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Workshop on Intangible Assets

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Deliverable D2.4

Workshop on Intangible Assets

ZEW Mannheim May 2-3, 2013

Summary

The goal of the workshop was to bring together researchers at academic institutions and experts at national statistical institutes (NSI) in order to discuss the present state of treatment of intangible assets in both areas. In particular, the importance of intangibles for economic growth, their measurement and the recent initiatives to more comprehensively include them in the national accounts (NA) were on the agenda. Taken together, these aspects highlighted the importance of intangible assets for recent effort regarding measures of economic activity "going beyond GDP".

The workshop featured presentations on some of the largest current international research projects in the area of data creation and quantification of intangibles and their contribution to economic growth. It also gave an overview of how the knowledge border is shifted in research at academic institutions. Furthermore, the implementation of measures of intangibles in the NAs was presented and the current moves in this direction – such as the capitalisation of research and development investment – were discussed. A panel discussion brought together the insights of academics and the experiences and needs of statisticians – with a clear message of further standardization in measurement being in demand.

The workshop delivered a comprehensive overview of the topic of intangible assets. It clearly highlighted the important role played by intangibles in explaining economic growth and thus established it as an important pillar in any attempt of measuring economic progress "beyond GDP". However, it also highlighted difficulties in implementing existing definitions of intangibles in data collection activities and the issue of generating internationally comparable data. While the capitalisation of research and development, software, literary and artistic original as well as mining explorations are by now mandatory for NSIs, an extension of NAs to include the whole set of intangibles according to the concept of Corrado, Hulten and Sichel (2005) at this point seems infeasible for the near future. There is thus a strong need for more international cooperation in terms of generating comparable data and methods of analysis across countries.

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1 Introduction

The following report summarizes the aims and results of the workshop on intangibles assets that was organized by the Centre for European Economic Research (ZEW) in Mannheim on May 2-3, 2013. The workshop is deliverable D2.4 within the 2nd work package of the EU FP7 Programme Project "e-Frame: Framework for Measuring Progress". The 2nd work package collects recent advances in "going beyond GDP" in measuring economic progress. Intangible assets play a key role in this regard as they constitute an important part of "knowledge capital" which is a key driver of economic success. Moreover, there already are on-going attempts of capitalising intangible assets, as in the mandatory treatment of research and development activities in national accounts from 2014 onwards, for instance. Besides social and human capital, intangible assets – conceptualized as knowledge capital – could be an input into a framework of capital accounts suited for analysing intergenerational sustainability.

This report describes the state of the art regarding the research questions and measurement issues surrounding intangible assets as well as their inclusion in national accounts. It furthermore gives a summary of the presentations and the round table discussion that made up the workshop programme. Finally, it states the identified future research needs and outlines the target audience for the setting up of a European Network of Exports on the topic.

2 The State of the Art

2.1 Current Implementation at National Statistical Institutes

The treatment of intangible assets in national accounts (NA) is governed by the "System of National Accounts" (SNA) and its European Counterpart, the "European System of Accounts" (ESA). Intangible assets were already included in the SNA 1993 / ESA 1995 frameworks. Defined as "(…) typically consist[ing] of new information, specialized knowledge (…)" (ESA 1995 par. 3.110) they included mineral explorations, computer software and entertainment, literary or artistic originals. This concept has been extended and the current frameworks, SNA 2008 and ESA 2010, also include research and development (R&D) as assets. The capitalisation of intangible assets is an important ingredient in recent

efforts to more comprehensively capture and measure economic activity. From 2014 onwards, it will be mandatory for NSIs to include R&D in the NAs. A further extension of this asset boundary is currently not planned.

2.2 International Projects on Data Collection and Analysis

The INNODRIVE project, funded within the FP7, gathered and measured intangible capital data at the national level for EU27 countries and Norway as well as data at the firm level for the Czech Republic, Finland, Germany, Norway, United Kingdom and Slovenia. The former cover own-account as well as purchased intangibles, whereas the later cover only the own-account components of intangible capital. COINVEST, another FP7 project on intangible capital, also produced databases on intangible capital at the national level for several European countries. In addition, for Germany, Sweden and UK initial sectoral data are available.

