

Annual Report 2015



ZEW



ZEW ANNUAL REPORT

2015

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Right: Professor Dieter Kempf discusses the positive social effects of Big Data.

Left: What limits should be placed on the use of private data? How much data privacy do we need?
Professor Dieter Kempf addressed these highly relevant questions in his talk.



First-Hand Information



March 2015

DIETER KEMPF DISCUSSES BIG DATA

In the increasingly digital world of today, we frequently share personal data in a variety of contexts. Indeed, whenever you order something online, conduct a Google search, or comment on a blog, data about you are being saved. Many individuals are concerned about the processing and analysis of personal data by companies or the government. However, we should not lose sight of the beneficial societal effects of Big Data, argues Professor Dieter Kempf, the CEO of the software firm DATEV eG and former president of the IT industry association BITKOM. Kempf talked about Big Data in the ZEW conference series "First-Hand Information on Economic Policy". Citing specific examples, Kempf said that Big Data can lead to CO₂ reductions in the transportation sector as well as to improved medical treatment techniques. However, Kempf also addressed the issue of data abuse, calling for effective data privacy arrangements.

March to November 2015

ZEW “LUNCH DEBATES” NOW A FIXED FEATURE IN BRUSSELS

After their successful start in 2014, the ZEW “Lunch Debates” in Brussels have developed into a permanent fixture. The lunch debates are held during the midday break and offer an opportunity for parliamentarians, staff members of EU institutions, journalists and representatives of interest groups to engage in discussions about controversial issues in economic policy. The first ZEW Lunch Debate in 2015 addressed the questions of how effectively government grants for R&D create incentives for macroeconomic growth.

The first 2015 ZEW Lunch Debate in March focused on the issue of government grants for R&D. On the podium (from left): Professor Maria da Graca Carvalho, Chief Consultant on the staff of the EU Commissioner for Research, Science and Innovation; Professor Reinhilde Veugelers of the Catholic University of Leuven in Belgium; and Professor Ramon Marimon of the European University Institute in Florence. Dr. Georg Licht (not visible in picture), head of the ZEW Research Department of “Economics of Innovation and Industrial Dynamics”, also took part in the podium discussion.





16 June

SUCCESSFULLY COMBATTING TAX EVASION

Aggressive tax planning policies and tax evasion on the part of multinational corporations and possible ways of combatting them were the themes of a MaTax Policy Meeting that took place in the context of a ZEW Lunch Debate. Professor Katharina Nicolay (ZEW) discussed this issue with representatives from the EU Commission, the EU Parliament and industry.



1 July

FOSTERING COMPETITION

What is the EU doing to combat price-fixing? How effective are its instruments for detecting cartels? What are the consequences of the EU Commission's leniency programme? These were the questions discussed by ZEW's Professor Kai Hüscherlath (centre); Dr. Stephanie Birmanns, an attorney for European and German anti-trust law and merger control procedures (right); and Dr. Gerald Miersch, Cartel Division Head at the Directorate-General for Competition of the EU Commission (left).

16 September

A NEW REGULATORY FRAMEWORK FOR THE EU

ZEW's Professor Friedrich Heinemann (centre) debated with Professor Albert Solé-Ollé of the University of Barcelona (left) and with Nicolas Carnot of the EU Commission (right) about the effectiveness of the fiscal regulatory framework in the eurozone. They scrutinised the potential strengthening of the Stability and Growth Pact and the introduction of a European Fiscal Compact.



18 November

REALISING A NEW CLIMATE PROTECTION TREATY

The Lunch Debate just prior to the United Nations World Climate Conference in Paris focused on the conditions for successfully reaching a new climate treaty. Jos Delbeke, PhD, the European Commission's Director-General for Climate Policy, lectured on expectations for the 21st World Climate Conference from a European perspective. His talk was followed by a podium discussion with representatives from the public and private sectors.





April 2015

THE PRESIDENT OF THE LEIBNIZ ASSOCIATION VISITS ZEW

Professor Matthias Kleiner, the president of the Leibniz Association, took a first-hand look at current research work at ZEW. Within the scope of a poster session, young researchers presented the results of their studies. During discussions with ZEW's Executive Directors and various research unit heads, Professor Kleiner also learned more about MaCCI and MaTax, two "Leibniz ScienceCampuses" run by ZEW and the University of Mannheim.

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Top: Professor Matthias Kleiner, president of the Leibniz Association, learned more about ZEW's research agenda. In the background: Thomas Kohl, ZEW's Director of Business and Administration.
Left: The poster session was accompanied by animated discussion of various research topics.

Leibniz President Matthias Kleiner

June 2015

ZEW'S ECONOMIC FORUM HIGHLIGHTS HURDLES TO DIGITALISATION

Intelligent factories in which all aspects of the value creation chain are interwoven are no longer a utopian vision. However, there are still many hurdles on Europe's road to a digitised economy. The 2015 ZEW Economic Forum was devoted to discussing the challenges of digitalisation. The most prominent speaker was Günther H. Oettinger, EU Commissioner for Digital Economy and Society. Oettinger called for the creation of a "digital internal market", arguing that only a united Europe can close the gap on the US lead in the technological sector. In his talk, Professor Thomas Bauernhansl, the head of the Fraunhofer Institute for Production Technology and Automation, drew attention to existing problems in Europe, including the slow expansion of broadband networks as well as the lack of technical standards for data security. The highpoint of the event was a podium discussion on the topic of "Industry 4.0: The Future of the Economy and the End of Work?". The podium discussion featured Professor Irene Bertschek, head of ZEW's "Information and Communication Technologies" Research Department; Professor Martin Przewloka, senior vice president of the software company SAP; Dr. Peter Adolphs, head of "Development and Marketing" at Pepperl+Fuchs; as well as Gerhard Steiger, President of Chassis Systems Control Division at the automotive supplier Bosch.





Top: Professor Thomas Bauernhansl warned against underestimating international competition. Google invests more in research and development than the entire German machine building industry, he noted.

Left: EU Commissioner Günther H. Oettinger called for a pan-European strategy for a digitised economy.



Top: The podium discussion aboard the MS Wissenschaft was marked by a relaxed atmosphere (from left): Dr. Peter Kurz, Thomas Kohl (moderator), Jacqueline Yildirim and Dr. Georg Licht.

Right: The "MS Wissenschaft", a former cargo ship, hosted exhibits devoted to "The City of the Future".



July 2015

CITIES NEED ENTREPRENEURS – ZEW HOSTS A “DIALOGUE ON DECK”

In 2015, ZEW once again rode aboard the exhibition ship “MS Wissenschaft”. One highlight of this year’s exhibit, which was devoted to “The City of the Future”, was a computer simulation titled “Cities Need Entrepreneurs”. By using the simulation, which was developed by the ZEW Research Department of “Economics of Innovation and Industrial Dynamics”, visitors could start a fictive company and playfully follow it through its successive life phases. The ship docked near Mannheim’s city centre to host an on-board event: “Dialogue on Deck: Cities Need Entrepreneurs”. The attendees, which included Dr. Peter Kurz, the mayor of Mannheim; Dr. Georg Licht, the head of the ZEW Research Department of “Economics of Innovation and Industrial Dynamics”; and Jacqueline Yildirim, founder of the shoe company JACQ GmbH, discussed start-up activity in Germany with a special focus on Mannheim, and the reasons why certain locations are especially attractive to the potential founders of new firms.



August 2015

ZEW HOSTS A WELCOMING RECEPTION AT THE EEA IN MANNHEIM

To ensure the future advancement of knowledge, the scientific community requires a constant exchange of information. In this spirit, ZEW invited over 100 esteemed representatives of international research organisations and universities to a welcoming reception for the annual conference of the European Economic Association (EEA), which took place at the University of Mannheim in 2015. Following a welcoming talk by ZEW President Clemens Fuest, the participants went on to engage in a lively set of informal discussions. A series of poster presentations by ZEW researchers provided the impetus for their conversations. As part of the annual EEA meeting, ZEW staff members presented recent findings from their research in a total of 15 lectures. A wide range of topics were addressed, including whether firms are likelier to evade taxes when the tax rate is especially high at a particular location, how vote buying in elections affects the money supply, and the practical functionality of a Europe-wide unemployment insurance system.





Left: The ZEW welcoming reception took place in bright sunshine under a blue sky. Over 100 national and international guests accepted the invitation.

Upper right: Dr. Katrin Sommerfeld of the ZEW Research Department of "Environmental and Resource Economics, Environmental Management" gave a presentation at the EEA Annual Meeting in Mannheim.

Lower right: Olga Slivkó, PhD, of the ZEW Research Department "Information and Communication Technologies", in conversation at the poster session.

September 2015

HEINZ KÖNIG YOUNG SCHOLAR AWARD FEATURES RESEARCH ON TAXES AND ENVIRONMENTAL PROTECTION

Stefano Carattini of the Haute école de gestion de Genève is the recipient of the 2015 Heinz König Young Scholar Award. In his prize-winning study, the young Swiss researcher showed that direct taxation of refuse collection significantly lowered per-capita refuse generation in Switzerland, and that this form of taxation was regarded as fair and effective by those households affected. The jury bestowed the 2015 Heinz König Young Scholar Award on a research study that made a major contribution to discussion on effective fiscal interventions related to problems of environmental protection and sustainable economies. The prize, named in honour of the late founding director of ZEW, Professor Dr. Dr. h.c. Heinz König, is awarded as part of the ZEW Summer Workshop to recognise outstanding empirical research by young scholars. It comes with a 5,000-euro award and includes the offer of a several-month research residency at ZEW. The 2015 prize was endowed by the firm Fuchs Petrolub SE, a member of the ZEW Sponsors' Association for Science and Practice.





Left: Final photograph from the 2015 ZEW Summer Workshop. The central focus of the conference was on empirical methods in innovation and environmental economics.

Upper right: Dagmar Steinert and prize-winner Stefano Carattini of the Haute école de gestion de Genève. His study investigates the effectiveness of fiscal measures related to problems of environmental protection.

Lower right: Dagmar Steinert of Fuchs Petrolub SE bestowed the 2015 Heinz König Young Scholar Award. The firm endowed this year's prize of 5,000 euros.



Around 40 young managers from China and Germany visited ZEW on the occasion of the fourth German-Chinese Young Leaders Conference.

September – November 2015

ZEW CONTINUES TO EXPAND ITS RELATIONS WITH CHINA

In 2015 ZEW took another major step in strengthening and expanding its cooperative relations with Chinese universities. In September, ZEW hosted the Beijing-Humboldt Forum in Beijing in cooperation with the University of International Business and Economics (UIBE) and the Alexander von Humboldt Foundation. The 2015 forum was devoted to the topics of “environmentally friendly innovation” and “green economy”. ZEW researchers discussed their recent research findings with the participants, including a study on the quality of Chinese patents and another on the connections between politicians’ careers and risk burdens on Chinese banks. Also in September, ZEW welcomed around 40 young managers from China and Germany. Their visit was part of the ZEW multi-day German-Chinese Young Leaders Conference. Finally, in November, ZEW was asked to become a member institute of the International Consortium of China Studies (ICCS) of the National School of Development at Peking University. This appointment represents another high point in ZEW’s China-related activities. The ICCS is an international platform with a current membership of 24 selected research institutions engaged in studying China’s economic development.



October 2015

ZEW SIGNS COOPERATION AGREEMENT WITH UIBE IN BEIJING

At the invitation of the State of Baden-Württemberg, Thomas Kohl, ZEW's Director of Business and Administration, accompanied a delegation of representatives from the realms of business and politics led by Minister-President Winfried Kretschmann to China. A highpoint of the trip for ZEW was signing a cooperation agreement with the University of International Business and Economics (UIBE) in Beijing. As part of the cooperation agreement, which was signed in the presence of the Minister-President of Baden-Württemberg, the Minister of Finance and Economics Nils Schmidt, and Minister of Science Theresia Bauer, a study programme in the automotive sector will be established. The programme includes the additional partnership of Nürtingen-Geislingen University of Applied Sciences (HfWU). The cooperation between the three partners aims to further integrate scientific and industrial exchange between the People's Republic and Baden-Württemberg.

Top: Minister-President Winfried Kretschmann MdL and Theresia Bauer MdL, Minister for Science, Research and the Arts in Baden-Württemberg, signing the cooperation agreement with UIBE in Beijing. In the second row, Dr. Nils Schmidt MdL (third from left), at the time Minister of Economics and Finance in Baden-Württemberg, and Thomas Kohl (next to him on the left).

Bottom: Thomas Kohl, Winfried Kretschmann MdL and Theresia Bauer MdL as guests in the eastern Chinese city of Taicang, where around 230 firms from Baden-Württemberg have established locations.



October 2015

THE FIFTH ANNUAL SEEK CONFERENCE – OVERCOMING THE SOVEREIGN DEBT CRISIS

In 2015, the fifth annual conference of the research programme “Strengthening Efficiency and Competitiveness in the European Knowledge Economies” (SEEK) was held at ZEW. Internationally renowned speakers discussed various issues related to ensuring stable macroeconomic conditions, promoting successful entrepreneurship and stimulating innovation, thus allowing the growing gaps between eurozone nations to be closed. Special highlights of the conference included lectures by Professor Mario Monti, former Prime Minister of Italy and former EU Commissioner for the Internal Market and Competition, as well as European Central Bank chief economist Peter Praet. While Professor Monti’s talk emphasised the need to reform European institutions, Praet spoke about the importance of monetary policy for ensuring macroeconomic stability in Europe.





Left: Peter Praet, PhD, chief economist of the European Central Bank (ECB), speaks before a packed house at the fifth SEEK conference.

Bottom: Professor Mario Monti gives an interview at the SEEK conference. His core message: while there is no need for revolutionary change in Europe's political framework, there are certain aspects that undoubtedly must be reformed.



October 2015



EQUALITY OF OPPORTUNITY IS A REALITY AT ZEW

ZEW was awarded the official seal of "TOTAL E-QUALITY" for the first time in 2015. This acknowledges ZEW as an employer that takes special care to ensure equality of professional opportunity for women and men. Moreover, the designation validates ZEW's efforts to create exemplary conditions for balancing work and family life. The seal was awarded at the Hamburg Chamber of Commerce by the association TOTAL E-QUALITY Germany, which annually honours public and private sector organisations that have made sustainable efforts toward equality of opportunity. ZEW attaches highest priority to the reconciliation of work and family life, to equal opportunity in human resource staffing and development, and to cooperative relations in the workplace. ZEW particularly stands apart for the flexibility it grants employees in managing their working time. Furthermore, in the future ZEW plans to expand and strengthen its standards in this area.



ZEW was given the official seal "TOTAL E-QUALITY" for the first time in 2015. It designates ZEW as an institution that has achieved full equality of opportunity for men and women in all areas.





Katrin Schindler from the Human Resources department at ZEW accepted the TOTAL E-QUALITY award in Hamburg.



December 2015

ON THE NEEDS OF CENTRAL BANKERS: FORMER ECB PRESIDENT TRICHET SPEAKS AT ZEW

At year's end, a lecture on the lessons of the euro crisis by former ECB President Jean-Claude Trichet drew a large audience to ZEW. Trichet's presentation was part of the Mannheim Economic and Monetary Talks, a ZEW lecture series supported by the Rhine-Neckar Banking Federation Mannheim, which regularly addresses themes related to credit and the economy. Trichet's lecture started with the 2007 and 2008 financial crisis. He stated that the ECB was forced to take unconventional action as the US subprime crisis spread to Europe. Central bankers were left with no other choice than to loosen monetary policy and inject additional liquidity in the banking sector, Trichet said. He extended his focus to include the current sovereign debt crisis in the eurozone, and expressed support for a wide-reaching reformulation of the European Banking Union as an important lesson to be drawn from the two crises.





Former central banker Jean-Claude Trichet spoke about the fiscal policy interventions of the ECB during the most recent economic and monetary crisis.

Jean-Claude Trichet

EDITORIAL

- ▶ LETTER FROM THE PRESIDENT OF THE EUROPEAN PARLIAMENT
- ▶ LETTER FROM THE PRESIDENT OF THE LEIBNIZ ASSOCIATION
- ▶ LETTER FROM THE EXECUTIVE DIRECTORS

GREETING LETTER FROM MARTIN SCHULZ, PRESIDENT OF THE EUROPEAN PARLIAMENT



We are living through turbulent times in Europe. The European Union faces greater challenges than ever before: the refugee crisis, mounting nationalism, the still to be completed European Currency and Monetary Union, the dramatic rise in youth unemployment, and the risks from terrorism are only a few of the most pressing problems. In addition, for the first time, an EU member nation has decided by referendum that it no longer wishes to be a part of the European project. In 2016, Europe stands dangerously near the abyss.

European unification is one of the greatest civilizing accomplishments that our continent has ever seen. After dreadful suffering, racial fanaticism, war, and persecution, Europe has found a way to come together, and is experiencing a unique historical renaissance. It is for this reason that the EU was awarded the 2012 Nobel Peace Prize. Today, the very existence of this magnificent project is being threatened by national egotisms – to counter this we therefore need the precise opposite: we must deepen what unites us, not what divides us.

In light of the sheer number of crises facing Europe, we more than ever need renewed courage and foresight – a politics invested in the long term. Instead of the crisis management of the past few years that focuses on the short run, plays it by ear, and shuttles from one emergency summit to the next, it is high time that we honestly name problems for what they are, truly tackle them, and resolve them in a sustainable manner.

Ever since 1990, the Centre for European Economic Research has made an outstanding contribution to this long-term effort. With its clear and objective analyses, ZEW has helped to ensure that the voices of reason and understanding can be heard in debates that sometimes seem to have lost their bearings. The guidance of unbiased research is essential for keeping the discussion on track.

Now, again, in its analyses of the consequences of the British referendum, ZEW has sought to bring calm and objectivity to an emotionally charged debate. The majority of those who cast their votes decided upon Great Britain's exit from the EU. Although I deeply regret this decision, now the task of our EU-27 group is to begin thinking right away about making Europe better in order to awaken a new sense of enthusiasm. The truth is: without Europe there is no way to create new jobs in future-oriented sectors, to overcome the migration crisis, to combat terrorism, to protect the environment, or to pursue a sustainable policy of peace. Anyone who would suggest that we can master the challenges of the 21st century by turning back to the national state is either self-deluded or is deliberately trying to pull the wool over the eyes of the people.

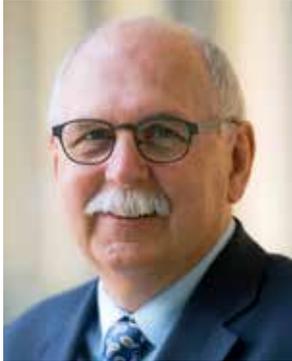
If we wish to preserve our ability to act, our societal model, and our democracy, we need Europe. If we wish to master the challenges of the 21st century, we need Europe. If we pull together, act in solidarity, and remember that we are stronger united than apart, then we can and we shall accomplish this.

I want to thank the Centre for European Economic Research for its invaluable work in the economic analysis of the performance of markets and institutions in Europe, and I wish ZEW's staff all the best for the future.



Martin Schulz
President of the European Parliament

GREETING LETTER FROM MATTHIAS KLEINER, PRESIDENT OF THE LEIBNIZ ASSOCIATION



Dear Reader,

Today we in Germany face great, new responsibilities. Immigration is set to reach unprecedented dimensions, bringing with it both opportunities and challenges for society and our political system. These opportunities and challenges also place very special demands on our research institutions.

Economic research in Germany has the important task of assessing the impact of recent developments on the economy, labour market and social security systems. The Leibniz Association brings together six leading economic research institutes, all of which play a key role in the midst of this crucial political situation.

ZEW researchers contribute their expertise on these and many other issues at the European, national and regional levels. In particular, they are dedicated to the topic of migration in its multifaceted aspects. In 2016, for instance, ZEW will begin a collaborative project with the Heidelberg University of Education and numerous industry partners to address the question of how to integrate asylum seekers into the region's cities as quickly as possible.

ZEW also makes important contributions to policy and emphasizes the importance of economic analysis in European research. A noted example is the ZEW Lunch Debates series, initiated in 2014 and continued successfully in 2015. The event brings together scientists, policy makers, and civil society representatives at the heart of the European Quarter in Brussels. There have been very encouraging responses to the events,

which cover a wide range of topics such as European competition policy, fiscal reforms and new approaches in global climate policy. ZEW's wide European reach can be seen in the amount of third-party funding it receives, in particular from the EU 7th Framework Programme.

My sincere thanks go to the former director Clemens Fuest for his outstanding work and productive cooperation in recent years. Although he left ZEW on 1 April 2016, he will continue with the Leibniz Association as director of the Ifo Institute in Munich. The employees at ZEW also deserve special recognition for their commitment and contribution to the success of the Leibniz Institute. I have great confidence that ZEW will continue on its successful trajectory under its new director and wish it the best for the upcoming transition.



Matthias Kleiner
President of the Leibniz Association

LETTER FROM THE DIRECTOR



2015 was an eventful year for ZEW, not least because it heralded a change in leadership. In the spring of 2015 ZEW President Clemens Fuest announced that he would step down. In April 2016 Achim Wambach became the institute's next president and director of science. ZEW is proud to have gained an outstanding economist to continue its success story. Before taking the position at ZEW, Achim Wambach was the head of the Institute for Economic Policy at the University of Cologne. He was also co-director of the European Centre for Liberal Professions at the University of Cologne. He continues to chair the Monopolies Commission, which advises the German federal government on matters of competition policy, competition law, and regulation. Wambach is a renowned competition economist and is particularly engaged with market information problems. That, along with his work on market design methods and industrial economics, makes him a perfect match for ZEW's spectrum of research.

I want to thank Clemens Fuest for his outstanding work during his tenure as ZEW President, beginning in March of 2013. In particular, he strengthened ZEW's research profile in the areas of public finance, the debt crisis in the eurozone, and international tax competition. Under his leadership, ZEW was also able to diversify its international activities in areas such as research partnerships and policy advising. He left his successor with an extremely productive and well-positioned institute.

In 2015, ZEW had another year of excellent output to show for itself, reinforcing its position as a leader among German economic research institutes. In 2013–2015, 254 papers by ZEW researchers were accepted by peer-reviewed journals. In 2015 alone, ZEW had over 200 on-going research projects, nearly 100 of which were brought to completion. Furthermore, ZEW's staff members relayed their scientific expertise to the scientific community by regularly participating in conferences and workshops. In 2015,

ZEW researchers held over 400 lectures at conferences in Germany and abroad. ZEW's commitment to training the next generation of economists produced 14 new doctoral graduates in the year under report.

I would like to note ZEW's outstanding performance in the German Research Association's (DFG) 2015 Funding Atlas. Among the 89 institutes that are currently part of the Leibniz Association, ZEW is now among the few to have received over three million euros during the 7th EU Framework Programme for Research and Technological Development (2007–2013). ZEW faced tough competition from other renowned European economic research institutions in raising a total of 4.7 million euros. This is by far the greatest amount of EU research funding received by any of the Leibniz Association's economic institutes. What is more, the large number of projects that ZEW completes for European institutions is further testimony to the European outlook enshrined in its very name.

ZEW takes various measures to assure the quality of its research. One such measure was the October 2015 internal review by ZEW's Scientific Advisory Council. Its members, led by council chair Professor Friedrich Buttler, scrutinized our performance, organisation and workflows. Thanks to their findings and suggestions – and to the efforts of our staff – we were well prepared for an external evaluation in March of 2016 by the Leibniz Association, which regularly assesses its member institutions to monitor the quality of their work.

In September 2015, ZEW suffered a great loss in the sudden death of Klaus Rennings, the head of the ZEW Research Department "Environmental and Resource Economics, Environmental Management". Dr. Klaus Rennings had worked at ZEW since 1994. He was actively involved in the creation of the research institute, and very much identified with ZEW and its work. With the passing of Klaus Rennings, ZEW lost an exceptional person and an outstanding economist who did much to build the Research Department's reputation.

In 2015, ZEW also moulded important economic debates. The opinions of ZEW researchers were highly sought after by the media on issues such as the debt crisis in Greece and the Grexit threat. The institute's impact analyses of German reform proposals for the inheritance tax also received much public attention, as did its recommendations for a new fiscal policy framework for the European Union.

Lending more visibility to ZEW in 2015 were its public lectures. In March of 2015 we drew large audiences to an event in our series First-Hand Information on Economic Policy, which featured Dieter Kempf, the CEO of the software company DATEV and the former president of the IT industry association BITKOM. In June 2015 the European Commissioner for Digital Economy and Society and the former Minister-President of Baden-Württemberg, Günther H. Oettinger, discussed "Europe's Digital Future". At the end of the year, former ECB President Jean-Claude Trichet spoke in front of a full house as part of the Mannheim Economic and Monetary Talks. I would like to express my warm gratitude to the Rhein-Neckar Mannheim bank association and the ZEW Sponsors' Association for Science and Practice for funding these high-profile events.

In October 2015, ZEW received the TOTAL E-QUALITY award for outstanding equal-opportunity employment. ZEW is proud of its strong commitment to helping male and female staff better balance work and family life as well as pursue rewarding careers.

At the end of 2015, Andreas Dulger, the CEO of Prominent GmbH, stepped down from his position as Chairman of the Sponsors' Association for Science and Practice with the end of his two-year term. I would like to thank him for his engaged efforts in steering the association and supporting the work of ZEW. Since December 2015, Alexander

Selent, a former board member at Fuchs Petrolub SE, has served as the new chairman of the Sponsors' Association. His deputy is Luka Mucic, a member of SAP SE's Executive and Global Managing Board.

My heartfelt thanks go to Professor Heinz Welsch of the University of Oldenburg, who served as a long and active member of our Scientific Advisory Council until his retirement last year. I would also like to express my gratitude to our funders, especially the State of Baden-Württemberg, for their cooperation and support in the past year.

Finally, I wish to thank the members of our staff in every one of the institute's research and service units. They have worked across the boards for our success in 2015 and will continue to be the foundation of ZEW's work in the years to come.



Thomas Kohl
Director

INTERVIEW WITH ZEW PRESIDENT PROFESSOR ACHIM WAMBACH



In the wake of the decision to phase out nuclear power, a primary goal of German energy policy is to manage the transition to renewables without abandoning ambitious emission reduction targets. Are we on the right path for achieving this goal?

ACHIM WAMBACH

▶ Germany is pursuing the rapid expansion of renewable energy in order to compensate for the phasing out of nuclear power without increasing emission levels or endangering abatement targets. Remarkable growth in renewable energy has indeed been achieved: while renewables made up just six per cent of electricity production in 2000, this figure increased to 33 per cent by 2015. Germany's Renewable Energy Act (EEG) – a technology-specific subsidy instrument that strongly promotes solar and wind power – has been crucial in achieving this expansion. However, the current system for subsidising renewables has drawbacks. The subsidies granted for PV power, for example, have been excessive. Regulators have defined fixed feed-in tariffs while guaranteeing that electricity generated by renewables will be purchased. This has created misincentives. When energy consumption is low, for example, natural gas and coal-fired power plants are forced to scale back their generation, even when it is costly to do so. These additional costs are ultimately passed along to consumers. While policy-makers have recognised this issue and have taken action to remedy it, the system still suffers from problems.

If subsidising renewables creates disincentives, what would you propose as an alternative policy instrument for ensuring a sustainable energy mix in Germany?

ACHIM WAMBACH

- ▶ The economic problem is not that renewables are too expensive. Rather, energy from fossil fuels is too cheap. If the social costs of burning fossil fuels were taken into account, then renewables would have the clear price advantage. Indeed, internalising the social costs of burning fossil fuels is the very goal of the European Emissions Trading System (EU ETS). It rewards market actors who avoid emissions and/or adopt clean electricity technologies.



Extremely low permit prices are currently undermining the European Emissions Trading System. Will prices eventually rise enough to properly incentivise efforts to reduce emissions?

ACHIM WAMBACH

- ▶ It's actually a good thing to have an environmental protection instrument that is less strict during recessions but becomes more robust during an upswing. Accordingly, I would not say that low prices are undermining the EU ETS. Europe has not returned to a sufficiently high level of economic growth. However, the low permits prices do reduce incentives for companies to invest in emission-reduction technologies. As a result, there are good reasons for setting a minimum price for emission permits, as has been done in the UK. The technological neutrality of emission permits is one important aspect of their design. Emission permits promote competition between the best technologies for avoiding and reducing greenhouse gas emissions.



Ensuring security of supply is an important component of German energy policy. Is the German government currently on a robust and sustainable path with its “Electricity Market 2.0” concept?

