

Germany: Economic Upturn and Competition Provide Impetus for R&D

A current survey of 2,000 R&D performing companies carried out by the ZEW shows a significant increase in the importance of research and innovation in 2007. Expenditure on research could rise by more than 7 percent compared with 2006, which would be the biggest increase since the year 2000. 2007 saw 40 percent of companies increase the number of staff deployed in research and innovation. The increase in the demand for innovative products and the intensification of international competition are the main driving forces behind this high level of dynamism. The Federal Government's high-tech strategy is also beginning to show effect.



At the end of September 2007, the ZEW carried out an additional survey as part of its annual innovation survey ("Mannheim Innovation Panel"), aimed at identifying current trends in research and development (R&D) and the German economy's innovation activities. The robust economic recovery in the course of 2007, coupled with a range of additional government activities in the area of innovation policy, spearheaded by the high-tech strategy introduced in August 2006, have noticeably changed the overall framework for research and

innovation in recent times. 2,000 companies which carried out R&D or made high investments in innovation in 2006 were surveyed. The companies represent 30 percent of the German economy's total R&D investment.

The results show that R&D and innovation are highly prized in the German economy. 36 percent of the companies surveyed by the ZEW recorded an increase in the importance of R&D and innovation over the past 12 months, with only 2 percent recording a decrease. A rise in demand and an intensification of

(international) competition are the driving forces behind this increasing importance. Furthermore, many companies have increasingly made R&D and innovation the focus of their corporate strategy again.

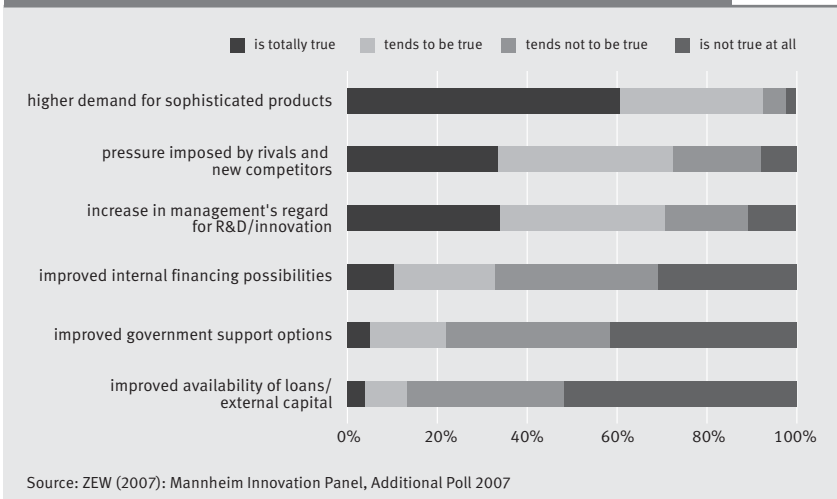
This increase in importance translates into a greater willingness to provide funds for research. 44 percent of companies assume that their R&D investments for 2007 will increase in comparison with 2006, with only 5 percent intending to reduce their R&D budgets this year. The average rate of change for R&D investments compared with 2006 stands at more than 7 percent. The lower the R&D intensity (R&D investments as a percentage of sales revenue) was in 2006, the higher the rate of change. This means that the improvement in the overall framework is having a stimulating effect on R&D, particularly in less research-oriented companies. In September 2007, more than half the companies surveyed were plan-

IN THIS ISSUE

| | |
|--|---|
| Germany: Economic Upturn and Competition Provide Impetus for R&D | 1 |
| Inside ZEW | 2 |
| The Future of the European Union's Financing System | 3 |
| Acquisitions Reduce Competition in Technology Markets | 4 |
| IT Outsourcing: German Companies Prefer Domestic Partners | 5 |
| ZEW Conference | 6 |
| ZEW Financial Market Test | 7 |
| Publications | 8 |

RESEARCH FINDINGS

Reasons for the increase in importance of research and innovation



ning a further increase in R&D budgets for 2008, while only 6 percent were expecting a fall in R&D investments. However, the growth based on current planning levels could level out, as most companies (49 percent) are envisaging a slight increase and only 7 percent expect to see a marked increase in R&D investments.

Demand for R&D Personnel on the Increase

The increase in R&D investments is reflected in an increased demand for R&D personnel. More than 40 percent of companies have increased the number

of staff deployed in R&D and innovation since September 2006. This represents an increase of 3.5 percent, compared with the number of R&D employees in 2006.

