

ZEW

# TRANS FOR MATION

ZEW ANNUAL REPORT 2023

*Leibniz*  
Leibniz  
Association



# TRANS FOR MATION

ZEW ANNUAL REPORT 2023

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**THOMAS KOHL**

MANAGING DIRECTOR  
[until 29.02.2024]

**PROF. ACHIM  
WAMBACH, PHD**

PRESIDENT

# DEAR READERS,

Last year was difficult not only for the economy, but also for society at large, as conflict in the Middle East erupted against the backdrop of two years of war in Ukraine and four years of tepid growth in Europe. In addition, Germany and Europe must achieve significant transformation in various policy domains. ZEW is at the forefront of these issues, as we provide legislators with evidence-based findings and policy recommendations, as detailed in the Transformation section of this report.

Last year was an extremely successful one for ZEW: In the Leibniz Association's evaluation, which takes place every seven years, ZEW received top marks for its research, policy advising, and knowledge sharing activities. ZEW employees across all units deserve recognition for the outcome of this evaluation – which is not only grounds for celebration, but also motivates us to confidently confront the challenges ahead.

At the 2023 ZEW Alumni Day, we bid farewell to Dr. Georg Licht, who headed the Economics of Innovation and Industrial Dynamics research unit for 30 years. We are delighted to have acquired Professor Hanna Hottenrott from the Technical University of Munich, a renowned innovation economist, as his successor. We are also delighted that Dr. Simon Reif was appointed to a professorship of health care markets at the University of Erlangen–Nuremberg in October 2023. This appointment has further strengthened health economics at ZEW.

Last year ZEW's advisory services were in demand at the highest levels. The Federal Ministry of Education and Research appointed ZEW's Professor Irene Bertschek to the Forum #Zukunftsstrategie that advises the German government on future-oriented policy. Bertschek is also an active member of the Federal Chancellor's Future Council, and a Deputy Chair on the Commission of Experts for Research and Innovation (EFI). Federal Minister for Family Affairs Lisa


Paus appointed Professor Holger Stichnoth to serve on the Family Report Commission. Additional notable activities and appointments that led to the sharing of our expertise with government include Professor Tabea Bucher-Koenen's contributions to a focus group initiated by the Federal Ministry of Finance on private pension provisions as well as Professor Melanie Arntz's appointment to the federal government's World of Work Council.

There were numerous anniversaries to celebrate in 2023: The Mannheim Innovation Panel (MIP), which was launched three decades ago as the first pan-European innovation survey, was awarded the prestigious Schumpeter School Prize in 2023. The ZEW Sponsors' Association for Science and Practice also celebrated its 30-year jubilee. Last but not least, the Mannheim Taxation Science Campus, a joint undertaking with the University of Mannheim, celebrated its 10th anniversary. This flagship project has had an impressive impact on German tax research in recent years. We would like to close this foreword with a few remarks concerning an important leadership change. After 32 years of service, Thomas Kohl entered retirement at the end of February 2024. As Managing Director over the past twenty years, Thomas Kohl has been uniquely committed to the further development of ZEW, playing an important role in the milestones of past decades. Claudia von Schuttenbach, who took the reins in March, is ideally suited to lead ZEW in coming years, not least due to her experience as former chancellor of the Mannheim University of Applied Sciences.

We hope you enjoy reading this report.



ACHIM WAMBACH



THOMAS KOHL

# MISSION.

Independent and well-founded economic research with policy relevance – that’s what ZEW stands for. The institute’s topics are closely linked to current events. Politically and socially relevant issues such as

**DIGITALISATION**  
**EUROPEAN INTEGRATION**  
**ENERGY TRANSITION**

shape our research agenda as cross-cutting themes. As an independent research institute that is home to a broad spectrum of expertise, ZEW advises key political decision-makers while actively contributing to important public debates.

**ZEW PURSUES TWO CENTRAL GOALS WITH ITS WORK**

**POLITICALLY  
RELEVANT  
RESEARCH**

**SCIENTIFICALLY  
BASED  
POLICY ADVICE**

# ABOUT US.

The Mannheim-based ZEW – Leibniz Centre for European Economic Research is a leading German economic policy institute with a strong Europe-wide reputation and a member of the Leibniz Association.

Our aim is to conduct research for the benefit of society, focusing on application-related issues. ZEW's guiding principle is to study and help design well-performing markets and institutions in Europe. Specifically, we deal with how the framework conditions of market processes must be shaped to enable sustainable and efficient economic development of the European economies. Providing evidence-based policy advice is another key objective for ZEW. 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.

Under the leadership of President Professor Achim Wambach and Managing Director Claudia von Schuttenbach (since 1 March 2024; until 29 February 2024, Thomas Kohl was the managing director), ZEW currently employs some 200 people spread out across nine research units, five junior research groups, and two service units.

**189**

EMPLOYEES

**9**

RESEARCH  
UNITS

**5**

JUNIOR RESEARCH  
GROUPS

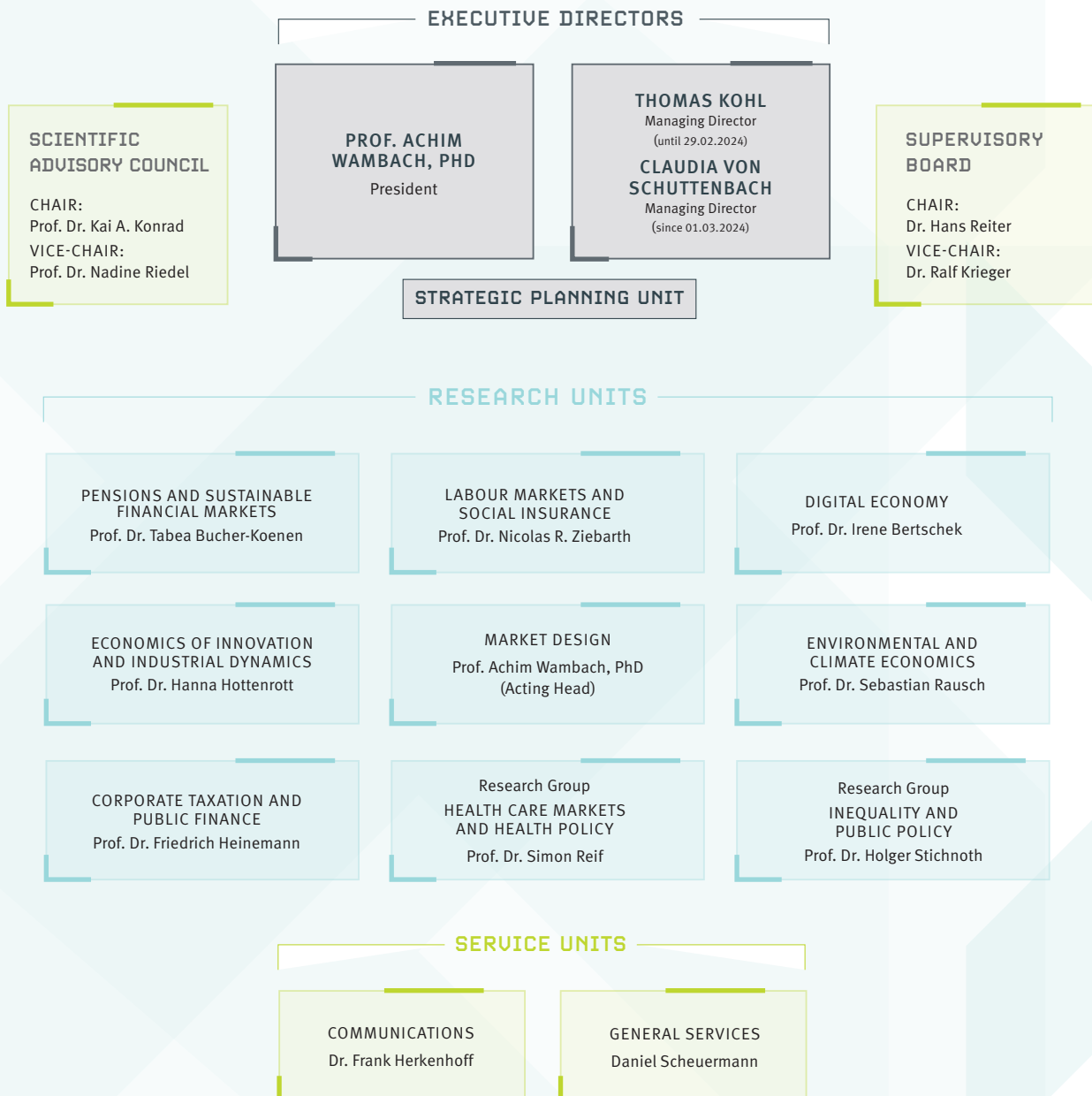
**2**

SERVICE  
UNITS



# ORGANISATION CHART.

AS OF MAY 2024



# COMMITTEES.

AS OF MAY 2024

## SUPERVISORY BOARD

### Chair

**DR. HANS REITER**  
Ministry of Science, Research and Arts  
Baden-Württemberg

### Vice-Chair

**DR. RALF KRIEGER**  
Freudenberg SE

**DR. ELGA BARTSCH**  
Federal Ministry for Economic Affairs and  
Climate Action

**HEIKO ENGLING**  
Ministry of Finance of the State of  
Baden-Württemberg

**DR. NATALIA JAEKEL**  
State Ministry of Baden-Württemberg

**MICHAEL KLEINER**  
Ministry for Economic Affairs, Labour and Tourism  
Baden-Württemberg

**PROF. DR. INGRID OTT**  
KIT – Karlsruhe Institute for Technology

**DR. INES PLOSS**  
Heidelberg Materials AG

**PROF. DR. THOMAS PUHL**  
University of Mannheim

**DR. ALBRECHT SCHÜTTE**  
MdL Baden-Württemberg

**PROF. DR. PETER WINKER**  
Giessen University

## SCIENTIFIC ADVISORY COUNCIL

### Chair

**PROF. DR. KAI A. KONRAD**  
Max Planck Institute for Tax Law and Public Finance,  
Munich

### Vice-Chair

**PROF. DR. NADINE RIEDEL**  
University of Münster

**PROF. DR. ÖZLEM BEDRE DEFOLIE**  
European University Institute (EUI), Florence, IT

**PROF. DR. JAKOB DE HAAN**  
University of Groningen, NL

**PROF. DR. OTTMAR EDENHOFER**  
Potsdam Institute for Climate Impact Research

**PROF. BERND FITZENBERGER, PHD**  
Institute for Employment Research of the  
German Federal Employment Agency, Nuremberg

**PROF. DIETMAR HARHOFF, PHD**  
Max Planck Institute for Innovation and  
Competition, Munich

**PROF. DR. AXEL OCKENFELS**  
University of Cologne

**PROF. JÖRG ROCHOLL, PHD**  
European School of Management and  
Technology (ESMT), Berlin

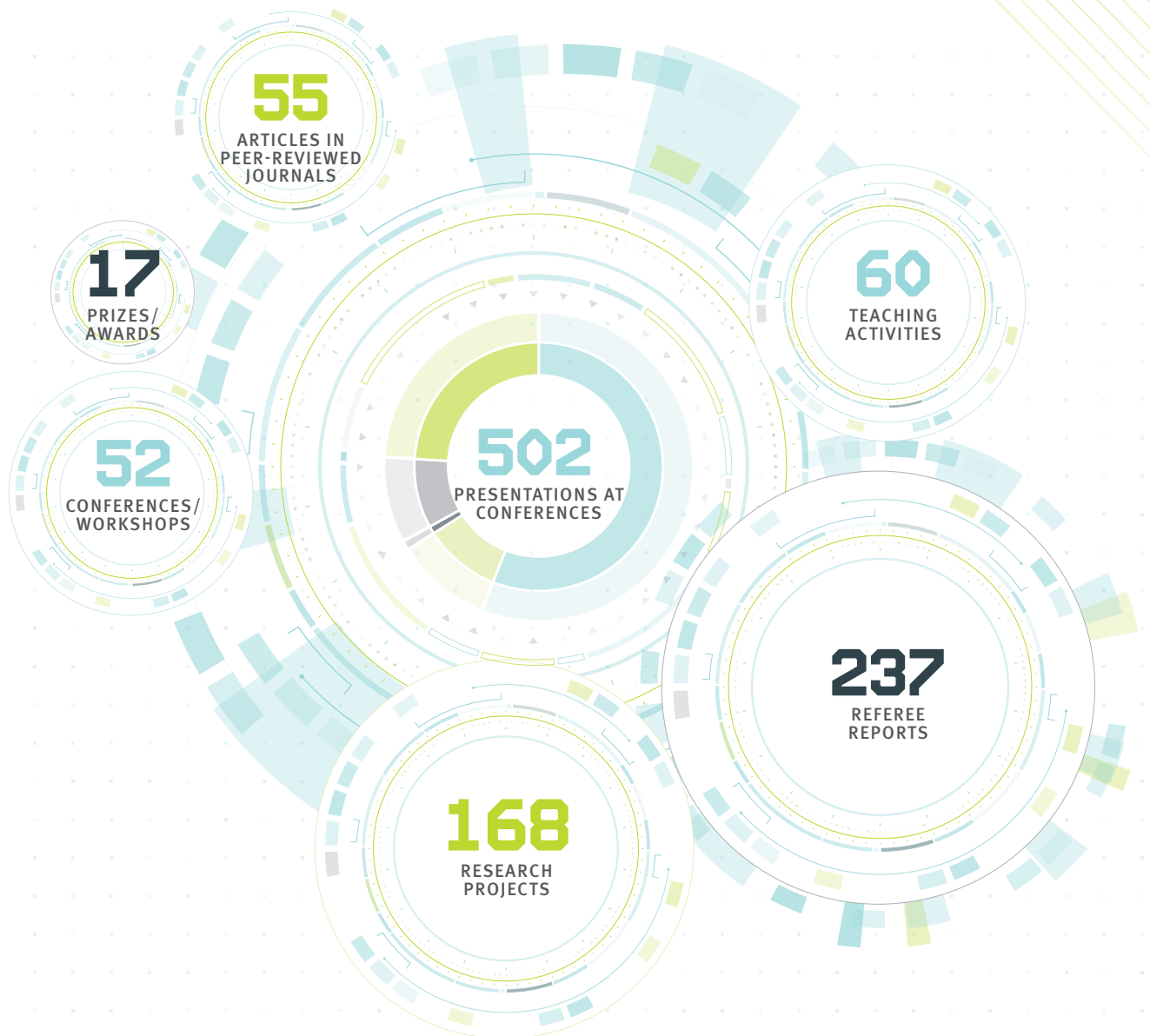
**PROF. DR. DR. H.C. MONIKA SCHNITZER**  
Ludwig Maximilian University of Munich