ACHIM WAMBACH

- ▶ We should be critical of the government’s plans for restructuring the German energy market. Current plans are associated with considerable risks for consumers. Furthermore, they appear to be inconsistent economically. I am particularly critical of the two main pillars of the proposed Strommarktgesetz, or Electricity Market Act – namely, its ostensible strengthening of unfettered price formation, and its creation of a capacity reserve. Prices can only serve as an effective measure of scarcity when consumers are able to react to price changes. Price increases during times of higher demand must be permitted. To balance supply and demand and to avoid blackouts, rising prices need to encourage consumers to reduce their electricity demand. However, the effectiveness of the price mechanism may be restricted in the case of electricity. Electricity demand is very inelastic for there are simply limits to the reduction of electricity consumption, even when prices are extremely high.

Can unregulated price formation ensure security of supply? Or is this just wishful thinking?

ACHIM WAMBACH

- ▶ By enabling utility companies to charge very high prices in situations of high demand, legislators are hoping that firms will install new capacity in order to achieve higher returns. It is believed this will reduce the problem of potential capacity shortfalls. However, the government does not appear to be entirely convinced of its own arguments. It is also calling for the creation of a capacity reserve – that is, a fleet of reserve power plants. This fleet will only be activated if the effort to manage the electricity market via the price mechanism fails, thus leading to the threat of blackouts. High prices mean that supply is scarce. In this way, an additional problem is that some providers could wield excessive market power. Accordingly, the draft Electricity Market Act foresees granting the Federal Cartel Authority with additional powers to monitor the energy market in order to prevent market abuses. I have doubts concerning the practical implementation of the government’s proposed regulations, however.

Where do you see difficulties in the Federal Cartel Authority's monitoring of the energy market?

ACHIM WAMBACH

- ▶ The abuse of market power in wholesale electricity markets is a considerable economic problem that must be taken seriously. When supply is scarce, large utility providers can leverage their systemic importance for the overall system in order to charge prices that are not compatible with efficient competition. When unfettered price competition leads to an abuse of market power, the Federal Cartel Authority is obligated to take action. However, how are regulators to distinguish between justified scarcity prices and an abuse of market power that harms consumers? This problem is all the most pressing when one considers that supply and demand can change considerably from hour to hour in the electricity market. Accordingly, it is extremely difficult to characterise the behaviour of market actors in a consistent way. When supply is scarce, even small providers can abuse their monopoly position to charge considerably inflated prices. Indeed, when 95 per cent of generation capacity is required to cover the electricity market's relatively inelastic demand, then all utility providers with a market share above five per cent play a systemically important role in the overall system.

Are you not overestimating the power of small utility providers?

ACHIM WAMBACH

- ▶ No. An example illustrates why. Assume a supplier's capacity is systemically important for 219 hours a year (which corresponds to just 2.5 per cent of all hours). If this supplier manages during these hours to raise the market price from 100 euros per megawatt-hour to the technical trading limit of 3,000 euros per megawatt-hour, this would lead to excess revenues equal to 44 billion euros, given an electricity demand of 70 GW. That is definitely not a sum that can be ignored.

What advice would you give to the German government to ensure the transition to renewables is a success?

ACHIM WAMBACH

- ▶ The Scientific Advisory Council of the Federal Ministry for Economic Affairs and Energy as well as the German government's Monopoly Commission have both made specific recommendations for improving the economic efficiency of the country's efforts to promote the adoption of renewables. Emission permits play a key role in these recommendations. Yet reducing subsidies is also crucial. Over the mid-term, a capacity market is needed in order to assure security of supply.



ABOUT US

- ▶ THE INSTITUTE
- ▶ THE RESEARCH UNITS

ZEW IN BRIEF

The Mannheim Centre for European Economic Research (ZEW) was established in 1991 and is a member of the Leibniz Association. Under the leadership of Professor Achim Wambach, PhD, the President of the institute, and Thomas Kohl, the Director of Business and Administration, ZEW currently employs a staff of approximately 190 in six Research Departments, three Research Groups, and three Service Departments. Being one of the leading German economic research institutes, ZEW enjoys an excellent international reputation.

Mission

ZEW has four ambitious, closely related key objectives:

- to conduct high-quality research,
- to provide science-based economic policy advice,
- to train up-and-coming researchers,
- to transfer knowledge to the public.

Research Mission

ZEW's overriding aim is to investigate the "optimal performance of markets and institutions in Europe". Studies carried out by ZEW concern the framework of market processes which improve the performance of sustainable, efficient and inclusive knowledge-based economies in Europe. This impacts the core research activities pursued at ZEW, for example:

- securing employment and income against the backdrop of demographic change,
- business formation and innovation policy in global competition,
- use of information and communication technologies in companies,
- integration of financial markets in Europe,
- sustainable strategies for international climate policy,
- viable national and European fiscal policy,
- economic effects of tax and transfer systems,
- competitive strategies and regulatory policy at the European level.

ZEW's profile is characterised by theoretically grounded methodologies in empirical economic research. The studies carried out at the institute draw on techniques and methods from economics and business administration. Research at ZEW is open to engage in interdisciplinary cooperation and adopt new perspectives.

“ZEW studies the
optimal performance of
markets and institutions
in Europe”

Unique Characteristics

ZEW applies university research standards. Yet the work carried out at the institute is different from the research at economics faculties. ZEW places much greater emphasis on providing policy advice and on the transfer of knowledge beyond a specialist audience. Furthermore, ZEW is the only economic research institute in Germany offering a comprehensive programme of seminars and courses with the objective of providing further training for specialists and executive staff.

Thanks to its considerable size and the broad spectrum of research areas, ZEW is able to tackle extensive and complex tasks in the field of economic policy advising. The infrastructure of ZEW also facilitates the development and maintenance of complex analysis models such as the European Tax Analyzer or the Computable General Equilibrium Model PACE (Policy Analysis based on Computable Equilibrium). In addition, ZEW is able to undertake long-term surveys and build extensive databases. The maintenance of datasets like the ZEW Financial Market Survey and the Mannheim Innovation Panel relies on the unique conditions provided at ZEW.

Networking with Universities

ZEW cooperates closely with a large number of universities in Germany, Europe and across the world. An integral part of ZEW's university network is the close contact which the institute maintains with universities in the Rhine-Neckar Metropolitan Region. The institute has a long history of cooperation with the Universities of Mannheim and Heidelberg.

Through cooperation with various German and international universities, ZEW supports the qualification of the next generation of researchers in economics. In particular, ZEW collaborates with universities within the scope of third-party funded projects. The institute is involved in one Collaborative Research Centre, one Research Unit and in two Priority Programmes of the German Research Foundation (DFG).

ZEW is currently collaborating with over 100 Research Associates, most of whom are professors at renowned universities. ZEW's Research Associates contribute to the scientific activities of the institute's research units. Many ZEW researchers hold teaching positions at universities. The ZEW Visiting Researchers Programme invites academics from around the world to complete a research residency at the institute, thereby promoting scholarly exchange.

The institute's successful work is also reflected in the fact that many ZEW researchers are appointed professors or junior professors at universities. In 2015, ZEW researchers accepted professorships at the universities of Erlangen-Nürnberg, Heidelberg and Mannheim as well as Georgia Tech, US, and SRH University of Heidelberg. In the past few years, researchers have also accepted professorships at the universities of Bonn, Hannover, Mainz, Mannheim, Münster and a number of other universities.

RESEARCH PERFORMANCE

Research excellence at ZEW has various dimensions:

- publishing research findings in scientific journals,
- establishing international networks with research institutions,
- participation in exchange of knowledge by way of conferences, workshops and research visits,
- development, maintenance and evaluation of unique databases.

Publications

The publication of research findings in international journals, subsequent to an external referee process, is a key indicator of the quality of research carried out at any research institute. Successful publishing is therefore a major objective of the institute. ZEW has an outstanding publication performance, contributing to its leading position among the German economic research institutes. In the period from 2013 to 2015, a total of 254 articles produced by ZEW researchers were selected by external referees for publication in scientific journals. It is not only a small, select group of top researchers, but a great number of ZEW economists who contribute to the publication success of ZEW.

Cooperation Partners

Close cooperation with research institutions in Germany and abroad is a decisive factor for the success of ZEW's research. ZEW maintains partnerships with German and international universities and with non-university research institutions. Great value is placed on the international scope of the network, but also on its interdisciplinary nature.

ZEW collaborates with distinguished partners located in Europe and, increasingly, in North America and Asia. A prime example of such partnerships is the collaboration with the University of International Business and Economics (UIBE) in Beijing. This partnership has become even more substantial since the signing of a cooperation agreement in 2015.

Scientific Events

Another important means of establishing cooperative ties is through scientific exchange at conferences and workshops. In order to ensure that the institute's research is communicated effectively to target audiences, ZEW organises numerous conferences which focus on a variety of topics.

In 2015, ZEW's research units organised more than 50 conferences and workshops. These events attracted hundreds of international participants. In the reporting year, ZEW researchers delivered more than 420 presentations at scientific conferences.

International conferences provide ZEW with the opportunity to extend its reputation as a research institution and employer. The institute is therefore represented at important international conferences with information stands, for example at the annual conference held by the Verein für Socialpolitik (VfS) and at the ASSA meetings held in the United States.

Development and Maintenance of Research Data

In most cases, empirical research carried out by ZEW is based on individual-level data. Thanks to its established infrastructure, ZEW is able to collect, process and assess data according to recognised scientific standards.

Where possible, the institute provides interested external researchers with access to data at the ZEW Research Data Centre (ZEW-FDZ). The Research Data Centre, which has been accredited by the German Data Forum, constitutes yet another contribution to the extension of scientific infrastructure by ZEW. The data made available in the ZEW-FDZ may generally be used free of charge for scientific, non-commercial research purposes. A proportion of the data is made available in the form of anonymised Scientific-Use-Files. With more than 300 external users, the most frequently used Scientific-Use-File is the Mannheim Innovation Panel. Selected data is also available in the form of Education-Use-Files applicable for teaching purposes.



QUALIFICATION OF STAFF

Providing support and training for the next generation of researchers is one of the institute's primary responsibilities. ZEW thus offers its staff a comprehensive range of further training opportunities.

Two Pathways to a Doctoral Degree

At ZEW, promoting postgraduate education is considered to be the key to supporting the growth and development of the next generation of researchers in economics. Two-thirds of the research staff employed at ZEW are university graduates who are working on a dissertation. Whilst completing their thesis, doctoral candidates also benefit from first-hand involvement in the research activities at ZEW. Following completion of a doctorate, a good proportion of the researchers pursue a career in the private sector, in associations or in government institutions. Academically outstanding doctoral graduates are given the opportunity to continue their career as post-doctoral researchers at ZEW. So far, many of these have gone on to qualify as professors and have been appointed to university teaching posts. The institute is currently employing around 50 doctoral candidates.

In order to meet the requirements of the wide range of research interests and the diverse personalities of the researchers themselves, doctoral programmes are carried out within an open framework. University graduates who begin their academic career at ZEW can attain their doctoral degree by taking one of two pathways:

- They may work full-time as a researcher in a ZEW research unit, or
- else they may participate in the ZEW Doctoral Studies Network (ZEW DocNet)

Most commonly, doctoral students will choose to participate in research projects at ZEW whilst completing their doctorate. Together with the heads of the ZEW research units and experienced researchers, the doctoral candidates work on their dissertations during the course of research project work. Once the topic of the doctoral thesis has been decided upon, a supervisor will be found at a German or at a foreign university. The course of the doctorate will then be dictated by the regulations of the relevant university. The ZEW candidate also has the opportunity to enrol in doctoral courses at the participating university.

A few years ago, ZEW launched a second pathway for doctoral students, the ZEW DocNet. Within this international network, ZEW participates in the graduate programmes offered at universities both in Germany and abroad. Graduates choosing to join the ZEW DocNet programme must first apply for a doctoral programme at a participating university. The doctoral programmes take place in full at the chosen university. The graduates then begin working on projects, either on a full- or part-time basis, at ZEW. Their connection with the institute remains flexible.

In the year under report, a total of eight doctoral students took part in the programme. In the coming years, the DocNet will take on even greater importance in ZEW's doctoral education programme.



Structured Qualification for Doctoral Candidates

Since March 1, 2015, the standards of ZEW's structured qualification programme apply to university graduates who have newly joined the institute. ZEW wants to facilitate a consistent, scientifically challenging and attractive qualification in applied economic research for all doctoral candidates, independent from the manifold doctoral regulations of the respective universities. The doctoral courses that have to be completed during the programme will be validated with credit points according to the European Credit Transfer and Accumulation System (ECTS). The ZEW qualification programme includes participation in a graduate school and in doctoral courses at the university, obligatory and elective field courses, as well as soft skill courses at ZEW.

Qualification Programme

ZEW helps to advance the careers of its staff by means of a qualification programme. The qualification programme takes a variety of forms, including:

- temporary release from project responsibilities at ZEW in order to complete one's own research ("Sabbaticals"),
- extended research stays at external research institutions,
- participation in seminars, doctoral colloquia, and summer schools,
- mentoring from the heads of research units, senior researchers and Research Associates,
- ZEW Econometrics Qualification Programme.

All academic staff have access to the comprehensive internal qualification programme offered by ZEW. Alongside courses in econometrics, the programme also includes IT courses as well as courses in project management, foreign languages and soft skills.

Further Training of Staff in Service Departments

The further training of staff in the ZEW Service Departments is of crucial importance for the research conditions at the institute. ZEW provides numerous further training opportunities. In addition to further training in their own field, staff members have access to English courses taught by native speakers.

ZEW offers up to nine positions for vocational training and study. Apprenticeship positions are available in the areas of digital and print media design, office management with an additional qualification in foreign language correspondence, and IT management with specialisation in systems integration. Positions are also made available in cooperation with the Baden-Württemberg Cooperative State University in the “Business Information Systems” Bachelor of Science and the “Online Media” Bachelor of Arts courses. Personal advisers mentor apprentices during their technical or administrative training periods at ZEW.

Student Assistants and Interns

ZEW also familiarises students with empirical research methods. The institute employs a large number of student and research assistants as well as interns who study at the nearby universities. The students are given an initial opportunity to apply the theoretical and methodological knowledge acquired during their studies in practical research. ZEW staff members frequently supervise Bachelor and Master theses completed by students who are employed at ZEW.

ECONOMIC POLICY ADVICE

One of ZEW’s key objectives is to provide economic policy advice based on rigorous economic research. Policy advice is provided for the areas of administration and politics on a national, regional and European level, as well as for associations and international organisations.

Policy Advice Instruments

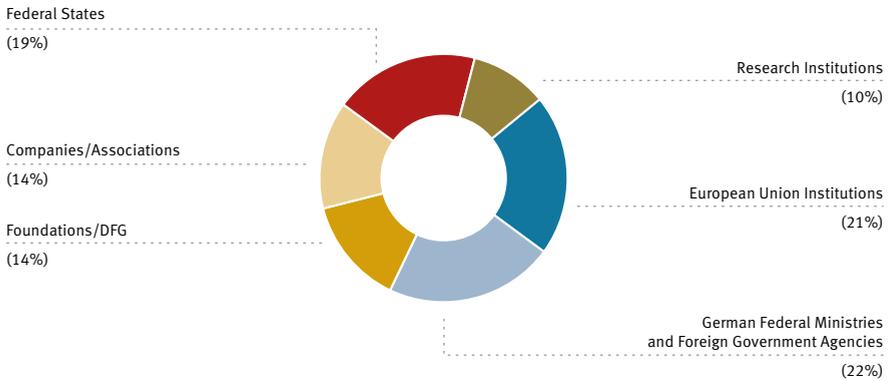
The research-based economic policy advice provided by ZEW takes a number of different forms:

- scientific studies and reports carried out on behalf of public bodies,
- participation of ZEW researchers in parliamentary discussions, formal advisory talks with parliaments, government agencies and the European Commission;
- membership of ZEW researchers in political advisory boards,
- consultations with representatives of the European Commission and government agencies, with members of parliament and decision-makers in administration;
- participation in public debates on economic policy via the media and events.

Science-Based Economic Policy Advice

Policy advice provided by ZEW complies with rigorous scientific standards and is based on research data. Providing policy advice is hence not only the task of a specialised team of advisers, but the responsibility of all ZEW researchers. The completion of studies, which form the basis of the policy advice provided by ZEW, and the publication of academic papers are inseparable; policy advice and research compliment each other. Any knowledge won from research is immediately taken into account for policy advising. This concept provides economic policy-makers with a guarantee of the scientific quality and balanced nature of ZEW’s advising activities.

SOURCES OF THIRD-PARTY FUNDING IN 2015



Client Structure

In 2015, the institute’s third-party funding amounted to 8.9 million euros. The most significant clients, making up approximately 41 per cent of the ZEW client base, are German and foreign government agencies, followed by institutions forming part of the European Union (21 per cent). The share of foundations, including the German Research Foundation (DFG), as well as businesses and associations amount to 14 per cent each. With a proportion of ten per cent, research institutions also play a significant role (see Figure above).

KNOWLEDGE TRANSFER

One of the institute's key objectives is to communicate research findings to the scientific community, to political decision-makers and to interested members of the public. The research activities carried out at ZEW benefit from exchange maintained with the fields of academia, business, and politics; these provide external impulses which inform research, advising activities, and training programmes at ZEW. To ensure that information reaches the intended recipients, ZEW makes use of a variety of communication channels:

- ZEW Discussion Papers and book series,
- information brochures and research reports,
- documentations and studies,
- seminars, conferences, and symposia,
- scientific and public events,
- print, digital and social media.

ZEW Publications

The primary medium used for the dissemination of research findings are the ZEW Discussion Papers, which are subject to an internal review process before publication. The papers are made available free of-charge via the ZEW website and can also be accessed via leading research databases. As reflected in the high download rate from RePEc, ZEW Discussion Papers are highly regarded within the economics community.

ZEW produces two established book series; the ZEW Economic Studies (Springer Verlag) in English, the ZEW Wirtschaftsanalysen (ZEW Economic Analyses, Nomos Verlag) in German.

The readership of the periodical publications. e.g. the ZEWnews, and of the institute's reports includes researchers and students from a range of disciplines, management and executive staff from companies, as well as members of the public who have a general interest in economic policy issues. These publications contain selected research findings and economic policy analyses produced by ZEW, provide reports about conferences and events, and include information regarding further training seminars offered by ZEW.

In order to improve ZEW's international presence and networking opportunities, basic information about the institute is made available in German, English and Chinese.



Digital Information Resources

ZEW spreads information to the media and the general public via a comprehensive range of digital information channels. On the ZEW website, which is updated on a daily basis, a broad range of information can be accessed. A large number of research papers and studies are also available for download. As part of the institute's internationalisation strategy, content on the ZEW website is generally available in English.

The ZEW Newsletter, produced in both German and English, is sent to some 6,600 subscribers each month. The newsletter provides information about research findings, publications, events and career options. The institute's special web platforms bundle information about research projects, publications, press releases, and contact information relevant to key research areas at ZEW.



In addition, ZEW has been active on Twitter since the end of 2014. The institute tweets information about events, conferences, and publications as well as economic policy statements. More than 1,200 individuals and institutions are following ZEW on Twitter.

Efficient Communication

ZEW keeps the media informed about research findings with approximately 100 press releases and twelve press conferences each year. By way of these press conferences, ZEW contributes to current economic policy discussions.

The professional layout of ZEW publications, based on the institute's corporate design, ensures that ZEW papers and reports are easily and quickly recognisable. A reader-friendly layout as well as informative graphics and illustrations improve the publications' appeal to the relevant target audience.

Events

Numerous ZEW events provide a platform for networking with research institutions, firms, government agencies, organisations and the public. Besides scientific conferences, ZEW also organises forums and talks featuring renowned speakers which attract interested members of the public. Events include:

- First-Hand Information on Economic Policy (Wirtschaftspolitik aus erster Hand),
- Mannheim Economic and Monetary Talks (Mannheimer Wirtschafts- und Währungsgespräche),
- ZEW Economic Forum (ZEW Wirtschaftsforum),
- ZEW Lunch Debates (in Brussels).



Former ECB President Jean-Claude Trichet spoke at ZEW about the Central Bank's role in containing the financial crisis in Europe. The event was part of the Mannheim Economic and Monetary Talks lecture series.

Knowledge Transfer & Qualification Programmes

Each year, the seminar programme organised by ZEW – a unique offer in the sphere of economics research in Germany – attracts hundreds of participants from the fields of academia, administration and business. ZEW seminars provide further training that is informed by scientific research and highly relevant to practice. While doing so, ZEW researchers and experts from a number of organisations and companies work together to create the seminars. The ZEW Service Department “Knowledge Transfer & Qualification Programmes” provides further training in a variety of formats. Each year, around 40 expert seminars for participants from the realms of academic research, politics and business take place. In addition to seminars addressing economics and business administration issues (e.g. financial market analysis, transfer pricing), especially seminars on methodological approaches (e.g. econometrics) and courses which provide training in soft skills are popular.

Around 25 customised seminars take place each year. These courses address firms and public institutions that wish to offer their staff members the opportunity to benefit from tailor-made further training. The “International Qualification Programmes” are comprehensive further education courses for non-German speaking, international participants. Internal further training seminars serve as a basis for the qualification of ZEW researchers. In such seminars, staff members receive training in presentation and moderation techniques as well as soft skills and intercultural skills in both English and German.

STAFF REPORT AND FINANCIAL STATEMENT

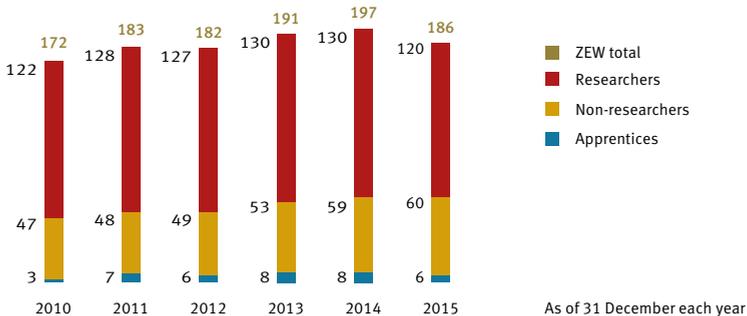
Staff Report

At the end of 2015, ZEW employed a total of 186 staff members (2014: 197), of whom 120 were engaged in research activities (2014: 130). The year under report saw the departure of 25 researchers from ZEW (2014: 25). While almost 30 per cent of the research staff members who left ZEW subsequently accepted jobs in businesses and associations, over half of them accepted positions in universities or in government institutions. Figure 1 illustrates the staff development over the course of the reporting period.

The majority of staff members employed in ZEW research units have traditionally been graduates holding a degree in economic science. The average age of a ZEW researcher is 33, indicating the extent to which the institute benefits from a pool of emerging, talented researchers. The average age of staff members across all ZEW units, both research and service units, is 36 (see Figure 2). In accordance with the ZEW human resources policy, the vast majority of research staff (88 per cent) are employed on fixed-term contracts. The dynamic nature of the ZEW workforce is reflected by the relatively large proportion of staff members, a total of 110, who have been working at ZEW for less than five years (2014: 109, see Figure 3).

Through the employment of interns as well as student and graduate research assistants, ZEW not only makes a significant contribution to the training and qualification of young academics, but also offers these young people support and professional guidance before they embark on their careers. In 2015, a total of 65 (2014: 83) interns took advantage of this opportunity offered by ZEW (see Figure 4). The majority of student and graduate research assistants employed at ZEW are studying at the nearby universities in Mannheim or Heidelberg, or at one of the other universities located in the Rhine-Neckar Metropolitan Region. Thanks to their participation in the work of ZEW research or service units, these students gain valuable initial professional experience.

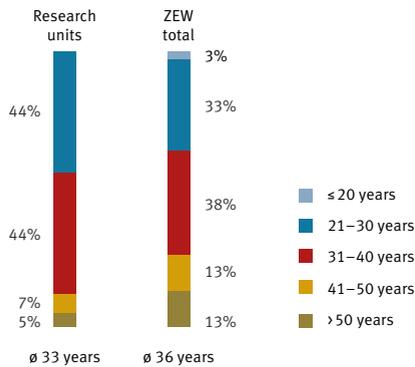
1] STAFF DEVELOPMENT



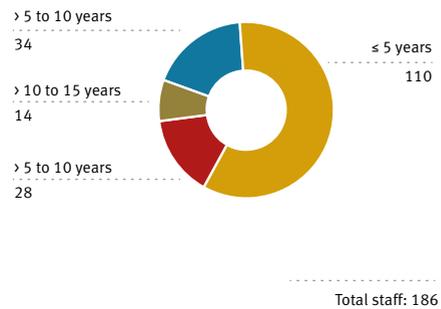
For particularly talented assistants, employment as a student research assistant at ZEW can mark the beginning of a more long-term professional relationship with the institute. As of December 31, 2015, a total of 112 students had taken advantage of the opportunities made available by ZEW (2014: 104).

The work carried out by ZEW is supported by numerous Research Associates from a number of universities in both Germany and abroad. Their support is critical, not only for the training and support of research staff, but also for the creation and development of research areas. Furthermore, the engagement of these Research Associates plays a significant role in establishing and maintaining contact and cooperation with project partners, and in the successful acquisition of third-party funding. In the course of the reporting period, numerous researchers, visiting ZEW from

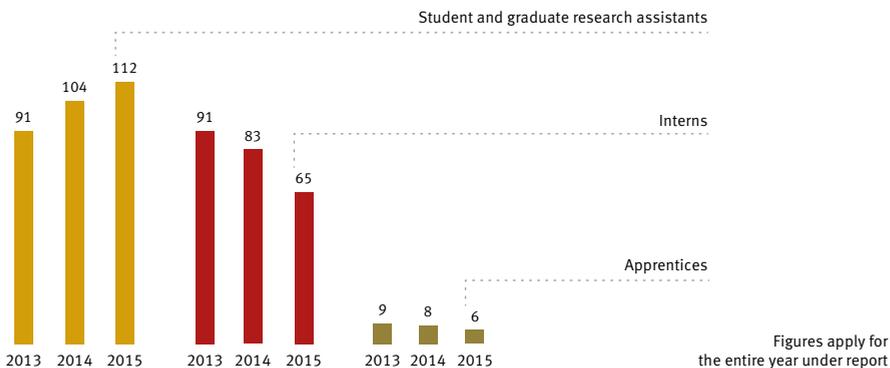
2] AGE DISTRIBUTION



3] DURATION OF EMPLOYMENT



4] STAFF IN TRAINING

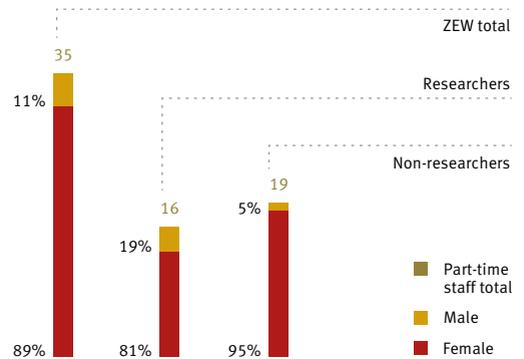


their home institutions in Germany or abroad, were directly involved in the work carried out at ZEW. Many of these Visiting Researchers chose to complete a research stay at ZEW in order to contribute to the institute's research projects and to engage in an exchange of information and experience.

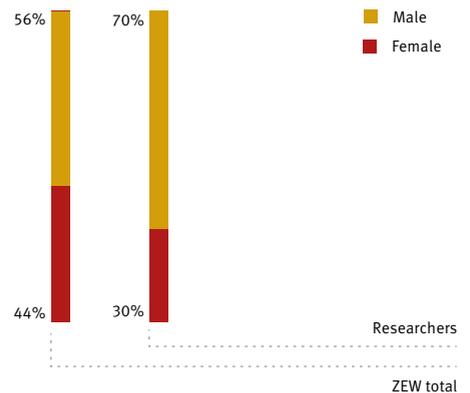
With its Visiting Researchers Programme (VRP), ZEW aims to further develop its international networks. The VRP is orientated towards researchers who are interested in completing an extended research stay at ZEW. The ZEW "Doctoral Studies Network" promotes cooperation with universities and gives doctoral students the opportunity to apply the knowledge and skills which they gain through their work at ZEW in their own empirical economic research projects, whilst also enabling them to cooperate on international projects. The involvement of external partners in ZEW research projects is an additional way in which the institute promotes transnational cooperation. Its evidence is provided by the contribution to 16 projects in the 7th EU Framework Programme for Research and Technological Development. In one of these research projects, ZEW represented the lead manager. Such cooperation enables ZEW to further expand its international networks and to establish new points of contact around the world.

Two of the central priorities of ZEW are the completion of high-quality research and the provision of internationally relevant economic policy advice. In order to achieve these goals, ZEW has an established qualification programme which serves to promote the further academic education and training of ZEW staff. This programme gives staff members the opportunity to take temporary leave of their work on research projects in order to undertake further academic study. Research staff might therefore make use of such sabbaticals to complete doctorates, to qualify as a university lecturer, or to complete a research stay

5] PART-TIME STAFF



6] STAFF BY GENDER



at a renowned research institution abroad. In 2015, 14 researchers completed a doctoral thesis. Several of these were awarded the highest possible grade, “summa cum laude”.