However, this increase does not necessarily have to involve new appointments, as it may be due, in part, to shifts within the companies. The lack of skilled workers in Germany meant that more than 20 percent of companies surveyed were not able to fill positions in the area of R&D and innovation over the past 12 months. The number of positions remaining unfilled makes up at least 1.5 percent of the R&D personnel levels in 2006. This means that, for

every 100 new personnel positions in the area of R&D and innovation, there are over 40 unfilled positions.

The Federal Government's High-Tech Strategy

It is currently still difficult to gauge the role played by the Federal Government's new high-tech strategy launched in August 2006 in the increasing importance of research and innovation in the German economy. Many of the measures announced in the strategy, such as the research bonus, the cluster initiative or easier access to project support for small and medium-sized companies, have only recently been set in motion. Nevertheless, it is apparent that companies which have taken on board the high-tech strategy show a greater willingness to extend their R&D investments. This also holds true if other influential factors like company size, market environment, orientation of the innovation activity and R&D intensity are controlled for. The high-tech strategy is possibly being viewed as an important signal that the Federal Government is banking on an expansion of research investment in its own sphere of influence and would like to sustain this over a period of several years. This may increase companies' planning security.

Dr. Christian Rammer, rammer@zew.de

INSIDE ZEW

ZEW President Wolfgang Franz's Contract Extended

In November 2007, Prof. Dr. Dr. h.c. mult. Wolfgang Franz extended his contract as ZEW president until 2011. This decision had already been made at a ZEW supervisory board meeting on 11 July 2007. Franz has been ZEW president since 1997. Under his scientific management and Thomas Kohl's administrative management, the ZEW has established itself as one of the most renowned German Economic Research In-

stitutes. During Franz's period in office, the number of employees has more than doubled to 160 and the budget has increased from 7.8 million euros to 15 million euros. The extension of Franz's contract sets the future direction, particularly because the ZEW will be evaluated by the Wissenschaftsgemeinschaft Gottfried Wilhelm Leibniz e.V. (Scientific Community Gottfried Wilhelm Leibniz) in 2009.



RESEARCH FINDINGS

The Future of the European Union's Financing System

The European Union should continue to be financed by member states' contributions in future. A separate EU tax should be rejected. However, the present UK-centred rebate should be replaced by a "general, but limited correction mechanism". These are the main findings of a ZEW study on the future of the Brussels financing system, which the ZEW unveiled in Berlin in January 2008.

The study commissioned by the German Federal Ministry of Finance develops reform proposals for future financing of the EU budget. The study starts by assessing the status quo. The Brussels budget is currently financed by so-called own resources, which are de facto member states' contributions and need to be financed from national tax revenues. The fact that the current contribution system establishes a close link between national budgets and the EU budget is identified as a key advantage, as this provides a strong incentive for the Council to control spending at EU level. One weakness of the status quo is, however, associated with the large number of exceptions and special conditions which make the system highly intransparent.

Distribution Problem on the Expenditure Side

A rational budgetary policy is overshadowed again and again by debates about the national distribution of the financial burden. The status quo analysis performs simulations which make clear that the distribution problem has its roots on the expenditure side, while the revenue side acts as a buffer to partially compensate for the distribution effects caused on the expenditure side.

The findings do nothing to indicate that the introduction of an EU tax would solve the current problems. The calcula-



Photography: www.digitalstock.de

tions show, in particular, that any EU tax would entail new strong distribution effects, which would be bound to create new compensation payments. Neither could an EU tax end the preoccupation of member states with their net balances. This problem of „juste retour“ has its origin on the expenditure side.

Based on the status quo analysis and the reform options discussed in the literature, the authors develop their own reform proposal. This includes the complete phasing out of the VAT resource, financing the EU budget fully on the basis of the GNI resource and the introduction of a general, but limited correction mechanism (GLCM). Retaining a correction mechanism is essential as long as substantial restructuring of the expenditure side is not successful. A GLCM would have many advantages over the current UK-centred rebate system or a generalised, but unlimited mechanism (GCM). In particular, the GLCM allows correction to be limited to those policy areas that appear to be especially problematic from the point of view of distribution. By contrast, payments which are, for example, explicit-

ly aimed at favouring poor countries or regions would not be undermined, as happens in the current UK-centred rebate system.

