



ANNUAL REPORT 2017

// THE YEAR IN RETROSPECT

REPORT

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ZEW ANNUAL REPORT

2017

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January to November 2017

ZEW LUNCH DEBATES TACKLING EU-RELATED ISSUES STRIKE A CHORD WITH AUDIENCES

One of ZEW's main concerns is contributing to the resolution of economic policy issues facing Europe by informing public debate with objective, scientific knowledge. One way that the institute achieves this is through the ZEW Lunch Debates, an event series held at the Representation of the State of Baden-Württemberg to the EU in Brussels. These debates regularly bring together members of staff from various EU bodies, MEPs, embassy staff as well as representatives from interest groups for a lively discussion of the challenges currently facing Europe. The series kicked off 2017 with a debate over the potential effects of the planned reorganisation of the corporate tax base on the Member States and private companies located there.

The panellists in the April debate (l-r): Xavier Debrun, Professor Niels Thygesen, Professor Friedrich Heinemann and moderator Maithreyi Seetharaman.



27 January

THE PATH TO FAIR, EFFICIENT AND TRANS- PARENT TAXATION

With the aim of creating more efficient tax frameworks for companies across Europe, the European Commission reissued its proposition for a Common Consolidated Corporate Tax Base (CCCTB). What consequences this proposed reform might have for the individual Member States as well as the EU as a whole was the main question debated by ZEW Research Associate Professor Christoph Spengel, Gaëtan Nicodème, unit head at the Directorate-General for Taxation and Customs Union at the EU Commission, as well as Professor Stef van Weeghel, head of global tax policy at PricewaterhouseCoopers and professor at the University of Amsterdam. The lively panel discussion was moderated by Vanessa Houlder, a journalist at the Financial Times.



28 April

EUROPEAN FISCAL BOARD UNDER THE MICROSCOPE

In a keynote lecture, ZEW economist Professor Friedrich Heinemann highlighted the possibilities and weaknesses of the European Fiscal Board (EFB), which was established as an independent supervisory authority in late 2016. The responsibilities of the EFB include monitoring the implementation of the Fiscal Compact and briefing the European Commission on the current state and future development of fiscal policy at both the national and European level. The lecture was followed by a debate between Heinemann and the other panellists, Professor Niels Thygesen, chair of the EFB, and Xavier Debrun from the International Monetary Fund (IMF). The debate was moderated by the economics journalist Maithreyi Seetharaman.



24 November

INNOVATION FINANCING FROM BUSINESS ANGELS

Europe is facing a conundrum when it comes to innovation. Despite high investment in research and a number of leading companies located on the continent, research results rarely find their way onto the market due to lack of financing. Business angels, who support innovative start-ups by providing both capital and experience, could be one solution to this financing gap. But what kind of political action is necessary at the EU-level? This was just one of the questions debated by ZEW economists Dr. Georg Licht and Dr. Maikel Pellens, along with fellow panellists Philippe Gluntz (Business Angels Europe), Helen Köpman (EU Commission), Chiara Frenicia (Inova+) in a discussion moderated by Dr. Ute Günther (Business Angels Netzwerk Deutschland e.V.).





Welcoming the students to the YES! regional final at ZEW (l-r): ZEW President Professor Achim Wambach, Julia Wenkowsch from the Joachim Herz Stiftung, YES! project leader Dr. Willi Scholz and moderator Katja Syri.

February to November 2017

ZEW TEAM TRIUMPHS IN YES! HIGH SCHOOL ECONOMICS COMPETITION

How can start-up businesses be founded in a way that is both quick and effective? This was the question tackled by the YES! team from the vocational school BBS Wirtschaft 1 Ludwigshafen, who were mentored by ZEW researchers as part of the high school economics competition YES! – Young Economic Summit. Their idea for a “Company Gateway for Start-Ups” blew away the competition and saw the team presented with first prize by then Federal Minister Brigitte Zypries at an official ceremony held at the Federal Ministry for Economic Affairs and Energy in Berlin in November 2017. The team from Ludwigshafen beat off stiff competition from teams from 12 other schools from Baden-Württemberg, Hesse, Rhineland-Palatinate, Saarland and Schleswig-Holstein.

YES! YOUNG ECONOMIC SUMMIT



Above: Minister Brigitte Zypries at the official 2017 YES! award ceremony at the Federal Ministry for Economic Affairs and Energy in Berlin.

Below: The winning team from BBS Wirtschaft 1 Ludwigshafen.

Following the kick-off event for the South West, which was held on 17 February 2017 at ZEW in Mannheim, the participating high school students had developed their own solutions to current global economic, ecological and social challenges, which they then presented in English at the YES! Summit in Kiel in October.

Throughout the course of the competition, the participating teams had the continual support of experts from various Leibniz institutions, including ZEW, in the research and presentation of their ideas as well as media relations. The YES! competition will be held again in 2018.



First-Hand Information

February 2017

A 15-POINT PROGRAMME FOR THE RE-ESTABLISHMENT OF EUROPE

Brexit, Trump, refugees and the Eurozone crisis – in light of these serious problems facing Europe, what does the future hold for the European Union? Professor Hans-Werner Sinn, former president of the ifo Institute and one of Germany's most outspoken economists, presented his 15-point programme for the re-establishment of Europe post-Brexit in front of an audience of 350 guests at ZEW in February 2017. According to Sinn, Germany should strive to renegotiate the terms of current EU treaties. Sinn also highlighted the significance of the United Kingdom as Germany's third biggest export market, making it in Germany's interest to grant the UK an attractive position as an associated member of the EU post-Brexit.

Left: Sinn answered questions from the audience, including from ZEW economist Professor Friedrich Heinemann.

Right: Before the lecture: Professor Hans-Werner Sinn in conversation with former ZEW President Professor Wolfgang Franz.



Associate Professor Cuihong Li
from the University of Connecticut
at ZEW's Market Design Workshop.



February 2017

MARKET DESIGN WORKSHOP COMBINES RESEARCH AND PRACTICE

What mechanisms are there to help distribute refugees more evenly in their destination countries? How can public procurement be made more efficient? And how can companies organise their supplier pool in the most effective way possible? These were just some of the questions from the research area of market design tackled as part of the market design workshop run by ZEW in Mannheim, which was attended by some 30 international participants. The workshop combined lectures from respected researchers with contributions from members of industry.

Associate Professor Alex Teytelboym from the University of Oxford presented his research on mechanisms that improve the distribution of refugees and their families within their destination countries by taking the preferences of refugees and regional governments into account. Associate Professor Cuihong Li from the University of Connecticut described how firms can optimise their supplier pools. Her research findings showed that, while a larger supplier pool leads to stronger competition, it also reduces the incentive for suppliers to innovate or invest and thus can lead to higher prices and inefficiency. A number of large construction projects, such as the Berlin Brandenburg airport or Stuttgart 21 have made headlines due to massive delays and sky-rocketing costs. The root cause of problems like these is often poor planning, which makes renegotiations necessary further down the line. In view of this problem, Professor Fabian Herweg from the University of Bayreuth presented a market design that offers providers an incentive to report any deficiencies in their planning before they are awarded the contract and not to hold out for later renegotiations.



Left: Debate participants on the podium discuss the possibilities and challenges of rapid digitalisation.

Right: EU Commissioner Günther H. Oettinger discussed the importance of innovative regions in keeping the EU competitive.

March 2017

MEMORIAL IN HONOUR OF LOTHAR SPÄTH AT ZEW

Former Minister President of Baden-Württemberg Lothar Späth was a visionary in terms of the future of the European project. In March 2017, both the state government and ZEW held a joint memorial event to commemorate his passing. With the help of Minister President of Baden-Württemberg Winfried Kretschmann, EU Commissioner for Budget and Human Resources Günther H. Oettinger, as well as other former colleagues of Späth, the event held at ZEW offered insights into Späth's ideas for an economically powerful and Central European Baden-Württemberg in terms of the current and future development of Europe. In the presence of some 300 guests, ZEW President Professor Achim Wambach emphasised Späth's crucial role in the conception and founding of ZEW. The mission Späth assigned to this new research institute, that is, to devote itself in particular to European and international economic research, has proven to be extremely forward-thinking in the intervening years. Both Kretschmann and Oettinger used their remarks to highlight Späth's commitment to the European project. The initiatives launched by Späth indicate a premonition of the immense challenges that Europe would soon be facing.

One of the highlights of the event was the panel discussion, which – in honour of Lothar Späth's great vision – focused on the opportunities and challenges presented by technological change. Kretschmann and Oettinger were joined on the panel by Dr. Herbert Henzler, former head of McKinsey in Germany, Dr. eh. Martin Herrenknecht, CEO of Herrenknecht AG, and ZEW research department head Professor Irene Bertschek. The panel discussion was moderated by ZEW President Achim Wambach.



Above: Around 300 invited guests were in attendance for the talks and panel discussion in honour of Lothar Späth.
Below: Achim Wambach talks with Winfried Kretschmann.



Left: In her speech, Professor Bronwyn H. Hall from the UC Berkeley discussed the impact of introducing patent boxes as a fiscal instrument.

Right: Professor Francesco Lissoni from the University of Bordeaux provided insights into the connection between migration and knowledge diffusion.

May 2017

INTERNATIONAL CONFERENCE ON THE ECONOMICS OF INNOVATION AND PATENTING

Together with the Leibniz ScienceCampus “Mannheim Centre for Competition and Innovation” (MaCCI), ZEW organised the Conference on the Economics of Innovation and Patenting for the seventh time. Over the course of the conference, around 100 researchers discussed recent research findings on various topics, such as patent systems, incentives for R&D, knowledge production and migration.

Sessions focusing on patent research featured, for instance, presentations on the strategic use of patents and the influence of patent systems on innovation activity. Professor Bronwyn H. Hall from the University of California at Berkeley, delivered a plenary lecture on the extent to which the introduction of patent boxes as a fiscal instrument has an impact on innovation activities in that country. In the second speech, Professor Andrew W. Torrance from the University of Kansas School of Law presented a new approach to evaluating patents. From his perspective as a patent lawyer, he explained how big data can be used to assess the value of patents. Professor Francesco Lissoni from the University of Bordeaux in France presented his findings on the relationship between migration and knowledge diffusion. Using the USA as an example, he investigated whether the work of researchers with an immigrant background influences the production of knowledge in the respective countries of origin.

May 2017

PUBLIC FINANCE UP FOR DEBATE

The ZEW Public Finance Conference in May 2017 served as a platform for the around 100 participants to discuss the latest research findings from various fields of public finance.

Co-organised by ZEW and the "Arbeitskreis Europäische Integration" (AEI), this year's conference once again dealt with a broad spectrum of topics ranging from the influence of taxation on investment decisions to the profit shifting behaviour of private companies. A highlight of the conference was the speech delivered by Sergei Guriev, chief economist at the European Bank for Reconstruction and Development and professor of economics at the Paris Institute of Political Studies (Sciences Po), on the distributional effects of the transition from a planned to a market economy.

Based on survey data from the former communist states, Guriev was able to show that the transition to a market economy has only led to a minority of the population receiving a higher income, while available income has increased only in the long term. This could be one reason why radical political parties have found particular popularity in these countries.

Left: Professor Sergei Guriev provided a fascinating overview of the distribution effects of the transition from a planned to a market economy.

Right: In his keynote, Professor Ravi Kanbur discussed the impact of the digital revolution on the fight against poverty.





Above: Professor Hal Varian, chief economist at Google, delivers his lecture on “The Data Economy: Threats and Opportunities”.

Below: A chance to share ideas – Professor Steven Tadelis mingles with guests after the panel discussion.

Right: Professor Steven Tadelis, Professor Hal Varian, Professor Martin Peitz and Professor Achim Wambach (left to right) during the debate.

First-Hand Information

June 2017

“THE IDEA THAT ROBOTS ARE GOING TO TAKE OUR JOBS AWAY IS AN EXAGGERATION”

The phenomenon of the data economy simultaneously brings opportunities, risks and challenges. For example, how should workplaces and labour markets deal with increasing automation both now and in the future? This was the question addressed by Professor Hal Varian, chief economist at Google, in his talk on “The Data Economy: Threats and Opportunities” in June 2017. The talk, which was attended by around 120 guests, was part of the ZEW event series “First-Hand Information on Economic Policy”. The idea that robots could take our jobs is, in Varian’s mind, an exaggeration given that, in the past, it has mainly been individual tasks rather than entire job descriptions that have been affected by automation. The right way to deal with automation would therefore be to expand the range of tasks falling under each profession while also widening access to a better education for everyone – in particular for people who were previously unable to get good professional training. Varian concluded his speech by advising that we use the opportunities presented by automation – in particular, the time-saving aspect – to accelerate the much-needed growth in productivity worldwide.

The talk was followed by a panel discussion in which Varian debated a number of issues, including the effects of digitalisation on market power, consumer protection, copyright law and regulation, alongside ZEW President Professor Achim Wambach and Professor Steven Tadelis from the University of California at Berkeley.

The debate was moderated by Professor Martin Peitz, a ZEW Research Associate at the University of Mannheim and one of the directors of the Mannheim Centre for Competition and Innovation (MaCCI).



Professor Irene Bertschek (left) and Dr. Sabine Graumann (right) present the Monitoring Report "DIGITAL Economy 2017" to then Federal Minister for Economic Affairs and Energy Brigitte Zypries.



June 2017

DIGITAL SUMMIT: LAUNCHING GERMANY'S TECHNOLOGICAL COMEBACK

The digitalisation of the German economy is starting to gather speed. On average, German companies have reached a current digitalisation level of 54 out of a possible 100 points, though this figure is expected to rise to 58 by the year 2022. These are the findings of the recent Monitoring Report "DIGITAL Economy 2017 – Compact", which was presented by Professor Irene Bertschek, head of the ZEW Research Department "Digital Economy", together with Dr. Sabine Graumann from Kantar TNS at the 2017 Digital Summit held in Ludwigshafen. During the presentation, Bertschek called for a general change in thinking when it comes to the digital transformation of the German economy. Currently, a third of German businesses do not view digitalisation as necessary. For many firms, the processes necessary for digitalisation are too expensive, too time-consuming and pose too many potential legal uncertainties.

DIGITAL
GIPFEL
12-13 JUNI
2017



ZEW research department heads Professor Kai Hüschelrath (left) and Professor Vitali Gretschko (right) with the prize-winners Jiekai Zhang and Bernhard Kasberger.

July 2017

ZEW HONOURS INTERNATIONAL UP-AND-COMING RESEARCHERS

As in the previous year, 2017 saw two research papers awarded the Heinz König Young Scholar Award: one by Jiekai Zhang from the Centre de Recherche en Économie et en Statistiques (CREST) of the École Nationale de la Statistique et de l'Administration Économique (ENSAE) ParisTech and the other by Bernhard Kasberger from the University of Vienna.

The focus of Jiekai Zhang's paper is on the TV sector and the ways in which advertisers and viewers influence one another in terms of their demand behaviour.

Zhang shows how regulation can create added value for TV viewers in cases where TV stations illegally coordinate the transmission time for advertisements among themselves. Meanwhile, in his paper Bernhard Kasberger examines frequency auctions on mobile communications markets. The paper identifies the weaknesses in the most common auction formats and lays the groundwork for future auctions to be set up in such a way that they lead to greater welfare gains overall. Named after ZEW's late founding director, Professor Heinz König, the award recognises outstanding empirical research papers from young researchers. The award comes with a € 5,000 prize from the ZEW Sponsors' Association and the opportunity to complete a research stay of several months at ZEW. In 2017, the prize money was donated by MLP Finanzdienstleistungen AG and the award itself was presented at the closing event to the 19th ZEW Summer Workshop for young economists.



June to September 2017

ZEW STRENGTHENS LINKS WITH CHINESE UNIVERSITIES

In 2017 ZEW had the opportunity to further strengthen and develop its links with a number of Chinese universities. For example in June, ZEW, together with the National School of Development at Peking University, held the fourth annual meeting of the International Consortium for China Studies with a focus on the topic “Perspectives on China’s Development and the Openness of Global Markets: The Nexus of Political, Economic and Social Issues”. Researchers from all over the world came together in Mannheim to present their latest research findings on a number of topics, including the changing role of China with respect to international trade, technological innovation and global economic growth.

Then, in July, 25 students from the University of International Business and Economics (UIBE) in Beijing attended the international ZEW/UIBE Summer School at ZEW.

During their three-week stay in Mannheim, the students, all enrolled on degree programmes related to economics, gained insight into the economic and business environment in Germany and Europe through various modules.



In August, ZEW welcomed a group of professors from 14 Chinese universities for an intensive two-week training course, which ended with the participants receiving their course certificates at a celebratory reception held at ZEW.

Finally, in September, ZEW together with UIBE in Beijing and the Alexander von Humboldt Foundation, organised the Beijing Humboldt Forum in the Chinese capital. As part of the forum, ZEW organised a session entitled “Implementing the Paris Agreement – The Role of the European Union and China”.

Left: International researchers attended the ICCS annual meeting at ZEW.

Above: Participants received their certificates at a celebratory event at the end of the ZEW/UIBE Summer School. From left to right: Lars Mathis (ZEW), Manuel Lauer (ZEW), ZEW Director Thomas Kohl and deputy head of the Service Department “Knowledge Transfer and Qualification Programmes” Barbara Hey.

Below: Participants at the 2017 Beijing Humboldt Forum.





Around 120 guests, among them representatives from banking, academia and the business world, attended the lecture at ZEW.

October 2017

CLAUDIA BUCH: "FINANCIAL STABILITY IS AN ISSUE OF NATIONAL IMPORTANCE"

Shortly after the outbreak of the financial crisis in 2007, the G20 agreed on a reform agenda consisting of regulatory measures to protect global financial markets from future crises in November 2008. At the G20 summit 2017 in Hamburg, the heads of state and government endorsed a structured framework for the evaluation of the reforms that have since been implemented. What has become of the G20 reform goals? Where is the interface between financial stability and monetary policy? These are some of the questions Professor Claudia M. Buch, vice-president of the Deutsche Bundesbank, addressed in her lecture at ZEW in October 2017.

In her lecture, Buch argued that although financial stability is a national responsibility, global reforms addressing this issue should always be analysed and assessed on an international level. The lecture was followed by a Q&A session moderated by ZEW President Professor Achim Wambach, with the 120 guests engaging in lively debate with the guest speaker.





First-Hand Information

Left: Professor Claudia M. Buch, vice-president of the Deutsche Bundesbank, during her speech on the G20 financial market reforms at ZEW.

Above: Before the lecture: ZEW President Professor Achim Wambach (left) and ZEW Director Thomas Kohl (right) with Professor Claudia M. Buch.

Centre: The lecture was followed by a Q&A session moderated by ZEW President Professor Achim Wambach.

Below: Among the audience members with a question for Professor Buch was ZEW economist Claire Garvard, PhD.



Professor Josef Drexl discussed a future legal framework for the data economy in his keynote.

November 2017

MACCI CONFERENCE FOCUSES ON BIG DATA

The seventh MaCCI Law and Economics Conference by the Leibniz ScienceCampus "Mannheim Centre for Competition and Innovation" (MaCCI) featured roughly 65 participants discussing recent developments relating to big data and other topics in the field of law and economics. In his keynote speech, Professor Josef Drexl from the Max Planck Institute for Innovation and Competition (MPI) in Munich presented his view on the future legal framework of the data economy, emphasising the aims of competition and innovation. Alice Hutchings, PhD, Senior Research Associate at the Computer Laboratory of the University of Cambridge, who established and maintains a database of computer crime events in the United Kingdom, provided insights into how criminals displace and abuse big data. Furthermore, four panels featuring established experts in the field engaged in spirited debate on a number of topics, including the future of data markets, privacy and the protection of personal data, sector-specific regulation and personal data, as well as competition policy and big data.

November 2017

ZEW RESEARCHERS DISCUSS ENERGY CONSERVATION IN THE HOME AT COP23

How can we raise awareness among private households about saving energy in the home? What is the key to running a successful energy saving campaign? These were some of the questions addressed by ZEW environmental economists in presenting their latest research findings at the side event “Energy Savings in Housing” at the UN Climate Change Conference (COP23) in Bonn in November 2017. Organised jointly by ZEW and the University of Münster, the side event included a wide range of contributions from behavioural researchers, the corporate sector and consumer advice centres. Dr. Martin Kesternich, deputy head of the ZEW Research Department “Environmental and Resource Economics, Environmental Management”, and ZEW Research Associate Professor Andreas Löschel from the University of Münster highlighted the challenges of impact evaluation studies that aim at assessing the causal effects of energy saving campaigns on energy savings. Specifically, Kesternich provided insights into a field study from the EU-funded Horizon 2020 project “Step by Step”. In his speech and the following discussion, Kesternich pointed out how difficult it is to target individual households as effectively as possible through such campaigns and to raise awareness about conserving energy without knowing anything about each household’s specific needs and experiences.

ZEW economist Dr. Martin Kesternich delivering his talk during the 2017 UN Climate Change Conference.





EDITORIAL

// GREETING LETTER FROM THE MINISTER PRESIDENT OF
BADEN-WÜRTTEMBERG, WINFRIED KRETSCHMANN

// LETTER FROM THE EXECUTIVE DIRECTORS

// INTERVIEW WITH PROF. ACHIM WAMBACH, PHD

EDITORIAL

GREETING LETTER FROM THE MINISTER PRESIDENT OF BADEN-WÜRTTEMBERG, WINFRIED KRETSCHMANN



Baden-Württemberg has rarely been in such a strong position as it is today. We are Germany's economic growth engine and Europe's leading centre of innovation. Employment levels are at a record high and we have the second lowest unemployment rate in all of Germany. However, these successes – a booming economy, full order books, attractive jobs – should not distract us from the fact that we still face considerable challenges.

Digitalisation is transforming both our society and economy from the ground up, changing the way we live and work, how we consume and communicate. It is therefore important that we do not rest on our laurels and instead start shaping this digital transformation in an active way and exploiting the opportunities it presents. It is thus highly appropriate that ZEW, as one of Europe's leading economic research institutes, is looking into this issue intensively as part of its research.

Part of ZEW's mission is to merge empirical research and scientifically-based policy advice. The institute uses its expertise to contribute to scientific and political debate in a variety of ways and supports the State of Baden-Württemberg as an expert adviser on a number of issues, including dealing with the challenge of digitalisation. ZEW researchers are using a number of different research methods to investigate the opportunities, challenges and effects of digitalisation for the economy and the labour market. Based on

their findings, they are able to provide recommendations for how to shape this process in both a sustainable and inclusive way. We particularly appreciate ZEW's input for the design and implementation of the government of Baden-Württemberg's new digitalisation strategy "digital@bw".

ZEW has a reputation across Europe for scientific excellence in the innovation hub of Baden-Württemberg. This success is due in considerable part to the hard work and dedication of the institute's staff, to whom I would like to express my thanks and appreciation.



Winfried Kretschmann
Minister President of Baden-Württemberg



Prof. Achim Wambach, PhD
President

Thomas Kohl
Director

LETTER FROM THE EXECUTIVE DIRECTORS

Dear readers,

ZEW's ambition and dedication in recent years have paid off: Following an excellent evaluation by the Leibniz Association in 2016, we have now achieved a raft of impressive results in our efforts to strategically expand into a centre of competence for market and institutional design research. From 2019 onwards, we intend to expand our research on the optimal function of markets and institutions, thus laying the foundation for developing into a European centre of competence in this subfield.

Following an in-depth professional assessment, both the Leibniz Association and the German Council of Science and Humanities have voiced their support for this undertaking. This decision reinforces our view that market and institutional design is growing in importance both as a subject of scientific research and as a domain of economic policy advising. This brings us one step closer to the goal of putting this exciting area of study on long-term footing at ZEW.

The research projects pursued by ZEW in 2017 were notable in part for their topicality. One of the core topics comprehensively studied by ZEW researchers was digitalisation, which is a high-profile social and economic policy issue. We accomplished a great deal in this regard in 2017; for instance, the "Digital Economy" Research Department presented a monitoring report on the status of the digital economy to the German Federal Government at its Digital Summit. The report made significant waves in the media. Furthermore, we were able to further boost our policy-advising profile by contributing to the development of the Baden-Württemberg state government's digitalisation strategy.