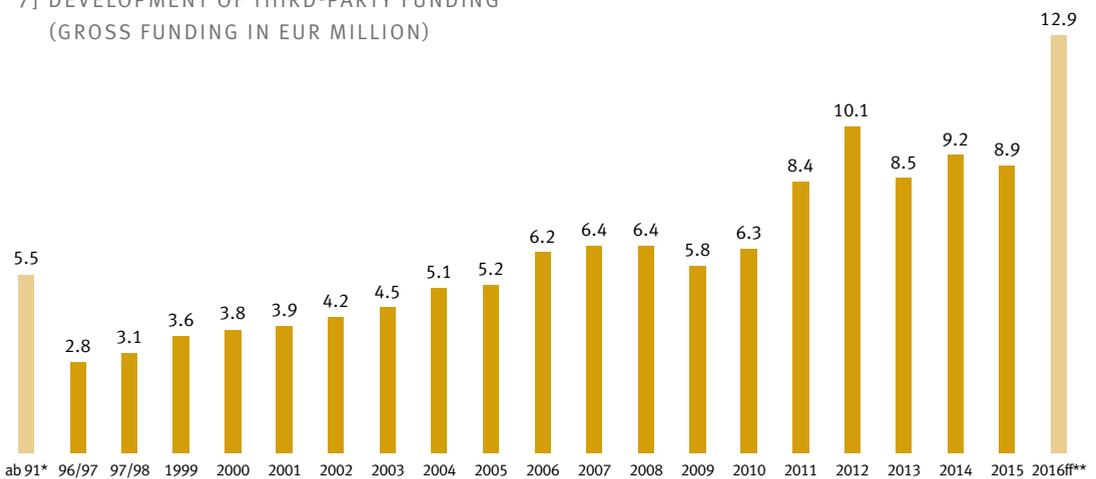
A special feature of the ZEW human resources policy, which renders employment at ZEW particularly appealing to young researchers, is the possibility of determining one’s own flexible working hours. At the end of 2015, a total of 35 researchers (2014: 37), representing 19 per cent of all research staff (see Figure 5), were taking advantage of the opportunity to determine their own work schedule on a part-time basis. ZEW actively encourages its staff to maintain a healthy work-life balance and facilitates the reconciliation of work and family life.

The proportion of female researchers engaged at ZEW during the reporting period was 30 per cent (2014: 31 per cent). Across the entire institute, as in the previous year, 44 per cent of staff members were female (see Figure 6).

Financial Report

The ZEW balance sheet showing endowment, finances, and revenues for the fiscal year of 2015 is positive. Given the difficult conditions which arose in this period as a result of the economic and financial crisis in Europe, this positive outcome is not to be taken for granted. The challenge posed by the increase in national and international competition for third-party funding has also become considerable. Despite this increase in competition, however, the proportion of ZEW funding originating from third-party sources (including other revenues) remained on a constant level in 2015 with 46 per cent (2014: 47 per cent). The current volume of third-party funding for 2016 and the following years amounts to a total value of EUR 12.94 million (see Figure 7). ZEW’s successful acquisition of funding is proof of the value of the work carried out by the insti-

7] DEVELOPMENT OF THIRD-PARTY FUNDING (GROSS FUNDING IN EUR MILLION)



* Includes third-party funds received in the fiscal years 91/92, 92/93, 93/94, 94/95, 95/96; **Current volume of commissioned projects

tute and is to be regarded as recognition of the excellent quality of the research conducted. Since its foundation in 1991, ZEW has received a total of EUR 132 million in the form of third-party funding.

ZEW's financial charter, which allows for the receipt of general funding in fixed accounts, enables surplus revenues resulting from increases in third-party funding to be designated as "appropriated reserves". The net income revenue is calculated on the basis of the profit-and-loss statement minus the withdrawals made from the "appropriated reserves". For the fiscal year of 2015, ZEW therefore registered an annual deficit of EUR 0.14 million and a net profit of EUR 0.34 million (2014: EUR 0.72 million, see Figure 8). As can be seen in Figure 9, the total net capital of EUR 16.56 million represents an increase in comparison to the total net capital of EUR 15.46 million indicated for 2014. This increase is mainly due to a gain in stocks, in bank deposits, in

8] ZEW PROFIT-AND-LOSS-STATEMENT

(in K euros)	2013	2014	2015*
Institutional funds	9,177	9,632	9,921
Joint Initiative for Research and Innovation Funding	330	328	312
Third-party funds (turnover, inventory changes, subsidies)	8,535	9,184	8,902
Other business revenues, financial profit	274	313	287
Income from the reversal of the special item for contributions to fixed assets	439	505	527
Total revenues	18,755	19,962	19,949
Staff expenditures	11,118	11,851	11,706
Third-party services	1,216	804	952
Other operating expenditures	5,338	6,288	6,409
Asset write-offs	439	505	527
Allocation to special items for contributions to fixed assets	571	548	462
Other taxes	13	22	7
Total expenses	18,695	20,018	20,063
Financial result	-	-	-25
Profit/loss for the financial year	60	-56	-139
Withdrawals from appropriated reserves	672	776	475
Net income	732	720	336

* Preliminary figures

receivables and in other sources of income. Looking at the source of funds, the increased total net income is predominately a result of the total value of liabilities and advance payments. The cash and equivalents balance indicates continued good liquidity.

To summarise, the following developments were of particular significance in the course of the fiscal year of 2015: Total revenues, amounting to EUR 19.95 million, were the same as in the previous fiscal year. The gross turnover of third-party funding, amounting to EUR 8.90 million, is below the pre-year figure (2014: EUR 9.18 million). Total expenses (incl. financial result) for 2015 are marginally greater than those in 2014, EUR 20.09 million as opposed to EUR 20.02 million in 2014. This is the result of a minor increase in “other operating costs”, from EUR 6.29 million in 2014 to EUR 6.41 million in 2015.

9] ZEW BALANCE SHEET AS OF 31 DECEMBER 2015*

	31-12-2014 in K euros	31-12-2015 in K euros		31-12-2014 in K euros	31-12-2015 in K euros
ASSETS			LIABILITIES AND EQUITY		
Intangible assets	325	280	Share capital	26	26
Real estate	2,993	2,997	Appropriated reserves	3,721	3,966
Equipment	665	652	Other reserves	2,170	2,170
Downpayments made and construction in progress	11	–	Net income	720	336
Fixed assets	3,994	3,929	Shareholder's equity	6,637	6,498
Stocks	2,562	3,180	Untaxed reserves	1,799	1,734
Receivables	732	962	Reserves	2,891	2,640
Cash at banks	8,054	8,352	Advances received	2,385	3,254
Current assets	11,348	12,494	Liabilities	1,752	2,437
Prepaid expenses	122	140	Outside capital	7,028	8,331
Total	15,464	16,563	Total	15,464	16,563

* Preliminary figures

INTERNATIONAL RESEARCH COOPERATION

ZEW is an international research institute not only regarding the scientific focus, but also in the area of cross-border cooperation – because top-quality research requires collaboration on a European and global level. The capability to attract renowned researchers and foreign cooperation partners is an important benchmark for any successful research institution. International cooperation is also an important factor in the competition for third-party funds.

Participation in EU Framework Programmes

In the period covered by this report, ZEW has maintained substantial international activities in the fields of research and policy advice. ZEW has participated in 16 projects funded under the EU's 7th Framework Programme for Research and Innovation. Within the framework of the “ENTRACTE” project that was completed in 2015, ZEW coordinated a consortium of nine partners. The project team assessed the interplay of various policy goals concerning renewables and climate protection against the backdrop of the debate about EU energy and climate policy.

With a view to the current EU Framework Programme for Research and Innovation (2014–2020), ZEW has even intensified its commitment: the institute participates in four “Horizon 2020” projects; two additional projects will start in late 2016 or early 2017.

Economic Policy Advice on EU Level

Beyond participation in EU-funded research, ZEW provides expertise for the European policy-making process. The institute has established itself as a policy player in Brussels. For instance, ZEW gives input to the EU Commission on the design of European research and innovation policy, and leading ZEW researchers advise the EU Commission in a number of economic policy areas. No fewer than nine ZEW economists acted as advisers to the Commission in the period covered by this report. Moreover, Clemens Fuest, president of ZEW during the reporting period, is a member of the EU inter-institutional “High-Level Group on Own Resources” chaired by Mario Monti. The goal of this group is to develop proposals for the future financing of the European Union and to identify ways to make the present EU own-resources system simpler, fairer, and more transparent. Finally, ZEW continues to succeed in strengthening its presence and visibility on the European arena with a discussion series set up in Brussels in 2014, the “ZEW Lunch Debates”.



Panelists at the ZEW Lunch Debate on the topic “Road to Paris” in November 2015: Dr. Oliver Schenker (ZEW), Professor Rudolf Schüßler (University of Bayreuth), Jos Delbeke, PhD (Director-General of the European Commission’s DG for Climate Action).



ZEW Lunch Debate on “Public R&D in Times of Fiscal Consolidation” in 2015 with Professor Maria da Graça Carvalho, senior adviser in the cabinet of EU Commissioner Carlos Moedas, and Professor Reinhilde Veugelers from the Catholic University of Leuven.

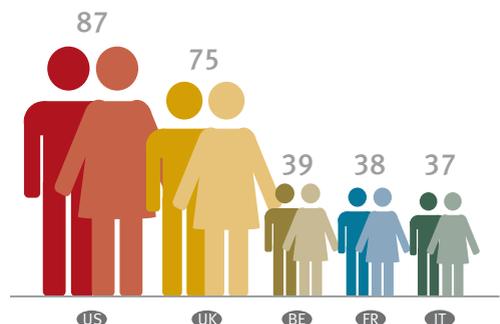
In 2015, five events in this series took place with a remarkable success, bringing together renowned ZEW researchers with experts and an invited audience to discuss current economic challenges facing Europe. High-level EC staff, members of the European Parliament, as well as representatives of industry and research have participated as panellists in these debates.

Cooperation Networks

International cooperation serves the purpose of qualification and scientific exchange. ZEW maintains cooperation with a growing number of universities, research institutions and organisations worldwide. Comprising joint projects, publications, and mutual research visits, cooperation involves institutions across Europe, in the US, and in Asia. During the period covered by this report, exchange was particularly intensive with the UK and the US, including outstanding partners like Oxford University and University College London in the UK as well as NBER and the Massachusetts Institute of Technology in the US. Research projects within the framework of ZEW’s SEEK programme were another important area of collaboration in 2015.

Cooperation with China has been further strengthened. Together with Fudan University in Shanghai, ZEW continues to carry out a monthly survey on macroeconomic trends in China (China Economic Panel), and together with PricewaterhouseCoopers, ZEW and Fudan conduct a quarterly survey on German-Chinese trade. ZEW supported once again the German Federal Ministry of Education and Research in organising the annual “Sino-German Platform for Innovation”. The institute also organised, together with the University of International Business and Economics (UIBE), the 2015 annual Beijing-Humboldt Forum, which was devoted to the topic “Green Economy”.

10] TOP 5 COUNTRIES OF ORIGIN FOR ZEW VISITING RESEARCHERS



In the year under report, a memorandum of understanding with Tsinghua University was signed. What is more, ZEW was named a member institute of the International Consortium of China Studies (ICCS) at Peking University's National School of Development. Peking University and Tsinghua University both are among the most influential universities in China.



ZEW Visiting Researchers Programme

The development and expansion of international networks benefited from the large number of 497 foreign researchers from 35 countries who came to ZEW in the reporting period. The ZEW Visiting Researchers Programme (VRP) provides a framework for research stays.

Conferences and Publications

ZEW's visibility beyond Europe is strengthened by the institute's participation in international conferences. In January 2015 ZEW participated in the annual meeting of the Allied Social Sciences Association (ASSA) in San Francisco, the most important economics conference in the world. In August ZEW contributed to the European Economic Association meeting in Mannheim that has a similar rank in Europe. On both occasions ZEW researchers presented their research findings. In addition, the institute was represented with a stand providing information about major research areas as well as opportunities for cooperation and research stays. At the ASSA job market, ZEW research unit heads and human resources staff conducted job interviews with up-and-coming economists.

Information brochures for specific target groups, press releases, and a website in English, a general information brochure in Chinese, as well as public relations activities at international conferences are further measures to enhance international networking.



BU: A delegation from the Beijing University of Business and Economics visited ZEW in July 2015 (from left): Dr. Xiaomeng Li (UIBE), Dr. Georg Licht (ZEW), Professor Xiaohu Feng, Professor Zhongxiu Jiang and Professor Xianling Jiang (all UIBE), Thomas Kohl (ZEW), Professor Baichuan Sang (UIBE), Manuel Lauer (ZEW).

ZEW regularly welcomes international delegations. In 2015, some 40 executives from both countries visited ZEW as part of the fourth German-Chinese Young Leaders Conference. They discussed current economic issues with ZEW researchers and gained insights into ZEW's work.

ZEW RESEARCH DATA CENTRE

The ZEW Research Data Centre (ZEW-FDZ) grants external researchers access to original data collected by the Mannheim Centre for European Economic Research. The ZEW-FDZ primarily provides micro-level data from ZEW firm surveys on topics such as innovation activity, the development of start-ups, and the use of information and communication technologies. In addition, the ZEW-FDZ offers data from ZEW expert surveys, e.g. the ZEW Financial Market Test, and from personal interviews.



Firm Surveys:

- Mannheim Innovation Panel (MIP)
- Mannheim Start-up Panel
- Generational Change in SMEs
- High-Tech Start-up Panel
- Academic Spin-offs in Germany and Austria
- ICT Survey
- Business Survey in the Information Economy
- Eco-Innovation

Expert Surveys:

- ZEW Financial Market Survey
- Survey of Participants in UN Climate Conferences
- ProgTrans/ZEW Transport Market Barometer

Individual-Level Surveys:

- ECO-CARS (Survey of Potential Car Buyers)
- SECO@home (Household Survey on Energy Consumption)
- ZEW Secondary School-to-University Transition Panel

External researchers have the opportunity to work with ZEW data within FDZ premises at ZEW on request. The use of ZEW data by external researchers is restricted to academic research projects. External researchers can also access factually anonymised ZEW datasets as Scientific-Use-Files for use in their own institution. Selected datasets of the Mannheim Innovation Panel (MIP) are also made available as Education-Use-Files for application in university teaching.

All use of ZEW data is free of charge and limited to scientific, non-commercial research. The ZEW-FDZ has been accredited by the German Data Forum (RatSWD).

In the period covered by this report, 22 external researchers worked with ZEW data within FDZ premises; on average, the visiting researchers came to the FDZ twice a year. Over 50 external researchers utilised Scientific-Use-Files of ZEW data in 2015. More than 80 per cent of license agreements were made for MIP data. Since 1996, a total of 313 external researchers have used MIP data, almost two-fifth of whom worked outside of Germany, and about eleven per cent outside of Europe. MIP Education-Use-Files have been applied by 27 university scholars for teaching so far. In 2015, five new users seized this opportunity.

An FDZ user conference is planned for 2016, where external researchers can present and discuss the results of their work with ZEW data.

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Further information: www.zew.de/zew-fdz

DATABASES

• Business Survey in the Information Economy

Quarterly survey of firms from the ICT hardware sector, ICT service providers, media service providers, and knowledge-intensive service providers on their current business situation and the expected development.

Contact: Daniel Erdsiek (erdsiek@zew.de)

• KfW/ZEW CO₂ Panel

Survey of companies, experts of the EU emissions trading scheme, and researchers regarding the development of the emissions trading market. The survey is conducted in cooperation with KfW Banking Group.

Contact: Dr. Peter Heindl (heindl@zew.de)

• Mannheim Enterprise Panel (MEP)

Firm-level data for the analysis of start-ups, company growth, and survival with data from companies with business activities in Germany

Contact: Dr. Sandra Gottschalk (gottschalk@zew.de)

• Mannheim Innovation Panel (MIP)

Database with information on the innovation activities of companies in Germany, collected on the basis of an annual company survey.

Contact: Dr. Christian Rammer (rammer@zew.de)

• Mannheim Start-up Panel

Database with information on business start-ups for the analysis of their development during the first years, conducted in cooperation with Creditreform.

Contact: Jürgen Egelin (egelin@zew.de)

• ZEW Financial Market Surveys

Monthly surveys of experts providing expectation data on financial market trends as well as macroeconomic developments, conducted in Germany, Switzerland, Austria, Central and Eastern Europe, and Turkey.

Contact: Dr. Michael Schröder (schroeder@zew.de)

RESEARCH PROGRAMME
STRENGTHENING EFFICIENCY AND COMPETITIVENESS
IN THE EUROPEAN KNOWLEDGE ECONOMIES (SEEK)



The ZEW research programme “Strengthening Efficiency and Competitiveness in the European Knowledge Economies” (SEEK) has been funded by the State of Baden-Württemberg since its kick-off in 2010. The key objective of SEEK is to strengthen top-level research in economics. ZEW’s goal in conducting the SEEK programme is also to expand international networks and to improve the institute’s long-term position in the research landscape.

Using SEEK funds, ZEW is implementing a number of measures to pursue this goal. The focus lies mainly on research projects that enable cooperation between ZEW researchers and renowned international economists. The research teams address topics concerning the efficiency and competitiveness of the European knowledge-based economies. The research findings aim to provide decision-makers in politics and business with strategies to overcome the major economic challenges facing Europe. The European Commission’s “Europe 2020” strategy addresses these challenges and defines objectives to be achieved by 2020. Projects within the SEEK framework contribute to the goals of “Europe 2020” from a scientific point of view.

Independent, scientifically grounded policy advice is particularly high in demand against the backdrop of the ongoing economic and financial crisis in Europe. Therefore, the SEEK research programme has been focusing on a central topic related to the economic crisis since 2014: “Overcoming the Crisis in Europe.” SEEK projects examine the origin of the crisis, the conditions for smart, sustainable and inclusive growth, as well as long-term strategies to secure economic and financial stability. The target of SEEK research projects is to deepen our understanding of the crisis and to provide decision-makers in the realms of politics and administration with empirical, science-based expertise.

Since the beginning of the SEEK programme, ZEW has launched five calls for proposals, inviting international researchers in economics to submit project proposals in cooperation with ZEW economists. Project proposals are evaluated by a scientific board that consists of distinguished international researchers. This competitive procedure ensures scientific excellence and guarantees exclusive funding of high-level projects within the framework of the SEEK programme.

Two SEEK projects of the fifth funding period, which were launched in 2014, were completed successfully towards the end of the year under report:

- Evaluating the Introduction of a Uniform Minimum Wage in Germany:
A Structural Equilibrium Job Search Approach
- Fiscal Governance and Adjustments Under Crisis Conditions

Four more projects from this funding period were completed in February or March 2016:

- Side Effects of Economic Crises in Europe and Provision of Online Public Goods
- Resilience in Times of Crisis: The Role of ICT. Evidence for Europe
- Human Capital Formation in Young Firms and the Crisis: A Comparative Analysis of Portugal and Germany
- Credit Supply of Banks and SME Financing in the Crisis – Unveiling the Real Economic Effect

More detailed information on SEEK projects, results and contact persons are available on the SEEK website: <http://seek.zew.eu>

SEEK Annual Conferences

In order to increase ZEW's international visibility, the institute has been hosting an annual SEEK Conference since 2011 as part of the research programme. These conferences have been met with great interest, attracting some 200 international participants from the areas of academia, politics, and business each year. The first SEEK Conference in 2011 had the title "Going for Smart Growth with Knowledge and Innovations". The following conferences addressed the topics "The Green Growth Challenge" (2012), "Engines for More and Better Jobs in Europe" (2013) and "Public Finance and Income Distribution in Europe" (2014). High-profile speakers including EU Commissioner Máire Geoghegan-Quinn, Professor Klaus Töpfer, Executive Director of the Institute for Advanced Sustainability Studies and former Federal Minister, as well as renowned researchers like Professor Thomas Piketty, Paris School of Economics, Professor Philippe Aghion, Harvard University, and Professor Bronwyn Hall, University of California at Berkeley, contributed to the huge success of the conferences.

Economists from across the world met at the 2015 SEEK Conference titled "Overcoming the Crisis: How to Foster Innovation and Entrepreneurship in a Diverging European Economy?". Once again, ZEW had the privilege to welcome high-level speakers: Keynotes were delivered by Professor Mario Monti, Italy's former Prime Minister, and Peter Praet, PhD, executive board member of the European Central Bank. In addition, Andreas von Bechtolsheim, one of the most successful German founders in Silicon Valley, gave a lecture via conference call. The first day of conference also featured a discussion on the question "Innovative Entrepreneurship in Europe – What Is Missing?" including panellists Dr. Gitte Neubauer, Director of Cellzome GmbH and winner of the EU Innovation Prize for Women in 2011; Frédérique Sachwald, PhD, Head of the Directive for Research and Development at the French Ministry for Higher Education and Research; Franz Fehrenbach, Chairman of the Supervisory Board of Robert Bosch GmbH; as well as Dr. Georg Licht, head of the ZEW Research Department "Economics of Innovation and Industrial Dynamics".

The second day of conference featured lectures by Ufuk Akcigit, Assistant Professor at the University of Chicago, and Professor Tommaso Valletti from Imperial College Business School in London as well as subsequent debates. Traditionally, the second conference day is exclusively devoted to academic research. Another platform of discussion was provided in the form of scientific sessions, which featured 24 lectures by international researchers who presented their current scientific work.

The SEEK Programme: An Impressive Success

Since its launch, SEEK has been impressively successful, confirming the research programme's sustainable impact. More than 40 international projects have been carried out within the framework of the programme, providing ZEW researchers with the opportunity to closely collaborate with high-profile researchers. Such collaborations considerably improve the quality of scientific research at ZEW. This is reflected by the increase in publications and the great number of SEEK papers accepted for publication in recognised scientific journals.

SEEK also provides ZEW researchers with the opportunity to enhance their networks within the international scientific community by way of research stays at partner institutions, of which there have been more than 120 as part of SEEK projects. As a result, ZEW established or intensified cooperative relationships with about 70 international research institutions and universities. ZEW's visibility is not only increased by the annual SEEK Conferences, but also by presentations,



workshops and publications based on SEEK research findings. In order to disseminate SEEK research results within the scientific community and beyond academic circles, ZEW researchers gave about 130 lectures at international scientific conferences and organised more than 30 workshops. For the same purpose, the “ZEW policy briefs” inform national and international decision-makers in a concise way about SEEK research results, including policy proposals based on empirical research. They are one of the key elements in ZEW’s policy advising activities.

Thanks to the huge success of SEEK, the government of Baden-Württemberg decided to continue funding the research programme, which was originally planned to last until 2015, for three more years from 2016. Preparations for new SEEK research projects have thus already begun in the summer of the year under report. These projects are expected to be launched in the first half of 2016.

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Left: Professor Mario Monti gives a lecture on the need to reform the EU at the SEEK Conference in 2015.
Right: Dr. Georg Licht, Dr. Gitte Neubauer, Frédérique Sachwald, PhD, and Franz Fehrenbach (from left) discuss the challenges facing entrepreneurs in Europe at the 2015 SEEK Conference.

LEIBNIZ SCIENCECAMPUS

MANNHEIM CENTRE FOR COMPETITION AND INNOVATION (MaCCI)

The Leibniz ScienceCampus “Mannheim Centre for Competition and Innovation” (MaCCI) was established by ZEW in cooperation with the School of Law and Economics at the University of Mannheim in January 2012. A ScienceCampus is a joint initiative of at least one Leibniz institution and one university, as well as the federal state where the participants are located. The aim of the initiative, which encourages regional partnerships between Leibniz institutions, universities, and third partners, is the promotion of excellence in research.

**Setting Goals for MaCCI**

The MaCCI ScienceCampus aims to initiate research projects at the intersection of law and economics in the areas of competition policy, regulation, and innovation. Particular focus is placed on basic research, on related applied and empirical research, and on comparative legal questions and anti-trust law. The MaCCI ScienceCampus thus serves to strengthen both the position of German legal research in Europe as well as the relevance of such research for legal practice. The initiative also creates additional opportunities for up-and-coming researchers to advance their careers and has a long term impact to improve the conditions of the participating institutions to attract young scientific talent.

Background and Motivation

In recent years, European and German competition, regulation, and innovation policies have undergone significant changes. At the same time, the call for policies based on empirical evidence has been growing. Research should no longer focus on the impact of policy measures in individual policy areas in isolation, but should consider direct and indirect external impacts as well as reciprocal effects between policy fields. Economic assessment of policy measures is therefore increasingly difficult; in addition to theoretical and empirical consideration, evaluation must also take complex institutional frameworks into account. This is precisely where legal analysis is of particular relevance: The impact of a variety of legal regulations in competition and innovation policy must be compared; problems must be identified to develop yardsticks based upon economic insights that are consistent with regulatory policy, ensure legal certainty, and can be practically implemented. Against this backdrop, interdisciplinary dialogue is urgently needed to arrive at application-orientated solutions which comply with economic criteria.

Areas of Thematic Focus

The MaCCI ScienceCampus focuses on issues which require cooperation between economists and legal scholars. Topics of research within the MaCCI campus include issues such as the establishment of standards from the perspectives of competition law, competition economics and innovation policy; competition in the healthcare sector; public and private enforcement of competition law; issues arising from the implementation and strategic use of intellectual property law (such as patents and trademarks); and the development of competition in telecommunications and energy markets. The two guiding principles of MaCCI, the promotion of an interdisciplinary and an application-orientated approach, are of primary relevance in all of these areas.

Contributions to Doctoral Education and Teaching

The ScienceCampus aims to contribute to doctoral and Masters student education. These contributions cover three levels:

- About every fortnight during the semester, as part of the Mannheim Competition Policy Forum, lectures are held regarding current cases in competition law (e.g. decisions in anti-trust cases). Speakers at these events include representatives from authorities and competition consultancies, as well as experts from relevant fields of research.
- Doctoral candidates are regularly involved in MaCCI projects, and some are also integrated in the Centre for Doctoral Studies in Economics (CDSE) at the University of Mannheim.
- The ScienceCampus aims to extend a European network for doctoral education at the intersection of law and economics, with the already existing “Competition Law and Economics European Network” (CLEEN) serving as centrepiece. Currently, about 30 doctoral students are involved in MaCCI activities.

Conferences and Networks

Within the framework of the ScienceCampus, conferences and workshops are organised on topics concerning competition law and the economics of competition. In May 2015, MaCCI and the ZEW Research Department “Environmental and Resource Economics” hosted the fourth Mannheim Energy Conference at ZEW. The two-day conference provided a platform for exchange and discussion between researchers and experts from the areas of politics, business, and organisations on issues related to competition and regulation in electricity markets, emissions policies, energy efficiency, and energy demand as well as investment opportunities in the energy sector. The conference featured renowned speakers, including Professor Natalia Fabra (University Carlos III, Madrid), ZEW Research Associate Professor Frank Wolak (Stanford University), and Professor Catherine Wolfram (University of California at Berkeley).

In addition, the “MaCCI Law & Economics Conference” on the topic “New Media: Industry Development and Public Policy” took place at ZEW in October 2015. The highlight of the conference was a lecture delivered by Markus Mobius (Microsoft Research) titled “How the Internet Changes

Media Consumption”. The panel sessions were devoted to discussions on the challenges for competition and regulation policy arising from the merging of previously separated media and on the role of public television broadcasters in Internet markets.

About 70 researchers with respective research interests form the central core of the regional MaCCI network. MaCCI is supported by a scientific advisory board consisting of renowned international scholars from the areas of competition, regulation and innovation.



Professor Catherine Wolfram (University of California at Berkeley) during her keynote speech at the fourth Mannheim Energy Conference.

Board of Directors

- Professor Irene Bertschek, ZEW
- Professor Thomas Fetzer, University of Mannheim
- Professor Kai Hüschelrath, ZEW
- Thomas Kohl, ZEW
- Professor Martin Peitz, University of Mannheim

Coordinators

- Stefan Frübing, ZEW (fruebing@zew.de)
- Professor Kai Hüschelrath, ZEW (hueschelrath@zew.de)

Further information: www.macci.eu

LEIBNIZ SCIENCECAMPUS MANNHEIM TAXATION (MATAx)

In April 2014, the Centre for European Economic Research (ZEW) launched the Leibniz ScienceCampus MaTax in cooperation with the School of Law and Economics and the University of Mannheim Business School. The ScienceCampus also collaborates with the Institute for Financial and Tax Law of Heidelberg University. The central research topic of MaTax is future fiscal policy in view of European and global integration, as well as new economic and societal challenges. The development of policy options which take macroeconomic, legal, and entrepreneurial aspects into account is one goal of interdisciplinary cooperation between researchers from the areas of economics, business administration, law, and political science within MaTax. Another aim of the ScienceCampus is to intensify collaboration between the researchers involved by facilitating joint usage of research data and exchange of methodological expertise, thereby contributing to the development of research agendas. Both aspects mentioned are important assets of the MaTax ScienceCampus. Remaining true to the idea of sustainability, MaTax places particular focus on ensuring the quality of research and doctoral education.



