

# Conference Folder

WAHE2016

**International Interdisciplinary Conference  
Work, Age, Health and Employment  
- Evidence from Longitudinal Studies  
University of Wuppertal, Germany  
19 - 21 September 2016**



*Wuppertal Suspension Railway - the oldest electric elevated railway worldwide, © Bernd Bühner*

A joint conference by the **Department of Occupational Health Science, University of Wuppertal** and the **Institute for Employment Research, IAB** (Nuremberg) on behalf of the **Scientific Committee Aging and Work, International Commission on Occupational Health**



**BERGISCHE  
UNIVERSITÄT  
WUPPERTAL**



DEPARTMENT OF  
OCCUPATIONAL HEALTH SCIENCE  
UNIVERSITY OF WUPPERTAL

Institut für Arbeitsmarkt-  
und Berufsforschung  
Die Forschungseinrichtung der  
Bundesagentur für Arbeit



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## Welcome address by the Rector of the University of Wuppertal

On behalf of the Bergische University of Wuppertal I welcome the participants of the *International Interdisciplinary Conference on Work, Age, Health and Employment* (WAHE2016).

Ageing populations and subsequent increasing pressure on social systems bring about the reconsideration of the distribution and organisation of work and non-work in our societies.



Prof. Lambert T. Koch, Rector  
University of Wuppertal

The scope of this topic is considerable as many societal stakeholders and levels are involved: the workers themselves, enterprises and not least national and international policy. Our university is committed to interdisciplinary research and networking as it has a scientific focus on, among others, *education, health and illness prevention, engineering and safety* and also *business, innovation and economic change*. We know how challenging interdisciplinary scientific exchange can be. Another good reason for discussing *work and health* in Wuppertal may be that this city is the capital of the Bergisches Land, a region with a long history of industrial work. Taking all this into account, the University of Wuppertal is certainly a suitable site for this conference.

The *Department of Occupational Health Science* of the *Faculty for Mechanical Engineering and Safety Engineering* has called for this conference to discuss evidence-based knowledge on the multifaceted relations of *Work, Age, Health and Employment* – and not least to formulate research needs. The attractive program will be filled with content by almost 200 scientists representing different scientific disciplines, research communities and countries.

I wish all of you an intense and enlightening meeting – and I hope you will leave this venue remembering the University of Wuppertal as a place for an open, innovative and fruitful scientific dialogue.

Prof. Lambert T. Koch, Rector  
University of Wuppertal  
August 2016



# International Interdisciplinary Conference Work, Age, Health and Employment



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Hasselhorn, BUW,  
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BUW, Wuppertal



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Silke Tophoven  
IAB, Nuremberg

Welcome to WAHE2016!

The WAHE2016 Local Organising Team warmly welcomes you to the conference *Work, Age, Health and Employment - Evidence from Longitudinal Studies, WAHE2016* at the University of Wuppertal (BUW). This international interdisciplinary conference was jointly organized by the *Department of Occupational Health Science* (University of Wuppertal) and the *Institute for Employment Research, IAB* (Nuremberg) on behalf of the *Scientific Committee Aging and Work* of the International Commission on Occupational Health, ICOH.

Although the conference call was rather focused, about 180 conference participants have registered and submitted more than 120 abstracts. All of them will fill a stimulating diverse program of Scientific, Special and Brown Bag Sessions as well as Poster Presentations. We hope that the conference offers plenty of occasions of fruitful discussions, within the scientific sessions but also during the breaks and not least during the Get together on Monday night and the Social Dinner on Tuesday night.

We thank you for coming and putting your knowledge into the joint kettle of evidence and knowledge and we hope that you enjoy the WAHE2016 conference, meet new people, learn about new ideas and maybe think about retirement research in new ways.

*The National Organising Team of WAHE2016*

# International Interdisciplinary Conference Work, Age, Health and Employment



## Welcome address by the Deputy Director of the Institute for Employment Research, IAB

On behalf of the Institute for Employment Research as Co-Organiser I welcome you warmly to this International Interdisciplinary Conference 'Work, age, health and employment – evidence from longitudinal studies'.

In the coming decades, the age composition of the German labour force will change significantly. Amongst other factors, this change is driven by the ageing of the 'baby boomer' cohort. Thus, the working population's average age will continually increase while the size of the working population will decrease.



Dr. Ulrich Walwei, Deputy Director  
Institute for Employment Research

This trend will not change substantially, even when we consider current levels of immigration into Germany. Additionally, the proportion of older employees is relatively high here in Germany, even when compared to other European countries. These developments pose a direct challenge to the future viability of our competitiveness and of our welfare state. Policymakers have responded to these challenges in different ways. The pathways to early retirement have been reduced, whereas the statutory retirement age has been increased.

But more needs to be done, the preservation of the workability is of increasing importance, because employees' health and healthy working conditions are basic requirements for a long and healthy working life. Employment research needs reliable results regarding the association between health, work and employment to be able to offer qualified policy consulting. This conference contributes towards these goals.

I wish all of you a fruitful conference, with new and interesting theoretical, thematic and methodological perspectives as well as rich and lively discussions.

Dr. Ulrich Walwei  
Institute for Employment Research, IAB, Nuremberg, Germany  
August 2016

## Welcome address by the Chair of ICOH Scientific Committee “Aging and Work”

To all participants of the International Interdisciplinary  
Conference on Work, Age, Health and Employment  
(WAHE2016)

It is with great pleasure to welcome you to WAHE2016 on behalf of the ICOH Scientific Committee Aging and Work. The conference addresses a topic – work and retirement – that already today attracts much societal attention and will gain even more in the coming decades. In current times of a continuously aging work force, the issues of organising, designing and (re-) distributing work become more and more important. Here, high quality research is needed to inform and shape policy and practice. The world of work is changing – if this change is a threat or a challenge cannot mostly be seen in advance. So it is of outmost relevance that research monitors these developments closely and intervenes where needed and possible, and to provide politicians and managers with new valid knowledge for developing of the practice. ICOH has been cooperating in organising conferences already since early 90’s with different themes under the topic of aging and work, but during the last years, the growing evidence from longitudinal studies has contributed significantly to our knowledge about the relationship between human aging and work life. Thus, also our research tools are changing: over the last years, there have been exciting innovative research developments. An important matter is that knowledge and models from gerontology has been widely used in work life studies to explain work related aging (Occupational Gerontology).



Prof. Clas-Håkan Nygård, Chair  
of the ICOH SC ‘Aging and Work’

I, along with the ICOH Scientific Committee Aging and Work, want to thank the *Department of Occupational Health Science*, University of Wuppertal and the *Institute for Employment Research*, IAB (Nuremberg) for organising this important meeting. Finally, I wish all of you that you will have a stimulating conference and that you will leave with useful new tools to the toolboxes we need to deal with when investigating current and future challenges of *work, age, health and employment*.

Prof. Clas-Håkan Nygård  
Chair of the Scientific Committee Aging and Work,  
International Commission on Occupational Health (ICOH)

## Acknowledgements

We want to acknowledge the network of people who have volunteered their time and mind to design an interesting conference concept and agenda, to support us in creating, translating and disseminating the knowledge about the event, to review abstracts, and to contribute with Special Sessions as well as Brown Bag Sessions and who chair sessions and meetings. Gratitude also goes to all invited speakers who have the challenging task to summarise and introduce into complex topics.

We also would like to thank the dedicated external members of the

### *National Planning Committee*

Angela Rauch  
Hermann Burr  
Morten Wahrendorf  
Silke Tophoven  
Ulrich Walwei  
Wenke Apt

and the

### *International Advisory Board*

Clas-Håkan Nygård  
Dirk Hofäcker  
Ingrid Mairhuber  
Martin Hyde  
Mikko Härmä  
Nico Dragano  
Philippe Kiss  
Reiner Rugulies  
Sarah Vickerstaff  
Swenneke van den Heuvel  
Wenke Apt.

A special thanks goes to all assistive staff and the students for their help, especially Yuliya Chuvarayan, Anja Kestermann, Julian Wickendick, Christina Tasbier and, not least, to our administrator Tobias Görtemüller, who all were very engaged in the preparation and conduction of this conference.



**Hans Martin Hasselhorn**  
(Conference Chair)



**Jean-Baptist du Prel**  
(Conference Vice-Chair)



**Daniela Borchart**  
(Conference Coordinator)



## Practical information

### Venue

#### Conference Sessions

Campus Freudenberg  
Rainer-Gruenter-Straße 1  
Building FZH  
D-42119 Wuppertal  
<http://www.uni-wuppertal.de/en/university-campus/address-directions/>

### Internet Access

Free WiFi is available for all participants at the conference venue.



## Getting to the Campus Freudenberg

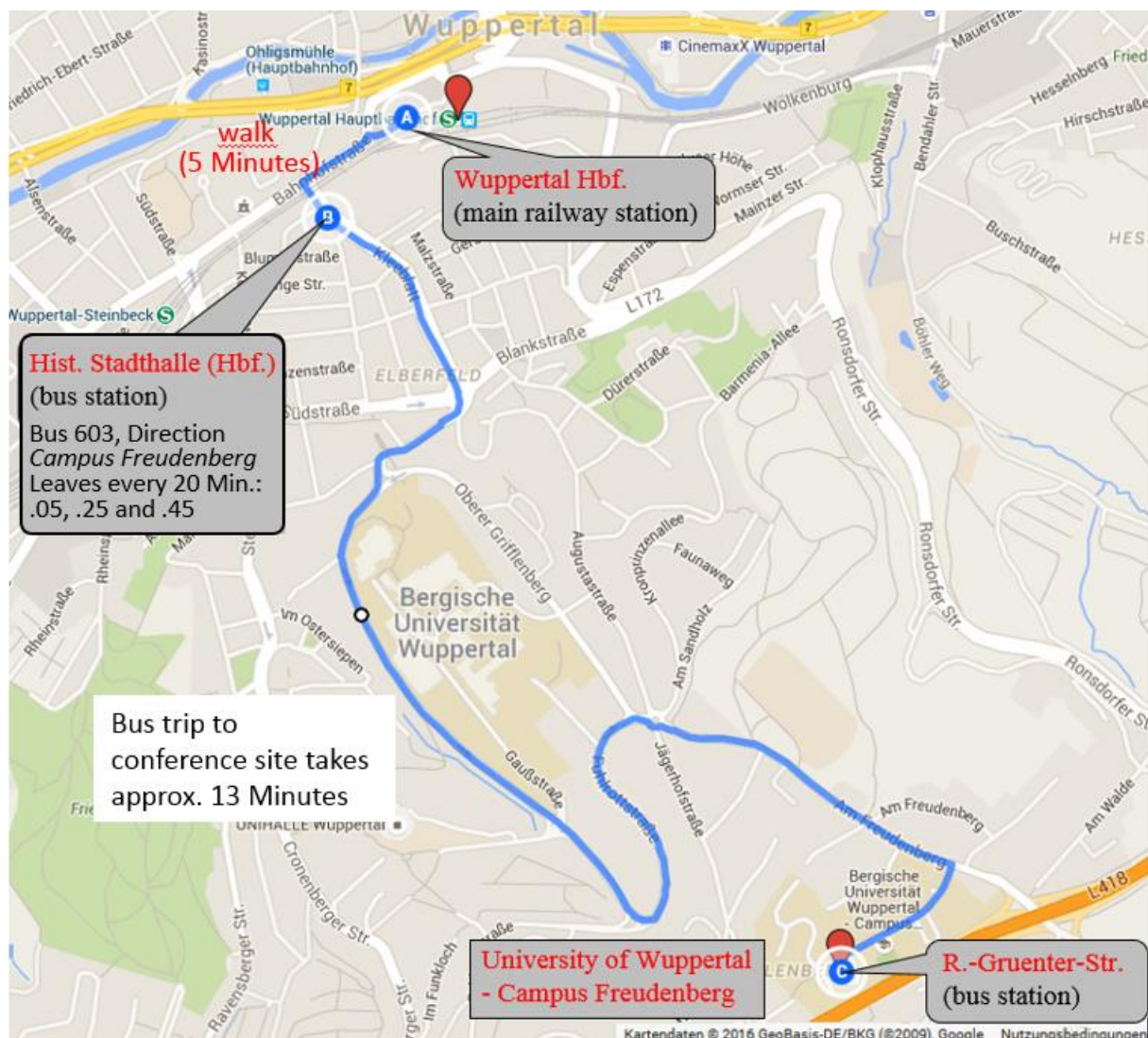
**Bus:** **Bus line 603** (direction to *Campus Freudenberg*) to bus stop 'Rainer-Gruenter-Str.'. Bus leaves every 20 minutes, ride takes approx. 13 min.

**Bus from Central Station** There is construction work going on at the railway station. You can leave the station at the left end of platform 1 (there may be a lack of signage). Turn left to stay on 'Bahnhofstraße' (168 m). Turn left into 'Kleeblatt' (92m) and cross the street to the Bus stop: 'Historische Stadthalle' (bus goes uphill). Please see map below.

**Bus from your Hotel:** Please ask at the reception for the nearest bus stop to enter **Bus line 603** direction to *Campus Freudenberg* (the bus passes within walking reach for all hotels recommended by us).

**Car:** Parking lot right in front of the building FZH on Campus Freudenberg (free parking).

**Taxi:** +49-202-275454



For a detailed description see information on our homepage:

<http://wahe2016.uni-wuppertal.de/practical-information/location.html>

## Social Program: Monday

### **‘Get together’ Monday night, after the conference at the conference site**

On Monday, 19 September, 2016 the conference session program will end up at 7:15 pm. Thereafter, we invite you to stay on the conference location for an ‘after work’ drink, small foods and good music vibes. A wine degustation of excellent German red and white wines will complete this *Get together* event at the first conference day.

## Social Program: Tuesday

### **‘Social Dinner’ on Tuesday, 7:00 pm at ‘Uni Kneipe’ (Main Campus)**

Join us Tuesday night at the ‘Uni Kneipe’ for the conference *Social Dinner*. It starts at 7:00 pm. The costs of 50 € include food and all drinks. Enjoy the wonderful view over the city of Wuppertal. Billiards and tabletop football are available: feel free for a little competition with the other participants. Please bring along your *Social Dinner* booking confirmation. Tickets have to be booked online, few tickets might still be booked at the conference reception.

#### **Location: ‘Uni Kneipe’**

Max-Horkheimer-Straße 15 (Main Campus)

Building ME (Studentenhaus), Level 04 (downhill side of Main Campus)

D-42119 Wuppertal

Information to the location: see following pages

and / or <http://www.hochschul-sozialwerk-wuppertal.de/en/about-us/directions.html>

## Social Dinner, Tuesday night: Getting to the 'Uni Kneipe' (Main Campus) from the Campus Freudenberg

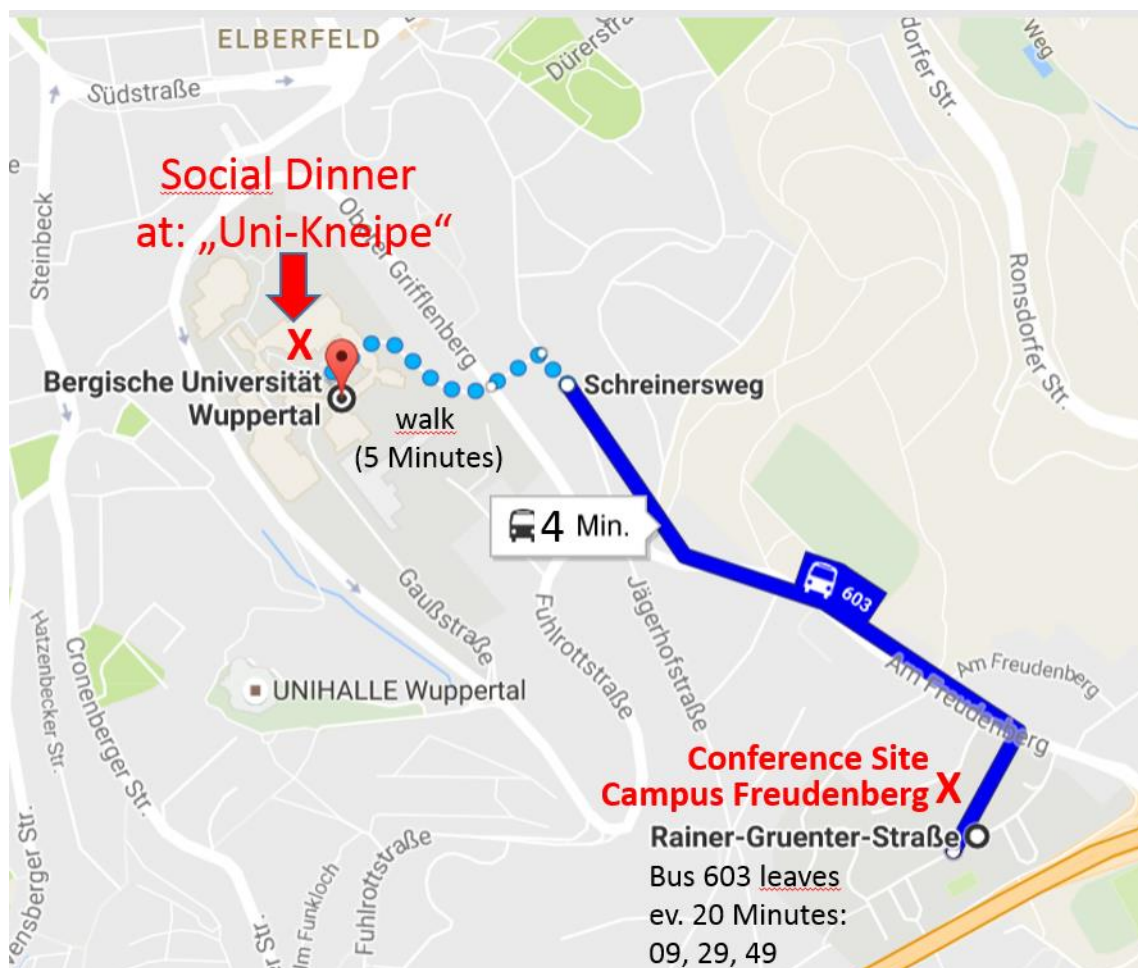
The 'Uni Kneipe' is located at the Main Campus of the University of Wuppertal.