Also in 2017, we were delighted to welcome two high-profile guests to our “First-Hand Information on Economic Policy” event series: namely, Google’s chief economist Professor Hal Varian, as well as Professor Steven Tadelis of UC Berkeley.

In 2017 we also successfully expanded our network of academic ties. A particular highlight in this regard was Professor Irene Bertschek’s appointment at the University of Giessen in December 2017, which strengthened the long-standing collaboration between the two institutions.

Promoting the development of young researchers was an additional area of activity. One noteworthy example in this regard was the ZEW-mentored team of high school students from BBS Wirtschaft 1 Ludwigshafen, who emerged as the winners at the Young Economic Summit (YES!), Germany’s largest high school competition devoted to economic policy challenges.

We would like to sincerely thank ZEW’s Scientific Advisory Council as well as our Supervisory Board for their constructive support. Our very special thanks also go to the staff in all the research and service units. After all, it is they who worked to achieve ZEW’s successes in 2017, and their great commitment will be the driving force behind the institute’s continuing successful development in the years to come.

We hope you thoroughly enjoy reading this report, which we have endeavoured to fill with interesting information about our activities.



Prof. Achim Wambach, PhD
President



Thomas Kohl
Director

INTERVIEW WITH PROFESSOR ACHIM WAMBACH, PHD



MARKET POWER AND COMPETITION IN THE AGE OF DIGITALISATION

The market is a powerful force that has generated great prosperity in Western industrialised nations. At the same time, it has spawned dominant Internet giants such as Amazon, Facebook and Google. Could the market economy perhaps fall victim to its own success?

ACHIM WAMBACH

- ▶ I would certainly avoid framing the question in such dramatic terms. It is true that Internet giants like Google, Amazon and Facebook have a powerful market position that in some cases could be described as a monopoly. And that is precisely where the danger emerges. There is significantly less need for companies with a monopoly position to strive for innovation that is beneficial to consumers. In addition, companies with considerable market power tend to act to keep potentially dangerous competitors out of the market – for instance, by simply buying up companies with promising products or services.

What is wrong with a company in a strong financial position taking over another company – has that not always been the case?

ACHIM WAMBACH

- ▶ The market economy is subject to constant change. Companies that are no longer competitive or that have relied on the wrong product range for too long go bankrupt. At the same time, new companies with creative business ideas come into existence. This dynamic is the driving force of our prosperity and, in the long term, is the best form of protection for workers and consumers. When competition exists, it is easier for people to find a new job, and customers can change providers if a product is unsuitable or the service is bad. However, if new companies are simply swallowed up as soon as they have success, taken over by established companies in a strong financial position, that undermines the driving forces of the market in the long run.



Is there evidence for such a trend?

ACHIM WAMBACH

- ▶ There seems to be a growing tendency toward larger companies in today's economy. In the United States, the proportion of nominal GDP accounted for by the one-hundred largest companies has risen from about 30 per cent in the mid-1990s to 46 per cent today. One explanation for this is the ongoing digitisation of the economy, including the growing importance of platform-based markets. Large online companies benefit considerably from the size and scale they have already reached. For example, individuals tend to use platforms like eBay because they already have a large number of users, and the other way around. eBay benefits enormously from these indirect network effects. On the other hand, a competitor that still needs to establish itself faces an extremely difficult task in overcoming the benefits enjoyed by an established leader.





Is there evidence for a tendency towards greater size and concentration in Germany, too?

ACHIM WAMBACH

- ▶ In Germany, the proportion of nominal GDP accounted for by the hundred largest companies has been on the decline since 1978, from 19.4 per cent that year to around 16 per cent in 2014. However, small and medium-sized enterprises are a much stronger feature of the German economy. So the extent to which the market's digitalisation will influence future concentration – here as well as abroad – is a question that has not yet been clearly answered. Continuous observation of the markets will therefore be important in the future. I would add that size is not a bad thing per se. Consumers can benefit from it, as eBay, Facebook, and Airbnb demonstrate. Market power becomes harmful whenever it is abused, and steps must be taken to counter that.

How can we prevent the abuse of market power and developments that are detrimental to competition?

ACHIM WAMBACH

- ▶ First of all, there is the ability to punish abusive practices, for which the European Commission and the Federal Cartel Office (in Germany) are responsible. With their assistance, action can be taken and fines imposed in response to abusive behaviour. The second option is to regulate companies. The EU's General Data Protection Regulation, which came into force in May 2018, for example, ensures that all online

businesses must apply the same data protection standards. The final option is to break up a company; for instance, if Google were required to sell its subsidiary YouTube. But since break-up means a massive intervention into ownership rights, it only comes into consideration as a last resort.

Is this set of tools sufficient to rein in Internet giants like Google and Facebook?

ACHIM WAMBACH

- ▶ In recent years, existing regulations have been applied with greater stringency. For example, the almost 2.5 billion euro fine that the EU charged Google for abusing its market power as a search engine operator was more than twice as high as the previous record fine for abusive competitive practices. Those responsible for regulating abusive practices are also learning to use their policy tools more efficiently, thanks to their growing experience in dealing with company groups in the internet sector. For instance, it is now possible to take action against companies even if they do not demand any money whatsoever for their services. This is a new feature of German competition law, which became necessary due to digitalisation. After all, users do indeed pay for the services of companies like Facebook and Google with a new currency: their data.

In addition to the fact that much of the content on the Internet is available free of charge, is there not a general problem in correctly assessing the market power of companies offering their services to users in the online marketplace?

ACHIM WAMBACH

- ▶ That is not an easy undertaking by any stretch of the imagination. Every assessment in terms of competition law must first examine the pertinent market. For instance, how does an Internet company like Facebook earn its money? Facebook and Google have a high market share in the online advertising market. But if we consider the advertising market as a whole, including television and print advertisements, Facebook's share is by no means as large. As a result, it is difficult to isolate a pertinent market in which Facebook and Google are dominant. The picture is different on the user side – while such companies are dominant in this area, they

do not generate any revenues. The amendment to Germany's competition laws in 2017 have already provided a partial response to this complex situation. In efforts to control abusive practices, it is now possible to explicitly define a pertinent market even if no money changes hands (for instance, in the case of Facebook users). Criteria such as direct and indirect network effects, economies of scale, provider-switching costs and access to competition-related data must also be taken into account when examining the dominance of companies in multi-sided markets. Given this trend, we can conclude that we are on a good course on the whole in terms of controlling abusive practices and continuing to preserve the highly important dynamism of the market in the era of its digital transformation.





ABOUT US

// THE INSTITUTE

// THE RESEARCH UNITS

ABOUT US

ZEW IN BRIEF

The Centre for European Economic Research (ZEW) in Mannheim was founded in 1991 and is a member of the Leibniz Association. Under the leadership of Professor Achim Wambach, the President of the institute, and Thomas Kohl, the institute's Director, ZEW currently employs a staff of approximately 170 in six research departments, two research groups, and four service departments. As one of the leading economic research institutes in Germany, ZEW enjoys an excellent international reputation.

Mission

The mission of ZEW consists of four closely related key objectives, that is

- 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 guiding mission is to study and design well-performing markets and institutions in Europe. Studies carried out by ZEW concern the framework of market processes which improve the performance of sustainable and efficient knowledge-based economies in Europe. This aim impacts the core research activities pursued at ZEW, for example:

- securing employment and income against the backdrop of demographic change,
- business start-ups and innovation policy in global competition,
- the impact of digitalisation on economic processes,
- informing the structure of European financial markets,
- sustainable strategies for international climate policy,
- viable national and European fiscal policy,
- the economic effects of various international tax and transfer systems,
- improving the performance of existing markets.

From a methodological perspective, ZEW's research profile is shaped by theory-based approaches to empirical economic research. The studies carried out at the institute draw on techniques and methods from economics and business administration. Research at ZEW is always open to interdisciplinary cooperation and adopting new perspectives.

Unique Characteristics

Although ZEW works in close contact with universities and applies university level standards in all its research activities, our work differs considerably from economic research conducted at universities. ZEW sets broader goals than university economics departments, placing greater weight on policy advising and knowledge transfer. Furthermore, ZEW is the only economic research institute in Germany which offers a seminar programme, with the objective of providing further training for both economists and business managers.

The size of ZEW and the broad spectrum of topics studied by our research units enable us to carry out major economic policy advising projects. The infrastructure of ZEW also facilitates the development and maintenance of complex analysis models such as the European Tax Analyzer or the PACE (Policy Analysis based on Computable Equilibrium) model. 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 number of universities in Germany, Europe and across the world. The centrepiece of ZEW's university network is the institute's permanent link with universities in the Rhine-Neckar Metropolitan Region: Contractual agreements with the universities of Mannheim and Heidelberg facilitate collaboration and the shared use of resources in the area of doctoral programmes.

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

The institute benefits from close cooperation with currently over 90 research associates, usually professors from German and international universities, who play an important part in the work of the research units. Many ZEW researchers also hold teaching positions at universities. The ZEW Visiting Researchers Programme promotes scholarly exchange by offering international academics the opportunity to complete a research visit at the institute.

The institute's successful work is reflected not least in the fact that many ZEW researchers are appointed to professorships and assistant professorships at universities. In 2017, ZEW researchers accepted professorships at the universities of Mannheim, Bochum and Giessen as well as at Télécom ParisTech, MINES ParisTech, the Frankfurt School of Finance & Management, the Maastricht University School of Business and Economics, and the universities of applied sciences of Schmalkalden and Gelsenkirchen. In the past few years, researchers have also accepted professorships at the universities of Luxembourg, Heidelberg, Georgia Tech, 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 peer-reviewed journals 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 record, contributing to its leading position among Germany's economic research institutes. Between 2015 and 2017, a total of 238 articles written by ZEW researchers were accepted for publication in refereed 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 ZEW's research success. 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 has distinguished international partners, primarily in Europe; however, it increasingly cooperates with partners in North America and Asia. One example is the collaboration with the University of International Business and Economics (UIBE) in Beijing, which is set to intensify in the coming years.

Scientific Events

Another important means of establishing cooperative ties is scientific exchange through 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 2017, ZEW's research units organised more than 44 conferences and workshops. These events attracted hundreds of international participants to the institute. In 2017, ZEW researchers delivered more than 430 presentations at scientific conferences in Germany and abroad.

International conferences are also an opportunity to promote ZEW as an institution and employer. The institute is therefore represented at important international conferences with information stands, for example at the annual conference held by the European Economic Association (EEA) and at the ASSA meetings held in the United States.

Development and Maintenance of Research Data

In most cases, it is individual-level data which forms the basis for empirical research carried out by ZEW. 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 ZEW 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 via the ZEW-FDZ can generally be used free of charge for scientific, non-commercial research purposes. Some of the data is made available in the form of anonymised Scientific-Use-Files. With more than 360 external users since 1996, 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 educational or teaching purposes.



QUALIFICATION OF STAFF

The promotion of talented researchers is a core aim of ZEW. The institute therefore offers its staff a comprehensive range of further training opportunities.

Two Pathways to a Doctoral Degree

At ZEW, postgraduate education is considered to be the key to promoting the growth and development of young academics in economics. Around half 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 significant proportion of the researchers pursue a career in academia, in government institutions, in the private sector, or in associations. 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 currently employs just under 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 at the institute have an open framework. University graduates who begin their academic career at ZEW can attain their doctoral degree by taking one of two pathways:

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

In most cases, doctoral students choose to participate in research projects at ZEW whilst completing their doctorate. With the help of the heads of the ZEW research units and experienced senior researchers, doctoral candidates are able to draw inspiration for their doctoral thesis from the research projects they get to work on. Once the topic of the doctoral thesis has been decided upon, a supervisor will be found at either a German or foreign university.

With the ZEW DocNet, ZEW offers a second pathway for doctoral students. Within this international network, ZEW participates in graduate programmes offered at universities both in Germany and abroad. Thanks to this cooperation, the institute has become even more attractive for promising young researchers. A total of 13 doctoral students are currently taking part in the ZEW DocNet programme. Graduates wishing to join the ZEW DocNet programme must first apply to a doctoral programme at a participating university. Successful applicants then complete the full doctoral programme at the respective 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.

Structured Qualification for Doctoral Candidates

Since 1 March 2015, the standards of ZEW's structured qualification programme apply to university graduates who have newly joined the institute. ZEW wishes 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 are validated with credit points according to the European Credit Transfer and Accumulation System (ECTS). The standards of the ZEW qualification programme can be attained by participating in a graduate school programme, in doctoral courses at the respective university, or in obligatory, elective and additional 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 courses in IT, 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 maintaining the exemplary 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.

The institute offers apprenticeship training positions for IT and business information specialists, the latter in combination with a BSc at the Baden-Wuerttemberg Cooperative State University (DHBW). Personal advisers guide apprentices during their technical or administrative training periods at ZEW. In the “Information and Communication” Service Department, ZEW also offers two trainee positions in the areas of press and public relations and online communications.

Student Assistants and Interns

ZEW also offers university students the opportunity to familiarise themselves 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. This provides students with their first opportunity to apply the theoretical and methodological knowledge acquired during their studies in practical research. In 2017, more than 40 Bachelor’s and Master’s theses were completed by students employed at ZEW.

ECONOMIC POLICY ADVICE

One of ZEW’s key objectives is to provide economic policy advice which is based on rigorous economic research. Policy advice is provided for policymakers and public authorities at a regional, national 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 media and events.

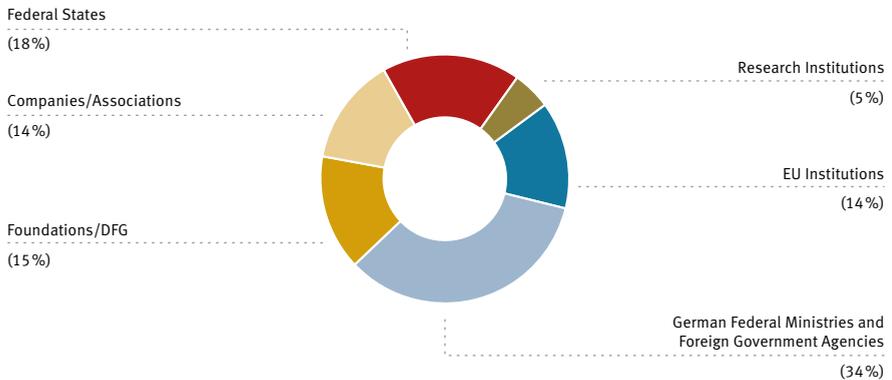
Science-Based Economic Policy Advice

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 group 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 complement each other. Any knowledge gained from research is immediately incorporated into policy advising. This concept provides economic policymakers with a guarantee of the scientific quality and balanced nature of ZEW's advising activities.

Client Structure

In 2017, the institute's third-party funding amounted to 8.7 million euros. The most significant clients, making up approximately 52 per cent of the ZEW client base, are German and foreign government agencies, followed by foundations such as the German Research Foundation (15 per cent). Institutions belonging to the European Union, and private companies and associations each account for 14 per cent of our funding. Contributing five per cent, research institutions also represent a significant client group.

SOURCES OF THIRD-PARTY FUNDING IN 2017



KNOWLEDGE TRANSFER

One of the institute's key objectives is to communicate research findings to the scientific community, political decision-makers and interested members of the public. The research activities carried out at ZEW profit from the contact maintained with the fields of research, business, and politics; these provide an external impetus for the institute's research, advising activities, and training programmes. 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,
- websites, newsletter, Twitter and YouTube,
- media contacts.

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 homepage 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. In 2017, approximately 7,840 publications were downloaded via RePEc.

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 at private companies, as well as members of the public who have a general interest in economic policy issues. These publications contain selected results from our research and policy advising activities and provide information concerning conferences and other events.

In order to promote ZEW's international profile, general information about the institute is available in German, English and Chinese.

Digital Information Resources

ZEW shares information with the media and the general public via a comprehensive range of digital information channels. The ZEW website, which was updated in the beginning of 2016 and now features a new and modern design as well as an improved user interface, provides up-to-date information in German and English as well as a large number of research papers and studies that are available for download. The ZEW Newsletter, produced in both German and English, is sent to some 7,000 subscribers each month. The newsletter keeps readers informed on the

latest research findings, projects, publications, events and career options at ZEW. As part of the institute's internationalisation strategy, content on the ZEW website is generally available in English. In addition, ZEW is active on Twitter (@ZEW), regularly posting updates about events, conferences, and publications as well as economic policy statements.

Effective Communication

ZEW keeps the media informed about its latest research findings and contributes to the current economic policy debate by sending out approximately 130 press releases each year.

The professional layout of ZEW publications, based on the institute's corporate design, ensures that ZEW papers and reports are instantly 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, private companies, government agencies and organisations. They are also an opportunity to keep in touch with the general 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 (in Mannheim),
- ZEW Lunch Debates (in Brussels).

Knowledge Transfer & Qualification Programmes

Each year, the seminar programme organised by ZEW – a unique offer in the sphere of economic 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 has a highly practical orientation. To ensure the quality of these events, ZEW researchers work together with experts from a number of organisations and companies to design and conduct the seminars.

The ZEW Service Department "Knowledge Transfer & Qualification Programmes" provides further training in a variety of formats. Each year, ZEW hosts a large number of seminars aimed at participants from the realms of academic research, politics and business. In addition to seminars addressing economics and business administration issues, seminars on methodological approaches and courses which provide training in soft skills are particularly popular.

Around 20 customised seminars take place each year. These courses are targeted at firms and public institutions that wish to offer their staff members the opportunity to benefit from tailor-made training. The international qualification programmes are comprehensive further education courses for non-German speaking, international participants. Internal further training seminars are provided for ZEW staff members. During such seminars, staff members receive training in, for example, presentation and moderation techniques in both English and German.

STAFF REPORT AND FINANCIAL STATEMENT

Staff Report

At the end of 2017, ZEW employed a total of 174 staff members (2016: 188). 104 of these employees are research staff. A total of 26 researchers left ZEW over the course of the year (compared to 17 in 2016). Around two thirds of them went on to work for research or public institutions, while just under a fifth decided to take up positions at private companies and associations. The majority of the research staff have university degrees in economics-related disciplines. The average age of our researchers is 34, while the average age of staff members across all ZEW units is 36. The majority (88 per cent) of research staff in our research units are employed on fixed-term contracts. 92 ZEW employees have been working at the institute for less than five years (compared to 105 in 2016), indicating a relatively high turnover in staff.

ZEW is a significant provider of workplace training in the Rhine-Neckar region, as demonstrated by the four apprentices working at the institute at the end of 2017. Furthermore, ZEW offers young people practically oriented experience and guidance for their future careers through in-

ZEW PROFIT-AND-LOSS STATEMENT

(in K euros)	2016	2017*
Institutional funds	9,934	9,292
Joint Initiative for Research and Innovation Funding	317	332
Third-party funds (turnover, inventory changes, subsidies)	8,231	8,655
Other business revenues, financial profit	376	344
Income from the reversal of the special item for contributions to fixed assets	510	611
Total revenues	19,368	19,234
Staff expenditures	12,257	12,020
Third-party services	1,347	1,218
Other operating expenditures	5,319	4,585
Asset write-offs	510	585
Allocation to special items for contributions to fixed assets	198	314
Other taxes	–	33
Total expenses	19,631	18,755
Financial result	-25	-38
Profit/loss for the financial year	-288	441
Withdrawals from appropriated reserves	462	358
Net income	174	799

* preliminary figures

ternships and the chance to work for the institute as student and graduate research assistants. This year, 64 interns were able to take advantage of this opportunity at ZEW (compared to 62 in 2016). The majority of student and graduate research assistants employed at ZEW are studying at the nearby universities in Mannheim and Heidelberg, or at one of the other universities located in the Rhine-Neckar Metropolitan Region. Through their participation in the work of ZEW research and service units, these students gain valuable initial professional experience. As of 31 December 2017, a total of 94 students had taken advantage of this opportunity (2016: 98). 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.

The two central priorities of ZEW are conducting high-quality research and providing 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 scope 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 their doctorates, obtain a postdoctoral qualification, or complete a research stay at a renowned research institution abroad. In 2017, twelve ZEW researchers completed their doctorates (compared to nine the previous year). Six of them were awarded the highest possible grade, “summa cum laude”.

ZEW's attractiveness as an employer is in no small part due to the many opportunities the institute offers staff to structure their work hours in a way that is flexible and tailored to their individual needs. In 2017, a total of 37 employees (2016: 34), representing 21 per cent of all staff (2016: 18 per cent), took advantage of the opportunity to determine their own work schedule on a part-time basis. ZEW hereby actively encourages its staff to maintain a healthy work-life balance and facilitates the harmonisation of work and family life. 34 per cent of researchers employed at ZEW in 2017 were women (compared to 30 per cent in 2016). Across the entire institute, women made up 49 per cent of all staff members (compared to 46 per cent in 2016).

Financial Report

ZEW ended the financial year 2017 with an annual surplus of 0.44 million euros and a net profit of 0.80 million euros (compared to 0.17 million euros in 2016). At 20.72 million euros, total net capital came in slightly under the 2016 figure of 23.06 million euros. Total revenue, amounting to 19.23 million euros, fell by 0.13 million euros from the previous year. Total expenses came to 18.76 million euros, 0.87 million euros less than in the previous year (19.63 million euros). The cash and equivalents balance indicates continued good liquidity.

Despite intense competition between national and international economic research institutions, ZEW was able to assert its market position in the face of difficult conditions on the national and international research market. Over the course of 2017, ZEW researchers worked on a total of 217 research projects. The share of third-party funds has remained consistently high at 44 per cent. The current volume of third-party funding for 2018 and the following years amounts to an approximate total of 13.49 million euros. Since its founding in 1991, ZEW has managed to secure a total of 149.58 million euros in third-party funding.

ZEW BALANCE SHEET AS OF 31 DECEMBER 2017*

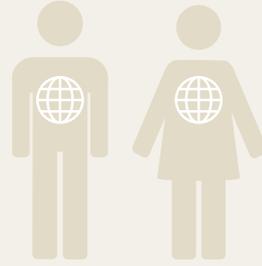
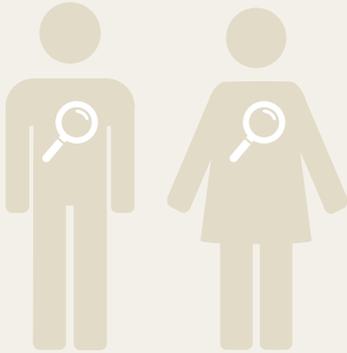
	31.12.2016 in K euros	31.12.2017 in K euros		31.12.2016 in K euros	31.12.2017 in K euros
Assets			Liabilities and equity		
Intangible assets	173	120	Share capital	26	26
Downpayments made	10	–	Appropriated reserves	3,840	3,656
Real estate and construction in progress	8,541	8,601	Other reserves	2,170	2,170
Equipment	546	562	Net income	174	799
Fixed assets	9,270	9,283	Shareholder's equity	6,210	6,651
Stocks	4,299	2,161	Untaxed reserves	1,475	1,827
Receivables/other assets	689	904	Reserves	2,430	2,267
Cash at banks	8,648	8,122	Advances received	4,402	1,855
Current assets	13,636	11,187	Liabilities to banks	5,918	5,290
Prepaid expenses	151	250	Other liabilities	2,622	2,830
Total	23,057	20,720	Outside capital	15,372	12,242
			Total	23,057	20,720

* preliminary figures

RESEARCH AT ZEW



12 Doctoral degrees completed



19

International researchers

104

Researchers



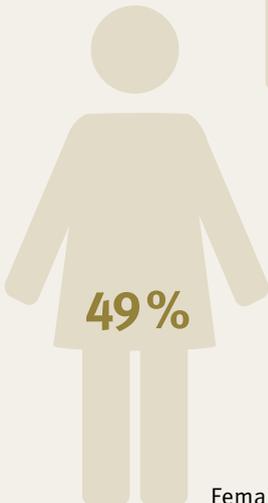
18

Researchers employed on a part-time basis



174

EMPLOYEES IN TOTAL



Female staff



4 Apprentices/trainees

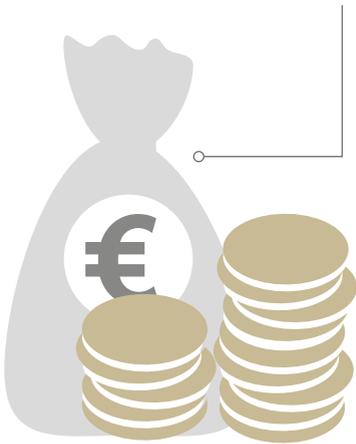
64 Interns

94 Student research assistants

BALANCE AND THIRD-PARTY FUNDING

Third-party funds secured since founding in 1991

149.58 MILLION EUROS



44%

Share of funds received from third parties

TOTAL BALANCE

20.72 MILLION EUROS



5.72 Average number of years researchers stay at ZEW



Average age of ZEW researchers

217

COMPLETED OR ONGOING RESEARCH PROJECTS

As of 31.12.2017

INTERNATIONAL RESEARCH COOPERATION

ZEW is an international research institute not only in terms of its research focus, but also in terms of cross-border cooperation – because top-quality research requires collaboration on a European and global level. The ability to attract renowned researchers and foreign cooperation partners is an important feature of any successful research institution. International cooperation is also an important factor when competing for third-party funds.