**PROF. DR. LEONIE SUNDMACHER**  
Technical University of Munich

**PROF. MASSIMO TAVONI, PHD**  
European Institute on Economics and the  
Environment (EIEE), Milan, IT

# 2023 IN NUMBERS.

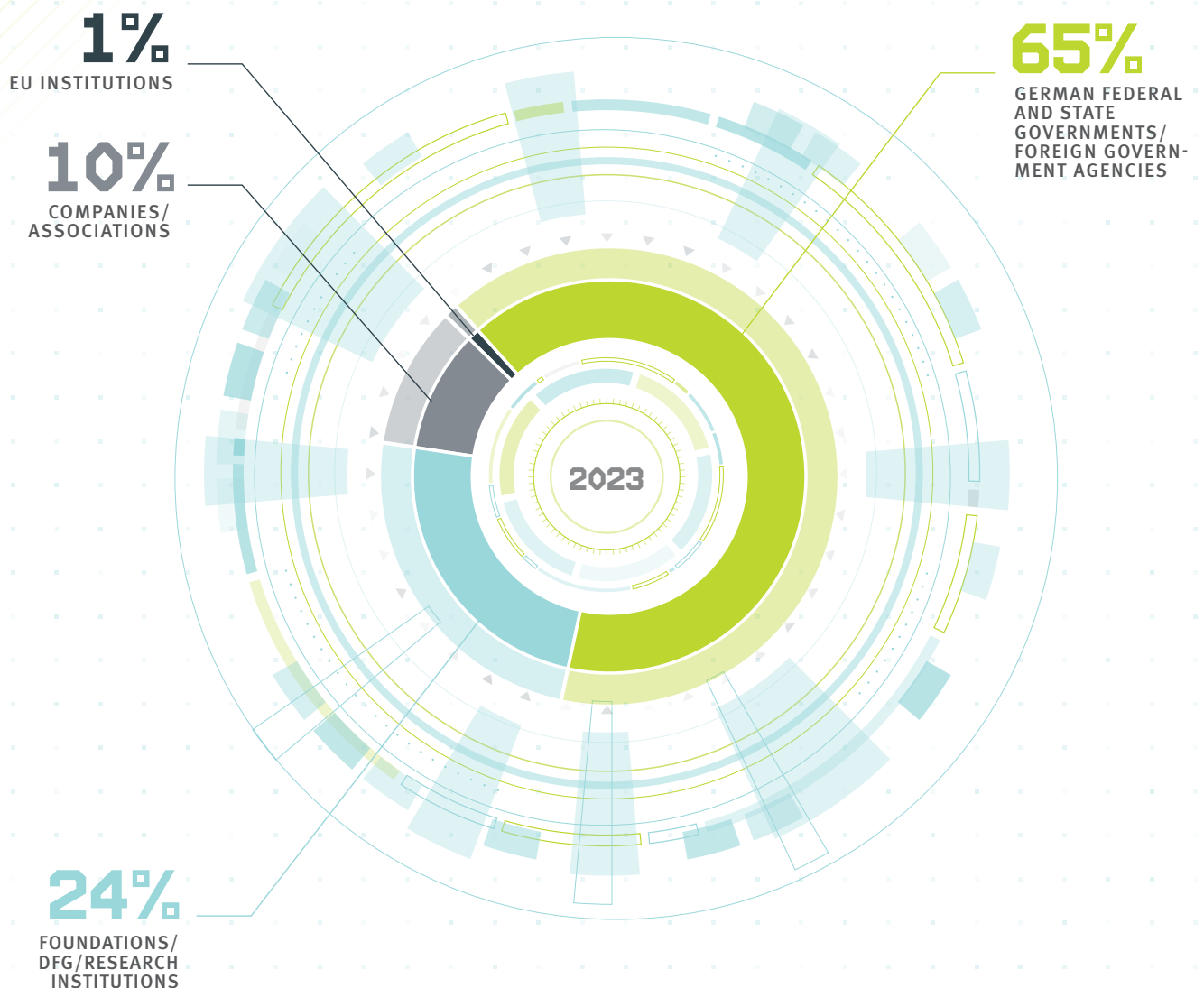
## ZEW SCIENTIFIC OUTPUT





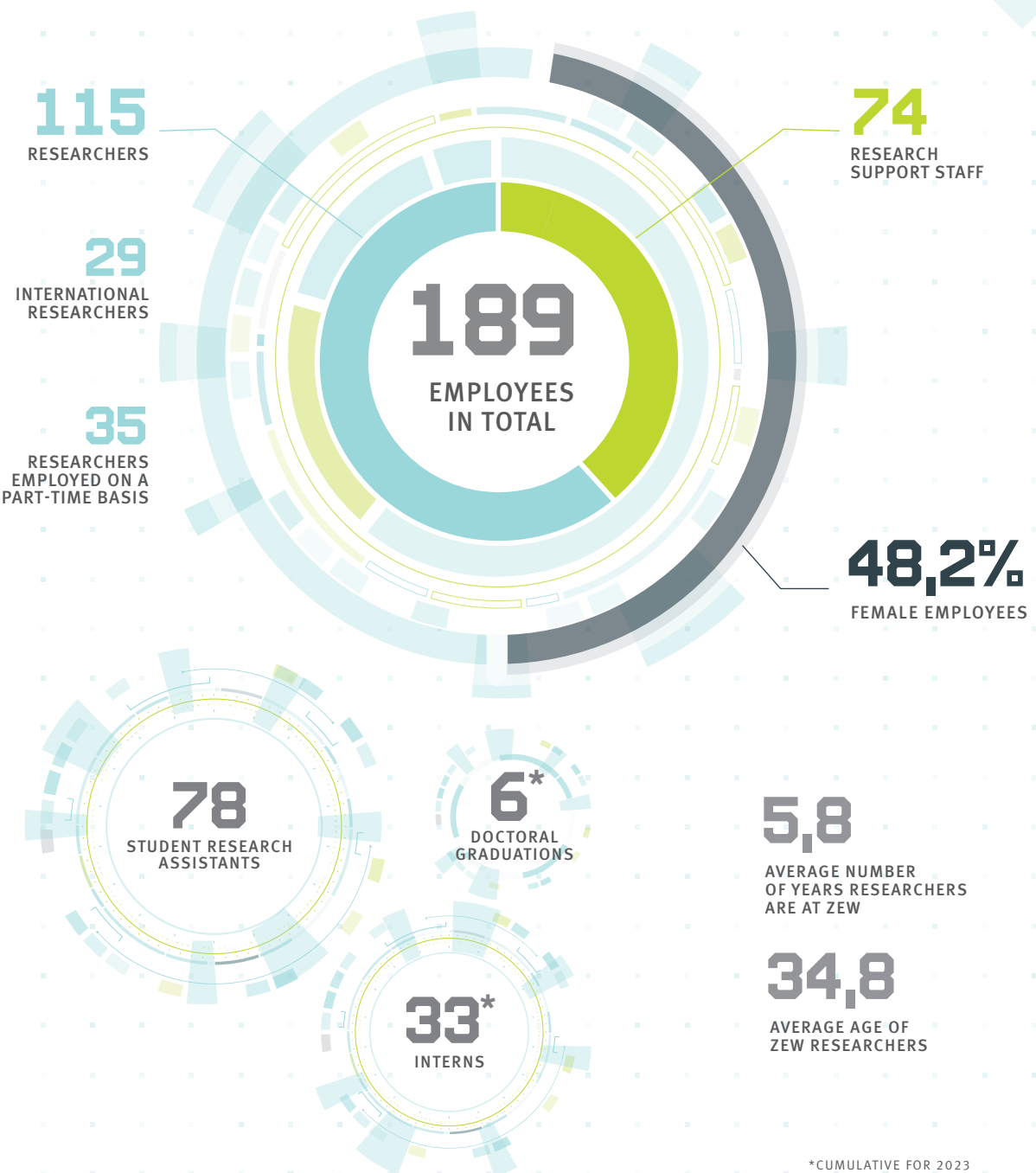
# THIRD-PARTY FUNDING IN 2023.

## SOURCES OF FUNDING



# PERSONNEL.

AS OF DECEMBER 2023



# FINANCES.

AS OF APRIL 2024

EXCERPT FROM THE PROFIT AND LOSS STATEMENT		
	2022	2023*
Institutional funds	12,624	12,872
Third-party funds (turnover, inventory changes, subsidies)	6,675	6,805
Income from the reversal of the special item for contributions to fixed assets	653	547
Other	225	292
<b>TOTAL REVENUES</b>	<b>20,177</b>	<b>20,516</b>
Staff expenditures	13,977	14,177
Third-party services	1,175	1,299
Other operating expenditures	4,754	5,068
Asset write-offs	642	539
Allocation to special items for contributions to fixed assets	237	127
Other	24	24
<b>TOTAL EXPENSES</b>	<b>20,809</b>	<b>21,234</b>
<b>PROFIT/LOSS FOR THE FINANCIAL YEAR</b>	<b>-632</b>	<b>-718</b>
Withdrawals from appropriated reserves	688	736
<b>NET INCOME</b>	<b>56</b>	<b>18</b>

## ZEW BALANCE SHEET AS OF 31 DECEMBER 2023\*

ASSETS	2022	2023*	LIABILITIES AND EQUITY	2022	2023*
Intangible assets	303	225	Share capital	26	26
Real estate and construction in process	7,496	7,295	Appropriated reserves	2,692	2,012
Equipment	491	355	Other reserves	2,169	2,169
<b>Fixed assets</b>	<b>8,290</b>	<b>7,875</b>	Net income	56	18
Stocks	3,090	2,618	<b>Shareholder's equity</b>	<b>4,943</b>	<b>4,225</b>
Receivables/ other assets	696	875	Untaxed reserves	4,015	4,245
Cash at banks	5,589	4,387	Reserves	2,180	2,004
<b>Current assets</b>	<b>9,375</b>	<b>7,880</b>	Advances received	3,323	2,597
Prepaid expenses	550	542	Liabilities to banks	2,109	1,464
<b>TOTAL</b>	<b>18,215</b>	<b>16,297</b>	Other liabilities	1,645	1,762
			<b>Outside capital</b>	<b>9,257</b>	<b>7,827</b>
			<b>TOTAL</b>	<b>18,215</b>	<b>16,297</b>

\* PRELIMINARY FIGURES IN K EUROS

# EVALUATION BY THE LEIBNIZ ASSOCIATION.

## OUTSTANDING RESULTS FOR ZEW.

The evaluation by the Leibniz Association in 2023 was an important event on ZEW's agenda – with outstanding results: The institute received top marks in terms of the quality of its research, policy advice, and transfer activities. During the evaluation visit in March 2023, the external evaluators awarded the highest rating of “excellent” to five of ZEW's eight research units, and the rating of “very good to excellent” to three, attesting to “ZEW's outstanding performance”. Furthermore, they praised the “substantial number of articles [...] published in highly visible journals” and the “unique datasets [...] made available for external use”. On the basis of this result, ZEW will continue to receive federal and state funding for the next seven years, as recommended by the Senate of the Leibniz Association on 21 November 2023, following the completion of the evaluation. The result was received with great joy at ZEW.

## EXCERPTS FROM THE STATEMENT.

“Its activities are of **high relevance for policymakers.**”



“ZEW regularly and continuously produces **important research results**, which are widely received in the scientific community both **nationally and internationally.**”



“ZEW's **transfer strategy** coherently links its research activities to policy advice and knowledge transfer and is **facilitated very effectively by the science-supporting units.**”



Read the full statement of the Leibniz Senate on ZEW Mannheim (in German only) (21.11.2023)



## ABOUT THE EVALUATION PROCEDURE.

All independent research institutions belonging to the Leibniz Association are jointly financed by the federal government and states due to their national importance and overall state-level scientific policy interest. At regular intervals, but at the latest every seven years, the federal and state governments verify whether the institutions united within the Leibniz Association still meet the requirements for joint funding.



“The evaluation also highlights the excellent research infrastructure and outstanding team spirit that have developed at ZEW over the last decades.”

**THOMAS KOHL**  
MANAGING DIRECTOR  
UNTIL 29.02.2024



“We are delighted with the top results and feel validated in our institute’s strategy. We would like to express our gratitude to the evaluators, whose suggestions we are happy to incorporate.”

**PROF. ACHIM WAMBACH, PHD**  
PRESIDENT



## ABOUT THE LEIBNIZ ASSOCIATION.

The Leibniz Association is one of the four major non-university research organisations in Germany and connects almost 100 independent research institutes that range in focus from the natural sciences, engineering, and environmental sciences to economics, spatial and social sciences and the humanities. Leibniz institutes address issues of social, economic and ecological relevance. Because of their importance for the country as a whole, the Leibniz Association Institutes are funded jointly by the German federal and state governments. The Leibniz institutes employ around 20,500 people, including 11,500 researchers. Their financial volume amounts to two billion euros. (As of 2023)



ENABLING DIALOGUE SINCE 1993

## THE ZEW SPONSORS' ASSOCIATION FOR SCIENCE AND PRACTICE CELEBRATES ITS 30TH BIRTHDAY

**The ZEW Sponsors' Association, 30 years on – a true success story.**

What began as a modest club consisting of just 14 members back in 1993 has grown into a superregional network encompassing nearly 150 members, including listed multinationals, SMEs, and prominent personalities from business, government, and academia – all of whom are committed to strengthening cutting-edge research at ZEW Mannheim. For decades, the Sponsors' Association has offered its members a forum for trusting dialogue at the intersection of research and professional practice. By enabling entrepreneurs and economists to share their divergent yet complementary perspectives, the Sponsors' Association not only furnishes actors in the private sector with evidence-based findings, but also provides researchers with valuable insights concerning practical contexts. And it has been doing so for over three decades. To celebrate this long history of success, an anniversary event was held on 4 December 2023 at ZEW.

## 30 YEARS IN FIGURES

THE SPONSORS' ASSOCIATION HAS...

**GROWN**  
FROM 14 MEMBERS  
IN 1993 TO  
145 MEMBERS  
IN 2023

**SUPPORTED**

OVER 100 EVENTS  
FEATURING NOTABLE  
SPEAKERS

**ENABLED**

CONFERMENT OF  
THE HEINZ KÖNIG YOUNG  
SCHOLAR AWARD  
17 TIMES

**PRESENTED**

ON AVERAGE OF  
2 PRIZES ANNUALLY  
FOR OUTSTANDING  
RESEARCH OR POLICY  
ADVISING AT ZEW

**FUNDED**

OVER 74 ZEW  
RESEARCH PROJECTS

1993

2023



**DR. RALPH RHEINBOLDT**

CHAIRMAN OF THE  
ZEW SPONSORS' ASSOCIATION,  
MEMBER OF THE EXECUTIVE  
BOARD OF FUCHS SE

“Thanks to the dedication of prominent personalities, over the last 30 years the association has developed into a vibrant network. It provides economists and entrepreneurs with a forum to meet as equals and exchange views – and both sides benefit from this ongoing dialogue.”



“For BW-Bank, supporting cutting-edge research at ZEW has always been a no-brainer. Our involvement pays off in many ways, as we obtain valuable insights for our work from ongoing dialogue with ZEW economists.”

**ANN-KRISTIN STETEFELD**

DEPUTY CHAIRWOMAN AND  
TREASURER OF THE SPONSORS'  
ASSOCIATION, MEMBER OF THE  
MANAGEMENT BOARD OF BW-BANK



“As a CFO and an economist by training, I particularly appreciate the open dialogue on highly relevant topics that the Sponsors' Association enables with distinguished figures from government and business.”

**KARIN DOHM**

SPONSORS' ASSOCIATION  
BOARD MEMBER, CFO OF  
HORNBACH BAUMARKT AG



**MEMBERSHIP BRINGS NUMEROUS BENEFITS.**

Please feel free to contact us.

Katharina Kober  
Phone: +49 621 1235-302  
foerderkreis@zew.de



Membership application



Additional information





A driving force at ZEW for over three decades, Thomas Kohl served as Managing Director for 24 years. He was succeeded by Claudia von Schuttenbach in March of 2024. Kohl's retirement marks the end of an era – and a transformation in its own right.



**THOMAS KOHL**

MANAGING DIRECTOR  
[until 29.02.2024]

INTERVIEW



# TRANSFORMATION AT ZEW ...

...AT THE MANAGEMENT LEVEL



QUESTIONS FOR THOMAS KOHL  
AND CLAUDIA VON SCHUTTENBACH

## HIS SUCCESS STORY CONTINUES...

**Thomas, looking back, how would you 'periodise' ZEW's history over the past 30 years?**

**Thomas Kohl:** The first phase in ZEW's history was the founding/initial growth phase, which was significantly shaped by our founding directors Heinz König and Ernst O. Schulze. ZEW entered the market of economic research institutes with an evidence-based microeconomic approach that was a unique selling proposition. As ZEW was an unknown actor in this market, the first task was to recruit qualified researchers and supporting staff, as well as to acquire and develop the physical infrastructure necessary for the institute's work. In the ensuing years, ZEW was increasingly successful in asserting itself in the competition for third-party funding and in cultivating the ZEW brand.

In 1996, ZEW moved into the current building at L7, 1, which was specially constructed for the institute. This was one important milestone in the 'stabilisation phase'. During Wolfgang Franz's long presidency, ZEW not only grew in size, but also ex-

panded its research programme. Franz was the Chairman of the German Council of Economic Experts, which opened many doors for us in Berlin and Stuttgart. ZEW's research programme also began to focus more strongly on the pan-European context. ZEW intensified its exchange with international research institutions, not least due to the SEEK research programme.

During the next phase, under the leadership of Clemens Fuest and then Achim Wambach, ZEW further strengthened its research activities. Under Wambach's tutelage, the research programme was successfully expanded to the field of market design. This provided ZEW with a new unique selling proposition, while also demonstrating the institute's willingness to embrace change. However, one thing has not changed at ZEW over the years: In our early days, we were referred to as the 'baracudas' of the research community – in other words, we were described as an agile and dangerous predatory fish. That may sound a bit martial. Yet I would contend that ZEW remains innovative, dynamic and agile – even though we have been around for over thirty years.



#### ADDENDUM

Thomas Kohl's retirement was honoured in February 2024 in a ceremony attended by some 300 guests from the domains of government, business and academia. A brief write-up of the event including pictures can be found at [www.zew.de/AM8984-1](http://www.zew.de/AM8984-1)

### What are the most important achievements or milestones of your tenure?

#### What are you particularly proud of?

**TK:** A particularly notable milestone took place in 2004. We received high marks in the evaluation conducted by the German Science and Humanities Council and were subsequently admitted to the Leibniz Association, which brought joint federal and state funding. More recently, we also received particularly high marks in the Leibniz Association's 2023 evaluation. My involvement in the founding of the Mannheim Centre for Competition and Innovation (MaCCI) and Mannheim Taxation quickly spring to mind. Initiated in cooperation with the University of Mannheim, both of these Leibniz ScienceCampi have been providing a forum for intensive dialogue at the intersection of academia, politics, and business for over ten years. What is more, they have been setting the quality benchmark for such forums! "Strengthening Efficiency and Competitiveness in the European Knowledge Economies" (SEEK) was an international programme that provided a great boost to ZEW's research on Europe. SEEK furnished us with a sustained presence in Brussels, enabling us to develop international ties to other research institutes. Our international relations were further expanded through cooperative undertakings with universities and economic research institutes in Europe, the US and China. Another achievement was last year's 30th anniversary of the ZEW Sponsors' Association. The sharing of research insights with the public and private sectors generates benefits for all participants. I am particularly proud of the broad composition of the Sponsors' Association, for it consists not only of prominent personalities in the region, but also representatives from major corporations and family-run firms.

### Looking back after so much time at ZEW, what were the biggest challenges faced by the institute?

**TK:** A perennial challenge has been to maintain the right balance between excellence in research and economic policy advising. In addition, reporting obligations and bureaucratic procedures have increased considerably in recent years. By way of example, the process for obtaining funding from institutions at the national and European levels has become more complex. Yet another issue is the intensifying competition for qualified personnel. To attract top talent, we seek to offer a wide range of career development opportunities. We have received the Total E-Quality award multiple times in recognition of our commitment to equality of opportunity. We also attach great importance to ensuring that all ZEW employees can harmoniously balance their professional and private lives. I should also mention the COVID-19 pandemic, which was an unprecedented challenge. It required rapid and robust action, not only to protect the health of our employees, but also to ensure operational continuity. We developed new hygiene strategies, reorganised workflows, and established new channels of communication. Within a brief period of time, we shifted our day-to-day activities as well as our conferences and events to virtual environments. The pandemic has brought about lasting changes to the world of work. Highly sought-after employers now invariably offer opportunities for remote work. This shift to remote work makes it all the more important to ensure effective employee onboarding, team building, and IT security.