**Bus:** Bus line 603 (direction to *Am Eckbusch*) to bus stop 'Schreinersweg' (4<sup>th</sup> stop). Bus leaves every 20 minutes (at .09, .29, .49), ride takes approx. 4 min.

From bus stop 'Schreinersweg': cross 'Augustastrasse' and turn left into 'Schreinersweg'. Keep going straight at the crossroad and follow the 'Gaußstrasse' to the Main Campus. From there on, follow the directions to 'Mensa'. (downhill side of the campus). The 'Uni Kneipe' is located above the 'Mensa'.

**Walk:** Walk down 'Rainer-Gruenter-Straße' in northeastern direction to leave the Campus Freudenberg. Turn left into 'Am Freudenberg'. Follow the street straight ahead (street becomes to 'Am Waldschlösschen'). At the roundabout take the third exit. Follow 'Oberer Griffenberg' 250 m and turn left into 'Gaußstrasse'. Follow the street until you reach the Main Campus. From there on, follow the directions to 'Mensa' (downhill side of the campus). The 'Uni Kneipe' is located above the 'Mensa'.

**Taxi:** +49-202-275454





## Social Dinner, Tuesday night: Getting to the 'Uni Kneipe' (Main Campus) from Central Station or from the city centre.

The 'Uni Kneipe' is located at the Main Campus of the University of Wuppertal.

### From the Main Station (or center of the town)

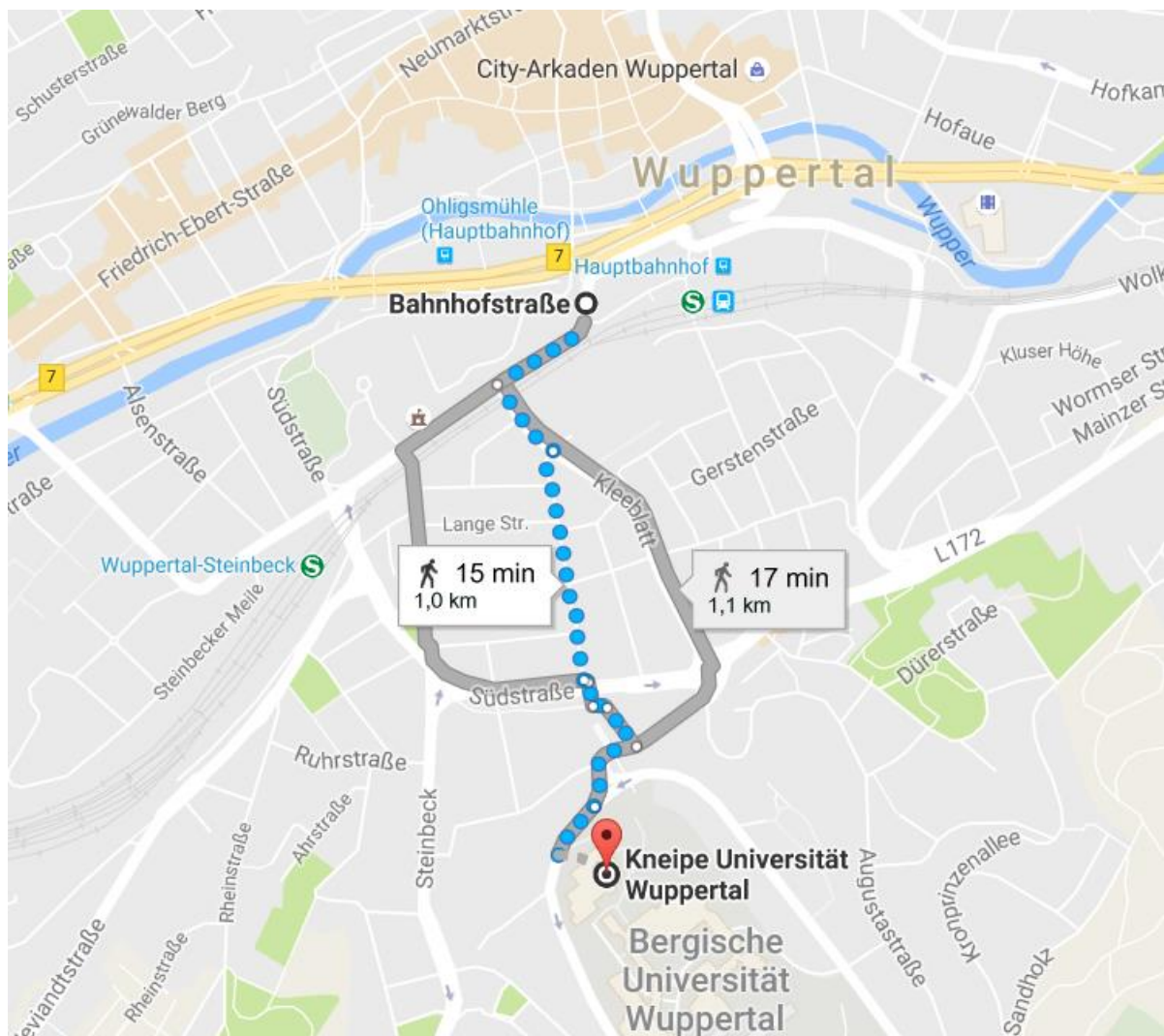
**Bus:** **Bus line 603** (direction to *Campus Freudenberg*) to bus stop "Mensa". Ride takes approx. 5-10 min. Follow the directions to "Mensa" on the opposite (uphill) side of the road.

**Bus line 615** (direction to *Remscheid*) or **Bus line 645** (direction to *Schulzentrum Süd*) to bus stop 'Universität' (= Main Campus). Ride takes approx. 10-15 min.

When you reach the university, follow the signs to "Mensa". The 'Uni Kneipe' is located above the "Mensa".

**Walk:** Head on 'Bahnhofstraße'. Turn left into 'Kleeblatt' and go straight ahead through the crossroad. 'Kleeblatt' becomes to 'Oberer Griffenberg'. Follow 'Oberer Griffenberg' until you reach the University from below. From there on, follow the directions to "Mensa". The 'Uni Kneipe' is located above the "Mensa". The walk takes about 15-20 min.

**Taxi:** +49-202-275454





# International Interdisciplinary Conference Work, Age, Health and Employment



## **Work, Age, Health and Employment - Introduction to the WAHE2016 Conference**

Hans Martin Hasselhorn (Conference Chair)  
Jean Baptist du Prel (Conference Vice-Chair)  
University of Wuppertal

Working populations in modern societies are ageing; at the same time work participation rates of older workers as well as the average length of working life are increasing substantially throughout the European Union. The EU and many national policies aim to further extend working lives by reducing early exit pathways and increasing statutory retirement age. Alongside this, institutions such as the OECD have echoed the call to postpone retirement age and create stronger incentives to remain longer in working life.

These trends and future perspectives on extending working lives raise a number of key challenges for research and how we adequately inform policy makers. A robust collection of evidence is required to explore whether and under which circumstances future generations of older workers will be able and willing to work longer – and who will bear the costs, at both the individual and the societal level, for these changes.

To get the best answers we need to make sure that we are asking the right questions: Which factors are contributing to early exits from employment? How important are conditions at earlier stages of the life course? Which are the typical exit paths taken? And how do social and occupational groups differ in this respect? How about men and women? What keeps older employees working longer? And what are the consequences of extending working lives for work ability, work motivation, health and wellbeing for older people, enterprises and societies?

The relationship between work and health remains one crucial issue for employment in later life. To understand this, we need to address some key questions: How does paid (and unpaid) work affect the health of older workers? Which groups are specifically affected by risks for poor health? What does poor health mean for work ability and motivation to continue working in later life? Which factors enable older workers with poor health to continue working?

In the past two decades many scientific disciplines and communities have been increasingly dealing with these questions. In 2014/15, an interdisciplinary group of 46 researchers from eleven countries has – within the JPI MYBL<sup>1</sup> project “Understanding employment participation of older workers” (JPI UEP)<sup>2</sup> – analysed the state of retirement research around work participation of older workers. In this project it became clear that research has achieved much in the field, but that this research is unevenly distributed between countries (“regional gap”) and that many specific topics in the field (e.g. older women, migrants) urgently need to be addressed (“thematic gap”). Above all, a “conceptual gap” was identified: the need for an interdisciplinary scientific “broad view” on the interplay of the multitude of determinants and on the (often long) process of retirement.

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<sup>1</sup> [http://www.jp-demographic.eu/?page\\_id=4026](http://www.jp-demographic.eu/?page_id=4026)

<sup>2</sup> <http://www.jp-demographic.eu/activities/exploration/fast-track-projects/>

These research challenges indicated above are in the focus of this conference, as it shall

- focus on evidence from quantitative as well as qualitative longitudinal research,
- consider the multifaceted role of work as a core determinant of health, work ability and employment participation,
- bridge different research communities (e.g. occupational health, social epidemiology, economy, labour market research, psychology, sociology, gerontology, demography), and, not least
- discuss the potential for advancing retirement research approaches.

Now, we are very excited about the many new ideas, approaches and evidence that the participants will present and share at the WAHE2016 conference. Five conference topics have been chosen by the planning and organising committees – and the conference submissions confirm the relevance of each of them.

### **Conference topic “Work and retirement”**

The transition from work into retirement is a pressing issue in public discourse and in policy. Why are some older people in employment and others already retired? This is not only a matter of work, health and opportunity, but a function of the complex interaction of individual, work, regulatory, socio-economic, company and family settings. Furthermore, the processual character of retirement, the dynamism of relevant groups, factors and framework conditions and the increasing conceptual and temporal fragmentation of retirement add to this complexity.

#### **see, for example**

- Opening lecture *Old is beautiful – changes in the age composition of employment* by Ulrich Walwei
- Opening lecture *Work tomorrow* by Armin Windel
- Opening speech *Ageing workers in an ageing society: Labour force transitions and work in late life* by Kène Henkens
- Keynote *Work, health and retirement* by Hugo Westerlund
- Scientific Session *Work, health and work participation*
- Scientific Sessions *Human resource management, I and II*
- Scientific Session *Work & retirement, TUCIC, national micro perspectives*
- Special Session *Work & retirement, TUCIC, macro perspectives*
- Scientific Session *Social inequality*
- Scientific Sessions *Cohort studies on work & retirement, I and II*
- Special Session *Are retirement ages still on the rise in the North?*
- Scientific Session *Gender*
- Scientific Session *National policy*
- Scientific Session *After retirement*

### **Conference topic “Work, age and health”**

Research on work and health was for a long time characterised by small-scale cross-sectional studies, generating only very limited knowledge regarding the role of working conditions in the aetiology of physical illnesses and mental disorders. This has changed during the last decade where we have seen the emergence of numerous large-scale cohort studies and international research consortia combining cohorts from different countries. The conference will provide a forum for sharing new

#### **see, for example the following Scientific Sessions**

- *Work, age & health in specific occupational groups*
- *Human resource management, Part I and II*
- *Social inequality*
- *Occupational rehabilitation*

evidence from prospective studies and opening the view towards new research approaches and questions arising.

### **Conference topic “Life course approaches in retirement research”**

To capture the life long process-related character of retirement the application of a life course perspective is needed. A life course approach considers a person's past exposures in order to understand current conditions, adding the notion of change – and it highlights chains of risks that link conditions in one part of the life course to outcomes in another. Translated into retirement research this means the identification of dynamics in the determinants of employment participation, of change, of temporal and further relations, of transition phases and also work-retirement trajectories. At the conference, we will discuss how life course approaches in retirement research may contribute with new evidence on employment participation, may advance retirement theory building, and may provide considerable evidence needed for effective organisational and policy intervention.

#### **see, for example**

- Keynote *The life course in quantitative research on work transitions* by Ute Bültmann
- Keynote *The life course in qualitative research on work and retirement* by Áine Ní Léime
- Scientific Session *Life course approaches in retirement research*
- Scientific Session *Life course influence on extended working lives*
- Brown Bag Session *Methods in analysing working life trajectories from a sociological and epidemiological*

### **Conference topic “Measuring change in longitudinal research”**

“Retirement is a process” - this temporal complexity challenges the traditional connotation of retirement among researchers. For them, the adoption of a life course perspective will require a shift from single-point observations and interpretations to the

#### **see, for example**

- Keynote *The challenges of assessing change in quantitative research* by Alex Burdorf
- Scientific Session *Measuring change*

see also *Life course approaches* and *Cohort studies*, above

identification of changes over time, processes, and of life course and retirement trajectories. But how can this be captured in statistical analysis of longitudinal data? Or: how to evaluate change in risk factors and outcome and in their associations over time? New methodological approaches are available addressing the dynamic pattern of the interplay of determinants, intermediates (e.g., health), and (e.g., employment) consequences. Two examples are: The life course approach with trajectories over time and trajectories of group membership may be a relevant methodological approach for the study design while multi-state models for changes in risk factors and health states over time are a current statistical approach.

### **Conference topic “Cross-national assessments – opportunities and challenges”**

European statistics document substantial differences in employment rates at higher working age and mean retirement age across European countries. These differences may be explained by a long list of micro, meso and macro level factors illustrated by the concept of retirement complexity. Although systems vary, important lessons can be drawn from comparing countries. Cross-national comparative research allows us to explore why employment participation differs

between countries, to see whether patterns of association are universal or specific and to test whether different policies impact on work, health and employment.

Key questions in this approach are: Is cross-national research in the field of work and retirement possible?

How can we find and explain differences between countries? How can we ensure sample comparability in cross-national research? What are the appropriate methods to analyse cross-national data? How to integrate qualitative and quantitative studies in cross-national research? And not least: what is the most appropriate unit of analysis – nation, region or culture?

**see, for example**

- Scientific Session *Cross-national assessment*
- Special Session *Work & retirement, TUCIC, international micro perspectives*
- Scientific Session *National policy*
- Scientific Session *After retirement*

***Final plenary discussion on “Current challenges in retirement research”***

Retirement is complex, but not too complex to be captured by research. The final day of the conference will largely be dedicated to the discussion of how to advance retirement research. For example, interdisciplinary cooperation within retirement research certainly needs to be advanced. Yet, cooperation between different scientific communities within retirement research seems to be exceptional. Why is the obvious so far? By bringing different research communities in the field from all over the world together, WAHE2016 provides the unique opportunity to discuss such issues in the course of the conference. Moreover, the final panel and plenary discussion will be introduced by Hugo Westerlund’s keynote on “Work, Age and Retirement” and by the organisers’ impulse presentation on five research challenges to retirement research - including ethical challenges. These presentations will refer to the preceding conference days and shall give input to a knowledgeable interdisciplinary round-table discussion.

A look at the list of conference participants and abstracts makes us optimistic that WAHE2016 will contribute to bridging research worlds and closing knowledge gaps, promoting interdisciplinary exchange and expert networking, increasing research efforts, and – in the long run – making retirement research better and better heard in times of ageing societies.