Participation in EU Framework Programmes

In the period covered in this report, ZEW continued to engage in a significant amount of international activity in the fields of research and policy advice. ZEW has managed to continue its successful work from previous research programmes under the new framework programme „Horizon 2020“ (2014 – 2020). There are currently seven ongoing projects within Horizon 2020 which ZEW researchers are involved in, including one project for which ZEW is the consortium leader.

Economic Policy Advice on EU Level

Beyond conducting research projects, the institute has established itself as a key source of policy advice in Brussels. Leading ZEW researchers advise the EU Commission and the European Parliament in a number of economic policy areas. During the period covered by this report, six ZEW scientists served as advisers to European institutions.

Moreover, ZEW continues to succeed in strengthening its presence and visibility on the European arena with the “ZEW Lunch Debates”, a discussion series held in Brussels which began in 2014. In 2017, three events in this series were held with remarkable success, bringing together renowned ZEW researchers with other economics experts and an audience of invited guests to discuss the current economic challenges facing Europe. High-level EC staff, members of the European Parliament, as well as representatives from industry and research institutions have participated as panellists in these debates.

Cooperation Networks

International cooperation serves the purpose of promoting scientific exchange. ZEW maintains links with an impressive number of universities, research institutions and organisations worldwide. This cooperation encompasses joint projects, publications, and mutual research visits with institutions across Europe, the US, and Asia.

During the period covered in this report, ZEW worked particularly intensively with major institutions from Europe and especially China. Research projects within the framework of ZEW’s SEEK programme were another important area of collaboration in 2017. Cooperation with China has continued successfully. In collaboration with Fudan University in Shanghai, ZEW continues to run the “China Economic Panel”, a monthly survey on macroeconomic trends in China. ZEW once again supported 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 2017 annual Beijing Humboldt Forum and

had a prominent role in organising the session “Implementation of the Paris Agreement – The Role of the European Union and China” with five talks.

The fourth annual conference of the International Consortium of China Studies (ICCS) of the Peking University’s National School of Development was once again hosted by ZEW in 2017, under the title “Perspectives on China’s Development and the Openness of Global Markets: The Nexus of Political, Economic and Social Issues”. Peking University and Fudan University are among the most influential universities in China. In July, the annual ZEW Summer School for UIBE students from Beijing took place at ZEW.

The development and expansion of international networks was also greatly enhanced by 451 research stays of international researchers from 34 different countries, who visited ZEW over the course of the year. The ZEW Visiting Researchers Programme (VRP) provides a framework for research stays.

In October 2017, the vice-president of the Deutsche Bundesbank Professor Claudia M. Buch gave an insightful talk at ZEW on the current status of the G20 financial market reforms.





ZEW regularly hosts an information stand at national and international conferences, where participants have the opportunity to find out more about career, collaboration and training possibilities at ZEW and take a look at the institute's latest research findings.

Conferences and Publications

ZEW increases its visibility outside of Europe through its participation in international conferences. In January 2017 ZEW participated in the annual meeting of the Allied Social Sciences Association (ASSA) in Chicago, the most important economics conference in the world. In August, ZEW attended the European Economic Association meeting in Lisbon, which is equally significant in Europe. On both occasions, ZEW researchers had the opportunity to present their research findings. In addition, the institute was represented by a stand providing information about major research areas as well as opportunities for cooperation and research stays.

Further measures to enhance international networking include information brochures for specific target groups, press releases, an English version of the institute website, a general information brochure in Chinese, as well as public relations activities at international conferences. ZEW regularly welcomes international delegations. In summer 2017, for example, ZEW welcomed a delegation of young Chinese economists. The group visited selected research institutes across Germany, including ZEW, on a delegation trip (organised by the German Research Foundation's Sino-German Center for Research Promotion) to coincide with the Lindau Meeting of Nobel Laureates in Economic Sciences.

ZEW RESEARCH DATA CENTRE

The ZEW Research Data Centre (ZEW-FDZ) provides external researchers access to original data collected by ZEW. 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 Survey, and from personal interviews.

**Firm Surveys:**

- Mannheim Innovation Panel (MIP)
- KfW/ZEW Start-up Panel/ IAB/ZEW 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
- Climate Negotiations Equity
- 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, 23 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 2017. Around 66 per cent of these license agreements were made for MIP data.

Since 1996, a total of 360 external researchers have used MIP data, more than 40 per cent of whom worked outside of Germany, and about ten per cent outside of Europe. MIP Education-Use-Files have been applied by 30 university scholars for teaching so far. In 2017, one new user seized this opportunity.

In November 2016, an FDZ user conference took place for the first time, during which external researchers had the opportunity to present and discuss the results of their work with ZEW data. User conferences are scheduled to take place every two to three years. The next user conference is expected to take place in early 2019. In 2018, the Statistical Office of the State of Baden-Württemberg established a branch of the research data centres of the Statistical Offices of the Länder at ZEW, where official data of these offices are available to all interested researchers from Germany and abroad.

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

Contact:

Dr. Sandra Gottschalk

E-mail: sandra.gottschalk@zew.de

DATABASES

The research units at ZEW are responsible for creating and maintaining databases for the purposes of academic research. Some of the most prominent examples are listed below. A number of the listed databases can be accessed via the ZEW Research Data Centre (ZEW-FDZ).

● **IAB/ZEW Start-up Panel**

Database containing information on business start-ups for the analysis of their development during the first years of operation; conducted in cooperation with the Institute for Employment Research (IAB) and Creditreform

Contact: Jürgen Egel, juergen.egeln@zew.de

● **Business Survey in the Information Economy**

Quarterly survey of firms in 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: Dr. Daniel Erdsiek, daniel.erdsiek@zew.de

● **Mannheim Innovation Panel (MIP)**

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

Contact: Dr. Christian Rammer, christian.rammer@zew.de

● **Mannheim Enterprise Panel (MEP)**

Database containing information on firms that are, or were, economically active in Germany for the analysis of start-ups, company growth, firm closures and firm population Standard evaluations on start-up activities (aggregate number of start-ups) upon request

Contact: Dr. Johannes Bersch, johannes.bersch@zew.de

● **ZEW Financial Market Survey**

Monthly survey among financial market experts providing expectation data on financial market trends as well as macroeconomic developments

Contact: Dr. Michael Schröder, michael.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. As part of the SEEK programme, ZEW also aims to expand its international networks and to improve its visibility in the scientific community.

With the help of SEEK funding, ZEW has implemented a number of measures to ensure the success of these goals. The main focus lies on launching research projects that enable cooperation between ZEW researchers and renowned international economists. SEEK research teams address topics concerning the efficiency and competitiveness of 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.

Under the general topic of “Overcoming the Economic Crisis in Europe”, SEEK projects aim to shed light on, among other issues, the causes of the financial and economic crisis in Europe, the necessary conditions for intelligent, sustainable and integrative growth, as well as long-term strategies to stabilise Europe both economically and financially. 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 public administration with empirical, scientifically-based expertise.

In the first five years since the launch of SEEK, every year international researchers were invited to submit proposals for SEEK research projects in close cooperation with ZEW researchers. Project proposals were evaluated by a scientific board consisting of distinguished international researchers. This competitive process ensures scientific excellence and guaranteed that only the most outstanding projects received funding within the framework of the SEEK programme.

SEEK Research Projects

The first five project allocation cycles (2010 – 2014) saw more than 40 international research projects successfully completed.

Convinced by the success of the SEEK programme, the State of Baden-Württemberg decided to extend the funding period by an additional three years (2016 – 2019). The structure and scope of new SEEK projects have been adjusted according to the extension of the programme and the funding available. Funding is now being channelled into three research projects over a longer period of time which involve the participation and expertise of multiple different research units at ZEW. The involvement of international researchers remains the most important requirement for project funding. Following a thorough review process, the scientific board together with a group of international assessors approved funding for the following projects:

Regional Inequalities in Living Standards in View of Fiscal and Labour Market Policies:

The goal of this project is to deepen our understanding of the causes of inequalities in living standards both within and between regions of Germany and Europe. The project centres on the question of which distribution effects result from regionally homogeneous and regionally differentiated fiscal and labour market policies. For instance, it is conceivable that regionally homogeneous instruments may contribute to increased inequality both within and between regions, while regionally differentiated instruments may help to create more equal standards of living. In order to address these questions, the project conducts microeconomic analyses based on related individual and regional data in order to identify potential ways for individual countries and the European Union to tackle inequality in living standards.

Digital Marketplaces and Platforms:

Digital markets and platforms are characterised by the lower associated cost of saving, searching for and recovering information. In addition, they also involve low communication costs, making it possible to coordinate and solve complex issues with long-distance partners. This project examines the mechanisms involved with certain digital markets and platforms from a number of different perspectives. In so doing, the project hopes to better our understanding of the mechanisms underlying digital markets and how these influence competition dynamics and labour supply.

A European Network on Better Institutions:

This project involves the establishment of a network of European research institutes led by ZEW which will regularly contribute to debates surrounding institutional reform in Europe. The project is divided into three phases devoted to the question of how to create better institutions for the European Union. The three phases of the project focus on the following topics: shaping sustainable financial policy, coordinating fiscal policy and regulating sovereign insolvency. The goal of each phase is to devise institutional reform proposals for the EU that are based on high-quality scientific research.

These projects, which were initiated in 2016, are set for completion in 2019.

SEEK Conferences

In order to increase the visibility of ZEW on the international stage, since 2011 the institute has regularly played host to SEEK conferences. These events are always met with great interest and regularly draw some 200 international guests, including researchers, policymakers and business practitioners, to the institute. One key factor in the success of these conferences are the keynote speakers ZEW is able to secure, including then EU Commissioner Máire Geoghegan-Quinn, former Italian Minister President, Professor Mario Monti, Professor Klaus Töpfer, executive director of the Institute for Advanced Sustainability Studies and former German federal minister, as well as renowned economists such as Professor Thomas Piketty (Paris School of Economics), Professor Philippe Aghion (Harvard University) and Professor Bronwyn Hall (University of California at Berkeley). A closing conference planned to mark the end of the SEEK programme in 2020 will give interested experts the opportunity to debate the research findings from all SEEK projects in their entirety.

SEEK Programme: An Impressive Success

Since its launch, the SEEK programme has been incredibly 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 high 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 within the framework 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 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. With the same purpose in mind, the "ZEW policy briefs" inform national and international decision-makers in a concise way about research results of practical significance for business, politics and administration. They are one of the key elements in ZEW's policy advising activities.

Contact: seek@zew.de

Website: www.seek.zew.eu



The workshop "Spatial Dimensions of the Labour Market", organised as part of SEEK, brought experts such as Professor Andrés Rodríguez-Pose from the London School of Economics to ZEW.

LEIBNIZ SCIENCECAMPUS

MANNHEIM CENTRE FOR COMPETITION AND INNOVATION (MaCCI)

The Leibniz ScienceCampus “Mannheim Centre for Competition and Innovation” (MaCCI) is run jointly by ZEW and the School of Law and Economics at the University of Mannheim. MaCCI encourages interdisciplinary cooperation between legal and economic research at the University of Mannheim and ZEW with the goal of translating the complementary expertise and experience of the university and the Leibniz institute ZEW into high-quality scientific research as well as further training programmes.



Goals of the Leibniz ScienceCampus MaCCI

The main goal of MaCCI is to initiate joint research in the fields of competition, regulation and innovation. These research projects mainly encompass fundamental research, applied theoretical and empirical research as well as comparative law and legal economic research. In so doing, MaCCI strengthens the position of German legal studies in European discourse whilst confirming the practical relevance of economic research approaches. In addition, MaCCI offers young researchers the opportunity to raise their profiles and advance their careers whilst making the participating institutions more attractive prospects on the international market for up-and-coming research talent.

Research Focus

The ScienceCampus MaCCI specifically looks at issues that require the expertise of researchers in the fields of both economics and law. Topics that MaCCI is specifically concerned with include issues such as setting standards from the perspectives of competition law, competitive economics and innovation policy, the enforcement of competition law in the public and private sector, the enforcement and strategic use of intellectual property rights (such as patents and trademarks) and the development of competition on telecommunications and energy markets. All of these topics consistently lend themselves to the twin guiding principles of MaCCI – interdisciplinarity and practical orientation.

Training for Doctoral Students and Teaching

The ScienceCampus contributes to the training of doctoral students by incorporating them in research projects run as part of MaCCI on behalf of federal and state ministries in Germany, private companies and the European Commission, among others. Doctoral students involved in MaCCI are often integrated into the Center for Doctoral Studies in Economics (CDSE) at the University of Mannheim. There are currently around 25 doctoral students involved in MaCCI projects.



Professor Josef Drexel from the Max Planck Institute for Innovation and Competition delivers his keynote lecture on the future legal conditions of the data economy at the seventh MaCCI Law and Economics Conference on big data.

Conference and Networks

The ScienceCampus regularly holds conferences and workshops on issues relating to the economics of competition and competition law. In November 2017, for example, ZEW hosted the “MaCCI Law & Economics Conference” focused on competition and regulation aspects of big data. One of the highlights of the event was the keynote lecture delivered by Professor Josef Drexel from the Max Planck Institute for Innovation and Competition in Munich. The conference also included four panels featuring established experts in the field engaged in spirited debate on a number of topics, including the future of data markets, privacy and data protection, sector-specific regulation, personal data and competition policy.

Furthermore, March 2017 saw the sixth MaCCI annual conference take place at ZEW. The highlight of the conference was the keynote speech by Professor Massimo Motta from the Barcelona Graduate School of Economics, who spoke in great detail about his recent three-year stint as Chief Economist at the European Commission’s Directorate-General for Competition. As is the case every year, the focus of the conference was on the parallel sessions dealing with the most hotly debated issues in the field, such as price parity clauses, big data and platform markets.

Board of Directors

- Prof. Dr. Irene Bertschek, ZEW
- Prof. Dr. Thomas Fetzer, University of Mannheim
- Prof. Dr. Martin Peitz, University of Mannheim
- Prof. Achim Wambach, PhD, ZEW

Coordination

Dr. Georg Licht, ZEW

Further information:

www.macci.eu

LEIBNIZ SCIENCECAMPUS MANNHEIM TAXATION (MATAX)



On 1 April 2014, ZEW launched the Mannheim Taxation (MaTax) Leibniz ScienceCampus in cooperation with the University of Mannheim. MaTax also collaborates with Heidelberg University's Institute for Financial and Tax Law. MaTax's research focuses on future fiscal policy in light of European and global integration and new economic and societal challenges. One of the goals of the interdisciplinary collaboration between MaTax researchers in the fields of economics, business administration, law and political science is to develop policy options that contribute to meeting these challenges, while also taking into account the relevant macroeconomic, legal and entrepreneurial conditions. A further aim of the ScienceCampus is to intensify collaboration between researchers by facilitating the joint usage of research data and the exchange of methodological expertise, thereby contributing to the development of research agendas. Both of these aspects are important assets of the MaTax ScienceCampus. In the interest of sustainability, the ScienceCampus places particular emphasis on promoting high-quality research and doctoral education.

Organisational Structure, Governance and Quality Assurance

MaTax is led by a board of directors, consisting of Professor Thomas Fetzer (University of Mannheim), Professor Friedrich Heinemann (ZEW and Heidelberg University), Professor Christoph Spengel (University of Mannheim), Professor Johannes Voget (University of Mannheim) and Professor Achim Wambach (ZEW). The operational management of MaTax lies with two coordinators (Dr. Philipp Dörrenberg und Professor Katharina Nicolay), who are actively involved in the work of the ScienceCampus as part of their own research projects as postdocs, and who are responsible for project coordination as well as operational tasks, such as presentation to the public and event organisation. In selecting and developing projects and evaluating these on an ongoing basis, the board is assisted by a scientific advisory board comprised of internationally renowned researchers. A list of all members of the scientific advisory board can be found at www.MaTax.eu.

Research Funding

The MaTax ScienceCampus provides funding for projects undertaken by researchers at participating institutions. The projects are required to meet high research standards and should make a significant contribution to MaTax's core research areas. Researchers at any of the participating institutions may submit a research proposal to the board of directors. The board then decides on a quarterly basis which of the proposed research projects will receive MaTax funding. In order to be accepted, project proposals must be in line with the overarching research question of MaTax. The project proposals funded in 2017 deal with issues such as the voluntary and mandatory disclosure of tax information, the effects of real estate transfer tax, the US tax reform and distribution issues of taxation. The research results of the MaTax projects are presented and discussed in regular workshops; two such internal workshops took place in 2017.

Knowledge Transfer, Communication and International Networking

The MaTax ScienceCampus aims to ensure that the findings of these ambitious research projects are made accessible and communicated to a range of target groups. Key elements of MaTax's communication strategy include regular scientific conferences and workshops in Mannheim, promoting researcher networking through international conference participation, supporting research visits and hosting guest lecturers, along with policy advising activities in the form of research reports, contributions to taxation policy debates and workshops that facilitate exchange between the fields of science, politics and business.

In October 2017, ZEW staged the fourth Annual MaTax Conference, where approximately 50 researchers discussed their research projects. The conference featured keynote speeches from Professor Michael Devereux (University of Oxford, UK) and Professor James Hines (University of Michigan, USA). In addition, MaTax and the Mannheim Graduate School GESS jointly organised a summer school on R&D tax incentives.

The ZEW Lunch Debate "A New Proposal for Corporate Tax Reform: Is the CCCTB a Comprehensive Answer to Tax Challenges in our Globalised Economy?", which took place in January 2017 at the Representation of the State of Baden-Württemberg in Brussels, was aimed at an audience interested in tax issues. In the context of this event, Professor Christoph Spengel spoke about possible effects of a Common Consolidated Corporate Tax Base. After his speech, he engaged in a spirited debate on the reform proposal with panelists Gaetan Nicodème (EU TAXUD) and Professor Stef van Weeghel (PwC).



Professor Michael Devereux from the University of Oxford during his keynote on the current problems associated with international taxation at the fourth MaTax Annual Conference.

Doctoral Education and Supporting the Next Generation of Researchers

Promoting the next generation of researchers is a key task of the MaTax ScienceCampus. Around 40 doctoral students are active in the participating university departments and ZEW research units. These students play an important role in addressing key MaTax research questions and receive support in conducting their associated dissertation projects. At the University of Mannheim's Graduate School of Economics and Social Sciences (GESS) MaTax has also established a special "Tax Track", which is based in the Center for Doctoral Studies in Business (CDSB). In September 2017, the Tax Track, which was launched in September 2014, already saw the third generation of graduate students take up their studies.

Board of Directors

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- Prof. Dr. Johannes Voget, University of Mannheim
- Prof. Achim Wambach, PhD, ZEW

Coordination

- Dr. Philipp Dörrenberg, ZEW
- Prof. Dr. Katharina Nicolay, ZEW and University of Mannheim

Further information:

www.matax.eu

» GREATER INVESTMENT IN EDUCATION.



PD Dr. Friedhelm Pfeiffer

Acting Head of the Research Department
Labour Markets, Human Resources and Social Policy





education

RESEARCH DEPARTMENT LABOUR MARKETS, HUMAN RESOURCES AND SOCIAL POLICY



PD Dr. Friedhelm Pfeiffer
Acting Head of Department



Dr. Melanie Arntz
Deputy Head

RESEARCH AREAS

- **Changing Labour Markets**
Contact: Dr. Melanie Arntz
- **Labour Markets in Organisations**
Contact: Jun.-Prof. Dr. Susanne Steffes
- **Education and Labour Market Entry**
Contact: PD Dr. Friedhelm Pfeiffer
- **Inclusive Labour Markets**
Contact: Dr. Katrin Sommerfeld

MISSION STATEMENT

The Research Department “Labour Markets, Human Resources and Social Policy” investigates how institutions and working conditions in firms can facilitate the development of smart, sustainable and inclusive European labour markets. The Research Department specialises in the econometric assessment of policy impacts, including structural modelling techniques, and in the analysis of individual and employer–employee data. The Research Department has been cultivating its expertise in education and human resource economics in order to assess education and qualification measures as well as to study the effects of human resource policies implemented by firms. The Research Department lays a strong focus on structural changes in labour markets and the design of efficient labour market, education and social policies.



RESEARCH AREA “CHANGING LABOUR MARKETS”

- Globalisation and the Labour Market
- Skill-Biased Technological Change
- Spatial Adaptation Processes

Researchers in this area study the interrelationships between the international division of labour, the ongoing digitalisation, demographic change, and employment and wage growth in labour markets. Emphasis is placed on how these macroeconomic phenomena affect individual economic actors. This is considered against the backdrop of institutional and structural differences between Europe’s regional and national labour markets. The area thus contributes to our understanding of regional disparities and the role played by geographical, sectoral and occupational mobility.

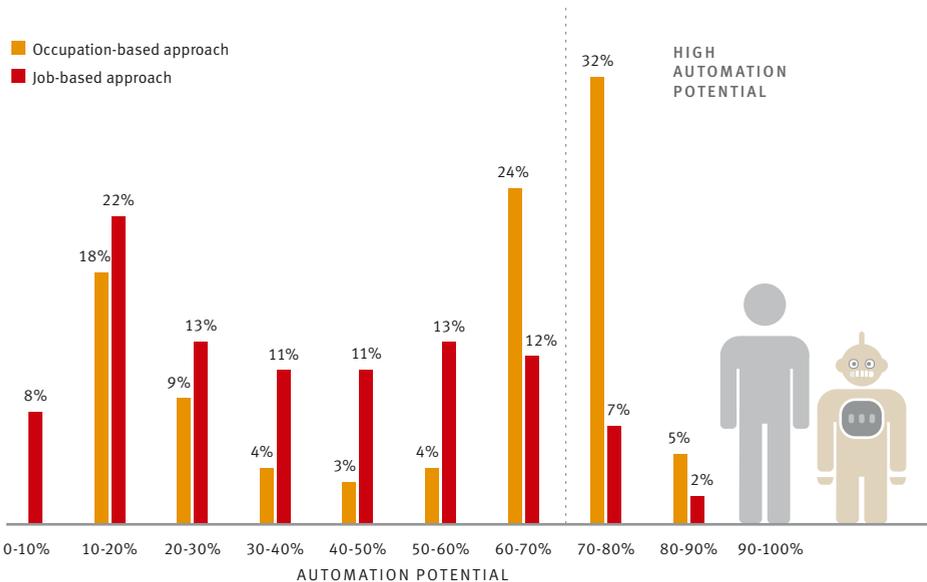
2017 saw the expansion of research on the future of labour in our increasingly digitalised world. One of the key findings of this research was that the potential for job automation has so far been overestimated. This is due to the widespread use of an occupation-based assessment approach, which considers each employee in a given occupation as equally susceptible to automation. An alternative job-based approach, by contrast, considers the specific activities that employees’ carry out in their jobs. When this approach is adopted, only nine per cent of jobs in the USA turn out to be at least 70 per cent susceptible to automation, compared with 38 per cent on the occupation-based approach (see Figure 1 on the next page). This indicates a significant capacity for adaptation and change among workers, who often specialise in tasks that are difficult for machines to accomplish – even in occupations that would seem highly susceptible to automation.