Apart from these core reform elements, the ZEW study recommends that the EU regions should be more closely involved in financing the EU budget. The current system, according to which, in Germany, EU own resource payments are to be made from the Federal Government's tax revenues, but the return flows benefit the federal states, in particular, creates incorrect incentives as long as the latter do not participate on the cost side. Furthermore, it would be desirable to use nominal metrics in EU budgetary policy, instead of the current practice, which expresses the budget figures as a percentage of GNI and in real Euro.

An executive summary of the study in English can be downloaded from the Internet:

ftp://ftp.zew.de/pub/zew-docs/gutachten/ZEW_OwnResources_System_Executive_Summary.pdf

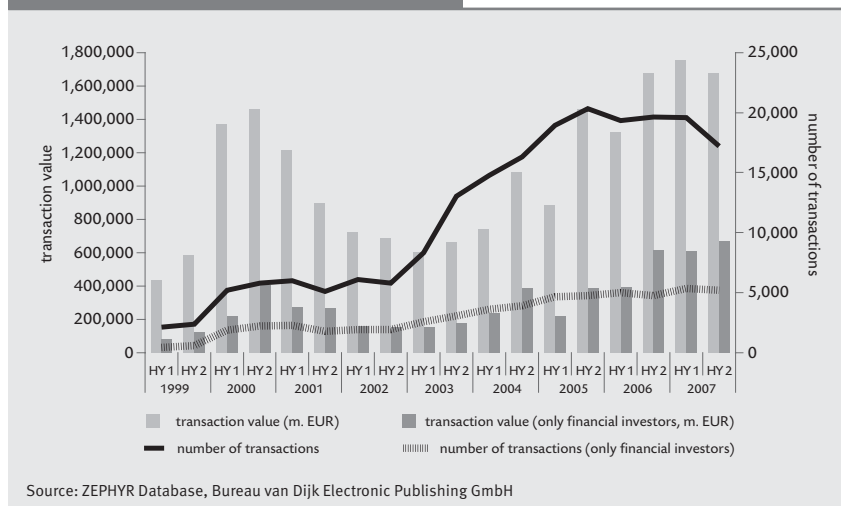
*Dr. Friedrich Heinemann,
heinemann@zew.de*

RESEARCH FINDINGS

Acquisitions Reduce Competition in Technology Markets

Mergers and acquisitions not only increase concentration in product markets, thereby reducing competition to the detriment of consumers, but also result in key technologies being concentrated in the acquiring company, making it possible to block the development of competing technologies. These are the findings of a study carried out by the ZEW, which examined 1,204 European M&A transactions in the period from 1999 to 2003.

Worldwide M&A activities since 1999



According to the ZEW study (ZEW Discussion Paper No. 07-066), acquiring companies specifically identify those technologies in potential target companies which, owing to an existing patent, can block competitors' technological development. This can result in the company that is created by the merger having a monopoly-like position. Competition is thereby reduced not only in product markets, but also in the upstream technology markets. Mergers thus contribute to preventing competitors' innovative technological designs, to the detriment of consumers. The pharmaceutical industry, whose spectacular mergers and acquisitions have caused one furore after another in the past few years, provides an example of this very concentration. M&A transactions here may result in a whole range of important combinations of active substances in a field of therapy falling into

the hands of a single company. Particularly in view of the excessive development costs for new drugs, competitors could be largely excluded from development in this field of therapy.

While competition authorities almost exclusively examine the potential effects that a merger is likely to have on product markets, scarcely any systematic consideration has hitherto been given to concentration in technology markets. One way of preventing negative effects might be to oblige the merging companies to license their technologies, say, to competitors. However, this places high demands on the examining authority, as it must provide a well-founded assessment of the technology that is of particular relevance in the transaction.

The study also differentiates between acquisitions made by strategic investors and those made by financial

investors. The concentration effects of technologies are seen exclusively with strategic investors whose specific aim is to influence competition. Although financial investors show a clear interest in the target company's technologies as a whole, they do not have the same interest in those technologies that have the potential to block competitor technologies. The reason for this is that financial investors do not usually have their own technology portfolio, the target company remaining largely independent after the acquisition. Financial investors, i.e. private equity investors, in particular, account for around 30 to 50 percent of global M&A activities.