Organisation, Governance and Quality Management

MaTax is led by a board of directors. Professor Christoph Spengel (representative of the University of Mannheim), Professor Friedrich Heinemann (head of the ZEW Research Department of “Corporate Taxation and Public Finance”), Professor Andreas Peichl (head of the ZEW Research Group of “International Distribution and Redistribution”), Professor Thomas Fetzner (head of the Department of Law at the University of Mannheim), and Thomas Kohl (Director of Business and Administration of ZEW) sit on the board. Christoph Spengel also serves as spokesperson for the ScienceCampus. Responsible for the management of operations for MaTax are two ZEW Postdocs, Dr. Phillip Dörrenberg and Professor Katharina Nicolay, who are closely involved with the work of the ScienceCampus and with the project teams. They are also responsible for project coordination and for the operational tasks associated, for example, with public relations and the organisation of events. A scientific advisory council, consisting of internationally recognised researchers, supports the board of directors in the selection and development of projects and in the continual evaluation of the ScienceCampus’ work. A full list of the members of the scientific advisory council can be found at: www.matax.eu

Funding Research

As part of the ScienceCampus, researchers from participating institutions may receive funding for their research projects. Funded research projects must conform to high research standards and should make a relevant contribution to those research topics focused on within MaTax. Any researcher at participating institutions may submit a research proposal to the board of directors. Each quarter, the board of directors decides whether proposed research projects will receive funding from MaTax. Research proposals which are selected for funding must address the overarching research topic of MaTax. Thus far, 18 project proposals have been accepted. Amongst other topics, these projects address the elasticity of taxable income in Germany, the incidence and effects on competition of various types of taxation, tax avoidance practices of multinational businesses, the jurisdiction of the European Court of Justice in the area of direct taxation, the tax structure in Europe and particular tax regimes for small and medium-sized firms. Regular workshops provide an opportunity for the findings from these MaTax projects to be presented and discussed.

Knowledge Transfer, Communication and International Networking

The ScienceCampus MaTax intends to achieve close collaboration in challenging research projects as well as the dissemination and communication of the results from research to various target groups. Integral to the MaTax communication strategy are regular scientific conferences and workshops held in Mannheim, the promotion of networking via participation of researchers in international conferences, research stays and the invitation of visiting researchers, as well as policy advising activities in the form of research reports, statements regarding taxation policy and workshops designed to facilitate exchange between actors from the fields of science, politics and business.

In October 2015, the second “Annual MaTax Conference” was held at ZEW. Approximately 60 researchers attended the conference to discuss their research projects. The keynote speech was given by Professor Mihir Desai (Harvard University). Furthermore, in August 2015, a workshop attended by numerous high-profile international researchers was held on the topic of, “Elasticity of Taxable Income”. The keynote speech at this workshop was delivered by Professor Wojciech Kopczuk (Columbia University). In June 2015, a special edition of the ZEW Lunch Debates series, entitled “MaTax Policy Meeting”, took place in Brussels. Representatives from the fields of academia, tax policy and industry discussed the topic of tax avoidance with around 60 guests, amongst whom were high-level staff of the EU Commission, members of the EU Parliament and business representatives.

Doctoral Education and Supporting the Next Generation of Researchers

Qualifying the next generation of researchers is central to the concept of the ScienceCampus MaTax. A total of 40 doctoral students are currently involved in the university departments and ZEW research units which participate in MaTax. These students are actively involved in the research conducted at the ScienceCampus and receive support in carrying out research required for their doctoral theses. At the “Graduate School of Economic and Social Sciences” (GESS) at



Professor Mihir Desai from Harvard University spoke at the 2015 MaTax Annual Conference on the topic “The Past, Present and Future of International Tax”.

the University of Mannheim, a “Tax Track” has been established through MaTax, which is based at the “Centre for Doctoral Studies in Business” (CDSB). The “Tax Track” was initiated in September 2014. The first-year group to have enrolled in the “Tax Track” have almost completed the course-work and are now being increasingly involved in projects at ZEW. The second-year group began the postgraduate programme in September 2015.

Board of Directors

- Professor Thomas Fetzer, University of Mannheim
- Professor Friedrich Heinemann, ZEW and Heidelberg University
- Thomas Kohl, ZEW
- Professor Andreas Peichl, ZEW and University of Mannheim
- Professor Christoph Spengel, University of Mannheim

Coordination

- Dr. Philipp Dörrenberg, ZEW
- Professor Katharina Finke, ZEW and University of Mannheim

Further information: www.matax.eu

» MANAGING INTEGRATION.



Jun.-Prof. Dr. Melanie Arntz
Acting Head of the Research Department
Labour Markets, Human Resources
and Social Policy





integration

RESEARCH DEPARTMENT LABOUR MARKETS, HUMAN RESOURCES AND SOCIAL POLICY



Jun.-Prof. Dr. Melanie Arntz
Acting Head of Department



PD Dr. Friedhelm Pfeiffer
Deputy Head



Jun.-Prof. Dr. Susanne Steffes
Deputy Head

RESEARCH AREAS

- **Changing Labour Markets**
Contact: Jun.-Prof. Dr. Melanie Arntz
- **Labour Markets in Organisations**
Contact: Jun.-Prof. Dr. Susanne Steffes
- **Education and Labour Market Entry**
Contact: Dr. Maresa Sprietsma
- **Inclusive Labour Markets**
Contact: Dr. Michael Maier

MISSION STATEMENT

The Research Department “Labour Markets, Human Resources and Social Policy” investigates institutions and working conditions in firms that may facilitate the development of smart, sustainable and inclusive European labour markets. Research questions include: how can we prevent poverty and social exclusion occurring as a result of long-term unemployment? What kind of human capital helps individuals to adapt to the challenges of globalisation as well as technological and demographic change? Answering these questions entails the study of human capital formation in both the education system and on the job, evaluation of social policies, analysis of human resource management strategies and investigation of micro-level adaptation mechanisms to macro-level changes. To successfully tackle these issues, the Research Department specialises in econometric impact assessment methods, including structural approaches, and in the analysis of linked employer-employee data. The Research Department offers scientifically rigorous policy advice mainly on questions concerning structural changes in labour markets and the design of efficient labour market, education and family policies.



RESEARCH AREA: CHANGING LABOUR MARKETS

- Globalisation and Labour Markets
- Skill-Biased Technological Change
- Spatial Adaptation Processes

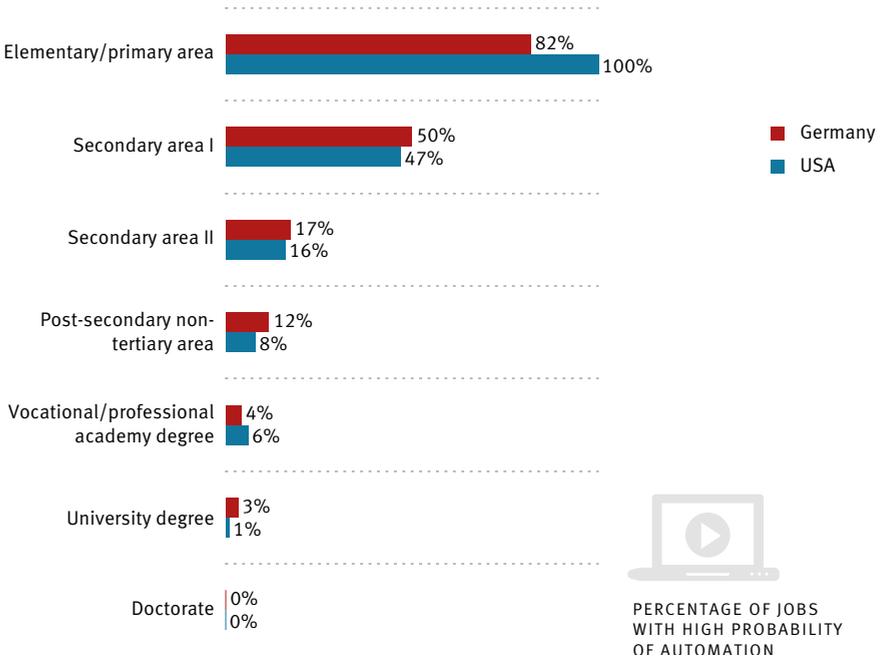
The research area “Changing Labour Markets” investigates how labour markets adjust to challenges such as deepening international division of labour, technological change, demographic shifts or business cycles. It primarily focuses on the effects of these macroeconomic phenomena at the level of individual agents. Institutional and structural differences between regional and national labour markets in Europe are taken into account, thereby contributing to a better understanding of spatial disparities. The research area analyses occupational, industrial and spatial mobility as adjustment processes.

In the year under report, the research area continued its research on the future of labour markets in an increasingly digitised and automated world. A study on how automation threatens jobs, conducted on behalf of the German Federal Ministry of Labour and Social Affairs, attracted much public attention. The study applies the results from a major US study based on expert assessments regarding the automatibility of occupations to the German context. Following this occupation-based approach, 42 per cent of all employees in Germany (five per cent less than in the US) have jobs that are highly likely to become automatable in the next ten to twenty years. However, the study argues that the risk of automation is exaggerated, as individual tasks are much more likely to be rendered obsolete by automation than entire occupations. In Germany, only twelve per cent of jobs have task profiles with a high probability of being automatable in the near future, while this figure in the US is nine per cent. Nevertheless, low-skilled workers in both countries face much higher risks of au-

tomation, which is why there is need for labour market policies responding to these arising challenges (see Figure 1).

A new research project funded by the German Federal Ministry of Education and Research deepens and extends previous work of the research area on the effects of labour-saving automation on labour markets. In order to examine how current and expected future technological shifts at the firm level affect workplace organisation and labour demand, a representative company survey has been prepared that will be conducted in 2016. On the basis of the survey's findings, the project will assess the consequences of digitisation and automation on employment and wages in the near future. Additionally, it will consider the role of adjustment mechanisms such as shifts in the tasks performed by employees within occupations.

1] THE PROBABILITY OF AUTOMATION AFTER GRADUATION



Source: Frey und Osborne (2013), OECD (2013), ZEW calculations.

RESEARCH AREA: LABOUR MARKETS IN ORGANISATIONS

- Human Resource Management
- Ubiquitous Working
- Work and Health

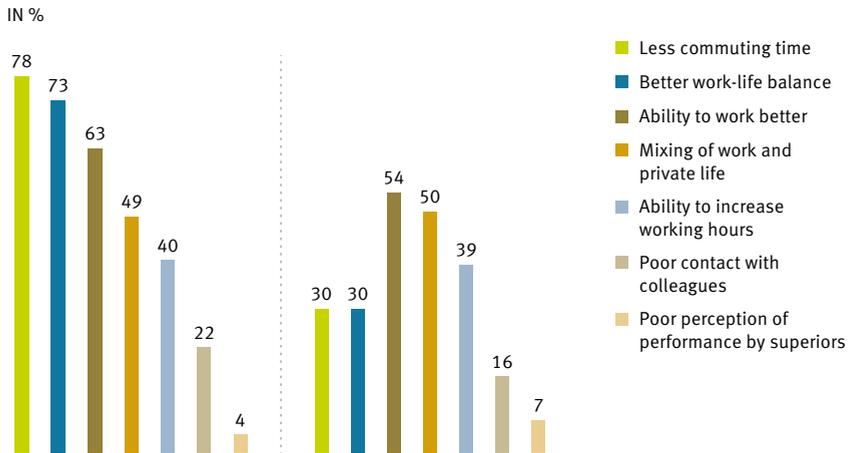
The research area of “Labour Markets in Organisations” investigates employment relationships. It is also interested in how these relationships between workers and firms are affected by structural changes in the labour market. The research area analyses the necessary and sufficient conditions for industrial organisation, human resource management and workplace characteristics to foster employee productivity, job quality and employability over the life cycle. These topics allow the research area to employ its expertise in both personnel economics and management science, drawing on a toolkit of advanced micro-econometric techniques.

In the year under review, the research area continued to investigate the differences between men and women in the incidence of and returns to training. The results show that employers invest less in women’s training, but that women achieve higher returns to training if they participate in such measures. Moreover, women respond to lower investment on the part of employers by investing more in training at their own expense. Another project found that companies in Germany rarely promote women or increase their training efforts as a response to shortages in skilled labour. On the positive side, the study found that human resource measures are particularly frequent when pursuing the goal of keeping older workers employed longer.

In 2015, the second wave of the Linked Personnel Panel (LPP) employee survey was completed. The development of this survey is part of the research area’s project “Work Quality and Economic Success: A Panel Study of German Companies” whose aim, among other things, is to improve our understanding of worker’s motives for leaving a job to search for a new employer.

Findings based on the LPP data regarding the chances and risks related to mobile and remote working arrangements have recently attracted considerable attention. Thirty per cent of employees say they work from home at least occasionally, with half of them working at home during regular working hours, and half of them outside of regular working hours. Those who work from home tend to perform demanding tasks and do above-average overtime. Employees who work at home during regular working hours primarily appreciate the advantages of combining family life with their career, and the time saved commuting. In terms of work-related advantages or disadvantages, there are no significant differences between those who work at home during standard working hours and those who work at home during non-standard working hours (see Figure 2).

2] ADVANTAGES AND DISADVANTAGES OF WORKING FROM HOME – THE EMPLOYEE’S PERSPECTIVE



Left: Data from employees who occasionally work at home during regular working hours.
 Right: Data from employees who work exclusively outside of regular working hours at home.
 Source: LPP employee survey round 2015, ZEW.

RESEARCH AREA: EDUCATION AND LABOUR MARKET ENTRY

- School-to-Work Transition
- Youth Unemployment
- Educational Policy Design

The research area “Education and Labour Market Entry” investigates the acquisition of skills and knowledge that support the successful and sustainable entry into employment. The focus is on human capital investments that are made at school or in vocational training. In addition, the research area evaluates how education policies and labour market institutions affect transitions from school and higher education to work, and early career opportunities and developments. To this purpose, expertise in the economics of education is combined with the application of advanced micro-econometrics.

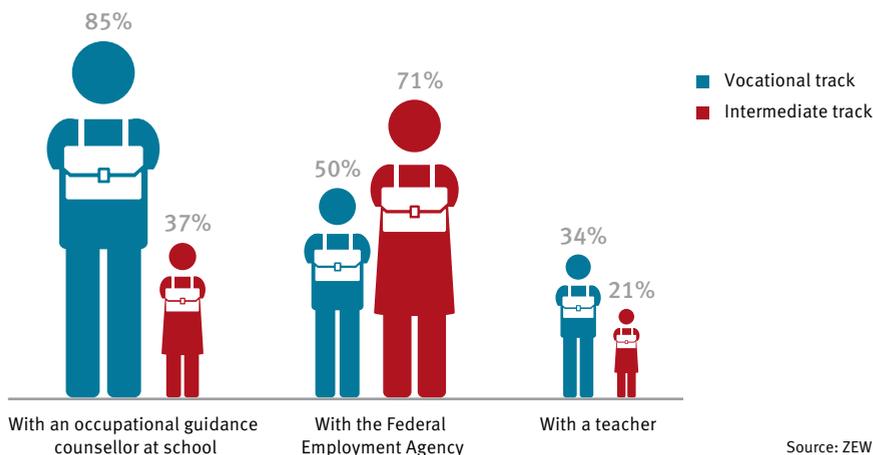
A central research theme in 2015 was the transition from university to the labour market. “The Effects of Geographic Mobility, Educational Quality, and Career Breaks on Individual Returns to Education” – a project funded by the German Research Foundation (DFG) – examined the effects of employment during post-secondary education as well as geographical mobility after gradua-

tion. The results, which are based on data from the National Educational Panel, show that student employment does not lead to poorer academic performance, and that geographically mobile students earn higher wages in the long run, benefiting from the greater choice afforded by a wider search area.

In cooperation with the ZEW Research Group “International Distribution and Redistribution”, a micro-simulation method was employed to investigate net income and returns on investment in education in Germany. On average, investments in education bring significant positive financial returns. This finding applies to private returns on investments made by individuals as well as to the returns on public investments in education. Higher levels of education generate higher individual wages over an entire working lifetime, which in turn increase tax revenues and social insurance payments, lowering the need for government transfers.

In a project funded by the Baden-Württemberg Foundation, researchers studied the transitions of pupils into lower secondary education. The results of the study, which are based on a survey among pupils from Freiburg and Mannheim, show that the supply of career-oriented programmes varies significantly between different tracks of lower secondary education. Overall, it appears that the intermediate track (Realschule) offers less career-orientation than the lower vocational track (Werkrealschule). The percentage of pupils who have discussed their careers with teachers or occupational guidance counsellors is significantly higher in the vocational track (see Figure 3). Schools with a vocational track also place more value on internships and assistance in searching for apprenticeships.

3] PERCENTAGE OF STUDENTS IN LOWER SECONDARY EDUCATION WHO HAVE HAD AT LEAST ONE CAREER-RELATED MENTORING SESSION



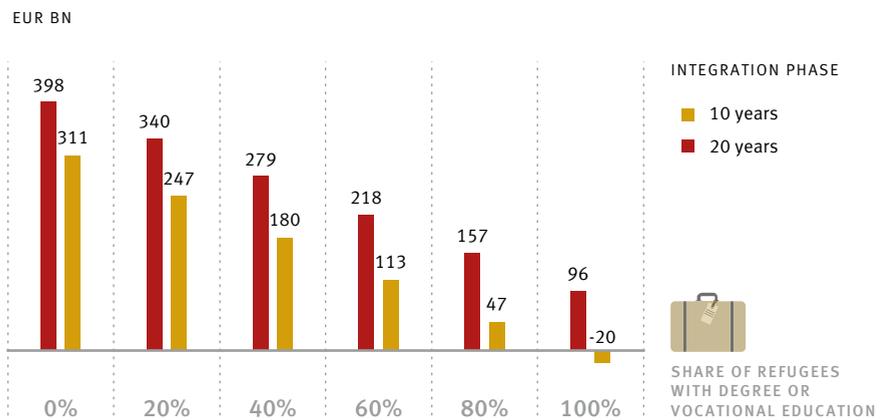
RESEARCH AREA: INCLUSIVE LABOUR MARKETS

- Active Labour Market Policies
- Low-Wage Employment
- Atypical Jobs

The research area of “Inclusive Labour Markets” is concerned with individual and institutional factors that facilitate or hinder fair employment and personal development. Of particular interest are groups with pronounced employment and income risks, such as the low-skilled, older workers, women with family-related obligations, and migrants. The research area investigates employment and wage dynamics as well as the determinants of successful transition into regular employment. It applies a broad range of micro-econometric tools to the evaluation of active labour market policies aimed at building more inclusive labour markets in Europe.

With the sudden increase in asylum seekers in Germany in 2015, the labour market integration of immigrants quickly shifted to the forefront of the research area’s concerns. One project used generational accounting tools to examine the potential impact of humanitarian immigration on public budgets. A wide range of scenarios indicates that the current inflow of refugees is more likely to pose fiscal burdens than benefits for the public budget as most of the refugees lack the skills required to generate a net surplus. However, the impact on public budgets largely depends on how fast immigrants integrate into the labour market and on the level of their vocational qual-

4] PRESENT VALUE OF LONG-TERM PUBLIC SECTOR COSTS AFTER THE INTAKE OF ONE MILLION REFUGEES IN 2015



Public budget based on total national accounts. Projected public costs of receiving refugees in the first year: 20,000 euros per capita. Refugees obtain the wage levels of domestic workers with equal skills by the end of the integration phase. The presented results are for scenarios not containing refugees who achieve the wage levels of domestic workers with higher degrees.

Source: ZEW

ifications (see Figure 4). If only a fifth of the refugees achieved the fiscal performance of workers with a vocational training instead of the lower wage levels of workers without any vocational qualification, public sector revenues would increase by 58 billion euros. Likewise, the acceleration of economic integration by one year would amount to around ten billion euros of additional revenues. Effective investments in training refugees and accelerating their labour market integration would therefore likely pay off.

The research area has recently launched a project in cooperation with local universities and partners from the private and public sector that aims at implementing a real-world laboratory for asylum seekers. Funded by Baden-Württemberg's Ministry of Science, Research and the Arts, the project seeks to examine factors and local practices that foster successful integration of asylum seekers in Heidelberg, Wiesloch, and Sinsheim. For this purpose, refugees will be randomly assigned to different programmes in order to be able to examine the effectiveness of different approaches to the labour market integration of asylum seekers.

OUTLOOK

In 2016, the Research Department will continue to contribute to objective and research-based public debate concerning labour markets and social policy. As an example, a new project will analyse potential problems related to the widespread use of third-party intermediate products or subservices, outsourcing and insourcing of production or service areas, and external service provision among German companies. For analysing this complex division of labour within the economy, the project draws on extensive data that will be collected on behalf of the Federal Ministry of Labour and Social Affairs. Furthermore, in a DFG-funded project, researchers from the department will use data from the Linked Personnel Panel to analyse how different work cultures regarding gender roles and the compatibility of family and work responsibilities affect human resources development and employee retention.

Moreover, the Research Department will start collaborating with the Research Group "International Distribution and Redistribution" to establish a new line of research at ZEW on regional and public economics. Funded under the SEEK programme, a new joint project links macro- and micro-level data to explore how institutional arrangements and regional labour market conditions affect intra- and interregional inequalities in wealth and other social and labour market outcomes.

The Research Department will also continue to refine a structural model of an imperfect labour market in order to estimate the employment effects of a universal minimum wage in Germany. Another structural model of the Research Department currently examines the effects of routine-biased technological change on regional labour markets while taking into account behavioural responses at the level of firms and workers.

» SHAPING DIGITAL TRANSFORMATION.



Prof. Dr. Irene Bertschek
Head of the Research Department
Information and Communication
Technologies





transfor mation

RESEARCH DEPARTMENT INFORMATION AND COMMUNICATION TECHNOLOGIES



Prof. Dr. Irene Bertschek
Head of Department



Dr. Jörg Ohnemus
Deputy Head

RESEARCH AREAS

- **Diffusion and Growth Potential of ICT**
Contact: Dr. Jörg Ohnemus
- **ICT, Markets and Corporate Strategies**
Contact: Prof. Dr. Irene Bertschek
- **Digital Networks and Knowledge Acquisition**
Contact: PD Dr. Marianne Saam

MISSION STATEMENT

The “Information and Communication Technologies” Research Department studies the impact of digitalisation on economic processes. It investigates changes in production, innovation, and the working world brought about by digitalisation, as well as digital markets and platforms. The Research Department’s work provides a foundation for evidence-based policy decisions in order to allow the benefits of ICT for smart value-added production, sustainable usage of natural and immaterial resources, and inclusion of people in the generation of knowledge and wealth to be leveraged at the national and European levels. Methodologically, researchers conduct empirical research, using econometric methods to analyse data gathered from in-house company surveys, Internet platforms, and macroeconomic databases. This makes the Research Department an important centre in Germany for the economic analysis of digitalisation.



RESEARCH AREA: DIFFUSION AND GROWTH POTENTIAL OF ICT

- ICT and Media Sector, Knowledge-Intensive Service Providers
- Business Cycles of the Information Economy
- Mobile Internet, Cloud Computing, Green IT
- Macroeconomic Effects

The “Diffusion and Growth Potential of ICT” research area is concerned with the diffusion of ICT, companies’ successes in the production and use of ICT and the macroeconomic effects of these processes. Economists in this area conduct surveys to investigate the adoption of different ICT applications in business, companies’ goals in using ICT and the obstacles and limitations companies face. Macroeconomic relationships are investigated through projections and the use of external macroeconomic data.

This research area is particularly concerned with the digital transformation of the German economy. Through its involvement in the monitoring reports on the digital economy for the Federal Ministry of Economic Affairs and Energy, as well as through its participation in the Federal Government’s IT summit, the department has contributed to assessing Germany’s performance as a location for ICT business, thereby fostering public and political understanding of digital technology as a catalyst for economic innovation. During the reporting period, two of the ICT Department’s key projects carried out on behalf of the Federal Ministry for Economic Affairs and Energy – the monitoring projects “Digital Economy” and “Monitoring the German Cultural and Creative Economy” – were granted additional three-year extensions. What is more, there has been significantly more interest in digital economy analysis among government and private-sector clients.

Organised by the Research Department, ZEW's 2015 Economic Forum "Europe in Digital Competition" was also very well received. Some 220 guests from the areas of academia, politics, and industry attended the lecture by the European Commissioner for Digital Economy and Society, Günther H. Oettinger. In a talk titled "Europe's Digital Future", the EU Commissioner and former Minister-President of Baden-Württemberg spoke in favour of a digital single market in the EU.

Competence in Econom

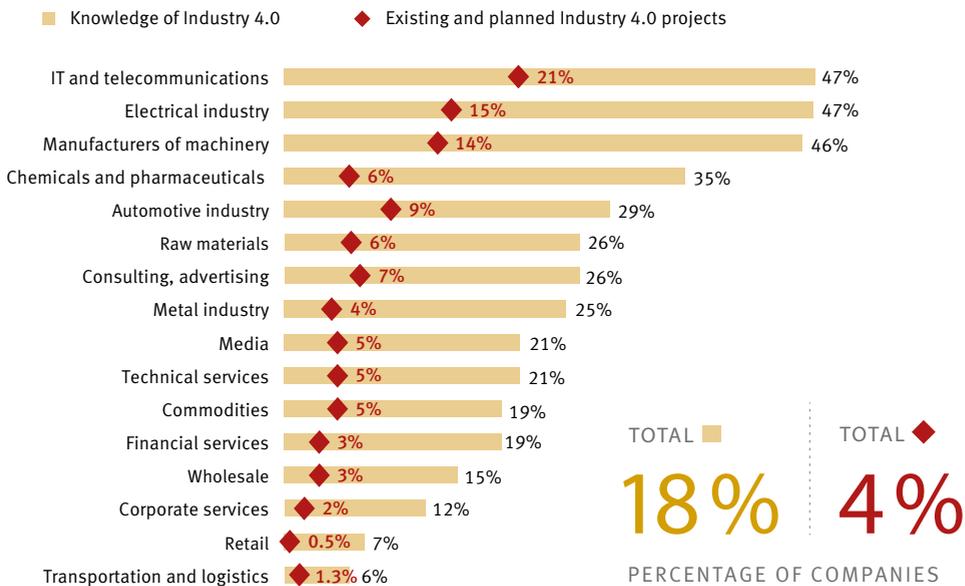


In June 2015, Günther H. Oettinger, the European Commissioner for Digital Economy and the former Minister-President of Baden-Württemberg, gave the keynote address at the ZEW Economic Forum "Europe in Digital Competition."

There is an intense on-going debate in Germany about the opportunities and challenges posed by what is known as "Industry 4.0," the extensive digitisation and networking of production, from customer orders and processing to downstream product services. Predominantly self-organised value creation has generated profound changes in our economic interactions. Around 4,500 companies in Germany were surveyed on these issues as part of the ZEW ICT survey. The survey found, among other things, that only 18 per cent of companies know the term Industry 4.0, though on a whole, large corporations are much better informed than smaller ones. Figure 1 shows the results in detail. While overall awareness of Industry 4.0 is low, the sectors with greater digital technology potential tend to be more familiar with the concept. At least half of the companies in the sectors of IT and telecommunications, manufacturers of machinery and the electrical industry know the term Industry 4.0. In the automotive industry, just over one quarter of companies know the term. Surprisingly, transportation and logistics sectors came in last.

While policy-makers and organisations have made numerous calls to invest in Industry 4.0 projects in an effort to maintain German industry’s lead across many fields, few companies have made concrete investment plans. Only four per cent of companies in Germany report having digitalised and networked their production processes for Industry 4.0 projects or are planning to do so in the near future. The IT and telecommunications sector is paving the way: 21 per cent of companies in this sector have already implemented or plan to implement Industry 4.0 projects. The electrical industry and manufacturers of machinery come next, with 15 per cent and 14 per cent, respectively. According to survey results, these are the sectors in which the providers of Industry 4.0 solutions are concentrated. The survey results have aroused much public interest given the intense debate surrounding Industry 4.0.