In order to take into account workers' own perspectives on the consequences of digitalisation, researchers in this area have started establishing an employer-employee database through a project sponsored by the German Federal Ministry of Labour and Social Affairs (BMAS). The database builds on last year's IAB-ZEW Working World 4.0 Survey, by combining it with administrative data on employees' career paths and an employee survey. The project is part of FIS (Fördernetzwerk Interdisziplinäre Sozialpolitikforschung), a new BMAS network for interdisciplinary social policy research. It aims to provide a basis for the analysis of the socio-political consequences of contemporary digitalisation processes.

In 2017, further research was also conducted on the minimum wage. This research analysed the extent to which wage rises resulting from the introduction of industry-wide minimum wages for low-skilled workers have been offset by stagnating wages for skilled workers. On the one hand, these stagnating real wages for skilled workers provide little incentive for individuals to embark on training programmes in one of the minimum wage industries. On the other hand, recent studies have shown that they have also had the effect of increasing the proportion of self-employed persons in such industries.

1] AUTOMATION POTENTIAL IN THE US

SHARE OF WORKERS



Source: ZEW

RESEARCH AREA “LABOUR MARKETS IN ORGANISATIONS”

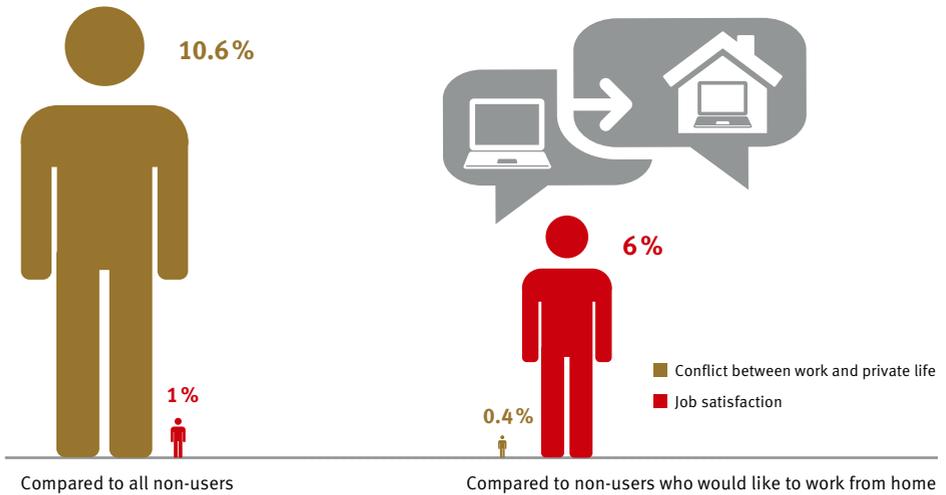
- Human Resource Management
- Ubiquitous Working
- Work and Health

This research area investigates relationships between employees and management, as well as the impact of structural change in labour markets on these relationships. It examines the optimal organisation of human resource management and working conditions in order to promote and sustain worker productivity, performance and employability. This research focus therefore combines expertise in human resources and business management with microeconomic methods.

In 2017, researchers in this area carried out studies on the determinants and effects of occupational training programmes. The studies showed that employees' occupation type and job profile are far greater determinants of investment in occupational training than the theoretical and empirical literature has previously assumed. On the basis of these studies, researchers are now investigating the impact of the technological revolution on investment in occupational training among employers and employees. Early results indicate that those who are least likely to take part in occupational training are those whose jobs are most susceptible to automation.

A further project that was successfully completed in 2017 addressed the impact of ubiquitous working. The interdisciplinary study considered the extent to which such working practices may generate role conflicts between individuals' private and working lives, and assessed their impact on job satisfaction levels. For some employees, working from home was found to have a positive effect on their work-life balance, while for others it led to role conflicts and a poorer work-life balance. As Figure 2 (see next page) shows, the results of the study depend on which comparison group is selected. When we compare those who work at home (the treatment group) with all other employees (the control group) we find that the role conflict between individuals' working and private lives is 10 per cent higher in the treatment group, while there is no significant difference in job satisfaction between the two groups. If we limit the control group to those employees who would occasionally like to work at home, however, there is no significant difference between role conflict levels in the two groups, while the treatment group exhibits an almost six per cent higher level of job satisfaction.

2] RELATIONSHIP BETWEEN OCCASSIONALLY WORKING FROM HOME AND WORK/HOME CONFLICT AND JOB SATISFACTION



Comparison between the work/home conflict and job satisfaction of workers who occasionally work from home and those who never work from home. Source: ZEW

RESEARCH AREA “EDUCATION AND LABOUR MARKET ENTRY”

- School-to-Work Transition
- Returns to Education
- Educational Policy Design

Researchers in this area investigate the educational development and labour market integration of young people. A key concern is to identify the knowledge and skills that enable a successful entry into the labour force. In this connection, researchers explore educational processes in schools and in the workplace. They also consider how education policies and labour market institutions affect transitions from secondary school to higher education and employment and how they impact on early career opportunities. To study these issues, expertise in educational economics is combined with microeconomic techniques.

In May 2017, work began on a project entitled “Analysing the Costs and Benefits of Changing Subjects and Discontinuing University Studies” (AKEFS). The project is being run in collaboration with Mannheim’s University of Applied Labour Studies and is supported by the German Federal Ministry of Education and Research. The first part of the project considers whether students are more likely to succeed if they study the subject of their choice. The study was based on data from

the National Educational Panel Study (NEPS) on 17,910 students who began their studies in the winter semester of 2010/11. Nineteen per cent of these students stated that they were not able to study the subject of their choice. Among those who discontinued their studies, the corresponding figure was 24 per cent. Being able to study one's desired subject may therefore be one of the key determinants of successful university studies. This question will be pursued further as the project progresses. The second part of the project will use the ZEW Tax Transfer Model to assess the fiscal and individual costs and benefits associated with discontinuing studies and changing university subjects.

On the basis of surveys conducted with refugees in the Rhine-Neckar region, an additional project investigated the human capital possessed by a group of young asylum seekers from Asia and Africa, and compared these groups with similar population groups in their countries of origin. In comparison with the latter, the majority of the refugees were seen to possess significant human capital. On average, they had had nine years of schooling, compared with 7.2 years among comparable population groups in their countries of origin.

RESEARCH AREA "INCLUSIVE LABOUR MARKETS"

- Evaluation of Integration Measures
- Refugees and the Labour Market
- Employment and Wage Dynamics

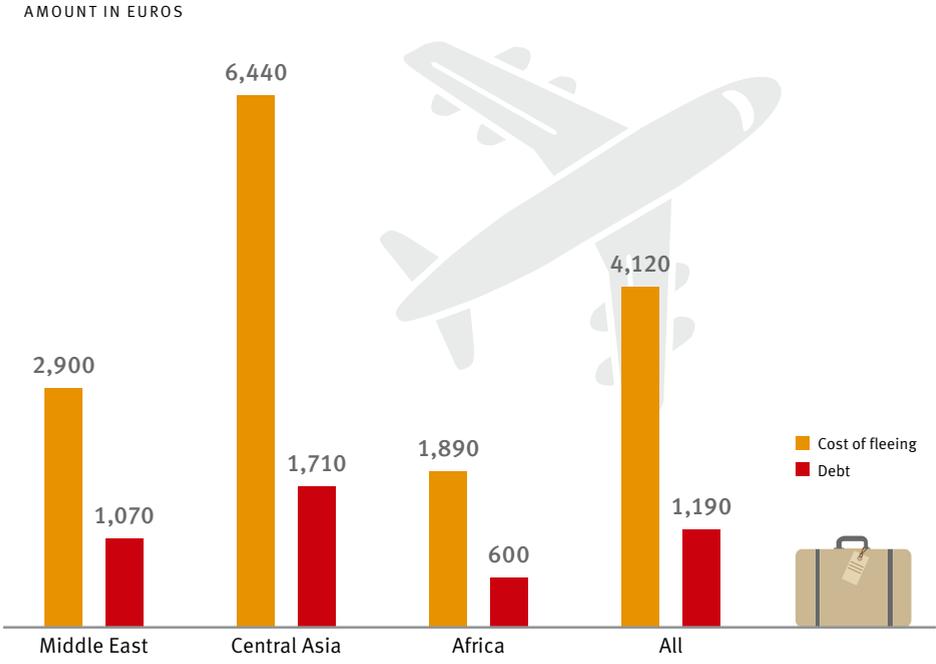
The "Inclusive Labour Markets" research area is concerned with individual and institutional factors that facilitate or hinder access to employment with good working conditions and chances of personal career development. Of particular interest are groups with pronounced employment and income risks, such as low-skilled workers, older persons, women with family obligations, the long-term unemployed and refugees. Researchers in this area investigate employment and wage dynamics as well as the determinants of a successful transition to regular employment. They apply a wide range of micro-econometric tools to evaluate how labour market policies can build more inclusive labour markets.

In 2017, researchers in this area completed a study on the use of project-specific work contracts as an alternative to normal employment contracts among German businesses. For the first time, surveys with company managers and works council members have now yielded representative data on the prevalence of such work contracts in Germany, their terms and conditions, and their legal provisions.

On behalf of the BMAS, researchers in this area are also currently investigating the effects of the federal programme "Social Inclusion into the Labour Market", in collaboration with the University of Duisburg-Essen's Institute for Work, Skills and Training (IAQ) and a number of other institutions. Another DFG-sponsored project considers the ways in which unemployment periods, job-filling mechanisms, and the quality of newly created jobs may relate to the availability of internet access and thus of job search facilities.

Finally, in cooperation with the Heidelberg University of Education, a study on the factors that contribute to the successful integration of asylum seekers is currently being carried out in the Rhine-Neckar region. A survey conducted for the study has provided insights into the length and costs of the refugees' journeys. Average journey costs, which may have an influence on the refugees' integration, run to 4,120 euros per person (see Figure 3), 1,190 euros of which are financed by taking on debt. Alongside the monetary costs of refugees' journeys, one must also consider their often significant emotional costs.

3] AVERAGE COSTS AND DEBTS RESULTING FROM FLEEING ONE'S HOMELAND



OUTLOOK

The Research Department's overall aim is to use robust empirical evidence to stimulate policy discussions on the labour market, the education system and personnel-related questions in Germany and Europe. Key research topics include the labour markets' tendency toward polarisation and the slow pace of refugee integration, which risks entrenching social inequalities.

At the beginning of 2017, the Department advised the European Commission on the impact of digitalisation on employment. Future research and advisory projects on the consequences of digitalisation will be able to draw on a new database, which will build on the 2016 IAB-ZEW Working World 4.0 Survey. The new database will also incorporate data from the Federal Employment Agency and from a survey sponsored by the BMAS and the Federal Institute for Occupational Safety and Health (BAuA).

On the basis of new survey data gathered via the research project for a federal programme on "Social Inclusion into the Labour Market", the Department is currently investigating trends in social participation among the long-term unemployed. On behalf of the BMAS, the Department will assess new forms of (self-)employment from the perspective of employment and social policy. The studies on the integration of refugees into the labour market will also be continued. Furthermore, the Department plans to investigate young people's transitions into occupational training programmes, as well as the individual and fiscal costs and benefits of discontinuing studies and changing subjects at university.

Where personnel-related questions are concerned, the Linked Personnel Panel will be complemented by a new research focus on digitalisation in the workplace. This will make it possible to assess the extent to which retraining and skills development programmes enable employees to cope with technological transformation. Finally, research on the effects of human-resource tools on staff retention will represent an important part of the Department's upcoming activities.

» RECOGNISING POTENTIAL – SHAPING THE FUTURE.



Prof. Dr. Irene Bertschek
Head of the Research Department
Digital Economy





potential

RESEARCH DEPARTMENT DIGITAL ECONOMY



Prof. Dr. Irene Bertschek
Head of Department



Dr. Jörg Ohnemus
Deputy Head

RESEARCH AREAS

- **Diffusion of Digital Technologies**
Contact: Dr. Jörg Ohnemus
- **Digitalisation and Corporate Strategies**
Contact: Prof. Dr. Irene Bertschek
- **Digital Markets and Platforms**
Contact: Olga Slivkó, PhD

MISSION STATEMENT

The “Digital Economy” 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.

The researchers in the Department 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.



NOTEWORTHY DEVELOPMENTS

The “Information and Communication Technologies” Research Department has been renamed the “Digital Economy” Research Department. This change was made in part to better reflect the nature of the department’s work, which focuses on the economic aspects of digitalisation. Yet it also expresses the fact that digitalisation is not merely limited to the information and communication technologies sector, but has grown into a phenomenon of far greater magnitude, with effects across the entire economy.

RESEARCH AREA “DIFFUSION OF DIGITAL TECHNOLOGIES”

- Mobile Internet, Cloud Computing, Big Data, and Industry 4.0
- The ICT Sector, Manufacturing, and Knowledge-Intensive Service Providers
- Macroeconomic Effects

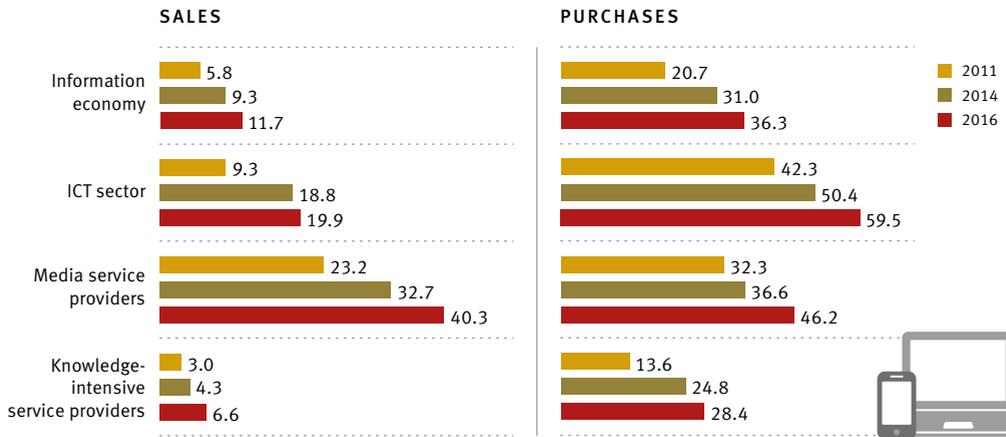
The “Diffusion of Digital Technologies” research area is concerned with the diffusion of digital technologies, companies’ successes in the production and use of digital technologies as well as the macroeconomic effects of these processes. Economists in this area conduct surveys to investigate the adoption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

One of the EU's declared objectives is to achieve a Digital Single Market, whose defining features would include cross-border e-commerce. In the German information economy, progress has been made toward this goal on both the demand and supply side (see Figure 1). The number of companies engaged in cross-border e-commerce has increased since 2011. In 2016, 36 per cent of companies in the ICT sector bought products and services online from suppliers in a different country. This is 15 percentage points higher than in 2011. On the supply side, the equivalent figure is 12 per cent of companies – a 2.4 percentage point increase. Despite this positive overall trend, when companies in the information economy contemplate cross-border trade, 72 per cent see a difficulty in their products and services not generally being suitable for sale on the Internet. Although this number has decreased over time, it still indicates a ceiling to the potential for the future growth of cross-border trade in electronic goods and (especially) services.

Within the scope of a meta-analysis, the Research Department investigated the opportunities and challenges associated with digitalisation on behalf of the state of Baden-Württemberg. This involved assessing the current status and future potential of digitalisation in various areas, in-

1] INTERNATIONAL TRADE IN GOODS AND SERVICES OVER THE INTERNET

PERCENTAGE OF COMPANIES



In 2014, 32.7 per cent of media service providers sold goods or services abroad over the Internet. In 2016, this figure had risen to 40.3 per cent.

In 2016, 59.5 per cent of companies in the ICT sector bought products or services from abroad online. In 2011, this figure was only 42.3 per cent.

All figures are extrapolated for the total population of companies with five or more employees. Source: ZEW Economic Survey of the Information Sector.

cluding business, research and development, transport, sustainability, cybersecurity, healthcare, education and e-government. The study served as a basis for the development of the state government's new digital strategy.

On behalf of the European Commission, researchers in this Department also evaluated the productivity and associated employment effects of digitalisation in the EU 15, US, China and Japan across 14 industries between 2000 and 2021. Negative substitution effects were found to moderately outweigh the positive effects on prices and incomes in most industries. In addition, productivity gains in ICT production itself make a positive contribution to employment. On average, this means that digitalisation is estimated to have a neutral impact on employment.

RESEARCH AREA “DIGITALISATION AND CORPORATE STRATEGIES”

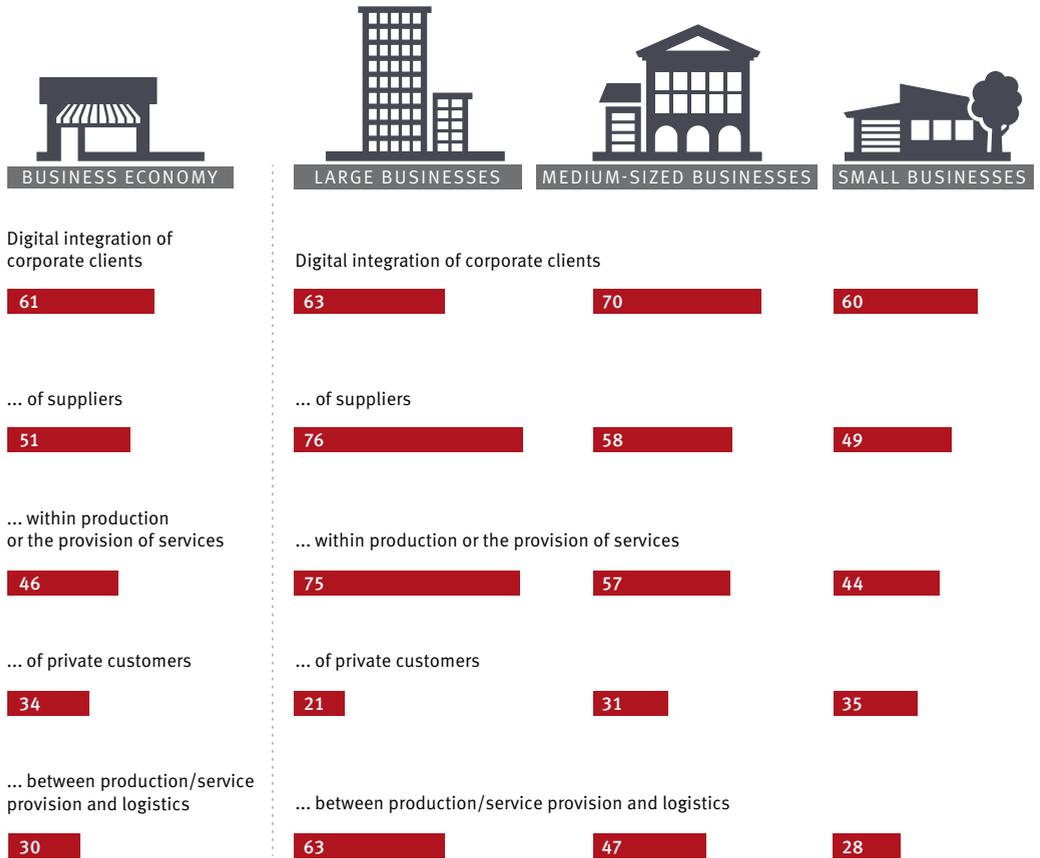
- Productivity and Innovation
- Production Processes and Workflows
- Connectedness and Internationalisation

The “Digitalisation and Corporate Strategies” research area focuses on studying the motives behind and consequences of the implementation of digital technologies and complementary business strategies. The aim is to discover how companies can best use digital technologies to make the most of the potential benefits to innovation and productivity they offer.

The German Federal Government's Digital Summit, which was held in Ludwigshafen in 2017, proved to be a major event for this research area. This Research Department and our project partners from Kantar TNS jointly presented the results of the Monitoring Report DIGITAL Economy at the summit's Digital Economy Forum and passed the study on to the then Economic Affairs Minister Brigitte Zypries. One of the topics addressed by the report was connectedness. Overall, 61 per cent of German commercial companies are digitally connected with their business customers and 51 per cent are digitally connected with their suppliers (see Figure 2 on the next page). Production and service provisioning is digitally connected at 46 per cent of companies. Digital connectedness with organisations operating at the end of the value chain is significantly less widespread. Specifically, close to a third of these companies are connected (especially large companies, manufacturers, retailers and logistics firms). Around a third of companies – in particular, small businesses and companies in the service sector – report being digitally connected with their private customers. For example, they could use relatively inexpensive social media applications for marketing purposes and to solicit feedback from customers.

Companies with a high degree of digitalisation are generally more productive than their less digitalised counterparts. However, do highly digitalised companies and industries also fare better through a crisis? Evaluation of a new dataset on 12 EU countries and seven sectors between 2001 and 2010 as part of a SEEK project reveals that more digitalised companies (particularly in the service sector) were less severely affected by the economic crisis than less digitalised firms. Productivity levels and productivity growth rates for these companies hardly fell during the

2] DIGITAL CONNECTEDNESS IN THE BUSINESS ECONOMY ACCORDING TO FIRM SIZE



Source: Kantar TNS and ZEW, representative company survey entitled "Digitalisation in the German Economy 2017", n=1.021
 Answers given in per cent as a response to the question: "Which of the following areas have been digitally integrated within your firm, i.e. in which areas does an exchange of information across different digital systems take place?"

crisis, while less digitalised businesses saw a strong decline in these areas. At the same time, highly digitalised companies were more successful than less digitalised ones at achieving process innovations and, in turn, reducing costs.

Processes are increasingly based on data as a consequence of digitalisation. Analysis drawing on the ZEW ICT Survey shows that the use of large volumes of data within companies is associated with more product innovations and a higher innovation intensity. Similar success is enjoyed on the market by companies with big data-based innovations, provided that they invest sufficiently in their employees' IT skills. Digital business strategies should therefore be supported by accompanying investments in human capital to best ensure success.

RESEARCH AREA “DIGITAL MARKETS AND PLATFORMS”

- Design and Function of Digital Markets and Platforms
- Aspects of Competition Economics
- User-Generated Content
- Social Networks

The “Digital Markets and Platforms” research area is concerned with the design and function of digital markets and platforms as well as the behaviour of agents operating within them. Such markets include platforms providing information on hotels and private housing, apps and platforms where users can rate goods and services, as well as knowledge platforms and crowdworking platforms for assigning jobs and tasks.

A series of projects have examined different digital markets and platforms. One subject of study was hotel booking platforms that base their recommended search results on the prices charged for hotels listed on other sellers' sites. This mechanism is similar in its operation to a best-price clause, which has recently been subject to more extensive prohibition by competition authorities. However, this also involves issues of consumer protection in terms of their search results' transparency and neutrality.

The impacts of user-generated content from Wikipedia on the real world were investigated by means of a randomised field experiment. Additional information about cities on Wikipedia evidently leads to an increase in the number of nights spent in these cities by tourists, with the number of overnight stays during the holiday season also seeing a nine per cent rise. As a result of information about tourist destinations being added or improved, potential tourists had a better pool of information from which to make destination decisions. This finding demonstrates the importance of digital public goods like Wikipedia as a source of information.

OUTLOOK

In the future, the “Digital Economy” Research Department plans to further intensify its research activities around digital markets and platforms. The Department has joined with the “Market Design” Research Group to conduct research on the design of digital platforms and their rating systems.

The significance of digitalisation for productivity remains on the research agenda, especially given declining productivity growth in industrialised economies. Against this backdrop, a newly launched research project being undertaken in partnership with the “Economics of Innovation and Industrial Dynamics” Research Department is examining investment in intangible capital. A further project, which focuses on the construction sector, is additionally considering a sector of the economy that has been notable for a low degree of digitalisation to date.