Hans Martin Hasselhorn & Jean-Baptist du Prel

|   |  |   |   |
|---|--|---|---|
| www.wahe2016.uni-wuppertal.de   |  | International Interdisciplinary Conference <b>Work, Age and Employment - Evidence from Longitudinal Studies (WAHE2016)</b> , University of Wuppertal, Germany |   |
| Program Day 1 (Monday, September 19th 2016)   |  |   |   |
| 10:00 - 18:00   | Registration   |   |   |
| 12:00 - 13:00   | Lunch Buffet   |   |   |
| Time schedule   |  |   |   |
| 12:30 - 13:30   | Meeting Room 1   |   |   |
| Welcome: JB du Prel, Dr. (Conference Vice-Chair), CH Nygård, Prof. (ICOH-representative), A Rauch (IAB-representative), IT Koch, Prof. (Rector BUW), HM Haselhorn, Prof. (Conference Chair) |  |   |   |
| 13:30 - 13:50   | Opening Lecture Part 1: U Walwei, Dr. - IAB-representative, Germany "Old is beautiful – changes in the age composition of employment"                                      |   |   |
| 13:50 - 14:10   | Opening Lecture Part 2: A Windel, Prof. - BAUA, Germany "Work tomorrow"  |   |   |
| 14:10 - 14:40   | Opening Speech: K Henkens, Prof. - University of Amsterdam, NL "Ageing workers in an ageing society: Labour force transitions and work in late life"                       |   |   |
| 14:40 - 15:15   | Coffee Break   | Poster Viewing Part I   |   |
|   | Meeting Room 1   | Meeting Room 2  | Meeting Room 3  |
|   | Special Session  | Scientific Session  | Special Session   |
| 15:15 - 16:45   | Cohort studies on work & retirement, Part I  | Human resource management, Part I   | Work & retirement, TUCiC, national micro perspectives   |
|   | Opening/ Chair: S van den Heuvel, Dr. - TNO, NL<br>STREAM – evidence from a work and retirement cohort<br>Co-Chair: M Goldberg, Prof. - INSERM, Villejuif, France          | Chair: K Henkens, Prof. - Univ. of Amsterdam, NL<br><br>Co-Chair: P Kiss, Dr. - Secures, Ghent, Belgium   | Chair: D Hofäcker, Prof. - Univ. of Duisburg-Essen, Germany<br><br>Co-Chair: S König, Dr. - University of Mannheim, Germany<br>Presenting author:   |
|   | M Scham<br>Predicting working beyond retirement in the Netherlands: an interdisciplinary approach involving occupational health and economics                              | P Kiss, Dr.<br>Is social capital related to need for recovery and work ability in an ageing workforce?  | S König, Dr.<br>The relationship between retirement and educational health differences  |
|   | M Wahrendorf, Dr.<br>What can Life History Data and Sequence Analyses offer to Cohort Studies? Results from SHARE.   | E Lilic<br>Ageing Workforce: Injury Prevention and Management   | D Frommert<br>The Timing of Retirement and the Reasons Behind it  |
|   | J Banks, Prof.<br>Collecting multidisciplinary data on the over 50s in England. Fifteen years of experience from the English Longitudinal Study of Ageing                  | M Statin, Prof.<br>When to retire? A study of retirement preferences in the health care sector in northern Sweden.  | G Dalla Nora<br>Women and retirement in Italy: a light pink social security framework   |
|   | M Goldberg, Prof.<br>GAZEL, a cohort for occupational epidemiology   |   | R Borges<br>Labour market participation among European older workers.<br>Employment, unemployment and quality of life   |
| 16:45 - 17:15   | Coffee Break   |   | Poster Viewing Part I   |
|   | Special Session  | Scientific Session  | Special Session   |
| 17:15 - 18:45   | Cohort studies on work & retirement, Part II   | Human resource management, Part II  | Work & retirement, TUCiC, international micro perspectives  |
|   | Opening/ Chair: H Jürges, Prof. - BUW, Germany<br>Comparing work and retirement across borders - evidence from SHARE<br>Co-Chair: K Nilsson, Dr. - Lund University, Sweden | Chair: M Statin, Assoc. Prof. - Umeå University, Sweden<br><br>Co-Chair: E Lilic - Auckland, New Zealand<br>Presenting author:                                | Opening/ Chair: D Hofäcker, Prof. - Univ. of Duisburg-Essen, Germany<br>Globalisation and occupational life courses<br>Co-Chair: S Braun - University of Gothenburg, Sweden<br>Presenting author: |
|   | DJH Dieg, Prof.<br>Healthy ageing and workforce participation in the Netherlands: the Longitudinal Aging Study Amsterdam   | C Hunkler, Dr.<br>Age and Labor Productivity in the Services: Evidence from Big Data  | D Hofäcker, Prof.<br>The shift from early exit to active ageing in European societies: Towards a better integration of older workers or the re-emergence of old inequalities?                     |
|   | S König, Dr.<br>The Health, Aging and Retirement Transitions in Sweden (HEARTS) study: Rationale and preliminary results from baseline data                                | F Kudász, Dr.<br>Disease effect on the workability among ageing Hungarian workers   | S Braun<br>Workplace conditions and retirement intentions: A cross-cultural comparison between modern European & Asian countries  |
|   | S Ramos, Prof.<br>AGE-Monitoring and managing health and age at work   | R Schalk, Prof.<br>What are the effects of demotion on job satisfaction and feelings of exhaustion?   | B Beach<br>Untangling the Effects of Retirement on Health & Wellbeing   |
|   | S Tophoven<br>Iida - German cohort study on work, age and health. A new two-wave panel dataset for the Scientific Community  |   |   |
| 18:45 - 19:15   | Keynote: J Banks, Prof. - Institute f. Fiscal Studies, London, UK<br>"The role of financial factors for employment of older workers – evidence from the ELSA cohort"       |   |   |
| 19:15 - 21:00   | Get together   |   | Opening: D Borchart, MSc (Wahe2016 Coordination) - BUW, Germany   |



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| International Interdisciplinary Conference <b>Work, Age and Employment - Evidence from Longitudinal Studies (WAHE2016)</b> , University of Wuppertal, Germany |   |  |  |  |  |  |
| Program Day 2 (Tuesday, September 20th 2016) - Morning  |   |  |  |  |  |  |
| 8:00 - 16:00  | Registration  |  |  |  |  |  |
| Meeting Room 1  |   |  |  |  |  |  |
| 8:20 - 8:30   | Daily Opening: <b>A Rauch</b> (IAB-representative) - IAB, Nuremberg, Germany  |  |  |  |  |  |
| 8:30 - 8:55   | Keynote: <b>U Bültmann, Prof.</b> - University of Groningen, NL<br>"The life course in quantitative research on work transitions"   |  |  |  |  |  |
| 8:55 - 9:20   | Keynote: <b>A Ni Leime, Dr.</b> - National University of Ireland, Galway, Ireland<br>"The life course in qualitative research on work and retirement"   |  |  |  |  |  |
| 9:20 - 9:30   | Coffee Break  |  |  |  |  |  |
| 9:30 - 11:00  | Meeting Room 1  |  | Meeting Room 2   |  | Meeting Room 3   |  |
|   | Scientific Session  |  | Scientific Session   |  | Special Session  |  |
|   | <b>Work, health &amp; work participation</b><br>Chair: <b>A Rauch</b> - IAB, Nuremberg, Germany<br>Co-Chair: <b>A Pohrt</b> - BAuA, Berlin, Germany<br>Presenting author:   |  | <b>Life course approaches in retirement research</b><br>Chair: <b>U Bültmann, Prof.</b> - University of Groningen, NL<br>Co-Chair: <b>A Ni Leime</b> - National University of Ireland, Galway, Ireland<br>Presenting author: |  | <b>Work &amp; retirement, TUC, macro perspectives</b><br>Chair: <b>D Hofäcker, Prof.</b> - Univ. of Duisburg-Essen, Germany<br>Co-Chair: <b>G Naegele, Prof.</b> - University of Dortmund, Germany<br>Presenting author: |  |
|   | <b>A Pohrt</b><br>Work factors and their association with labour market participation   | <b>L Romeu Gordo, Dr.</b><br>Defining the right work contents: Are we making older workers (un)happy at work?                                      | <b>B Ebbinghaus</b><br>The reversal of early exit from in aging societies: going beyond static regimes with temporal fuzzy set analysis  |  |  |  |
|   | <b>M Härmä, Prof.</b><br>Shift work, health, work ability and retirement intentions: a prospective study of hospital workers with objective exposure data   | <b>G Henning</b><br>"But I Wanted to Stay!": The Role of Adaptive Strategies and Personality in Involuntary Retirement                             | <b>P Frericks</b><br>The development of non-employment-related entitlements to pension rights in Europe. An institutional analysis   |  |  |  |
|   | <b>J Blomgren</b><br>Unemployment vs. sickness absence as predictors of disability pension: a follow up of working-aged Finns   | <b>A-J Riekhoff</b><br>Retirement trajectories in Finland: institutional exit pathways, working-life events, and the role of firm-level conditions | <b>J Bauknecht</b><br>Latest developments of retirement policies in Europe and effects on older worker employment rates: News from the MoPact project  |  |  |  |
|   | <b>P Ilmakunnas, Prof.</b><br>Health, retirement and anticipated retirement   | <b>S Schmiederer</b><br>Personal dispositions and their impact on leaving the workforce earlier  | <b>Meike Bükler</b><br>Institutional determinants of (long-term) unemployment 50+ - A fuzzy-set analysis   |  |  |  |
|   | Coffee Break  |  |  |  |  |  |
|   | Scientific Session  |  | Scientific Session   |  | Special Session  |  |
|   | 11:00 - 11:30   | Brown Bag Session I  |  |  |  |  |
| 11:30 - 13:00   | <b>Work, age &amp; health in specific occupational groups</b><br>Chair: <b>CH Nygård, Prof.</b> - University of Tampere, Finland<br>Co-Chair: <b>H Bauer, Dipl.-Psych.</b> - University Hospital of Munich, Germany<br>Presenting author: |  | <b>Social inequality</b><br>Chair: <b>N Dragano, Prof.</b> - University of Düsseldorf, Germany<br>Co-Chair: <b>M Laaksonen, Dr.</b> - Social Insurance Institution of Finland<br>Presenting author:                          |  | <b>Lifecourse influence on extended working lives</b><br>Chair: <b>M Wahrendorf, Dr.</b> - University of Düsseldorf, Germany<br>Co-Chair: <b>T Chandola, Prof.</b> - University of Manchester, UK<br>Presenting author:  |  |
|   | <b>H Bauer</b><br>Age, biological aging, and occupational stress in helicopter emergency medical services pilots  | <b>H Burr, Dr.</b><br>Does age modify the association between social class and the incidence of poor general health                                |  |  | <b>M Hyde, Dr.</b><br>Lifelong learning and labour market exit in later life: Special session on lifecourse influences on extended working lives   |  |
|   | <b>T Yang, Dr.</b><br>What makes medical staffs from public hospitals to Private hospitals?   | <b>M Laaksonen, Dr.</b><br>Socioeconomic differences in working lives lost due to disability retirement  |  |  | <b>P Zaninotto, Dr.</b><br>Work and family life history in relation to extended working lives: findings from the English Longitudinal Study of Ageing  |  |
|   | <b>T Cotrim</b><br>Psychosocial work environment among portuguese municipal workers: preliminary results  | <b>A Santosa</b><br>Inequality trends of disability-free life expectancy among European older population: a cross-country comparison               |  |  | <b>M Wahrendorf, Dr.</b><br>Early adversity and late life employment history - a sequence analysis based on SHARE  |  |
|   | <b>P E M Ebrahimpzadhi</b><br>Assessment of factors affecting safety culture in steel industry workers  | <b>M Wetzel, Dr.</b><br>Differential Effects of Retirement on Life Satisfaction: The Role of Education and Last Labor Market Status                |  |  | <b>A de Wind, Dr.</b><br>A life course perspective on working beyond retirement – Results from a longitudinal study in the Netherlands   |  |
|   |   |  |  |  | <b>T Chandola, Prof.</b><br>Retirement and the socio-economic gradient in cortisol: Evidence from the Whitehall II study of civil servants   |  |
|   | Lunch Buffet  |  |  |  |  |  |
|   | 13:00 - 13:45   | Poster Viewing Part II   |  |  |  |  |

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| International Interdisciplinary Conference <b>Work, Age and Employment - Evidence from Longitudinal Studies (WAHE2016)</b> , University of Wuppertal, Germany |  |  |  |
| Program Day 2 (Tuesday, September 20th 2016) - Afternoon  |  |  |  |
| Meeting Room 1  |  |  |  |
| Keynote: A Burdorf, Prof. - Erasmus University Rotterdam, NL<br>"The challenges of assessing change in quantitative research"                                 |  |  |  |
| Coffee Break  |  |  |  |
| Meeting Room 2  |  |  |  |
| Meeting Room 3  |  |  |  |
| Special Session   |  |  |  |
| Occupational Rehabilitation   |  |  |  |
| Chair: S Tophoven - IAB, Nuremberg, Germany   |  |  |  |
| Co-Chair: M Bettle, Prof. - University of Lübeck, Germany   |  |  |  |
| Presenting author:  |  |  |  |
| M Bettle, Prof.   |  |  |  |
| Self-reported work ability predicts rehabilitation events and disability pensions   |  |  |  |
| M Striebel, Dr.   |  |  |  |
| Influence of local job market on the success of vocational retraining   |  |  |  |
| M Bettle, Prof.   |  |  |  |
| Effects of wage subsidies on employment: findings from a propensity score matched analysis  |  |  |  |
| N Reims   |  |  |  |
| The Search for Appropriate Comparison Groups in Evaluating Further Training Measures in Occupational Rehabilitation of Disabled People                        |  |  |  |
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| International Interdisciplinary Conference <b>Work, Age and Employment - Evidence from Longitudinal Studies (WAHE2016)</b> , University of Wuppertal, Germany  |  |  |   |
| Program Day 3 (Wednesday, September 21st 2016)   |  |  |   |
| 8:00 - 12:00   | Registration   |  |   |
|  | Meeting Room 1   |  |   |
| 8:20 - 8:30  | Daily Opening: JB du Prel, Dr. (Conference Vice-Chair) - BUW, Wuppertal, Germany   |  |   |
| Time schedule<br><br>8:30 - 10:00  | Meeting Room 1   | Meeting Room 2   | Meeting Room 3  |
|  | Scientific Session   | Scientific Session   | Scientific Session  |
|  | After retirement   | Cross-national Assessment  | National policy   |
|  | Opening/Chair: S Scherger, Prof. - University of Bremen, Germany<br><i>Paid work beyond pension age in Germany and the UK. Quantitative and qualitative evidence</i> | Opening/Chair: M Hyde, Dr. - University of Manchester, UK<br><i>Cross-national epidemiological assessments –opportunities and challenges</i> | Chair: T Leinonen, Dr. - University of Helsinki, Finland  |
|  | Co-Chair: DIH Deeg, Prof. - VU University Medical Centre, Amsterdam, NL  | Co-Chair: M Härmä, Prof. - Finnish Institute of Occupational Health  | Co-Chair: Ida Madsen, Dr., NRCWE, Copenhagen, Denmark   |
|  | Presenting author:   | Presenting author:   | Presenting author:  |
|  | DIH Deeg, Prof.  | J Bauknecht, Dr.   | T Leinonen, Dr.   |
|  | <i>Working beyond age 65 in the Netherlands: the Longitudinal Aging Study Amsterdam</i>  | <i>Working conditions and retirement: how important are HR policies in prolonging working life?</i>  | <i>Health as a predictor of early retirement before and after introduction of a flexible statutory pension age in Finland</i> |
|  | R Sewdas   | G Vermeulen  | Cheikh Al Khalifa Aboubacar Cisse, Dr.  |
|  | <i>Why older workers work beyond the retirement age: a qualitative study</i>   | <i>Sustainable work over the life course for women and men in Europe</i>   | <i>Promotion of age management in developing countries</i>  |
| 10:00 - 10:15<br>10:15 - 10:45<br>10:45 - 11:00<br>11:00 - 12:30<br>12:30 - 12:45<br>12:45 - 13:15   | S Stenholm, Dr.  | U Wäginger   | C Ardito  |
|  | <i>Changes in physical activity during transition to retirement: a cohort study</i>  | <i>Early retirement and well-being in Europe</i>   | <i>The effect of Italian pension reforms on male workers' health.</i>   |
|  | L Platts, Dr.  |  | S Bartel  |
|  | <i>Predictors of returns to work following retirement: A prospective analysis of Germany, Russia and the United Kingdom</i>  |  | <i>Exit from Work: Determinants of illness-related Disruptions in Professional Life and Processes of Reorientation</i>        |
|  | Coffee Break   |  |   |
|  | Keynote: H Westerlund, Prof. - University of Stockholm, Sweden 'Work, health and retirement'   |  |   |
|  | Opening Speech: HM Hasselhorn, Prof. & M Ebener - BUW, Germany 'Research challenges'   |  |   |
|  | Panel discussion: HM Hasselhorn, Prof. (Conference Chair) - BUW, Wuppertal   |  |   |
|  | Closing words: HM Hasselhorn, Prof. (Conference Chair) - BUW, Wuppertal  |  |   |
|  | Lunch Buffet   |  |   |
| WAHE2016 is a joint conference by the University of Wuppertal and the Institute for Employment Research, IAB, Nuremberg on behalf of the Scientific Committee Aging and Work of the ICOH.  |  |  |   |
| Abr.: BAUA: Federal Institute for Occupational Safety and Health ; BUW: Bergische University of Wuppertal, Germany; FORBA: Forschungs- und Beratungsstelle für betriebliche Arbeitnehmerfragen, Austria;<br>IAB: Institut für Employment Research, Nuremberg, Germany; ICOH: International Commission on Occupational Health; NRCWE: National Research Centre for the Working Environment;<br>NL: The Netherlands; TUCIC: Transition under Changing Institutional Conditions; UK: United Kingdom |  |  |   |

## Opening Lecture Part 1

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### **Old is beautiful – changes in the age composition of employment**

Dr. Ulrich Walwei<sup>1</sup>

<sup>1</sup> IAB, Deputy Director, Nuremberg, Germany

In recent years the labour market situation of older workers in Germany has improved considerably. This can be shown by comparing employment rates of older workers over time and in relation to other countries. As the situation of older workers was improving already in times of low employment growth their better labour market performance is not only growth-induced. Looking at entry and exit rates to and from employment reveals that the improved employment situation of the elderly is not associated with higher entries but with a higher stability of existing employment relationships. In this context one has to bear in mind that German policies have focused on less early exits of older workers and far-reaching institutional changes concerning public pension schemes and the unemployment benefit system. The reforms increased work incentives and sent out signals that a longer working life is expected from individuals. An increasing labour force participation of women also contributed to the more favourable development in the recent past. The labour market affinity of women has risen from decade to decade although it came along with high shares of part-time employment. Despite the positive overall picture, the employment ratios of older persons are still lying below the figures of younger age groups so one should not deny that there are some problems remaining. Once becoming unemployed, starting a new job is rather difficult for older workers. The older workers are and the lower their skill level is the weaker is their labour market integration. In order to achieve further improvements, the issue of employability needs much more attention. The maintenance of the individual employability is a mutual interest but also a mutual obligation for all parties involved. A strategy to strengthen employability relies on continuous skill improvement as well as a healthy environment and does not solely address older workers but also younger workers facing a prolonged working life.

## Opening Lecture Part 2

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### Work tomorrow

Prof. Armin Windel<sup>1</sup>

<sup>1</sup> BAuA, Dortmund, Germany

In concepts such as Work 4.0 or digitalization, cross-linked, „intelligent“ systems build the technical basis of the future working world. Working in the digital world is characterized by an increasing level of freedom regarding place and time of work as well as technical-organizational working systems revealing a higher variability than conventional working structures. For employees, this results in both risks and chances: (1) work design can be adapted, differentially and dynamically, to the individuals and their employment history. (2) Human-machine collaboration may reduce physical strain, especially through an individually adapted ergonomic job design and an optimization of strain. However, there are also new risks: e.g. higher working intensity, lack of intervention options in complex working systems or reduced possibilities for detachment from work. As digital production, distribution and service processes should be always “online”, the question raised whether the working rhythm of such systems can be fitted to the workers’ needs.

Not only for the employees but also for company’s leadership and concepts of shareholding, the extended flexibility in the digital world of work is a new challenge, which might require an adaption of responsibilities and organizational structures: it is necessary to identify conditions under which a flexible work design is capable of maintaining and promoting health. Against the background of demographic change, the requirements of different ages should be considered and, where necessary, integrated in a phase-of-life-based working time design.

The research activities of the BAuA aimed at the exploitation of wide knowledge concerning health and safety at work in a changing working world. Accordingly, BAuA is engaged in the thematic areas “Transition to Flexible Working Time and Place”, “Working with Innovative Digital Technologies” and the “Preservation and Promotion of Physical and Psychological Health”.