Strategic and financial investors

These findings suggest that strategic investors and financial investors pursue different investment strategies. A further indication of different search criteria being applied to potential acquisition targets is also provided by the profitability of the target companies. For example, it is important for strategic investors that companies should already be working profitably, whereas this indicator is of no interest to financial investors. The reason for this could be that the financial investor will be far more able than the strategic investor to implement measures for increasing profitability, once the purchase has been made. It continues to be apparent that financial investors, when assessing potential target companies, are able to compensate for a lack of technological knowledge through acquisition experience. However, factors like the target company's degree of indebtedness or age are not influential in the investors' acquisition strategies.

Dr. Christoph Grimpe, grimpe@zew.de

*Prof. Dr. Katrin Hussinger,
K.Hussinger@OS.unimaas.nl*

RESEARCH FINDINGS

IT Outsourcing: German Companies Prefer Domestic Partners

Almost 64 percent of companies in Germany currently have IT services such as the installation of hardware and software or programming services performed partly or wholly by external providers. It is relatively uncommon, however, for IT services to be outsourced across national borders (IT offshoring). Only 6 percent of IT outsourcing companies have IT services provided in other European and non-European countries. This is shown by a representative survey of around 4,300 companies with at least five employees in the manufacturing industry and selected service sectors (commerce, transport and postal services, banking and insurance, IT and telecommunications services, technical service providers and other business-related service providers), which the ZEW carried out in the first quarter of 2007, with financial support from the Landesstiftung Baden-Württemberg.

With regard to IT outsourcing, the manufacturing industry (71 percent) shows a higher outsourcing intensity than the service sector (63 percent). The banking and insurance sector and the chemical industry, with 83 and 81 percent, respectively, have the highest proportion of companies outsourcing IT services. The outsourcing intensity of the transport service providers (46 percent) and the IT and telecommunications sector (48 percent), however, is considerably below average.

Outsourcing Installation of Hardware and Software Most Frequent

The ZEW's ICT survey also shows that there is a marked difference in the outsourcing intensity for individual IT services. For example, more than 49 percent of companies outsource at least part of their installation of hardware and software. This is followed by programming services, which are assigned to external providers by 45 percent of companies. IT-related consultancy and planning is outsourced by 42 percent, management and operations of IT infrastructure by 31 percent. By contrast, barely 14 percent of companies make use of outsourcing of computing capacity, such as Application Service Providing (ASP).

It can be consistently observed for all areas that IT outsourcing intensity increases with the number of employees

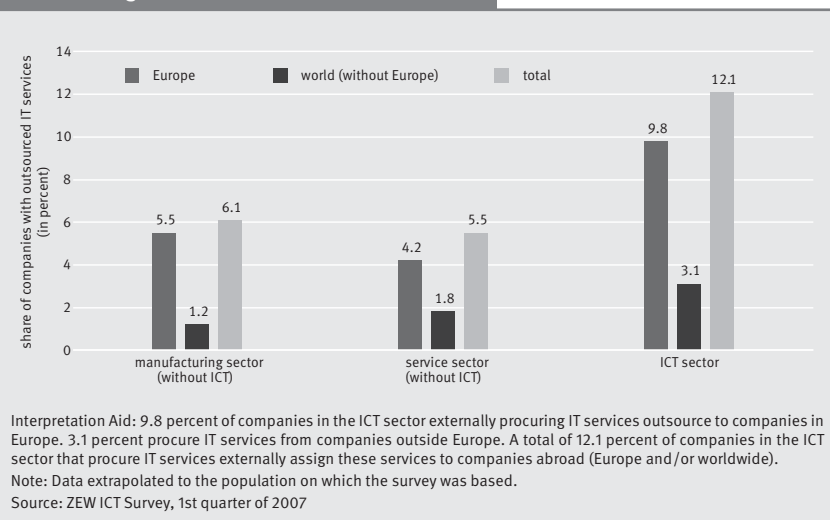
in a company. While the manufacturing industry has 63 percent of smaller companies (with fewer than 50 employees) outsourcing IT services, the percentage for medium-sized companies (50 to

The survey further reveals that it is relatively uncommon for IT services to be outsourced across national borders. Only 6 percent of companies have IT services provided in other European and non-European countries, with outsourcing to European neighbours clearly dominating over global IT outsourcing.

IT Offshoring

The ICT sector, which includes IT and telecommunication companies from the manufacturing industry and the service sectors, shows above-average activity in procurement of IT services from abroad. More than 12 percent of companies in

Outsourcing IT services abroad



499 employees) and large companies (500 employees and above) stands at 87 and 92 percent, respectively.

