the restrictions imposed on the depreciation allowances. On the other hand, enterprises distributing profits on a large scale are also relative losers of the reform. They benefit only from the five percent reduction of the corporate income tax rate on distributed profits from 30 to 25 percent and regularly bear the full burden of the tax reform financing measures.

In order to be able to evaluate the tax reform effects not only in individual cases, the ZEW assessed the enterprises in different sectors according to tax law in both countries and then compared their tax burdens. The graph shows that, prior to the tax reform, only enterprises in the chemical and transport sector had a lower German tax burden than their US-American competitors. Now, due to the tax reform, fiscal competitiveness of German companies deriving a relative advantage from the tax reform has improved: on the one hand companies with a low ratio of fixed assets that are active in sectors such as electrical engineering, service trade, and engineering benefit from the relief measures, but are hardly affected by the restrictions imposed on the depreciation allowances. And on the other hand enterprises retaining most of their earnings,



i.e. the average company in metal production or food and beverage industry, benefits from the 40 to 25 percent reduction of the corporate tax rate for retained earnings. The opposite is true for enterprises in the transport and automotive vehicle production sector. They derive a relative disadvantage from the tax reform, and their competitive position is weakened in the German-American comparison. All in all the German tax reform reduces sector-specific differences in tax burdens in most economic sectors and improves Germany’s competitive position compared to the USA. ◀

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ZEW Conference

The Economics of Information and Communication Technologies

■ On June 18-19, 2001 the first conference on "The Economics of Information and Communication Technologies" took place at the ZEW. More conferences on this topic are planned. With the assistance of the scientific committee, consisting of Erik Brynjolfsson (MIT), Georg Licht (ZEW), Frank Lichtenberg (Columbia University), Franco Malerba (Bocconi

tors with higher ICT intensity show significantly higher productivity growth. Thomas Heckel (INSEE) found evidence that the diffusion of computer technologies accelerated economic growth and reduced price inflation in France. Francesco Daveri (University of Parma) confirmed these results on the basis of a data set for several European countries

concentrated on specific markets, such as the Dutch communications market, the implication of e-commerce on the German used-car market, or the demand for Internet portals.

The third plenary session attended to different kinds of ICT use. On the basis of an empirical analysis for 34 different U.S. sectors Ishaq Nadiri (New York University) demonstrated that the communications infrastructure generates, inter alia, via network effects positive and significant output and productivity growth. Amil Petrin (Chicago University) estimated on the basis of U.S. micro data that a transition from cable TV to satellite transmission will lead to an average welfare increase of \$ 50 per user and year, amounting to a total of \$ 450 million per year.



The participants of the ZEW-conference "The Economics of Information and Communication Technologies".

University of Milano), Konrad Stahl (University of Mannheim), and Jack Triplett (The Brookings Institution), the ZEW drew up a comprehensive, high-quality programme. The ZEW welcomed 70 participants from Germany, Europe, and the US to this conference. It gratefully acknowledges financial support by the Volkswagen Foundation.

The papers presented

The aim of the conference was to examine the economics of information and communication technologies (ICT) from different angles, to present the status of research, and to identify new fields of research. The 30 papers that were presented dealt with the microeconomic and macroeconomic aspects of ICT and ranged from purely theoretical to empirical and econometric research work.

In the first plenary session Kevin Stiroh (Federal Reserve Bank) demonstrated on the basis of US data that sec-

and identified large differences between IT investments inside these countries as well as between these countries and the US.

The second plenary session was devoted to theory and dealt with the influence of ICT on the pattern of competition. Patrick Legros (Free University of Brussels) showed that an increase in E-Commerce reduces product diversity in retail trade. Depending on the market structure product prices may rise or fall. Bruno Jullien (University of Toulouse) presented a game theoretic approach to price differentiation in competing networks.