## Opening Speech

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### **Ageing workers in an ageing society: Labour force transitions and work in late life**

Prof. Kène Henkens<sup>1</sup>

<sup>1</sup> University of Amsterdam, Amsterdam, The Netherlands

In many countries, pension reforms have been initiated to facilitate the extension of working lives. The social transformation of retirement is fueled by longer lives, uncertain pensions and the need for individuals to adapt to more risks over the course of their working lives. Today, I will discuss how older workers deal with the new reality of extended working lives. I will discuss the impact of the multilayered contexts of institutional arrangements, employer behaviors, and households on retirement. Furthermore, I will dispel some of the myths surrounding the discussion of longer working lives, with respect to the role of individual planning, organisational policies, and household decision making. Results will be presented from two different sources. The first involves studies from eight different countries carried out among European employers. The second set of findings is based on a new Dutch study among 6700 workers aged 60-65 and their spouses, who work for more than 1000 different organizations in The Netherlands. The respondents of this study are among the first generation who will have to work much longer than they originally anticipated. The changing retirement landscape will challenge us to address not only new research questions about how to facilitate longer working lives, but also, how to keep individuals healthy and happy both prior to and following the retirement transition.

## Special Session: Cohort studies on work & retirement, Part I

### Opening Presentation

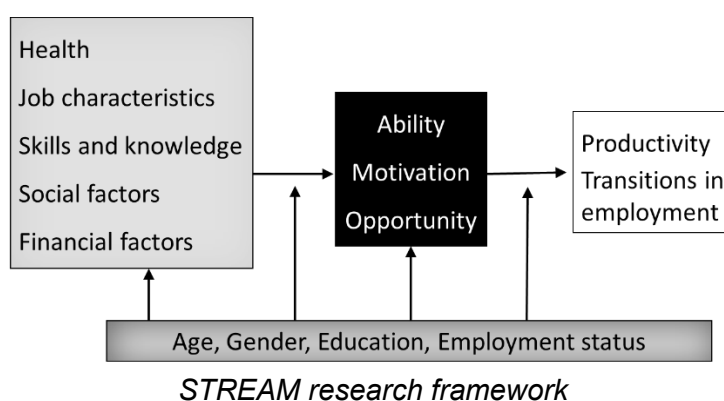
#### STREAM – evidence from a work and retirement cohort

Dr. Swenneke van den Heuvel<sup>1</sup>

<sup>1</sup> TNO, Leiden, The Netherlands

**Background** To deal with the ageing of the population, it is essential that older persons continue working longer. Although an increasing number of studies address sustainable employability in an ageing society, there are several gaps in our knowledge which are primarily due to a lack of longitudinal studies in which a broad set of potential determinants are examined. The Study on Transitions in Employment, Ability and Motivation (STREAM) was designed to contribute to filling these gaps, and to provide better insight into the factors that influence transitions in employment and productivity among older workers.

**Design** STREAM is a longitudinal study among persons aged 45-64 at the start of the measurement. More than 12,000 employees, 1,000 self-employed persons, and 2,000 unemployed persons participated in the first measurement. Between 2010 and 2013, participants annually filled in an online questionnaire and in 2015 the fifth measurement started. Alongside the online questionnaire, qualitative interview studies are being conducted with a sample of the participants. Questionnaire data can also be matched with register data from Statistics Netherlands. Below the research framework is shown.



**Results** Response percentages were high. In the second measurement 82% of the original participants participated, in the third measurement 80%, in the fourth measurement 74% and in the fifth measurement 66%. At this moment STREAM analyses already resulted in 14 papers in international peer-reviewed journals, 6 publications in Dutch and 6 reports for policymakers.

**Discussion** The strength of longitudinal studies is their capacity to approximate causality due to the temporality of the observed association, i.e. the cause precedes the effect in time. Therefore, longitudinal studies collect data which better enable us to disentangle cause and effect than cross sectional studies. However, we still should be careful in the interpretation of the results.

## **Predicting working beyond retirement in the Netherland: An interdisciplinary approach involving occupational health and economics**

Micky Scharn<sup>1</sup>, Allard J van der Beek<sup>1</sup>, Martijn A. Huisman<sup>2</sup>, Dr. Astrid de Wind<sup>1,3</sup>, Maarten Lindeboom<sup>4</sup>, Chris TM Elbers<sup>4</sup>, Goedele A Geuskens<sup>3</sup>, Cécile RL Boot<sup>\*1</sup>

<sup>1</sup> Department of Public and Occupational Health, EMGO+ Institute for Health and Care Research , VU University Medical Center Amsterdam, Amsterdam, The Netherlands

<sup>2</sup> Department of Epidemiology & Biostatistics, EMGO+ Institute for Health and Care Research, VU University Medical Center Amsterdam, The Netherlands

<sup>3</sup> Department of Work, Health & Care, Netherlands Organisation for Applied Scientific Research TNO, Leiden, The Netherlands

<sup>4</sup> Department of Economics and Development Economics, VU Amsterdam, The Netherlands

**Background** The aim of this study is to investigate whether occupational health and socioeconomic factors predict working beyond retirement.

**Methods** Questionnaire data from the Study on Transitions in Employment, Ability and Motivation and data from Statistics Netherlands are linked on individual level. To construct a prediction model, variables were assigned to one of the 5 blocks: health; socioeconomic; demographic; social environment; and work characteristics. Based on univariate associations ( $p < 0.15$ ), a logistic regression with backward selection was performed per block. All remaining factors were combined into a final model.

**Results** The analyses per block showed that all blocks predicted prolonged work participation to some extent. In the final model, only factors from the blocks health, social environment and demographic characteristics were left: a higher score on the physical component scale of the SF12, 2 days intensively physically active and taller respondents positively influence working beyond retirement. In addition, respondents who were working in health care or performed more than 16,5 years of mentally heavy work, were more likely to work beyond retirement. If a respondent had a permanent contract or works in handcraft, he was less likely to work beyond retirement. Respondents were more likely to work beyond retirement if the partner had a positive opinion on continuing to work until the official retirement age.

**Discussion/Conclusion** Health, social environment and work characteristics predict working beyond retirement, but socioeconomic factors and demographic characteristics do not independently contribute to predicting working beyond retirement.

## **What can Life History Data and Sequence Analyses offer to Cohort Studies? Results from SHARE**

Dr. Morten Wahrendorf<sup>1</sup>

<sup>1</sup> University of Düsseldorf / Institute for Medical Sociology, Düsseldorf, Germany

**Background** In search of determinants of health in older ages, cohort studies are increasingly interested in a life course perspective that considers conditions from early stage of the life course, for example, previous employment histories. Yet, survey data to answer these questions are rare, and existing statistical approaches to study entire histories have restrictions. This presentation shows how retrospective life history data enable to assess previous employment histories, and how histories can be analyzed by the means of sequence analyses.

**Methods** We use the Survey of Health, Ageing and Retirement in Europe (SHARE), with retrospective life history data collected 2009/10 for older men and women across 13 countries.

We transform information into employment sequences for each respondent, with annual information on the employment situation between age 30 and 65. Then, we describe how respondents can be regrouped into clusters with similar employment histories that - in turn - can be used to predict health later on.

**Results** Results demonstrate that women have more diverse employment histories than men, while male histories are dominated by long periods of paid employment ending in retirement. Furthermore, results point to the importance of continuous employments for health beyond working life, in particular for men.

**Conclusion** Our study illustrates the promising value and richness of retrospective data for a comprehensive assessment of previous employment histories. Combined with methods of sequence analyses, this data help to study health in a life course perspective.

### **Collecting multidisciplinary data on the over 50s in England. Fifteen years of experience from the English Longitudinal Study of Ageing**

Prof. James Banks<sup>1</sup>

<sup>1</sup> University of Manchester and Institute for Fiscal Studies, London, United Kingdom

**Methods** The English Longitudinal Study of Ageing (ELSA) is a panel study of a representative cohort of men and women living in England aged 50 years and over in 2002. It is multidisciplinary in orientation involving the collection of economic, social, psychological, cognitive, health, biological and genetic data. The original study members have been followed up every two years since 2002 with additional refreshment cohorts added periodically.

**Results** The data set is openly available to researchers and analysts soon after collection (<http://www.esds.ac.uk/longitudinal/access/elsa/l5050.asp>).

**Discussion/Conclusion** This paper will discuss the key methodological innovations that have been successfully introduced as part of the ELSA project and summarise the overall study design and content, selected issues and challenges related to measurement and comparability with other studies, and key emerging findings.

### **GAZEL, a cohort for occupational epidemiology**

Prof. Marcel Goldberg<sup>1</sup>, Annette Leclerc<sup>1</sup>, Dr. Marie Zins<sup>1</sup>

<sup>1</sup> UMS 11, INSERM Villejuif Cedex, Villejuif Cedex , France

**Background** The GAZEL cohort was set up in 1989. Designed as a general-purpose epidemiological research tool, it was intended to facilitate epidemiological research on various diseases and multiple health-related factors. Over the years, the GAZEL cohort has evolved to include many sub-studies which aim to examine a specific research question. These projects are focused on various physical and mental health outcomes and on many different determinants, especially occupational factors. As the cohort aged (range is 62 to 77 in 2016, all members of the cohort are now retired, and 2,404 died by the end of 2015), research projects are increasingly focused on various determinants of health in early old age, taking advantage of the large amount of data collected prospectively from baseline. This almost unique feature allows to study the determinants of various physical and functional aspects of ageing earlier in life than in most of the ageing cohorts.

**Methods** Follow-up is continuous and includes data collection from various sources: self-administered postal questionnaire each year, personnel and medical departments of EDF-GDF files, national registers, health examination for a subsample, including a biobank. The data prospectively collected cover a wide range: socioeconomic position (occupational position, education, income, marital status), health behaviours (alcohol consumption, smoking, dietary habits, physical activity), psychosocial factors (life events, social support and network, social and leisure activities, early life events, socially productive activities, personality profile). Regarding health outcomes, we collect data through multiple sources: self-reports of diseases and standardized scales (depression, quality of life, musculoskeletal disorders...), sickness absence including physician diagnoses, morbidity registers, health examinations, and linkage to national data bases (claims for medical benefits, hospitals discharge), and causes of death. In addition to this large set of data, we put a focus on occupational exposures: job history extracted from company files, psychosocial factors ("Job Content Questionnaire" and "Effort-Reward Imbalance"), ergonomic strain (handling of heavy loads, bending and twisting, driving, kneeling, climbing stairs, climbing on ladders, working arms above the shoulders, handling loads on the shoulder, use of vibrating tools, heavy physical work), chemical exposure assessed through a job-exposure matrix specific to EDF-GDF, exposure to noise, extreme temperatures, and various constraints (working hours, computer work, and risky situations).

**Results** Since its inception GAZEL was the support of much research in different fields. Regarding occupational epidemiology one of the major focuses was the study of the long-term effects of occupational exposure including after retirement, i.e. cessation of exposure. Findings were mainly published on general health, sickness absence, mental health, cognition and musculoskeletal disorders. Among the occupational exposures, psychosocial (stress at work), biomechanical factors or solvents were studied in detail, and some research was on the border between occupational and social epidemiology, in particular, studies of the role of occupational exposure in social inequalities in health.

**Discussion/Conclusion** GAZEL is an open research resource and any group, in France or elsewhere, can submit a research proposal to receive free access to the GAZEL data. More than 80 research projects have already been conducted within the cohort by over 15 research groups from different countries. The first step is to contact one of the principal investigators of the GAZEL Cohort Study<sup>1</sup>.

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<sup>1</sup><http://www.gazel.inserm.fr/>



## Scientific Session: Human resource management, Part I

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### Is social capital related to need for recovery and work ability in an ageing workforce?

Prof. Dr. Els Clays<sup>1</sup>, Dr. Marc De Meester<sup>2</sup>, Dr. Philippe Kiss<sup>2</sup>

<sup>1</sup> Ghent University, Department of Public Health, Gent, Belgium

<sup>2</sup> Securex Occupational Health Service, Drongen, Belgium

**Background** Maintaining sustainable employability in the context of an ageing workforce represents a major challenge for European countries. The aim of this cross-sectional study was to investigate social capital – both at individual and at work unit level – in relation to need for recovery and work ability in a public sector ageing workforce.

**Methods** Results are based on a sample of 1268 workers (64.3% females) clustered within 78 work units in seven public administrations. Mean age was 42.4 years (sd 10.3); almost half of the sample was 45 years or older. The self-administered questionnaire included the Need for Recovery Scale, Work Ability Index and COPSOQ instrument for psychosocial risk screening. Social capital was assessed by averaging the COPSOQ scales of social community (horizontal component) and vertical trust (vertical component). The mean individual social capital scores per work unit were aggregated to represent the contextual level. Stepwise Generalized Linear Mixed models were tested.

**Results** After assessing a model including sex, age, occupation, shift work, poor contacts with relatives/friends, quantitative demands, emotional demands, degrees of freedom, job insecurity, and physical strain, we stepwise added individual level and work unit levels of social capital as possible antecedents of the outcomes. Results showed that higher social capital at individual level – and particularly the vertical component – reduced the odds for having a high need for recovery, as well as for having a poor work ability. No relations were observed with contextual social capital at work unit level.

**Discussion** Over and beyond work content related risk factors, individual perceptions of higher vertical social capital were associated with less adverse outcomes in need for recovery and work ability.

**Conclusion** These findings suggest that workplace social capital plays a role in maintaining sustainable employability within an ageing workforce.

### Ageing Workforce: Injury Prevention and Management

Eta Lilic<sup>1</sup>

<sup>1</sup> 2degrees Mobile, Wellness and Safety, Auckland, New Zealand

**Background** An ageing workforce is a global phenomenon as ‘baby boomers’ come to retirement age. This population has relatively weakened health with decreased muscle strength and physical abilities. This results in a raised number of injuries with increased severity.

**Methods** This study was performed at a service organization employing over 10 000 employees across New Zealand. All work-related injury claims were included. We examined the impact of the work environment to the organization's ageing workforce, as well as possible sustainable solutions to reduce them. This study was performed over a six month period. The severity of injury claims were measured by assessing costs of weekly compensation and medical input. Based on the injury description and age-related health impacts, the organization developed and implemented preventive measures across all sites following the first three month period. The main changes were in the area of work organization and working processes to accommodate for reduced physical abilities and muscle strength. Data was then gathered for the second three month period.

**Results** 10.1% of the organisation's employees are over the age of 60. In the first three months of the study, 26.4% of all claims were from employees over the age of 60 and the cost of all new claims for employees over the age of 60 was 47% of the total cost. The second three months showed a reduction in the number of claims, as well as severity of the injuries. The number of new claims for employees over the age of 60 was reduced to 20.3%. The cost of all new claims reduced to 34% of the total cost.

**Discussion/Conclusion** A reduction in the number and severity of injury claims was achieved by adapting work organization and the work environment for an ageing workforce with early intervention and development of preventive strategies.

### **When to retire? A study of retirement preferences in the health care sector in northern Sweden**

Assoc. Prof. Mikael Stattin<sup>1</sup>, Stina Hallström<sup>1</sup>, Assoc. Prof. Carita Bengts<sup>1</sup>

<sup>1</sup> Umeå University, Dep. of Sociology, Sweden

**Background** Population ageing and large number of retirement exits have prompted employers to act in relation to labour shortage. However, there is a lack of knowledge about the role of work place factors in relation to employee's retirement plans. The aim of this study is to analyse the association between working conditions and retirement preferences in a large health sector organisation in the northern part of Sweden.

**Methods** All employees in the organisation age 55 and older (≈3000) was included in the study and 72 % participated in the main base line survey questionnaire. The study is based on a used a mixed methods approach.

**Results** Preliminary results from the quantitative analyses show large differences between occupations in the organisation, with a clear social gradient in preferences. Men tended to systematically report later retirement preferences than did women. Strong associations were found between working conditions and retirement preferences. Lowest retirement preferences were found for employees with high levels of work demands and low levels of control. However, this effect was modified by need for recovery. The associations were supported by qualitative data. Employees working after the age of 65 reported improvement in working conditions as an important aspect in relation to decisions to work in late age. Organisational aspects and work environment strain was pointed out as crucial causes for an early exit preference.

**Discussion** This study strongly demonstrates that working conditions are of large importance in relation to employees' view of the timing of retirement. The study provides knowledge about organisational interventions that may improve employees' possibilities to work in late age.

**Conclusion** The study is a response to the lack of knowledge about work place factors in relation to employees motivation and possibilities to work in late age. The mixed methods approach adds a deeper understanding of the studied phenomena.

## Special Session: Work & retirement, TUCIC, national micro perspectives

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### The relationship between retirement and educational health differences

Dr. Stefanie König<sup>1</sup>

<sup>1</sup> University of Gothenburg, Göteborg, Sweden

**Background** Health inequalities are persistently found to be related to educational differences. Evidence can be found for rising differences across educational levels with regard to health for younger cohorts. This is described as “rising importance hypothesis”. Studies find a peak for health level differences across education around age 60, highlighting the importance of focusing on this age period and retirement transitions. Previous pension reforms in Sweden can be expected to increase educational differences since lower educated might have lower control over their retirement transition.

**Methods** Research on the relationship between retirement transitions and health after retirement often produces diverse results. Methodological differences across studies are one possible reason for different findings. Therefore, I want to compare cross-sectional findings with longitudinal results, analyzing the “Health, Ageing and Retirement Transitions in Sweden” (HEARTS) data.

**Results** First cross-sectional results indicate that later retirement is related to worse health for lower educated, while there are no health differences with regard to retirement age for higher educated individuals. In a next step, I plan to investigate if these health level differences across individuals can be found as downward slopes after late retirement from a within-person longitudinal perspective.

**Conclusion** This study aims to highlight the complexity of the relationship between retirement and health outcomes and to reach a better understanding for the diversity of previous results by directly comparing cross-sectional and longitudinal results and by including retirement age. Discussions on increasing retirement ages should acknowledge health differences by educational level among those who (have to) retire late.

