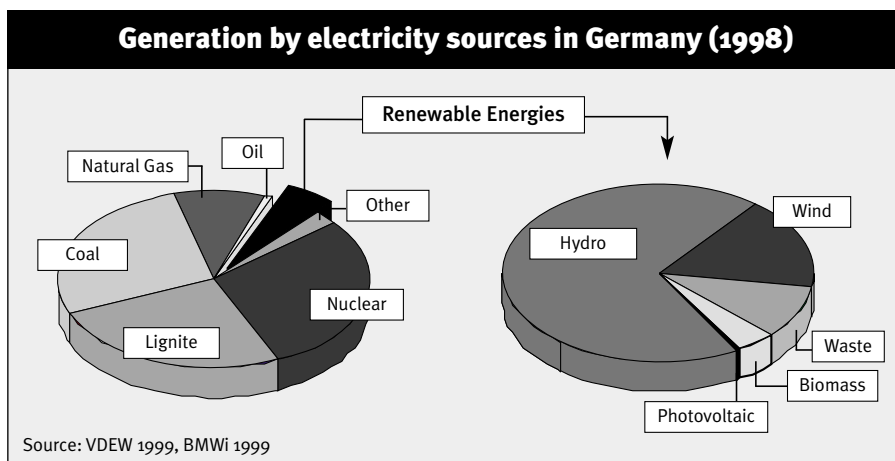


## Support Schemes for Renewable Energies in Liberalising Electricity Markets

For more than a year, the issue of regulatory policies for electricity generation from renewable sources of energy has been high on the political agenda of the EU and most of its Member States. Support mechanisms based on guaranteed minimum payments to the electricity generators, as under the German Electricity Feed Law (EFL), are not considered compatible with liberalising markets. The ZEW has been involved in this debate through projects commissioned by the European Commission and the German state of Baden-Württemberg.



Most renewable energy options are currently uncompetitive without a respective regulatory framework. Yet, they are politically preferred, in particular for environmental and resource policy reasons. The European Union (EU) and, in Germany, the Federal Ministry for the Environment set the indicative target of at least doubling the market share of renewable energies by 2010.

Three types of support policies are at the centre of the public and academic discussion: fixed feed-in tariff, bidding and renewable portfolio standard schemes. In the past, regimes with a purchase obligation for electricity from renewable energy sources with legally guaranteed (minimum) tariffs (e.g. EFL) have been predominant in EU Member States. Bid-

ding systems like in England, where power purchase contracts are awarded to investors in generation capacities of selected technologies on the basis of competitive tenders, have been implemented less frequently.

The financing mechanism and the compensation rules have been controversial parameters of the German EFL since the very beginning. The EFL does not provide for a time limitation nor for a

gradual degeneration of the feed-in tariffs; the respective distribution and transmission companies, i.e. their customers, carry the financial burden. This leads to market distortions, while in addition not involving the polluters-pay principle.

In view of liberalising electricity markets and rather ambitious targets for a large-scale market penetration of renewable energy technologies, a renewable portfolio standard scheme (RPS) coupled with 'green' certificate trading has gained supporters all over Europe. The ZEW together with the German utility Hamburgische Electricitäts-Werke (HEW) have recently carried out a workshop on the design possibilities of quota systems and possible transitional solutions for Germany.

The primary objective of a quota-based policy is to increase the amount of electricity generated from renewable energy resources to a legally set minimum percentage within a certain time period. The obligation has to be fulfilled by a specific group of the electricity

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supply sector, be it suppliers or final customers. Green certificates are issued to renewable electricity producers that state the type, date, location, quantity and optionally other characteristics of the renewable electricity they have generated. However, the main idea of a

quota-based tradable green certificate system is that two markets are created, one for electricity generated from renewable sources and one for green certificates, i.e. for the 'greenness' or other additional benefits of renewables. The two products can be sold separately or

as a package. The first product, electricity, competes with electricity produced from conventional sources; on the second market, certificates are traded either via bilateral contracts or on a power exchange. ◀

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# Corporate Taxation and IAS

So far, the International Accounting Standards (IAS) have not been adopted within the rules for determining corporate taxable profits in Germany. However, it is probable that in future, international accounting methods will influence German accounting practice, which will, in turn, have an impact on the corporate tax burden.