# TRANSFORMATION AT ZEW ...

...AT THE MANAGEMENT LEVEL



QUESTIONS FOR THOMAS KOHL  
AND CLAUDIA VON SCHUTTENBACH

## ... WITH A NEW MANAGING DIRECTOR AT THE HELM

**Claudia, considering ZEW's strategy to date, what is particularly important moving forward?**

**Claudia von Schuttenbach:** We shouldn't forget to preserve the things that are going well. Yet we also need to remain open to growing in new directions. Balancing the old and new has served us well in the past – not only in research, but also in the administration of the institute. For me, constant dialogue with our various stakeholders is very important, as this accrues to everyone's benefit. I believe that we are on the right path strategically with a view to internationalisation and digitalisation. This path is also an important one.

Internationalisation is naturally important for our researchers, yet the relevance of this issue for our service units should not be overlooked. Specifically, while it is quite normal for our researchers to spend time working abroad, this is much less true of other ZEW employees. Partnerships with EU

institutions could be one solution for enabling service staff to participate in foreign exchanges.

Digitalisation is already an important topic at ZEW, yet we need to remain focused on this issue. It is not only important for our competitiveness, but can also reduce bureaucracy while making work easier our staff. I am convinced that digitalisation remains a key issue moving forward, not least given the need to stay abreast of the latest trends. Indeed, as soon as one digitalisation project is completed, the next one invariably follows.

**What differences between the university and ZEW have you noticed thus far?**

**CvS:** While there are many substantive similarities, direct comparison is difficult, primarily due to the differences in the legal form of the two organisations, and the associated effects. While both organisations are dedicated to academic pursuits, the freedom of action enjoyed in each case



# INTERVIEW

**CLAUDIA  
VON SCHUTTENBACH**

MANAGING DIRECTOR  
[since 01.03.2024]





# TRANSFORMATION AM ZEW ...

is quite divergent. I benefit every day from the knowledge and experience I gained during my time at the Hochschule Mannheim – University of Applied Sciences. At the same time, I am pleased to see how swiftly and efficiently new ideas can be implemented at ZEW. The results of one's efforts are quickly manifest, and that is very motivating. ZEW is a very agile institution, meaning that room for manoeuvre can be harnessed with an entrepreneurial spirit. If one idea doesn't work, we can come up with something new and try that. Of course, before taking action, we coordinate internally, yet we can do this faster and with fewer actors and iterative loops than a university can afford.

## **What role does investment in new technologies play for ZEW, particularly with a view to digitalisation and the New Work concept?**

**CvS:** In the European research landscape, ZEW performs at a very high level, both in terms of its research output and evidence-based economic policy advising. We have frequently demonstrated that we have good ideas and can implement them sustainably – as shown, for example, by the Mannheim Taxation Science Campus, or the Market Design research unit. Digitalisation and the New Work concept are important touchstones that inform our ideas and approach to the world of work. It is important to remain nationally and internationally competitive and flexibly adapt to new trends, yet we also strive to offer our researchers the best possible

working conditions. Against this backdrop, I consider the dialogue with the companies in our Sponsors' Association to be very important and enriching.

## **Germany is often said to be suffering from a shortage of skilled workers, yet one does not immediately think of this as a problem faced by research institutes. What does the skilled labour shortage mean for ZEW?**

**CvS:** To attract the best researchers, having a good reputation and conducting high-calibre research are not always enough. The brightest minds become aware of ZEW for various reasons, including our good reputation and the high marks we have received in past independent evaluations. Ultimately, however, the precise strengths of our research programme may not be enough to attract top talent. That's why we have to keep working on ourselves: How can we improve the flexibility of working arrangements in line with the needs of our researchers? Can working environments be made more collaborative? Can we become even more family-friendly? How can we optimise the onboarding of new international researchers? These and many other questions are sure to occupy our attention in the future. In the end, our attractiveness will depend on the "overall package" we can offer. This makes it important to openly discuss preferences with prospective hires while also remaining flexible.





**SARAH TIEDEMANN**  
LANGUAGE AND  
EDITING OFFICER,  
COMMUNICATIONS UNIT

# TRANSFORMATION AT ZEW ...

... IN LANGUAGE MANAGEMENT



## THE PROSPECTS AND PITFALLS OF AI.

Effective language management is extremely important to me as ZEW's Language and Editing Officer, for our reputation and image as an institute depend not just on excellence in research, but also on the clarity and precision of our written communications. This, in turn, necessitates consistent publication standards, unified terminology and strict quality assurance. I provide for the translation and proofreading of some 300 texts each year, including studies, press releases and web content.

AI-based large language models and machine translation tools have made rapid advancements in recent years. Like many organisations, we have been increasingly integrating such “language assistants” into the translation process. To be sure, machines can now outperform humans in many areas. But is language one of them? While AI-based machine translation tools have improved considerably, especially when it comes to natural sentence flow and proper grammar, precisely these strengths can make it difficult to recognise substantive and terminological errors. These factors can make the post-editing of a machine-translated text just as time-consuming as unassisted translation from scratch. Human expertise and an understanding of how AI systems work are therefore essential. Indeed, in view of the pitfalls that continue to pervade machine translation, care and caution are required to tap the efficiency potential of AI, without sacrificing quality or precision.



# TRANSFORMATION AT ZEW ...

... IN THE ZEW FINANCIAL MARKET SURVEY



## ZEW INDICATOR OF ECONOMIC SENTIMENT OVER TIME.

The German economy has been struggling for a while now: the path out of the recession is unclear, while at the same time it is facing a huge transformation with the energy transition and digitalisation. In order to take smart measures, policymakers need reliable assessments of the current and future economic situation. To this end, we run a monthly survey, the Financial Market Survey, among experts and ask them about their beliefs regarding the economic situation and outlook for Germany and Europe – and have done so since 1991. Over the years, the ZEW Index has established itself as an important indicator of macroeconomic and monetary policy developments at national and international level.

Recently, there has also been something of a “transformation” in our team: while Dr. Michael Schröder, an experienced member, entered his well-deserved retirement last year, new members Dr. Lora Pavlova and Dr. Alexander Glas have joined. However, a lot has changed not only in terms of personnel, but also in terms of content. In addition to revamping and digitalising our questionnaire, the data set is now made available via the ZEW Research Data Centre. In addition, a description of the dataset has been published in the journal *Jahrbücher für Nationalökonomie und Statistik*. Our aim for the future is to continue to improve both the public awareness and the academic impact of the survey.



### ZEW INDICATOR OF ECONOMIC SENTIMENT

Monthly survey of around 300 financial market experts since 1991; the indicator based on this survey, the ZEW Indicator of Economic Sentiment, regularly attracts considerable media attention.





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**MIRIAM CHARLES**  
HUMAN RESOURCES  
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**KATARZYNA STRZELCZYK**  
HUMAN RESOURCES MANAGER

# TRANSFORMATION AT ZEW ...

... IN HUMAN RESOURCES

## INNOVATIVE HR MANAGEMENT.

The labour market is changing drastically: the shortage of skilled personnel is intensifying the competition for the best minds, also in science. What's more, Generation Z is entering the job market. For them, work-life balance, professional recognition and flexible working conditions are basic job requirements.

At ZEW, we are seeing these job market changes not only from a scientific point of view, but also through the lens of human resources. In light of these transformational changes, our HR team is constantly refining the recruiting process. Active sourcing and a targeted recruitment strategy attract the attention of talented applicants. At the same time, we employ innovative interviewing methods to ensure that candidates are a good fit for our team.

We respond to applicants' changing demands by offering long-term retention programmes to new employees as well as a culture of open feedback. As early as the onboarding process, we take individual needs into account – for example, by supporting international staff in any necessary bureaucratic processes. Flexible hours, customised work schedules, remote work – this is just the beginning of what we offer to promote a good work-life balance for our staff. Employees are able to progress professionally with the help of our tailored in-house trainings. And our lively alumni network allows former employees to keep in contact with us, which in turn benefits current ZEW employees.



# TRANSFORMATION AT ZEW ...

... IN RESEARCH

## HARNESSING CHATGPT AS A RESEARCH ASSISTANT.

The use of AI-driven large language models (LLMs) in science is controversial, in part because LLMs generate predictable and likeable responses based on statistical averages. However, critics assert that scientific progress is based on questioning the status quo, rather than merely reproducing information in a pleasing way. While this is true, the issue is not whether LLMs will replace researchers in asking the right questions. Rather, the issue is how LLMs can support our work. In this regard, ChatGPT has proven to be a reliable (and cost-effective) research assistant. To provide one example: ChatGPT helped us to quantify the results of thousands of studies concerned with the effectiveness of EU cohesion policy. This analysis is helping EU institutions and Member States to conduct their evaluations with greater efficiency. Our AI-supported research contributes more objective evaluations of European investment measures. More generally, we harness our findings to help governments that wish to implement evidence-based measures.



### PROJECT

“Reorientation of European structural policy in the next funding period 2028–2035”

[www.zew.de/PJ3562-1](http://www.zew.de/PJ3562-1)



**DR. ZAREH ASATRYAN**  
DEPUTY HEAD,  
"CORPORATE TAXATION AND  
PUBLIC FINANCE" UNIT







FOCUS ON

# TRANSFORMATION



GUEST ARTICLE IN ECONOMIC NEWSPAPER HANDELSBLATT  
ON 27 SEPTEMBER 2023 BY PROF. ACHIM WAMBACH, PHD

## GERMANY NEEDS TO RAMP UP ITS PRODUCTIVITY

**Our economy is more robust than it is often given credit for. But to bolster potential in the long run, Berlin needs to promote more research and innovation, warns Achim Wambach.**

The bad news about Germany's economy is piling up: an economic slump, clumsy efforts at transformation, increased energy prices and sluggish globalisation. But the actual task goes beyond the scope of short-term developments.

*The Economist* has already begun to wonder if Germany is once again the "sick man of Europe". Nonsense. The foundations of the German economy are robust: unemployment is low; according to a survey by EY, the majority of investors count Germany as one of the top three locations in Europe, while only a minority did so in 2022. For the most part, international business executives consider the qualification level of the German workforce to be attractive.

However, we must take the bad reports seriously as well. Germany's economic situation is falling behind compared to the rest of Europe. According to a survey from the German Association for Small and Medium-Sized Businesses (BVMW), one in five SMEs has considered moving operations outside of Germany, while one in four has contemplated giving up their business entirely. Foreign direct investments in Germany are at their lowest point since 2014.

Politicians are taking action. The German government has drafted a ten-point plan to strengthen the economy and promote growth. The strategy is going in the right direction. The plan doesn't so much address the short-term economic stimulus measures as it considers it "decisive for Germany as a business location (...) to improve its competitive position and raise productivity." In the style of Bill Clinton's famous election slogan "It's the economy, stupid", which focused more on the daily figures, here instead "It's the productivity, stupid."

**INNOVATION  
CAPACITY IN  
GERMANY IS  
VERY HIGH.**



A simple calculation explains why: consider two countries that begin at the same level, one of which with an economic growth rate of one per cent, the other at three per cent. After 15 years, their respective economic outputs are 30 percentage points apart from one another, with the gap growing to 80 per cent after 30 years.

Productivity growth is realised through innovation. In Germany, the conditions for this are very good. Just recently, a study from various institutes including the German Economic Institute (IW) evaluated different regions on their innovation capacity. Baden-Württemberg ranked third, following Massachusetts and California, while Bavaria and Hesse reached seventh and ninth places, respectively. According to the German Innovation Indicator 2023, which ZEW was involved in compiling, Germany ranks tenth overall in a comparison of 35 other industrial nations and emerging countries. In both “New Productivity Technologies” and “Circular Economies”, Germany comes in at second place.

The government’s ten-point plan includes a number of sensible measures. However, speeding up planning and approval procedures, reducing bureaucracy and promoting digitalisation have long been on the agenda in Berlin. Making implementation a higher priority would be desirable. Other measures fall short: the Growth Opportunities Act provides tax relief for companies, which is necessary. Germany is now considered a high-tax country when it comes to corporate taxation.

But why not be consistent and reduce taxes? The choice of which countries to invest in is very precisely determined by internationally active companies in particular. Temporary improvements do not affect this calculation.

The criticism of short-term-oriented attitudes also applies to the discussion on the subsidisation of industrial electricity prices. It is currently being considered whether energy-intensive companies should be allowed to benefit from reduced electricity prices for a limited period. It is unlikely that new investments will be made if electricity is only discounted for a few years. However, a permanent electricity price subsidy, which some may hope for from this measure, will result in otherwise non-viable companies remaining in business. Productivity can’t take any more damage – people would be noticeably better and more productive elsewhere. The discussion on “zombie companies” sends its regards.

The decarbonisation of industry is to be made possible through so-called climate protection agreements, which promotes (green) production in the process. However, to ensure that these industries remain competitive in the long term, it would be more expedient to focus funding more strongly on research and development. This would also enable future productivity growth.

The decisive factor for Germany as a business location is whether it succeeds in enabling productivity growth across the economy in the long term. For this to happen, a good location policy and a consistent focus of funding on research and innovation are essential.



**BERLIN  
SHOULD LOWER  
CORPORATE  
TAXES.**

TRANSFORMATION

PEOPLE



THE EU AI ACT

# AI ACT SHOULD CONSIDER HUMAN ERRORS

ZEW POLICY BRIEF BY JOHANNES WALTER

The EU's AI Act marks a global milestone as the first law on artificial intelligence by a major regulator. It aims to ensure the safety of AI systems, such as those used in CV scanning or medical decision-making. However, relying on human oversight of AI systems can be risky. In anticipation of the agreement on the AI Act on 8 December 2023, ZEW researchers explored the merits and drawbacks of human supervision and proposed solutions in a policy brief.

Growing empirical evidence suggests that human oversight may not always be dependable. In many instances, humans struggle to accurately assess the quality of algorithmic recommendations, limiting their ability to prevent harmful behaviour. Therefore, it is imperative that the AI Act acknowledge the limitations of human decision-making. The inclusion of empirical tests in the AI Act to evaluate the feasibility and efficacy of human oversight is crucial. These tests should ascertain whether humans can effectively evaluate algorithmic recommendations and intervene when necessary. Such tests could involve comparing the actual outcomes under human supervision with hypothetical outcomes in the absence of human intervention.

Should these tests prove feasible and effective, they can be used to assist human supervisors in assessing and, if required, correcting algorithmic decisions. However, if empirical evidence indicates that human oversight does not enhance the safety of AI systems and may even introduce risks, the AI Act should forego mandatory human supervision. In such cases, the AI Act should include provisions to restrict or eliminate human oversight altogether.



ZEW POLICY BRIEF

“Human Oversight Done Right: The AI Act Should Use Humans to Monitor AI Only When Effective”

[www.zew.de/PU83961-1](http://www.zew.de/PU83961-1)



# PROACTIVE IMMIGRATION POLICY NEEDED

ZEW POLICY BRIEF BY DR. PAUL BERBÉE AND PROF. JAN STUHLER, PHD

**Since the first recruitment of foreign workers almost 70 years ago, Germany has become the world's second most important destination for international migrants. Despite this fact, there has been a long-standing reluctance among policymakers and in public discourse to acknowledge Germany's status as an immigration country. Yet, a proactive integration and immigration policy is more important than ever.**

For over 50 years, migrants have become an integral part of Germany's economy and society. Most migrants have been successful in the job market and make indispensable contributions. However, the integration into the labour market is a lengthy process, which has become even more challenging since the 1970s. In particular, Ukrainian individuals who sought refuge in 2022 have notably better employment prospects, thanks to their strong educational background, compared to earlier refugee groups who arrived in Germany during the Yugoslav wars or around 2015. However, in order to truly harness this potential, it is crucial to have enabling factors in place, such as access to childcare and flexible work arrangements, especially since a significant portion of these individuals are women with children. However, also other migrant groups continue to be disproportionately affected by economic changes and unemployment, even after many years in the host country. On average, they exhibit lower employment rates and earn less than native-born individuals, with their children unable to fully overcome these disparities. There are, however, significant differences between the individual immigration groups. While EU citizens often find work and, in some cases, earn higher wages than the native population, those from non-European countries with a high proportion of refugees face particular challenges. Even children of immigrants who have gone through the German education system continue to face disadvantages. Therefore, it is vital to strengthen forward-thinking, long-term immigration and social policies that address the specific challenges faced by different groups of immigrants.



## ZEW POLICY BRIEF

“Die Arbeitsmarktintegration von Migranten in Deutschland: Erfahrungen aus über 50 Jahren als Einwanderungsland”  
(in German only)

[www.zew.de/PU84136-1](http://www.zew.de/PU84136-1)

REMOTE WORK IN THE NEW NORMAL

# MORE REMOTE WORK AFTER THE PANDEMIC

ZEW STUDY BY DR. DANIEL ERDSIEK AND VINCENT ROST

**Working from home has become a lasting fixture in German firms. Around 80 per cent of firms in the information economy have their employees working from home at least once a week. Even within the more location-bound manufacturing industry, this number stands at 45 per cent, as a representative survey conducted by ZEW among approximately 1,500 firms shows.**

The coronavirus pandemic paved the way for far-reaching remote work regulations. Compared to before the pandemic, the proportion of employees who work from home at least part of the time has roughly doubled. In the information economy, this proportion has surged from 48 to 83 per cent, and in manufacturing from 24 to 51 per cent. However, not only has the share of firms offering work-from-home arrangements grown significantly, but there has also been a notable uptick in the number of employees who are actively embracing these offers. Presently, in about every second firm within the information economy, over 20 per cent of employees work from home at least once a week. Only in June 2021 – shortly after the end of the second COVID-19 lockdown – did the share of firms exhibiting such intensive remote work usage slightly surpass this (63 per cent). By comparison, before the pandemic, this share was merely twelve per cent of firms.

This trend is unlikely to change any time soon: As the prevalence of working from home in June 2023 shows, the trend towards remote working prompted by the pandemic will continue unabated. Moreover, firms anticipate an expansion of work-from-home offers over the next two years, rather than a decline in the share of employees using those offers.