Based on the previous work of INNODRIVE and COINVEST and by The Conference Board, an harmonized database at the country level was presented and discussed at a workshop sponsored by the European Commission in the context of a FP 7 SSH policy-science dialogue in December 2011 (see proceedings published in European Commission (2013)). The paper by Corrado et al. (2012) describes the data for 27 EU countries plus Norway and the US in detail. These INTAN data are freely available on the Internet (www.intan-invest.net). As a first attempt, these market sector data were broken down into a 1-digit sector level within the INDICSER project (Niebel et al., (2013)). The OECD dealt with the measurement and analysis of intangible capital in the project “New Sources of Growth: Knowledge-Based Capital” (OECD, 2013).

2.3 Current Academic Research

This section gives an overview of current academic research on intangible assets. It has a focus on research that deals with intangibles in a broad way rather than with single categories (such as R&D assets) and on research that is related to macroeconomic measurement. Currently, there are two important moves in this area at academic research institutions: the construction of measures of intangible assets at the sectoral level and the economic evaluation of the relationship between intangibles and economic growth.

While the concept of intangible capital has been used in economic research for a long time, the explicit attempt to quantify it in a way that can be integrated into NAs is still quite

recent. Corrado et al. (2005) made the main contribution setting out the approach for categorizing and quantifying intangible capital at the level of the national economy. Corrado et al. (2009) construct intangible capital estimates for the US and use them in a growth accounting framework. The inclusion of previously unmeasured inputs generally lowers the measured growth in multifactor productivity (MFP) and raises the measured contribution of capital inputs to growth in labour productivity. With their data, Corrado et al. (2009) find that the contribution of intangible capital to growth in labour productivity is about equal to the contribution of tangibles. After accounting for intangibles, capital instead of MFP constitutes the dominant source of growth.

COINVEST produced several studies on intangibles at the sectoral level with data for single countries or a small number of countries (see Haskel et al. ,2010; Haskel and Pesole, 2011; and Peters et al. ,2010). With UK data for the years 2000−2009 Goodridge et al. (2012) find manufacturing to be the industry with the highest ratio of intangible investment to value added. Chun et al. (2012) compare Japanese to Korean data and find that the share of intangible investment in value added is higher in Japan in many industries. Meanwhile it turns out to be higher in Korea in some service industries. Estimating the influence of intangibles on conventional MFP for Japan, the authors find a significant positive effect for the market economy but no clear effect for the service sector.

The econometric literature on the relationship between intangibles and labour productivity at the macroeconomic level is just beginning to emerge. Roth and Thum (2013) use INNODRIVE data for the aggregate of the nonfarm business sector of 13 European countries to estimate a production function. When accounting for intangibles, investment instead of growth in multifactor productivity becomes the dominant source of growth in their estimation. Using the INTAN-Invest data, Corrado et al. (2013) find a coefficient of similar, in some specifications even larger, magnitude. They formally investigate the presence of spillovers that are suspected if the estimated marginal product of a factor exceeds the marginal product implied by the factor remuneration under competitive markets.

3 The Debate and the Main Results

The following section documents the main insights from the presentations given at the workshop as well as from the round table panel discussion.

3.1 Session 1: International Project Activities on Intangible Assets

This session gave an introduction to two main project activities that advance the methodology and the construction of data in the field of intangible assets. In a first presentation, Massimiliano Iommi (ISTAT and Luiss Lab of European Economics) highlighted the importance of a broad framework to cover different types of intangibles that go well beyond the capitalization of R&D. He described the INTAN-INVEST data – a freely available data base that covers 29 countries for the years 1995-2010. It holds information on three main types of marketed intangibles that follow from the Corrado, Hulten and Sichel (2005) framework: computerized information, innovative property, and economic competencies. He gave an overview of first analytical results of an international comparison of the sources of growth in terms of intangible assets. In a second presentation, Marie LeMouel (OECD) introduced the audience to the most recent efforts in measuring intangibles at the OECD in the context of the project "New Sources of Growth: Knowledge-Based Capital". In particular, she presented several suggested improvements to the measurement of intangibles. Among these, the use of patent data – to get to the quality of innovations – and of task data – for a better quantification of organizational capital – are crucial. The discussion with the audience mainly focused on the method of using labour turnover data to approximate depreciation rates for organizational capital, which was met with some doubt.