Methods of collecting internet-based information are an increasingly important element of our toolkit and an integral component of new projects. For example, the ZEW Summer Workshop 2018 will address economic research using internet-based data. This event will be organised in collaboration with two other ZEW units (“Economics of Innovation and Industrial Dynamics” and “International Distribution and Redistribution”).

» MACHINE LEARNING: NEW INNOVATIONS AT THE CLICK OF A BUTTON?



Dr. Georg Licht

Head of the Research Department
Economics of Innovation and
Industrial Dynamics



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. Maikel Pellens
- **Industry-Science Linkages and Technology Transfer**
Contact: Florence Blandinières, PhD, Josefine Diekhof, PhD
- **Firm Foundations and the Growth of Start-ups**
Contact: Jürgen Egel, Dr. Johannes Bersch
- **Firm Closures**
Contact: Dr. Sandra Gottschalk, Simona Murmann
- **ZEW Research Data Centre**
Contact: Dr. Sandra Gottschalk
- **Competition and Regulation**
Contact: Niklas Dürr, Dr. Georg Licht

MISSION STATEMENT

The Research Department “Economics of Innovation and Industrial Dynamics” investigates the behaviour of firms under dynamic market conditions. The Department conducts empirical analyses on a range of topics, including the innovation behaviour of firms, the division of labour among participants in the innovation system, the sharing of research findings between firms and research institutions, market entries and exits, the development of (young) firms, competitive strategies of companies and the analysis of competition policy.



KEY EVENTS IN 2017

In December 2017, ZEW resolved to restructure the “Competition and Regulation” Research Group and integrate it into other research departments. As a result, a “Competition and Regulation” research area has been established within the “Economics of Innovation and Industrial Dynamics” Research Department.

One of the highlights of 2017 was the seventh MaCCI Conference on the Economics of Innovation and Patenting, which ZEW hosted in collaboration with the Mannheim Centre for Competition and Innovation (MaCCI). The aim of the conference was to provide a forum for the presentation of recent research and to promote discussion between international researchers on empirical and theoretical research approaches. The keynote speakers were Professor Pierre Azoulay (MIT Sloan School of Management, Cambridge, and NBER), Professor Bronwyn H. Hall (UC Berkeley and NBER), Professor Francesco Lissoni (University of Bordeaux, France) and Professor Andrew W. Torrance (University of Kansas School of Law, Lawrence).

In collaboration with Tsinghua University’s Research Center for Technological Innovation (RCTI), the Department also organised a second joint workshop titled “From Europe to China: Exploring New Frontiers in the Economics of Innovation and Entrepreneurship”. The workshop was held in Beijing and facilitated dialogue between European and Chinese researchers working on innovation and start-up activities.

In cooperation with KU Leuven, the University of Luxembourg, the Düsseldorf Institute for Competition Economics, and Lausanne’s École Polytechnique, the Research Department stages an annual Competition and Innovation Summer School (CISS). At last year’s CISS, around 40 early career academics presented their research over the course of five days, receiving comments and constructive critique from 16 experienced academics. The Department also hosted a number of lectures and workshops on innovation and competition.

In addition, researchers from the Department supported two of the 14 school teams participating in this year's Young Economic Summit (YES!), Germany's largest school economics competition. One of these teams (from the BBS Wirtschaft 1 in Ludwigshafen) went on to win the competition in 2017. The idea presented by the Ludwigshafen school students was to introduce a "Company Gateway", to simplify the process of founding a firm and to provide guidance along the way.



In May 2017, the Department organised the seventh MaCCI Conference on the Economics of Innovation and Patenting. The keynote speakers included Professor Andrew W. Torrance from the University of Kansas School of Law, who discussed how big data can be used to determine the value of patents from the perspective of a patent lawyer.

RESEARCH AREA “INNOVATION PROCESSES IN FIRMS”

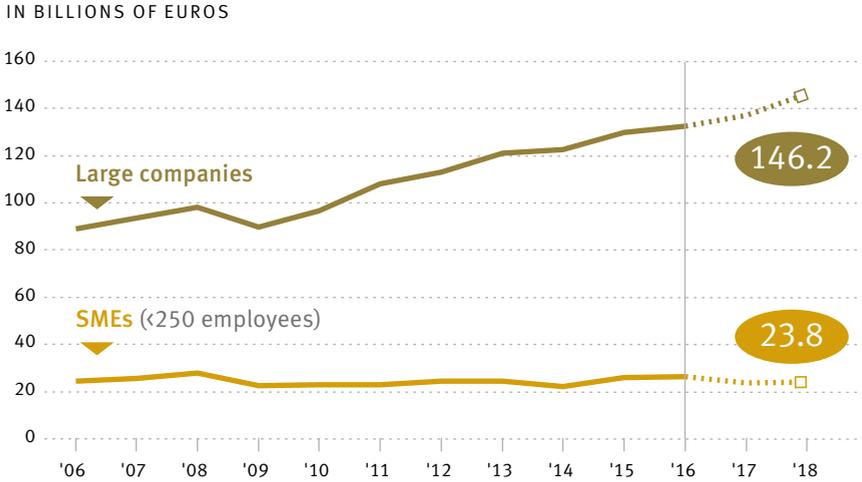
- Indicators and Measurement of Innovation Activities
- Determinants of Corporate Innovation Behaviour
- Innovation Strategies in Firms
- Effects of Innovation on Firms and Macroeconomic Variables
- Conception and Evaluation of Research and Innovation Policy Instruments

This research area considers the determinants and effects of corporate innovation practices, the keys to successful innovation, and the political and institutional factors that promote (successful) innovation. Its research programme incorporates innovation measurement, econometric analyses of innovation practices and the conception and evaluation of innovation policy measures. Much of the work conducted in this research area is connected to the Mannheim Innovation Panel (MIP), a representative survey on corporate innovation behaviour in the German economy. The MIP forms the basis for Germany’s innovation statistics and represents the country’s contribution to the Community Innovation Survey (CIS).

The survey is a key pillar of ZEW’s research data infrastructure – and as part of the ZEW Research Data Centre, it is also used intensively by researchers outside the organisation. Carried out annually since 1993, the MIP assesses the innovation behaviour of German firms on behalf of the Federal Ministry of Education and Research. At the request of the states of Berlin, Baden-Württemberg and Saxony, the MIP samples were expanded to enable nuanced and representative statistical analyses for these states. The MIP data has provided the basis for a wide range of research projects and publications. In 2017, for example, publications by members of the Department included: an analysis of dynamic R&D decisions (RAND Journal of Economics, Economics of Innovation and New Technology), a consideration of the role of geographical clusters in promoting innovation (Journal of Technology Transfer) and an evaluation of the importance of corporate technological capacities in disseminating innovations internationally (Journal of International Business Studies).

In the past year, a number of conceptual studies were conducted on the development of innovation indicators. The Research Department participated in the revision of the OECD’s and Eurostat’s Oslo Manual, which forms the conceptual basis for innovation surveys in the corporate sector. ZEW researchers also helped to establish the standardised questionnaire for the Community Innovation Survey (CIS), which will be used from 2019 onwards. This questionnaire incorporates the new definitions and measurement practices contained in the Oslo Manual.

1] EXPENDITURE ON INNOVATION IN GERMAN INDUSTRY



The Mannheim Innovation Panel is a major source of research data at ZEW. Data from the MIP can, for example, be used to track trends in innovation expenditure among large companies and SMEs in Germany. Source: ZEW, MIP

Conceptual studies on innovation indicators were also carried out as part of projects comparing innovation inputs and outputs at the international, inter-regional and inter-sectoral levels. In the “Innovation Indicator” project, ZEW researchers investigated the digital transformation and considered how Germany’s progress toward a digital economy compares with that of other countries. The project was commissioned by the BDI and acatech and was carried out in collaboration with the Fraunhofer Institute for Systems and Innovation Research (ISI). The digital transformation is also the subject of a project titled “Monitoring of the Digital Economy”, which is being jointly conducted with the “Digital Economy” Research Department on behalf of the Federal Ministry of Economic Affairs and Energy.

The relationship between innovation and productivity is another central aspect of research in the area. In 2017, this question was addressed by two studies carried out on behalf of the Commission of Experts for Research and Innovation (EFI) and by an analysis commissioned by the VDMA. The VDMA analysis aimed to explain the paradox that despite the positive development and international competitiveness of the German engineering sector, the productivity of the industry has been in decline since 2011.

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
- Global Development of Intangible Investments and Patent Applications

Researchers in this area investigate measures designed to safeguard revenues from investments in technology and new goods and services. Their research focusses on patents and trademarks, i.e. industrial property rights granted to technology providers. In this regard, the incentives and impediments established through various property rights regimes are analysed in collaboration with legal scholars. The Department identifies those market characteristics that obstruct the optimum parity between inventor protection and technological diffusion, and develops proposals to help structure knowledge and technology markets. A further important question is why patent offices are taking longer and longer to grant patents and whether the process could be fast-tracked using patent prosecution highways (PPH). PPHs consist of agreements between patent offices to share the documents created during the patent application process.

In the project entitled “Investigating the Impact of the Innovation Union”, funded by the EU’s Horizon 2020 framework programme, the Department undertook an evaluation of the Innovation Union, which brings together a range of instruments to promote intelligent, sustainable and integrated growth. For the project, researchers evaluated four topic areas. First, they estimated the savings likely to result from the planned introduction of the EU Unitary Patent and the establishment of a Unified Patent Court. Second, they investigated how the new EU public procurement directive for innovative products and services may affect the success of innovative projects. Third, they considered the extent to which the new EU regulation accelerates standardisation processes in Europe and thus promotes innovation in German firms. Fourth, with a view to the optimal design of Europe’s technology market, they investigated trade volumes and the licensing of intellectual property rights.

Finally, a project titled “Price and Quality Competition from China: How Can German Firms React?” considered how increased competition from Chinese companies is affecting German firms’ performance and capacity for innovation. The aim of the project was to identify a range of causal mechanisms using microeconomic methods such as instrumental variables estimation. China’s position as the world’s largest economy and one of Germany’s leading trading partners makes it essential to analyse the impact of the country’s innovation-led growth on German firms. In light of current levels of state influence in China, it should nonetheless be acknowledged that the decisions made by Chinese firms’ are not always the result of market signals. It is therefore crucial to develop a detailed understanding of the broader institutional context and the underlying economic mechanisms in China.

RESEARCH AREA “INDUSTRY–SCIENCE LINKAGES AND TECHNOLOGY TRANSFER”

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

Economists in this research area address a range of issues at the interface between corporate innovation processes and research in scientific institutions. In particular, researchers investigate the role of small and medium-sized enterprises (SMEs) in the field of technology transfer, the effects of scientific partnerships on the ability of firms to innovate, university spinoffs, and transfer-oriented incentive systems in scientific institutions, including the structuring of patent law at universities. The market for licenses and patents as a technology transfer mechanism in the sphere of public research is another area of interest.

A study on the “Transfer of Research Results and Knowledge in the Context of European R&I Policies” describes European research and innovation policies using a range of quantitative and qualitative indicators, and provides an internationally comparative analysis of their impact on knowledge dissemination in Germany and Europe. In addition, the study discusses a number of challenges for European R&I policies in general and knowledge dissemination policies in particular.

The obstacles to technology transfer, meanwhile, are addressed in the “Science4KMU” research project, which is being carried out in conjunction with the Leibniz Institute for New Materials (INM) and the University of Applied Sciences htw saar. The aim of the project is to develop a model for cooperation between research institutions and SMEs. The Department is tasked with identifying SMEs that are suitable for such technology transfer schemes and could function as cooperation partners for research institutions.

As part of the FRAME project, researchers are using dynamic stochastic general equilibrium (DSGE) modelling to assess the macroeconomic impact of public and private R&D activities on innovation, productivity growth and unemployment. The project is funded via the Horizon 2020 programme. Its aim is to develop tools to investigate how far measures to promote innovation affect key factors such as productivity growth and unemployment.

Researchers engaged in the project “The Economy of Baden Württemberg: Analysis of Structural Features and Future Perspective in National and International Comparison”, undertook analyses of the state’s economic structures and competitiveness in light of current trends and transformations, in order to develop appropriate policy recommendations. The recent developments addressed by the project include technological change (Industry 4.0, new services and key tech-

nologies), external economic risks (Brexit, the potential reorientation of US trade policies), and changes in the international division of labour, along with potential transformations in demand and technological shifts in Baden Württemberg's key industries (electric vehicles, new global production processes in the engineering sector).

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 Instruments to Support Firm Foundations

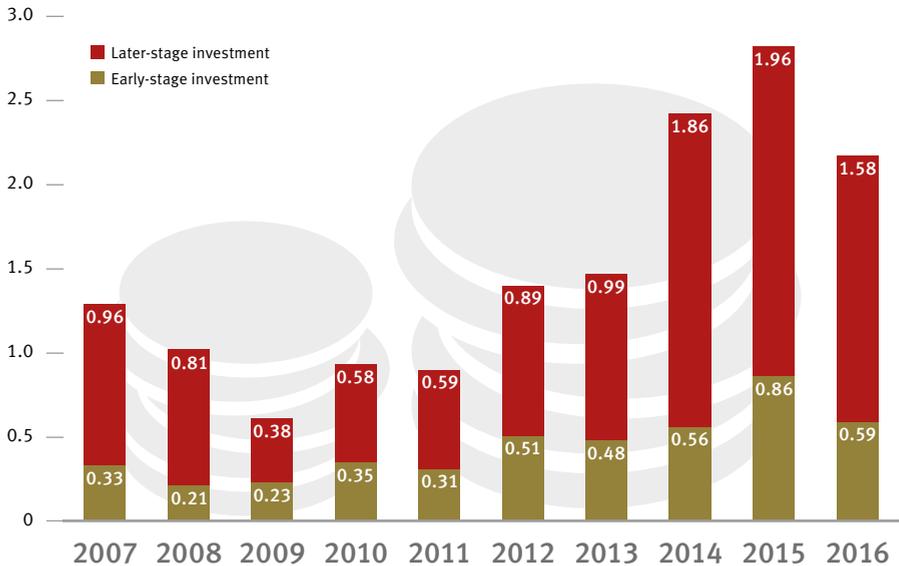
Researchers in this area maintain a wide range of indicators on start-up activity in Germany. Assessing the conditions that mediate market entry and firm growth is a key focus of research. In this connection, researchers are able to draw on two unique databases: the Mannheim Enterprise Panel (MEP) and the IAB/ZEW Start-up Panel. These databases make a valuable contribution to improving the available resources for the study and promotion of start-ups.

In the past few years, researchers in the area have conducted an indicator-based study on “Firm Dynamics in the Knowledge Economy” on behalf of the Commission of Experts for Research and Innovation (EFI). Alongside founding activities and closures, their investigations have focussed particularly on the market for venture capital. The aim of the study was both to compare the situation in Germany with selected European countries, and to describe how the relevant activities have developed over time. In 2017, the recently developed venture capital transaction database was used for the first time to calculate the volume of venture capital investment in Germany.

The transaction database is compiled by ZEW and contains consolidated information on venture capital transactions sourced from the consulting firm Majunke and Bureau van Dijk's Zephyr M&A database. The advantage of the transaction database over statistics sourced from corporate associations lies in its capacity to register the activities of co-investors such as business angels, CVC funds, banks and established firms. Such investors have taken on an increasingly important role in recent years. The data shows that Germany's venture capital market has seen more positive growth since 2009 than the relevant association statistics suggest. From 2009 to 2016, the volume of venture capital investment rose on average by 24 per cent per year. This rapid growth is largely due to developments on the market for growth financing or “later-stage investment”, which has grown by 27 per cent on average. By comparison, early-phase investment has remained moderate, growing by an average of 17 per cent (see Figure 2 on the next page).

2] DEVELOPMENT OF VENTURE CAPITAL INVESTMENT IN GERMANY

IN BILLIONS OF EUROS



Investment according to the location of portfolio companies. Early-stage investment refers to companies in the seed and start-up phases. Venture capital refers to time-limited capital investments in young, innovative, non-listed companies. Source: Bureau van Dijk, Majunke (2017). Calculations by ZEW.

RESEARCH AREA “FIRM CLOSURES”

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

Research in this area focuses primarily on the empirical analysis of various forms of market exit, ranging from voluntary closures and takeovers to insolvencies. Particular attention is devoted to the regulation of insolvency and restructuring law, which has seen significant reforms in recent years. In addition, researchers are examining the role of banks in the restructuring of firms experiencing financial difficulties, and the effects of various aspects of insolvency law reform. Last but not least, researchers in this area analyse the determinants and effects of takeovers and mergers.

As part of a project titled “Firm Dynamics in the Knowledge Economy – Indicator Study 2017”, ZEW researchers analysed founding activities in Germany’s knowledge economy (i.e. its research and knowledge-intensive sectors). On the basis of a number of indicators, they also considered developments in the overall number of such firms and firm closures, and compared trends in Germany with those in other countries. In addition, the project team examined how the legal and administrative provisions for the founding of firms in Germany and numerous other countries within and beyond Europe had changed since 2003.

In a project titled “Practices and Effects of Insolvency Procedures – An Empirical Analysis of the Economic Impact of the Insolvency Reforms in Germany” researchers investigated the impact of the 1999 and 2012 reforms to German insolvency law. The reforms sought to improve the restructuring options open to firms faced with insolvency. Alongside the possibility of “transferred restructuring”, in which the healthier divisions of a firm are “transferred” to another company, the reforms also introduced a managed insolvency process that allows for restructuring in times of insolvency. The research project aims to assess whether these new insolvency instruments do indeed help restructured firms remain on the market in the short and medium term. To this end, a database was created that allowed the researchers to trace a firm’s history up to the point of insolvency and to follow the ensuing stages of the insolvency process.

RESEARCH AREA “COMPETITION AND REGULATION”

- Case-Specific and Macroeconomic Analysis of Firm Mergers
- Public and Private Enforcement of Competition Law
- Evaluation of Competition Policy Institutions and Regulations
- Industry-Specific Studies

Researchers in this area seek to lay the groundwork for evidence-based competition and regulatory policies. This involves systematically analysing the incentives provided by specific legal provisions and their enforcement, as well as the strategic behaviour of firms. Interdisciplinary cooperation with scholars in the fields of law, business studies and engineering plays a crucial role in these endeavours. ZEW researchers cooperate particularly closely with the Leibniz ScienceCampus “Mannheim Centre for Competition and Innovation” (MaCCI), which was founded jointly with the University of Mannheim in 2012.

As part of a study on the “Public and Private Enforcement of Competition Law”, a database created by the research area on the European Commission’s competition law decisions was used to examine the determinants of the duration and stability of cartel arrangements. The study showed that firms are more likely to leave a cartel when other firms have already done so and in periods of strong growth in demand. By contrast, the likelihood of firms leaving a cartel falls when new firms enter the cartel and in high-interest rate periods.

An internally funded project on “Collusion and Minority Shareholdings” investigated the impact of leniency programmes on (horizontal) M&A activity in specific branches. The study showed that the number of mergers and takeovers rose sharply in the year that leniency programmes were introduced. This was particularly true in countries with effective cartel laws and in takeovers involving stakes of between 10 and 20 per cent. The results indicate that M&A activities are used to offset the impact of leniency programmes, which have a destabilising effect on cartel activity.

In the field of industry-specific studies, ZEW researchers further analysed the deregulation of Germany’s long-distance bus market, along with market entry and exit behaviour in the three years following deregulation. The research showed that the long-distance bus market has developed more quickly than expected. Closer analysis also showed that firms’ market entry and exit strategies were influenced by intermodal competition on the routes in question and by structural parameters such as the number of inhabitants served by a given route, their income and their average age.

ZEW RESEARCH DATA CENTRE

The ZEW Research Data Centre (ZEW-FDZ) provides external researchers with 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 and personal surveys. External researchers engaged in scientific research projects may apply for on-site data utilisation rights. In addition, the ZEW-FDZ provides external researchers with selected ZEW research data in the form of anonymised “scientific use files” that may be viewed and used off-site. Some datasets 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.

OUTLOOK

Successfully integrating the “Competition and Regulation” Research Group into the Department will be a key task in the years to come. To this end, the Department plans to restructure the topic of competition and regulation while developing synergies with existing research areas and harnessing collaboration with young academics. The Department’s five existing research areas will continue to structure its research activities. At the same time, slight adjustments to the research programme will be made on an ongoing basis, in order to react to changing economic and political conditions.

Researchers may, for example, wish to examine the extent to which machine learning methods can usefully expand the current range of empirical methods. In the recently launched TOBI and INFOWIK projects, these methods are already used to build on the information provided by innovation indicators by means of social media and firm website data. In addition, a project in the “Industry-Science Linkages” research area will consider the extent to which German industry contributes to knowledge generation. As part of the PubliUni project, ZEW will join forces here with Karlsruhe’s Fraunhofer Institute for System and Innovation Research to create a new database containing scientific publications by all the firms included in the Mannheim Enterprise Panel (MEP).

Furthermore, the Department, along with other ZEW research units, plans to significantly expand its cooperation with the University of Strasbourg. A range of events are planned for 2018, which will be alternately held at ZEW and at its French partner university.

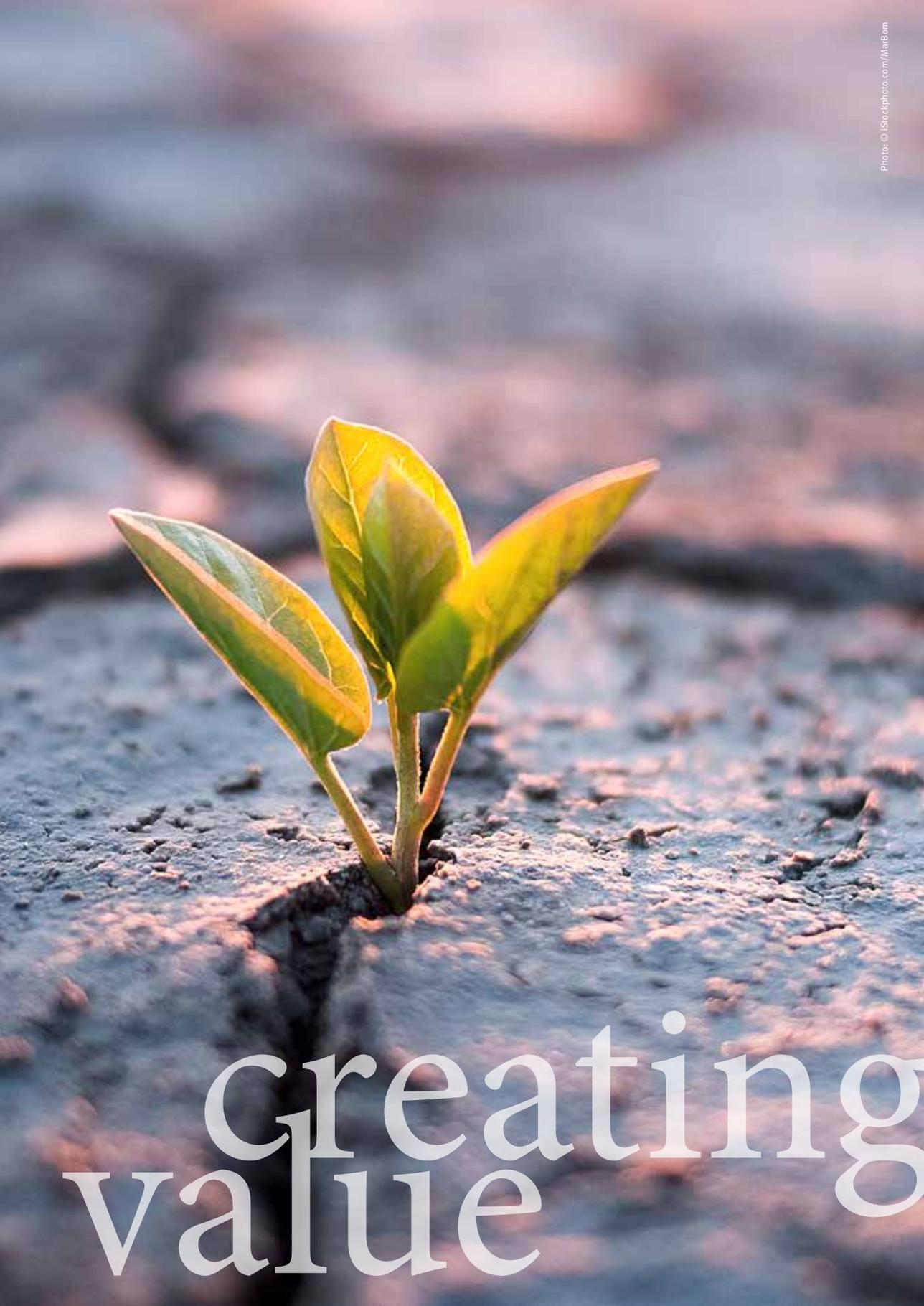
» CREATING VALUE – EVEN WITH LOW INTEREST RATES.