In the service sector, the percentage of small companies (i.e. companies with fewer than 20 employees) engaged in IT outsourcing stands at 59 percent. 77 percent of medium-sized companies (20 to 249 employees) and 87 percent of large companies (250 employees and above) make use of IT outsourcing.

this sector draw on services from abroad. The manufacturing industry and the service sector (both excluding companies in the ICT sector) each achieve values of around 6 percent (see graph). Contrary to the frequently held opinion that IT offshoring is widespread, it is apparent that companies, in particular from the non-ICT sector, prefer regional proximity when procuring their IT services.

Dr. Irene Bertschek, bertschek@zew.de
Jörg Ohnemus, ohnemus@zew.de

ZEW CONFERENCE

Fifth INFER Workshop on Competition Theory and Competition Policy

A joint workshop of the INFER Network (International Network for Economic Research) and the ZEW took place in Mannheim in November 2007, focusing on the regulation of network-based markets. This workshop discussed central issues relating to the impact of government intervention, the feasibility of theoretical models and the

regulatory framework in the telecommunications sector and other network-based markets. His presentation focused on the question of how competition can be achieved as efficiently as possible in different market forms, pointing out that economic instruments needed to be reconsidered, based on legal guidelines, and adapted to current

empirical verification of the existence of the so-called “waterbed effect” in mobile communication markets. The “waterbed effect”, a central item of discussion in the current regulation debate on European mobile communication markets, describes the change in prices that occurs when mobile termination rates are at least partially determined by legal guidelines. In mobile communication markets only the monopolistically determined termination charges are still subject to regulation. If a regulatory authority attempts to lower them, this may bring about an increase in prices of other mobile services. Tommaso Valletti stressed that, if there were an alternative form of payment (“receiver party pays” instead of “calling party pays”), the “waterbed effect” would not occur.



from left: Tommaso Valletti, Christian Kirchner, Wolfgang Kopf and Georg Licht (ZEW).

efficiency of regulatory measures. The keynote speakers were Christian Kirchner (Humboldt University of Berlin), Wolfgang Kopf (Senior Executive Public & Regulatory Affairs, Deutsche Telekom AG, Bonn) and Tommaso Valletti (Imperial College, London and University of Rome “Tor Vergata”). The workshop offered the participants an environment for the discussion of economic challenges in the regulation of grid based markets as well as of potential improvements under the given European legal framework.

Political Instruments for Promoting Competition

Christian Kirchner explained the applicability of various political instruments in promoting competition, against the background of the current

trends, where possible. While a variety of different tools qualify in advance, adequate criteria must be used to compare them and select the most efficient one.

Wolfgang Kopf, in his contribution, presented the extraordinary development, in the telecommunications sector, of state monopolies to privatised companies in competition. His explanations focused on comparing the current situation in Europe with the situation in the United States and in selected Asiatic countries in respect of investment behaviour in infrastructure. He emphasized that differences in the way telecommunication markets are regulated also affected international competition in capital markets as sources of investment financing.

Tommaso Valletti, in his presentation, showed how it is possible to provide

Regulation in Telecommunications and Energy Markets

Apart from the keynote speakers, other workshop participants presented findings from their current work. Both in microtheoretical and empirical presentations, they examined the effects of regulation in telecommunications and energy markets, discussing possible alternatives to the status quo. For example, Yossi Spiegel (University of Tel Aviv) presented a paper on the impact of regulation on the capital structure of companies, arriving at the conclusion that regulation is particularly effective when non-public companies are involved.

The contribution of Bent Nowack (Technical University of Berlin) and Knut Blind (Technical University of Berlin, Fraunhofer Institute for Systems and Innovation Research) identified criteria for detecting new or emerging markets in the telecommunications sector, emphasizing the importance of measuring innovations in these markets.

Tobias Veith, veith@zew.de

ZEW FINANCIAL MARKET SURVEY

Results of the Financial Market Survey

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

As a whole around 350 experts take part in the survey. 280 of them work in

banks, 50 in insurance companies and investment companies and 20 in other industries. Participants in the survey are financial experts of the finance departments, the research departments and the economic departments as well as the investment and securities departments of the firms. The experts are questioned on their medium term expectations about

the development of important international financial markets with respect to the business cycle, the inflation rate, short term and long term interest rates, the exchange rate and share prices.

Information on the applied procedure is available as an abridged version published by the ZEW.