1] INDUSTRY 4.0 BY SECTORS



A total of 18 per cent of companies are familiar with the concept of Industry 4.0. Four per cent of the companies have already implemented Industry 4.0 projects or plan to do so in the near future. Source: ZEW

RESEARCH AREA: ICT, MARKETS AND CORPORATE STRATEGIES

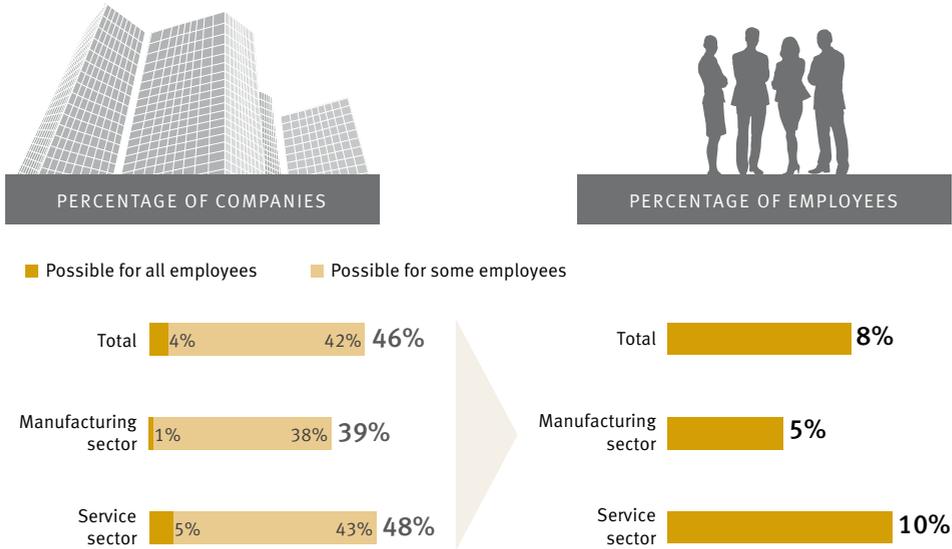
- Productivity and Innovation
- Internationalisation and Outsourcing
- Digital Production and Work Processes
- Online Markets
- Aspects of Competition Economics

The “ICT, Markets and Corporate Strategies” research area focuses on studying the motives behind and consequences of the implementation of ICT applications and complementary business strategies. The aim is to discover how companies can best use ICT to make the most of the potential benefits to innovation and productivity it offers.

As part of an on-going project of the Pact for Research and Innovation, the Research Departments of “Information and Communication Technologies” and “Labour Markets, Human Resources and Social Policy” are studying the features and consequences of ubiquitous working at the company and worker levels. The project examines how digitalisation contributes to technical, spatial and temporal flexibility of work and how this flexibility is associated with companies’ innovation and labour productivity. The Tübingen Leibniz Institute for Knowledge Media, the Leibniz Research Centre for Labour Research at TU Dortmund, and other partners from different disciplines in Germany and abroad are also involved in this project, which is part of the Leibniz Association’s Funding Line 2 (“national and international networking”).

The ZEW ICT survey contains comprehensive information on flexible personnel management models in German companies. The results show that there is large heterogeneity in the rapid spread of mobile ICT between individual industries and companies. Companies that are characterised by a flexible work organisation have been quick to invest in mobile ICT in the past four years. In addition, there is a strong discrepancy between the implementation of ICT on the company level and the distribution of flexible types of labour on the employee level (see Figure 2). For example, while 46 per cent of companies offer regular work from home in principle, only eight per cent of employees actually do work from home regularly. The Research Department’s on-going studies are dedicated to understanding the conditions under which mobile ICT can positively affect labour productivity in companies and which role flexible work organisation plays in this context.

2] REGULAR WORK FROM HOME



Left: Five per cent of companies in the service sector offer all employees the opportunity to work from home at least once a week. 43 per cent of service companies offer some of their employees this opportunity. Right: Five per cent of employees in manufacturing work from home at least once a week. Source: ZEW

RESEARCH AREA: DIGITAL NETWORKS AND KNOWLEDGE ACQUISITION

- Digital Media
- Social Networks
- User-Generated Content
- Education and ICT Skills

In the area of “Digital Networks and Knowledge Acquisition”, researchers examine the private and professional activities of individual Internet users and their effects. Special attention is paid to user activity on digital platforms such as Wikipedia or crowd working platforms, as well as the information assets and network structures that emerge from them.

For its users, the value of the Internet lies to a large extent in access to free content. Much of that content is created by peer production – the voluntary, decentralised creation of information goods. Wikipedia is a prominent example of this production model. As part of the Tübingen Sci-

enceCampus “Education in Information Environments”, researchers conducted various analyses of contributor behaviour on Wikipedia. For example, they examined how Wikipedia’s network of hyperlinks influenced the articles to which authors contribute.

In addition, researchers in this area investigated the role of Wikipedia for the scientific community of economists. Wikipedia is a popular information source for non-professionals who are interested in research topics, including economics research. For all of Wikipedia’s popularity, there has been no systematic examination of how economic science is presented on this platform. And generally, economists have little incentive to influence the online presentation of their discipline on Wikipedia and similar platforms. Researchers in this area of the department therefore decided to study the relevance of German-language Wikipedia entries for economists. Using previously collected hyperlink data, they found that only 13 per cent of the articles on topics tagged “Ökonomie” (economy) were also tagged “Volkswirtschaftslehre” (the academic discipline of economics). Economic themes not linked to economics were about companies, laws, other institutions, and popular topics written by communities outside economic science. The top 20 most popular topics (identified by entry length) were dominated by subjects related to Marxist economics and heterodox economic science. “Marxistische Wirtschaftstheorie” (Marxist economics), “Ursprüngliche Akkumulation” (Original accumulation), and “Gesetz des tendenziellen Falls der Profitrate” (Tendency of the rate of profit to fall) were among the twenty longest articles. Among the top twenty articles measured by the number of clicks or authors were concepts that are less beholden to a particular school of thought, such as “Einkommen” (income) or “Eigentum” (property). Karl Marx was the most popular economist for both sets of criteria (clicks and length). The contemporary economists represented in German-language Wikipedia’s top twenty were Horst Köhler, Hans-Werner Sinn, and Peter Bofinger. In the future, researchers plan to introduce methods to evaluate the total distribution of particular semantic characteristics in Wikipedia articles.

In addition to peer production platforms, the research area focused on interactions between online activities and the real economy. As part of the SEEK project “Side Effects of Economic Crises in Europe and Provision of Public Goods Online,” researchers examined how the financial crisis affected the activity of Wikipedia’s contributors. In European countries, more users read and edited Wikipedia articles during the recession than before or after. The finding suggests that the peer production of public information increases in times of crisis.

OUTLOOK

The Research Department will continue to conduct evidence-based analyses of the opportunities and challenges arising from the digital transformation of society and economy, thereby contributing to the ongoing public debate on this issue. The department will thus continue to measure the multidimensional process of digitalisation. Together with TNS Infratest and on behalf of the Federal Ministry for Economic Affairs and Energy, the ICT Department prepares the 2016 Monitoring Report DIGITAL Economy. Focusing on training, this report will contribute to the national IT Summit, which features the principal topic of education in 2016. In collaboration with ZEW's "Labour Markets" Research Department, economists in this unit will examine changes in the working world brought about by ICT.

In the context of the SEEK research programme, the department will cooperate with the "Competition and Regulation" Research Group and the "International Finance and Financial Management" Research Department at ZEW to conduct in-depth analysis of digital markets and platforms. This cooperation includes investment in data collection methodologies. The taxation of Internet-based transactions will be an area of collaboration with ZEW's "Corporate Taxation and Public Finance" Research Department. Drawing on a completed research project on the permission of apps to access sensitive personal information about users, economists of the ICT department will investigate the connection between innovation and competition on the apps market.

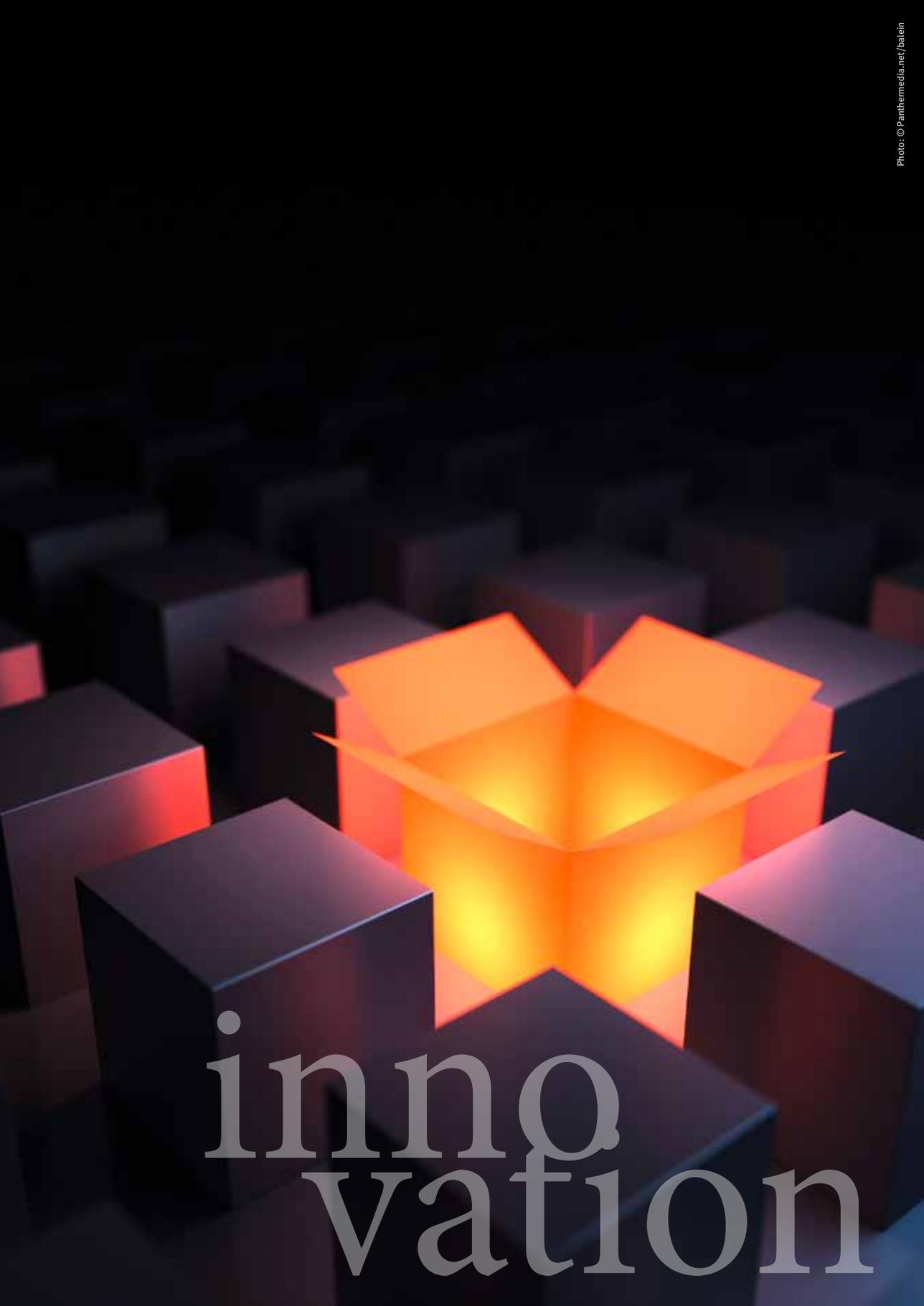
Studies on the use of social media by companies and its role for business success will be continued. In this context, economists will conduct sentiment analyses of social media content.

» OPEN INNOVATION – PROGRESSING TOGETHER.



Dr. Georg Licht

Head of the Research Department
Economics of Innovation and
Industrial Dynamics

A 3D rendering of a field of dark, rectangular blocks. In the center, one block is open and glows with a bright orange and yellow light, casting a warm glow on the surrounding blocks. The background is dark, making the glowing cube stand out prominently.

innovation

RESEARCH DEPARTMENT ECONOMICS OF INNOVATION AND INDUSTRIAL DYNAMICS



Dr. Georg Licht
Head of Department



Jürgen Egel
Deputy Head



Prof. Dr. Bettina Peters
Deputy Head



Dr. Christian Rammer
Deputy Head

RESEARCH AREAS

- **Innovation Processes in Firms**
Contact: Prof. Dr. Bettina Peters, Dr. Christian Rammer
- **Intellectual Property Rights and Intangible Investments**
Contact: Dr. Georg Licht, Dr. Philipp Böing
- **Industry-Science Linkages and Technology Transfer**
Contact: Dr. Maikel Pellens, Dr. Christian Rammer
- **Firm Foundations and the Growth of Start-ups**
Contact: Jürgen Egel, Dr. Bettina Müller
- **Firm Closures**
Contact: Dr. Sandra Gottschalk, Dr. Georg Licht
- **ZEW Research Data Centre**
Contact: Dr. Sandra Gottschalk

MISSION STATEMENT

The Research Department “Economics of Innovation and Industrial Dynamics” investigates the behaviour of firms under dynamic market conditions. It identifies the challenges faced by firms and by economic policy-makers as a consequence of European unification, global integration of markets, and technological development. It also analyses and assesses government economic policy and business strategies, and proposes new courses of action. The Research Department particularly focuses on firm innovation, market entries and exits, business growth and decline, and on company transformation. Relying on approaches from economics and business management, the Research Department pursues cooperation with other researchers in fields such as law and social sciences.

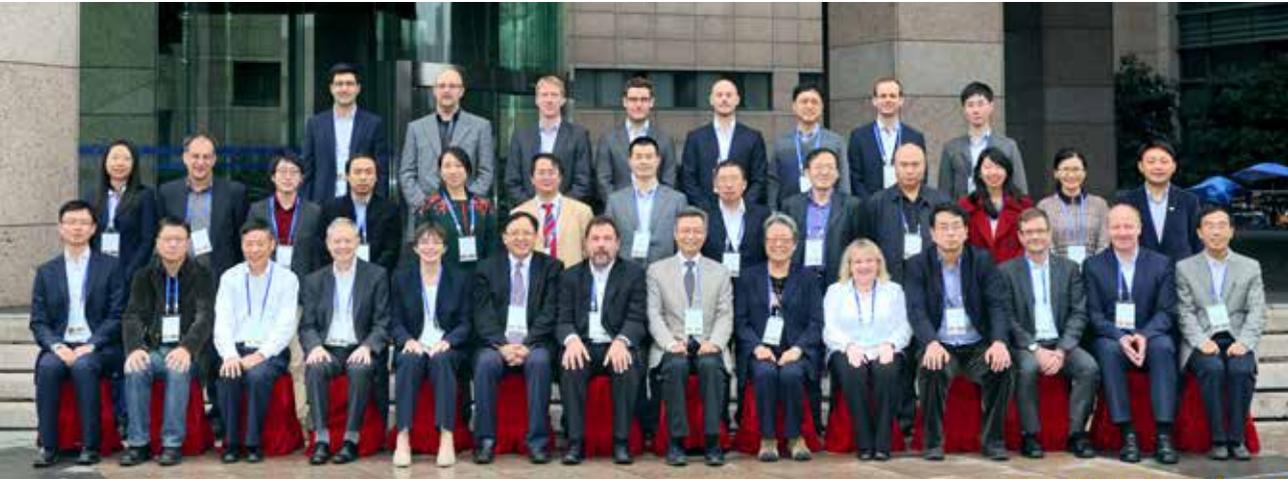


In 2015, the Research Department cooperated with the “Mannheim Centre for Competition and Innovation” (MaCCI) to present the sixth “ZEW/MaCCI Conference on the Economics of Innovation and Patenting”. The goal of the conference was to promote discussion between international researchers about empirical and theoretical approaches. The keynote speakers were Professor Mike Scherer (Harvard University), Professor Alberto Galasso (University of Toronto), Professor Rein-hilde Veugelers (Catholic University of Leuven), and Jordi Jaumandreu, PhD (Boston University).

Furthermore, in cooperation with ZEW’s Research Department of “Environmental and Resource Economics, Environmental Management”, the department hosted the 17th “ZEW Summer Workshop for Young Economists: Advanced Empirical Methods in Environmental and Innovation Economics”. This workshop aimed to impart econometric methods applicable to research in the fields of innovation and technological change, environmental innovation and the ex-post evaluation of policy instruments. Professor Dirk Czarnitzki (Catholic University of Leuven), Dr. Antoine Dechezleprêtre (London School of Economics), and Professor Mark Roberts (Pennsylvania State University) each gave several survey lectures dealing with “Econometric evaluation methods for innovation policy measures”, “Theoretical and empirical modelling of environmental innovations”, and “Structural econometric models in innovation research”.

In addition, together with Zhejiang University in Hangzhou, the Research Department organised the “German-Chinese Workshop on Innovation and High-Tech Entrepreneurship”. A total of 30 leading economists from German and Chinese research centres took part in the event, including from the University of Mannheim, the Technical University of Munich, Peking University and Tsinghua University. The Workshop was jointly supported by the German Research Foundation and the National Natural Science Foundation of China.

In 2015, two staff members of the Research Department completed their doctorates. Mila Köhler’s dissertation engaged in an econometric evaluation of public innovation funding in Germany, while Phillipp Böing’s doctoral research was on the interrelationships between R&D, patents and productivity in China.



Participants at the “German-Chinese Workshop on Innovation and High-Tech Entrepreneurship”, which was presented in November 2015 by ZEW in collaboration with Zhejiang University in Hangzhou.

RESEARCH AREA: INNOVATION PROCESSES IN FIRMS

- Determinants of Innovative Behaviour
- Indicators and Measurement of Innovation Activities
- Internationalisation of R&D and Innovation
- Innovation Strategies in Firms
- Economic Crises and Innovation Activities
- Evaluation of Research, Technology and Innovation Policy Instruments

This research area focuses on the empirical analysis of innovation activities in firms. It seeks to examine both internal factors and institutional framework conditions that influence decisions about innovation and determine innovation success. In addition, the researchers study the impact of innovations on firm performance as well as on macroeconomic growth. Moreover, in the aftermath of the economic and financial crisis in Europe, the research area studies the resilience of innovation activity in firms. Finally, economists in this area focus on the impact of economic and fiscal policy measures for stimulating corporate innovation activity.

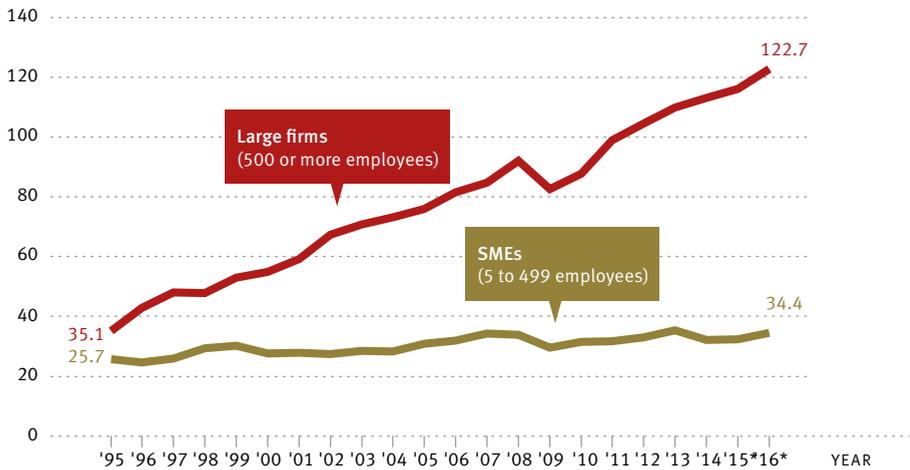
In 2015, a major focus of research was on studies of innovation activities in small to mid-sized firms (SMEs). A research project sponsored by the Expert Committee on Research and Innovation (EFI) studied the role of SMEs in the research and innovation system. The study aimed to describe the role of SMEs in research and innovation in Germany and to compare it internationally from a macroeconomic perspective. Another project on behalf of the Federal Ministry for Economic Affairs and Energy, conducted in cooperation with the firm Prognos AG, investigated trends in the innovation activities of medium-sized firms in Germany over the next ten years. In the “Innovation Indicator” project, which has been conducted since 2015 by the German Academy of Science and Engineering (Acatech) and the Federation of German Industries, researchers focused on how SMEs contribute to a nation’s innovation performance. The study cast light on the major role that SMEs have played in the success of the German economy. Indeed, Germany’s innovative SMEs – or “hidden champions” – are international leaders in a wide variety of niche industries.

The Mannheim Innovation Panel (MIP) is a key data foundation for all three research projects. The MIP is the research area’s longest running project and an important element in ZEW’s research data infrastructure. It is also used intensively by outside researchers through the Research Data Centre (ZEW-FDZ). The MIP is an annual panel survey on the innovation behaviour of firms in Germany that has been conducted since 1993 on behalf of the Federal Ministry of Education and Research. At the same time, the MIP is Germany’s contribution to the Community Innovation Surveys (CIS) of the European Commission. During the year under report, the 23rd wave of the survey took place, which was once again a CIS survey. The MIP provided the foundation for numerous research projects in 2015. Among them was an international cooperation project conducted together with ETH Zurich and the Austrian Institute for Economic Research on the development and adoption of innovations in the energy sector. This project was funded by the Swiss National Science Foundation as part of the National Research Programme (NRP) 71, “Managing Energy Consumption”.

In 2015 as well, the research area successfully completed two large international research projects. At the European level, researchers concluded the consortium project “Welfare, Wealth and Work for Europe”. This project relied on cooperation between 33 research institutions in twelve European countries. Within this project, the Research Department investigated the contribution of innovation and innovation policy to the transformation of production structures. As part of a project within the SEEK research programme completed in 2015, the research area drew upon MIP data in collaboration with the University of Pennsylvania, applying a dynamic structural model to estimate the long-term returns from investments made in innovation and human capital.

1] INNOVATION EXPENDITURES BY THE GERMAN ECONOMY 1995 – 2016
BY FIRM SIZE

INNOVATION EXPENDITURES IN EUR BILLIONS



* Planned figures from spring/summer 2015

Sources: ZEW, Mannheim Innovation Panel

RESEARCH AREA: INTELLECTUAL PROPERTY RIGHTS AND INTANGIBLE INVESTMENTS

- Intellectual Property Rights and Innovation Incentives for Firms
- Enforcement of Intellectual Property Rights
- Intangible Investments
- Markets for Technology
- IP Rights in Public Research Institutions

A central topic of investigation in this research area is that of intellectual property rights (particularly patents and trademarks), the efficiency of specific legal systems and their influence on innovation activities, as well as enforcement of legal rights in the case of IP infringement by third parties. The research area's increasing focus on intellectual property has directed attention towards firms' investments into the knowledge on which this kind of property is based. Investments made by firms in immaterial goods to strengthen innovation activities, competitiveness, growth and productivity are a particular concern in this research area.

The project "Protecting Business Secrets to Preserve Innovations" investigates the economic importance of business secrets and their relationship to intellectual property rights as well as other strategies that companies use to derive revenues from their innovations. The study estimates the significance of trade secrets in the EU and analyses the determinants for the use of traded secrets compared to the use of patents.

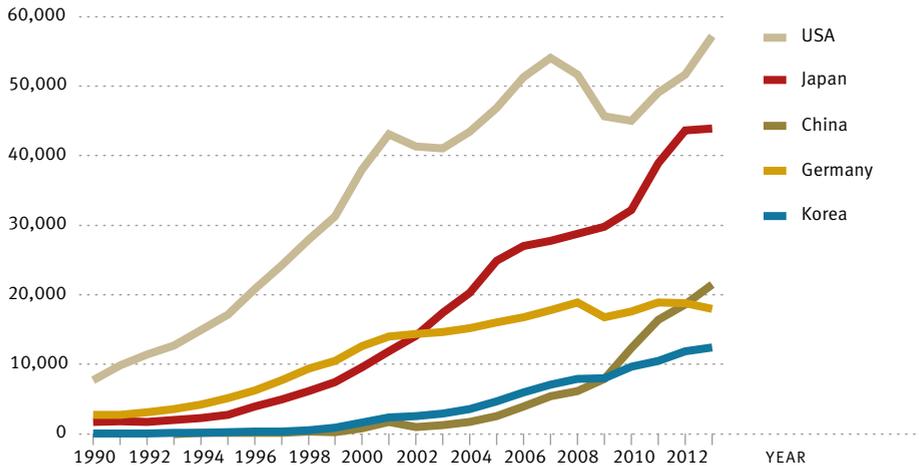
In the project "Effects of the Innovation Union", researchers are focusing at the EU level to examine the harmonisation of legal frameworks in critical areas for innovation, including potentials for standardisation, free access to research results, and the system of technology transfer in Europe. Working in a consortium including eight leading European research institutes, the research area is investigating the effects that have resulted from the introduction of the European Community patent and the establishment of a unified system for adjudicating patent disputes in Europe.

As part of the EU project "Creativity, Innovation and Growth in Europe", ZEW economists are developing new approaches to the scientific investigation of the link between creativity and innovation. This comprises a detailed look at the dynamics of cultural and creative economies. ZEW's researchers are attempting to generate reliable evidence on the genesis, promotion and stimulation of creativity in relation to innovation in Europe, and to examine how entrepreneurship based on creativity helps contribute to economic growth and prosperity.

In response to China’s growing role in the global development of intangible investments and patent applications, the research area conducted a number of studies related to China in 2015. One project is investigating how German firms have chosen to respond to price and quality import competition from Chinese firms. Other studies are addressing the allocation and efficiency of government R&D subsidies for research and development in China, the effects of the rapid rise in R&D expenditures in China, and the measurement of the quality of Chinese patents. The objective of these studies is to analyse the impact of economic policy incentives on intangible investments and patent applications and the influence of innovation activities on the growth of productivity in Chinese firms. The researchers are focusing especially on the effects of China’s unique institutional environment.

2] INTERNATIONAL PATENT APPLICATIONS (PCT) BY COUNTRY OF ORIGIN

NUMBER OF PCT APPLICATIONS



Source: ZEW Discussion Paper No. 15-05

RESEARCH AREA: INDUSTRY-SCIENCE LINKAGES AND TECHNOLOGY TRANSFER

- Linkages Between Public Research and Private Innovation
- Research Infrastructure and Technology Transfer
- Evaluation of Technology Transfer Policies
- Researcher Mobility
- Effects of Public Research Funding

The research area “Industry-Science Linkages and Technology Transfer” addresses various issues on the intersection of the analysis of innovation processes in firms and the organisation of research in scientific institutions. Researchers analyse the way in which new knowledge is acquired during the interaction of scientific research and the application-oriented R&D activities carried out by companies. The impact of knowledge and technology transfers on innovation activities and on the success of firms’ innovation policies is another area of interest. What are the effects of cooperation on the research activities of scholars in universities and in non-university research institutions? Another research topic is evaluating the success of government measures aimed at promoting cooperation between public and commercial research.

The project “Mapping the Regional Embeddedness of the FP7 NMP Programme” investigated the regional scope of funding activities by the EU’s 7th Framework Programme in the area of key industrial technologies (specifically, nanotechnology, new materials, production technologies and industrial biotechnology, or NMP+B). It gained insights for current funding measures that have been enacted as part of “Horizon 2020”. The project “Fraunhofer Impact Study” is examining the influence of the Fraunhofer Society on German firms. Researchers are focusing especially on quantifying how collaboration with the Fraunhofer Society in the area of applied research affects short- and long-term growth and increased productivity.

RESEARCH AREA: FIRM FOUNDATIONS AND THE GROWTH OF START-UPS

- Indicators and Measurement of Firm Foundations
- Determinants of Firm Growth
- Human Capital Structures in Young Firms
- Family Firms and Hidden Champions
- Financing of Young Firms
- Evaluation of Support for Firm Foundations

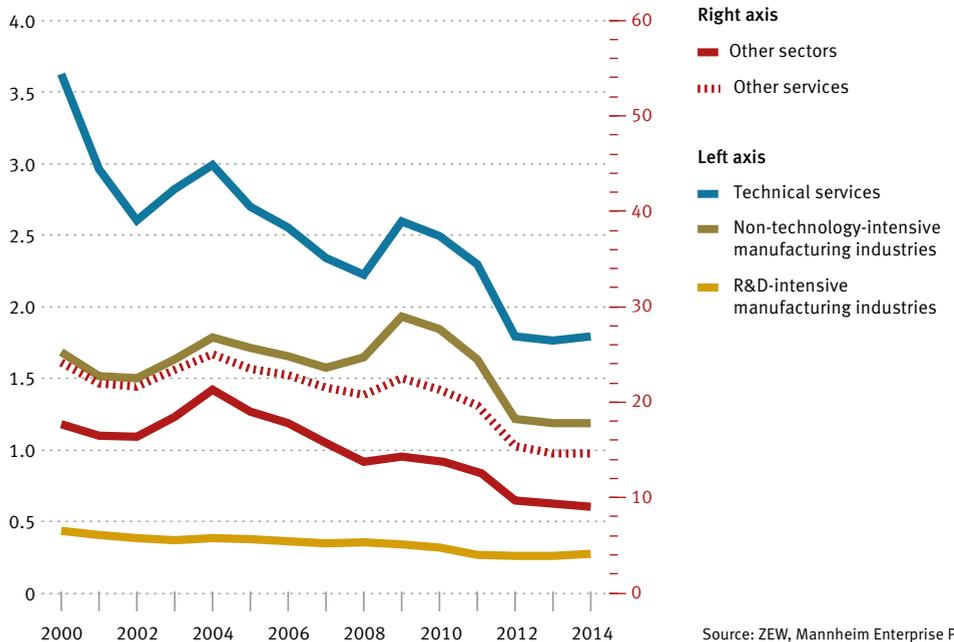
The research area “Firm Foundations and the Growth of Start-ups” maintains a wide range of indicators on firm start-ups in Germany and conducts econometric analyses of the development of start-ups as well as their market entry and growth conditions. The ZEW Start-up Panel and the Mannheim Enterprise Panel (MEP), which are being maintained and expanded in on-going project work, provide researchers with unique databases for research into start-ups.