The following parallel sessions addressed questions of market dynamics under network externalities, incentive systems in the production of Copyleft software, the impact of ICT on productivity, the diffusion of the PC and the diffusion of PC operating systems, the determinance of the vacancy rate of ICT workers, and price strategies on digital markets. Other parallel sessions con-

Challenges for future research

This last plenary session was followed by a panel discussion on "Challenges for the Economic Research on ICT" led by Dietmar Harhoff (University of Munich). Panel members were Georg Licht, Konrad Stahl, Scott Stern (MIT Sloan School), and Jack Triplett. Stahl addressed aspects playing, in contrast to traditional microeconomics, an important role for ICT, such as competition between different auction mechanisms, the risk of information flood, and the trade-off between intermediation and disintermediation on digital markets. In his statement Stern emphasized the importance of macroeconomic and microeconomic studies and stressed the importance to link empirical analyses closely with theoretical bases. Licht pointed out the implications of the growing diffusion of ICT on the labour market and the effects of ICT on R&D systems. Triplett pointed out the importance of correct price measurements in the context of ICT.

The programme can be viewed at www.zew.de/ict-conference where all conference papers are made downloadable. ◀

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ZEW Financial Market Test

Results of the Survey in July 2001

■ The Financial Market Test conducted by the ZEW is a monthly business survey of German financial market experts which started in December 1991. The survey asks for the predominant expectations about the development in six international financial markets.

As a whole around 400 experts take part in the survey. 270 of them work in banks, 50 in insurance companies, 40 in investment companies and 40 in other industries. Participants in the survey are

financial experts of the finance departments, the research departments and the economic departments as well as the investment and securities departments of the firms. In detail, the financial experts are questioned on their medium term expectations about the development of important international financial markets with respect to the business cycle, the inflation rate, short term and long term interest rates, the exchange rate and share prices.

To construct forecasted figures, the qualitative response categories (increasing, unchanged, declining) are transformed into quantitative figures by the Carlson/Parkin procedure. Additional information to the applied procedure is available as an abridged version published by the ZEW. The present survey was conducted between July 2, 2001 and July 17, 2001 and all calculations are termed to July 20, 2001. ◀

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Reform of the Governing Council of the ECB

■ The task of the European Central Bank (ECB) is often more difficult than outsiders perceive: It needs to conduct a coherent monetary policy for twelve heterogeneous countries. Ireland, for example, with its booming economy has a markedly different set of monetary preconditions than Germany which is currently suffering from a decline in the business cycle. Therefore each country was given equal voting rights when the decision making body for monetary policy in the ECB was designed. In addition to the six members of the Executive Board the Governing Council of the ECB currently consists of the heads of all national central banks. Assuming that these national representatives tend to base their decisions on the respective national conditions rather than the overall European needs, one can easily imagine the disputes arising during the meetings.

This situation and the potential Eastern enlargement of the European Monetary Union gave rise to include the question whether the current decision making process is practical in the long run in the most recent Financial Market Test of the ZEW. An overwhelming majority of 71 percent of the analysts disagree. Still one quarter of the participants favours the current model. As a plausible alternative to the present system the partici-

pants favour the weighting of the votes by the gross national product or a similar indicator. Still 28 percent of the financial analysts favour a system based on rotation similar to that of the US Federal Reserve. There the decision making body, the Federal Open Market Committee, consists of twelve members. Five of them are delegated by the regional Reserve Banks which are assigned for a period of one year. An exception to this is the New York Fed which holds one of these regional seats permanently. In relation to Europe such a rotational system would be suitable especially for smaller states (such as Ireland, Portugal, or Luxembourg). ◀

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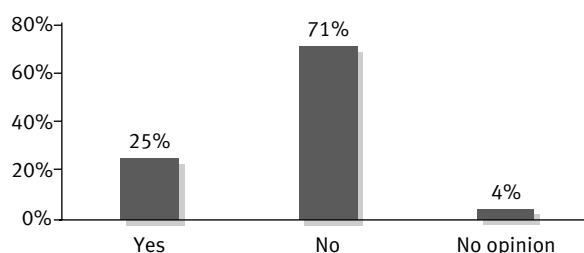
Composition of the Governing Council of the ECB

The Governing Council of the ECB consists of the six members of the Executive Board

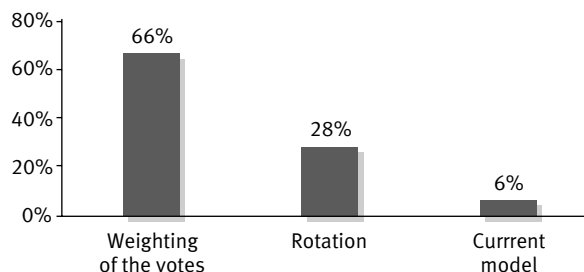
- ▶ Willem F. Duisenberg (President)
- ▶ Christian Noyer (Vice-President)
- ▶ Eugenio Domingo Solans
- ▶ Sirkka Hämäläinen
- ▶ Otmar Issing
- ▶ Tommaso Padoa-Schioppa

and the currently twelve presidents of the national central banks. All members have equal voting rights. In the situation of a stalemate the vote of the president decides.