### The Timing of Retirement and the Reasons Behind it

Dina Frommert<sup>1</sup>, Dagmar Zanker<sup>1</sup>

<sup>1</sup> German Federal Pension Insurance, Berlin, Germany

**Background** The raise of labor market participation among the elderly as well as the continuous effort to improve employability of the work force are major steps in ensuring social security in old age in the face of demographic change. In the last decades, German policy makers have thus promoted the idea of “active ageing” and longer working lives. Still, not everybody wants to or can work until the statutory retirement age.

**Methods** This paper presents a quantitative analysis of early retirement transitions among German men and women born between 1942 and 1961 and their partners from a life course perspective. Apart from commonly used individual determinants of early retirement (e.g.

gender, family status, or employment status), we are able to investigate to which extent alternative old-age provisions play a role in the decision to retire early. Furthermore, we explore self-reported reasons for early retirement which include health, care giving, leisure time and financial incentives. The analysis is based on data from the “Individuelle Altersvorsorge 2009 (IAV 2009)” study, which was commissioned by the German Federal Pension Insurance to analyze old-age pension provisions. Logit models are estimated to disentangle the effects of different life spheres and different life courses.

**Results** Our findings offer insights into who is retiring early and why. While the financial situation is crucial in the decision to retire early, other reasons are also present and vary between different population groups.

**Discussion/Conclusion** From a policy perspective it is important to understand these other reasons behind early retirement, because, apart from legally closing routes into early retirement, they can offer the possibility of change.

## **Women and retirement in Italy: A light pink social security framework**

Giulia Dalla Nora<sup>1</sup>

<sup>1</sup> University of Bologna, Bologna, Italy

**Background** The relationship between gender and retirement in Italy is ambiguous. Although the female employment rate between the ages of 50 and 64 increased, (even counting with big differences between education level and with a persistent strong North/South divide), retired women spent a small numbers of years in the labour market, earned less over their lifetimes, and worked in different jobs than men of the same age.

**Methods** This paper presents an Italian overview of pension gender gap, focusing on family and work-life issues. Previous researches ignored gender bias, while more recent studies have scarcely investigated how gender roles interact with the changes in pension policies. The aim of this paper is to improve the knowledge regarding trends and factors influencing women's retirement decisions in Italy, considering the institutional context, the individual and family characteristics influencing retirement decisions. Data comes from “transition from work into retirement” module within the 2012 European Labour Force Survey. Regression analysis was used to analyse the link between individual as well as family and pension system characteristics and retirement age of women in Italy.

**Results** The first part of the paper briefly outlines the approaches and results of the literature review and the second part presents the theoretical approach used to analyse the retirement determinants.

**Discussion/Conclusion** After a rapid description of the data and the methodology, the attention focuses on the results, which are interpreted in light of the national socio-economic Italian context.

## **Labour market participation among European older workers. Employment, unemployment and quality of life**

Rita Borges<sup>1</sup>

<sup>1</sup> Institute of Social Science, University of Minho, Braga, Portugal

**Background** Job loss at a later stage in the professional career may determine an early exit of the labour market by means of long-term unemployment and anticipated retirement schemes. Older unemployed are deprived from a central adulthood role and face income cuts which may compromise their quality of life. Several studies show unemployment effects over mental and physical health. Nonetheless, for older workers that face work strain and poor working conditions, settling for redundancy and early retirement could be a strategy to preserve themselves from deleterious health effects of overload and relief from hazardous working conditions.

**Methods** This work explores the dynamics of labour market participation while looking at the incidence of depression of both unemployed and employed Europeans over 50 years old. Panel data from SHARE (Survey on Health Retirement and Ageing in Europe) collected in 16 European countries were used to identify and understand statistically significant differences over a measure of mental health, EURO-D (indicative of clinically relevant depressive symptoms), when there are transitions from employment to unemployment. The prevalence of depression (measured by four or more depressive symptoms) varies between country and labour market status. Austrian unemployed, per instance, are particularly prone to depression as nearly 67% report 4 or more depressive symptoms. A high percentage of unemployed in countries like Italy (42%), France (37%) and Belgium (31%) also show clinically significant symptoms of depression. Overall, a higher percentage of unemployed has 4 or more depressive symptoms than the employed.

**Results** Life histories of semi-skilled or unskilled unemployed Portuguese men over 50 years old revealed that early retirement was desired to guarantee livelihood as the perceived chances of being reinstated were very scarce. They face several push mechanisms out of the labour market such as ageism during job search; inadequacy of job vacancies to their skills, experience and capacity; and they feel drained from the strenuous working conditions from the past. Unemployment and financial strain challenge their mental wellbeing and their sense of control. Further analysis is underway with the prospect of contributing to a discussion over the circumstances under which labour market participation affect the longevity of professional career at older ages as well as prospects of ill-health.

**Discussion/Conclusion** The particular experiences of these older unemployed are of systematic disempowerment and reflect a pejorative social construction of old age and the structured dependency of the elderly.



## **Special Session: Cohort studies on work & retirement, Part II**

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### **Opening Presentation**

#### **Comparing work and retirement across borders - evidence from SHARE**

Prof. Hendrik Jürges<sup>1</sup>

<sup>1</sup> University of Wuppertal, Wuppertal, Germany

The Survey of Health, Ageing and Retirement in Europe (SHARE) is an ongoing interdisciplinary, multinational and longitudinal survey that allows analysing the determinants and consequences of retirement across Europe. The data are made available free of charge to scientific users. The aim of this talk is to explain important features of SHARE to potential new users and summarise some of the most important findings regarding work and retirement that emanated the first five waves of SHARE.

## Healthy ageing and workforce participation in the Netherlands: The Longitudinal Aging Study Amsterdam

Prof. Dr. Dorly J.H. Deeg<sup>1</sup>, Dr. Martijn Huisman<sup>2</sup>

<sup>1</sup> VU University Medical Centre, Dept. of Epidemiology & Biostatistics, Amsterdam, The Netherlands

<sup>2</sup> Department of Epidemiology & Biostatistics, EMGO + Institute for Health and Care Research, VU University Medical Center Amsterdam, The Netherlands

**Background** Since the 1990s, measures to reduce pension costs have resulted in higher ages at retirement in many European countries. Yet, trends in health in this age group since the 1990s show a mixed picture, with increases in the prevalence of chronic diseases increasing and mild – but not severe – disability, and a stable trend in self-rated health. These contrasting trends beg the question to what extent older workers will be able to continue working, and to what extent a higher retirement age affects health after retirement. The Longitudinal Aging Study Amsterdam (LASA) is able to address such questions for the Netherlands, by comparing the age-specific physical and mental health of people aged 55 and over across more than 20 years (1992-2016), as well as by following individuals over time.

**Methods** LASA is a population-based cohort study on predictors and consequences of ageing, focusing on physical, cognitive, emotional, and social functioning. At 10-year intervals, cohorts were recruited from population registries in 11 municipalities in three geographic areas that together are representative of the Netherlands. The first cohort, recruited in 1992-93, includes 3,107 older adults initially aged 55-85, with 966 in the age range 55-64. In 2002-03, a second cohort aged 55-64 was added including 1,002 older adults, and in 2012-13 a third cohort aged 55-64 was added including 1,023 older adults. Each cohort is followed up about every three years. Data are collected using face-to-face interviews, tests, and self-administered questionnaires. Work characteristics include working hours, job level, sector, physical and mental workload; retirement characteristics include attitudes toward retirement and preparation for retirement. Health measures include chronic diseases, objective and self-reported functional ability, cognitive tests, depression, and self-rated health. Social-contextual measures include family relations, wider social network and participation in unpaid social activities.

## The Health, Aging and Retirement Transitions in Sweden (HEARTS) study: Rationale and preliminary results from baseline data

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<sup>2</sup> Department of Food and Nutrition and Sport Science, University of Gothenburg, Göteborg, Sweden

**Background** The Health, Ageing and Retirement Transitions in Sweden (HEARTS) study was designed to study psychological health in the years before and following retirement and to examine change and stability patterns related to the retirement event.

**Methods** Unique features of the cohort include a narrow-age span (60-66 at baseline), annual follow-ups, multiple theoretically-driven measures of psychological health, and linkages with other registers. Baseline data, collected in spring 2015, includes a nationally representative sample of 5,913 (39.4% of the 15,000 individuals recruited) Swedish men and women between ages 60-66, evenly distributed across ages. The first follow-up measurement was conducted in spring 2016. Besides detailed sociodemographic information, collected data cover broad

domains of work life, retirement, health, health behavior/lifestyle and leisure activities, psychological well-being, cognitive function, personality and social network.

**Results** The background and rationale of the study along with results mainly from the first wave of data will be presented.

## **AGE-Monitoring and managing health and age at work**

Prof. Sara Ramos<sup>1</sup>, Prof. Helena Carvalho<sup>1</sup>

<sup>1</sup> ISCTE-IUL, Lissabon, Portugal

**Background** Ageing of the population, particularly in the workforce, is perhaps the greatest current challenge to which European societies should respond. Despite the increasing attention to demographic trends, the study of the relationship between age and work has remained at a macro level with little impact on what happens inside the organizations. The complex relationship between age and work goes beyond the association between the exposure to risk factors and early aging. Only few studies attempt to encompass this complexity and try to put this discussion in a temporal dimension, considering the developments of health and work over lifetime. European studies, as ESTEV and VISAT, both in France, used a longitudinal design with repeated measures in order to monitor health issues taking into account job modifications and age evolution. From these experiences, other studies were performed in this field, with less extensive instruments, for example the SVP50 and EVREST. In Portugal we are now developing the first survey on health and age – AGE– based on the previous experiences and supported by the strong network between researchers from these groups.

**Methods** The first AGE data collection started in 11/2015 and ended in 3/2016, in collaboration with the National Authority for Working Conditions, with a sample of 3000 workers from several sectors. It's planned to have further data collection within 5 years.

**Results** At this moment we are starting the data analysis. AGE dimensions focuses on working conditions (working time, schedules, demands/resources, perceived risks); health complaints (and their relation with work), in order to analyse the relationship between age, health and work; and questions about retirement expectations, in order to identify retirement predictors.

**Discussion/Conclusion** This study will contribute to developing conditions to raise the employment rate of older workers by an efficient monitoring of health and exposure to working conditions.

## **lidA - German cohort study on work, age and health. A new two-wave panel dataset for the Scientific Community**

Silke Tophoven<sup>1</sup>, Angela Rauch<sup>1</sup>

<sup>1</sup> Institute for Employment Research, Nuremberg, Germany

**Background** The purpose of the two-wave panel study 'lidA – leben in der Arbeit. German cohort study on work, age and health' was to examine the relationship between work, health and work participation among aging employees in Germany.

**Methods** It comprises a representative sample of persons who were born in 1959 and 1965 and were employed on 31 December 2009. They were questioned personally in the years 2011 (wave 1; N=6,585) and 2014 (wave 2; N=4,244). The study sample was drawn from the 'Integrated Employment Biographies', a dataset that includes all employees in Germany subject to social security, covering more than 80 percent of the German working population. The lidA data set contains information on current employment characteristics, work demands, workloads, subjective health indicators, socio-economic status and household context. A number of established concepts and scales were included.

**Results** The jobs of the lidA-participants are less characterised by manual labour; only twelve percent report mainly physical work tasks. Regarding the individual health status, a smaller share of the older cohort than the younger cohort reports a good or very good health status. Having two survey time points available, measurement of changes and predictions are possible. A range of publications already demonstrates the analytic potential of the lidA data set. Current results show for example that a poorer physical and mental health status at wave two is associated to current relatively high psychosocial workload and persistent relatively high psychosocial workload (Tophoven/Hiesinger 2015).

**Conclusion** The lidA dataset is now also available for the Scientific Community provided by the Research Data Centre of the Federal Employment Agency at the Institute for Employment Research.

## Scientific Session: Human resource management, Part II

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### Age and Labor Productivity in the Services: Evidence from Big Data

Dr. Christian Hunkler<sup>1</sup>, Prof. Axel Börsch-Supan<sup>2</sup>, Prof. Dr. Matthias Weiss<sup>3</sup>

<sup>1</sup> MPI f. Sozialrecht & Sozialpolitik, München, Germany

<sup>2</sup> MEA at the MPI f. Sozialrecht & Sozialpolitik, München, Germany

<sup>3</sup> Ostbayerische Technische Hochschule (OTH), Regensburg, Germany

**Background** We study the relation between workers' age and their productivity in work teams, based on a new and unique data set that combines day-to-day performance indicators on work team level with detailed daily information on the team composition and the personal characteristics of employees in a large financial service provider.

**Methods** Using work team and individual fixed effects, we can correct for the non-random sample selection and the endogeneity of the age-composition in work teams.

**Results** We find no indication for a decline in overall productivity. There is however variation according to task complexity. Productivity increases in all age groups in units with more demanding tasks, including the over 60 year olds. In routine basic tasks we observe the opposite phenomenon, though the decrease is not statistically significant in the oldest observed employees group.

### Disease effect on the workability among ageing Hungarian workers

Dr. Ferenc Kudász<sup>1</sup>, Dr. Krisztina Nagy<sup>2</sup>, Zsófia Kövágó<sup>3</sup>, Dr. Imre Nagy<sup>1</sup>

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<sup>2</sup> Nakula Kft., Budapest, Hungary

<sup>3</sup> Ministry for National Economy, Budapest, Hungary

**Background** Health has a fundamental effect on the individual work careers. One of the Workability Index (WAI) questions focuses on diseases. In 2015 a WAI survey was conducted among 4840 ageing Hungarian workers.

**Methods** The 2013 version of the WAI was distributed among 45+ years old primary and secondary teachers, general practitioner doctors, construction, agriculture, automotive industry and healthcare workers by occupational health services in 2014-15. Participation in the survey was voluntary, the research received ethical approval. The survey was granted by the European Social Fund. Question 3 of WAI on diseases included the following options: "diagnosed disease with complaints", "complaints without diagnosis" and "diagnosed disease without complaints". The later two options do not count into the WAI score. The aim of the logistic regression analysis was to measure the effect of answers to the final WAI score (odds ratio for poor-moderate WAI).

**Results** 4840 questionnaires were used in the statistical analysis. The most common diagnosed diseases with complaints were musculoskeletal disorders (MSDs) 21%, circulatory diseases 12%, metabolic diseases 7%, with odds ratios 3.5, 5.3, 8.3 respectively. The most common complaints without medical diagnosis were MSDs 15%, accidents 6%, and mental

disorders 5%, with odds ratios 1.7, 2.3, 3.6 respectively. The most common diagnosed diseases without complaints were circulatory diseases 25%, metabolic diseases 17%, MSDs 7%, with odds ratios 1, 1, 1.5 respectively.

**Discussion** Two distinct disease groups of interest can be identified: common with less effect and rare with greater effect. Both deserve attention due to their social and individual impacts. Effective treatment of diseases seems to be able to diminish the detrimental effect on workability.

**Conclusion** Occupational health services have the potential to identify diseases and manage workers' health. Question 3 in WAI is a good starting point for such activities.

## **What are the effects of demotion on job satisfaction and feelings of exhaustion?**

Prof. Dr. René Schalk<sup>1</sup>, Dr. Edith Josten<sup>2</sup>

<sup>1</sup> Tilburg University, HR Studies/Tranzo, Tilburg, The Netherlands

<sup>2</sup> The Netherlands Institute for Social Research/SCP, The Hague, The Netherlands

**Background** Demotion is increasingly perceived as a useful HRM practice. We examined the effects of a downward change in job level on feelings of emotional exhaustion and job satisfaction.

**Methods** The data were drawn from a biannual panel study among a representative sample of the Dutch population aged 16-65 years (the SCP Labour supply panel). In each wave of the study, the respondents complete a questionnaire on their work situation and private life. We used data from respondents who had participated in at least two consecutive waves of the panel during the period 2004 – 2014. There were 8141 observations of employed people available. The type of function change between two successive waves was assessed, as well as feelings of emotional exhaustion and degree of job satisfaction before and after the move.

**Results** There were 92 cases of demotion, 482 lateral changes, 577 promotions, and 6990 cases of no change in position. The two main reasons for demotion were health reasons (35 %) and organizational changes (i.e. a reorganization or establishment closure) (35 %). Both older and younger respondents who had made a downward move were significantly more exhausted in the period prior to the move than employees who had not changed functions. The demotion did not decrease the levels of exhaustion. Job satisfaction decreased after a demotion, but less strongly for older employees who had not changed functions. The demotion did not decrease the levels of exhaustion. Job satisfaction decreased after a demotion, but less strongly for older than younger employees.

**Discussion** In general, demotions do not seem to have the positive effects that policy makers aim for. One of the reasons for this could be that demotions are often not the choice of the employee, but forced upon him/her.

**Conclusion** Overall, this research shows that a demotion does not decrease the levels of emotional exhaustion among older employees. Job satisfaction does get lower.



## **Special Session: Work & retirement, TUCIC, international micro perspectives**

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### **Opening Presentation**

#### **Globalisation and occupational life courses**

Prof. Dr. Dirk Hofäcker<sup>1</sup>

<sup>1</sup> University of Duisburg-Essen, Essen, Germany

Since the early 1990s, the globalization process has had a strong impact on the development of employment and career patterns and the associated structure of social inequalities in modern societies. There are two competing hypotheses about the effects of globalization on their development: Individualisation theorists (such as Beck or Giddens) claim that globalization has led to a rise in uncertainties that has had a 'leveling effect' all individuals are more or less similarly affected by these new risks, irrespective of their social and economic positions and resources. The competing hypothesis contends that processes of globalization lead to a selective re-commodification of already disadvantaged labor market groups and, therefore, rather increases already existing social inequalities. Bringing together evidence from three major research projects that had all focused on the consequences of globalization and flexibilization for individual life courses, the presentation will provide an overview on the various ways in which globalisation has impacted on individual life course and employment by looking at different pivotal life course transitions, spanning from early career to late employment life. It will be argued that globalization triggers a strengthening of existing social inequality structures, particularly with regard to social class and education.