In the aftermath of the European financial and banking crisis, the SEEK project “Human Capital Formation in Young Firms and the Crisis: A Comparative Analysis Between Portugal and Germany” is investigating how the crisis has affected the composition of the founding team in a cohort of young firms, and also the impact of the crisis on the growth of human capital stock in young firms. Starting from difference in the impact of the crisis in Portugal and Germany, researchers are seeking insights about the extent to which support for the establishment of new companies can help lead Europe back to a pathway of economic growth.

The SEEK project “Credit Supply and SME Financing During the Crisis – An Examination of Real Economic Effects” has the objective of quantifying the restrictions to the availability of credit that affected small and mid-sized firms financed by banks that were hit hard by the financial crisis. The researchers will examine whether the banks’ conditions for issuing credit changed toward quantitatively stricter risk assessment and whether this change had consequences for various aspects of the real economy, including investment in R&D.

3] DEVELOPMENT OF THE NUMBER OF FIRM FOUNDATIONS IN THE HIGH-TECH SECTOR

FOUNDINGS PER 10 THOUSAND EMPLOYABLE PERSONS



As part of the project, “Baden-Württemberg’s Financing Ecosystem: A Supply-Side Analysis”, researchers are investigating the adequacy of available venture capital financing for firms in Baden-Württemberg to ensure efficient use of existing opportunities. They will identify those supply-side actors in the venture capital market who invest in Baden-Württemberg-based firms and seek to determine if there are sufficient numbers of “promising” firms in Baden-Württemberg to be targets of investment.

In a joint project being undertaken with the VDI Technology Centre in Düsseldorf, the research area is examining “INVEST – Support for Venture Capital”, which is a subsidy programme being run by the German government. The Federal Ministry of Economic Affairs and Energy introduced INVEST in 2013 with the aim of mobilising more venture capital from private investors in Germany. Researchers are developing empirical findings on the programme’s effectiveness in supporting the venture capital market for young firms. They are concerned with the programme’s effects on private investors and new firms. Furthermore, the economists are developing indicators to estimate the real economic benefits of the INVEST programme. To this end, they are considering its development, organisation, and the achievement of its stated goals.

Finally, the research area is evaluating the grant programme “ERP Capital for Firm Foundation”, which supports business start-ups with long-term subordinated loans of up to 500,000 euros. Their evaluation includes the programme’s effects on the intended target groups as well as its overall macroeconomic impact.

RESEARCH AREA: FIRM CLOSURES

- Defining Types of Firm Closure
- Effects of the Reform of Insolvency Law
- Structural Transformation and Firm Closures
- Corporate Succession and Transfer of Businesses
- Macroeconomic Effects of Firm Turbulence

Research projects in this area primarily focus on the specific determinants and consequences of the various forms of firm closure such as insolvency, voluntary closure, and market exit as a result of mergers. The Mannheim Enterprise Panel (MEP) provides this research area with comprehensive data for analysing the development of businesses prior to closure and identifying alternatives to insolvency. Another point of interest in this research area is the connection between business closures and the emergence of new start-ups.

Ever since ZEW was established, the Mannheim Enterprise Panel (MEP) has been run in cooperation with Creditreform, the largest German credit agency. Creditreform provides ZEW with its company data twice a year. The MEP has been a major source of data for the German start-up statistics and has served as the basis of the Mannheim Start-up Panel. Economists in this research area will use MEP data in coming years to explore firm exits from markets.

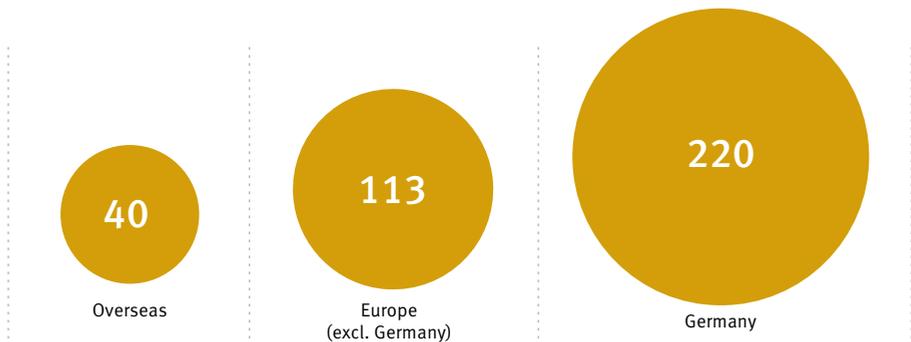
With the “Indicator Study 2016” the research area took part in the development, measurement and analysis of indicators of technological performance, thereby contributing to the annual report by the Commission of Experts on Research and Innovation (EFI) concerning the status of research, technology and innovation in Germany. This project will use indicators to collect information on firm dynamics (development of firm foundations, closures, and enterprise stock) with particular emphasis on the knowledge economy (research and knowledge-intensive economic branches). Over time, it will also include international comparisons.

The project “Practices and Effects of Insolvency Procedures – An Empirical Study of the Effects of the Reform of Insolvency Law in Germany” will investigate the impact of the latest reforms of insolvency law (1999 and 2012). The reforms intend to improve the chances for restructuring insolvent yet viable firms. The study seeks to measure the overall effectiveness of the new “insolvency procedure” in assuring the survival of those firms with real potential for future independent viability. Researchers will focus particularly on the time frame for declaring insolvency in order to find out whether early insolvency declaration can improve firm survivability.

ZEW RESEARCH DATA CENTRE

The ZEW Research Data Centre (ZEW-FDZ) provides external researchers access to ZEW research data. The majority of the research data supplied by the ZEW-FDZ is micro-level data sourced from ZEW firm surveys. In addition, researchers can make use of data from ZEW expert surveys on financial market expectations. External researchers may apply for access to ZEW research data to use in scientific research projects. In addition, the ZEW-FDZ also provides external researchers with selected ZEW research data in the form of anonymised “Scientific-Use-Files” that may be

4] EXTERNAL DATA USERS OF THE MANNHEIM INNOVATION PANEL BY REGION



viewed and used off-site. Some data files maintained as part of the Mannheim Innovation Panel (MIP) are also accessible in the form of “Education-Use-Files”. These may be used for educational purposes in universities.

In 2015, 22 external researchers made use of the FDZ facilities and over 50 external researchers made use of the Scientific-Use-Files. More than 80 per cent of these user agreements relate to data from the Mannheim Innovation Panel (MIP). Since 1996, 313 external researchers have taken the opportunity to use the MIP data, more than 20 per cent of whom are located outside Germany, eleven per cent outside of Europe. To date, 27 scholars have made use of the MIP education use files at academic institutions as part of their courses, and in 2015, five additional educators were added to this group.

OUTLOOK

The Research Department was renamed in early 2016 into “Economics of Innovation and Industrial Dynamics”, as the previous name “Industrial Economics and International Management” no longer fitted to the adjusted research programme which will be continued in the years to come. However, slight adjustments to the research programme will take place on an ongoing basis to preserve the focus on pressing questions in the field of innovation and industrial dynamics. In the coming period, the long-run impacts of economic crises on the innovation behaviour of firms and the internationalisation of innovation activities will be two key areas of research. In addition, the department’s researchers will intensify their observation of the innovation behaviour of Chinese firms while placing a particular focus on resulting competitive effects for German and European firms. In evaluating research and innovation policy measures using control group approaches, researchers will seek to involve European and national partners to conduct randomised policy experiments. In addition, researchers in the department will conduct empirical analyses to evaluate the new “European Unitary Patent” with respect to legal peculiarities such as the bifurcation of validation and nullification processes. Moreover, the Research Department’s economists will substantially intensify their research work on how the public and private sector interact to generate new knowledge.

The Research Department will devote additional attention to why companies are being founded at a slower rate in Germany. Also, in cooperation with Deutsche Bundesbank, researchers will continue their investigation into the “real” economic effects of the financial and banking crisis.

The new research area of “Firm Closures” will continue its work to define different forms of exit from the market in order to improve the interpretation and reliability of data on closure rates. Last but not least, the ZEW Research Data Centre, which is managed by the department, will be further expanded in coming years.

» BALANCING FINANCIAL STABILITY AND GROWTH.



Prof. Dr. Sascha Steffen
Head of the Research Department
International Finance and
Financial Management





balance

RESEARCH DEPARTMENT INTERNATIONAL FINANCE AND FINANCIAL MANAGEMENT



Prof. Dr. Sascha Steffen
Head of Department



Dr. Oliver Lerbs
Deputy Head

RESEARCH AREAS

- **Bank Management and Financial Regulation**
Contact: Prof. Dr. Sascha Steffen
- **Financial Intermediation and the Competitive Landscape**
Contact: Prof. Dr. Sascha Steffen
- **Household Finance and Real Estate**
Contact: Dr. Oliver Lerbs

MISSION STATEMENT

The financial crisis brought the global financial system to the brink of collapse, devastating both businesses and households. We cannot allow this to happen again. Financial stability, regulation, and ensuring capital flows to the real economy are thus of paramount importance to society. Focusing on topics that will inform the structure of European financial markets, the Research Department “International Finance and Financial Management” (IFM) carries out empirical research to provide regulators and policy-makers with evidence-based policy advice to help balance financial stability with economic growth.



Professor Sascha Steffen was appointed as the new head of the Research Department on September 1, 2015. In an appointment process that involved both ZEW and the University of Mannheim, he was also named “Professor of Financial Markets” within the university’s economics department. His research focuses on the banking sector and financial intermediation.

RESEARCH AREA: BANK MANAGEMENT AND FINANCIAL REGULATION

- Financial Regulation and the Architecture of the European Financial System
- Systemic Risk Measurement and Management
- Corporate Governance in the Banking Sector

The research area “Bank Management and Financial Regulation” analyses the regulation of financial institutions in Europe and the role played by the European Central Bank (ECB) during the financial crisis. Within different projects, the research area provides empirical evidence to help establish a sustainable financial architecture in Europe.

The ECB played a central role during the crisis, establishing a wide range of non-standard monetary policy tools. The European economy is particularly dependent on the banking sector. Accordingly, to conduct its monetary policy, the ECB needs a stable and well-functioning banking sector. In various research projects that are studying the regulation and architecture of Europe’s financial system, economists in this research area are improving our understanding of how the ECB is influencing the structure and function of financial markets.

In a step toward the further integration of the eurozone, Europe's heads of state approved the founding of a Banking Union in June 2012. In November 2014, a key pillar of the new Banking Union, the Single Supervisory Mechanism (SSM), went into force. Against this backdrop, the area's economists are investigating a number of questions: How stable is the Banking Union, which consists of 19 countries, each in a different state of financial health? How successful have new banking regulations been in addressing the "too big to fail" problem, among other issues? Furthermore, how do regulation and the clear prospect of bailout influence the behaviour of banks, including their financing practices and propensity to take on risk?

Economists in this research area also address questions related to the measurement and management of "systemic risk", a much discussed but poorly defined concept. How can systemic risk be measured? Research into this issue will improve the ability of economists to forecast financial crises. Furthermore, developing new measurement methods will also improve the quality of banking-sector stress tests, which are now a standard feature of regulatory supervision. Current stress-test techniques focus to an excessive degree on risks that are specific to the banking sector. They also fail to measure systemic risk, and do not take systemic risk into account when formulating capital requirements. The Research Department aims to make tangible contributions in this area.

The department's researchers also study corporate governance in the banking sector. To what extent has inadequate corporate governance contributed to the financial crisis? How have governance structures changed since the outbreak of the crisis? These questions are intimately connected to risk management and compliance issues. Specific questions that the Research Department will address in the period ahead include: Who determines the risk culture within a bank – the CEO, other leading executives, or the managers of individual departments? How can one measure risk culture? What determines the willingness of CEOs to take risks (discounting the effects of salary and bonuses)? And how has the willingness of CEOs to take risk affected bank profitability during the crisis?

RESEARCH AREA: FINANCIAL INTERMEDIATION AND THE COMPETITIVE LANDSCAPE

- Bank Capital, Bank Lending and the Real Economy
- Bank Lending and Loan Contracting

The research area "Financial Intermediation and the Competitive Landscape" focuses on the effects of bank regulation and changes in the European financial architecture on the real sector. As the European financial system is heavily dependent on its banking system, regulation and ECB interventions have a direct and substantial impact on the financing options and investments of non-financial firms. The central questions in this area include how long-term and sustainable funding sources for firms in Europe can be secured, even over the business cycle; and how the funding

sources available to firms will change over the coming years. In order to answer such questions, our understanding of (the relevant parameters of) credit provided by banks must be advanced.

RESEARCH AREA: HOUSEHOLD FINANCE AND REAL ESTATE

- Lending to Households and Private Sector Debt Overhang
- Financial Advice and Household Decision Making
- Real Estate and Housing Markets in Europe

The research area “Household Finance and Real Estate” investigates how private households use financial instruments to attain their objectives. Various topics are addressed in this area, including issues relating to the participation of households in key lending and asset markets, processes involved in financial decision making by households, the exposure of households to financial risk, and financial innovation that promotes economic welfare. The research area places a particular focus on residential real estate and its financing.

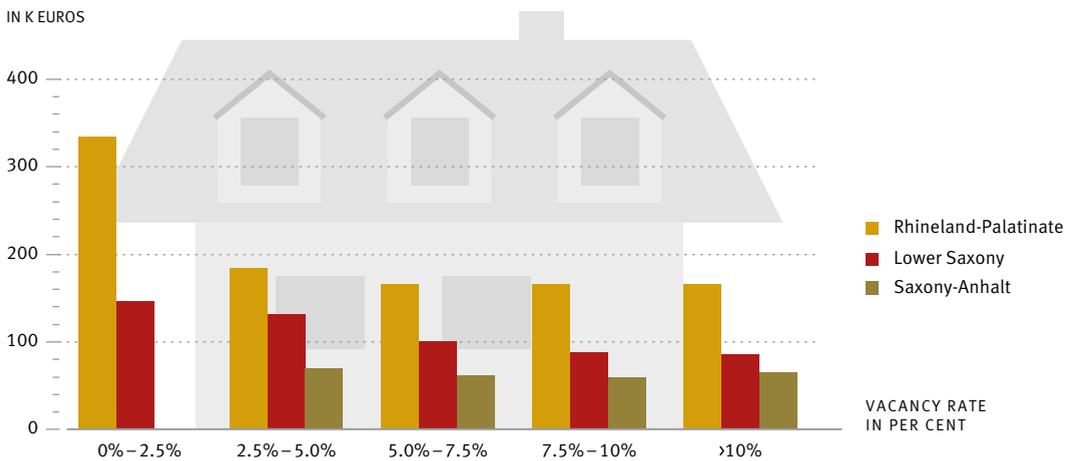
Economists in this research area coordinate the “Real Estate and Capital Markets Network” (ReCapNet). As part of the network, which is a well-established platform for international real estate research, a conference is held each year at ZEW. Approximately 30 academics took part in the seventh ReCapNet conference in November 2015, which was devoted to the topic “Real Estate, Stability and the Macroeconomy”. A total of 14 research papers were presented concerning a broad spectrum of topics, including real estate markets, lending conditions, and macroeconomic stability. Various implications for economic policy, including “macroprudential regulation”, were addressed. The conference was supported financially by Stiftung Geld und Wahrung (“Money and Currency” Foundation).



The attendees of the seventh ReCapNet Conference, which was held at ZEW on the topic of “Real Estate, Stability and the Macroeconomy”. The conference was supported by Stiftung Geld und Wahrung (“Money and Currency” Foundation).

Within the scope of a long-term, interdisciplinary project titled “Homes under Pressure” (Homes-uP), which is being undertaken in cooperation with other research institutes in the Leibniz Association, researchers in this area are investigating the effects of sociodemographic change on the attractiveness of owning a home as a capital investment. A key question being addressed is the extent to which single-family home sales in Germany are impacted by vacant properties located nearby. The starting point for the research is an examination of data on vacancy rates, which are highly divergent in Germany’s over 11,000 municipalities. The data shows that even when property and location features are taken into account, nearby vacancies lead to economically significant price reductions (see figure 1). This indicates that the risk of price declines is particularly pronounced in municipalities exhibiting a declining population.

1] MEDIAN SALE PRICE FOR SINGLE FAMILY HOMES IN RELATION TO VACANCY RATES IN THE MUNICIPALITY (2011)



OUTLOOK

On May 30–31, 2016, the economists in the research area of “Banking Management and Financial Market Regulation” will host a conference titled “Regulating Financial Markets”. This annual conference, which is being organised in partnership with the German Bundesbank and Goethe University Frankfurt, will provide a forum for decision-makers in the realms of banking and financial market regulation to engage in dialogue.

“Homes under Pressure” (Homes-uP) will be a key project for the research area of “Household Finance and Real Estate” until the end of 2017. As part of this project, ZEW will host an international conference in autumn of 2016 in cooperation with partnering institutions in the Leibniz Association. Also in autumn, the eighth international ReCapNet Conference will be held. Within the scope of a SEEK project dedicated to studying Digital Markets, the research area of “Household Finance and Real Estate” will cooperate with the ZEW Research Department “Information and Communication Technologies” and the ZEW Research Group “Competition and Regulation” to address how information should be presented on digital platforms in order to enable investors to make better decisions.

» ASSESSING AND SHAPING THE ENERGY TRANSITION.



Prof. Achim Wambach, PhD

Acting Head of the Research Department
Environmental and Resource Economics,
Environmental Management





energy transition

RESEARCH DEPARTMENT ENVIRONMENTAL AND RESOURCE ECONOMICS, ENVIRONMENTAL MANAGEMENT



Prof. Achim Wambach, PhD
Acting Head of Department



Dr. Martin Kesternich
Deputy Head



Dr. Sebastian Voigt
Deputy Head

RESEARCH AREAS

- **International Environmental and Resource Policies**
Contact: Dr. Martin Kesternich
- **Energy Economics**
Contact: Dr. Nikolas Wölfing
- **Transport and Mobility**
Contact: Dr. Martin Kesternich
- **Innovation and Sustainable Development**
Contact: Dr. Daniel Römer
- **Macroeconomic Analysis of Environmentally Relevant Policies**
Contact: Dr. Sebastian Voigt

MISSION STATEMENT

The “Environmental and Resource Economics, Environmental Management” Research Department investigates the optimal function of markets and institutions with regard to environmental aspects and resource scarcity. A key focus is placed on European energy and climate policy. Economists in the Research Department conduct economic assessments of policies that impact the environment, such as transport, energy, technology, and economic policies. They also identify conflicts between economic and environmental goals. Given the universal shortage of resources, cost efficiency – that is, the ability of a policy to achieve a defined goal at minimal cost – as well as the equitable distribution of costs in society are key criteria in the assessments conducted by the Research Department.



RESEARCH AREA: INTERNATIONAL ENVIRONMENTAL AND RESOURCE POLICIES

- Interaction Between National and International Climate and Energy Policy Instruments
- Emissions Market Analysis
- Climate Change Awareness

Economists in the research area “International Environmental and Resource Policies” focus chiefly on the economic challenges of regulating global environmental problems and on questions relating to international cooperation. Particular emphasis is placed on research questions geared to teasing out the workings of international climate policy as well as to analysing climate change adaptation policies. Researchers also probe the impact of unilateral regulatory measures in a globalised economy and the opportunities and limitations of fragmented climate protection initiatives.

The European Union and its member countries have embraced a broad spectrum of measures geared to reducing carbon emissions. In addition to the Emissions Trading Scheme, the linchpin of European climate policy, energy efficiency measures are being pushed through at various different levels and renewable energy is being promoted. The interrelationships between these policy instruments have been analysed over the past three years within the framework supplied by ENTRACTE, a research project coordinated by ZEW and sponsored by the European Commission’s 7th Research Framework Programme. It has become evident that a well-designed portfolio of instruments can effectively reduce the costs of necessary decarbonisation by addressing elements of market failure – particularly as they occur in the innovation process – in a targeted fashion.

Whether such an optimal mix of instruments can successfully be recreated in the real world seems questionable, however, especially in light of the various different regulatory levels in-

volved. Participants in the European Emissions Trading Scheme surveyed for the KfW/ZEW CO₂ Barometer 2015 anticipated that their competitiveness would be more negatively impacted by national measures (such as the German energy transition) than by European or global measures. Divergent predictions concerning the impact of climate policy were particularly apparent in the case of enterprises that are more intensively exposed to international competition.

If it were possible to regulate CO₂ emissions globally, the impact of regulation on competitiveness would be much lower. That would, however, necessitate a global climate treaty. The chances of such an agreement ultimately coming into force may well depend on the “minimum participation rules” (MPRs) negotiated. It proved possible to demonstrate, on the basis of a survey of delegates from across the globe involved in international climate negotiations, that small countries with limited bargaining power tend to express a preference for arrangements requiring a high number of ratifying states, while large industrialised countries prefer the idea of “Carbon Clubs” in which major emitters join forces.

In the run-up to the United Nations Climate Change Conference in Paris in December 2015, the research area produced a ZEW policy brief summarising current research results and their implications for the formulation of policies. These results were presented in mid-November in Brussels as part of the ZEW Lunch Debates series, where the implications for policy-makers were debated in a panel discussion featuring Jos Delbeke, the Director-General for Climate Action of the European Commission, and Rudolf Schüßler, Professor of Philosophy at the University of Bayreuth. At the United Nations Climate Change Conference in Paris, ZEW researchers continued this discussion in greater depth at a “side event” examining the impact of climate policy on innovation, competitiveness and employment.



Panel discussion at the ZEW Lunch Debate in Brussels. Left to right: Dr. Oliver Schenker, Professor Rudolf Schüßler, Jos Delbeke, PhD, Professor Clemens Fuest.

RESEARCH AREA: ENERGY ECONOMICS

- Sectoral Analyses of Energy Markets
- Competition, Market Design, Interaction with Environmental Policy
- Energy Demand Behaviour and Market Observation

Economists working in the research area of “Energy Economics” analyse the effectiveness and efficiency of German, European and global markets for energy and raw materials. A particular focus is placed on exploring the drivers of energy demand and investment decisions, as well as on analysing the organisation of wholesale electricity markets.

In 2015, the research area continued to consolidate and expand its research work from previous years. Key topics of study were energy demand, energy-related investment decisions in the manufacturing sector and investment in renewable energy. While research carried out under the aegis of the Helmholtz Alliance ENERGY-TRANS network continued to progress, new projects in the above-mentioned areas were also acquired.

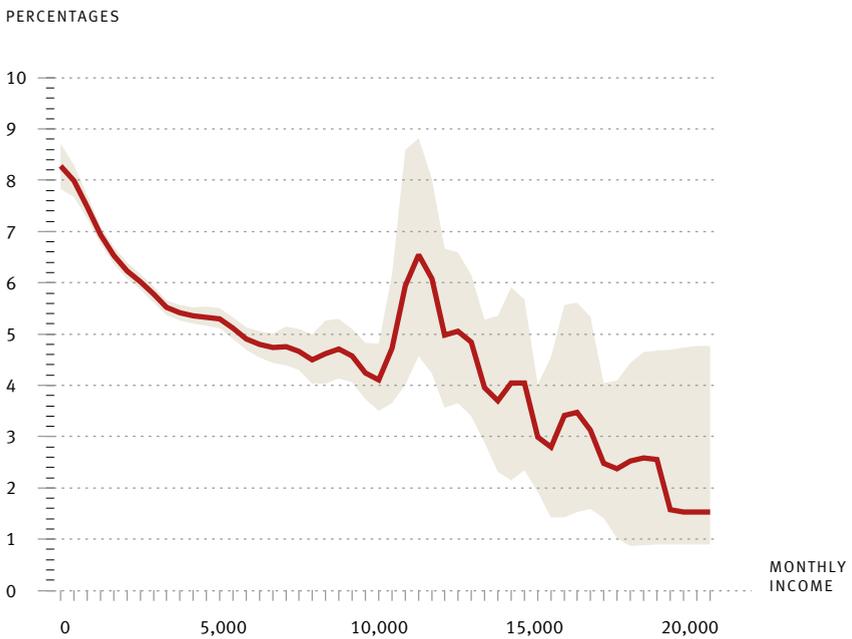
A project dealing with the distributional effects of price-based environmental regulation is being funded through the Leibniz ScienceCampus “Mannheim Taxation” (MaTax). Households with low per capita incomes are disproportionately affected by rises in the price of energy sources such as gas or electricity. This is illustrated in Figure 1. Microdata from statistical offices never previously mined by economics research were used to successfully quantify the distributional effects of a rise in energy prices for the first time. In subsequent steps, the results attained will now be compared with further relevant price and income trends in order to arrive at a more accurate estimation of the effects that are specific to the energy market.

Another project the research area is currently engaged in tackles the question of energy demand from industrial customers. Interview/survey data and official company data are being used to analyse investment decisions at the company level pertaining to improved energy efficiency and renewable energy in Germany. The research area is also currently conducting research exploring the impact of emissions trading on conventional power plants in Germany at the operational level. Extensive microdata on this subject were gathered and prepared for processing during the period covered by the report.

Economists in the research area also provided extensive policy advice in 2015, and were active in raising public awareness for key issues. As part of a new project, ZEW economists will provide advising services to the Federal Environment Agency. Specifically, economists will help the government draft carbon leakage regulations in the context of the continuing evolution of the EU Emissions Trading Scheme after 2020. The “Eberbach Cloister Talks” (Eberbacher Klostergespräche) were once again organised in cooperation with the Ministry of Economics, Energy, Transport and Regional Development in the State of Hessen. In 2015, the discussion with a panel of experts focused on the future design of electricity markets.

The Mannheim Energy Conference (now already in its fourth year) was organised jointly with the “Competition and Regulation” Research Group at ZEW. The conference once again demonstrated academic standards. The ZEW Energy Market Barometer maintained by the research area continued its work and will develop even closer ties to other European institutions in the future.

1] HOUSEHOLD EXPENDITURES ON ENERGY IN RELATION TO MONTHLY DISPOSABLE INCOME



Household expenditure on energy as a share of overall consumption: the figure shows how household spending on energy as a percentage of overall consumption correlates with monthly disposable income. The solid line is the result of a core estimation, and the area shaded in grey shows the 90 per cent confidence interval. The correlation was estimated using official microdata (a subsample from the German Federal Statistical Office's 2003 Income and Consumption Sample Survey). Source: ZEW

RESEARCH AREA: TRANSPORT AND MOBILITY

- Ecological and Socio-Economic Effects of Transport Systems
- Concepts for Sustainable Development in the Transport Sector
- Freight Transport Volumes and Transport Modes

Economists in this research area evaluate options for environmental and transport policy that promise to meet growing mobility needs in a cost-effective and environmentally friendly way. Additional subjects of study include consumer behaviour and consumer responses to regulatory interventions and their socio-economic impact on other economic sectors.

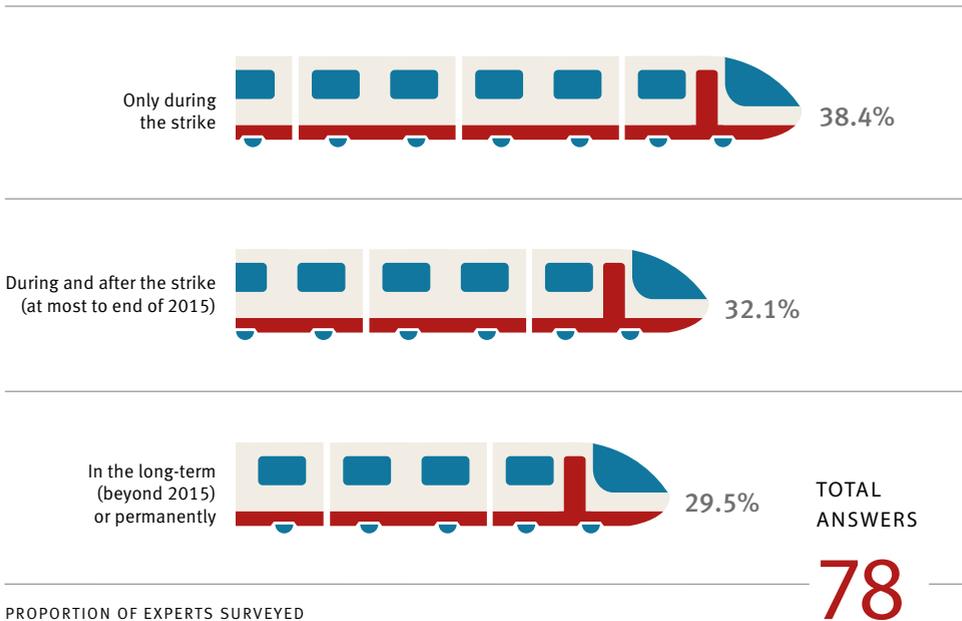
Transport-related greenhouse gas emissions and their regulation through market-based instruments were key issues for the research area in 2015. Projects dealing with the possible integration of emissions from road transport into the EU Emissions Trading Scheme continued to progress. At a workshop organised in Brussels by Adam Opel AG and the Representation of the State of Hessen to the European Union, economists at ZEW and the Massachusetts Institute of Technology (MIT) presented the results of a joint research project. The workshop focused mainly on the costs of existing and tougher fuel consumption standards in comparison with a possible extension of the EU Emissions Trading System to encompass road transport emissions. One major conclusion reached by the project was that a fully integrated EU Emissions Trading System covering 60 per cent of European CO₂ emissions is more cost-efficient than the standards. The efficiency gains resulting from the integration of road transport into EU emissions trading in comparison to continuing with or tightening up current fuel economy standards would lead to cost reductions amounting to between 24 and 63 million euros by 2025.