For instance, 35 per cent of firms in the information economy already facilitating work-from-home setups expect an increase in remote work usage over the next two years. Among these firms, the majority (25 per cent) anticipate that up to ten per cent of their employees will additionally work from home. In the manufacturing industry, 43 per cent of firms presently embracing work-from-home options also plan to expand their remote working options.



## STUDY

ZEW Business Survey  
in the Information  
Economy, Q2/2023  
(in German only)

[www.zew.de/PU84235-1](http://www.zew.de/PU84235-1)

TRANSFORMATION

MARKET



# BACK TO 19 PER CENT

ZEW EXPERT BRIEF BY PROF. DR. FRIEDRICH HEINEMANN,  
DR. KATHARINA NICOLAY AND DR. DANIELA STEINBRENNER

**During the coronavirus pandemic, the value added tax (VAT) rate for the restaurant sector was temporarily reduced from 19 to seven per cent. An analysis by ZEW shows that the return to 19 per cent by the government coalition is economically sensible and socially just. With the transition to 2024, the VAT rate in the restaurant sector went back up to 19 per cent.**

The arguments put forth by the restaurant sector for the indefinite extension of the reduced VAT rate were not convincing. With the end of the pandemic, the original crisis-related justification for the seven per cent taxation of food in restaurants is no longer applicable. After the pandemic, many industries were forced to undergo structural changes. The restaurant sector argued that the subsidy was necessary to address issues such as labour shortages. However, labour shortages affect the entire German economy and all sectors. It is hard to understand why, for example, the labour shortage in the restaurant sector should be a more serious problem for the German economy than in the skilled trades or in retail. To address labour shortages for all sectors, better education policies, a targeted migration policy and work incentives in the tax and transfer system are needed. Overall, the restaurant sector has to become more attractive for clients and employees to have a good long-term perspective. A transformation is required.

Since the tax concession disproportionately favours wealthy and childless households, the argument that the reduced VAT rate allows poorer households better access to gastronomic offers is not valid. Only tax reductions for food service in schools and kindergartens could be considered targeted aid for poorer households. This is where policymakers should take corrective action.



ZEW EXPERT BRIEF

“Die ermäßigte Mehrwertsteuer in der Gastronomie”  
(in German only)

[www.zew.de/PU84297-1](http://www.zew.de/PU84297-1)

## GREEN BONDS

# DOES THE EU NEED ANOTHER GREEN BOND STANDARD?

ZEW POLICY BRIEF BY DR. FRANK BRÜCKBAUER, THIBAUT CÉZANNE,  
DR. KAROLIN KIRSCHENMANN AND DR. MICHAEL SCHRÖDER

**The new European Green Bond Standard (EU GBS) aims to improve the effectiveness, transparency, comparability and credibility of the green bond market in the EU. At the same time, there are already several established market-based solutions. Green bond issuers can choose to follow the principles of the International Capital Market Association (ICMA), apply for certification by the Climate Bonds Initiative (CBI) or commission a rating agency to assess the properties of the green bond in the form of a second party opinion (SPO). So, is the EU GBS really necessary?**

Against this backdrop, ZEW researchers have analysed data on green bond issuances in the EU between 2014 and 2023. They find that existing standards for green bonds, especially the ICMA principles, and verification mechanisms such as SPOs are widely used and accepted by market participants. At the same time, these existing standards and verification mechanisms provide green bonds with the necessary credibility so that investors with green preferences are willing to forgo some financial return in exchange for the expected green impact of their investment.

What does this mean for the EU GBS? Especially the ICMA label, which is based on the EU Taxonomy and verified by an SPO, is comparable to the EU GBS. Since the ICMA label is well accepted, the researchers doubt that the introduction of the EU GBS will be of great significance to market participants. However, from a political perspective, the EU Green Bond Standard makes sense in order to base all financial market regulations for the green transition on the EU Taxonomy. Moreover, the EU GBS can directly align regulatory and policy measures as they are decided by the same institutions.



ZEW POLICY BRIEF

“Does the European Union  
Need Another Green Bond  
Standard?”

[www.zew.de/PU84311-1](http://www.zew.de/PU84311-1)

BUSINESSES IN CRISIS MODE

# SMES UNDER PRESSURE

FIRST-HAND INFORMATION ON ECONOMIC POLICY IN STUTTGART

**Skills shortages, the Supply Chain Act, and climate neutrality goals are putting pressure on small and medium-sized enterprises (SMEs) in Germany. This topic was the focus of a discussion between ZEW President Professor Achim Wambach with Dr. Nicole Hoffmeister-Kraut, Minister of Economic Affairs of Baden-Württemberg, and affected companies.**



ARTICLE  
[www.zew.de/AM8702-1](http://www.zew.de/AM8702-1)

The debate on the transformation of the German economy took place as part of the ZEW event series “First-Hand Information on Economic Policy” on 27 June 2023 at BW-Bank in Stuttgart. In the business location ranking by the Foundation for Family Businesses, Germany has slipped down to 18th place out of 21. Dr. Klaus Geißdörfer (CEO of EBM Papst) and Dr. Gitte Neubauer (Vice President Omics Sciences at Cellzome) confirmed that, from a company perspective, the attractiveness of Germany for businesses has decreased. They particularly named excessive bureaucracy and data protection regulations that are hostile to innovation as factors that have hindered necessary investments. It is important to maintain international competitiveness and to do all that is necessary to avoid the exodus of key industries.

Minister Hoffmeister-Kraut spoke of a technical recession. She pointed out that Germany is experiencing a gradual decline in its core industrial sector. While these problems are recognised, they now need to be addressed. In her view, companies should be supported by the government in managing the transformation to become more resilient to crises. Despite all the negative trends and developments, Achim Wambach also noted positive dynamics: He does not see any signs of deglobalisation on the horizon. Germany’s dependency on Russia and China could be reduced in the long run without suffering any loss of prosperity. According to him, diversification is the name of the game. He made it clear that Germany has potential for more economic growth. However, this potential is not being fully exploited.

TRANSFORMATION

ENERGY



# DIGITALISATION INCREASES ELECTRICITY CONSUMPTION

ZEW STUDY BY DR. JANNA AXENBECK

The digital transformation raises high hopes for ICT-based climate action measures and improved energy efficiency in production. New digital technologies, such as smart sensors and further developments in data analysis, make it possible to use energy and resources more efficiently, thus reducing emissions. However, the connection between emissions savings and digitalisation is not as clear-cut as it is often made out to be.

The manufacturing industry is considered a particularly large emitter of greenhouse gases. Policymakers hope that digitalisation will increase productivity in this sector, while at the same time reducing energy consumption and emissions. However, contrary to previous assumptions, digital technologies appear to increase rather than lower companies' energy consumption. On average, energy consumption in companies with increased use of ICT grew by 1.03 per cent within one year. A separate analysis of electricity and fossil fuel consumption (excluding use for electricity production) showed an even more pronounced increase in electricity consumption of 1.34 per cent within one year. For fossil fuels, however, no significant effect can be observed. The results thus suggest that the overall rise in energy consumption is due to an increase in electricity consumption, which makes sense since digital technologies run on electricity.

Furthermore, the ZEW analysis shows that on average there is a greater increase in electricity consumption in small and medium-sized enterprises (SMEs) in economically underdeveloped regions compared to large companies in economically stronger regions. This result points to a political conflict of interest, namely between reducing energy consumption on the one hand and providing economic support to SMEs in structurally weak regions on the other. For the study, the researchers analysed data from more than 28,700 German companies from 2009 to 2017.



## STUDY

“What Drives the Relationship between Digitalization and Industrial Energy Demand? – Exploring Firm-Level Heterogeneity”

[www.zew.de/PU83816-1](http://www.zew.de/PU83816-1)

SUBSIDISATION OF THE ELECTRICITY PRICE

# SUBSIDY SLOWS DOWN TRANSFORMATION

ZEW POLICY BRIEF BY PROF. DR. KATHRINE VON GRAEVENITZ  
AND ELISA ROTTNER

**A broad subsidisation of industrial electricity prices, as with the German “Brückenstrompreis”, reduces the incentive to save energy, makes innovations less attractive, and jeopardises the transformation of the German economy towards carbon-neutral production. Furthermore, there is no evidence that higher electricity prices have harmed competitiveness.**

As an analysis of the Special Equalization Scheme (BesAR) shows, lower electricity prices reduce the incentive to save electricity. Businesses that were exempt from the EEG levy saved less electricity compared to non-exempt businesses. If Germany wants to achieve carbon neutrality, it must consider the future viability of energy-intensive industries. After all, Germany will only be able to generate a limited amount of electricity on its own in the future. At the same time, electricity is needed across the board: for electric vehicles, heat pumps, and the electrification of the industry. Energy-intensive sectors such as glass, paper, chemicals, and steel account for more than two-thirds of the total energy consumption in the manufacturing industry. Despite emissions trading and the EEG levy, from which some businesses were exempt, these sectors have actually increased their energy consumption in recent years up until 2017, rather than reducing it.

From a scientific perspective, there is no evidence of electricity prices having a negative impact on the international competitiveness of German industrial companies. For most businesses, the share of energy costs to revenue is well below five per cent. Energy costs are not the primary determinant of competitiveness for the majority of companies. Other location-specific factors such as skilled workforce, robust infrastructure, political stability, and access to the domestic market are more relevant for international competitiveness.

Across all sectors, there will be a considerable surge in electricity consumption. To meet this demand, it is crucial to have strong incentives for energy efficiency in place. Discounted industrial electricity prices pose a challenge as they can undermine these incentives for improved energy efficiency.



ZEW POLICY BRIEF

“Brückenstrompreis:  
Fehler aus der Vergangen-  
heit fortführen?”  
(in German only)

[www.zew.de/PU84108-1](http://www.zew.de/PU84108-1)

# MORE TARGETED SUBSIDIES

ZEW POLICY BRIEF BY ATABEK ATAYEV, PHD, GIAN CASPARI, PHD,  
PROF. DR. ADRIAN HILLENBRAND AND PROF. DR. THILO KLEIN

**While subsidies help boost the sale of eco-friendly products, they are often given out in an untargeted way. This often benefits those who do not need subsidies and excludes those who genuinely do. This can be remedied by exploiting the impatience of financially stronger buyers.**

Granting subsidies on a ‘first come, first served’ basis is simple, but not particularly efficient. This approach leaves some consumers who cannot afford the product without financial support empty-handed, while consumers who would buy the product anyway benefit from the subsidy, even if they do not actually need it. This leads to fewer eco-friendly products such as cargo bikes or e-bikes hitting the streets. A solution would be to introduce prior checks to distribute the subsidies more fairly. However, this would increase the administrative burden and costs.

To allocate subsidies more efficiently, financially stronger buyers could be deterred by introducing a wait time between application and receipt of the subsidy. This may seem strange, but the idea is to count on the impatience of financially stronger consumers who are more likely to buy the product immediately without subsidy. Those who genuinely require the subsidy are more willing to wait, as the alternative is to forego the purchase altogether. Overall, this strategy would result in more purchases of cargo bikes.

However, the challenge is to determine the ideal wait time. It must be long enough to encourage the impatient to buy the product without a subsidy, but must not deter those who are dependent on it. The researchers propose a market design solution in the form of a waiting time auction, where interested persons name the maximum amount of time they are willing to wait. The ‘time bids’ are then evaluated and the subsidies are given to the most patient consumers. This is more efficient, as only those who need the subsidy receive it.



ZEW POLICY BRIEF

“Tapping into People’s  
Impatience for Better Environmental Subsidies”

[www.zew.de/PU84148-1](http://www.zew.de/PU84148-1)







RESEARCH AND POLICY ADVICE

# RESEARCH UNITS







RESEARCH UNITS

# PENSIONS AND SUSTAINABLE FINANCIAL MARKETS

# PENSIONS AND SUSTAINABLE FINANCIAL MARKETS

## HEAD

Prof. Dr. Tabea Bucher-Koenen

## DEPUTY HEAD

Dr. Karolin Kirschenmann

## RESEARCH AREAS

- Savings and old-age provision
- Financial literacy
- Financial situation of households during the COVID-19 crisis
- Expectation formation in financial markets
- Bank lending and its impact on the real economy





## FINANCIAL EDUCATION: YOUTHS DEVELOP INNOVATIVE CONCEPTS WITH RESEARCHERS

- School teams worked with researchers to develop financial education strategies for young people.
- The proposal for a financial education app received the Best Scientific Analysis Award in the YES! competition.

As part of the Young Economic Solutions (YES!) competition – one of Germany’s largest school competitions dedicated to addressing economic and societal challenges – researchers at ZEW and the University of Mannheim supervised two school teams. Both teams investigated solutions to improve the financial literacy of young people. At the national finals, the proposal submitted by St. Michael’s Gymnasium in Schwäbisch Hall for a “CashCoach” app received the Best Scientific Analysis award.

Empirical surveys show clear differences in financial literacy across the population, differences that are already evident in adolescence. Young people are faced with many financial decisions as they become independent from their parents. This makes the appropriate handling of money matters extremely important for young people. Numerous studies have demonstrated that financial education improves knowledge. In March 2023, the Federal Ministry of Finance and the Federal Ministry of Education and Research presented a Financial Literacy Initiative, which foresees the development of a national financial education strategy. The proposed app is an innovative solution for promoting financial literacy, as it ‘gamifies’ the education process. The project aims to promote financial skills in a fun way, with various learning modules, interactive quizzes and competitions. The app thus harnesses the pedagogical approach of game-based learning by means of a digital tool. The latest research shows that game-based learning can increase the motivation of learners and that positive emotions during the learning process help to solidify content over the long term. While the app would be suitable for learning in the classroom, it would also be made available to the general public.



### PUBLICATION

“Attraktive Finanzbildung  
für junge Menschen mit  
CashCoach”

[www.zew.de/PU84452-1](http://www.zew.de/PU84452-1)



## WHICH ASSET CLASSES PROTECT AGAINST INFLATION?

□ Financial market experts assessed the attractiveness of various asset classes.

After years of stable inflation that tended to be too low rather than too high, the eurozone saw sharp increases in inflation rates between 2021 and 2023, and there was widespread uncertainty concerning how high inflation would go. This departure from an environment of low inflation meant that financial market actors suddenly had a new factor to consider. Are stocks or real estate a better hedge against inflationary trends? And when does it make sense to invest in bonds? Since the second quarter of 2021, the ZEW Financial Market Survey has been asking experts regarding the attractiveness of diversified portfolios of investments in eurozone stocks, bonds, and real estate given a time horizon of six months. These experts were also asked how various factors affected their assessments, including inflation and interest rates.

While the attractiveness of stocks remained relatively stable over the entire observation period, the surveyed risk/return profile of real estate and bonds proved to be very dynamic (see chart). Government and corporate bonds were initially rated very poorly, but they gradually became more attractive as interest rates rose from third quarter of 2022 onwards. By contrast, the risk/return profile of real estate was viewed positively at the beginning of the observation period, only to experience a prolonged downward trend in attractiveness.

Why did real estate perform so poorly relation to bonds? According to the experts, bonds perform better than real estate in an environment of rising interest rates. The experts also noted that European real estate markets remained overvalued, and were therefore very risky.

# SURVEY

## STOCKS, BONDS, OR REAL ESTATE? SAFEGUARDS AGAINST INFLATION

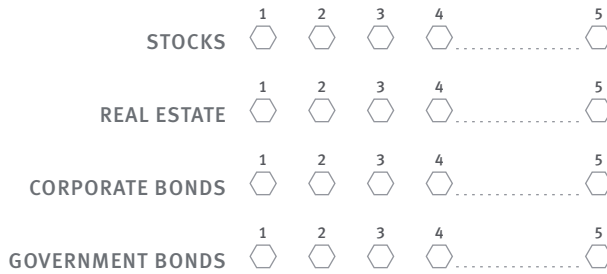


LOOKING AHEAD TO THE NEXT SIX MONTHS, HOW WOULD YOU ASSESS THE RISK-RETURN PROFILE OF THE FOLLOWING ASSET CLASSES?

Use broadly diversified indices for the eurozone as a guide.

I assess the risk-return profile of ... as ...