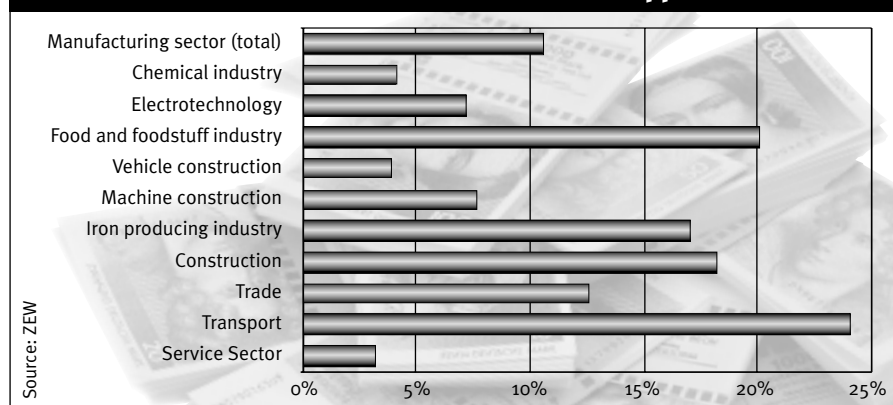
■ In a new study, the ZEW and the University of Mannheim examined the consequences resulting from the adoption of the IAS into German commercial and tax accounting. Using the European Tax Analyzer, calculations concerning the change in the corporate tax burden were made for the case of a transition to an IAS-based determination of taxable income. For eleven average firm types, an unrestricted application of IAS principles

asset and inventory values. Conversely, the situation would improve with increasing staff requirements.

Through the freedom in the application of the so-called authoritative principle, a term from German accounting practice referring to the fact that commercial financial statements represent the authoritative basis for the tax accounts, it is basically at the discretion of German legislation to determine the

ing principles. Conversely, a departure from the authoritative principle with regard to the pension liabilities, i.e. a continued application of § 6a of the German Income Tax Law, would lead to a significant increase in the tax burden compared to existing accounting practice and also to a tax increase in comparison to IAS-based profit determination. If both departures were adopted, this would also result in an increase in the tax burden. However, this increase would be somewhat lower than with full adoption of the IAS.

### Increase in the tax burden with unrestricted application of IAS



would have resulted in significant increases in the tax burden compared to the legal situation in Germany as of 1998. In this study, the service sector can be regarded as the relative winner with an increase of 3.2 percent in the tax burden, while transport was the biggest loser with an increase of 24.0 percent. The results show that with a transition to profit determination according to IAS principles, firms would have increasingly more tax disadvantages the higher their

extent to which IAS should influence the revenue tax base and thus the corporate tax burden. This means the authoritative principle can be kept without restrictions, abandoned completely or abandoned occasionally. For the majority of firms, partial departures from the authoritative principle when netting-off depreciation on the basis of the income tax regulations of 1998 (§ 7 German Income Tax Law) would lead to a reduction in the tax burden compared to existing account-

### Corporate tax burden increases

An introduction of IAS would increase the corporate tax burden, and the short-term effects could threaten the existence of firms and would thus require generous temporary transitional provisions. However, the expediency of the authoritative principle for tax purposes should not be assessed in terms of these financial consequences. Moreover, with revised commercial accounting principles, the tax authorities would have the opportunity to influence the corporate tax burden and the amount of aggregate economic tax revenues by means of occasionally abandoning the authoritative principle or through a respective determination of tax brackets. Under these conditions the application of international accounting standards could be realised more or less without affecting tax revenues. ◀