Sandra Schmidt, s.schmidt@zew.de

Stock Markets in 2008: Germany and United States with Upward Potential

The leading share indexes of the German and US stock markets, Dax and Dow Jones, expect a slight upward potential through to the end of 2008. At the same time, the Euro's strength will persist in the coming year. This is the result of a survey of around 230 financial market experts carried out by the ZEW in December 2007.

On average, the analysts surveyed assume that the Dax, which stood at 8,067 points on 1st January, will finish 2008 on 8,156 points. This estimation would be equivalent to a price growth rate of 1.10 percent for the Dax, compared with the 8,067 points at the beginning of the year. The Dow Jones potential is estimated, on average, to be 13,525 points at the end of the year, with 1st January already seeing the Dow Jones standing at 13,265 points. These figures would give rise to a growth rate of 1.96 percent for US securities over the course of the year. These are relatively modest expectations, bearing in mind that the growth rate of the stocks of the companies listed on the Dax was about 22 percent in 2007 and the companies listed on the Dow Jones increased by 6.5 percent.

The distribution of the replies around the mean values calculated was, however, asymmetrical (see graphics). For example, 35 percent of the observations on the expected level of the Dax fell most frequently in the range between 8,400 and 8,600 inclusive. 22 percent of the answers in respect of the Dow Jones were concentrated on the range between 13,800 and 14,100 points inclusive.

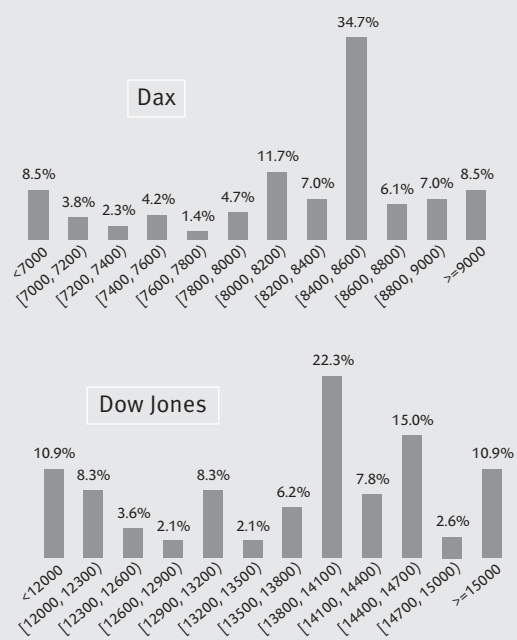
The experts estimate that 2008 will see the price-earnings ratio (PER) of the Dax amount, on average, to 14.2. Dow Jones stocks, by contrast, should cost slightly more at 16.3. This means that the experts are of the opinion that both share indexes will be only slightly higher in price than in 2007.

To estimate the exchange rate risk of investments in US securities, the experts were asked to give their expectations on exchange rate development. According to their estimates, one Euro will be worth 1.44 US dollars at the end of 2008. This means that, given an exchange rate of 1.46 dollars at the beginning of 2008, the US currency will continue to remain weak.

The experts were also asked to provide a weighting of US stocks, raw material stocks and government bonds in their portfolio for years 2007 and 2008. The calculation of the changes when comparing the two years shows that the experts will reduce their proportion of US stocks by an average of one percentage point in the year 2008. Raw material stocks are also given a 0.35 percent lower weighting. Government bonds, by contrast, will increasingly be used as a safe haven, because the portfolio weighting for this investment class increases by 2.21 percentage points.

Sandra Schmidt, s.schmidt@zew.de

Relative frequencies of the expected development of Dax and Dow Jones to the end of 2008



total number of replies: 224

Source: ZEW

PUBLICATIONS

■ ZEW Economic Studies

Bettina Peters

Innovation and Firm Performance: An Empirical Investigation for German Firms

The process of firms' growth – in terms of productivity or employment – is a major concern of policy makers. In this context, innovations are considered to play a crucial role in stimulating firms' performance. This book investigates this general hypothesis by looking at three topics: 1. Does innovation lead to an increase in employment growth? 2. Does innovation boost labour productivity? 3. Does innovation in one period improve innovation performance in subsequent periods?

Based on a comprehensive innovation panel dataset for German firms, this book presents detailed results for each question, in particular by separating the effects induced by new products from those induced by the introduction of new production technologies. From a theoretical point of view, amongst others, a new multiproduct model has been developed to study employment effects.