- ① very positive
- ② moderately positive
- ③ moderately negative
- ④ very negative
- ⑤ not specified



ASSET CLASSES



STOCKS



REAL ESTATE



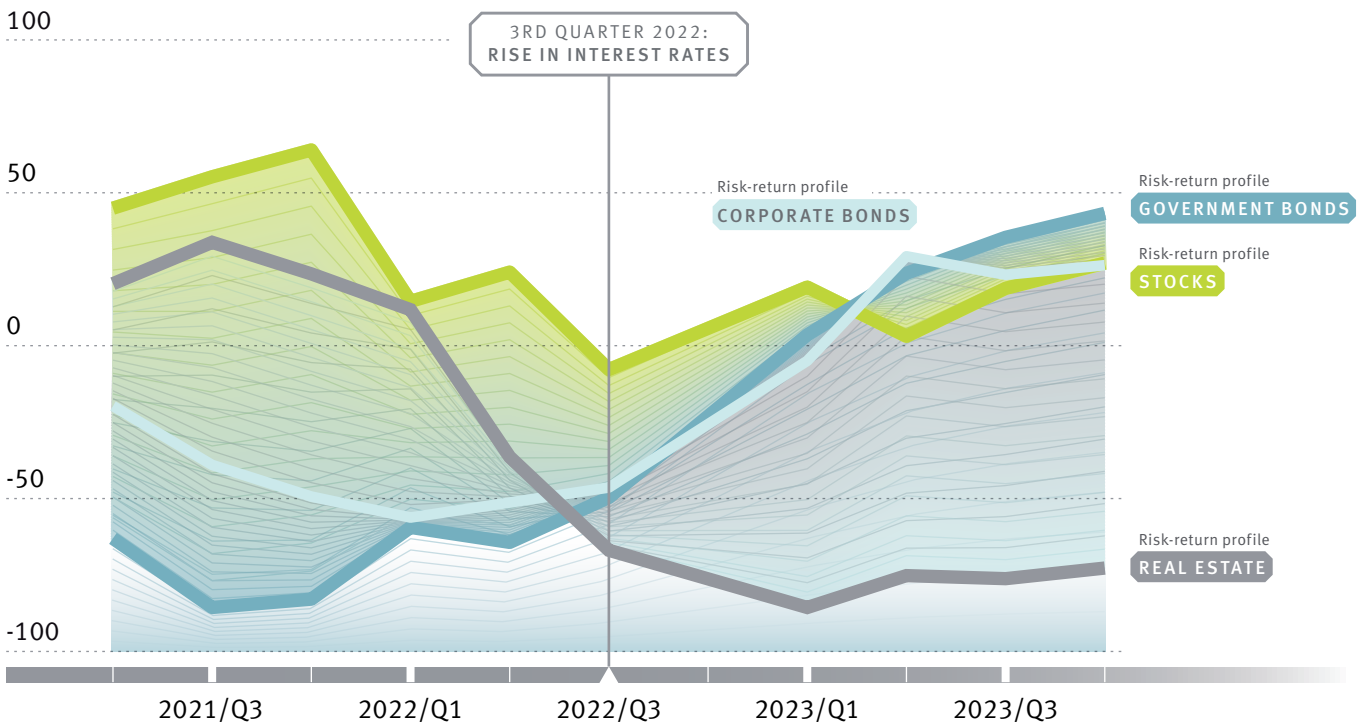
CORPORATE BONDS



GOVERNMENT BONDS

### RESULTS OF THE SURVEY SINCE 2021

BALANCE IN POINTS



SOURCE: ZEW



Seminarräume  
Auditorium







RESEARCH UNITS

# LABOUR MARKETS AND SOCIAL INSURANCE

# LABOUR MARKETS AND SOCIAL INSURANCE

## HEAD

Prof. Dr. Nicolas Ziebarth

## DEPUTY HEAD

Prof. Dr. Melanie Arntz

PD Dr. Friedhelm Pfeiffer

## RESEARCH AREAS

- Education and social mobility
- Digitalisation and structural change
- Health at work
- Immigration and integration

## HEAD OF JUNIOR RESEARCH GROUP

Integration of Immigrants and Attitudes towards the Welfare State (IMES)

Dr. Martin Lange



## HOW TO OPTIMISE INCENTIVES IN LONG-TERM CARE?

- Demographic trends are increasing pressure to optimise economic incentives.

In Germany and the US, demographic change is strongly increasing the demand for long-term care. In both countries as well, patients and their families have a strong preference for out-patient care solutions. Using billing data from more than 500,000 nursing home stays in four US states, a ZEW study examined how to optimise economic incentives in long-term care. The aim was to assess incentives such that nursing homes do not keep patients in a facility when they could be cared for at home.

The main finding of the study was that nursing homes react more strongly to economic incentives and reimbursement rates than patients react to cost-sharing. The researchers therefore concluded that future reforms to optimise long-term care should focus on optimising provider reimbursement.

If the government wants to ensure that long-term care patients are not kept in nursing facilities for longer than is necessary, provider reimbursement should encourage a transition to home health care. One promising option is to provide home health care coordination and referral bonuses.



### STUDY

“Patient vs. Provider  
Incentives in Long  
Term Care”

[www.zew.de/PU84448-1](http://www.zew.de/PU84448-1)



## 2

# TECHNOLOGICAL CHANGE PROMOTES EQUAL OPPORTUNITIES

- As a result of computerisation, the focus shifted to the individual skills and qualifications of each worker.

With increasing digitalisation in Germany, the importance of one's social background for professional success has diminished in some occupations, according to a ZEW study. In the 1990s, the increasing computerisation of the work environment made it easier for employees whose parents did not have a German high school diploma ("Abitur") to access jobs that were subject to major technological change. Moreover, their wages in these occupations converged with those of workers with highly educated parents. The reason for these developments is that technological change has altered professional requirements. As a result, the knowledge and networks of parents, which can be advantageous in career advancement, lost importance. In turn, the focus shifted to the individual skills and qualifications of each worker.

In the 1990s, the computerisation of workplaces in Germany advanced rapidly. This had a positive effect on equal opportunities: In occupations where employees increasingly used computer-based devices in their work, the share of workers with low-educated parents rose significantly. This is especially true for higher qualified workers who themselves have a high school diploma. If computerisation in an occupation increased by ten per cent, the proportion of those among the highly qualified employees with low-educated parents rose by about four per cent. But the educational background of the parents not only influenced job opportunities, but also wages: Until the early 1990s, the wages of employees with low-educated parents were between five and ten per cent lower compared to employees with highly educated parents, depending on their own level of education. This wage gap steadily decreased from the mid-1990s onwards, driven by occupations that underwent strong technological change. For people with a high school diploma, the wage gap even disappeared completely from the early 2000s onwards. It is remarkable that the wage gap did not increase again in the following years, although the use of computers has become standard practice in many professions.



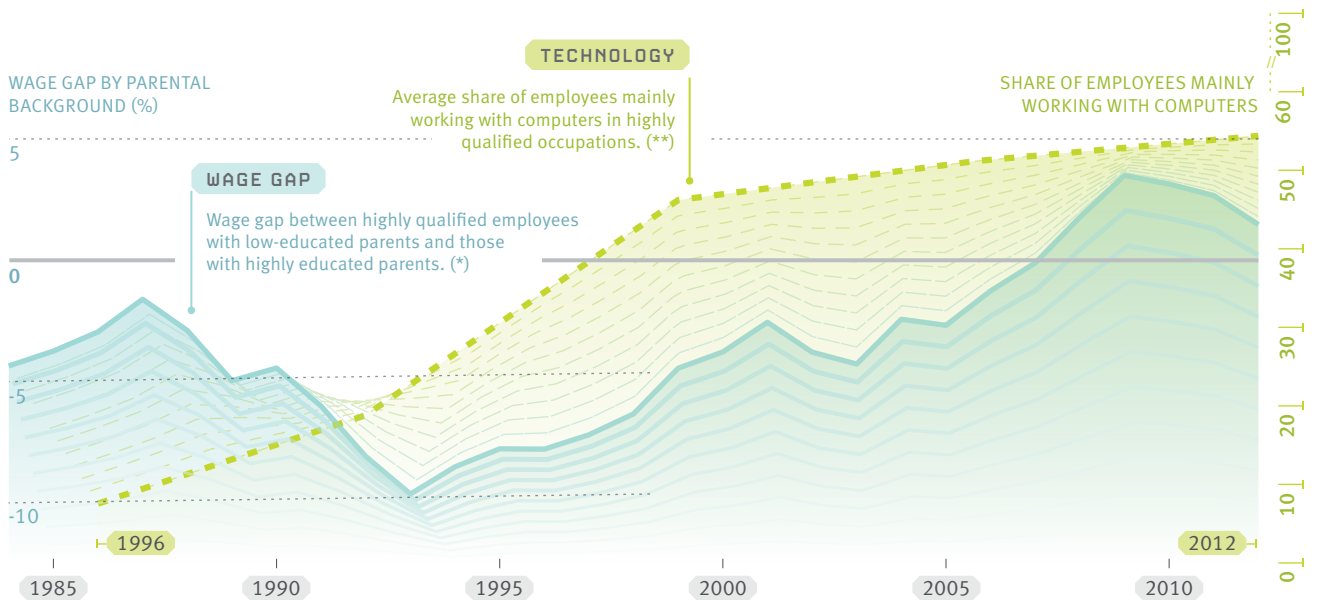
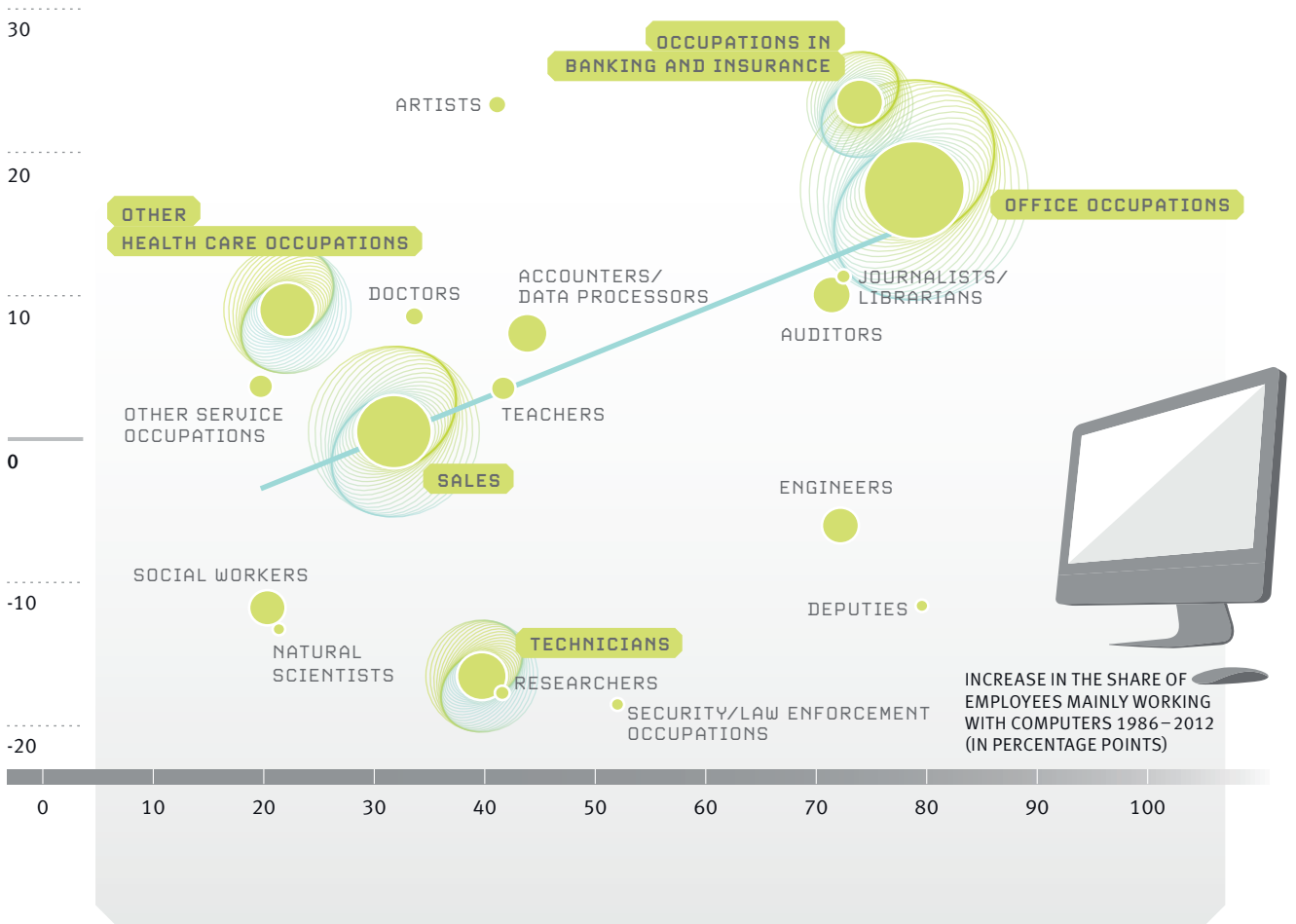
### STUDY

"Computers as Stepping Stones? Technological Change and Equality of Labor Market Opportunities"  
[www.zew.de/PU84242-1](http://www.zew.de/PU84242-1)



# WAGE DISCRIMINATION FELL THE MOST IN OCCUPATIONS WITH MAJOR TECHNOLOGICAL CHANGE

DECREASE IN THE WAGE GAP BY PARENTAL BACKGROUND 1986-2012 (IN PERCENTAGE POINTS)







RESEARCH UNITS

# DIGITAL ECONOMY



# DIGITAL ECONOMY

## HEAD

Prof. Dr. Irene Bertschek

## DEPUTY HEAD

Dr. Dominik Rehse

## RESEARCH AREAS

- Diffusion of digital technologies
- Digitalisation and corporate strategies
- Digital platforms
- Digital market design

## HEAD OF JUNIOR RESEARCH GROUP

Digital Market Design

Dr. Dominik Rehse





## MARKET DESIGN PROVIDES BUILDING BLOCKS FOR TESTING GENERATIVE AI

- The detection and validation of AI misbehaviour can be understood as a market design problem.
- Market design rules determine the reliability of the evaluation.

The meteoric rise of ChatGPT has raised urgent questions regarding the potential for regulating generative artificial intelligence (AI). It is becoming apparent that so-called “red teaming” will be an important building block for testing generative AI. Under this approach, a group of experts – the “red team” – seeks to induce an AI system to exhibit unwanted behaviour. The aim is to explore susceptibility to various types of misbehaviour. To maximise the potential offered by this approach, ZEW researchers suggest creating a two-sided market: On one side of the market, rewards are offered for the detection of certain types of misbehaviour. On the other side of the market, a judgement is made about the actual existence of a corresponding case of misconduct. These activities also need to be rewarded. Creating a division between the uncovering and validation of misbehaviour is necessary to align incentives. Logically, the red team should not be responsible for assessing the weakness it has discovered, due to a conflict of interest. A series of experiments is being conducted to investigate how the incentives on both sides of the market need to be designed to enable reliable adversarial testing. The red team approach can be harnessed flexibly – for example, to assess misconduct of various types and severity. For example, AI-generated instructions regarding how to build a bomb are more serious than the generation of insulting language. Members of the Junior Research Group “Digital Market Design” discussed the red team concept at a ZEW Lunch Debate in Brussels.



### EVENT

ZEW Lunch Debate on  
“Implementing the AI Act:  
How to Assess Generative  
Artificial Intelligence”

[www.zew.de/VA4311-1](http://www.zew.de/VA4311-1)



## REGIONAL DIVERSIFICATION PAYS OFF FOR COMPANIES

- Unilateral dependencies jeopardise sovereignty and supply chains.
- Analyses based on microdata show correlation between diversification and corporate success.

Whether through subsidies for an Intel chip factory in Magdeburg or the National Security Strategy, German politics is aiming for greater digital sovereignty in response to current geopolitical risks and supply chain issues. Many German companies currently source ICT goods from a small number of supplier countries. Although companies face significant costs in diversifying their imports of information and communication technologies (ICT), such as microchips or other hardware components, the benefits of regionally distributed procurement are worthwhile. A study conducted by ZEW and DIW Berlin reveals that a stronger diversification of supply chains, irrespective of ongoing crises, is closely linked to business success. Using microdata from official statistics for the years 2010 and 2014, a total of 3,888 companies in Germany that import ICT goods were examined in the analysis. This allowed the researchers to capture the relationship between diversification and business success. The data shows a positive correlation between diversification and business success, even prior to the current geopolitical situation. This holds true for both smaller and larger companies. By expanding the regional diversity of their sourcing countries, companies can become more resilient to crises. Diversification is therefore not a disadvantage but rather a driver of success for businesses.

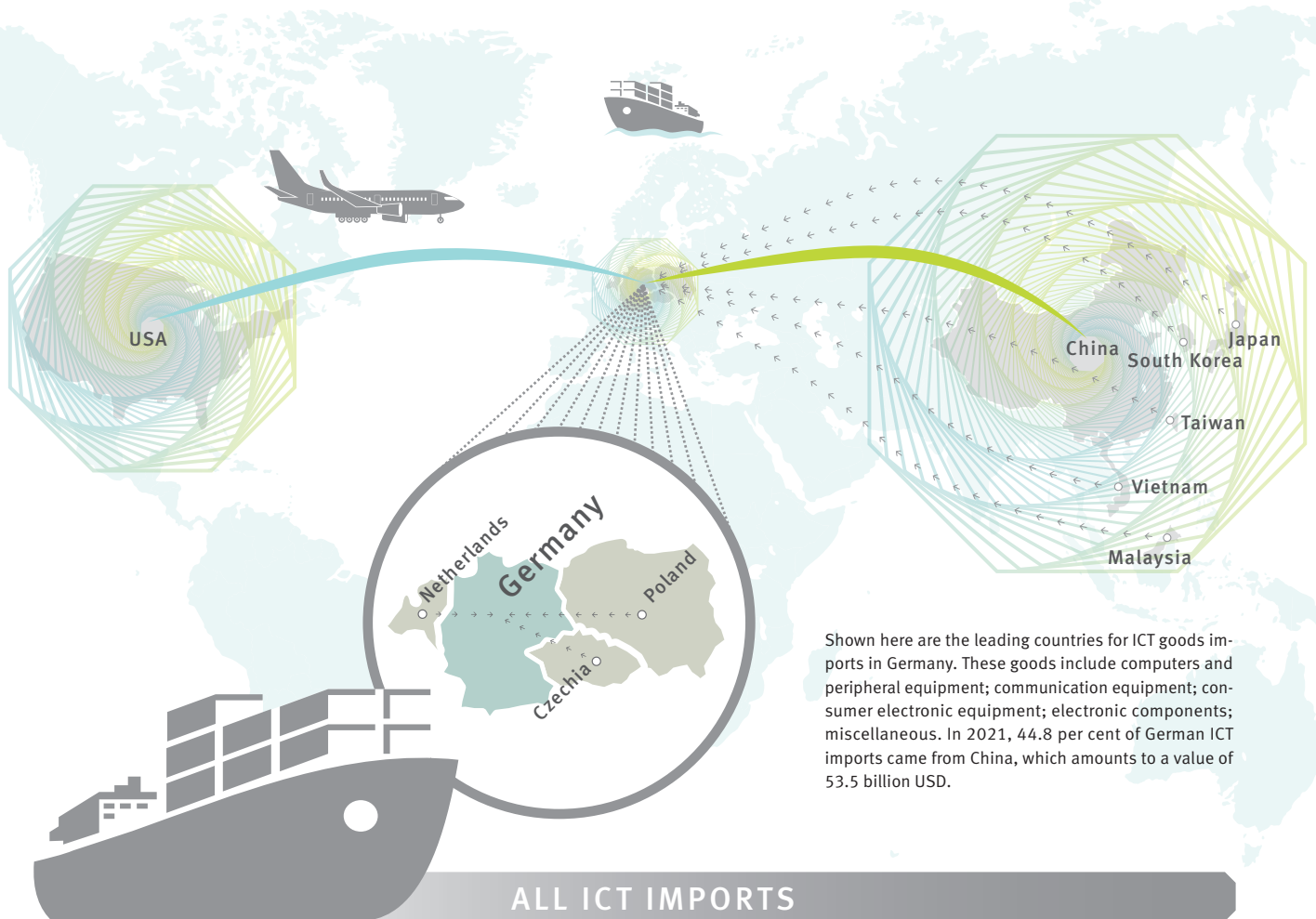
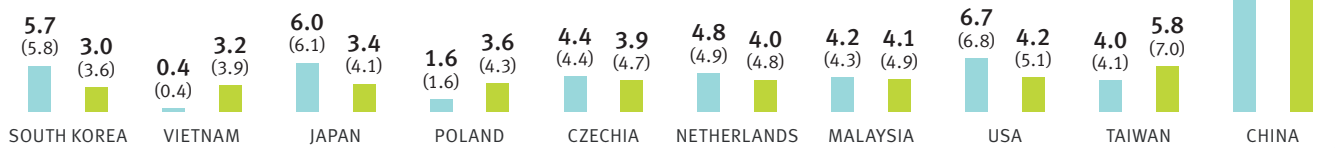
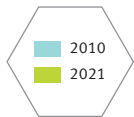


### STUDY

“To Diversify or Not? – The Link between Global Sourcing of ICT Goods and Firm Performance”  
[www.zew.de/PU85827-1](http://www.zew.de/PU85827-1)

# KEY IMPORT COUNTRIES FOR ICT GOODS

SHARE OF ICT IMPORTS IN PER CENT (bold)  
ICT IMPORTS IN USD BILLIONS (in brackets)



Shown here are the leading countries for ICT goods imports in Germany. These goods include computers and peripheral equipment; communication equipment; consumer electronic equipment; electronic components; miscellaneous. In 2021, 44.8 per cent of German ICT imports came from China, which amounts to a value of 53.5 billion USD.