Do you think the current model of the Governing Council of the ECB with 18 members is practicable?



Which alternative to the current system would you prefer?



Total number of replies: 280.

ZEW Conference

Price Indices and the Measurement of Quality Changes

November 8-9, 2001 in Mannheim, Germany

This is a joint conference of the ZEW and the Federal Statistical Office Germany on the impact of quality change and new products on economic measurement. The conference's objective is to bring together statisticians, academics and others using price statistics. Recent scientific contributions on the issue of quality measurement are discussed together with experiences from the day-to-day use of applied statistics.

Topics of interest

Measurement of Quality Change · Hedonic Price Indices · Implementation Issues

Organizers

Dietmar Moch (ZEW) · Johann Szenzenstein (Federal Statistical Office Germany) · Jack Triplett (The Brookings Institution, Washington D.C.)

For further **information**, please correspond to the address given below or visit the conference home page.

Attn. Dietmar Moch

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ZEW Publications

■ Discussion Papers

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Falk, Martin: *Organizational Change, new Information and Communication Technologies and the Demand for Labor in Services*, No. 01-25.

Frondel, Manuel: *Rejecting Capital-Skill Complementarity at all Costs*, No. 01-27.

Stirböck, Claudia: *Agglomeration Tendencies in EU Regions: Where Does Capital Go?*, No. 01-28.

Beblo, Miriam; Collier, Irwin L. ; Knaus, Thomas: *The unification bonus (malus) in postwall Eastern Germany*, No. 01-29.

Köke, Jens: *Determinants of Acquisition and Failure: Stylized Facts and Lessons for Empirical Studies*, No. 01-30.

Kaiser, Ulrich: *Product Innovation and Product Innovation Marketing: Theory and Microeconomic Evidence*, No. 01-31.

Bertschek, Irene; Kaiser, Ulrich: *Productivity Effects of Organizational Change: Microeconomic Evidence*, No. 01-32.

Boockmann, Bernhard; Hagen, Tobias: *The Use of Flexible Working Contracts in West Germany: Evidence from an Establishment Panel*, No. 01-33.

Czarnitzki, Dirk; Kraft, Kornelius: *Firm Leadership and Innovative Performance: Evidence from Seven EU Countries*, No. 01-35.

Puhani, Patrick A.: *Wage Rigidities in Western Germany? Microeconomic Evidence from the 1990s*, No. 01-36.

Entorf, Horst; Winker, Peter: *The Economics of Crime: Investigating the Drugs-Crime Channel. Empirical Evidence from Panel Data of the German States*, No. 01-37.

Bell, Una-Louise: *Labour Reallocation During Transition: The Case of Poland*, No. 01-38.

Gottschalk, Sandra; Janz, Norbert: *Innovation Dynamics and Endogenous Market Structure. Econometric Results from Aggregated Survey Data*, No. 01-39.

Linzert, Tobias: *Sources of German Unemployment: Evidence from a Structural VAR Model*, No. 01-41.

Hess, Dieter; Lüders, Erik: *Accounting for Stock-Based Compensation: An Extended Clean Surplus Relation*, No. 01-42.

Falk, Martin: *What Drives the Vacancy Rate for Information Technology Workers?*, No. 01-43.

Artola, Concha; Bell, Una-Louise: *Identifying Labour Market Dynamics Using Labour Force Survey Data*, No. 01-44.

Boeters, Stefan: *Green Tax Reform and Employment: The Interaction of Profit and Factor Taxes*, No. 01-45.

Rennings, Klaus; Ziegler, Andreas; Zwick, Thomas: *Employment Changes in Environmentally Innovative Firms*, No. 01-46.

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