ZEW Economic Studies Volume 38, Physica Verlag, Heidelberg/New York, 2007, ISBN 978-3-7908-2025-6

■ ZEW Discussion Papers

No. 07-063, Astrid Dannenberg, Bodo Sturm, Carsten Vogt: Do Equity Preferences Matter in Climate Negotiations? An Experimental Investigation.

No. 07-064, Karen Pittel, Dirk T. G. Rüb-
belke: Climate Policy and Ancillary Benefits – A Survey and Integration into the Modelling of International Negotiations on Climate Change.

No. 07-065, Sabine Jokisch, Tim Mennel: Hydrogen in Passenger Transport: A Macroeconomic Analysis.

No. 07-066, Christoph Grimpe, Katrin Hussinger: Firm Acquisitions and Technology Strategy: Corporate Versus Private Equity Investors.

No. 07-067, Marco Wölfle, Price Discovery for Cross-Listed Securities from Emerging Eastern European Countries.

No. 07-068, Marcus Kappler, Projecting the Medium-Term: Outcomes and Errors for GDP Growth.

No. 07-069, The International Study Group on Exports and Productivity: Exports and Productivity – Comparable Evidence for 14 Countries.

No. 07-070, Bernd Fitzenberger, Wolfgang Franz, Olaf Bode: The Phillips Curve and NAIRU Revisited: New esti-

mates for Germany.

No. 07-071, Michael Overesch: The Effects of Multinationals' Profit Shifting Activities on real Investments.

No. 07-072, Andrea A. Toole, Dirk Czarnitzki: Life Scientist Mobility from Academia to Industry: Does Academic Entrepreneurship Induce a Costly "Brain Drain" on the Not-for-Profit Research Sector?

No. 07-073, Dirk Czarnitzki, Kornelius Kraft: Spillovers of Innovation Activities and Their Profitability.

No. 07-074, Katja Coneus, Kathrin Göggel, Grit Mühler: Determinants of Child Care Participation.

No. 07-076, Tobias Linzert, Sandra Schmidt: What Explains the Spread Between the Euro Overnight Rate and the ECB's Policy Rate?

No. 07-077, Elke Wolf, Anja Heinze: How to Limit Discrimination? Analyzing the Effects of Innovative Workplace Practices on Intra-Firm Gender Wage Gaps Using Linked Employer-Employee Data.

No. 07-078, Katrin Hussinger: Inventors' Response to Firm Acquisitions.

No. 07-079, Andrea Mühlenweg: Educa-

tional Effects of Early or Later Secondary School Tracking in Germany.

No. 07-080, Tim Mennel, Maria Vernanda Viecens: Latin Versus European Power – A Tale of Two Market Reforms.

No. 07-081, Sebastian Hauptmeier: The Impact of Fiscal Equalization on Local Expenditure Policies – Theory and Evidence from Germany.

No. 07-082, Matthias Köhler: Merger Control as Barrier to EU Banking Market Integration.

No. 07-083, Patrick Beschorner: Entry Deterrence in Postal Service Markets.

No. 07-084, Nicole Gürtzgen: Job and Worker Reallocation in German Establishments: The Role of Employers' Wage Policies and Labour Market Institutions.

No. 08-002, Christoph Grimpe, Ulrich Kaiser: Gains and Pains from Contract Research: A Transaction and Firm-level Perspective.

No. 08-005, Hanna L. Binz, Dirk Czarnitzki: Financial Constraints: Routine Versus Cutting Edge R&D Investments.

No. 08-006, Marcus Clauss, Reinhold Schnabel: Distributional and Behavioural Effects of the German Labour Market Reform.

ZEWZentrum für Europäische
Wirtschaftsforschung GmbHI
M
P
R
I
N
T

ZEW news English edition – published quarterly

Publisher: Centre for European Economic Research (ZEW) Mannheim,
L 7, 1 · D-68161 Mannheim · P.O. Box 10 34 43 · D-68034 Mannheim · Internet: www.zew.de

President: Prof. Dr. Dr. h.c. mult. Wolfgang Franz

Editors: Katrin Voß, Phone +49/621/1235-103, Telefax +49/621/1235-222, E-Mail: voss@zew.de

Gunter Grittmann, Phone +49/621/1235-132, Telefax +49/621/1235-222, E-Mail: grittmann@zew.de

Reprint and further distribution: only with mention of reference and sending of a voucher copy

© Zentrum für Europäische Wirtschaftsforschung GmbH (ZEW), Mannheim, 2008