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## Research Results

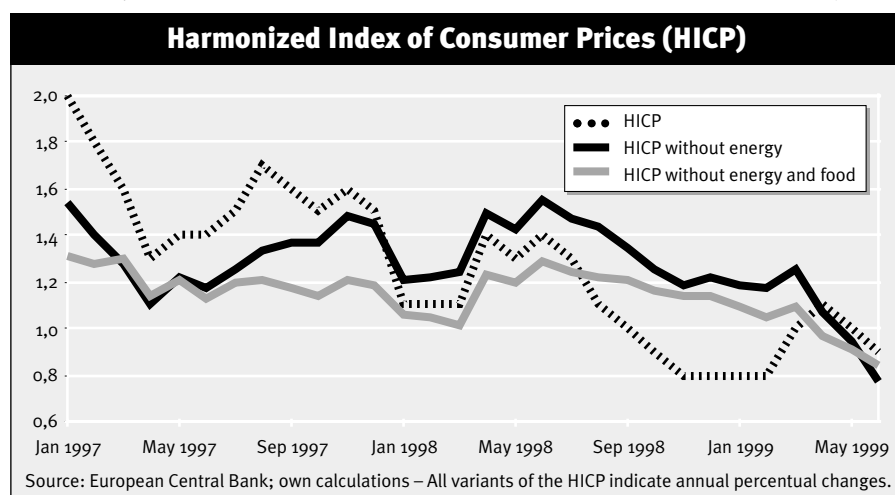
# Measuring Core Inflation

Over the past decade central banks have tended to place increasing importance on controlling inflation and fostering policy credibility. The measurement of inflation has an important role to play both in the formulation of policy aimed at controlling inflation and in providing policy accountability. The concept of core inflation is an attempt to identify the major components of price inflation.

■ Virtually all efforts to measure core inflation can be seen as trying to quantify one of two concepts. The first concept views core inflation as the persistent component of measured inflation. The second views core inflation as the generalised component of measured inflation.

systematic re-weighting of price series in the Consumer Price Index (CPI). The normal expenditure-based weighting system in the CPI is systematically down-weighted or particular price series are excluded. Many countries publish measures of core inflation based on system-

which are arranged by their inflation rate with their corresponding weight. These weights are then added together. The inflation rate of the component where the cumulated weights achieve the value 0.5, is taken as the weighted median. The weighted medians are calculated for each point of time and lined up to get the trend of core inflation. In order to get trimmed means, a specific percentage of the distribution of inflation rates is trimmed. The remaining inflation rates are used to calculate a new mean with new weights. The largest price changes in the distribution are zero weighted.



The concept of persistent inflation defines core inflation as a component of measured inflation that has no medium-to long-term impact on real output. Thus, it must be the component of inflation that reflects inflation expectations. Disturbances having only a transient impact on inflation are not considered. In the second concept of core inflation, measured inflation is viewed as comprising a generalised or core inflation component, which is associated with expected inflation and monetary expansion, plus a relative price change component, mainly reflecting supply disturbances. Most central bankers tend to talk about core inflation in such terms, defining core inflation as the aggregate inflation excluding a variety of items whose price movements are likely to distort the more general trend of other prices.

The most common method of defining a measure of core inflation is the

atical exclusion (i.e., zero weighting) of prices of items that are either particularly volatile or that are regarded as primarily supply-determined. Typically, the excluded items involve energy and fresh food. The chart shows some examples for this method. As can be seen, the variances of the calculated series are less than for the HICP series. Moreover, this core inflation rate fluctuates above or below the inflation rate of the HICP. Currently relative changes in percent of the HICP remain above the core inflation rates due to increasing energy prices.

An alternative method is based on limited influence estimators. Series to be eliminated are now identified by an analysis of the distribution of the changes of each price component. Weighted means or trimmed means allow the exclusion or down-weighting of outliers. The median is calculated using selected subgroups from a basket of goods,

### Core inflation as sole target?

A verifiable measure of core inflation should be capable of considering value in communicating policy and providing policy accountability. It can be helpful in backward-looking accounting for deviations of inflation from the targets as a result of supply disturbances. If a deviation occurs as a result of a supply shock, a measure of inflation that identifies such shocks will help to prevent the public from misinterpreting the deviation as an indication for a weakening of the central bank's commitment to the inflationary target. This will minimise the risk that the shock will raise inflation expectations.