2010 >>> 101.2 BN. USD

FROM CHINA: 36.6 BN. (36.1%)  
FROM THE USA: 6.8 BN. (6.7%)

2021 >>> 119.6 BN. USD

FROM CHINA: 53.5 BN. (44.8%)  
FROM THE USA: 5.1 BN. (4.2%)



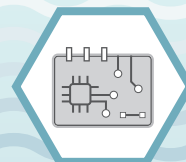
computers and peripheral equipment



Communication equipment



Consumer electronic equipment



Electronic components



Miscellaneous

SOURCE: UNCTAD Bilateral trade flows by ICT goods categories, internally calculated









RESEARCH UNITS

# ECONOMICS OF INNOVATION AND INDUSTRIAL DYNAMICS

# ECONOMICS OF INNOVATION AND INDUSTRIAL DYNAMICS

## **HEAD**

Prof. Dr. Hanna Hottenrott

## **DEPUTY HEAD**

Prof. Dr. Bettina Peters

Dr. Christian Rammer

## **RESEARCH AREAS**

- Innovation processes in firms
- Corporate dynamics: Start-ups, firm closures, M&A
- Industry-science linkages and technology transfer
- Corporate competition

## **HEADS OF JUNIOR RESEARCH GROUPS**

### **Co-Creation**

Dr. Bastian Krieger

### **Competition and Innovation**

Prof. Dr. Bernhard Ganglmair



## ZEW ENTREPRENEURSHIP CONFERENCE COMBINES RESEARCH AND PRACTICE

- Spirited exchange at one of the most important scientific conferences in the field of entrepreneurship and business dynamics.

On 12 and 13 October 2023, the ZEW Research Unit hosted the fifth international conference on the “Dynamics of Entrepreneurship” (CoDE). A total of 90 international participants presented and discussed their latest research findings on the importance of young companies for the dynamics of the corporate sector.

A particular highlight was the opening presentation by Ufuk Akçığıt, professor at the University of Chicago and research department head at the Halle Institute for Economic Research (IWH). He discussed the impact of the Treuhand Agency’s privatisation efforts on companies in East German federal states post-German reunification. The loss of a significant number of jobs posed a major societal and political challenge at the time. Therefore, the Treuhand Agency began awarding potential investors only if they committed to maintaining a defined minimum number of jobs for a certain period. Professor Akçığıt argued that these rules led to higher employment and productivity growth, but increased the probability of firm exit due to lower profitability.

Another conference highlight was a panel discussion featuring perspectives from politics, business, and research, examining how policy could best support high-growth start-ups. Professor Javier Miranda (IWH) presented the decline in entrepreneurial dynamics in the USA and large parts of Europe. Daniel De Monte, founder of WEMONTE, shared his own experiences and challenges in starting a business. Chiara Criscuolo (OECD) and Dr. Johannes Velling (Ministry of Economic Affairs NRW) provided interesting insights into the challenges of designing support programmes for young companies.



### CONFERENCE

“Fifth International  
Conference on the Dynamics  
of Entrepreneurship”

[www.zew.de/AM8836-1](http://www.zew.de/AM8836-1)



## UNCERTAINTY DRIVES INVENTORS TO EMIGRATE

□ A study analysed the mobility of inventors between 12 European countries.

A joint study by ZEW and KU Leuven analysed how inventors react to an uncertain economic policy environment: Will such individuals, who are so important for national innovation systems and associated transformation processes, stay in their country of residence, or will they migrate to locations that offer more stable policy conditions? Understanding decision-making processes of this type is important from an economic policy perspective – not least in Germany, which is facing a severe shortage of skilled labour that threatens to impair socio-economic and ecological transformation.

In a study published in the renowned journal *Research Policy*, the authors show empirically that inventors consider the degree of uncertainty in their current country of residence in comparison to possible emigration destinations. Specifically, they emigrate less when economic policy uncertainty is higher in a potential destination country, and emigrate more when such uncertainty is relatively higher in their country of origin. Based on patent applications submitted to the European Patent Office, the authors created a data set – the Inventor Career Panel – that tracks the migration of inventors across 12 European countries between 1997 and 2012.

The data show that a relative increase in uncertainty in an inventor's country of residence is associated with an almost 20 per cent rise in the probability of an inventor emigrating. The correlation is highly non-linear, with relative uncertainty values in the upper percentile leading to an emigration probability increase of over 70 per cent. The personal characteristics of the inventors also play a role in migration. Prior collaboration with other international inventors increases the likelihood that an inventor will take the plunge and emigrate.



### STUDY

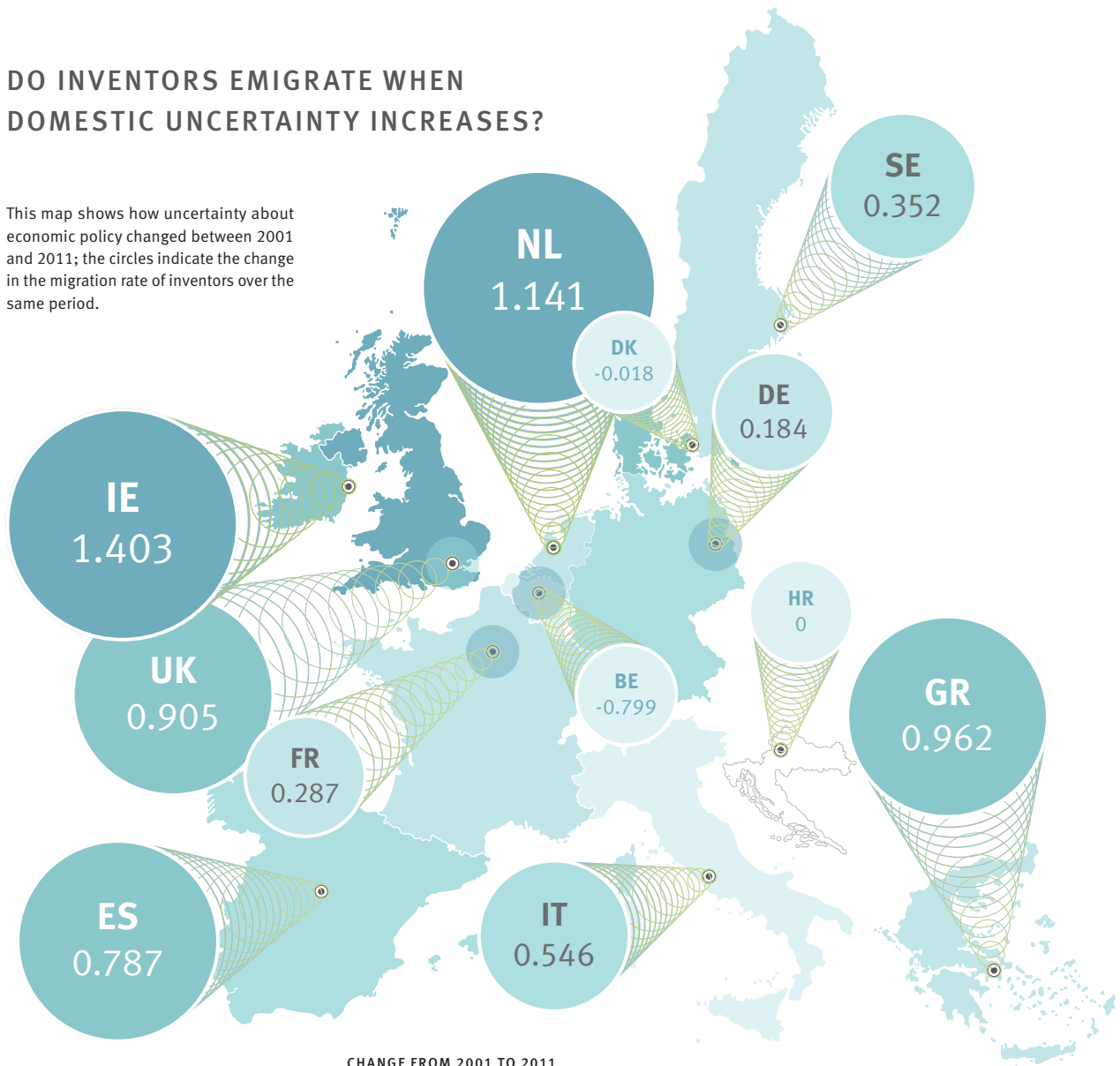
“Policy Uncertainty  
and Inventor Mobility”

[www.zew.de/PU83644-1](http://www.zew.de/PU83644-1)

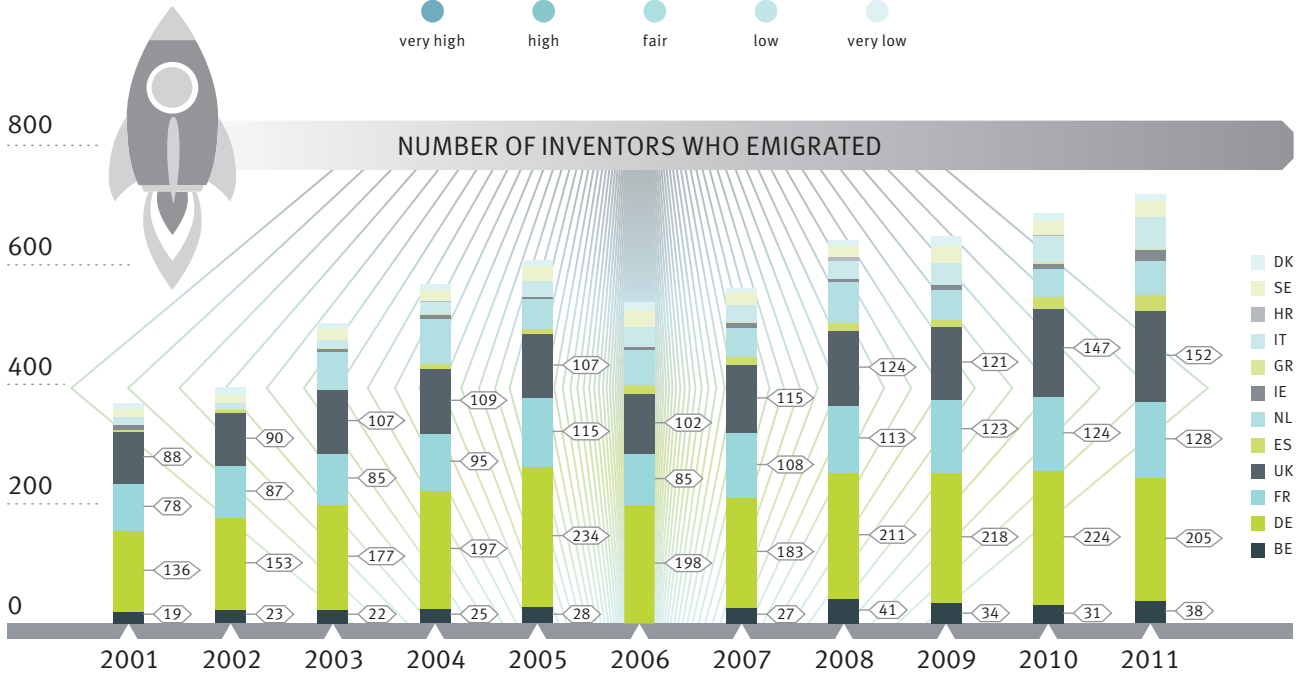


# DO INVENTORS EMIGRATE WHEN DOMESTIC UNCERTAINTY INCREASES?

This map shows how uncertainty about economic policy changed between 2001 and 2011; the circles indicate the change in the migration rate of inventors over the same period.



CHANGE FROM 2001 TO 2011



SOURCE: Baker et al., 2016







RESEARCH UNITS

# MARKET DESIGN

# MARKET DESIGN

## HEAD

Prof. Achim Wambach, PhD  
(Acting head)

## DEPUTY HEAD

Dr. Marion Ott

## RESEARCH AREAS

- Auctions
- Matching markets
- Allocation processes
- Hub for field experiments





## ELECTRICITY MARKET DESIGN: MARKET-BASED REDISPATCH CAN FURTHER INCREASE GRID CONGESTION

- In their current design, electricity markets require redispatch measures to take grid capacity constraints into account.
- The European Commission favours market-based redispatch, which harbours the risk of inefficiency.

European electricity markets are organised in large bidding zones in which the electricity market price is uniform and grid restrictions are ignored. This has contributed to the integration of European markets. However, the energy transition is changing the way electricity grids are used. Renewable energy is primarily generated where resources are available, rather than near major demand centres. After electricity has been traded on the wholesale market, generation needs to be locally adjusted to grid restrictions and demand. Therefore, in Germany, electricity generation on one side of a congested transmission line is reduced and generation on the other side is increased, compared to the trades on the wholesale market. The affected generators are compensated for this so-called redispatch. Expenditures for redispatch, which are passed on to consumers, have risen sharply, and reached 2.5 billion euros in 2022.

The procurement of redispatch resources is a subject of intense debate. The European Commission has proposed redispatch markets based on voluntary participation, with grid operators procuring resources via auctions on both sides of a congested line. However, this leads to arbitrage opportunities between the wholesale and redispatch markets. Specifically, actors may engage in “inc-dec gaming” by placing aggressive bids in the wholesale market with the aim of buying back this electricity at a lower price in the local redispatch market. Alternatively, if they are on the other side of the congested line, they act cautiously in the electricity market in order to sell at the higher local redispatch price.

An analysis commissioned by a grid operator shows that these incentives for “inc-dec gaming” shape bidding behaviour, even given incomplete information about competitors’ costs or uncertain congestion forecasts. This increases the volume of electricity traded in the redispatch market and creates inefficiency. As the zonal electricity markets are already being challenged by the increasing share of intermittent renewables, the establishment of redispatch markets could exacerbate the already high demand for redispatch. Nodal electricity markets, on the other hand, which take grid capacity directly into account and price electricity locally, avoid redispatch.



### STUDIES

“Strategisches Verhalten im marktbasieren Redispatch: Ergebnisse einer spieltheoretischen Analyse”  
[www.zew.de/PU83949-1](http://www.zew.de/PU83949-1)

“Congestion Management Games in Electricity Markets”  
[www.zew.de/PU83818-1](http://www.zew.de/PU83818-1)

## 2

# ALGORITHMS FOR SCHOOL CHOICE: SMALL RULE CHANGES HAVE A BIG IMPACT

- The expansion of school choice beyond district boundaries has mainly positive effects.
- The algorithms used in school choice have a significant influence on efficiency and fairness.

What are the specific effects of rules used to allocate children to schools? This question was investigated by ZEW and DIW researchers in a project funded by the Leibniz Collaborative Excellence programme. Titled “Improving School Admissions for Diversity and Better Learning Outcomes”, the project investigated the welfare effects of expanding school choice beyond district boundaries. The study concluded that pupils in all districts would benefit from the expected welfare gains. Data on Hungarian secondary schools confirm that choice expansion leads to welfare gains comparable to that of attending a school five kilometres closer to a pupil’s home address. While 73 per cent of schoolchildren benefit from this choice expansion, less than three per cent were assigned to a less favoured school.

Another research paper published this year in the journal *Games and Economic Behavior* shows that common allocation procedures such as the deferred acceptance (DA) algorithm are associated with high inefficiency and inequality costs. Reliance on a rank minimizing (RM) algorithm can significantly reduce these costs. The advantage of deferred acceptance is that it is optimal for parents to rank schools according to their true preferences. However, the DA algorithm in Budapest allocates 15 per cent of pupils to their fourth preferred school or worse, while the RM algorithm only allocates less than three per cent to such a school. Other cities, such as Amsterdam, have already recognised this problem. To address it, they guarantee every schoolchild a place in one of their first eight preferred schools through a complicated system of reserve places. The analysed RM algorithm could serve as a simpler alternative in this context.