Dr. Karolin Kirschenmann

Acting Head of the Research Department
International Finance and Financial Management





creating
value

RESEARCH DEPARTMENT INTERNATIONAL FINANCE AND FINANCIAL MANAGEMENT



Dr. Karolin Kirschenmann
Acting Head of Department

RESEARCH AREAS

- **Bank Management and Financial Regulation**
Contact: Dr. Karolin Kirschenmann
- **Financial Intermediation and the Competitive Landscape**
Contact: Dr. Karolin Kirschenmann
- **Household Finance and Real Estate**
Contact: Dr. Carolin Schmidt

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. The crisis underscored the paramount importance of ensuring financial stability, effective regulation, and sufficient capital flows to the real economy. The Research Department “International Finance and Financial Management” carries out empirical research to provide regulators and policymakers with the insights they need to improve the structure of the European financial sector and balance financial stability with economic growth.



RESEARCH AREA “BANK MANAGEMENT AND FINANCIAL REGULATION”

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

This research area analyses the impact of financial regulation and monetary policy on financial institutions and the real economy. Helping policymakers to establish a stable financial architecture that serves the real economy is a major aim of the research conducted in this area. Researchers in the area collaborate with other ZEW research units, along with researchers in prestigious national and international institutions such as the Frankfurt School of Finance & Management, New York University and the Washington University in St. Louis.

In a research project funded by the ZEW Sponsors' Association, ZEW economists examined the European impact of government bailouts and regulatory reforms on the problem of certain banks being “too big to fail”. The results show that, from 2007 to 2009, just prior to the financial crisis, the equity capital costs of large banks were significantly lower than those of small banks. This phenomenon can be explained by the risk hedging function of stocks in these banks. In stable periods, investors are prepared to pay higher prices for stocks in large banks, since they expect they will be able to benefit from implicit state bailout guarantees in the event of a crisis. These expectations were proved right during the financial crisis, when the (risk-adjusted) stock returns of large banks exceeded those of smaller banks.

As part of the SEEK project, “The European Network on Better Institutions” (ENBI), researchers in this area are engaged in building a network of European research institutes that will regularly intervene in debates on European institutional reform. Against the backdrop of the European financial and sovereign debt crises, which have been marked by the interdependence of states and banks, the network is currently developing proposals for appropriate institutional adjustments within the Eurozone. The overall aim of the research projects in this area is to elaborate a proposal for an institutional restructuring mechanism for Eurozone sovereign debt. To this end, researchers are investigating the strategic motives behind the maturity periods selected by European countries when emitting sovereign bonds in recent years.

RESEARCH AREA “FINANCIAL INTERMEDIATION AND THE COMPETITIVE LANDSCAPE”

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

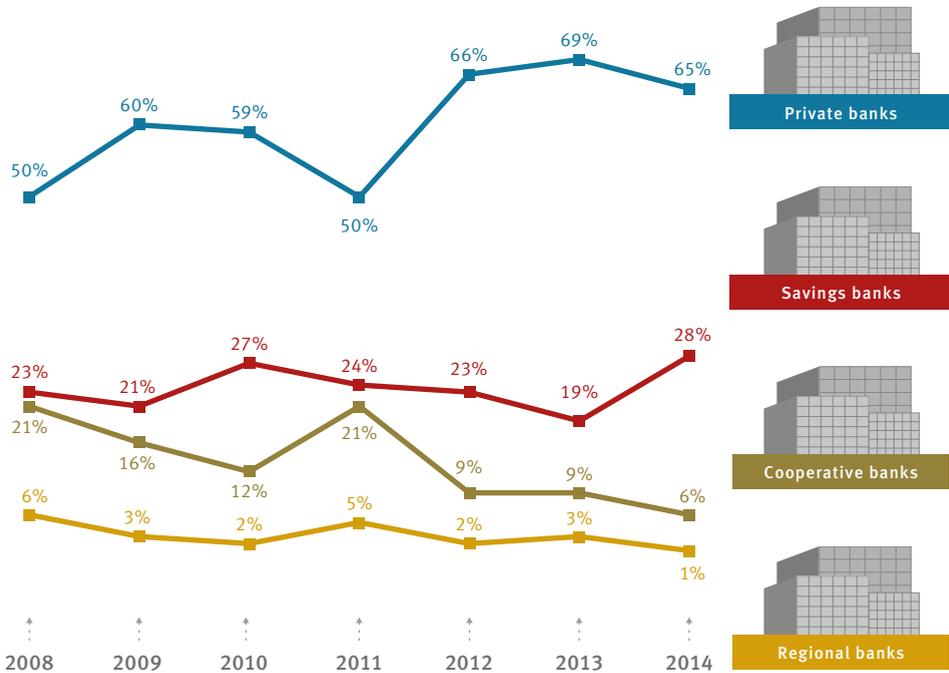
This research area examines the structure of the European banking sector and considers how changes in Europe’s financial architecture impact the real economy. Regulatory changes in the financial sector and ECB interventions have a direct and substantial impact on the financing options and investment decisions of non-financial firms, which are often dependent on banks.

A recently launched research project on “Powerful Parents? The Local Impact of Banks’ Global Business Models” addresses the following three questions: How can we best characterise the internal capital markets used by global banks? How did the design of different internal capital markets affect lending practices among global bank subsidiaries before and during the financial crisis? What impact did this have on non-financial firms? The project is based on analyses of survey data from the European Bank for Reconstruction and Development (EBRD). These data provide previously unavailable insights into the internal capital markets used by banks and offer a detailed picture of the local banking environment and its impact on the local real economy.

Another study in this area investigates the significance of private banks for Germany’s export economy and its “hidden champions”. The study was commissioned by the Association of German Banks and carried out in collaboration with the Frankfurt School of Finance & Management and the European School of Management and Technology (ESMT) in Berlin. Hidden champions are innovative small and medium-sized firms that operate internationally and enjoy a significant market share in their main sales markets. As part of the study, researchers used data from ZEW’s

Mannheim Enterprise Panel (MUP) to analyse German firms' relationships with their principal banks. The hidden champions were likewise identified using the Mannheim Innovation Panel and a methodology developed by ZEW. The study found that private banks play a significant role in export financing and in supporting hidden champions. In terms of export volume, private banks enjoyed a market share of 88 per cent in 2015 and held leading positions in all of the turnover classes and federal states investigated. The analysis also showed that, in the period from 2009 to 2014, 61 per cent of the firms had a private bank as their principal bank (see Figure 1).

1] MARKET SHARES OF DIFFERENT TYPES OF BANK USED BY GERMAN "HIDDEN CHAMPIONS"



An analysis of the main banking relationships of German "hidden champions" reveals that these companies overwhelmingly turn to private banks for their financial services.

Source: Mannheim Innovation Panel (MIP) and Mannheim Enterprise Panel (MEP), ZEW.

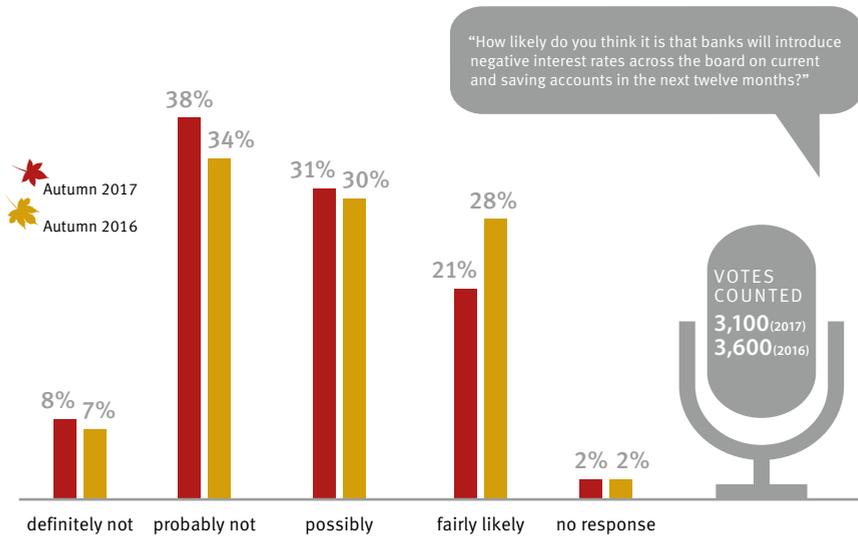
RESEARCH AREA “HOUSEHOLD FINANCE AND REAL ESTATE”

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

The overarching concern of this research area is how households use financial instruments to attain their objectives. Various topics are addressed in this area, including how households participate in credit and asset markets, household financial decision-making processes, household risk management, and financial innovation that promotes economic welfare. The research area focusses particularly on residential real estate and its financing.

As part of a SEEK project on “Digital Markets and Platforms”, economists in this research area are analysing the potential of digital platforms to enhance risk-taking behaviour among private investors. This research is being carried out in cooperation with the ZEW Research Departments “Digital Economy”, “Economics of Innovation and Industrial Dynamics”, and “Environment and Resource Economics, Environmental Management”, as well as the University of Mannheim. The project applies insights from the behavioural sciences to design digital platforms that enhance cognitive capacities and offset cognitive limitations.

2] EFFECTS OF LOW INVESTMENT INTEREST RATES IN 2016 AND 2017



The question is from a nationwide survey of bank clients conducted in the autumn of 2017 and 2016.

Source: ZEW

In a project titled “How Do Savers and Banks in Germany React to the Low Interest Rate Environment?” ZEW researchers also examined the challenges and opportunities facing households and the retail banking sector as a result of ongoing low interest rates. In 2017, part of the associated research was devoted to an analysis of the Danish banking market, which has the world’s longest-standing negative base rate. In addition, a panel survey launched in 2016 on the savings and investment behaviour of private bank customers in the low interest environment was continued in 2017. One of the key results of the second round of the survey, conducted in the autumn of 2017 with 3,100 respondents, was that private bank customers are becoming habituated to low interest rates. At the same time, fewer households expect banks to introduce negative nominal interest rates for current or saving accounts (see Figure 2).

OUTLOOK

Over the coming two years, the SEEK projects “The European Network on Better Institutions” and “Digital Markets and Platforms” will play an important role for the activities of the Research Department. These projects will involve close collaboration between various research units at ZEW. In addition, the Research Department will study the optimal design of bailout mechanisms for banks during times of crisis, efficient tools for allocating capital in the financial system (e.g. IPOs, book building, auctions), and the matching of banks and firms in credit and deposit markets.

In 2018 the Research Department will furthermore stage the tenth international ReCapNet conference at ZEW with a focus on price formation, liquidity and transparency in real estate markets.

» THE NEW FRONTIER OF ENVIRONMENT AND ENERGY POLICY.



Prof. Achim Wambach, PhD
Acting Head of the Research Department
Environmental and Resource Economics,
Environmental Management

er



environment energy

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

- **Energy Economics and Mobility**
Contact for Energy Economics: Dr. Nikolas Wölfing
Contact for Mobility: Dr. Wolfgang Habla
- **International Environmental and Resource Policies**
Contact: Dr. Martin Kesternich
- **Innovation and Sustainable Development**
Contact: Prof. Achim Wambach, PhD
- **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 issues and resource scarcity. A key focus is placed on European energy and climate policy. Economists in the Research Department conduct economic assessments of instruments and policies that impact the environment. They also identify conflicts between economic and environmental goals. Given the universal shortage of resources, cost efficiency as well as the equitable distribution of costs in society are key criteria in the assessments conducted by the Department.



RESEARCH AREA “ENERGY ECONOMICS AND MOBILITY”

- Sectoral Analyses of Energy Markets
- Competition, Market Design, and Interaction with Environmental Policy
- Energy Demand Behaviour and Market Observation
- Ecological and Socio-Economic Effects of Transport Systems
- Concepts for Sustainable Development in the Transport Sector

Researchers in this area focus on energy market analyses as well as individual energy supply and demand decisions, including those related to mobility. Their research examines market organisation, competition on energy markets, and the effects of energy and climate policy intervention on companies and households.

The results of previous studies were successfully published in 2017, and a range of new projects were launched that will define the area’s research activities going forward. The publications include studies using microsimulation models that appeared in leading energy and environmental-economic journals. A highlight was the Kopernikus project “System Integration: ENavi” acquired in 2016 that studied the energy demand of households and companies. One of the project’s chief aims is to analyse the effects of different energy policy instruments on companies in the manufacturing sector and on households. The studies carried out for this project build on findings from the Helmholtz Alliance ENERGY-TRANS project and from a previous project that investigated the driving forces behind investment in renewable heating technologies. This project funded by the BMBF is the research area’s contribution to the “Kopernikus projects for the energy transition” programme, the largest energy transition research initiative. The initiative promotes research excellence and strengthens research networks in energy economics. The project is also closely watched by policymakers, scientists and the general public.

Another aim of the project is to examine the redistributive effects of the energy system's transformation. The direct costs of the transformation with noticeable effects at the household level are particularly important. Empirical studies show that poorer households often already consume electricity very sparingly, making it difficult for them to cut back any further. As a result, there is an unintentional redistributive effect in which price increases are more keenly felt by poorer households. In the worst case, this can lead to deprivation in energy consumption. For example, the electricity supply may be cut off because of late payments. But studies suggest that situations such as these are not the result of electricity prices alone. Instead, a number of overlapping problems are responsible for electricity cut-offs, such as existing debt, low income and high expenses. An intelligent combination of climate, energy and social policies could help prevent these situations from occurring.

The research area's visibility among experts and the general public remained high. Besides extensive coverage in the media, the research area also had a strong presence at the side event organized by the Institute for Transportation and Development Policy (ITDP) at the Climate Change Conference in Bonn. This conference is held annually in preparation for the UN climate conference in November. The side event "Strengthening Leadership on Low-Carbon Transport to Deliver Long-Term Climate Goals" was very well attended, and selected for live YouTube streaming.

An expert from the research area participated in the "Transition Énergétique" panel discussion at the annual meeting of the French economics association AFSE. Together with the "Competition and Regulation" Research Group, the research area also jointly organised the Mannheim Energy Conference at ZEW. The main focus of the Eberbach Cloister Conversations, hosted in collaboration with the Hessian Ministry of Economics and the University of Münster, was economic opportunities resulting from the digitisation of the clean energy transition.

RESEARCH AREA "INTERNATIONAL ENVIRONMENTAL AND RESOURCE POLICIES"

- Analysis of National and International Climate and Energy Policy Instruments
- Emissions Markets and Their Impact on Private-Sector Competitiveness
- The Design of International Climate Treaties

The research area "International Environmental and Resource Policies" develops and analyses economic approaches for efficiently regulating global environmental problems and for promoting international cooperation. The area's research focuses on the design of international agreements and their impact on the design of domestic policy as well as measures for adapting to climate change. Researchers also examine the consequences of unilateral regulatory measures in a globalised world as well as of fragmented climate protection initiatives.

After the recent ratification of the Paris agreement, international climate diplomacy's current focus is on practically implementing the terms of the agreement. In the past year, the research area studied several key aspects of the climate agreement. The area performed an empirical anal-

ysis of European experiences with the Clean Development Mechanism, a flexible mechanism for reducing greenhouse gas emissions in developing countries, and its effect on emission paths and CO₂ prices. In addition, the area conducted experiments in collaboration with the United Nations Youth Associations Network in order to study the principle of “progression” outlined in the Paris agreement, which requires countries to verifiably report and update their climate goals at regular intervals.

Research has shown that the international carbon emissions market is making very slow progress. The results of the research area’s work indicate that the strong incentives for participating countries to issue as many CO₂ certificates as possible lead to less ambitious climate policies which are aimed primarily at shifting a large part of the burden for domestic mitigation measures onto other countries.

These trends are also reflected in the current low CO₂ prices in the Emissions Trading Scheme (ETS). The result is that the scheme only offers moderate incentives for reducing greenhouse gas emissions. As a central plank of European climate policy, strengthening the Emissions Trading Scheme over the long term will require action to increase administrative efficiency and enhance the instrument’s political effectiveness. The most up-to-date empirical studies of corporate administrative records find that, contrary to widespread fears, the EU ETS has so far not had any negative impact on competition for the companies regulated.

Complementing its analysis of the redistributive effects of climate policy measures, the research area also studied the influence of social distance on the efficient supply of competing common resources. By conducting experiments using the research area’s in-house public database based on survey responses from participants in Mannheim and Heidelberg, researchers demonstrated substitution effects between competing common resources, for example between aid organisations with the same donation goals. Related experimental studies on the formation of institutions for the voluntary supply of public resources analysed the “democratic bonus” that assumes a positive relationship between democratic participation and a spirit of cooperation. These studies showed that the positive effects of participation on the choice of institutions for supplying public resources were primarily the result of information and selection effects.

The research area also examined adaptation to climate change by analysing the effect of flooding on the behaviour of households. The results showed that besides implementing private protection measures, households exposed to flooding also measurably increased their climate-friendly behaviour (for example by switching to green electricity).

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 innovation 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.

Part of the EU Commission’s Horizon 2020 line of funding, the research project MONROE examined the economic and environmental effects of product and process innovations. Working in close cooperation with the research area “Macroeconomic Analysis of Environmentally Relevant Policies”, the research area accounted for technical change in a computable general equilibrium model to determine the significance of this type of innovation. By collaborating with its consortium partners studying the same question using other model types, the research area examined the potential of innovation from a variety of perspectives, including how it could impact climate policy. These studies will continue in the coming year.

For another project that is part of the Horizon 2020 line of funding called green.eu, researchers studied the international network of scientists working in the field of eco-innovation to advise political decision makers on relevant developments. As part of the project, they analysed macroeconomic innovation indicators and assessed product standards such as the eco-label to determine their effects on green innovation. The goal was to identify and illustrate drivers and obstacles in this area.

A workshop examining various aspects of eco-innovation held in 2016 in honour of the research area’s long-serving coordinator, Klaus Rennings, who died on 16 September 2015, also resulted in a book project. In 2017, the contributions to the workshop were revised and combined in a single volume for this project. The book is slated for publication in 2018.

RESEARCH AREA “MACROECONOMIC ANALYSIS OF ENVIRONMENTALLY RELEVANT POLICIES”

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

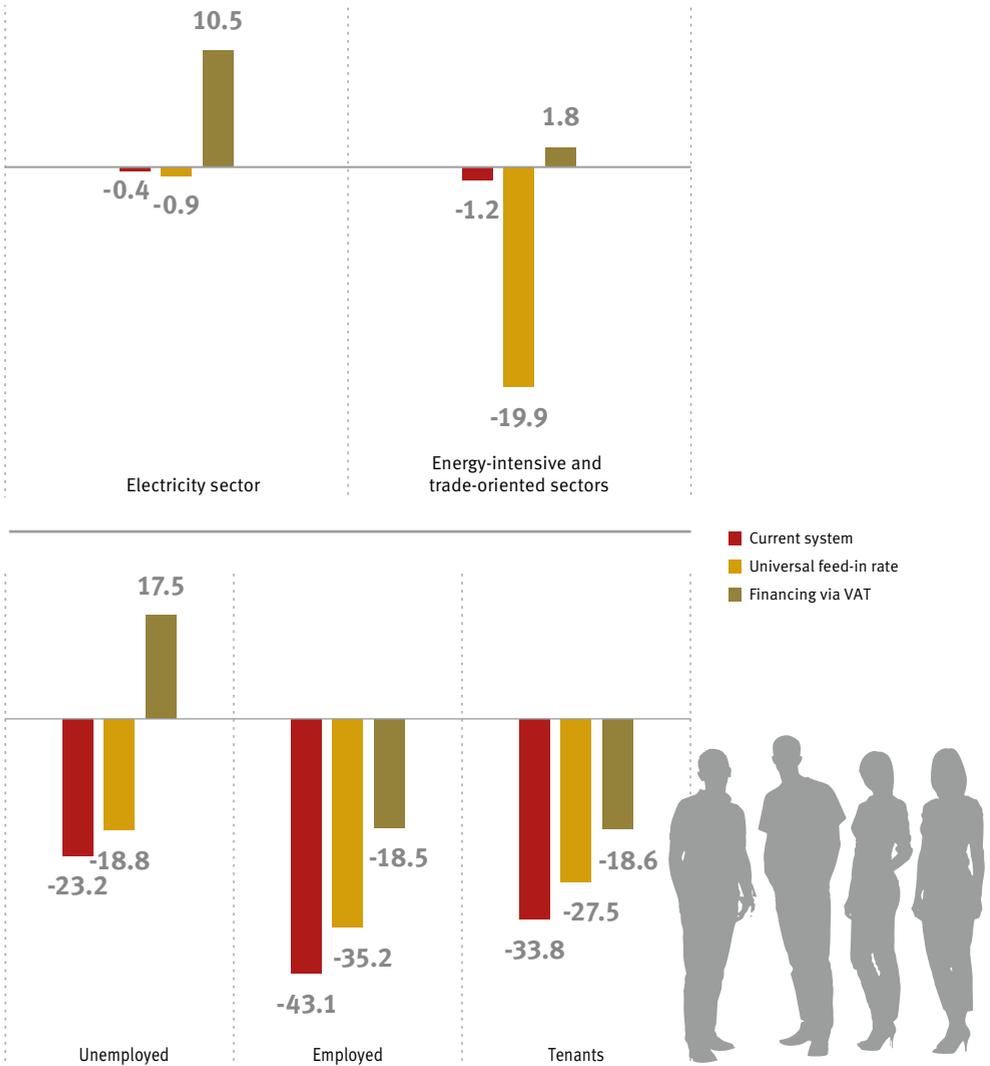
Researchers in this area explore the macroeconomic and sectoral impact of environmental-economic policy instruments, placing particular emphasis on climate and energy policy and on advances in technology. The research area develops and applies computable general equilibrium (CGE) models and partial models that facilitate the quantitative estimation of the impact 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, contributing methodological expertise to work in the Department's other research areas.

The research area continues to play an important role in advising the EU Commission on the development of EU climate policy. The research area previously completed a project analysing the influence of EU climate and energy policy until 2030 and 2050 on economic indicators. The project also produced a more precise picture of the energy sector by including the introduction of carbon capture and storage in the computable general equilibrium model PACE. Additionally in 2017, the research area investigated the various options for applying auctioning revenues from the EU ETS. Of particular interest were the macroeconomic and sectoral effects of renewable energy subsidies financed by auctioning revenues. The research showed that these subsidies increased the demand for electricity. But the resulting increase in electricity prices can reduce production volumes in energy-intensive industries as well.

As part of the BMBF financed project “InTrans”, a micro-simulation model was paired with a computable general equilibrium model. By using both models together, the research area could determine the redistributive effects of certain climate and energy policies on various household classes as well as perform analyses at both the macro and microeconomic levels. One of the study's conclusions was that using VAT reform to finance the EEG levy would burden poorer households significantly less than the existing financing system (see Figure 1 on the next page).

The Kopernikus project “System Integration: ENavi” played an important role in this research area's work as well. Together with prominent domestic cooperation partners, the research area developed decarbonisation scenarios assuming different levels of climate policy commitments in Germany, the EU and the rest of the world. The ZEW used the PACE model to analyse the effects of these scenarios on a range of indicators. This line of research will continue to play a key role in the research area's work in coming years.