However, the core inflation rate must not be the sole policy target: For example, households react to the total inflation rate rather than considering special developments in the components of prices. Trade unions refuse to accept a lower income in real terms because of increased rates for indirect taxes. Furthermore, the effect of a monetary policy based on a core inflation rate on the formation of inflation expectations still remains controversial. ◀

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## Research Results

# Collective Agreements and Wages in Business-related Services

The formation of the service union „ver.di“ planned in Germany for November has cast a spotlight on the wage bargaining for business-related services: To what extent is collective bargaining distributed in this sector? How are basic wage rates determined if there is no collective agreement? Do firms, which do not pay according to a collective agreement, pay additional remuneration more frequently than firms bound by a collective agreement? These questions were examined during the latest Service Sector Business Survey conducted by the ZEW and Creditreform.

■ In cooperation with the Verband der Vereine Creditreform in Neuss (Germany), the ZEW interviewed more than 1,100 business-related service providers in June and July 1999.

Due to a lack of reliable data on the number of employees within the individual areas of the business-related service sector, the values published by the ZEW and Creditreform do not refer to the number of staff, but to the turnover generated by business-related services. This does not represent a major restriction, since in this particular economic sector, employment and turnover are directly related to each other.

Compared to traditional service sectors like trade or transport, business-related service providers are rarely bound by collective agreements. Only about a third of the turnover generated by this economic sector was made by firms bound by collective agreements. In

this context, small business-related service providers less frequently apply collective agreements than large ones. For reasons of comparison, according to data of the Institute for Employment Research (IAB) in Nuremberg in Western Germany, approximately 70 percent of employees in trade were subject to industrial collective agreements in 1997, in Eastern Germany 43 percent.

The main reason for the low degree of subjection to collective agreements of business-related service providers is that for many industries in this sector, a collective agreement simply does not exist. Thus, 30 percent of the turnover of business-related services was generated by firms stating that for their industry there existed no collective agreement. 37 percent of business-related service providers do not conform to a collective agreement although there is one.

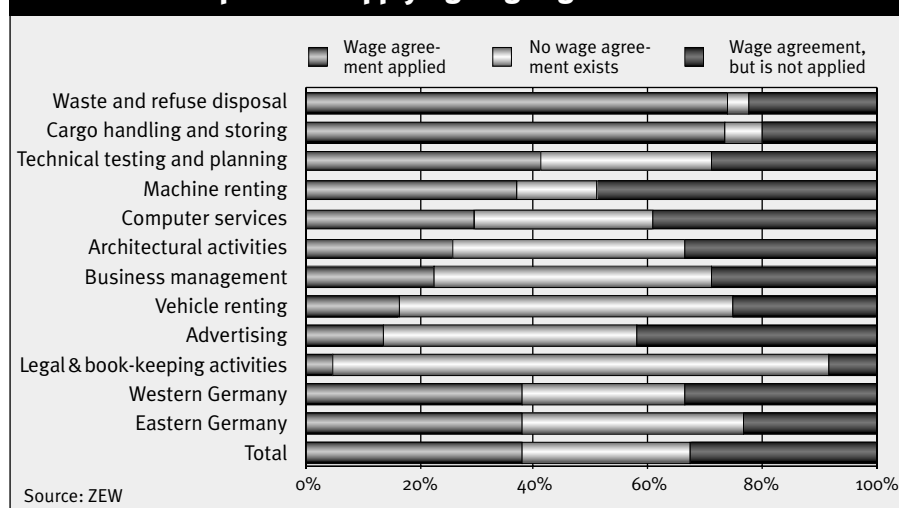
There are, however, substantial differences between the individual business-related service industries. While collective agreements are generally adopted by the more traditional industries like cargo handling and storing, as well as waste and refuse disposal firms, only few advertising firms and vehicle rental firms pay collectively agreed basic rates. Tax consultants and auditors hardly ever pay according to collective agreements.