### STUDIES

“The Cost of Strategy-Proofness in School Choice”  
[www.zew.de/PU84209-1](http://www.zew.de/PU84209-1)

“Improving Efficiency and Equality in School Choice”  
[www.zew.de/PU83648-1](http://www.zew.de/PU83648-1)

# WHICH ALGORITHM IS MORE LIKELY TO GET KIDS INTO THEIR PREFERRED SCHOOL?

## A COMPARISON OF TWO ALGORITHMS

A total of 10,131 children were matched to schools in Budapest using an algorithm based on their stated preferences. This diagram compares the differing results of two separate algorithms.



**START**  
SCHOOL PLACEMENTS



RM // Rank minimizing algorithm



DA // Deferred acceptance algorithm

(most widely used to date)

The RM stands out with its good placements and Pareto efficiency. The strengths of the DA are its strategyproofness and its fairness.



RM // Rank minimizing algorithm

	Average placement	1.48
	Worst placement	6
	Pareto efficient*	yes
	Not obviously manipulable	yes
	Strategy proof**	no
	Fairness***	54%

\* Parents do not benefit from swapping their assigned places.  
 \*\* It is optimal for parents to prioritise schools according to their true preferences.  
 \*\*\* Share of children without justified envy



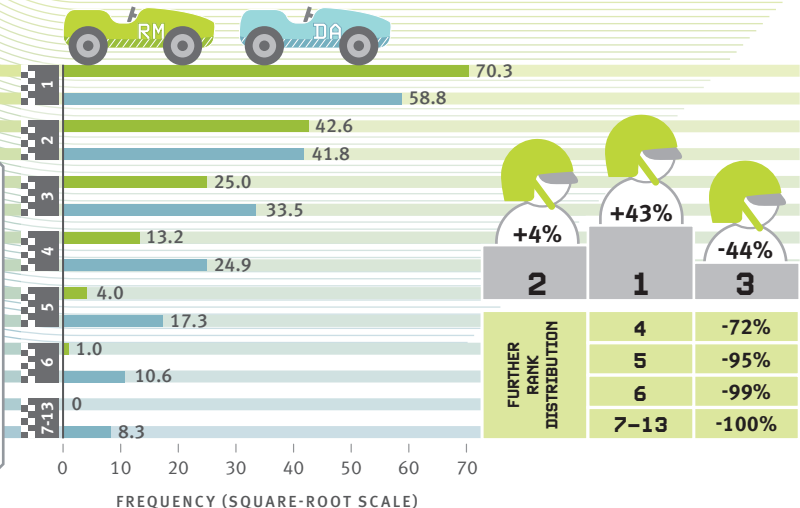
DA // Deferred acceptance algorithm

	Average placement	2.10
	Worst placement	13
	Pareto efficient*	no
	Not obviously manipulable	yes
	Strategy proof**	yes
	Fairness***	100%

\* Parents do not benefit from swapping their assigned places.  
 \*\* It is optimal for parents to prioritise schools according to their true preferences.  
 \*\*\* Share of children without justified envy

**FINISH**

With the RM algorithm, 43 per cent more children get into their first-choice school than with the strategy-proof DA. With the RM, no child is matched to a school worse than rank 6 on their preference list.











FRESEARCH UNITS

# ENVIRONMENTAL AND CLIMATE ECONOMICS



# ENVIRONMENTAL AND CLIMATE ECONOMICS

## HEAD

Prof. Dr. Sebastian Rausch

## DEPUTY HEAD

Dr. Oliver Schenker

Prof. Kathrine von Graevenitz, PhD

## RESEARCH AREAS

- Policy evaluations
- Sustainable behaviour
- International cooperation for climate action
- Climate-friendly energy systems



## MAKING CLIMATE PROTECTION FAIR ACROSS THE GENERATIONS

- Climate protection through technology policy increases approval of today's generations, but burdens future generations.

Economists often argue in support of CO<sub>2</sub> emissions pricing to tackle climate change. In the political reality, however, it is common to resort to “green” technology policies, such as subsidisation of renewable energy, energy efficiency standards, and regulations on emission limits for cars. A ZEW study, published in the esteemed *European Economic Review*, has come to the conclusion that current generations are less negatively affected by technology policies than they are by direct CO<sub>2</sub> pricing. They may therefore tend to support green technology policy through elections and referendums. Green technology is relatively capital-intensive. When green technology is forced into the market, capital is implicitly subsidised as compared to direct CO<sub>2</sub> pricing. Current generations, especially the older ones, have already built up capital and would thus be far less burdened by green technology policy than they would by climate policy that is directly based on carbon pricing. Future generations, however, will be more negatively affected by technology policy than by direct CO<sub>2</sub> prices. In principle, however, it is indeed possible to combine the advantages of both approaches: smart funding for the promotion of green technology according to the polluter-pays principle would gain the support of current generations while simultaneously developing an economically sensible climate policy for future generations.

What's problematic, however, are poorly-designed technology policies. One such example is the Renewable Energy Sources Act (EEG), through which the cost to support renewable energy was passed on to consumers for years. Financing this through a CO<sub>2</sub> tax would have been more sensible.



### STUDY

“Green Technology Policies  
Versus Carbon Pricing:  
An Intergenerational  
Perspective”

[www.zew.de/PU84107-1](http://www.zew.de/PU84107-1)



## DOES GERMANY NEED SUBSIDISED ELECTRICITY PRICES FOR INDUSTRY?

- An industrial electricity price weakens incentives for energy efficiency and does not necessarily promote competitiveness.

In order to cope with the rise in electricity prices caused by the war in Ukraine and to protect the competitiveness of German industry, the government considered subsidising the electricity consumed by industry in 2023. A ZEW study shows that lower electricity prices lead to higher demand, but have no clear impact on revenues or employment.

Against this backdrop, the authors discussed the necessity and potential disadvantages of an industrial electricity price in a ZEW Policy Brief. Energy costs are not the decisive factor for many companies, and even in energy-intensive sectors, electricity outlays as a share of revenue are less than five per cent. Historically, the electricity prices paid by industry have often been higher in Germany than in other countries, without this having a significant impact on competitiveness.

Over the long term, subsidised electricity prices could even impair competitiveness by favouring outmoded structures and slowing investment in efficiency. For Germany to remain a strong location for industry, an active transformation towards greater energy efficiency is essential, supported by traditional German strengths such as a highly skilled workforce and political stability.

Instead of relying on short-term subsidies, Germany should focus on long-term innovation and efficiency improvements. This is particularly important when one considers that electricity could remain more expensive in Germany than elsewhere, due to natural limits to the development of domestic renewables.



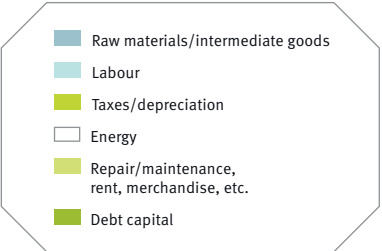
**ZEW POLICY BRIEF**

“Brückentrompreis:  
Fehler aus der Vergangen-  
heit fortführen?”

[www.zew.de/PU84108-1](http://www.zew.de/PU84108-1)

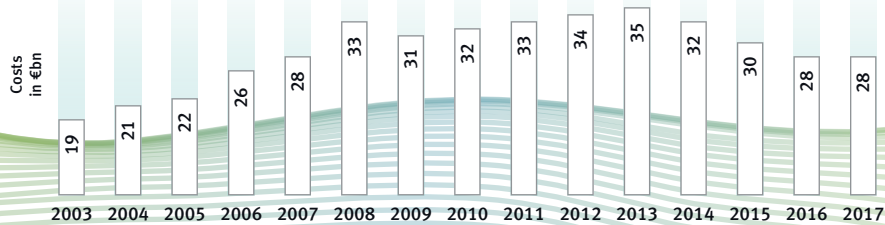


# COST STRUCTURE IN GERMAN MANUFACTURING INDUSTRY



## SHARE OF ENERGY COSTS FROM TOTAL COSTS

Share of costs: 1.58% 1.68% 1.69% 1.86% 1.90% 2.14% 2.42% 2.28% 2.11% 2.12% 2.19% 1.97% 1.81% 1.68% 1.60%



## ENERGY SOURCES FOR POWER GENERATION







RESEARCH UNITS

# CORPORATE TAXATION AND PUBLIC FINANCE

# CORPORATE TAXATION AND PUBLIC FINANCE

## HEAD

Prof. Dr. Friedrich Heinemann

## DEPUTY HEAD

Dr. Zareh Asatryan

Dr. Katharina Nicolay

## RESEARCH AREAS

- European tax analyzer
- Empirical effects of corporate taxation
- Future-orientated budget control
- German and European fiscal institutions
- Public procurement

## HEAD OF JUNIOR RESEARCH GROUP

Public Procurement

Leonardo Maria Giuffrida, PhD





## HOW TRANSPARENT IS EUROPEAN DEBT? AN INNOVATIVE EVENT FORMAT

- Representatives from the media, academia and government discussed the landmark ruling on the German debt brake.

As part of a ZEW workshop dedicated to the future of the German debt brake, representatives from academia, the media and federal financial authorities met at ZEW at the end of November 2023 to discuss the lack of transparency in public budgets, among other issues. The timing of the event was serendipitous, as the Federal Constitutional Court had just ruled a few days prior that debt-financed extra-budgetary accounts (that circumvented the debt brake) were unconstitutional. This jeopardised major spending initiatives of Germany's government coalition.

The workshop, which was sponsored by the Strube Stiftung, did not rely on the standard format for an academic conference, in which various researchers present papers. Rather, the participating experts provided concise assessments from different perspectives during four panel sessions, and then quickly entered into a debate with each other and with the attendees, many of whom were students.

The workshop generated various insights – for example, that transparency problems not only exist at the federal level, but at all levels of government. Up-to-date and detailed information regarding financing at the state level is lacking in Germany. Public debt burdens are also frequently shifted to publicly held companies. At the European level, the debt-financed COVID-19 recovery spending has created hidden debt burdens. On the relationship between the debt brake and forward-looking investment, the workshop participants clearly rejected the simplistic notion that the debt brake was tantamount to a brake on future-oriented investment. The panellists largely agreed that the present-day policy agenda is the real obstacle to higher investment. A reform of the debt brake must therefore aim to change the structure of government spending, such that this spending is directed toward future-oriented issues.



WORKSHOP  
[www.zew.de/AM8875-1](http://www.zew.de/AM8875-1)



## 2

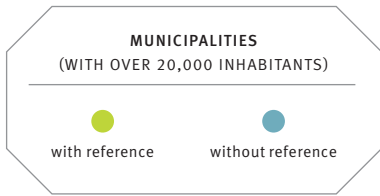
# TAX COMPETITION FROM THE PERSPECTIVE OF GERMAN MUNICIPALITIES

□ An ongoing study examines the spatial dimension of tax competition.

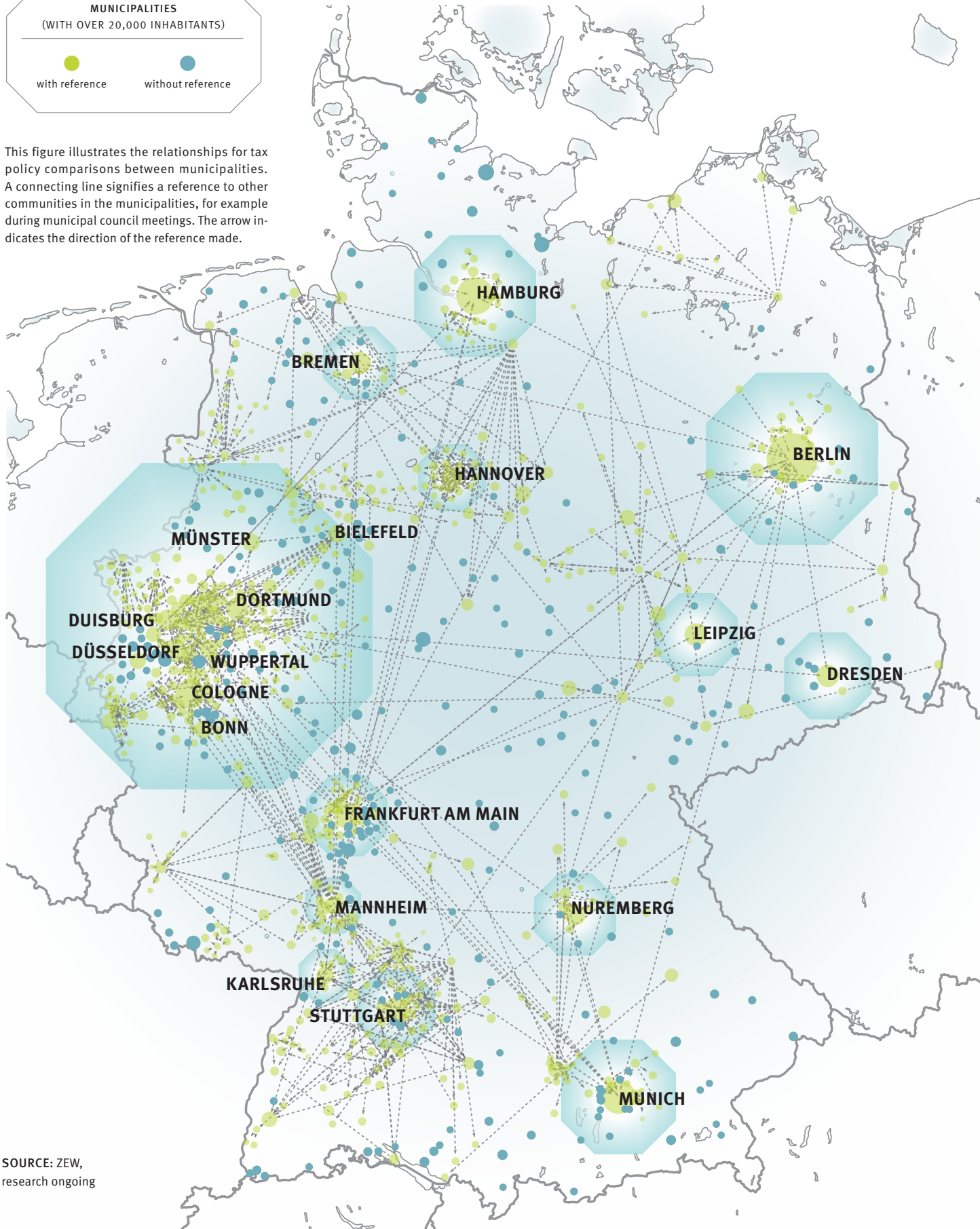
In Germany, municipalities are free to set the level of trade tax paid by companies themselves. When doing so, they take tax levels in other locations into account. Previous models of tax competition are based on the assumption that municipalities primarily compare themselves to their neighbours. In an ongoing research project, the validity of this assumption is being tested using an innovative narrative approach that assesses the pronouncements made by local politicians. Specifically, the researchers are gathering and analysing the minutes of municipal council meetings. This allows them to identify the most important economic and political motives for tax changes. In addition, this approach makes it possible to directly observe the specific municipalities that are referenced for the purpose of comparison.

According to the results obtained thus far, the assumption that municipalities primarily compare themselves to neighbouring locations is imprecise. Indeed, local stakeholders do not always view neighbouring municipalities as their most important peers when they compare tax policy. Instead, politicians in very large German municipalities are much more likely to compare themselves to other large municipalities, even if they are far away. In smaller municipalities, by contrast, the criterion of proximal similarity plays a role in determining the reference municipalities. As the associated “competitive networks” are asymmetrical, municipalities do not necessarily name each other as competitors in a reciprocal fashion. Thanks to this approach, tax policy interrelationships between German municipalities can now be described with greater nuance than previously possible.

# HOW DO GERMAN MUNICIPALITIES COMPARE THEMSELVES?



This figure illustrates the relationships for tax policy comparisons between municipalities. A connecting line signifies a reference to other communities in the municipalities, for example during municipal council meetings. The arrow indicates the direction of the reference made.



SOURCE: ZEW,  
research ongoing










RESEARCH UNITS

# HEALTH CARE MARKETS AND HEALTH POLICY



# HEALTH CARE MARKETS AND HEALTH POLICY

## HEAD

Prof. Dr. Simon Reif

## RESEARCH AREAS

- Digital health
- Health care market structures
- Reimbursement schemes



## DYNAMIC BENEFIT ASSESSMENT AS A DRIVER OF INNOVATION IN HEALTH APPS

- An increasing number of apps are available by prescription in Germany.
- Benefit assessment and compensation must be further developed to strengthen incentives for innovation.

At the end of 2023, there were 49 digital health care apps on prescription in the German social health insurance system. Germany's statutory health insurers cover the cost of these apps. The approval and price negotiation process for German apps on prescription differs from that of pharmaceuticals in two innovative respects. On the one hand, the app is eligible for reimbursement not only if its medical benefit is proven but also if patient-relevant structural improvements can be shown. On the other hand, it is possible for such apps to be prescribed and reimbursed once early positive effects have been demonstrated when further evidence on effectiveness is provided within the first year after market entry.

The first approved digital health care apps show that many software developers are making use of the opportunity to enter into the market at an early stage. However, as part of the approval process, developers hardly ever exercise the option of demonstrating added value in terms of improvements to other aspects of care. This is partially attributable to the strict criteria that apply to care indicators in the approval process.

Greater acceptance of automatically collected health care data could facilitate the market launch of innovative health care solutions. Such data could also be used to regularly assess the benefits that accrue to patients. A dynamic benefit assessment, with implications for reimbursement, would incentivise the further enhancement of digital health care apps once they have been approved.



### STUDY

“Dynamic HTA for Digital Health Solutions: Opportunities and Challenges for Patient-Centered Evaluation”  
[www.zew.de/PUB4399-1](http://www.zew.de/PUB4399-1)



## GP VISITS IN GERMANY ARE SHORT BUT FREQUENT

□ A project undertaken on behalf of the Strube Stiftung examined incentives in GP care.