3.2 Session 2: Academic Research Activities on Intangible Assets (I)

This session collected exemplary academic research activities using the latest data and methods to analyse the importance of intangible assets for economic growth. Bettina Peters (ZEW) presented research investigating the drivers of labour productivity growth. Her analyses, based on the Mannheim Innovation Panel, show that innovative, human, and branding capital are the most important intangible assets in this regard. Organizational capital has effects, too, but rather in the longer-run. Kate Robinson (Swansea University) took the analysis to the regional level and presented work on different growth performances between "city regions". One main result that emerged is that regions with the highest growth contribution of intangibles also have the highest relative contribution of R&D, which thus seems to be particularly important. Hannu Piekkola (University of Vaasa) presented a more technical effort to including intangibles in a production function framework. Calculating a

decomposition of output growth he finds the relative output elasticity for organizational capital to be higher than for R&D capital in Finland. He also finds a positive correlation between a firm's market valuation and its organizational capital.

3.3 Session 3: Academic Research Activities on Intangible Assets (II)

This session again was devoted to presentations of recent academic research. Bernd Görzig (DIW) presented some insights on how intangibles can help to explain differences in return rates across firms. Using data from the INNODRIVE project he confirms that return rates are lower and the measured dispersion is reduced when intangibles are capitalized. Rebecca Riley (NIESR) then looked at the role of intangibles for business performance using UK firm-level data. She finds a high correlation between organizational capital (as well as R&D) and productivity in numerous specifications, including dynamic and robust regression techniques. Wen Chen (University of Groningen) presented evidence on spill-over effects of intangibles, organizational capital in particular. He thus complements the literature that analyses spill-overs arising from R&D investment. He finds the contribution of organizational capital to growth to be overstated in common approaches due to the presence of negative spill-overs.

3.4 Session 4: Intangible Assets in National Statistics and Growth Accounting (I)

Eva Hagsten (Statistics Sweden) opened this session, highlighting the on-going activities at Statistics Sweden. These follow the requirements of the SNA 2008 but in her personal view could benefit from also including human capital accounts. Intangibles matter for growth but there seems to be some gap between macro-level requirements in terms of clarity and reliability and micro-level detail in research. Daniel Ker (ONS) subsequently presented efforts at the UK Office of National Statistics to capture intangibles in a new micro-level survey. He suggested that intangibles other than R&D are particularly visible in firm-level investment. Furthermore, he discussed the question of depreciation of R&D capital by means of answers given in the survey on the "service life" of R&D.

3.5 Session "Round Table": Challenges and Developments at National Statistical Institutes with Respect to Measurement of Intangible Assets

The round table discussion was chaired by Marianne Saam (ZEW). Participants on the Podium were Susana Garcia-Diez (Destatis Germany), Eva Hagsten (Statistics Sweden) and Bernd Görzig (DIW). The session started with short introductory statements by each of the panellists and subsequently became a lively but well moderated debate among the participants as well as with the audience.

Susana Garcia-Diez opened the round of introductory statements emphasizing the importance of broadening measures of economic progress such as GDP. She sees a role for intangibles, yet, also highlights the conservatism with respect to changing NA definitions that prevails at NSIs because of their mandate to provide objective information for policy and administration. As political decisions, negotiations, and sanctions depend on GDP numbers, changing the definition requires reliability, comparability and transparency. The practice of measuring intangibles in a comprehensive way as suggested by Corrado et al. (2005) is currently in a too early stage to integrate it completely into NAs. Eva Hagsten (Statistics Sweden) generally agrees to this view in her opening statement, reiterating that the Corrado et al. (2005) framework is mainly a research project, rather than an NA one. In her view, transparency in the implementation of this framework has to be increased and complexity decreased. In addition, she would like to see more coverage of human capital in a structured way in the NAs as well as in the intangible assets framework. As the third panellist, Bernd Görzig (DIW) begins with a reference to the high reputation of NAs – which is posing an obstacle to the inclusion of new concepts like intangibles. New definitions simply have to meet very high standards. A further aspect is that he believes the crucial point to be whether intangible assets help explain the business cycle. Since NAs have a clear relevance for business cycle analysis it comes down to a straight-forward question in his mind: Do intangible assets improve or distort the national accounts? He feels more information about short-run changes of intangible assets is needed, for example about the relation between purchased and own-account intangibles over the business cycle. He hypothesizes that they seem to be anti-cyclical, so they would smooth the business cycle. He illustrates this aspect by talking about labour hoarding in a recession. Countries in which the companies tend to hoard labour perform much better after the recession, which could be an indicator for the production of intangible assets during this period. He concludes that for this reason it seems important to include intangibles in national accounts but only if research

provides further information about their time-series properties. Given the current concepts, measurement and analysis of intangibles, most studies usually take a long-run view – in part expressed by the cross-sectional nature of many studies.