The presentation will pay particular attention to the phase of late career and retirement. It will identify linkages between globalization and the long-term trend of labour force shedding among the older workforce that has remained persistent in European countries until the turn of the millennium. Subsequently, it will discuss how the recent trend reversal from early retirement to active ageing may be explained using the globalization approach, and how this recent shift may affect social inequality structures among today's elderly.

## **The shift from early exit to active ageing in European societies: Towards a better integration of older workers or the re-emergence of old inequalities?**

Prof. Dr. Dirk Hofäcker<sup>1</sup>, Moritz Hess<sup>1</sup>, Dr. Stefanie König<sup>1</sup>

<sup>1</sup> University of Duisburg-Essen, Essen, Germany

**Background** From the 1970s until the mid-1990s, most European countries followed a strategy of early retirement to relieve their strained labour markets. Yet, when demographic projections anticipated an unavoidable ‘greying’ of national labour forces, these ‘externalisation measures’ increasingly were considered as socially and financially unsustainable. Many European governments revised their labour market and welfare policies accordingly to foster higher employment among senior workers. Legal retirement ages were raised and public pension benefits were cut to reduce the incentives for early retirement. Furthermore, employment-sustaining measures such as active labour market policies or lifelong learning were increasingly implemented. These measures were often referred to as ‘active ageing’ policies, a term that has gained remarkable popularity in public and academic discourse. Most recent figures indeed suggest that these policies have been effective, as older workers’ employment rates have risen substantially since the turn of the millennium. Yet, it remains an open question whether this aggregate increase has spread equally among all labour market strata or whether certain labour market groups are structurally excluded from this upward trend. We argue that – simultaneous to the increase in late-career employment – active ageing policies have led to an increase in social inequalities among the older workforce. Particularly weak labour market groups – those with low education, in blue-collar occupations or working under hazardous conditions – have hardly been able to profit from employability measures while at the same time being confronted with an increasing pressure to prolong their working careers.

**Methods** To substantiate this allegation empirically, we provide a stylized sketch of major institutional trends based on most-recent macro data. Data from available micro studies will then be used to reconstruct over-time shift in social inequalities in late career employment within European countries.

## **Workplace conditions and retirement intentions: A cross-cultural comparison between modern European & Asian countries**

Simone Braun<sup>1</sup>, Prof. Dr. Dirk Hofäcker<sup>1</sup>, Matthew Flynn<sup>1</sup>

<sup>1</sup> University of Duisburg-Essen, Essen, Germany

**Background** In modern welfare economies, the prospect of demographic ageing has transformed labour market and welfare policies targeted towards older employees. Faced with rising pressures on national social security systems, EU member countries increasingly have enacted policies of “active ageing” – including both pension reforms as well as public and workplace policies aiming at increasing the employability of older workers. Rising employment figures among the older workforce in most recent years indicate an at least partial success of such policies. Previous research analysing the link between contextual changes and the individual desire to work longer largely have concentrated on the effect of pension reforms and labour market programs. In contrast, comparatively little research has investigated the respective impact of concrete workplace conditions. In our paper we shall investigate this relationship, drawing back to data from the European Social Survey 2010 where both the retirement intentions of older employees as well as various characteristics of the workplace were investigated.

**Methods** In our contribution, we shall first identify different “workplace regimes” in Europe and then analyse how concrete workplace conditions influence retirement intentions in these regimes using multi-level regression modelling. In a second step, we shall extend the picture to East Asian countries which are even more severely affected by demographic ageing and have shown similar reactions in adjusting contextual conditions to an ageing workforce. Including these countries allows us to additionally investigate the influence of different cultural contexts on the interlink between workplace conditions and retirement, and thus to draw conclusions about the potential transferability of workplace practices between such contexts.

## Untangling the Effects of Retirement on Health & Wellbeing

Brian Beach<sup>1</sup>

<sup>1</sup> International Longevity Centre (ILC)-UK, London, United Kingdom

**Background** With greater interest from governments in raising official pension ages and extending working lives, the question of whether people should keep working or retire to optimise their health and wellbeing is an important one. There has been a proliferation of research on the health effects of retirement over the past 60 years, but one limitation has been a focus on retirement as a status rather than exploring the timing of the retirement transition. Previous work has also suffered from important methodological shortcomings. Consequently, little is known about how the timing of retirement may impact health, and whether a later retirement age should be promoted or discouraged.

**Methods** This project explores the effect that the timing of retirement might have on different aspects of health, e.g. cognitive function and depression. The research, as part of a larger cross-national collaborative piece, tests four theory-based hypotheses on the impact of retirement timing on health: whether retirement maximises health when it occurs early, late, anytime, or on time.

**Results** Early findings are presented from analysis of two harmonised and longitudinal datasets, the English Longitudinal Study of Ageing (ELSA) and the Survey of Health, Ageing, and Retirement in Europe (SHARE), to examine the relationship between age, occupational factors, retirement, and cognitive function, suggesting that cognitive decline in later life is influenced much more strongly by occupation type and working status than by age. Country-specific results are related to institutional settings and can partly be explained by national labour market circumstances.

**Discussion** The findings demonstrate that age alone is insufficient to explain cognitive decline in later life, whereas work-related and macroeconomic factors play a substantial role.

**Conclusion** Consequently, there is support that later retirement is good for cognitive health, but next steps will be to explore this using multilevel analysis to account for previous methodological shortcomings.

## Keynote

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### **The role of financial factors for employment of older workers – evidence from the ELSA cohort**

Prof. James Banks<sup>1</sup>

<sup>1</sup> Institute for Fiscal Studies, London, United Kingdom

As in many OECD countries, labour market participation rates of older adults in the UK have been increasing steadily over the last twenty years. In this lecture I analyse this trend in more detail and discuss recent evidence on the various patterns and potential causes underlying it, looking at financial and socioeconomic circumstances, cohort levels of health and disability, and the role of specific policy change. Much of this evidence draws on data from the English Longitudinal Study of Ageing which crucially provides individual level longitudinal data covering, amongst other things, pensions, wealth, health, disability and family circumstances. The value of such data to researchers and policymakers seeking to understand employment of older workers is emphasised.

## Keynote

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### **The life course in quantitative research on work transitions**

Prof. Ute Bültmann<sup>1</sup>

<sup>1</sup> University of Groningen, Groningen, The Netherlands

Good work is fundamental to life - as is good health. Work and health are interdependent, that means work is a determinant of health and health is a determinant of work. In view of changing demographics, work and labor markets, as well as social contexts, the key challenges to be addressed in work and health research and practice are 1) to minimize ill-health and its effects on work functioning, 2) to ensure good physical and psychosocial work environments and 3) to accomplish these challenges across the widening socio-economic gradient and across the life course.

Why a life course lens when looking at work and health? The working life is preceded by childhood and adolescence with schooling and training and followed by retirement and older age. Life course transitions, taken together with health transitions (both prior and during working life), health outcomes, labor market experiences, and labor market transitions create an individual's working life course.

To date, detailed knowledge about the transitions people make, e.g., the transition from school to work, transitions during working life such as changing careers or the transition out of work towards retirement - and the impact of these transitions on trajectories of health, well-being and work functioning is lacking. Hence, to deepen our understanding of transitions and the dynamic interplay between work and health, a life course perspective is needed. Transitions are complex in terms of conceptualization and measurement. Relevant questions to be addressed concern: what are important transitions? How to measure transitions? What constitutes a "successful" transition?

If we in work and health research succeed in adopting a life course perspective and translating our findings into relevant policy and practice measures, we together - researchers, health care professionals, employers and policy makers - can make a difference towards "healthy working lives".

## Keynote

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### **The life course in qualitative research on work and retirement**

Dr. Aine Ni Leime<sup>1</sup>

<sup>1</sup> National University of Ireland, Galway, Ireland

This paper will briefly outline key selected life-course theoretical approaches to work and retirement including cumulative dis/advantage, cumulative inequalities and (gendered) political economy of ageing approaches. This will be followed by an overview of some key areas and issues that have been addressed by qualitative researchers using life course and related approaches in relation to work, health and retirement and will identify areas that have not yet been adequately addressed. I will discuss what qualitative research from a life course perspective can contribute to an understanding of (gendered) ageing, work (paid and unpaid), retirement including pensions and employment policy. I will draw on the approach taken in my current comparative research project on Gender Older Workers and the Life Course in the US and Ireland to illustrate this. Finally, I will discuss fruitful avenues for future research from a qualitative life course perspective.



## Scientific Session: Work, health & work participation

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### Work factors and their association with labour market participation

Anne Pohrt<sup>1</sup>, Prof. Hans Martin Hasselhorn<sup>2</sup>

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<sup>2</sup> Bergische Universität Wuppertal, Wuppertal, Germany

**Background** Work factors have a central role among the factors that influence labour market participation in higher working age. As there are several cohorts in Europe where work-related factors and early retirement are included, there is plenty of current research on the topic. Also, new questions and perspectives are emerging for future research.

**Methods** A systematic search identified European literature not older than 2005, focusing on population-based quantitative research. The outcome of interest was early retirement, based on register or questionnaire data. Two Reviews and 29 prospective studies were included in the analysis.

**Results** Population-based work-retirement research considers mainly disability retirement (26 studies, 1 review) and only marginally non-disability early retirement (4 studies, 1 review). The factors consistently associated with risk of disability and non-disability retirement are job control and physical workload. Other factors less often examined include ergonomic demands, monotony and social support at work. Research is conducted mainly in the Scandinavian countries (25 studies) and most often takes advantage of the possibility of linking survey with social security register data.

**Conclusion** Research is unevenly distributed in Europe which poses the question of generalizability to other countries. Disability retirement is examined in many studies, whereas other forms of early retirement need to be considered, because the concept of (early) retirement is broader and keeps broadening. Also, the work factors that operate on a population level are more diverse than studies suggest; emerging psychosocial factors like flexibility and availability demands will have to be taken into account.

### Shift work, health, work ability and retirement intentions: A prospective study of hospital workers with objective exposure data

Prof. Mikko Härmä<sup>1</sup>, Kati Karhula<sup>1</sup>, Sampsa Puttonen<sup>1</sup>, Aki Koskinen<sup>1</sup>, Jaana Pentti<sup>1</sup>,  
Prof. Mika Kivimäki<sup>1</sup>

<sup>1</sup> Finnish Institute of Occupational Health, Helsinki, Finland

**Background** Epidemiological studies of shift work are often biased by exposure misclassification, selection and lack of sufficient control for time-invariant factors. We utilized hospital employees' 6-year follow-up from 2008 to 2014 to analyze whether exposure to shiftwork compared to day work is associated with changes in fatigue, subjective health, work-life conflict, work ability and retirement intentions.

**Methods** We linked questionnaire data in 2008, 2012 and 2014 to pay-roll -based records of daily working hours during the preceding 3 months in each of the questionnaires. We analyzed

the association of shift work (compared to day work) with changes in fatigue, subjective health, work-life conflict, work ability (compared to life's best, scale 0-10) and retirement intentions. We used multivariate logistic regression adjusting for baseline level, age, gender, and education for non-shifters (not shifting between day and shift work, n=2974). For those shifting between day and shift work (shifters, n=1394) we used within-individual fixed effects logistic modelling. Odds ratios (OR) with 95% Confidence Intervals (CI) for both groups were calculated.

**Results** An increase of fatigue during work (OR 1.34, 95% CI 1.01-1.77 for shifters), during free-time (OR 1.45, CI 1.07-1.96 for shifters), and an increase in perceived work-life conflict (OR 2.28, CI 1.43-3.63 for shifters) were associated with exposure to shift work among both the shifters and the non-shifters. A decrease of work ability from good to poor was associated with exposure to shift work among shifters (OR 1.62, CI 1.01-2.59) but not among the non-shifters (OR 0.89, 95% 0.70-1.14). Changes in subjective health and intentions to retire or exit from the current occupation were not associated with shift work.

**Conclusion** The results indicate that shift work in hospitals can induce fatigue and work-life conflicts but is not associated with subjective health or retirement intentions.

## **Unemployment vs. sickness absence as predictors of disability pension: A follow up of working-aged Finns**

Jenni Blomgren<sup>1</sup>, Dr. Mikko Laaksonen<sup>2</sup>

<sup>1</sup>The Social Insurance Institution of Finland (Kela), Research Department, Helsinki, Finland

<sup>2</sup> Finnish Centre for Pensions, Helsinki, Finland

**Background** Many countries implement measures to monitor the accumulation of sickness absence (SA) days among the employed in order to enable timely rehabilitation and prevent permanent losses of work ability. This system does not recognize unemployment even though it is known to be associated with decreases in work ability. Also studies linking unemployment with disability pension (DP) are scarce. This study aimed to assess the role of unemployment vs. the role of SA in relation to incidence of DP in the Finnish working-age population.

**Methods** Cumulative SA days and cumulative unemployment days during year 2005, as well as various socio-demographic data were retrieved from the registers of the Social Insurance Institution, Finnish Centre for Pensions and Statistics Finland for a 50% sample of Finnish non-retired population aged 16–62 in 2005 (N≈1.5 million). Allowing for one year time lag, incidence of new DPs by main diagnosis in 2007–2011 was analyzed with Cox proportional hazards models.

**Results** Increasing unemployment during the calendar year gradually increased the hazard of entering DP during the follow-up. Compared to those with no unemployment, those with at least half a year of unemployment had an about two-fold adjusted risk of entering DP. Already less than one month's unemployment increased the risk by one third. Compared to all diagnoses, unemployment was more strongly associated with DP based on mental diagnoses and less strongly associated with DP based on musculoskeletal diagnoses. However, SA remained a clearly stronger predictor than unemployment in all analyses.

**Discussion** Strong associations were found between unemployment and entering DP. Decreases in work ability may remain unnoticed among those unemployed. Unemployment may obscure the association between SA and DP but may also itself be strongly associated with DP.

**Conclusion** When aiming at early prevention of permanent losses of work ability, also those unemployed should be targeted.

## Health, retirement and anticipated retirement

Prof. Pekka Ilmakunnas<sup>1</sup>, Dr. Seija Ilmakunnas<sup>2</sup>

<sup>1</sup> Aalto University School of Business, Helsinki, Finland

<sup>2</sup> Labour Institute for Economic Research, Helsinki, Finland

**Background** We examine how self-assessed health (SAH) is related to retirement expectations and actual retirement. Earlier studies use either actual or anticipated retirement, but seldom both. We also consider factors associated with expectation error, the difference between actual and expected retirement age.

**Methods** We use cross-sectional Quality of Work Life Surveys of Statistics Finland from 2003 and 2008 and link them to longitudinal register data until 2013. The surveys have information on expected retirement age, SAH, health symptoms and working conditions. From registers we get full-time retirement age, personal and family characteristics, income, accrued pension and sickness absences. We estimate regression models (N=1270) where actual and expected retirement age are regressed on SAH and controls. Attention is given to biases from endogeneity (justification bias in SAH, simultaneity of work status and health, unobserved heterogeneity), measurement error (assessments of SAH may be incomparable) and sample selection (retirement more likely observed when health is poor).

**Results** SAH is correlated with both actual and expected retirement age, but the correlation is stronger with expected retirement. This gives a negative relationship between SAH and expectation error. Adverse health shocks, measured as average annual sickness absence days between survey year and retirement, are also negatively related to expectation error. Expectation errors increase with expected time to retirement. The results are robust to consideration of different sources of bias.

**Conclusion** People do not predict their retirement age very well. Healthy persons make negative expectation errors by overestimating their willingness to continue to work and adverse health shocks lead people to retire earlier than they anticipated. To lengthen working careers, attention should be given both to the ability of people with poor health and the willingness of healthy individuals to continue at work.

## Scientific Session: Life course approaches in retirement research

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### Defining the right work contents: Are we making older workers (un)happy at work?

Dr. Laura Romeu Gordo<sup>1</sup>, Dr. Oliver Huxhold<sup>1</sup>, Prof. Dr. Kathrin Heinitz<sup>2</sup>

<sup>1</sup> DZA, Deutsches Zentrum für Altersfragen, Berlin, Germany

<sup>2</sup> FU, Freie Universität Berlin, Germany

**Background** The debate about the activation of older workers has been dominated by the idea that some (physical and cognitive) capabilities of workers decrease with age and therefore the work demands should be adapted to this decline in order to prolong working life. In this paper we want to draw the attention on the fact that while in the literature much focus has been put on the overchallenging of ageing workers, less attention has been paid to the underchallenging of older workers. However, as the literature shows, overchallenging and underchallenging have similar negative consequences on mental health.

**Methods** Using German data of the 2012 BIBB/BAuA survey we investigate the link between low satisfaction at work due to underchallenging and early retirement. Concretely we investigate (1) whether there is an age effect on the work tasks, or in other words, whether older workers are assigned more often tasks that are more repetitive and less often tasks which are new and which imply new challenges; (2) training participation of older workers; (3) whether work contents affect job satisfaction; and finally (4) how do job requirements and job satisfaction affect labour exit decisions.

**Results** Our results show that there is an age effect in work requirements so that with age individuals carry out more repetitive and less challenging tasks. Further, we observe that less challenging tasks have a direct effect on job satisfaction. Further less challenging tasks has a direct effect on earlier retirement and an indirect effect via job satisfaction.

**Discussion/Conclusion** With this analysis we contribute to the debate of prolonging working lives by arguing that adaptation of work demands with age must have the right balance between addressing changing abilities and maintaining motivation.

\* Although this is not a longitudinal survey, we analyse age effects and therefore we have a longitudinal (life course) perspective. Unfortunately, there are not longitudinal surveys including such detailed information on job contents.