The relationship between doctors and patients is a key factor for good care, especially at the GP. A trusting interaction between doctor and patient is essential for effective diagnosis and treatment but needs sufficient time to develop. However, the volume of time that is “sufficient” remains an open question in health policy debates and in the medical literature. Across European countries, there are large differences in the average contact time between doctors and patients.

Differences in GP contact time may be attributable to the type of reimbursement that doctors receive. In countries where each service is billed separately (fee-for-service or FFS) the average contact time is around 14 minutes. In countries where per-capita flat rate amounts are paid to each GP, the average contact time is two minutes shorter. In a cross-country comparison, there is a strong negative correlation between the contact time and the number of annual visits to the doctor. Longer contact times often go hand in hand with fewer visits to the doctor.

Germany stands out for its very short contact times and particularly large number of doctor contacts. Against the backdrop of health care policy debates on the further development of outpatient care, it needs to be discussed whether this form of service provision is socially desirable and economically sustainable.



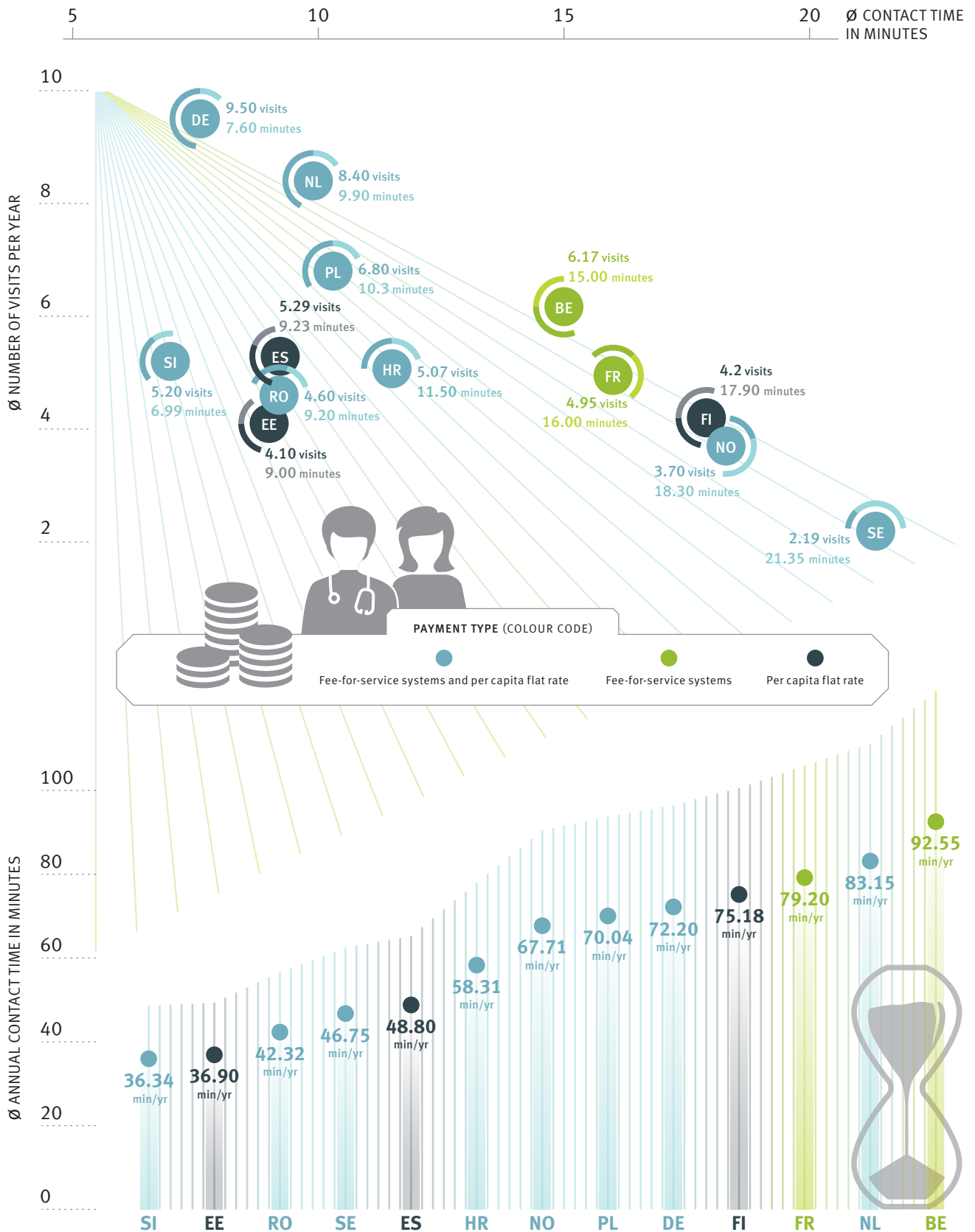
### EXPERTISE

“Behandlungsgespräche  
in der Arztpraxis –  
Ein Europäischer Vergleich”  
[www.zew.de/PU84364-1](http://www.zew.de/PU84364-1)



# MEDICAL CONSULTATIONS – VARIANCE ACROSS EUROPE

## NUMBER OF VISITS PER YEAR AND TIME SPENT WITH THE DOCTOR



SOURCE: Irving et al. (2017), Eurostat (Consultation of a medical doctor)





RESEARCH UNITS

# INEQUALITY AND PUBLIC POLICY





# INEQUALITY AND PUBLIC POLICY

## HEAD

Prof. Dr. Holger Stichnoth

## RESEARCH AREAS

- Inequality
- Tax and social policy
- Life cycle and the family
- Simulation models





## MANNHEIMTAXATION CELEBRATES ANNIVERSARY AND SUCCESSFUL EXTENSION

- The tenth annual conference featured keynotes by Joel Slemrod and Rebecca Lester.
- The gala event was attended by Baden-Württemberg's Minister of Finance Danyal Bayaz.
- MannheimTaxation was extended for an additional four years.

ZEW and the University of Mannheim organised the tenth annual MannheimTaxation conference in September 2023. The recent extension of the Leibniz ScienceCampus furnished an additional reason to celebrate. The anniversary gala was a resounding success: Over 80 participants from around the world discussed 43 current papers on tax research as part of twelve presentations and two poster sessions. Keynote talks were given by Professor Joel Slemrod of the University of Michigan and Professor Rebecca Lester of Stanford University.

In November 2023, the tenth anniversary of MannheimTaxation was celebrated with a gala event attended by notable guests such as Dr. Danyal Bayaz, Baden-Württemberg's Minister of Finance; Professor Sebastian Lentz, Vice President of the Leibniz Association; and Professor Thomas Puhl, President of the University of Mannheim. Together with ScienceCampus researchers, Professor Christoph Spengel, the founding spokesperson of MannheimTaxation, presented lighthouse projects from the last ten years. After this presentation, the current spokesperson of the ScienceCampus, Professor Philipp Dörrenberg, joined Dr. Katharina Nicolay and Dr. Danyal Bayaz to discuss the future of evidence-based policy advising.

MannheimTaxation is a joint initiative of ZEW and the University of Mannheim. As a Leibniz ScienceCampus, it promotes high-quality research and the subsequent sharing of empirical insights with policymakers. MannheimTaxation is dedicated to shaping future tax policy against the backdrop of European and global integration and contemporary challenges. For example, MannheimTaxation is playing a leading role in the investigation of the cum-ex and cum-cum scandals. Other notable projects include research on how a global minimum tax would impact companies, and how to optimally design child benefit policy (using the ZEW-EviSTA tax-transfer simulation model).



FURTHER  
INFORMATION  
[www.mannheimtaxation.eu](http://www.mannheimtaxation.eu)



## WOMEN'S SUFFRAGE PROMOTES EMANCIPATION BEYOND POLITICS

- Study on the introduction of women's suffrage in Switzerland.
- Published in the renowned *The Economic Journal*.
- Awarded the 2023 prize of the ZEW Sponsors' Association for the best research paper.

A study conducted by researchers at ZEW and the University of Basel analysed how the introduction of voting rights influenced the emancipation of women beyond the domain of politics. Drawing on census data from over five decades, the study examined variation resulting from the staggered introduction of women's suffrage in Swiss cantons. The cantons introduced voting rights step-by-step between 1958 and 1971 (see diagram). In many cantons, women only gained the right to vote following a referendum in 1971, which introduced women's suffrage at the national level. The causal influence of suffrage can be plausibly identified using econometric methods. The study compares the life choices of women who were socialised in a world of politically empowered women with otherwise comparable women who were socialised earlier, i.e. who were already older at the time of suffrage's introduction.

It turns out that women who were exposed to women's suffrage earlier were on average more likely to be employed and have higher educational attainment. They were also less likely to marry and more likely to divorce than women who experienced suffrage later in life. The study also provides evidence that increased self-efficacy appears to be the primary channel of effect.

For their study, which was published in the renowned *The Economic Journal*, Dr. Michaela Slotwinski of ZEW and Professor Alois Stutzer of the University of Basel received the 2023 prize of the ZEW Sponsors' Association for the best research paper.

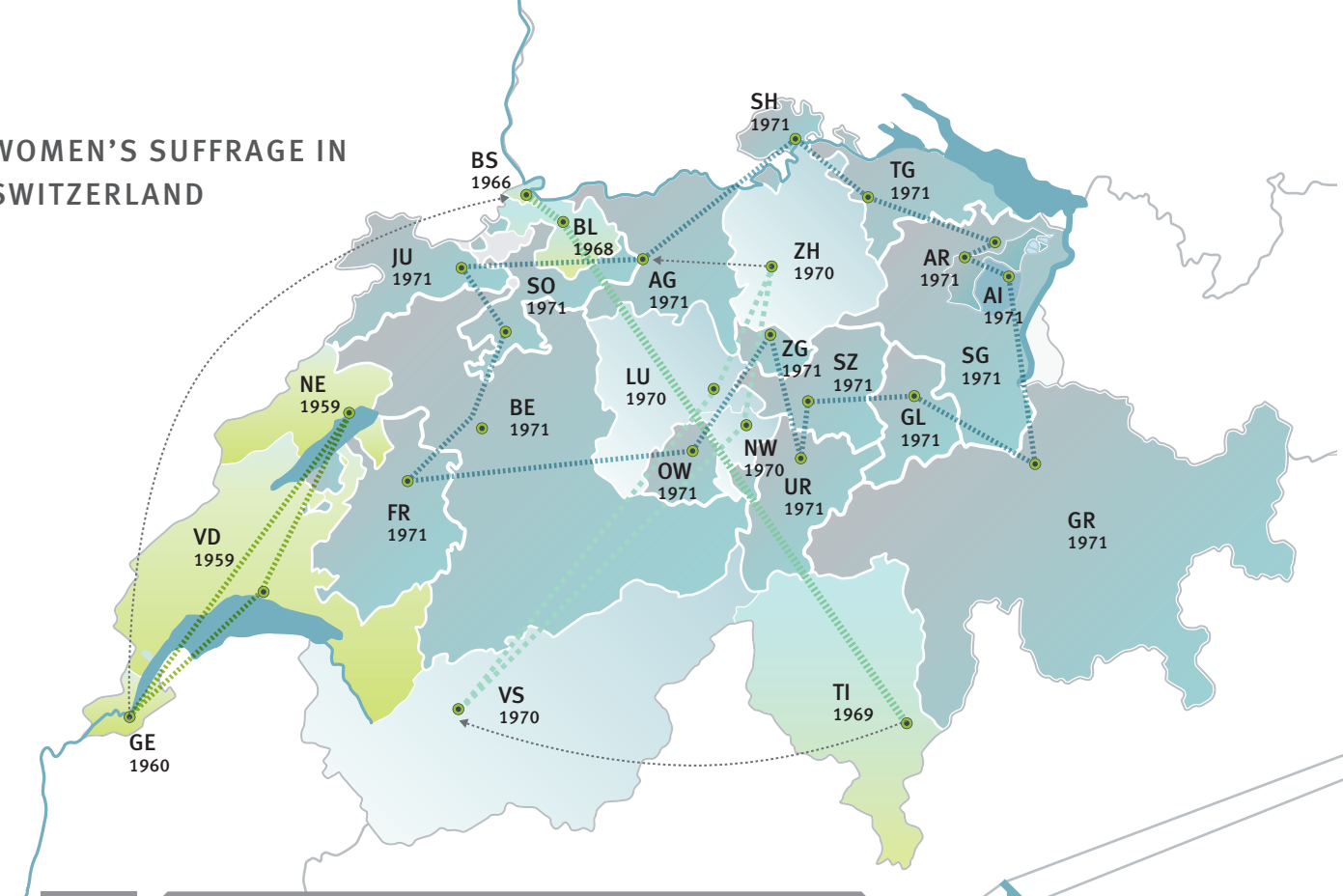


### STUDY

"Women Leaving the Playpen: the Emancipating Role of Female Suffrage"

[www.zew.de/PU83794-1](http://www.zew.de/PU83794-1)

# WOMEN'S SUFFRAGE IN SWITZERLAND

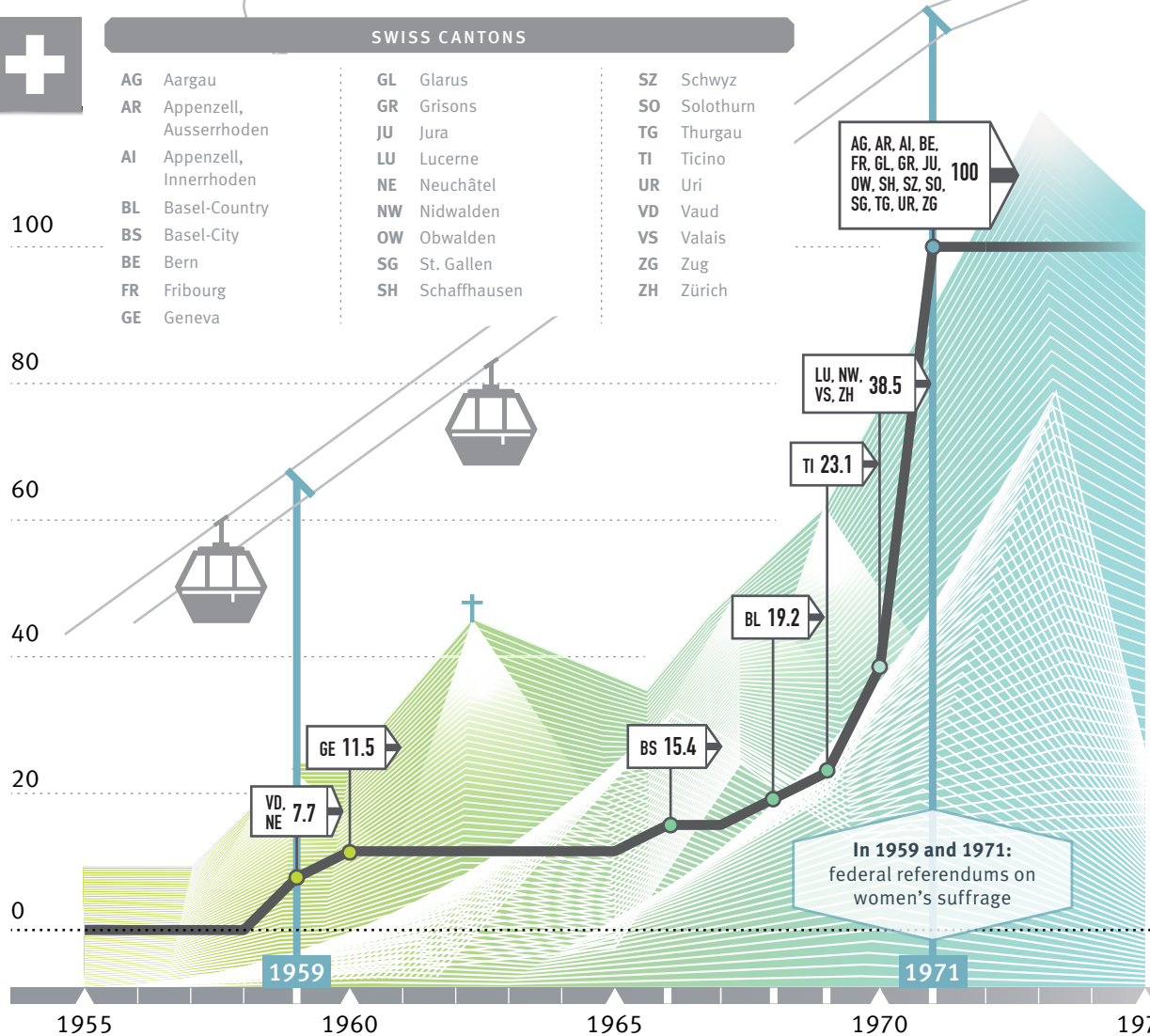


## SWISS CANTONS

- |                           |                 |              |
|---------------------------|-----------------|--------------|
| AG Aargau                 | GL Glarus       | SZ Schwyz    |
| AR Appenzell, Auserrhoden | GR Grisons      | SO Solothurn |
| AI Appenzell, Innerrhoden | JU Jura         | TG Thurgau   |
| BL Basel-Country          | LU Lucerne      | UR Uri       |
| BS Basel-City             | NE Neuchâtel    | VD Vaud      |
| BE Bern                   | NW Nidwalden    | VS Valais    |
| FR Fribourg               | OW Obwalden     | ZG Zug       |
| GE Geneva                 | SH Schaffhausen | ZH Zürich    |

PROPORTION OF CANTONS WITH WOMEN'S SUFFRAGE\* (IN PER CENT)

\*at municipal, cantonal or national level



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# NOTE.

A comprehensive overview of the scientific output and networking activities of ZEW in 2023 can be found (in German only) at:  
[www.zew.de/dokujahresbericht21](http://www.zew.de/dokujahresbericht21)