### Performance-related pay

Business-related service providers which are not applying a collective agreement regulate the basic remuneration above all in the working contracts of the individual employees: 88 percent of the total service revenues are generated by these firms. About four percent of the total service revenues are generated by firms that pay according to a company-related agreement. The remaining percentage of firms pays according to both general company-related agreements and to specific agreements in individual working contracts.

About 92 percent of the revenues of business-related services are generated by firms which pay additional remuneration, independently of whether they pay according to a collectively agreed rate. However, firms not subject to collective agreements pay additional remuneration far more frequently to certain groups of employees than firms bound by a collective agreement. The latter firms direct such additional payments to both individuals and to the complete workforce alike.

**Percentage in the turnover of business-related service providers applying wage agreements**



## Wissenschaft für die Praxis

### ZEW und Heidelberger Druck entwickeln „Global Sourcing Management-Tool“

■ Die Internationalisierung der Wirtschaft zwingt immer mehr Unternehmen zu einer Internationalisierung ihrer Beschaffungsaktivitäten. Wie aber lassen sich die international wettbewerbsfähigsten Beschaffungsmärkte ermitteln? Vor dieser Frage stehen vor allem Unternehmen, die am Anfang der Internationalisierung ihrer Beschaffungsaktivitäten stehen und bisher kaum über internationale Erfahrung verfügen. Sie sehen sich einer Vielzahl von Optionen ausgesetzt, der sie unternehmensintern häufig keine eigene instrumentelle Kompetenz entgegensetzen können. Aber auch die international erfahrenen Unternehmen sind gezwungen, ihre Internationalisierungsstrategien zu rechtfertigen und kontinuierlich zu überprüfen. In der Praxis existierten bisher keine Methoden, mit deren Hilfe die Wettbewerbsfähigkeit potentieller Lieferländer systematisch evaluiert werden konnten. Die zu berücksichtigenden Zusammenhänge wurden häufig als zu komplex eingeschätzt, und deshalb wurde der intuitiven und unternehmerischen Herangehensweise der Vorzug gegeben.

Das ZEW hat in Zusammenarbeit mit der Heidelberger Druckmaschinen AG das „Global Sourcing Management-Tool“ entwickelt, mit dessen Hilfe sich die Entscheidungskomplexität im internationalen Beschaffungsprozeß reduzieren läßt.

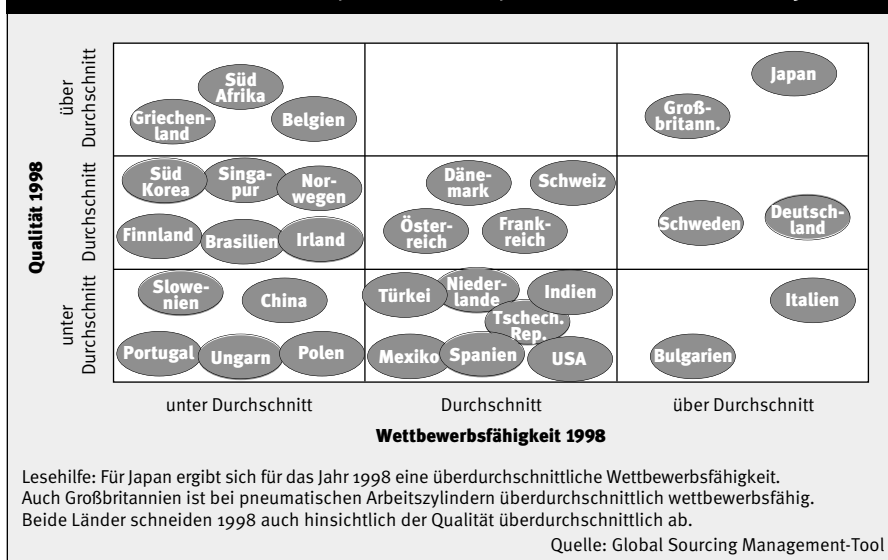
Auf Basis von Außenhandelsdaten von OECD oder EUROSTAT lassen sich für die 21.000 Produkte der internationalen Produktnomenklatur Indikatoren berechnen, die eine Bewertung der internationalen Wettbewerbsfähigkeit und der durchschnittlich gelieferten Produktqualität aller möglichen Lieferländer erlauben. Die Ergebnisse werden anschaulich in Portfolios abgebildet. Diese Vorselektion ermöglicht es den Unternehmen, die Suche nach potentiellen Lieferanten auf die selektierten Lieferländer zu beschränken. Hohe Suchkosten werden