### "But I Wanted to Stay!": The Role of Adaptive Strategies and Personality in Involuntary Retirement

Georg Henning<sup>1</sup>, Prof. Magnus Lindwall<sup>2</sup>, Prof. Boo Johansson<sup>1</sup>

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<sup>2</sup> University of Gothenburg, Department of Food and Nutrition, and Sport Science & Department of Psychology, Gothenburg, Sweden

**Background** Recent studies show that an involuntary retirement constitutes a challenge to older adults' well-being. Financial problems and losses in self-esteem can contribute to

problems in retirement adjustment and mental health. Few studies have yet considered the role of psychological strategies in the retirement adaptation. We investigate the role of personality and adaptive strategies, using the SOC-model (selection, optimization and compensation), in dealing with involuntary retirement.

**Methods** We use data from the Swedish HEARTS („Health, aging and retirement transitions in Sweden”) study. Cross-sectional analyses are based on the first wave from a subsample of retired persons (N= 1.951, aged 60-66). Longitudinal analyses will include data from the second wave as well (data collection completed later in the spring of 2016).

**Results** Cross-sectional analyses show that both high neuroticism and involuntary retirement are related to higher stress levels and more depressive symptoms, even if we control for many covariates. Notably, we found a significant interaction effect showing a stronger association between control over retirement and perceived stress among more neurotic retirees. Using data from the second wave, we will test whether a) those who retired involuntary between waves and scored higher on pre-retirement neuroticism show particular increases in depressive symptoms and stress level at follow-up and b) whether the effect of neuroticism is mediated by less pronounced use of SOC-strategies post-retirement.

**Discussion** The results will be discussed against the resource perspective on retirement and psychological theories on adaptation in older age.

**Conclusion** The negative effect of adverse conditions of the individual retirement transition might be moderated by personality and specific adaptive strategies.

## **Retirement trajectories in Finland: Institutional exit pathways, working-life events, and the role of firm-level conditions**

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**Background** This paper investigates whether conditions at the firm-level can mitigate the effects of health and unemployment shocks on the likelihood of various types of early labour market exit in Finland. It does so by identifying individual longitudinal retirement patterns and connecting these to their work histories and changes in their companies. Our main assumption is that company characteristics have an effect on how these shocks are translated in to retirement trajectories. Finland's population is among the most rapidly ageing in Europe, placing considerable pressures on the sustainability of the welfare system. In spite of a series of reforms in the pension system during the past two decades, Finland still has the lowest labour market participation rate of its 55+ population among the Nordic countries. Part of this is due to a system of social benefits and pensions that has been conducive to creating early exit pathways for certain groups in society. However, little is still known about the long-term circumstances under which older workers end up in each particular type of retirement. We make use of a unique longitudinal dataset with sequences of monthly primary income sources (from employment as well as various types of benefits and pensions) based on register data collected by the Finnish Centre for Pensions.

**Methods** The data includes a cohort born in 1948 that is followed between the years 2005 (age 57) and 2013 (age 65) and that has been employed at baseline (N = 55971). Applying sequence analysis, we identify eight main types of retirement trajectories. Next, we link these trajectories to the Finnish Longitudinal Employer-Employee Data (FLEED), collected by Statistics Finland. While controlling for individual characteristics, we estimate the long-term

effects of experiencing spells of sickness absence and unemployment and analyse the moderating effects of a set of employer characteristics (including the firm's size, industry, demographics and economic performance).

## **Personal dispositions and their impact on leaving the workforce earlier**

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**Background** Faced with extending working lives over the last years, there has been an increasing public and scientific interest in older workers and the reasons for leaving the workforce earlier or for remaining in work. Researchers assume that retirement is never the same for two people and that the social background and the subjectivity of people have a considerable impact on employment participation. Using data from a qualitative study the influence of personal dispositions on early retirement will be examined.

**Methods** In the qualitative study, 31 older people who were either still working, respectively intending to work at the age of 63, or who left the workforce before the age of 63 were interviewed. The study specifically focuses on several occupational groups in Germany: nurses, bank clerks, and metal workers. It aims to examine why some older people retire early while some others work longer. The interviews were tape-recorded and transcribed. The transcripts were analysed using Qualitative Text Analysis.

**Results** It can be shown that personal dispositions acquired in the childhood as well as dispositions acquired during the occupational career can have a great impact on the decision whether to retire early or to remain in work. These dispositions interact with societal and economic conditions, for example changing working conditions in the context of a restructuring of an economic field. Such interactions can also lead to different health outcomes.

**Discussion/Conclusion** The research demonstrates that professional career and acquired dispositions have an important influence on employment participation. Thus, not only the life course approach seems to be vital against this backdrop, but also biographical analysis in order to shed light on the subjective explanations for the decision to leave the workforce earlier or to remain in work.



## Special Session: Work & retirement, TUCIC, macro perspectives

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### The reversal of early exit from in aging societies: Going beyond static regimes with temporal fuzzy set analysis

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**Background** Challenged by demographic ageing and fiscal constraints, reforms in advanced welfare states have increasingly aimed at shifting from policies promoting early exit from work towards active ageing reforms promoting longer working life. Early retirement has widely been regarded as a reaction to economic restructuring, promoted through generous retirement provisions in many welfare states over the last four decades. Particularly in continental Europe, the parallel emergence of an early retirement culture promoted the persistence of a “welfare without work” problem, while Nordic, Liberal or Asian welfare regimes were more capable of maintaining higher employment among older workers. More recently, a political paradigm shift has been advocated, raising the retirement age, phasing out early exit opportunities, and increasing activation measures for older workers.

**Methods** Our cross-national comparison analyses this shift, but goes beyond a mere focus on holistic welfare regimes as we examine the differences between welfare state pull factors and economic push factors that had contributed to an early exit rate. Furthermore, using temporal comparison, we also study the impact of the recent retrenchment of welfare benefits and the importance of employment integration (such as activation measures) to promote employment of older workers, showing some path departure from alleged static regimes. Based on a study of OECD countries, we investigate in a fuzzy set / Qualitative Comparative Analysis (fsQCA) employment and exit rates of older workers.

**Results** The comparison shows that beyond the configuration of welfare regimes or varieties of capitalisms, a more specific set of pull and push factors is of relevance.

**Discussion** However, a major challenge in macro-comparison is the “too many variables, small N” problem. We therefore aim to analyse a medium N of countries and study the process for two time points diachronically (the peak of early exit and the recent reversal).

**Conclusion** Thus this cross-national and temporal fuzzy set comparison examines the complex institutional configurations beyond a holistic regime typology by disaggregating pull and push factors and analysing changes over time.

## **The development of non-employment-related entitlements to pension rights in Europe. An institutional analysis**

Patricia Frericks<sup>1</sup>, Julia Höppner<sup>1</sup>

<sup>1</sup> University of Hamburg, Hamburg, Germany

**Background** Since the 1990s pension systems in Europe have been fundamentally reformed and emphasis has been put on individual responsibility, active ageing and the extension of pension age. These reforms have limited the generosity of public pension schemes and tightened the eligibility of pension rights and they have been interpreted, first and foremost, as an increase of the labour-market relatedness of pension benefits. Concurrently, however, there are two developments in pension systems that do not refer to employment: first, the (in parts increased and in parts decreased) recognition of non-working periods for pension entitlements, i.e. periods in which labour-market participation is interrupted or reduced due to unemployment, studying or for family reasons (see Frericks 2010); second, the recognition of family elements such as having children or being married that is not necessarily linked to labour-market interruption. The latter has not systematically been analysed yet. In our contribution, we will focus on these family elements that have been introduced or strengthened in European pension systems. Family elements in pension systems, such as pension entitlements for children or for care for a frail relative, might compensate for times of non-employment and/or help to increase the pension level of those with discontinuous and atypical employment histories.

**Methods** We will deliver a systematic analysis of the degree to which pension systems comprise such family elements and how this is changing. We first develop a methodology to make the weight of the family in pension systems visible and then compare its distinctiveness and change. Our methodological approach for institutional analysis allows a nuanced identification of the welfare-institutional trends with regard to non-employment-related family elements both within and between welfare states.

**Results** The findings show that the degree to which pension systems comprise family-related entitlements and thereby put the labour-market focus into perspective is characterised by high variation which does not correspond to common welfare categorisations.

## **Latest developments of retirement policies in Europe and effects on older worker employment rates: News from the MoPAct project**

Dr. Jürgen Bauknecht<sup>1</sup>, Prof. Gerhard Naergele<sup>1</sup>

<sup>1</sup> TU Dortmund Institute of Gerontology, Dortmund, Germany

**Background** Demographic developments have various adverse effects, amongst them declining sustainability of social security schemes (primarily pay-as-you-go pension schemes and health/disability schemes) and reduced supply of skilled labour. For these and other reasons, for more than a decade European countries' policies affecting older people in working age are aimed at higher employment rates (extensive margin) and higher numbers of working hours per employed person (intensive margin). This also applies to countries with high unemployment rates. The main policy fields are pensions, unemployment, health/disability and hiring/wage subsidies.

**Methods** Within the context of the European research project MoPAct ('Mobilising the potential of active ageing in Europe', 2013-2017), possibilities to increase older workers' employment rates are depicted, evaluated and developed.

**Results** Based on this project, the contribution presents policies in several European countries aimed at longer working lives and their effects. Using the current state of research (primarily latest quantitative findings) these policies and their effects on older workers' employment rates are depicted, with a special focus on innovative policies. It is shown that some policies are effective, whereas others are not e.g. due to deadweight effects or alternative exit pathways being used by those affected. In some cases, differences between effects on different groups (skills/health) are remarkable.

**Discussion/Conclusion** In summary, policies aimed at higher older worker employment rates can be effective, yet depend on country-specific circumstances and workers' ability to prolong working lives. Analyses of effects on various groups show that policies effectively raise employment amongst those who are able to work longer, implicating that a mix of policies motivating older workers to prolong working lives and policies enabling them to do so can be the most successful strategy to increase older workers' employment rates.

### **Institutional determinants of (long-term) unemployment 50+ – A fuzzy-set analysis**

Meike Bucker<sup>1</sup>

<sup>1</sup> University of Rostock, Rostock, Germany

**Background** While persons aged 50+ become unemployed less often, once unemployed they face severe re-employment difficulties resulting in longer unemployment durations. In the second quarter of 2015, 62% of all unemployed aged 50-64 in the EU 28 countries were unemployed for over a year in contrast to 49% in the overall working age population (15-64). The official statistics also show that there are distinct country-specific differences in the long-term unemployment rates of the elderly: The rates range from 38% in the UK to 82% in Greece. These big discrepancies cannot solely be explained by individual characteristics, but rather suggest institutional push- and pull factors – e.g. unemployment benefits, pension regulations, labour market activation measures and the economic situation – that influence the unemployment duration of older individuals.

**Methods** Therefore, this study aims to examine how the economic situation, unemployment benefit duration, job search monitoring and (early) retirement regulations affect unemployment and long-term unemployment rates for people aged 50+. Using qualitative fuzzy-set analysis, ten European countries will be investigated at three different points of time (2005, 2010 & 2015), thereby covering a wide range of institutional regulations.

**Discussion** The strength of fuzzy-set analysis lies in the focus on the case as an entity and on the equifinality principle, which considers that different institutional combinations and path-dependent trajectories can lead to different or even similar outcomes.

**Conclusion** The findings contribute to a deeper understanding of how different institutions, and especially their combined effect, influence the (long-term) unemployment rates in the selected countries.

## Brown Bag Sessions

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### **Methods in analyzing working life trajectories from a sociological and epidemiological perspective**

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<sup>1</sup> School of Population and Public Health, University of British Columbia, Vancouver, Canada

<sup>2</sup> University of Groningen, University Medical Center Groningen, Department of Health Sciences, Community and Occupational Medicine, Groningen, The Netherlands

Integrating a life course perspective into work and health research leads to a new approach to conceptualizing research questions that focus on working life trajectories. The Brown Bag Session starts with two short presentations on the topic and the challenges, followed by a facilitated discussion with the audience. The discussion paper "Labor markets and health: an integrated life course perspective" by Amick, McLeod & Bültmann will serve as a basis and input for the discussion.

Amick BC<sup>1</sup>, McLeod CB, Bültmann U. Labor markets and health: an integrated life course perspective, Scand J Work Environ Health. 2016 May 9. pii: 3567. doi: 10.5271/sjweh.3567. [Epub ahead of print]

### **The Emergents Diseases: multiple chemical sensibility syndrome; chronic fatigue syndrom; fibromyalgia**

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Chemical risks are potential hazards in many workplaces, either because we work directly with them, for example in the chemical industry; or because they are applied occasionally externally, for example when fumigating various places. Many of these hazardous products are present in the workplace, and have a toxic potential which directly affects human health, even in non-toxic doses.

The relationship between work, environmental conditions and health is becoming better known nowadays. Environmental conditions have great impact on public health, causing new, multiple, organic diseases / syndromes (the so-called environmental diseases), systemic diseases, chronic, disabling and even potentially carcinogenic diseases (as already recognized by the WHO), such as multiple chemical sensitivity syndrome, chronic fatigue syndrome, fibromyalgia syndrome and sensitivity to electromagnetic fields.

Organophosphates (OPs) are found in a variety of substances, such as metals, various organic solvents and fumes. They are potential endocrine disruptors. Many are already recognized by the WHO in European Chemicals Census, Endocrine Disruptors<sup>2</sup>.

Organophosphates have been used as insecticides worldwide for more than 50 years. Worldwide, an estimated 3,000,000 people are exposed to OPs each year, with up to 300,000 fatalities. OPs are potent cholinesterase inhibitors capable of causing severe cholinergic

toxicity following cutaneous exposure, inhalation, or ingestion. The toxic effects of OPs differ with respect to reversibility and severity. However, neither reported symptoms nor performances after an OP exposure predicted the effects after a subsequent exposure-free interval, and the measurement of the internal exposure is still not easy to assess. Following a study of 20 years (1994-2013), we evaluated 43 women who were exposed to OPs in their workplaces. Signs and symptoms of exposure were identified, and ferritin (Ft), thyroid stimulating hormone (TSH), acetylcholinesterase (AChE), pyruvic acid (PA) and lactic acid (LA) levels were measured and analysed by multivariate statistical analysis.

The results show that the main signs and symptoms reported were asthenia (98%), muscle aches (78%), menstrual cycle changes (36%), respiratory changes (27%), central nervous system changes (27%) and peripheral nervous system changes (11%). Ft contents revealed an iron deficiency (42.28 mg/dl) on admission that had a significant increase during treatment. A similar trend was also observed for TSH although the contents remained within the normal range. Concerning AChE, the results showed an extremely significant decrease over time especially between the admission (6327.74 U/mL) and last valuation (4658.74 U/mL). Regarding PA and LA, both contents increased significantly over time. These results suggest that OP exposure affects different organic systems, and reveals the need to make embracing studies that enable a better understanding of this subject.

## Scientific Session: Work, age & health in specific occupational groups

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### Age, biological aging, and occupational stress in helicopter emergency medical services pilots

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**Background** Working conditions of helicopter emergency medical services (HEMS) pilots are exacting due to high cognitive and psychomotor demands in safety-critical situations. Imbalance between occupational stressors and resources can adversely affect occupational safety. Moreover, the role of pilot age in flight safety is vigorously debated. The relation between chronological age, biological aging, and occupational stress in a multinational sample of HEMS pilots is investigated.

**Methods** A preliminary sample of 42 HEMS pilots (28 Polish, 10 Czech, 4 German; 29-64 years, M = 49.2) completed a questionnaire on working conditions and well-being. Aeromedical examination data covering 10 years are used to create an index of “biological aging” from physiological parameters indicating functional decline in different organ systems (eg., blood lipids for the vascular system, creatinine clearance for the renal system). Complete data will be available in August 2016.

**Results** The sample is highly engaged in their work and has good levels of well-being and energy. Physical stressors are more prominent than psychological ones. High procedural justice and very low role stress are protective factors. (Chronologically) older pilots tend to report a lower work pace, but also a greater amount of job insecurity. The longitudinal medical data allowed creating a useful index but due to the presently small sample size, relationships with biological aging are not yet reliable.

**Discussion** Both younger and older HEMS pilots report few symptoms of occupational strain. However, perceived job insecurity of older pilots may be related to the “Age 60” rule which bans commercial pilots aged 60 and over from single pilot operations.

**Conclusion** Currently, older pilots show no signs of reduced capability to deal with the demands facing HEMS pilots. Due to the presumed concomitant decline in physical and cognitive capacity, biological aging may be more relevant, which needs to be further evaluated.

## What makes medical staffs from public hospitals to Private hospitals?

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**Background** Majority of Chinese medical staffs work in public hospitals, while a growing number of medical graduates into public hospitals. However, those staffs, especially in Tertiary hospitals, are different from their colleagues in western countries due to huge amount of job stress from their patients, colleagues, family and even the whole society. In this poor work environment, some medical staffs shift their jobs from public hospitals to private hospitals. However, job stress exceedingly impairs the productivity of medical staffs and hospitals through causing poor health and extremely high presenteeism. Thus, we aim to investigate whether job stress, health and presenteeism are different between medical staffs in private and public hospitals in China, and provide relative suggestions on policy-making.

**Methods** We analyzed representative samples aged 20 to 65 years from the HMJ hospital (n=211), the representative private hospital in China, and from representative tertiary public hospitals in China (n=859). We first investigated the relationship among challenge stress, hindrance stress, health and presenteeism using structure equation modelling. Then, we used linear additive models to test whether the differences in challenge stress, hindrance stress, health and presenteeism were due to being in private or public sector.

**Results** The staffs in private sector were less stressful and reported less presenteeism than those in public sector. Health mediated the relationship between challenge stress, hindrance stress and presenteeism, however, while health is assessed with a metric that considers functioning domains and social wellbeing.

**Discussion** It is possible for policy-makers and hospitals deans to comprise interventions around the development and implementation of policies, activities and the organization of services aimed at sustainable employment, such as effective stress interventions, targeting different aspects of stressors and health of medical staffs and improving the productivity and quality of health care services in both public and private health sector.