Analysis of the distributional effects of various policy instruments for reducing greenhouse gas emissions in the private transport sector also comprise a significant focus for the research area. The analysis of data from the German Mobility Panel showed that increased taxes on conventional fuels have a regressive effect, at least when the resulting tax revenue is not expressly reserved for the mitigation of this effect (“revenue recycling”). The results additionally indicate that subsidies for electric cars and CNG-powered vehicles result in a slight increase in income inequalities between households.

The ZEW/Prognos Transport Market Barometer once again played an important role in the research area's activities. This quarterly survey of top executives in the transport sector concerning expected freight volumes and prices has been conducted since 1998, making it the longest-running industrial indicator in the German-speaking world; it represents an important source of information for experts and the general public alike. In the third quarter of 2015, the 70th edition of this sentiment index included an extra question pertaining to the impact of the rail strike in Germany on the transport sector. This showed that confidence in rail transport in general has been undermined. In addition, the rail strike has been triggering a short-term (and perhaps long-term) modal shift from rail to other transport modes, particularly HGVs (see Figure 2).

2] EXPECTATIONS RELATING TO THE IMPACT OF RAIL STRIKE

Modal shift should be expected ...



Extra question included in Prognos/ZEW Transport Market Barometer in the third quarter of 2015: over 60 per cent of the experts consulted anticipated that a modal shift from rail to other modes of transport as a result of the rail strike would persist after the strike ended.

RESEARCH AREA: INNOVATION AND SUSTAINABLE DEVELOPMENT

- Determinants and Economic Impact of Environmentally Oriented Innovation
- Integrating Technological Change in Macroeconomic Models
- Innovation Strategies for a Green Economy

The research area “Innovation and Sustainable Development” focuses on conflicts arising between the goals of environmental and economic performance. Analysis of the determinants and economic effects of environmental innovations forms a key component of the work pursued in this research area. Researchers also examine the prerequisites for the promotion of socially and environmentally sustainable manufacturing processes, products and services. These include both supply-side and demand-side incentives.

2015 saw the commencement of the interdisciplinary/transdisciplinary project “green.eu” (European Global Transition Network on Eco-Innovation, Green Economy and Sustainable Development). The project sets out to promote networking between international academics working on the topics of environmental innovation, the green economy and sustainable economic development. The project, which will run until 2018, is geared to identifying factors that can facilitate sustainable economic growth in Europe without the European economy losing competitiveness.

This research area at ZEW is also closely involved with another project which began in 2015 and will run until 2018, “InTrans” (Integrated Assessment of a Green Transformation: An Assessment of Economic, Social, and Technological Transformation Pathways). Participating researchers intend to evaluate a range of different transformation paths and policy approaches to determine their effects on technological change, economic efficiency and social justice.

A book chapter relating to a project that has already been completed (“Impact Corporate Social Responsibility”, sponsored by the Seventh Research Framework Programme) was produced for the volume “Corporate Sustainability – Impact Assessment and Management” that presents the project results. The chapter “Measuring and Managing Corporate Impacts on Economic and Innovation Issues” summarises the results reached by the project in the areas of innovation and competition.

In 2015, researchers concluded a project carried out in cooperation with a local energy supplier and within the broader context of the Helmholtz Alliance Energy-Trans initiative that addressed the question of the power of minimal financial incentives to motivate domestic households to save energy. A fresh investigation of the effectiveness of energy saving measures at the household level has, moreover, commenced in the form of the EU Horizon 2020 “Step by Step” project, which approaches the issue at European level in four different countries. As such, the monitoring of behavioural economic factors governing sustainable consumption has become established as a key focus of the research area. One example of this new focus was the “Behavioral Environmental Economics” conference, which was held in March 2015 and attracted top international experts. Organised in collaboration with Professor Dirk Rübelleke, a ZEW Research Associate, the conference shed light on various issues, including field experiments dealing with the promotion of sustainable consumption through monetary and non-monetary incentives.

RESEARCH AREA: MACROECONOMIC ANALYSIS OF ENVIRONMENTALLY RELEVANT POLICIES

- Design and Development of National and International Environmental and Economic Policy Instruments
- Macroeconomic and Sector-Specific Effects of National and International Environmental Policies – Analysis of Efficiency and Distribution, Effects on Competition
- Environmental Effects of Economic Policy Measures

Economists in the research area “Macroeconomic Analysis of Environmentally Relevant Policies” analyse the macroeconomic and sector-specific impacts of environmental policy, placing particular emphasis on climate and energy policy and on advances in technology. The research area develops and applies computable general equilibrium (CGE) models and partial models that facilitate the quantitative estimation of the impacts of economic policy interventions on consumers and producers. The economists’ quantitative analyses are based on economic theory as well as econometric estimations that are conducted for the purpose of model calibration. This research area is distinguished by its cross-departmental role, for it brings its methodological expertise to bear on issues under investigation in the department’s other research areas.

Advising the European Commission on the drafting of European climate policy continues to form an important part of the work carried out by this research area. Earlier projects for the European Commission analysed options for formulating climate and energy policy targets for the periods up to 2030 and 2050 and their likely effects on macroeconomic and sector-specific indicators. Work in the period covered by the present report focused on the more precise modelling of selected sectors, particularly the energy sector. The computable general equilibrium model PACE has facilitated more comprehensive analysis of how measures impact various sectors. This work is ongoing and will be pursued further by researchers at ZEW over the coming year.

Researchers involved in the cross-department project WWWforEurope, sponsored by the European Commission’s Seventh Research Framework Programme, investigated opportunities for social and environmental transformation in Europe. Within this project, the research area was chiefly concerned with the role of innovation policy, using a dynamic general equilibrium model to study impacts to innovation in the areas of processes and products. It became evident that the introduction of an energy tax can have opposite effects for each type of innovation: the model predicted both a decrease in the number of process innovations and increased activity in the area of product innovation. It also became evident that product-based subsidies for research and development can reduce energy intensity more effectively than demand-oriented policy measures.

The research area is also a member of the “Modeling the Bioeconomy” competence network, which is part of Baden-Württemberg’s “Bioeconomy Research Program”. In the period covered by this report, researchers began adapting the PACE model to reflect the use of biomass as a raw material and energy source. The structure of the model was adapted to model biomass usage pathways as well as to create interfaces with models at lower aggregation levels, such as models of the farming sector. This project will be pursued in greater depth over the coming year.

OUTLOOK

The Research Department will soon be undergoing a comprehensive reorganisation, as it has grown rapidly in recent years. The move of Professor Andreas Löschel, the former head of the research unit, to the University of Münster has created an opportunity to take this growth into account on an organisational level. The realignment of research programmes is expected to take place in 2016. The research areas “Energy Economics” and “Transport and Mobility” will be merged to form a single research area, “Transportation and the Energy Sector”. The current structure of other research areas will remain in place for the time being.

Over the coming years, the transition to a sustainable economy will be a major thematic focus. This issue is linked with numerous methodological challenges and manifold opportunities for relevant and academically demanding research projects in all of the department’s research areas. For example, in the “InTrans” project, which is funded by the German Federal Ministry of Education and Research, the economic and distributional impact of a transition to greater sustainability is being modelled using heterogeneous methodological approaches. Over the coming year, ZEW researchers will link a general equilibrium model and a microsimulation model in order to gain a more accurate overview of the distributional effects of climate and energy policies. Against this backdrop, closer cooperation with the Research Group “International Distribution and Redistribution” is envisaged.

As environmental policy becomes increasingly globalised, the department’s collaborative work and advisory activity is also becoming more strongly interlinked with the work of researchers spread across the globe. Particularly close ties are maintained with institutions in the US, China and Australia. Specialist workshops with experts are planned for 2016 in various key areas (e.g. behavioural economics). These events will promote networking between leading international researchers.

» BETTER TASK DISTRIBUTION BETWEEN EU AND MEMBER STATES.



Prof. Dr. Friedrich Heinemann
Head of the Research Department
Corporate Taxation and
Public Finance





task distribution

RESEARCH DEPARTMENT CORPORATE TAXATION AND PUBLIC FINANCE



Prof. Dr. Friedrich Heinemann
Head of Department



Prof. Dr. Katharina Nicolay
Deputy Head

RESEARCH AREAS

- **Corporate Taxation and Tax Location Analysis**
Contact: Maria Theresia Evers
- **Empirical Effects of Corporate Taxation**
Contact: Prof. Dr. Katharina Nicolay
- **Decision Making in Tax and Financial Policy**
Contact: Prof. Dr. Friedrich Heinemann
- **Fiscal Policy, Federalism and Economic Performance**
Contact: Dr. Marc-Daniel Moessinger

MISSION STATEMENT

The “Corporate Taxation and Public Finance” Research Department addresses questions related to corporate taxation and empirical public economics within the broader context of economic integration. The key research question addresses the impact of high international mobility on sustainable tax and financial policies as well as the scope, structure and tasks of the public sector. The Research Department is a leader in Europe for the international comparison of tax burdens thanks to its tax analysis models, including the European Tax Analyzer and the ZEW Tax-CoMM. Moreover, the Research Department possesses extensive expertise in the use of complex datasets in the field of taxation and public finance. Special attention is devoted to European integration processes through the analysis of EU tax harmonisation, the eurozone’s fiscal condition, and the EU budget as well as federal division of responsibilities and fiscal governance. Research in these areas repeatedly raises questions concerning challenges, such as the European sovereign debt crisis. The department’s research agenda generates concrete tax and fiscal policy recommendations, thus supporting ZEW’s guiding aim of studying the optimal performance of markets and institutions in Europe.



The department's economists play an important role in the Leibniz ScienceCampus "Mannheim Taxation" (MaTax), which studies tax policy against the backdrop of European and global integration as well as social and economic challenges. Accordingly, there are many points of overlap with the department's research agenda. Friedrich Heinemann is a member of MaTax's board of directors. Katharina Nicolay and Philipp Dörrenberg, a member of the "International Distribution and Redistribution" Research Group, coordinate MaTax's activities. Numerous co-workers within the department are involved in MaTax's research through their work on MaTax-funded projects and their involvement in workshops and conferences.

In addition to research funding, MaTax is dedicated to supporting young researchers. In 2014, it established the Taxation Track at GESS, the graduate school programme at the University of Mannheim. Doctoral candidates who enter this field of study actively participate in the Corporate Taxation and Public Finance department, opening up future career options at ZEW.

In October 2015, the second Annual MaTax Conference took place, once again giving participants the chance to share their research in an international forum. Some 60 researchers presented talks at the conference. Mihir Desai of Harvard University gave the keynote speech. MaTax economists also work to disseminate their research findings among policy-makers, thus encouraging their real-world application. In June 2015, for example, a MaTax Policy Meeting was held in Brussels, at which researchers and representatives from the private sector discussed issues related to tax avoidance.



Participants discussed ways to combat the tax avoidance strategies used by multinational corporations as part of ZEW's MaTax Lunch Debate in Brussels in June 2015.

RESEARCH AREA: CORPORATE TAXATION AND TAX LOCATION ANALYSIS

- International Comparison of Effective Tax Burdens
- Harmonisation of Corporate Taxation in Europe
- Tax Databases

Researchers in this area are concerned first and foremost with analysing corporate taxation in Europe, including national and European reform and harmonisation proposals. In terms of methods, the maintenance and further development of a toolbox of models for comparing international tax burdens is a key activity.

Economists in this research area rely on various modelling tools, including the European Tax Analyser, the Devereux & Griffith model, and ZEW TaxCoMM. During the year under review, the area's economists continued their on-going analysis of changes in corporate tax burdens in EU member states, and also made advisory contributions to current discussions on tax policy reform.

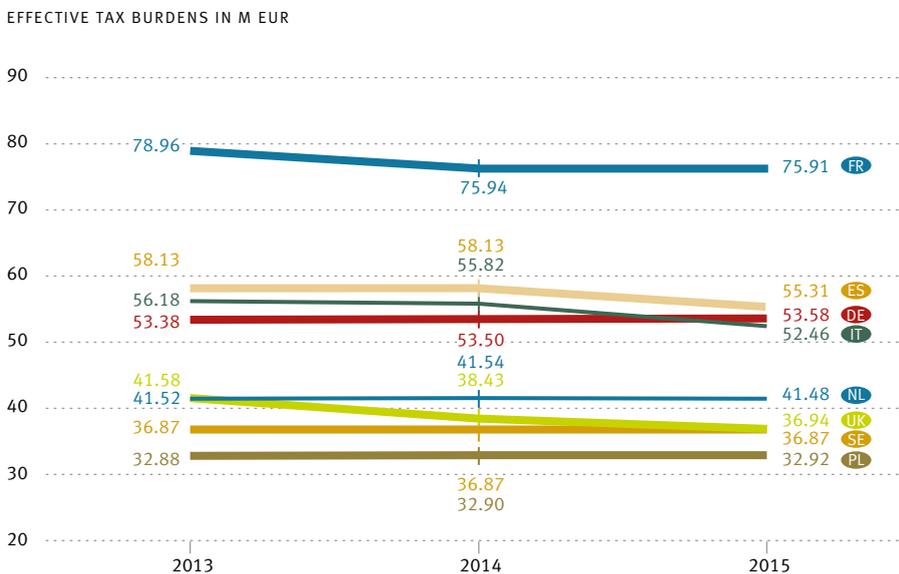
BAK Basel Economics commissioned the Research Department to analyse the effective tax burdens placed on highly skilled workers and corporations. In view of heated discussions concerning "intellectual property boxes" (or IP boxes), quantitative analyses were carried out on the Swiss IP box regime, as well as on existing regimes in eight countries. The results showed that IP boxes are associated with significantly lower effective tax burdens on patent investment.

In a study conducted on behalf of the European Commission, researchers calculated the effective domestic and international tax rates on corporations in the EU and other selected countries. Following this work, the European Commission contracted the Research Department with three more studies, to be completed by April 2016. In carrying out these studies, ZEW's economists are expanding the Devereux & Griffith model to reflect the current tax planning activities of multinational corporations. They are also simulating options for fundamentally reforming international corporate taxation. As part of this work, they will perform transparent tests of the model's assumptions and impacts on effective tax rates.

In an interdisciplinary research project conducted last year, economists examined whether the European Court of Justice (ECJ) contributes to higher tax neutrality in Europe. It was shown that a 2006 ruling by the ECJ has exacerbated disincentives in tax law for investment decisions.

An additional area of research focused on tax policy issues in Germany. Researchers criticised Germany's passive stance to fiscal policy since 2008, arguing that its static policies have been at odds with Europe's rapidly changing tax landscape, shaped by sinking corporate tax rates. An extensive analysis using the European Tax Analyzer found that Germany is falling behind other important countries in the competition to attract investment with favourable tax conditions (see Figure 1).

1] EFFECTIVE CORPORATE TAX BURDENS IN GERMANY AND SELECTED EUROPEAN STATES AS DETERMINED BY THE EUROPEAN TAX ANALYZER



RESEARCH AREA: EMPIRICAL EFFECTS OF CORPORATE TAXATION

- Taxation and the Decision Behaviour of Multinational Enterprises
- Tax and R&D Activity
- Microsimulation

In the research area “Empirical Effects of Corporate Taxation”, ZEW economists investigate the effects of taxation on the behaviour of taxpayers in general and of businesses specifically.

As part of a project funded by the German Research Foundation (DFG), economists in this research area studied how taxation affects national and international corporate acquisitions. The analysis examined various reforms that have been implemented internationally in the area of capital gains tax for corporations since 2000. It found that taxation has significant negative effects on the volume and quantity of corporate acquisitions.

Another project funded by the DFG, “International Corporate Taxation and Corporate Structures 2015 –16”, investigated the extent to which the organisational structures of corporations are tax-sensitive, particularly with a view to financing and capital stocks. Double taxation agreements and dividend taxes on investments as well as tax avoidance through debt financing were among the factors taken into account.

In addition to analysing decision-making in the area of acquisitions and organisational planning, researchers examined the tax sensitivity of start-up behaviour. As part of a SEEK project titled “Tax Policy, Productivity and Innovation”, economists specifically considered the influence of business taxation on the establishment of firms in German municipalities. The results suggest that communities that have lower business tax rates can expect more start-ups.

The profit transfer behaviour of multinational corporations was another issue examined by ZEW researchers in the year under review. The research empirically verified the tax sensitivity of licencing for certain profit transfer strategies. The extent to which various tax legislation measures influence profit transfer was also considered. The initial empirical findings suggest that a tightening of transfer pricing requirements can only reduce tax sensitivity if strict regulations are in effect for interest deductibility. As part of a project commissioned by the Federal Ministry of Finance, expert knowledge on the empirical measurability of profit transfers was leveraged to support the ministry’s involvement in the Base Erosion and Profit Shifting (BEPS) action plan.

A MaTax project devoted to tax accounting investigated how business reporting behaviour is impacted by recent reforms enabling companies to select the form of balance sheet reporting used. It found that profitable and small-sized businesses in particular make use of the new leeway for tax-minimising accounting.

RESEARCH AREA: DECISION MAKING IN TAX AND FINANCIAL POLICY

- Political Economy of Fiscal Policy
- Tax and Fiscal Policy Preferences of Voters and Politicians
- Determinants of Structural Reform Capability

The research area “Decision Making in Tax and Financial Policy” undertakes economic policy analyses of fiscal decision-making. Researchers in this area conduct studies to examine the determinants of real fiscal policy, which often diverges considerably from the empirical findings and normative implications of research in public economics. Additionally, it investigates the ways in which voters and politicians form their fiscal preferences and make decisions in tax and fiscal policy. The data is based on voluntary surveys in parliaments and population surveys.

In 2015, ZEW economists continued their examination of data on the personal characteristics of municipal politicians. As part of a project funded by the Fritz Thyssen Foundation, researchers gathered data on the personal characteristics of mayoral election candidates in Baden-Württemberg since the last municipal reform in 1974. The results were evaluated in relation to electoral outcomes. For example, researchers investigated how mayors’ salaries influenced the willingness of particularly qualified citizens to run for office. Researchers also reviewed the extent to which candidates’ formal education influenced voter behaviour.

As part of research on the tax and fiscal policy preferences of voters and politicians, research work in 2015 focused on household preferences. A large body of this research was carried out as part of the Mannheim Collaborative Research Center (SFB) 884, “The Political Economy of Reforms”. The German Internet Panel (GIP), established by the SFB, was used to record the results of a representative survey of German citizens’ attitudes towards the potential merger of German federal states, the effectiveness of the newly implemented German constitutional debt brake, and greater revenue autonomy for federal states. The collected data fits well with the surveys made with German parliament members in previous years and allows for preferential comparisons between voters as well as politicians.

Within the framework of this project, ZEW economists also analysed the attitudes of citizens towards fiscal solidarity. A key question was the extent to which there are divergent levels of approval for various types of transfer payments within Germany and Europe. The socio-economic features determining these differences were also examined.

Another project focused on uncovering positive and negative incentives for the implementation of public sector reforms. The results show that reforms during serious crises have positive effects on the efficiency of public administration, but that the resistance to change on the part of inflated bureaucratic structures presents a particular obstacle to reform.

RESEARCH AREA: FISCAL POLICY, FEDERALISM AND ECONOMIC PERFORMANCE

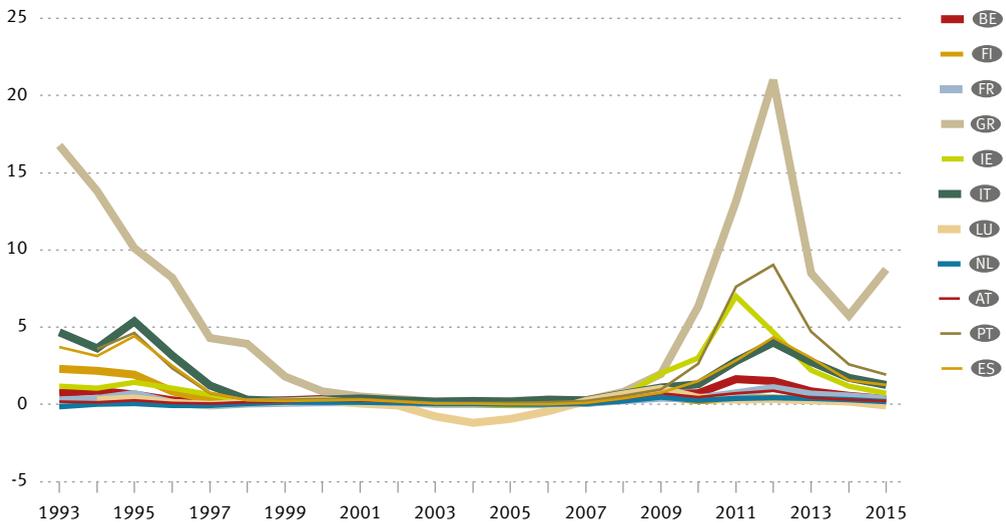
- Fiscal Policy in International Competition
- EU Financial Constitution
- The Non-Profit Sector

The research area “Fiscal Competition and Federalism” is dedicated to analysing federal systems, fiscal governance, and the correlation between fiscal policy and economic performance. Determining which federal policies and supporting measures and institutions encourage economic performance is a key research concern. National instances (such as Germany’s financial equalization scheme and debt brake) are considered alongside European ones (including the division of responsibilities between the EU and member states, fiscal contracts, etc.).

Research in the year under report also addressed potential reforms to Europe’s institutional structure, especially its fiscal governance. An expert workshop (ZEW Lunch Debate) took place in Brussels, where renowned academics, practitioners and high-level officials discussed the debt problem in the eurozone and outlined potential solutions. ZEW researchers proposed a limit to new borrowing in the eurozone that could be put into effect quickly. The rapid and strong con-

2] YIELD SPREAD BETWEEN TEN-YEAR GERMAN GOVERNMENT BONDS AND THE BONDS OF OTHER EUROZONE STATES

IN PERCENTAGE POINTS



Source: ZEW

vergence of bond rates prior to the euro crisis and after the announcement of the ECB's OMT programme suggest that market discipline has broken down in most cases. Accordingly, bond rates fail to reflect the debt sustainability of individual countries (see Figure 2). The Research Department's economists proposed that budget deficits exceeding defined thresholds be financed via a new form of government bonds with subordinate repayment priority and a credible default risk ("Accountability Bonds"). They also established research on the effectiveness of fiscal rules in the area of fiscal governance, thereby employing for the first time a meta-regression analysis that estimated a consensus among existing studies while taking into account differences in research design.

A policy advising project for the Bertelsmann Foundation focused on how to best allocate public-sector responsibilities across federal levels in Europe. Using indicators derived from the economic theory of fiscal federalism, researchers analysed defence policy, transportation policy, corporate taxation, as well as refugee and asylum policy. Due to the sharp increase in migration in late 2015, parts of the refugee and asylum policy studies were combined into a policy paper.

In 2015, ZEW economists studying the non-profit sector teamed up with researchers from the Department of Public Finance at the Karlsruhe Institute of Technology (KIT) to examine donation behaviour. The DFG project, which was completed in 2015, analysed various impacts to donation behaviour, including the euro's introduction, the classification of personal income on tax declarations, and the 2007 reform to non-profit law.

OUTLOOK

In the coming year, researchers in the department will refine the tax analysis tools used for new analytical questions. A key aim is to understand and investigate new forms of tax competition in order to develop concepts for sustainable tax systems. The methodological enhancements made to the department's research tools will enable ZEW's economists to evaluate on-going efforts to curb aggressive tax avoidance strategies.

Given the growing importance of digital marketplaces and business models, upcoming research projects will study how these trends affect the ability to tax income or value added from Internet-based transactions. There will be close cooperation in this regard with the Research Department of "Information and Communication Technologies".

Questions related to high public debt levels and the search for a better regulatory environment for the eurozone will remain important areas of investigation. The department's in-depth analysis will help to promote various initiatives, including the development of insolvency procedures for eurozone states.

European tax and fiscal policy will continue to be the focus of empirical analysis. Additionally, research will take into account issues related to developing countries. Understanding phenomena such as global tax competition and the role of tax havens requires analysis of the policy approaches of developing countries. Studying these issues will have the added benefit of generating valuable micro datasets.

» COMBATTING INCREASING INEQUALITY.



Prof. Dr. Andreas Peichl
Head of the Research Group
International Distribution and
Redistribution





inequality

RESEARCH GROUP INTERNATIONAL DISTRIBUTION AND REDISTRIBUTION



Prof. Dr. Andreas Peicht
Head of Group



Dr. Mathias Dolls
Deputy Head



Dr. Holger Stichnoth
Deputy Head

RESEARCH AREAS

- **Income and Wealth Distribution**
Contact: Dr. Phillip Dörrenberg, Dr. Iryna Kyzyma
- **Tax and Transfer Policy**
Contact: Dr. Holger Stichnoth, Dr. Philipp Dörrenberg
- **Fiscal Policy and Distribution in Europe**
Contact: Dr. Mathias Dolls

MISSION STATEMENT

The Research Group “International Distribution and Redistribution” investigates trends in income and wealth distribution as well as other indicators of inclusion and equal opportunity. A major research focus is on redistribution through tax and transfer systems and associated economic effects. Adopting national, European, and international perspectives, the Research Group conducts empirical analyses of developments in these areas. The Research Group’s empirical studies aim to support the implementation of a sustainable tax and transfer system and stable European institutions.

Using a variety of econometric techniques, the Research Group conducts microdata analyses to explore trends in wealth and income distribution and to identify causal effects. The Research Group studies both existing tax and transfer systems and the potential economic effects of reform proposals. Work in this area takes into account the distributional and efficiency aspects of tax and transfer systems, as well as their incentive and insurance effects over the life cycle.



RESEARCH AREA: INCOME AND WEALTH DISTRIBUTION

- International Income and Wealth Distribution
- Equal Opportunity
- Determinants of Increased Inequality

The research area “Income and Wealth Distribution” investigates trends in income and wealth distribution in international contexts by analysing various indicators. Particular attention is devoted to the empirical analysis of equal opportunity and to longitudinal and life cycle perspectives. Research in this area also addresses the potential drivers of growing socio-economic inequality, for example globalisation, skill-biased technological change and demography, as well as the particular role of tax and transfer systems. Individual preferences regarding redistribution and attitudes towards “fair” tax systems are additional areas of research. Based on these studies, researchers provide policy advice for reforms of the tax and transfer system to improve equality of opportunity.

The research area’s empirical work is predominantly based on high-quality administrative data and internationally comparable microdata taken from various sources, including statistics on income and living conditions contained in the “EU Statistics on Income and Living Conditions” (EU-SILC).

In the period covered by this report, the area's researchers conducted studies for the German government's Report on Poverty and Wealth. The federal government commissions the Report on Poverty and Wealth every four years with the aim of providing a scientifically based overview on poverty, wealth and inequality in Germany. In the context of the report, the research area studied how income distribution has changed among households and which factors have influenced income distribution. They also analysed the distributional effects of the German tax and transfer system, and assessed German wealth distribution in relation to other countries.

Economists in this research area have also made contributions to the study of equality of opportunity. In general, the economics literature has distinguished between "fair" and "unfair" components of existing patterns of distribution. Typically, an unequal distribution is regarded as "fair" if it is the result of factors that can be viewed as pertaining to an individual's personal sphere of responsibility. An example of "fair" inequality would be the amount of effort an individual devotes to achieving a given objective. Unequal distribution is regarded as unfair if it relates to factors beyond the individual's sphere of responsibility. Such factors include a person's inherited genetic makeup, socio-economic origin and personal childhood experiences. Among the researchers' findings is that it makes a great difference in quantifying equal opportunity whether or not one calculates the income of a life partner as being within an individual's sphere of responsibility.