1] COMPARISON OF THE INFLUENCE OF VARIOUS FINANCING SCENARIOS IN THE EXPANSION OF RENEWABLE ENERGIES ON PRODUCTION AND INCOME



The top figure shows the percentage change in production in the electricity as well as the energy-intensive and trade-oriented sectors compared to a scenario with no political intervention. The bottom graph shows the changes in income that would result from the various ways of financing feed-in rates for renewable energy for various types of household. Under the current system, feed-in rates specific to each technology are financed by electricity customers via what is known as the EEG levy, which means that electricity-intensive sectors are partially exempt. In the second scenario, instead of applying technology-specific rates, universal rates are introduced with no exemptions for electricity-intensive sectors. In the third scenario, however, renewable energies are funded via value-added tax. Both the most energy-dependent industries and private households would benefit the most in the third scenario.

Source: ZEW

OUTLOOK

Professor Achim Wambach will remain the acting head of the Research Department. He is assisted by his two deputies, Dr. Sebastian Voigt and Dr. Martin Kesternich. In addition, a structured dialogue on topics such as strategic readjustments to the research programme will ensure the opinions of Research Associates are heard. The recent successful acquisition of a range of research projects will largely determine the research programme's future development. These projects include studies on the effects of climate policy regulation on competition and the labour market, the implementation of the Paris climate agreement, behavioural economics approaches to stimulating voluntary climate protection measures, the adaptation behaviour of households, and improving the general equilibrium model PACE to account for redistributive effects and innovation. In addition to these established areas of research, the research programme will also include project initiatives and workshops on economic questions in the mobility transition (for example, electric vehicles) and the influence of digitalisation on the energy sector together with its participants and business models. At the same time, the integration of the research area "Competition and Regulation in Network Industries" from the Research Group "Competition and Regulation" into this Research Department, as well as closer cooperation with the Research Group "Market Design" will open up new fields of research on energy market and emissions market design.

Since internationally integrating environmental and energy policy is crucial, the Department is also strengthening its cooperation with researchers and stakeholders in government, business, civil society and beyond in China, Denmark, Indonesia and the USA.

» MAKING OUR TAX AND FISCAL SYSTEMS MORE RESILIENT.



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



resilience

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: Maximilian Todtenhaupt
- **Empirical Effects of Corporate Taxation**
Contact: Prof. Dr. Katharina Nicolay
- **Decision Making in Tax and Financial Policy**
Contact: Prof. Dr. Friedrich Heinemann
- **Fiscal Policy, Fiscal Federalism and Economic Performance**
Contact: Dr. Zareh Asatryan

MISSION STATEMENT

The “Corporate Taxation and Public Finance” Research Department addresses questions related to corporate taxation and empirical public economics within the context of European integration. The overarching research topics addressed in this Department are the design of optimal tax systems as well as the scope and structure 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. Special attention is devoted to European integration processes through the analysis of corporate tax harmonisation, the federal division of responsibilities and fiscal governance. The Department’s research agenda generates concrete tax and fiscal policy recommendations, thus supporting ZEW’s guiding aim of studying and designing well-performing markets and institutions in Europe.



NOTEWORTHY DEVELOPMENTS

The Department's researchers continue to play an important role in the Leibniz ScienceCampus "Mannheim Taxation" (MaTax), which studies tax policy against the backdrop of European and global integration and contemporary social and economic challenges. Accordingly, there are many points of overlap with the Department's research agenda. In 2017, the MaTax ScienceCampus' wide-ranging activities included the fourth Annual MaTax Conference, which boasted Professor Michael Devereux (University of Oxford, UK) and Professor James Hines (University of Michigan, Ann Arbor) as keynote speakers.

RESEARCH AREA "CORPORATE TAXATION AND TAX LOCATION ANALYSIS"

- International Comparison of Effective Tax Burdens
- Harmonisation of Corporate Taxation in Europe
- Tax Policy Reform Proposals

Researchers in this area address a wide range of questions concerning the quantitative impact of taxation. The key modelling tools they draw upon include the European Tax Analyzer, the Devereux & Griffith model and ZEW TaxCoMM. These have formed the basis for a range of projects, including a study which calculated effective tax burdens on behalf of the EU Commission. This methodological toolbox is continually being improved and updated in response to new developments in related research.

The Devereux & Griffith model, for example, was expanded to incorporate tax incentives for digital business models and research and development, such as patent box regimes. These adjustments will allow R&D-related tax reforms to be taken into account in future editions of the BAK Taxation Index. In collaboration with PwC, the taxation factors that influence typical investments in digital business models and that may differ from country to country were also incorporated into the model.

In addition, researchers in this area conducted a study on the impact of country-by-country reporting. A related study commissioned by the foundation “Stiftung Familienunternehmen” considered the costs and benefits of public reporting. This study ran alongside a research project on the empirical analysis of the impact of profit transfers in the banking sector.

The development of a Taxation Knowledge Database represented one of the largest projects in the area in the past year. The database’s structure was standardised, and systems were put in place to ensure personalised access, version history logging and comprehensive backups. As a result, researchers will now be able to rapidly access information on their particular topics, which will help to speed up the conduct of research and allow the relevant analytical tools to be more easily updated.

In 2017, researchers in the area also played a significant role in providing economic policy advice. A ZEW policy brief, for example, set out ZEW’s position on the European Commission’s draft proposal for a common consolidated corporate tax base. In addition, ZEW researchers considered the impact of the planned US corporation tax reforms on Europe.



As part of a ZEW policy brief published in 2017, the Department offered its assessment of the latest proposal from the European Commission for a common consolidated corporate tax base.

The Department's research on improper capital-gains tax refunds on dividend payments (cum/ex fraud) was continued in 2017, garnering significant media attention. The research was led by Professor Christoph Spengel, who played a major role in reviewing the legal status of this area through his reports to the German Bundestag committee responsible for investigating cum/ex fraud. Recent analyses indicate that cum/ex activities may have resulted in 7.2 billion euros' worth of lost tax revenues.

RESEARCH AREA "EMPIRICAL EFFECTS OF CORPORATE TAXATION"

- Taxation and the Decision Behaviour of Multinational Corporations
- 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.

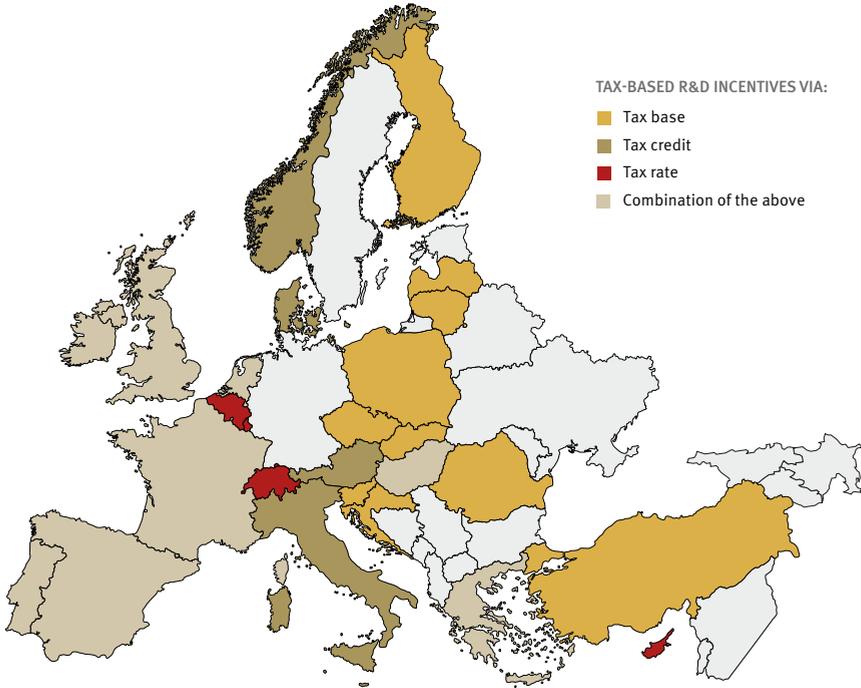
A recent research project addressed the impact of capital gains tax on start-up financing. The study assessed how tax reductions on capital gains from start-up investments in the USA would affect the capital available for future start-up investments. It found that such reductions would increase potential investors' expected post-tax earnings, and therefore make it easier for new companies to attract initial investment.

Other research projects in the area included studies on multinational corporations' tax avoidance strategies. An empirical analysis showed that corporations employ a range of profit transfer strategies. The analysis also made clear that a tightening of transfer pricing requirements can only reduce tax sensitivity if strict regulations are also in place for interest deductibility. Additional empirical analyses considered potential future tax avoidance strategies in the course of corporate takeovers, and highlighted the importance of effective state-level counter-measures.

As part of a study commissioned by the Federal Ministry of Finance, researchers working on digitalisation collected data on the use of digital provider websites, in order to analyse the volume and structure of digital services. The project team secured funding from the Leibniz Cooperative Excellence funding programme.

Two research projects commissioned by the BDI and the Expert Commission for Research and Innovation were tasked with elaborating various taxation models to promote research and development in Germany. To date, Germany is one of the very few industrialised nations not to have a dedicated taxation policy to promote R&D and innovation (see Figure 1 on the following page). This puts the country at a significant disadvantage on the international stage.

1] TAX-BASED R&D INCENTIVES IN THE EUROPEAN UNION



Source: BDI/ZEW (2018)

In collaboration with the University of Mannheim and the MaTax ScienceCampus, ZEW also held a two-day workshop on the empirical effects of taxation instruments in promoting research and development. The event brought together researchers addressing this issue in a range of disciplines (including finance studies, innovation economics and business administration), in order to promote interdisciplinary exchange and enable early career academics to discuss their work with experienced researchers. Among the workshop’s guests, the organisers were delighted to welcome Professor Lisa de Simone (Stanford University) and Professor Sebastien Bradley (Drexel University, Philadelphia). The workshop set the scene for a series of lively debates that may be continued in future, potentially resulting in research projects.

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 policy decisions. The data is drawn from voluntary surveys of members of parliament, citizen surveys, and experimental surveys.

In 2017, the Mannheim Collaborative Research Centre’s (SFB) project on the “Political Economy of Reforms” once again received a positive evaluation from the German Research Foundation (DFG), and in its third funding period (2018–2021) will play a central role in research on the preferences of political decision-makers. A sub-project led by Professor Friedrich Heinemann and Professor Eckhard Janeba tackled the subject of fiscal institutions and reform preferences at the national and European level. The past year saw the launch of a number of new projects, including survey-based studies on French and German MPs’ support for different European labour market, fiscal, and economic policies. Coming in the midst of vigorous debates on EU reform, the results garnered significant public interest, and showed that politicians exhibit both party-political and regional tendencies in their support for EU reform initiatives on labour market and fiscal policies. In relation to key questions concerning the European monetary union (i.e. the role of the European Central Bank and new financial instruments), French and German MPs’ preferences were found to differ significantly, though there was significant consensus on the need for a stronger role for the EU in shaping defence and migration policies.

Further headway was also made with several projects on the German population’s preferences concerning the country’s federal structure. The empirical basis for these studies was the German Internet Panel (GIP) – an online, representative survey conducted by the SFB. One ongoing project in this area uses a survey to investigate voter support for merging federal states in Germany. It examines whether voters’ opinions may be swayed by the potential cost savings resulting from such mergers. In relation to potential jurisdictional mergers, researchers have also discussed the efficacy of local territorial reform. An extensive literature review, for example, showed that while local authority mergers rarely result in cost savings, they are often detrimental to democratic participation and reduce the local population’s satisfaction with public services.

RESEARCH AREA “FISCAL POLICY, FEDERALISM AND ECONOMIC PERFORMANCE”

- Fiscal Policy in International Competition
- EU Financial Constitution
- Regulatory Frameworks of the Eurozone

The research area “Fiscal Policy, Federalism and Economic Performance” is dedicated to analysing federal systems, fiscal governance, and the correlations between fiscal policy and economic performance. Determining which federal policies and supporting measures and institutions encourage economic performance is a key research concern. National policy arrangements (such as Germany’s financial equalisation scheme and the debt brake) are considered here along with European ones (including the division of responsibilities between the EU and its Member States, fiscal contracts, etc.).

In one of the key projects in this area in 2017, researchers analysed resilience to economic crises at the Member State level. The study considered how factors such as fiscal policies and approaches to innovation and regulation relate to states’ crisis resilience and crisis-induced changes in economic performance. On the basis of the study, the researchers were able to elaborate economic policy recommendations to enhance Germany’s future crisis resilience.



Department head Professor Friedrich Heinemann presenting ZEW's latest research findings on the newly founded European Fiscal Board at a ZEW Lunch Debate in Brussels.

The effectiveness of fiscal rules and fiscal boards was another central field of research. In one study, researchers analysed the impact of fiscal rules using meta-regression analysis, which indicated both the importance of an identification strategy and a publication bias. A further study considered the optimal institutional organisation of the newly founded European Fiscal Board (EFB), by comparing it with various national fiscal boards. The conclusions of the study and its policy recommendations were published in a ZEW policy brief and presented during a ZEW Lunch Debate, where they were discussed with representatives of the EFB.

Researchers in this area also continued to contribute to debates on Eurozone reform. In 2017, ZEW was one of the founding members of a new platform for such debate: the European Network for Economic and Fiscal Policy Research (EconPol). The network brings together economics departments from seven EU states to jointly develop rigorous research to stimulate and shape the European debate.

In terms of further EU-related research, the Research Department has been collaborating with the Bertelsmann Stiftung in recent years on a project assessing the optimal allocation of public sector responsibilities between the EU and its Member States. This project was brought to a close with a conference in Berlin that brought together researchers and political decision-makers. Intensive efforts were made to communicate the project's proposals for reorienting the European budget to decision-makers in the European Commission, which helped to raise ZEW's profile in the European debate.

Significant media attention was likewise garnered by a ZEW study on the Common Agricultural Policy (CAP). The study recommended strengthening national financing for the first pillar of the CAP (direct payments to farmers). This would allow a significant share of the EU budget to be released for other purposes. The study clearly showed that direct payments remain highly untargeted with respect to their socio-political effects, and that this costly instrument has therefore failed to fulfil its given aim, that is to ensure that farmers receive an adequate income.

The allocation of public loans by the European Investment Bank (EIB) was the subject of a recently launched research project. The EIB's lending has reached significant macroeconomic proportions, with EIB loans now amounting to almost ten per cent of some states' GDPs (see Figure 2 on the following page). The study analyses whether decision-makers tend to favour their own regions when awarding loans, and its preliminary results do indeed indicate a clear home-bias effect.

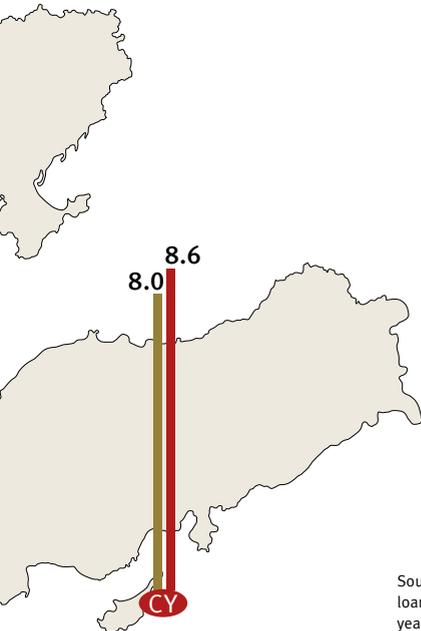
OUTLOOK

In order to maintain the Research Department's leading role in international tax burden comparison, its analytical toolkit will need to be continually updated. This will allow it to accurately assess ongoing developments and new forms of tax optimisation behaviour. ZEW's research helps to build taxation systems that are fit for the future and makes a significant contribution to ongoing discussions on preventing aggressive tax avoidance strategies.

In future, researchers will also address the growing significance of digital marketplaces. Projects in this area will focus particularly on the analysis of the attractiveness of particular countries for digital business models, as well as the taxation of internet transactions and cross-border digital service provisions. Funding for these research projects has been secured through a successful application to the Leibniz Competition.

Another core area of the Department's activities will be its research on public procurement. This research area will complement the Department's existing expertise in the field of public finance. Research projects are also planned on the significance of political budget cycles in the awarding of public contracts, the impact of public contracts on corporations, the interlinking of corporations and politics, and the determinants and effects of European legal frameworks on procurement.

In future, the EconPol network will allow the Research Department to better address political decision-makers. Through the platform, researchers will tackle various subjects, including sustainable growth, reforms to EU policies and the EU budget, capital markets, and financial sector regulation, as well as governance and macro-economic policies in the European monetary union.



Source: EIB, Eurostat, calculations by ZEW. The figure shows the total of newly granted loans over the respective ten-year period as a percentage of the country's GDP in the final year of each period (2005 and 2015, respectively).

» CREATING OPPORTUNITIES FOR SOCIAL MOBILITY.



Dr. Holger Stichnoth
Acting Head of the Research Group
International Distribution and Redistribution





social mobility

RESEARCH GROUP INTERNATIONAL DISTRIBUTION AND REDISTRIBUTION



Dr. Holger Stichnoth
Acting Head of Group



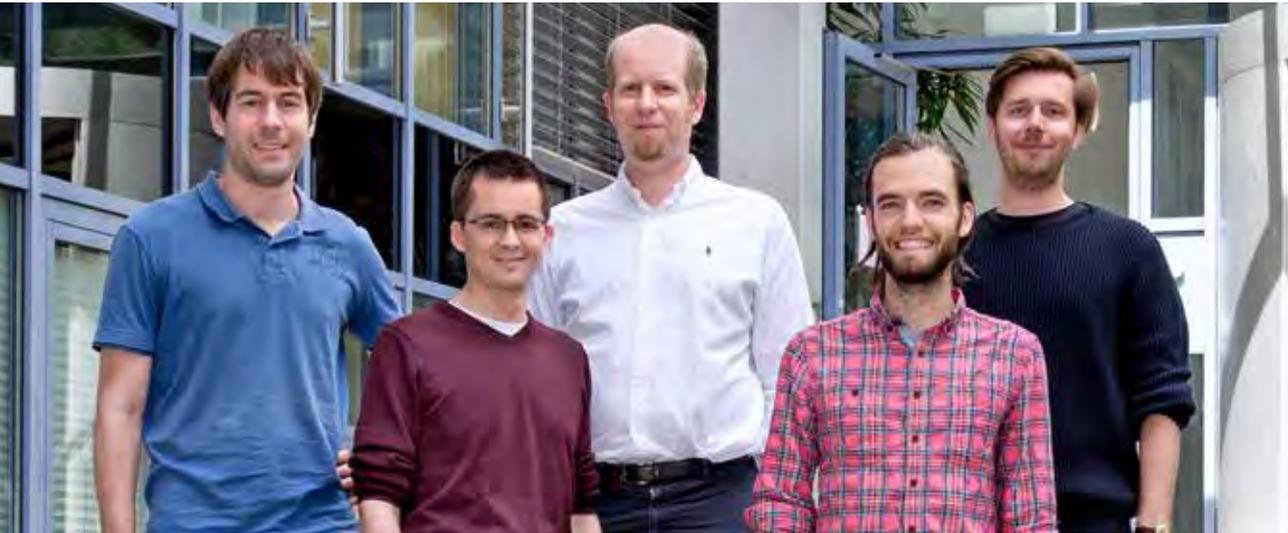
Dr. Philipp Dörrenberg
Deputy Head

RESEARCH AREAS

- **Income and Wealth Distribution**
Contact: Dr. Philipp Dörrenberg
- **Tax and Transfer Policy**
Contact: Dr. Holger Stichnoth
- **Fiscal Policy and Distribution in Europe**
Contact: Dr. Holger Stichnoth

MISSION STATEMENT

Questions of income and wealth distribution and the economic impact of redistribution through tax and transfer systems are controversially discussed in public. The Research Group “International Distribution and Redistribution” contributes to objectifying this discussion with empirically founded analyses in both a national and international context. A major research focus is on redistribution through tax and transfer systems and associated economic effects. The Research Group’s empirical studies aim to provide a reliable basis for tax and social policy recommendations. The research focus thereby lies on microdata analyses to describe the distribution and efficiency effects of the tax and transfer system, as well as on the identification of causal effects resulting from reforms using a variety of econometric techniques.



RESEARCH AREA “INCOME AND WEALTH DISTRIBUTION”

- International Income and Wealth Distribution
- Equal Opportunity
- Regional Inequality

Researchers in the area “Income and Wealth Distribution” investigate trends in income and wealth distribution in international contexts by analysing various indicators based on microdata. Particular attention is devoted to the analysis of equal opportunity, as well as to maintaining a longitudinal and lifetime perspective. In addition, researchers analyse potential drivers of mounting inequality, such as globalisation, skill-biased technological progress, demographic change, and especially the role of institutions. Based on such analyses, researchers advise policymakers on how tax and transfer systems can be reformed to improve equality of opportunity.

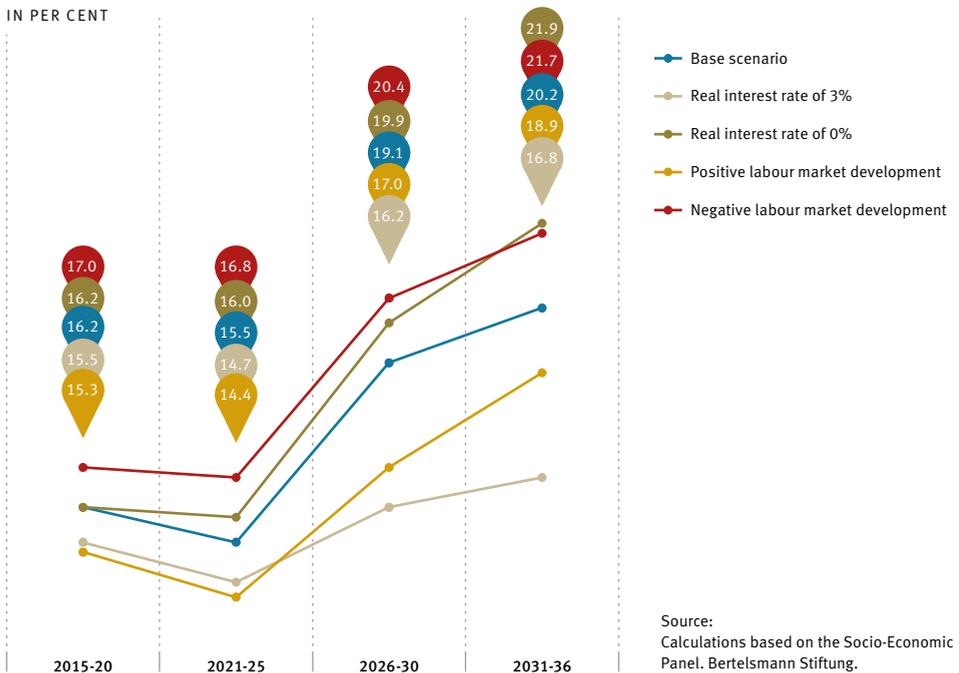
In 2017, the research area conducted two studies on behalf of the Bertelsmann Stiftung. The first study explored how inclusive the social market economy in Germany is, taking account of economic growth, income and wealth inequality, equality of opportunity, and the risks of poverty since the founding of the Federal Republic of Germany. At least since the country’s reunification, the promise of “prosperity for all” has still only been fulfilled to a limited degree. Since that time, hardly any of the annual increase in economic growth has flowed to the bottom 40 per cent of society, while the highest incomes grew 1.3 per cent a year on average between 1991 and 2014.

A second study, prepared in partnership with DIW Berlin (the German Institute for Economic Research), used representative household data as a basis to forecast retirement income from statutory, private, and company pensions between 2015 and 2036. The study took account of

how statutory pensions will rise less than incomes in response to demographic change, in addition to the impacts on workers' employment histories from high unemployment during the 1990s and early 2000s (especially in the former East Germany) and the growth of atypical employment. If normal employment and interest rate trends persist, according to the study, the old-age poverty risk will continue to rise in Germany over the next 20 years, affecting roughly one-fifth of all people over age 67 by the end of that period (see Figure 1). The proportion of 67-year-olds who are entitled to old-age basic income support will continue to expand, reaching around seven per cent by 2036. Many of the current reform proposals cannot reverse the trend of growing poverty in old age, as they do not accurately focus on the risk groups and the spread of the low-wage sector.