Marianne Saam then lead over to the general debate, which also allowed the audience to comment on the topic of what to implement in NAs and how. The main results and issues can be summarized as follows. Again, the political importance of GDP is highlighted and the potential consequences of raising the investment numbers – such as rising debt limits – are discussed. While a general scepticism about a comprehensive inclusion of intangible assets is expressed, current problems that arise from a restricted inclusion (to measures of R&D for example) are also discussed. In particular, there is bias towards manufacturing when R&D is capitalized. This bias could be countered with an inclusion of organizational capital, which has a higher relative importance in services. Eventually, the discussion centred on the question of how to proceed if intangibles should be refined in concept and measurement such that could qualify for the high standards of NA inclusion. A consensus emerges that the next revision of the SNA would be the only feasible point of entry. In order to be included in the revision, the current concepts of intangibles would have to be implemented in a more internationally comparable survey design similar to the one that existed for R&D when it was included in the SNA. Some participants raise the point that the survey burden on firms can't increase by much more and discuss the right mix between data collection and modelling of data. The discussion ended with a mutual emphasis of the importance of international comparability of measures of intangible assets. Large institutions such as the EU or the OECD could play a leading role in this regard.

3.6 Session 5: Intangible Assets in National Statistics and Growth Accounting (II)

Hugo de Bondt (CBS) opened this last session with a presentation on how intangibles are incorporated into the Dutch growth accounts, in particular the treatment of computerized information, innovative property and economic competencies. In a growth accounting exercise, he documented that the intangible's contribution was higher in 1996-2001 compared to 2002-2008. Erich Oltmans (Destatis) gave an overview on how intangibles (mainly R&D) are incorporated into the German NAs. Crucially, he pointed out the consequences for German GDP, which would be more than 2% higher with capitalised R&D. Marianne Saam (ZEW) presented new measures of intangibles at the industry level using the aggregate INTAN-Invest data as a starting point. The main intention is to identify

those industries most responsible for the contribution of intangibles to overall economic growth. As a result of a multi-industry, multi-country analysis, she pointed out that the contribution of intangibles is on average higher in manufacturing than in services – a fact driven by the high share of R&D investment in the former.

4 The Open Issues

The workshop generated an up-to-date overview of the current state of research on intangible assets as well as their capitalisation in the area of national accounts. It became clear that a gap between these two areas still exists. Open issues to be addressed are thus as follows:

- A general leading concept should be recognized and its implementation fostered. The Corrado et al. (2005) framework seems most promising at this stage. Important issues arise with respect to the measurement of its components, however. Here, further research seems warranted in order to assess the stability of certain procedures. Topics include agreement on calculation of depreciation rates for R&D and organizational capital and the calculation of economic competencies with occupation-level data.
- The data collected or generated in modelling approaches have to be internationally comparable. As most current research is based on micro data, intensive communication within the research community and with academics is needed.
- Most research on intangible assets takes a long-run view. Given the important role of national accounts for business cycle monitoring, the time series properties of intangibles should be more clearly understood before an inclusion in NAs seems possible.
- So far many measures of intangible assets are for own-account assets. The role of purchased intangibles has to be analysed in more detail. The same is true for international trade in intangibles assets.
- Public provision of intangible assets has not been analysed to the same degree as private provision. This research gap needs to be filled in order to provide a complete picture of how intangibles affect economic growth and well-being.

5 Definition of the e-Frame European Network

The target audience for the topic includes on the one hand participants of previous FP7 projects, in particular INNODRIVE, COINVEST; IAREG and INDICSER. The network among these researchers is already quite well established. We suggest including the work package leaders and the main scientific contacts at each institution from these projects as well as economists responsible for the OECD project. Main experts working outside the EU are Bart van Ark and Carol Corrado from The Conference Board, Carol Robbins from the BEA, Louise Talbot from the Department of Industry, Innovation, Science, Research and Tertiary Education in Australia, Kyoji Fukao (Hitotsubashi University and RIETI) and Keun Lee (Seoul National University).