dadurch reduziert. Für pneumatische Arbeitszylinder ist in der Grafik der Stand der Produktqualität und der Wettbewerbsfähigkeit der potentiellen Lieferländer auf dem europäischen Markt beispielhaft gegenüber gestellt.

Softwaretechnisch ist das „Global Sourcing Management-Tool“ entweder als Einzelplatzversion oder als Intranetversion verfügbar. Beide Systeme sind menügesteuert und ermöglichen die Suche nach Produkten in englischer, französischer und deutscher Sprache. ◀

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#### Qualitäts-/Wettbewerbsportfolio für pneumatische Arbeitszylinder



## ZEW-Neuerscheinungen

### ■ ZEW-Wirtschaftsanalysen/ Schriftenreihe des ZEW

Buslei, Hermann; Steiner, Viktor: *Beschäftigungseffekte von Lohnsubventionen im Niedriglohnbereich*. Band 42, 1999, Nomos Verlagsgesellschaft, Baden-Baden.

### ■ Discussion Papers

Ebling, Günther; Janz, Norbert: *Export and Innovation Activities in the German Service Sector: Empirical Evidence at the Firm Level*, No. 99-53.

Jacobs, Otto H.; Spengel, Christoph: *The*

*Effective Average Tax Burden in the European Union and the USA*, No. 99-54.

Spengel, Christoph: *Effective Marginal Tax Rates for US Investors in Germany and Europe – An Analysis of Recent Tax Reforms in Germany*, No. 99-55.

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Köke, Jens: *New Evidence on Ownership Structures in Germany*, No. 99-60.

Smolny, Werner; Winker, Peter; Radowski, Daniel: *Modeling German Unification in a Disequilibrium Framework*, No. 99-61.

## Research Results

# The Sports Ground as Market Square

Immense transfer costs and players' salaries amounting to millions of Euros are quite usual in professional football. Football clubs that want to keep up in this race have to rely on a corresponding inflow of capital from sponsors and advertising partners. This requires a high degree of popularity or bargaining power, both of which are dependent on the number of spectators a club can attract. A current study carried out by the ZEW in cooperation with the WHU Graduate School of Management in Koblenz shows which factors determine a club's popularity with spectators and thus its financial strength.

■ It is generally assumed that in team sports uncertainty of match or championship results causes suspense and accordingly serves as an explanation for varying attendance figures. The few financially powerful clubs that are in a position to invest large amounts of money in highly competitive and expensive players cause an imbalance within the league. Clubs that are not as well-off are forced into secondary positions, from a financial as well as a sporting point of view. If the theory of suspense proved right, spectator numbers would have to be lower when a league was

dominated by a few teams only since the results of most matches would be more predictable in advance. Many matches would lack the element of suspense which is the key reason why spectators go and watch the event in the stadium.

The study by ZEW and WHU, however, arrived to a surprising conclusion. According to the hypothesis of the role of suspense in sports, one would have expected that a match of two equally competitive teams attracted more spectators on the basis of result uncertainty than a match that was supposed to be already decided. The researchers of ZEW

and WHU, however, take the view that attendance figures depend on additional factors.

So do actual positions in the league table prior to a match play an important part in the attractiveness of an event. Whether the hosting team is at the top or bottom of the league table can make a difference of up to 8,000 spectators per match under otherwise identical conditions. Of further significance is the weather and the population size of the hosting teams' district. A 10 degree centigrade difference in temperature makes a difference of 2,200 in spectator numbers under otherwise identical conditions. For 100,000 inhabitants in a district, the hosting team can expect about 800 to come to the stadium.