RESEARCH AREA: TAX AND TRANSFER POLICY

- Tax Incidence and Tax Effects
- Analysis of Reforms and Reform Proposals
- Optimal Tax and Transfer Policy Design
- Incentive Effects of Tax and Transfer Systems over the Life Cycle

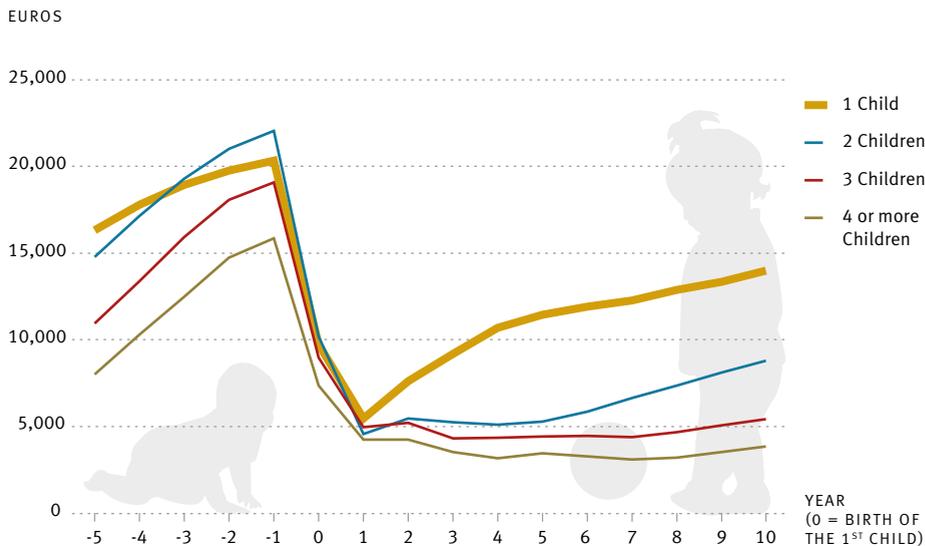
The research area "Tax and Transfer Policy" employs various methods to study the efficiency, distribution, and welfare effects of tax and transfer systems from national, European, and international perspectives. Researchers in this area conduct ex-post analyses using administrative microdata to assess the impact of implemented reforms. Ex-ante analyses address the effects of reform proposals using behavioural simulation models and experimental methods (for example, laboratory and field experiments). Based on the results of these empirical studies, researchers develop policy recommendations for designing efficient and equitable tax and transfer systems.

A current focus of work in this research area is the development of a model for ex-ante evaluation of the effects of a universal minimum wage in Germany. The model will be a unique calling card for ZEW, as there is increasing demand for research and policy advice in this area. The research area is working closely in this project with the Research Department of "Labour Markets, Human Resources and Social Policy". In 2015, researchers presented the initial results of simulations at a number of conferences and workshops.

In a contribution to the economics journal *Wirtschaftsdienst*, scholars in the research area simulated the distribution and revenue effects that would result from making the “solidarity surcharge” (Solidaritätszuschlag) part of the income tax (The “solidarity surcharge” was a special tax introduced to defray the costs of the 1990 Gulf War as well as to bolster East Germany’s ailing economy following Reunification.). On behalf of the Heinrich Böll Foundation, economists in this research area also investigated the distributional effects of marriage and family-related benefits in Germany.

In recent years, the area’s researchers have developed dynamic models for estimating the behavioural effects of taxes and benefits over the entire life cycle. This work has been carried out in cooperation with Richard Blundell of University College London and the Institute for Fiscal Studies, amongst other partners. The research is sponsored through grants from the German Research Foundation and France’s Agence Nationale de la Recherche. Special focus is placed on examining the reciprocal interactions between fertility and career decisions over the life cycle. As illustrated in Figure 1, for many women, the birth of the first child is associated with significant

1] WOMEN’S ANNUAL EARNINGS BEFORE AND AFTER THE BIRTH OF THEIR FIRST CHILD



Source: ZEW analysis based on biographical data from selected social insurance companies in Germany (BASID). Births in West Germany for the years 1980–1997. The graphic does not consider civil servants or self-employed individuals and, prior to 1999, women in marginal employment situations.

salary losses. The graph shows average income for all women; non-working women are assigned an income level of zero. The impact starting from the year the first child is born is much greater in Germany than, say, in Denmark, a country where comparable estimates are available. Even ten years after the first birth, a woman's average earnings in Germany fall well below levels just prior to maternity. This is especially true for women who end up having two or more children. Moreover, it is interesting to note that even prior to the birth of the first child, there are measurable differences in relation to the (later) number of children: on average, women who go on to have four or more children already have significantly lower earnings during the childless phase of their lives.

RESEARCH AREA: FISCAL POLICY AND DISTRIBUTION IN EUROPE

- Fiscal Integration in Europe
- Analysis of National Fiscal Policies in Europe

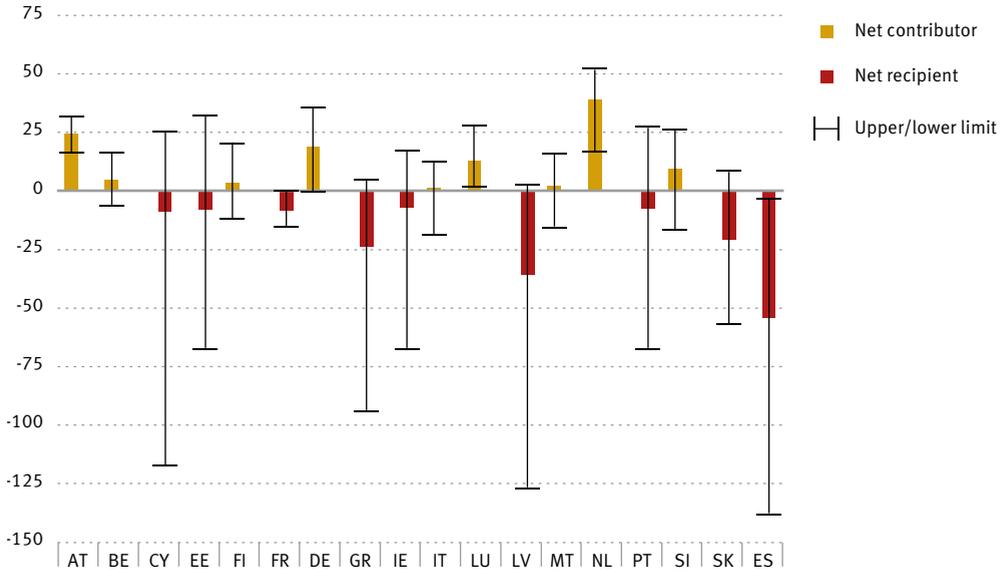
The research area “Fiscal Policy and Distribution in Europe” studies fiscal policy and fiscal integration in Europe, including various proposals for creating a European fiscal union. A particular focus is placed on analysing the efficiency effects of tax and transfer systems, as well as their redistributive and stabilising effects. Economists in the research area conduct analyses using various empirical approaches and models, including the European tax and transfer micro-simulation model EUROMOD, which allows micro-based analysis of national tax-benefit policies. Such analyses make it possible to conduct an up-to-the-moment analysis of changes in respective tax and transfer policies in the EU-28 and to simulate counterfactual policy reforms.

The main research focus of the researchers involved has been the analysis of different proposals for a European Fiscal Union. The debate about different reform proposals has intensified recently, and there is a need for research and economic policy advice. Economists in the research area have established a strong reputation in this domain. Thus, for example, they were invited by the European Parliament and the European Commission to conduct studies on the economic effects of a Europe-wide unemployment insurance system. The economists presented their studies on this topic at academic conferences and also at two expert hearings at the European Parliament's Committee on Employment and Social Affairs. In addition, they presented their findings at workshops organised by the European Commission. The studies show that a common unemployment insurance scheme can cushion asymmetric shocks in the European Monetary Union. The cross-country distributional effects are presented in Figure 2. It shows the (hypothetical) average net contributions from eurozone member states (EA18) over the period 2000–2013, if a common unemployment insurance system had been implemented in 2000.

The majority of member states would have been net contributor in some years, and net recipient in others. The exceptions are Austria, Luxembourg, and the Netherlands (permanent net contributors) as well as Spain (permanent net recipient). Currently, the research area is collaborating with several European partners on a further study dealing with this issue on behalf of the European Commission.

2] AVERAGE ANNUAL CONTRIBUTIONS TO A EUROPEAN UNEMPLOYMENT INSURANCE SCHEME IN THE PERIOD 2000 – 2013

IN PER CENT OF NATIONAL GDP



Net contribution = sum of all social security contributions – sum of transfers from unemployment insurance.
 Source: ZEW calculations based on EUROMOD and the European Union Labour Force Survey.

In a current research project on the analysis of national fiscal policies, the Research Group is investigating how the automatic stabilisation mechanisms inherent in tax and transfer systems have changed over the course of the financial and economic crisis. The research area is working closely with international partners from the Institute for Social and Economic Research at the University of Essex and the Center for Operations Research and Econometrics at the Université Catholique de Louvain in Belgium.

OUTLOOK

At the European level, the Research Group is seeking to further increase the visibility of its work, and a large number of policy advising projects reflect the success of this effort. Existing close contacts with renowned research institutions abroad will be further expanded. An example of a new collaboration partner is the European Commission's Joint Research Centre. The initial aim of this new collaboration is to expand the European Commission's general equilibrium model QUEST to include the microeconomic estimation of labour supply behaviour. Building on this initial step, there are plans for collaborative research projects with the Joint Research Centre, which will be of particular strategic importance for the Research Group, given increased fiscal coordination and monitoring by the European Commission.

Also of importance is a German Research Foundation-funded project on behavioural reactions to reforms of tax and transfer systems. In this project, the economists will use data from official statistics – to some extent previously neglected by academic researchers – to conduct a causal analysis of the reforms undertaken in the past two decades.

In future years, the Research Group will be extensively involved with themes of regional distribution and inequality. For example, they plan to develop a fine-tuned regional “inequality map” for Germany. To accomplish this, they will combine data from the widest range of sources in order to document inequality within and between Germany's regions.

As part of the “Mannheim Taxation” (MaTax) Leibniz ScienceCampus, launched in 2014, researchers will continue to work on numerous research projects, typically in interdisciplinary collaboration with jurists and political scientists. In addition, MaTax will be organising a number of events at ZEW in 2016 featuring high-profile participants.

Additional opportunities for research stem from ongoing cooperation with the Research Departments “Labour Markets, Human Resources and Social Policy” and “Environmental and Resource Economics, Environmental Management”. Collaboration with the first Research Department aims to expand ZEW's already strong position in the area of econometric analysis. In addition, economists from both research units will apply an analytic model to study the effects of a statutory minimum wage. This is an area that offers great opportunities for research and policy advising. A particular point of intersection with the environmental Research Department relates to how the burden of financing the transition to renewables is shared among the population.

» COMPETITION AND REGULATION IN DYNAMIC MARKETS.



Prof. Dr. Kai Hüschelrath
Head of the Research Group
Competition and Regulation



regulation

RESEARCH GROUP COMPETITION AND REGULATION



Prof. Dr. Kai Hüscherlath
Head of Group

RESEARCH AREAS

- **Competitive Strategy and Competition Policy**
Contact: Dr. Wolfgang Briglauer, Dr. Sven Heim
- **Competition and Regulation in Network Industries**
Contact: Dr. Dominik Schober, Dr. Oliver Woll

MISSION STATEMENT

The “Competition and Regulation” Research Group studies government competition policy as well as private sector competitive strategy in network industries and other economic sectors. Interdisciplinary collaboration with legal, business and engineering scholars is particularly important in the Research Group’s work. The goal of this collaboration is to contribute to the adoption of evidence-based competition and regulatory policies. The Research Group systematically takes into account incentives created by laws and law enforcement as well as the strategic behaviour of firms.

Studying this broad and complex subject necessitates a variety of methods and approaches, including market studies of the status quo, economic investigations of legal practice, analysis of incentives arising from existing legislation (including comparisons between laws and institutions), and the examination of effects on firm behaviour. Researchers also use applied theoretical and empirical analyses to explore the behaviour of market actors beyond the effects of legislation and enforcement.

The Research Group works closely with the Leibniz ScienceCampus “Mannheim Centre for Competition and Innovation” (MaCCI), founded by ZEW and the University of Mannheim in 2012.



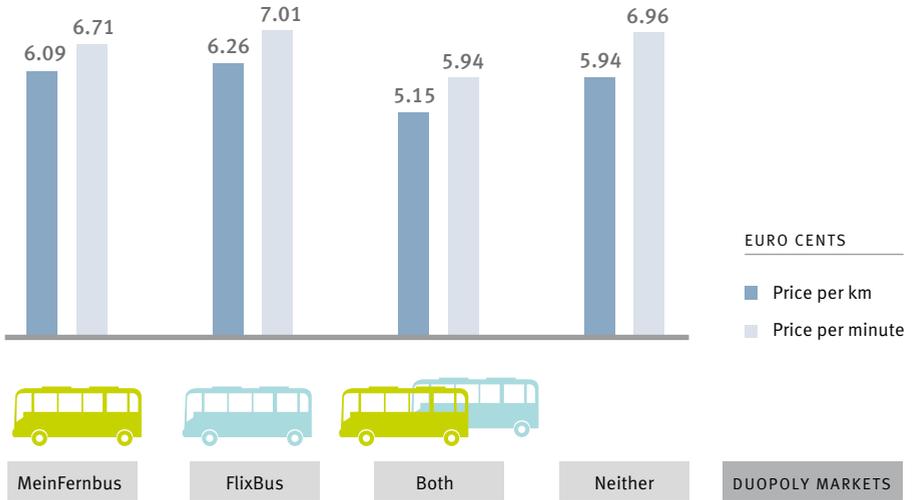
RESEARCH AREA: COMPETITIVE STRATEGY AND COMPETITION POLICY

- Economic Analyses of Mergers
- Public and Private Enforcement of Competition Law
- Evaluation of Competition Policy Institutions and Rules
- Industry Studies

In this research area, ZEW economists study how firms gain, defend and expand competitive advantages in the marketplace. The results are used to assess the economic effects of company behaviour and to draw conclusions regarding competition policy. Competition strategy and policy influence each other in many ways and both are mutually affected by existing antitrust regulations. Against this backdrop, the Research Group studies the overlap between economics, business management, and law, applying both theoretical and empirical methods. A key goal is to generate original insights by combining and expanding expertise in all three areas. A particular emphasis is placed on assessing the benefits of mergers for economic welfare, and on coordination between companies in making production and sales decisions.

In the topic area of “Economic Analysis of Mergers”, researchers took the 2013 liberalisation of the German inter-urban bus market as an opportunity to investigate effects on competition in general, and the possible effects of the merger announced in January 2015 between MeinFernbus and Flixbus. As illustrated in Figure 1 for the case of duopoly markets, direct competition between the two merging partners led to lower prices per kilometre than in cases where only one or neither party was present on the route. Although these results would suggest higher prices for some routes in the short term following a successful merger, in the medium term, the expecta-

1] AVERAGE FARE PRICES IN DUOPOLY INTER-URBAN BUS MARKETS



The figure shows the average fare price per kilometre or per minute in euro-cents for the example of all duopoly markets in Germany. One can see that the average prices are lowest when both merging parties – MeinFernbus and FlixBus – are active in the market. The price level increases significantly in markets where only one of the two merging parties offers its services. The column on the extreme right relates to duopoly long-distance coach transport markets, which are serviced by firms other than MeinFernbus or FlixBus.

tion is that elevated prices would lead to market entry by third parties, and thus the merger would have no permanent negative effects on fares.

In the topic area “Public and Private Enforcement of Competition Law”, researchers applied the database they had previously developed on cartel decisions by the European Commission to investigate the effectiveness of the new settlement procedure introduced in 2008. Their findings show that the procedure had, in fact, led to a sustained and statistically significant reduction in the time spent by the European Commission in investigating cartel cases, thereby achieving the primary aim of the new settlement procedure.

In addition, in the topic area of “Competition Policy Institutions and Rules”, economists examined the determinants of the duration of the European Commission’s merger control decisions as well as the related question as to whether the 2004 reform of the procedure had achieved a measurable impact. Their research showed that the evident increase in the duration of the procedure was the result of a changed case mix and bore no direct relationship to the working efficiency of the European Commission.

A research paper written in collaboration with ZEW Research Associate Professor Joseph E. Harrington, Jr. (University of Pennsylvania, Wharton) was published in the *International Journal of Industrial Organization*. In Harrington, J.E., K. Hüschelrath, U. Laitenberger and F. Smuda (2015), “The Discontent Cartel Member and Cartel Collapse: The Case of the German Cement Cartel”, the collapse of the German cement cartel is reviewed both theoretically and empirically, and ultimately traced back to dissatisfaction on the part of a single cartel member with the agreed cartel quotas.

The third MPI-ZEW Private Law & Economics Workshop was held in November 2015 in Hamburg. The event is dedicated to the goal of bringing together young researchers from the legal sciences and economics and inviting them to engage in interdisciplinary discourse. In addition to six expert lectures, Prof. Dr. Sascha Steffen (ZEW Research Department “International Finance and Financial Management”) delivered a keynote address on the impact of European Central Bank policies on deposit and lending rates in the eurozone.

RESEARCH AREA: COMPETITION AND REGULATION IN NETWORK INDUSTRIES

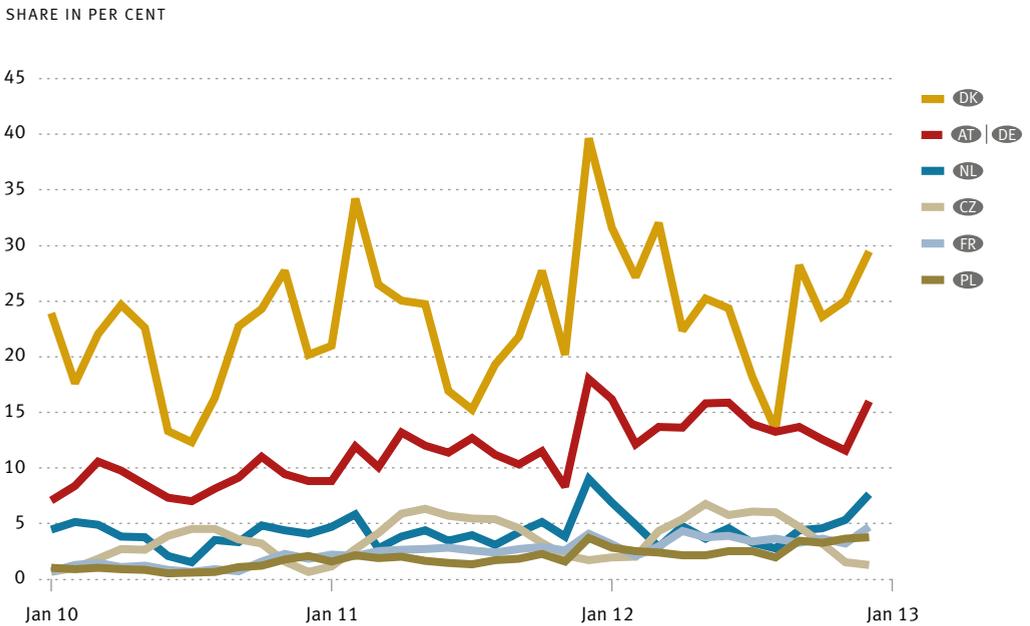
- Trends in Energy, Telecommunication and Transport Markets
- Impact of Sector-Specific Regulation on Market Structure and Market Conduct
- Development and Evaluation of Market Designs, Network Regulations and Policy Instruments in Energy and Telecommunication Markets

Economists in this area study the design of effective and efficient regulatory schemes. Important questions in this regard concern how sector specific regulation impacts market structure and market behaviour, as well as how to ensure adequate investment for the replacement or expansion of infrastructure capacity. With regard to energy markets, multiple factors compel the constant re-assessment of current conditions, including the increasing integration of European energy markets and German policies designed to promote the adoption of renewables. In telecommunication markets, substantial investments and risks associated with new fibre-optic communication networks raise important questions – for example, about the terms of network access imposed by market participants, and about the necessity of sector-specific ex-ante regulation in general. Besides energy and telecommunication markets, the area also focuses its research on airline and railway transport markets.

In the topic area of “Trends in Energy, Telecommunication and Transport Markets”, ZEW economists, in cooperation with ZEW Research Associate Michael Waterson (University of Warwick, UK), examined the extent to which the German-Austrian electricity market is integrated with its neighbours who are directly linked through cross-border interconnectors. They found that the degree of integration varies markedly. While Poland’s integration with the German market amounts to only 14 per cent, the Czech Republic (99 per cent) and the Netherlands (89 per cent) are almost fully integrated. In addition, researchers studied the impact of unilateral German political

decisions on electricity markets in neighbouring countries. Along with the effects of the decommissioning of German nuclear power plants in the wake of the Fukushima disaster in 2011, they also examined the effects of national funding mechanisms for renewable energy in Germany on neighbouring countries. Based on their study, Figure 2 shows the share of volatile renewable energies within total electricity generation for Austria-Germany and selected neighbour states from 2010 to 2013.

2] SHARE OF VOLATILE RENEWABLE ENERGIES IN TOTAL ELECTRICITY GENERATION



The figure shows the share of volatile renewable energy in total electricity generation for selected nations neighbouring Germany. It shows that except for Denmark, all neighbouring countries have significantly lower shares of renewable energy than Germany-Austria.

The figure reveals a remarkably high and also quite volatile share for renewable energies in overall power generation in Denmark. For the Austrian-German market, a significant increase in the share of renewable energy is evident over the time period, and this may well continue to rise in coming years as a consequence of the German energy transition.

Overall, the study has concluded that the decommissioning of six gigawatts (GW) of nuclear power capacity in Germany did cause substantial cost increases in the majority of neighbouring countries, whereas the expansion of renewable energy promoted by the Renewable Energies Act (EEG) led to (smaller) annual savings. From these findings, it has been suggested that there is a need for better coordination of national energy policies at the European level.

In an industry-sponsored study, economists in the research area conducted a quantitative analysis to examine the question whether, in principle, investors choose to invest in (new) power generation capacity at the time such capacity is actually required. The study is of relevance to current policy discussions about the future design of the electricity market. It addressed the core issue of whether expected prices were high enough to stimulate investments in peak capacity power plants and sought to determine the necessary price levels for providing investment incentives.

In the topic area “Development and Evaluation of Market Designs, Network Regulations and Policy Instruments in Energy and Telecommunication Markets”, ZEW economists published an article in the *Review of Network Economics* in collaboration with ZEW Research Associate Professor Ingo Vogelsang (Boston University). The article reviewed the theoretical and empirical literature on fibre-optic network expansion. In another study published in the journal *Telecommunications Policy*, ZEW researchers, together with ZEW Research Associate Professor Klaus Gugler (Vienna University of Economics and Business), conducted an empirical examination of investment incentives for broadband network providers. A Bruegel Policy Contribution written jointly with Professor Carlo Cambini (Polytechnic University of Turin) and Dr. Michal Grajek (European School of Management and Technology, Berlin) focused on the determinants of fibre-optic network expansion with a special emphasis on sector-specific regulation.

In May 2015, the research area hosted the fourth Mannheim Energy Conference together with the Research Department of “Environmental and Resource Economics, Environmental Management”. The conference brought together internationally renowned speakers, including Professor Natalia Fabra (University Carlos III, Madrid), ZEW Research Associate Professor Frank Wolak (Stanford University) and Professor Catherine Wolfram (University of California at Berkeley).

OUTLOOK

The founding of the Leibniz ScienceCampus “Mannheim Centre for Competition and Innovation” (MaCCI) in 2012 expanded and consolidated the “Competition and Regulation” Research Group’s already close collaboration with the School of Law and Economics at the University of Mannheim. This collaboration will be further intensified in coming years.

The Research Group will continue its on-going work on a number of research topics. Within the topic area “Public and Private Enforcement of Competition Law”, researchers will examine how the most recent European Commission Directive on strengthening private sector enforcement of community competition law will impact public sector enforcement. In the topic area of “Case-Based and Macroeconomic Analyses of Company Mergers”, economists will analyse the factors influencing the length of European Commission merger control procedures and whether the 2004 reform of the underlying regulation has had a measurable impact on their efficiency.

In the topic area of “Industry Studies”, ZEW economists will examine how extensively a more competitive organisation of health care markets could counteract the constantly rising health-care expenditures resulting from demographic change. In addition, the 2013 liberalisation of the long-distance coach transport market in Germany will serve as the impetus for a closer examination of the competitive relationships developing in that market. In the area of petrol station markets, researchers will continue their analysis of the interplay between market transparency and competition.

In the topic area of “Current Developments in Energy, Telecommunication and Transport Markets”, researchers plan to pursue several subprojects related to different branches. In the area of energy, a number of projects will investigate how security of supply will be affected by future systemic transformation on both the generation and demand side resulting from the energy transition in Germany. They will analyse the expediency and efficiency of different regulatory tools. In the area of telecommunications, a key question is when and under what conditions network owners must provide access to service-based competitors – particularly in view of the major investments and risks involved in the expansion of fibre-optic communication networks. Important related issues in the area of competition policy concern appropriate public subsidy levels as well as the extent to which cooperation schemes for network expansion are legally permissible and economically efficient.

SCIENTIFIC OUTPUT, COMMITTEES AND EXTERNAL RELATIONS

▶ SCIENTIFIC OUTPUT

▶ COMMITTEES AND EXTERNAL RELATIONS

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- Dörrenberg, P., Matthias-Erzberger Research Award for Dissertations, North Baden Chamber of Tax Consultants, Heidelberg.
- Kummer, M., “The Future Working World” Research Award for Dissertations, Volksbank Weinheim Foundation.
- Rammer, C., Best Paper Award, Joint Research Centre’s Institute for Prospective Technological Studies of the European Commission, Sevilla, ES.
- Sommerfeld, K., Participant of the Leibniz Mentoring Programme, Leibniz Association, Berlin.
- Wölfling, N., EEX Excellence Award for Best Dissertation, European Energy Exchange AG, Leipzig.

DOCTORAL GRADUATIONS

Labour Markets, Human Resources and Social Policy

Bradler, Christiane, Goethe University Frankfurt, "The Impact of Monetary and Non-Monetary Rewards on Employee Performance and Creativity".

Gregory, Terry, University of Regensburg, "Rising Labour Market Inequality: Regional Disparities and Wage-Setting Institutions".

Economics of Innovation and Industrial Dynamics

Böing, Philipp, Frankfurt School of Finance & Management, "Innovation Made in China – Empirical Investigations into R&D, Patents, and Productivity".

International Finance and Financial Management

Jaroszek, Lena, University of Mannheim, "Essays in Behavioral Finance".

Environmental and Resource Economics, Environmental Management

Kesternich, Martin, University of Hamburg, "On the Voluntary Provision of Public Goods Among Agents with Heterogeneous Preferences".

Koesler, Simon, Heidelberg University, "CGE Modelling in the Context of Trade and Environment".

Osberghaus, Daniel, Carl von Ossietzky University of Oldenburg, "Ökonomie der Anpassung an den Klimawandel – Private Haushalte in Deutschland".

Reif, Christiane, University of Regensburg, "Voluntary Cooperation of Individuals and Cooperates in the Environmental Context".

Corporate Taxation and Public Finance

Asatryan, Zareh, Albert Ludwigs University of Freiburg, "Direct Democracy and Local Public Finances in Germany".

Braun, Julia, Vienna University of Economics and Business, AT, "Determinanten und Effekte bilateraler Steuerabkommen".

Moessinger, Marc-Daniel, Albert Ludwigs University of Freiburg, "Politicians' Characteristics, Fiscal Institutions and Political Budget Cycles – Three Politico-Economic Essays".

Richter, Katharina, University of Mannheim, "Research and Development Tax Planning of Multinational Firms".

Competition and Regulation

Laitenberger, Ulrich, Catholic University of Leuven, BE, "Empirical Essays in Industrial Organization".

Woll, Oliver, University of Duisburg-Essen, "Limited Liquidity in Energy Markets – Implications for Trading Strategies and Risk Measures".

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Conference: Second MaTax Annual Conference

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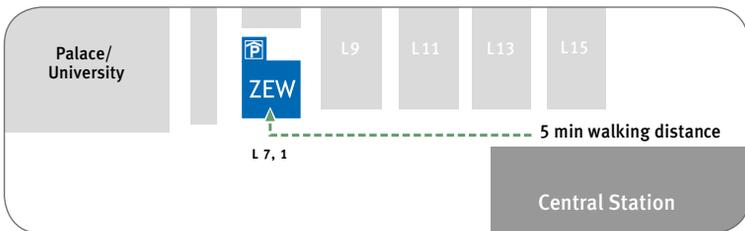


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