The OECD set up a large project on "New Sources of Growth: Knowledge-Based Assets" organizing i.a. expert meetings on intangible assets. The experts involved could be contacted via OECD. (Mailing lists should be coordinated in order to avoid cross-posting). On the side of the national statistical institutes, the network could involve the members of the Second Eurostat Task Force on the Capitalisation of R&D.[1]

6 Conclusions

The workshop was marked by high-quality presentations and lively discussions among the participants. The broad mix of experts on the topic of intangible assets from academic institutions as well as national statistical agencies led to the key issues − efforts towards harmonising concepts and measurement to ultimately allow for a more comprehensive coverage of intangibles in national accounts – being covered. While the latest academic analyses contribute towards clarifying the role of intangibles for growth, this anxiety was balanced by concerns about the feasibility of unifying the efforts to a satisfactory concept suitable for NA inclusion. There was a consensus that intangible assets have a place in any set of measures going "beyond GDP". Yet, details of how to comprehensively and reliably measure them were subject to debate. Important future research needs were identified. These include the need for more harmonized data production and a streamlining of methods used for analysis. Furthermore, the time series properties of intangible investment data are still

[1] http://search.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=STD/CSTAT/WPNA%282012%2929&docLanguage=En

not comprehensively analysed. Yet, this latter aspect is a key requirement for their inclusion in any concept of national accounts.

A collection of presentations given at the workshop can be accessed via the e-Frame website.

7 References:

Chun, H., Fukao, K., Shoichi, H. and Tsutomu, M. (2012), Measurement of Intangible Investments by Industry and its Role in Productivity Improvement Utilizing Comparative Studies Between Japan and Korea, RIETI Discussion Paper Series 12-E-037, Research Institute of Economy, Trade and Industry (RIETI).

Corrado, C., C. Hulten and D. Sichel (2005), "Measuring Capital and Technology: An expanded framework", in C. Corrado, J. Haltiwanger and D. Sichel (eds), *Measuring Capital in the New Economy*, National Bureau of Economic Research, Studies in Income and Wealth, Vol. 65, Chicago, IL: University Chicago Press, pp. 11-45.

Corrado, C., Hulten, C. and Sichel, D. (2009), 'Intangible Capital and US Economic Growth', Review of Income and Wealth 55(3), 661–685.

Corrado, C., Haskel, J., Jona-Lasinio, C. and Iommi, M. (2012), 'Intangible Capital and Growth in Advanced Economies: Measurement Methods and Comparative Results'. Working Paper, June, available at http://www.intan-invest.net .

Corrado, C., Haskel, J. and Jona-Lasinio (2013), Productivity Growth, Intangible Assets and ICT: some International Evidence, Paper Presented at the 3rd SEEK Conference at ZEW Mannheim.

European Commission (2013), Joint database on intangibles for European policy making – Data from Innodrive, Coinvest and the Conference Board, available at http://ec.europa.eu/research/social-sciences/pdf/joint_database_on_intangibles_en.pdf .

Goodridge, P., Haskel, J. and Wallis, G. (2012), UK Innovation Index: Productivity and Growth in UK Industries, CEPR Discussion Papers 9063, Centre for Economic Policy Research (CEPR).

Haskel, J., Goodridge, P., Pesole, A., Awano, G., Franklin, M. and Kastrinaki, Z. (2010), Innovation, Knowledge Spending and Productivity Growth in the UK, in COINVEST Project Report, Deliverable D 10, pp. 207–284. Available at http://www.coinvest.org.uk/pub/CoInvest/CoinvestProjects/COINVEST_217512_D10.pdf .

Haskel, J. and Pesole, A. (2011), Within-Country Analysis of Intangible Assets and Investments at Sector-Level, in COINVEST Project Report, Deliverable D 10, pp. 93–132. Available at http://www.coinvest.org.uk/pub/CoInvest/CoinvestProjects/COINVEST_217512_D10.pdf.

Niebel, T., O'Mahony, M. and Saam, M. (2013), The Contribution of Intangible Assets to Sectoral Productivity Growth in the EU, ZEW Discussion Paper No. 13-062.

OECD (2013), New Sources of Growth: Knowledge-Based Capital, Key Analyses and Policy Conclusions, Synthesis Report, http://www.oecd.org/sti/inno/knowledge-based-capital-synthesis.pdf .