As part of a SEEK project supported by the state of Baden-Württemberg, economists working in this research area are investigating the share of overall wage inequality in Germany attributable to inequalities between different German municipalities and the share stemming from inequalities within municipalities. In addition, they are analysing whether regional income differences are smaller if one considers "real income", including regional differences in price levels as opposed to only differences in nominal income.

1] POVERTY RISK OVER TIME IN VARIOUS CAPITAL AND LABOUR MARKET SCENARIOS



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

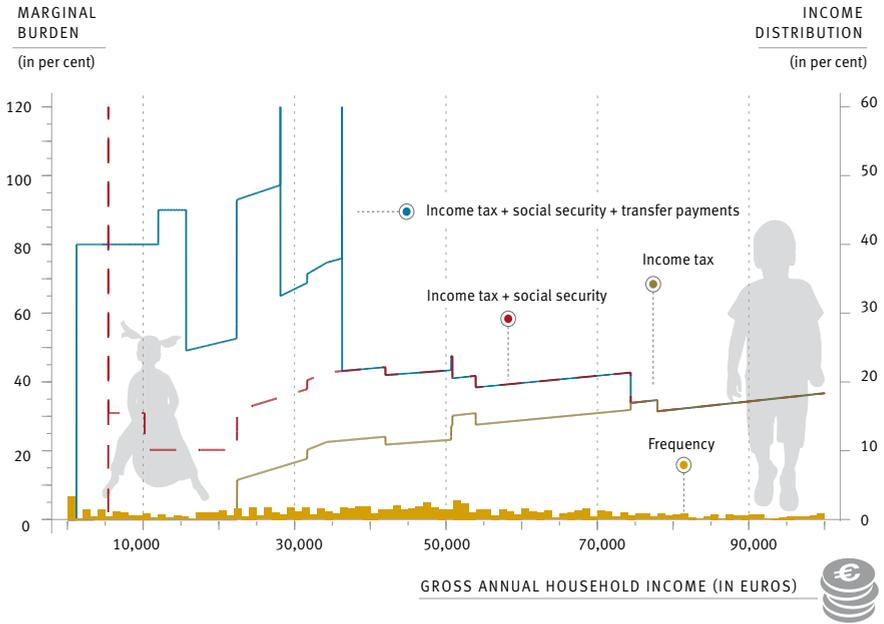
Researchers in the area of “Tax and Transfer Policy” employ various methods to study the efficiency, redistributive, and welfare effects of tax and transfer systems from national and international perspectives. The researchers produce ex-post analyses of past reforms using administrative microdata. In addition, they investigate reform proposals in ex-ante analyses by means of experimental methods (laboratory and field experiments) and behavioural microsimulation models. The models developed in this research area can be used to estimate a wide range of behavioural effects over the entire life cycle. Based on the results of these empirical studies, researchers develop policy recommendations for designing optimal tax and transfer systems.

In one study for the Bertelsmann Stiftung, researchers in this area analysed the incentive effects of the German tax and transfer system. This involved investigating the marginal tax burden on different model households, as well as using a representative sample to simulate and compare proposals to improve the effects of the incentives. The marginal tax rate indicates the proportion of tax paid on an additional euro of earned income. While the income tax rate is heavily graduated, the effective marginal tax burden scarcely increases in line with earnings beyond the threshold for basic subsistence. Largely independent of income level, the effective marginal tax rate then fluctuates between 40 per cent and 50 per cent (see Figure 2 on the following page). The marginal rate is very high (between 80 per cent and 100 per cent) for people who receive transfer payments, meaning that almost nothing remains of each additional euro they earn. Higher earnings even lead to a decrease in income for some benefit recipient households.

The study simulates different reform options with the aim of contributing towards inclusive growth and strengthening the ability-to-pay principle (Leistungsfähigkeitsprinzip) in the system of taxes, fees, and transfers. One particularly successful reform would involve integrating the long-term unemployment benefit (Arbeitslosengeld II), housing subsidy, and child allowance into a single transfer payment with a constant benefit withdrawal rate of 60 per cent. Changing the Ehegattensplitting policy (where married couples combine and average their incomes in a joint tax filing) to one of Realsplitting (where certain transfers of income are allowable between spouses) is another promising option.

On behalf of the Federal Ministry of Economic Affairs and Energy, researchers in this focus area also analysed the political parties’ programmes regarding income tax and the solidarity surcharge ahead of the recent federal election. The research area also continued its work on the effects of the statutory minimum wage and on a project funded by the German Research Foundation (DFG) to develop a dynamic analysis model as a method of estimating tax and transfer benefits’ behavioural effects across the entire life cycle. In addition, a research paper examined the incentive effects of the US Earned Income Tax Credit.

2] EFFECTIVE MARGINAL BURDEN ON A SINGLE-EARNER FAMILY WITH TWO CHILDREN



The graph shows the effective marginal burden resulting from taxes and withdrawal of transfers, the marginal burden from income tax and social security contributions as well as the marginal burden from taxes alone, in relation to annual gross household income. The vertical bars show the frequency of the given income level as a percentage of all households of this type. Source: ZEW Micro-simulation model v. 3.2.0., Bertelsmann Stiftung.

RESEARCH AREA “FISCAL POLICY AND DISTRIBUTION IN EUROPE”

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

Researchers in this area analyse national fiscal policies in the EU in light of their effects on efficiency, stabilisation and the distribution of wealth, as well as addressing questions about European fiscal integration. This research focuses on analysing a variety of proposals for organising a European Fiscal Union. These span a range that includes tightening fiscal rules and their enforcement; revenue-sharing mechanisms; and elements of a common tax and transfer system – for instance, in the form of a European unemployment insurance scheme.

Research projects to date have primarily focused on analysing various proposals for a European Fiscal Union. The debate about different reform proposals has intensified recently, highlighting the need for sound research and evidence-based economic policy advice. Thanks to the strong reputation enjoyed by ZEW researchers in this domain, ZEW was invited by the European

Parliament and the European Commission to conduct studies on the economic effects of a Europe-wide unemployment insurance scheme. ZEW economists presented their studies at academic conferences and also at two expert hearings of the European Parliament's Committee on Employment and Social Affairs. In addition, they presented findings at workshops organised by the European Commission. The opportunities and risks of a Europe-wide unemployment insurance scheme was also the subject of lively debate as part of a ZEW Lunch Debate in Brussels. Furthermore, a study on the convergence of national unemployment insurance systems was prepared on behalf of the European Commission. In partnership with the EU Commission and its Joint Research Centre, members of the research area are working on a project that examines how tax reforms in EU Member States would impact wealth distribution and income. In a current research project on the analysis of national fiscal policies, the Research Group has been examining how the automatic stabilisation mechanisms inherent in tax and transfer systems have changed in Europe over the course of the financial and economic crisis.

OUTLOOK

The debate around wealth distribution to date has strongly centred on disposable household income. Yet more research about the redistributive effects of government services and non-cash benefits is still required. In addition, plans are afoot to examine whether cash benefits paid to families actually go to their children. This is an important question, given that existing non-cash benefits such as the Education and Participation Package (Bildungs- und Teilhabepaket) are struggling under very high administrative costs. Meanwhile, several proposals have been released, some of which envisage significant expansions in cash benefits for families.

In future years, the Group will continue its involvement in studying regional wealth distribution and inequality. They will combine regional data from various sources to create an "Inequality Map" as a means of documenting the disparities between and within regions in Germany.

Along with real inequality, economists in this Research Group also investigate perceived inequality and preferences for redistribution. A survey experiment on these matters was recently conducted with the German Internet Panel developed by the University of Mannheim, which is also set to be used for further research projects.

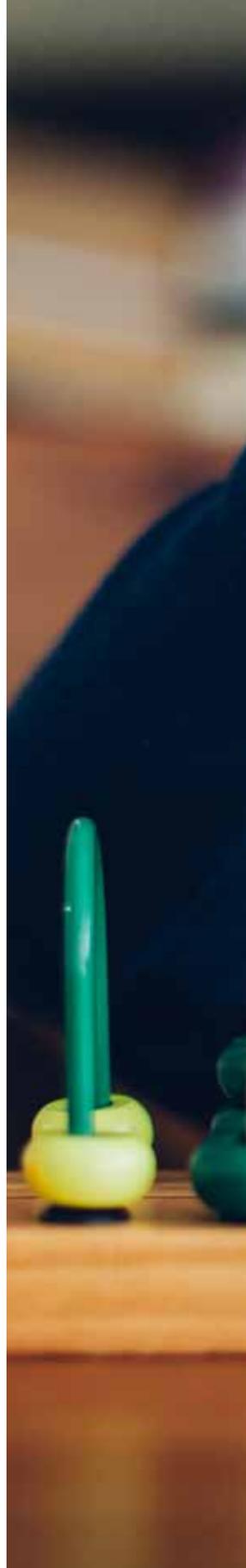
The researchers will continue to engage with the issues surrounding tax evasion. Field experiments are to be carried out in partnership with an international development organisation, as well as national and European tax authorities. Polls and survey experiments will also be deployed to better understand individual tax evasion decisions.

In collaboration with the "Labour Markets, Human Resources and Social Policy" Department, the Research Group is continuing its study on the effects of the statutory minimum wage. A joint project with the "Market Design" Research Group is planned to formulate proposals for an improved means of assigning placements in nurseries and preschools. As part of the "Mannheim Taxation" ScienceCampus, researchers will continue their work on numerous research projects, some of which involve interdisciplinary collaboration with legal scholars and political scientists.

» DESIGN:
WHERE IDEAS
AND ACTIONS
INTERSECT.



Prof. Dr. Vitali Gretschko
Head of the Research Group
Market Design





ideas
actions

RESEARCH GROUP MARKET DESIGN



Prof. Dr. Vitali Gretschko
Head of Group



Dr. Nicolas Fugger
Deputy Head

RESEARCH AREAS

- **Design of General Rules for Public Procurement**
Contact: Dr. Nicolas Fugger
- **Auction Market Design**
Contact: Prof. Dr. Vitali Gretschko
- **Design of Matching Markets**
Contact: Dr. Thilo Klein

MISSION STATEMENT

The Research Group “Market Design” focuses on the analysis and optimisation of markets. Its aim is to improve the performance of existing markets by actively shaping market rules. To this end, it examines the peculiarities of each market and identifies their prevailing modes of action. To find a market mechanism that helps regulators to achieve their objectives in the best way possible, the Research Group uses theoretical, experimental and empirical methods.



RESEARCH AREA “DESIGN OF GENERAL RULES FOR PUBLIC PROCUREMENT”

- General Rules for Efficient Procurement
- Comparison of Various Procurement Mechanisms
- Procurement Contract Design

Researchers working in this area analyse the optimal design of general rules for public procurement. Public procurement accounts for about 16 per cent of aggregate GDP in the European Union. Therefore, even relatively small efficiency gains can generate savings in the billions. Designing a procurement process requires considering several aims at once, and then weighing them against each other. Due to their complexity, procurement mechanisms need to be tailored to each specific situation. Nevertheless, it is possible to determine some general rules that play a key role in increasing efficiency.

Since the design and implementation of a procurement process often requires engaging an agent (buyer, auctioneer), efficiency may be reduced by corruption and cronyism. The Research Group determined that the current public procurement guidelines must be strengthened to rule out abuse by government agents. Specifically, auction formats with rules that ostensibly treat bidders equally may in fact have discriminatory effects. An example is when the price is set by the bids of the losers. This is the case with the Vickrey auction format. A variant of it, namely the English auction is often used in procurement. If the final price is not determined solely by the winner’s bid, then bidders who credibly threaten to pursue a strategy of highly aggressive bid-

ding can scare off their competitors. This problem can be solved by introducing a simple rule to prevent auctions from giving one supplier an unfair advantage, and to ensure that all bidders can be expected to have equal weight. In simple terms, this rule states that at the end of the auction the winning bidder's payment cannot be determined by the bids of the competition. This is the case in a first-price auction, for example.

In February 2017, the Research Group also organised a "Market Design" workshop that was focused on public procurement. The workshop brought together leading researchers with company representatives from across Europe.



Associate Professor Alex Teytelboym (left) from the University of Oxford and Professor Alexander Westkamp (right) from the University of Cologne presented their current research work at a ZEW workshop on market design.

RESEARCH AREA “AUCTION MARKET DESIGN”

- Optimal Bidding Behaviour Under Uncertainty
- Identification of Optimal Auctions

The research area “Auction Market Design” focuses on the analysis and design of specific auction markets. Examples include the public sale of energy, government bonds and mobile radio frequencies. The research area’s goal is to identify optimal auction formats and to assess to what extent they can be implemented. Here it is particularly important to take into account the specific market environment and actual bidder behaviour. For example, the options a bidder may have to hinder competition needs to be taken into account. This may include collusion, i.e. secret agreements with other bidders. In addition, auction market design requires considering the individual auction as part of a dynamic and changing environment. This permits an analysis of the long-term impact the design may have on incentives for innovation and on competition.

The particular characteristics of the project in tender determine the optimal awarding mechanism. Many theoretical and empirical studies have shown that good auction results can be achieved when the scope and requirements of the project are clearly defined. When complete contracts are available, competitive auctions result in low prices and efficient provider selection. These conditions are common with the purchasing of standardised goods, also called commodities. But in many cases involving more complex products, bidder requirements cannot be clearly specified in advance. This is because not all potential contingencies can be taken into account. In these cases the contracts are not complete. That means that employers and suppliers must voluntarily cooperate to efficiently solve unforeseen problems. An experimental study examined these types of situations to determine the effectiveness of an auction in comparison with another negotiation mechanism. The results demonstrated that auctions not only lead to lower prices, but in comparison to the alternative mechanism also reduce cooperation between employers and suppliers to a minimum.

The largest auction markets worldwide are used to issue government bonds. The total auction market volume in this area in Germany was roughly 200 billion euros, for example. This means that optimising the design of these markets is an important social issue. Funding agencies have a range of tools at their disposal that, depending on the bidder structure, have varying effects on efficiency and refinancing costs. The design elements most frequently manipulated are the auction format, the inclusion of non-competitive bids, the bidder eligibility requirements and the adjustment of the bond volume after the fact. In Germany, there are auctions with discriminatory pricing that accept all successful bids at their respective prices. These auctions also permit the inclusion of non-competitive bids at the average accepted price. The requirements placed on banks to participate in these auctions are minimal. In addition, the German funding agency reserves the right to adjust the bond volume at any time.

The effectiveness of these tools used in varying degrees across the world is an empirical question. Their impact is heavily dependent on market parameters. The goal of the Group's research is to analyse micro-level bidder data and then use structural equation models to simulate the efficiency and costs of alternative designs. Using the results, the Research Group cooperates with funding agencies to identify optimised mechanisms tailored to their specific requirements. As part of this project, the research area held an initial workshop with the German funding agency for this purpose and completed a literature review.

RESEARCH AREA “DESIGN OF MATCHING MARKETS”

- Analysis of Existing Allocation Procedures
- Design of Exchange and Assignment Algorithms
- Software Solutions for Matching Problems

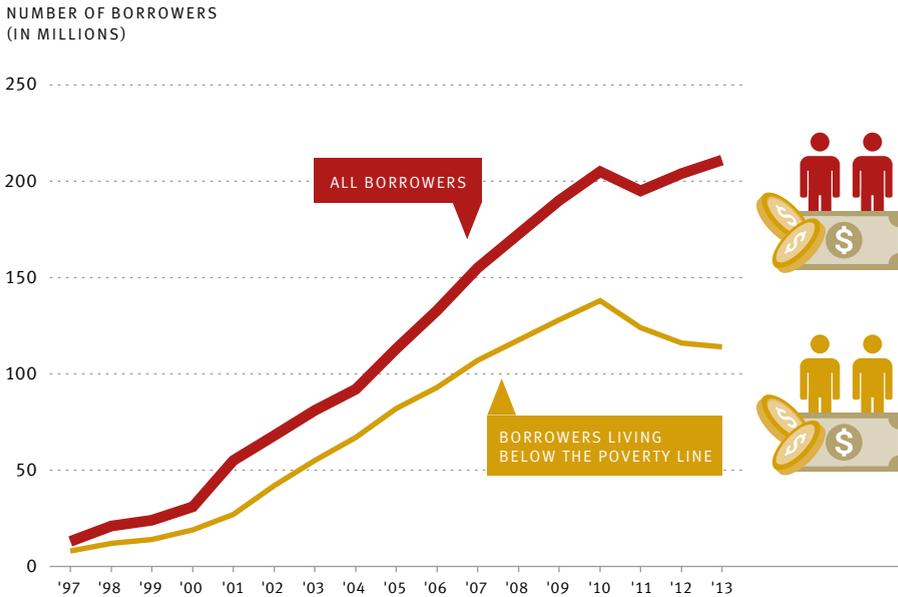
The research area “Design of Matching Markets” focuses on the analysis and design of markets in which supply and demand are not coordinated exclusively by price. In matching markets, the alternative allocation criteria include the personal preferences of the market participants. These preferences play a role in the sharing economy, but they are also a factor in education and labour markets, where the two sides must choose each other. For example, employees cannot freely choose their employers. They must also be chosen (and the other way around). A major challenge in these markets is to design the exchange or assignment mechanism so that all participants have an incentive to reveal their true preferences. This can prevent individual participants from taking advantage of others by strategically reporting their preferences. Existing exchange and assignment processes can be statistically analysed. Examples of these processes include gender and minority quotas on labour markets, or school choice in catchment areas.

In an ongoing project, researchers are studying the optimal composition of joint credit groups in microcredit markets. In many developing countries, micro-businesses account for more than two thirds of all economic activity. Since they have no collateral for credit, microcredit is often the only financing form available to them. The German development bank KfW is currently the largest investor worldwide in these markets. With group credit, loans are secured by the joint liability of the group instead of by individual collateral. This idea has been notably less successful in rural areas. In these areas, the groups are often composed of debtors with the same operational risks. For example, a group of rice farmers are debtors that are all affected at the same time by extreme drought periods. The project developed market rules to remove these market limitations. One simple rule is to limit the formation of debtor groups composed of members with similar occupations. For example, a maximum of only three rice farmers are allowed in a single group.

The project’s approach to market design differs from previous studies, because the goal here is not to create optimal lending conditions. Instead, the project produced concrete rules for group formation. The results of the study demonstrated that these market rules lead to lower loan default levels. That allows banks to offer credit at lower rates, in turn permitting more micro-businesses to better exploit their growth potential (see Figure 1).

In a recently launched project, the Research Group studied how to improve the assignment of nursery school places in Germany. In many cities, the assignment of free places in nursery schools is generally uncoordinated. This makes it difficult for parents to plan their careers and significantly increases the administrative burden on nursery personnel. In cooperation with local child welfare departments, the project provided a comprehensive overview of the how nursery school places are currently assigned in Germany. Using these insights, the project aims to produce an improved process for place assignment. This process will build on proven solutions and be developed in coordination with parents, providers and local authorities. The central goal

1] GROWTH OF THE GLOBAL MICROCREDIT MARKET



Source: Microcredit Summit Campaign; <https://stateofthecampaign.org/read-the-full-2015-report/>

of the project is to develop and implement a process that permits communities to coordinate which nursery schools offers which families a place at what time. The new process will be implemented and evaluated in pilot cities in cooperation with the Association of German Cities and the Association of Municipalities of Baden-Württemberg. The plan is to develop a solution that can be easily integrated into existing online systems. Participation in the new process will be voluntary to respect parents' legal right to choose providers freely, and to protect the autonomy of independent or church-based providers.

OUTLOOK

Together with the WZB Berlin Social Science Center and the “Corporate Taxation and Public Finance” Research Department, the Research Group successfully obtained funding from the Leibniz Competition grant programme. Going forward, the “Market Design” Research Group will investigate the causes of cronyism, among other topics. Cronyism is characterised by the favouring of market participants without any monetary transfer. Since these relationships between buyers and providers are difficult to observe, the Research Group will take an experimental approach. Under laboratory conditions, a range of mechanisms that facilitate cronyism will be tested. The goal here is to develop measures that can hinder cronyism.

As part of a twinning project with the German Federal Ministry for Economic Affairs and Energy, the Research Group will support the development of the telecommunications market in Georgia. Experts from the Research Group on-site will develop a design for Georgian frequency auctions.

As part of the “Design of General Rules for Public Procurement” research area, the Research Group will help design the procurement process for school books at all public schools in Brazil. Research Group staff will support the Brazilian authorities in developing and testing the awarding mechanism used here.

Together with the “Digital Economy” Research Department, the Research Group will study reputation systems on digital platforms. Reputation systems incentivise providers to deliver high quality, and help buyers identify the best providers on the market. Customer reviews from previous transactions provide the data for reputation systems. But if a majority of reviews are concentrated among a few providers, the reputation system can create an entry barrier on the platform. The Research Group will study how a reputation mechanism could be designed so that it both provides information and safeguards competition over the long term.



SCIENTIFIC OUTPUT, COMMITTEES AND EXTERNAL RELATIONS

// SCIENTIFIC OUTPUT

// COMMITTEES AND EXTERNAL RELATIONS

SCIENTIFIC OUTPUT, COMMITTEES AND EXTERNAL RELATIONS



SCIENTIFIC OUTPUT

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PUBLICATIONS

Publications in Refereed Journals

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October 2017 saw some changes to the board of the ZEW Sponsors' Association. Dr. Alexander Selent left the board and his position was filled by Dr. Georg Müller, CEO of MVV Energie AG. Pictured in the photo above (l-r): Thomas Kohl, Dr. Alexander Selent, Claudia Diem, Dr. Ralph Rheinboldt, Professor Achim Wambach and Dr. Georg Müller.

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- ◉ Baskaran, T., University of Siegen
- ◉ Bohn, F., Radbound University, Nijmegen, NL
- ◉ Brandt, L., University of Toronto, CA
- ◉ Bublitz, E., Hamburg Institute of International Economics
- ◉ Cambini, C., Politecnico di Torino, IT
- ◉ Cecere, G., Telecom School of Management, Paris, FR
- ◉ Chen, Y., Fudan University, Shanghai, CN
- ◉ de Pinto, M., Institute for Labour Law and Industrial Relations in the European Union (IAAEU), Trier
- ◉ Filippas, A., New York University, US
- ◉ Fradkin, A., MIT Sloan School of Management, Cambridge, US
- ◉ Gannamaneni, A., MIT Sloan School of Management, Cambridge, US
- ◉ Harchaoui, T., University of Groningen, NL
- ◉ Ahmed, R., University of Balochistan, PK
- ◉ Baskaran, T., University of Siegen
- ◉ Bohn, F., Radbound University, Nijmegen, NL
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ALUMNI

The ZEW alumni network provides a forum for former ZEW staff to stay in touch with colleagues and with the institute. ZEW keeps alumni posted on news about the institute, research results and professional training seminars. Former staff can provide ZEW with valuable input for research work.

ZEW has also successfully established an online alumni group on the Internet platform XING, which provides alumni with the opportunity to keep in contact with each other and learn the latest news from ZEW.

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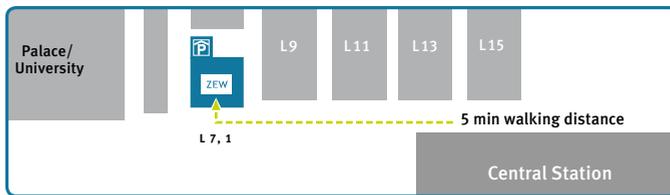




Travelling by plane via Frankfurt International Airport

It is a 30-minute journey from Frankfurt International Airport to Mannheim Central Station via ICE high-speed train.

Travel time to Frankfurt by plane (non-stop): from New York: approx. 8 hrs/
from Beijing: approx. 10 hrs

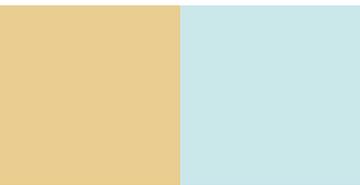


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It is a five-minute walk (300 m) from Mannheim Central Station to ZEW.

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