A team's reputation and the loyalty of its supporters

depend largely on the team's past success, the size of its supporter clubs, and their geographical distribution. The higher the team's past positions in the league, the higher is the demand for tickets. Take, for example, a team that was promoted to the first football division in the last but one season; if that team won the championship in the last season, approximately 6,100 tickets more would be sold for a home game than there would have been if the team had ended the last season ranking tenth in the league table.

### Supporter clubs play an important role

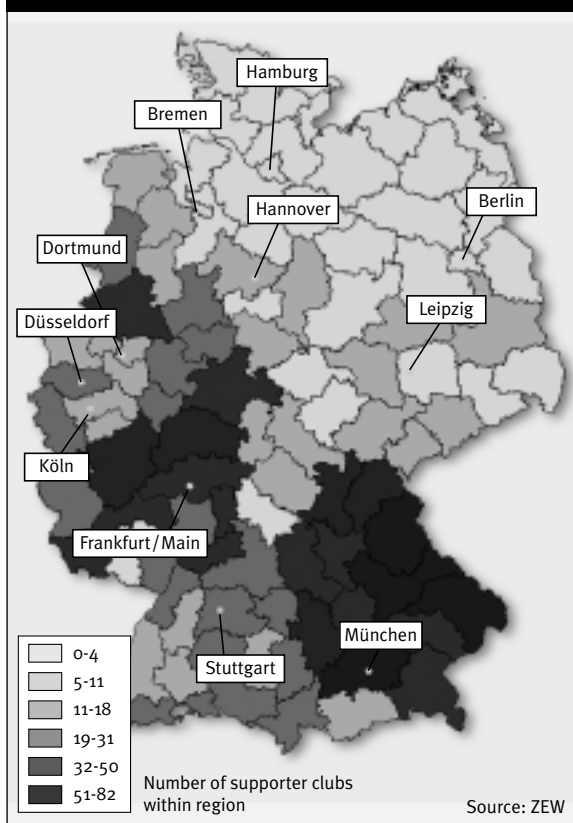
Apart from the team's reputation, supporter clubs represent another decisive demand factor. They constitute an important component of demand for their teams' away games, especially when distributed over large parts of the country. The difference between hosting a guest team without supporter clubs and hosting a team with 50 supporter clubs, each having to cover a 25 km distance to get to the stadium, amounts to about 2,000 spectators per match.

Several factors of uncertainty describing the excitement of a match or the outcome of the championship, however, did not affect the number of tickets sold.

The management of German football clubs, the results of the study suggest, should adhere to sporting success as a primary goal. For spectators and thus for potential advertising partners and sponsors, success in the past and in the present counts more than uncertainty of outcome. ◀

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### FC Bayern München – Geographical distribution of supporter clubs



## Research Results

# Nuclear Phase-out May Lead to Distortions in Competition

In the negotiations on an orderly phase-out of nuclear power, the length of and reference base for the running times of the reactors are a contentious issue. The detractors of nuclear power, represented primarily by the governing Green Party, are demanding running times of 25 to 30 calendar years at the most. However, advocates of nuclear power, especially the companies owning nuclear power stations, are insisting on a running time of 40 full load years, which are solely calculated on the basis of the actual running time of the reactors.

■ These two measures are controversial mainly because the date when the last nuclear power station is shut down depends on the measure that is chosen. In addition, the option that is chosen for the phase-out determines the potential costs the individual owners of nuclear power stations will face. The cost burden can vary considerably and thus have an adverse effect on the utilities' competitive situation. In a recent study the ZEW examined how the length of and reference base for the running times of German nuclear power stations affect the costs incurred by the owners. The 19 German nuclear power stations belong almost exclusively to Hamburger Electricitätswerke AG (HEW), Energie Baden-Württemberg AG (EnBW), Isar-Amperwerke AG, Bayernwerke AG, Neckarwerke Stuttgart AG (NWS), PreussenElektra AG, RWE Energie AG and Vereinigte Elektrizitätswerke Westfalen AG (VEW).