Peters, B., Crass, D. and Licht, G. (2010), Intangible Assets and Investments at the Sector Level - Empirical Evidence for Germany, in COINVEST Project Report, Deliverable D 10, pp. 133–206. Available at http://www.coinvest.org.uk/pub/CoInvest/CoinvestProjects/COINVEST_217512_D10.pdf .

Roth, F. and Thum, A.-E. (2013), 'Intangible Capital and Labor Productivity Growth: Panel Evidence for the EU from 1998-2005', Review of Income and Wealth . Forthcoming http://dx.doi.org/10.1111/roiw.12009 .

8 Workshop Programme

(presenters are in bold print)

Day 1: THURSDAY - MAY 2, 2013

13:00 – 14:00
Registration and Lunch

14:00 – 14:15
Welcome

14:15 – 15:45
Session 1: International Project Activities on Intangible Assets

Massimiliano Iommi (ISTAT and LLEE):
Intan-Invest Data and Growth Accounting

Marie Le Mouel (OECD):
Measuring Knowledge-Based Assets: Findings and Open Questions

15:45 – 16:15
Coffee Break

16:15 – 18:00
Session 2: Academic Research Activities on Intangible Assets (I)

Bettina Peters and Dirk Crass (both ZEW):
Do Intangibles Enhance Productivity – Micro-econometric Evidence from Germany

Kate Robinson (Swansea University) and Rebecca Riley (NIESR):
The Role of Intangible Capital in Productivity Growth: A British City Region Perspective

Hannu Piekkola (University of Vaasa)
Intangible Investment and Market Valuation

18:00 – 18:15
Wrap-up of Day 1

19:30
Conference Dinner

Day 2: FRIDAY - MAY 3, 2013

9:15 – 11:00
Session 3: Academic Research Activities on Intangible Assets (II)

Martin Gornig and **Bernd Görzig** (both DIW):
Intangibles, Do they Explain Differences in Return Rates?

Rebecca Riley (NIESR) and Kate Robinson (Swansea University):
Intangible Capital and Business Performance: Evidence from the UK

Wen Chen (Groningen):
Search for Organizational Spillovers

11:00 – 11:30
Coffee Break

11:30 – 12:40
Session 4: Treatment of Intangible Assets in National Statistics and Growth Accounting (I)

Eva Hagsten (Statistics Sweden):
Intangible Assets, Should We Bother?

Daniel Ker (UK Office of National Statistics):
New Firm-level Information on Intangibles

12:40 - 14:00
Lunch Break

14:00 – 15:30
Round Table: Challenges and Developments at National Statistical Institutes with Respect to Measurement of Intangible Assets
Susana Garcia-Diez (DESTATIS)
Bernd Görzig (DIW)
Eva Hagsten (Statistics Sweden)
Marianne Saam (ZEW, host)

15:30 – 16:00
Coffee Break

16:00 – 17:45
Session 5 Treatment of Intangible Assets in National Statistics and Growth Accounting (II)

Hugo de Bondt (Statistics Netherlands):
The Incorporation of Intangible Assets in the Dutch Growth Accounts

Erich Oltmanns (DESTATIS):
R&D as Investment in the National Accounts

Thomas Niebel (ZEW), Mary O'Mahony (University of Birmingham) and **Marianne Saam** (ZEW):
Intangible Investment at the Industry Level: Growth Accounting

17:45 – 18:00
Wrap-up of the Workshop and Goodbye

9 List of Participants:

Name	First Name	Institution
Chen	Wen	University of Groningen
de Bondt	Hugo	Statistics Netherlands
Garcia-Diez	Susana	DESTATIS
Görzig	Bernd	DIW
Hagsten	Eva	Statistics Sweden
Hogrefe	Jan	ZEW
Iommi	Massimiliano	ISTAT
Kappler	Marcus	ZEW
Ker	Daniel	UK Office of National Statistics
Le Mouel	Marie	OECD
Licht	Georg	ZEW
Niebel	Thomas	ZEW
Oltmanns	Erich	DESTATIS
Paasi	Marianne	European Commission (via Skype)
Peters	Bettina	ZEW
Piekkola	Hannu	University of Vaasa
Rasel	Fabienne	ZEW
Riley	Rebecca	NIESR
Robinson	Kate	Swansea University
Saam	Marianne	ZEW
Schulte	Patrick	ZEW