### Absolute cost not meaningful

The table provides an overview of the company-specific burden for the options "30 calendar years", "30 full load years" and "26 full load years". In the last-mentioned scenario the last power station shuts down in the same year (2019) as in the "30 calendar years" option.

The cost burden resulting from a premature phase-out decreases on an enterprise level if the "30 full load years" option is chosen instead of the "30 calendar years" option. In absolute terms it is PreussenElektra AG and RWE Energie AG that bear by far the biggest burden because of their stake in several power stations with high phase-out costs. Yet,

### Burden imposed on the individual utilities if the service life of their nuclear power station is reduced (discounted to 2000)

	Scenario "30 calendar years"		Scenario "30 full load years"		Scenario "26 full load years"	
	Absolute Mrd. DM	Burden Pf/kWh*	Absolute Mrd. DM	Burden Pf/kWh*	Absolute Mrd. DM	Burden Pf/kWh*
Bayernwerk AG	3.5	0.5	2.0	0.3	3.2	0.4
EnBW	3.6	0.7	2.0	0.4	3.2	0.6
HEW	2.5	1.4	1.1	0.6	1.9	1.1
Isar-Amperwerke AG	1.0	0.9	0.5	0.5	0.8	0.8
NWS	1.7	1.2	0.9	0.7	1.5	1.1
PreussenElektra AG	6.3	0.6	3.4	0.3	5.5	0.5
RWE Energie AG	7.4	0.6	3.5	0.3	5.7	0.4
VEW	0.8	0.3	0.5	0.2	0.8	0.3
Gem. KW Weser GmbH	0.7	0.9	0.4	0.6	0.7	0.9
Others	1.3	0.3	0.7	0.2	1.2	0.3
Total	28.8	0.6	15.1	0.3	24.5	0.5

\* Burden if the additional costs are passed on to all the electricity the company sells.

Source: ZEW

the cost burdens expressed in absolute terms are not very meaningful when it comes to potential distortions in the competition among power companies caused by a premature phase-out of nuclear power. A high absolute figure as a measure of the burden imposed can quickly become relative when measured against the size of the company. Therefore the company-specific measure for the burden used in the table is the potential increase in electricity prices for the companies if they passed their additional costs evenly on to the total amount of electricity they sell over 20 years. It becomes evident that HEW and NWS in particular would be burdened by the "30 calendar years" option, whereas the "30

full load years" option dramatically reduces the spectrum of burdens: The distortion problem is defused. Depending on the age and degree of capacity utilisation of their power stations, companies benefit to a varying degree from the full load arrangement.

Thus the impact of the various arrangements for a phase-out of nuclear power on utilities differs greatly. Legislators not only have the task of finding an arrangement requiring no or only limited compensation payments, but also one that has virtually no impact on the competitive situation among companies owning nuclear power stations. ◀

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## Publications

**Call for Papers: 2nd ZEW Summer Workshop June 19-21, 2000**

### Applied Environmental and Public Economics

The Centre for European Economic Research (ZEW) is pleased to announce its second Summer Workshop for young economists. The general topic of the workshop is applied environmental and public economics.

**Programme:** First part: A core workshop of three days where experienced researchers give survey lectures and young scholars present their work.

Second part: An extended research visit of two weeks, allowing young economists to initiate or continue joint work with researchers from the ZEW. This cooperation may relate to research currently done at the ZEW.

**Participants:** The workshop is targeted to PhD students and post-doctorates. Young researchers who are interested in a co-operation with members of the ZEW are particularly invited to apply.

**Finance:** Participants can apply for financial assistance from the ZEW.

**Application:** Please submit an extended abstract of your paper, a curriculum vitae specifically outlining your research and two letters of reference relating to your research in public or environmental economics. The number of participants is limited to 12.

The deadline for submissions is 3 January, 2000.

**For further information please contact:**

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Public Economics: Dr. Robert Schwager, Phone: +49/621/1235-160, Fax: +49/621/1235-215, E-Mail: schwager@zew.de

**Discussion Papers:**

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