## Psychosocial work environment among Portuguese municipal workers: Preliminary results

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<sup>3</sup> University of Aveiro, Education and Psychology Department, Aveiro, Portugal

**Background** Our study aims at characterizing the psychosocial risk factors among municipality workers.



**Methods** The study is longitudinal: the first survey was applied during 2015. The Portuguese version of COPSOQ was used to assess psychosocial factors at work. The results of each scale were classified using the tertile distributions and the cutting points 2,33 and 3,66, corresponding to three levels: red, yellow and green.

**Results** Our sample included 567 workers from the Municipality of Sintra: 71% females, mean age of 46,9±8,0 years. The cognitive demands (56%), insecurity at work (48%), emotional demands (45%) and influence at work (43%) were identified as adverse factors. Favourable factors perceived by the workers were: role clarity (78%), social community at work (75%), meaning of work (74%), trust regarding management (64%), self-efficacy (63%), rewards/recognition (62%), social support from colleagues (54%), development opportunities (53%), quality of leadership (50%), work-family conflict (46%) and quantitative demands (45%). As workers get older their health and work conflicts perception are worse ( $p \leq .001$ ). As workers age their perception of quantitative demands, cognitive demands, emotional demands, and work-family conflicts ( $p \leq .001$ ) are lower. As workers age their perception of role clarity, justice and respect, self-efficacy, job satisfaction and sense of community ( $p \leq .001$ ) are stronger. Gender differences were found for influence at work, work conflicts, social support from colleagues, trust regarding management and health ( $p \leq .050$ ), with women presenting worse results for all factors, except for trust regarding management.

**Discussion/Conclusion** The psychosocial environment at work is considered of major importance for the individual's health and wellbeing. Our sample showed a high percentage of favourable factors, mainly related with work environment and age, what strengthen the perspective of the value of the senior workers in the workplaces. A healthy worker's effect could be present.

## **Assessment of factors affecting safety culture in steel industry workers**

Mehrzaad Ebrahimzadih<sup>1</sup>

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**Background** Safety culture is a factor that because of it all of workers from headmaster to simple workers come together so that they could contribute to the safety of themselves and their coworkers. The purpose of this study was to evaluate factors affecting safety culture in Yazd steel industry workers.

**Methods** This study was conducted on 244 steel industry workers. In this cross-sectional study, data was gathered by a questionnaire. This questionnaire consisted of 75 questions in the form of multiple choice questions (standard safety culture questionnaire) and 6 questions about accidents (accident questionnaire). Data was gathered and after being coded was entered into SPSS software for analysis.

**Results** In this study there was a significant relationship between safety culture and educational level and work experience ( $p\text{-value} < 0.05$ ). There wasn't a significant relationship between safety culture and age, marital status, work shift and location of body involved. In this study the most frequent cause of occupational accidents was burning (25%) and upper extremities were the organs most frequently injured.

**Conclusion** In order to achieve system requirements about safety, it is necessary to implement a proper structure and in order to match individuals with this structure, culture change and behavior change should be used.

## Scientific Session: Social inequality

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### Does age modify the association between social class and the incidence of poor general health?

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**Background** A few studies suggest that age modifies the association of social class and prevalence of health. But is that the case longitudinally? We hypothesize that the social gradient for incidence of poor health is much larger among older workers than among younger workers.

**Methods** We analyzed twenty time windows covering each one year in the German Socioeconomic Panel (SOEP) with a total of 134,860 observations from 22,709 employees with baselines in 1991-2010 and follow-ups in 1992-2011. All employees had good self-rated health at baseline. Social class in three categories was based on the German Blossfeld Occupational Sector Classification. Self-rated health status (SRH) at follow-up was measured with a single item. Effect modification was defined as the deviation from additivity and examined by calculating Excess Relative Risk due to Interaction (ERRI). The reference group was employees aged 18-32 with low exposure.

**Results** A social gradient in the one-year incidence of poor self-rated health was observed in both genders. Neither among males nor among females, age interacted with middle or low social class as predictors of incidence of poor-self-rated health.

**Discussion** The findings in the present study do not suggest that the social gradient for poor health is larger among older workers than among younger workers.

**Conclusion** The social gradient in health among German employees is the same across age groups of employees.

### Socioeconomic differences in working lives lost due to disability retirement

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**Background** The incidence of disability retirement shows large socioeconomic differences in particular due to musculoskeletal diseases. In addition to differences in the incidence of disability retirement, the age of retirement that varies between diagnostic groups strongly contributes to how much of working lives are lost due to disability retirement. We examined socioeconomic differences in working lives lost due to disability retirement and temporal

changes in them in different diagnostic groups over the past 10 years, during which time the incidence of disability retirement has strongly decreased in Finland.

**Methods** Nationwide Finnish register data was used to calculate the expectation of the years spend on disability pension by educational level. Life table -based methods were applied in 9 disease categories during 2005-2014.

**Results** In 2014, those with primary education were expected to spend 2,51 years on disability pension compared to 0,91 years among those with tertiary education. The association was similar in men and women, and despite the overall decrease in the time spend on disability pension, the pattern did not change much from the year 2005. Those with low education spent more time on disability pension in all diagnostic categories but the association was strongest for musculoskeletal diseases. The association has slightly attenuated for disability pension due to somatic diseases but strengthened for disability pension due to mental disorders. Increase in the level of education over time partly explains the shortening of the time spend on disability pension.

**Discussion** Those with low educational level spend much more time on disability pension than those with higher education. Despite the changes in working conditions, socioeconomic differences in the time spend on disability pension have been persistent over time.

**Conclusion** Educational level is strongly associated with the time spend on disability retirement in each diagnostic category.

## **Inequality trends of disability-free life expectancy among European older population: A cross-country comparison**

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**Background** Life expectancy among the European population has been increased in the last few decades. However, the scientific and cross-country comparable evidence whether European populations are living longer without morbidity, functional disability or activity limitations and therefore age more successfully are yet to be fully established. Objectives: To examine the level and trend of disability experienced by the European older population in term of disability-free life expectancy (DFLE), as well as the gender differences in DFLE.

**Methods** Cross-national longitudinal data from Survey of Health, Ageing and Retirement in Europe (SHARE) was utilized, focusing on people aged 50 years and above within ten SHARE countries from wave 2 (N= 23,938) and wave 5 (N=46,177). Disability was measured with Activity of Daily Living (ADL) instrument. The DFLE was measured using the Sullivan method based on the standard period life table and ADL-disability proportions, in men and women for each SHARE country.

**Results** The prevalence of disability varied and increased by age in most of SHARE countries. Women were more prevalent to report disability across all age groups, except in Switzerland. A mixed trend in DFLE observed which Switzerland and Sweden reported a substantially higher number of years free of most of the disability over time. Although women have greater numbers of healthy life years than men, they experienced a larger proportion of their life in ill health. The gender gap differences in DFLE were various across SHARE countries.

**Conclusion** Our findings emphasize the mixed trends in DFLE observed across European countries between 2006 and 2013. Significant health inequalities between countries were evident in the proportion of additional years to be lived without disability among European countries, but the gender gap differences were various across the impairment process.

### **Differential Effects of Retirement on Life Satisfaction: The Role of Education and Last Labor Market Status**

Dr. Martin Wetzel<sup>1</sup>, Dr. Oliver Huxhold<sup>2</sup>, Prof. Dr. Clemens Tesch-Römer<sup>2</sup>

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**Background** The research project examines trajectories of life satisfaction at the transition to retirement. Following a life course perspective, we analyze the impact of education and last labor market status on retirement transition for different temporal episodes.

**Methods** We used data from the German Socio-Economic Panel to estimate a multi-group, multi-episodes dual change score model. For 3,361 retirees with almost 28,000 observations the trajectories of life satisfaction from six years prior, over shortly after, and up to eight years after retirement were modeled discontinuously.

**Results** Retirement significantly changes the development of life satisfaction in the short-term as well as in the long-term. Educational class was associated with differential long-term developments of life satisfaction. Prior unemployment was accompanied mostly by a positive short-term effect on retirement. Overall, the model fitted the data very well (CFI = 0.981; RMSEA = 0.021).

**Discussion** The results indicate that retirement is a major change in living conditions which the higher educated process better in the long-term. Last labor market status differences decrease in the short-term but remain in the long-term.

**Conclusion** Retirement functions in the long-term as a step of cumulative inequality as well as in the short-term as a leveler of inequality.

## Special Session: Life course influence on extended working lives

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### Lifelong learning and labour market exit in later life: Special session on life course influences on extended working lives

Dr. Martin Hyde<sup>1</sup>

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**Background** Given the upsurge in active ageing policies designed to extend working lives there is a growing interest in the factors associated with work and retirement in later life. Research shows that there is a positive association between education and labour market participation in later life. Yet, despite the known benefits of lifelong learning, there is surprisingly little research on lifelong learning activities and labour market exit.

**Methods** To redress this this presentation will look at the impact of lifelong learning on the likelihood of remaining in work in later life. Data are drawn from 6 waves of the English Longitudinal Study of Ageing. The sample was restricted to those in work at baseline (N = 4123). Lifelong learning was measured by 3 items: participation in educational course, taking an evening class and gaining a formal qualification. Logistic regression analyses were performed to look at the likelihood of remaining in work by wave 6.

**Results** Results show that over the period around 25% of respondents had engaged in some lifelong learning activities whilst still in the labour market. However, the analyses show that taking an educational course (OR 1.42; 95% CI 0.98-2.03), evening classes (OR 1.23; 95% CI 0.82-1.84) and gaining a qualification (OR 1.38; 95% CI 0.91-2.10) are positively associated with remaining in the labour market none remain statistically significant once other socio-demographic factors are controlled for.

**Conclusion** These are interesting findings that raise issues about the role of lifelong learning in extending working life. However, there are also a number of methodological considerations about how lifelong learning is measured in social surveys. This is an important issue requires further research.

### Work and family life history in relation to extended working lives: Findings from the English Longitudinal Study of Ageing

Dr. Paola Zaninotto<sup>1</sup>, Dr. Ewan Carr<sup>1</sup>, Dr. Emily Murray<sup>1</sup>, Dr. Mai Stafford<sup>1</sup>,  
Dr. Morten Wahrendorf<sup>2</sup>

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**Background** Previous studies suggested that life course trajectories of work and family formation are related to work beyond state pension age (SPA). We explore how the timing and number of children and the proportion of years spent in work are related to work beyond SPA for men and women in England.

**Methods** Data are from the English Longitudinal Study of Ageing. In 2008 respondents were administered a life history interview. The main outcome measure is whether or not working beyond SPA, the main exposures are number and timing of children before and after the age of 40, and the proportion of years spent in full time and part time work in two stages (16-39 and 40-49 years). The models were mutually adjusted for these exposures.

**Results** Preliminary results show that for men having one or more children after the age of 40 and a greater proportion of years spent in full-time work in late adulthood were significantly related to work beyond SPA. Whereas among women, a greater proportion of years spent in full and part-time work between the ages of 16-39 and full-time work at the ages of 40-49 were related to higher odds of working beyond SPA. Whereas a greater proportion of years spent in part-time work at the ages of 40-49 was related to lower odds of work beyond SPA. Women who had 1-2 children at the ages of 16-24 were less likely to work beyond state pension age compared to women who had 1-2 children at the ages of 16-39.

**Conclusion** Our preliminary results suggest for men having children after the age of 40 is related to higher odds of working beyond SPA, whereas for women it appears that a greater proportion of years spent in part-time and full-time work in early adulthood and full-time work in late adulthood is a stronger predictor of working beyond SPA.

### **Early adversity and late life employment history – A sequence analysis based on SHARE (part of special session)**

Dr. Morten Wahrendorf<sup>1</sup>, Hanno Hoven<sup>1</sup>

<sup>1</sup> Institute for Medical Sociology, University of Düsseldorf, Germany

**Background** Studies show how sociodemographic and work-related factors affect the moment of retirement. Few studies, however, summarize entire histories of late life employment, and additionally, test links between early adversity and specific types of late life employment histories.

**Methods** We use the Survey of Health, Ageing and Retirement in Europe (SHARE), with retrospective information for older men and women across 13 countries. Employment histories are measured with annual information on the employment situation between age 50 and 70. We apply sequence analysis and regroup respondents into clusters with similar late life employment histories. Multinomial regressions are used to investigate gender-specific associations between early adversity (measured in terms of socioeconomic position during childhood and early adulthood) and types of employment histories, adjusted for age, country-affiliation, education, partnership history, and indicators for health prior and during working life.

**Results** Most clusters (three out of eight) are dominated by full-time employees, each with different age of retirement (65 or earlier; 58 per cent of all histories). Two additional clusters are dominated by self-employment and comparatively late retirement. Remaining clusters are either marked by part-time work, by continuous domestic work (mostly women), or discontinuous histories with an episode of unemployment before retirement. In terms of associations between early adversity and histories, we find that early adversity is linked to full-time employment ending in early retirement, but not to self-employment with a late retirement. Moreover, in case of women, early adversity is related to discontinuous histories.

**Discussion/Conclusion** The study illustrates the value of retrospective data and sequence analysis for studying determinants of extended working lives. We find that histories of employees with early retirement and discontinuous histories are part of larger trajectories of disadvantages throughout the life course.

## **A life course perspective on working beyond retirement – Results from a longitudinal study in the Netherlands**

Dr. Astrid de Wind<sup>1</sup>, Dr. Suzan van der Pas<sup>1</sup>, Dr. Birgitte M. Blatter<sup>2</sup>,  
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**Background** There is a societal need that workers prolong their working lives. By adopting a life course perspective, this study aimed to investigate the influence of work motives and motivation, health, job characteristics, skills, and financial and social situation on working beyond retirement, and differences between 'on time' and 'off time' retirees (retirement age 65 and <65 years, respectively).

**Methods** Retirees aged 57 to 67 years (N=1,054) who participated in the Dutch Study on Transitions in Employment, Ability and Motivation were included in this study. Participants filled out a questionnaire in 2010, 2011, 2012, and 2013. Predictors of working beyond retirement were identified using logistic regression analyses, and stratified analyses were performed to investigate differences between 'off time' and 'on time' retirees.

**Results** High work engagement (OR=1.3), good physical health (OR=1.8), poor financial situation (OR=2.4), and voluntary work (OR=1.5) predicted working beyond retirement. For 'off time' retirees, no financial possibility to retire early (OR=1.8) and not having a partner (OR=1.9) predicted working beyond retirement. 'On time' retirees reporting more support at work (OR=0.7) and without the financial possibility to retire early (OR=0.5), worked beyond retirement less often.

**Discussion/Conclusion** The results indicated that especially the motivation to work, physical health and the financial situation were the most relevant aspects with regard to working beyond retirement, which supports the idea that the principle of 'human agency' of the life course perspective is useful to understand factors that impact working beyond retirement. Most aspects of the life course principles of 'linked lives' and 'timing' seemed to be less relevant.

## **Retirement and the socio-economic gradient in cortisol: Evidence from the Whitehall II study of civil servants**

Prof. Tarani Chandola<sup>1</sup>, Dr. Patrick Rouxel<sup>2</sup>, Prof. Meena Kumari<sup>3</sup>, Prof. Michael Marmot<sup>4</sup>

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**Background** Recent studies suggest that employees in low grade and poor quality work improve in mental health and well-being upon retirement, although there is no evidence on whether this is accompanied by an improvement in biological measures associated with stress around the period of retirement. Does the occupational gradient in salivary cortisol, a marker of the primary stress response axis, change around retirement?

**Methods** Data from the 7th (2002-2004), 8th (2006) and 9th (2007-09) phases of the Whitehall II study were analysed. 1,143 respondents who were employed at phase 8 (mean age 59.9 years) and who had salivary cortisol measured from six samples collected across the day at phases 7 and 9 were included in the analysis.

**Results** Compared to employees in highest occupational grades at phase 7, employees in the lowest grades were associated with adverse diurnal cortisol slopes (flatter decline across the day). A similar pattern was observed for those who remained in employment at phase 9, and those who had recently retired. The occupational gradient changes around retirement, with those formerly working in highest employment grades having the steeper diurnal slopes compared to their peers who remain in employment.

**Conclusion** Occupational grade differences in a biomarker associated with stress increase around the period of retirement. Employees working in the highest employment grades appear to benefit the most from retirement in terms of steeper diurnal cortisol slopes, while there is no apparent benefit of retirement among those working in the lowest grades. These biological differences associated with transitions into retirement for different occupational groups may partly explain the pattern of widening social inequalities in health in early old age.



## Keynote

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### **The challenges of assessing change in quantitative research**

Prof. Alex Burdorf<sup>1</sup>

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There is an abundance of longitudinal studies on the effects of work-related factors on various diseases and their consequences for sustained employability. Typically, independent variables collected at enrolment of workers into the study are used to predict occurrence of health problems, sickness absence, or disability during the follow-up period. Such an analysis does not address the time-varying patterns of working conditions and disease responses. Two new strategies have become increasingly popular to address the dynamic pattern of the interplay of determinants, health, and consequences over time: (i) life-course approach with trajectories over time and trajectory group membership, and (ii) multi-state models for changes in risk factors and health states over time. Examples will be presented.

## **Scientific Session: Work & health challenges for cohort studies, Part I**

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### **Opening Presentation**

#### **Work and health – challenges for cohort studies**

Prof. Reiner Rugulies<sup>1</sup>

<sup>1</sup> National Research Centre for the Working Environment, Copenhagen, Denmark

Research on psychosocial work environment and health was for a long time characterised by small-scale cross-sectional studies, generating only very limited knowledge regarding the role of psychosocial working conditions in the aetiology of physical illnesses and mental disorders. This changed during the last decade that has seen the emergence of numerous large-scale cohort studies and of international research consortia combining cohorts from different countries. In this presentation I will discuss the main findings from these studies. I will in particular focus on recent studies conducted by the IPD-Work Consortium on the contribution of psychosocial work environment factors to the risk of cardiovascular disease and diabetes and on results from various new cohort studies on psychosocial work environment and risk of depression. I will further address current controversies in the field and will discuss new research questions that are arising and how these new research questions can be answered in future studies.

## **A job exposure matrix for psychosocial and ergonomic working conditions: Performance and applications to life course research**

Dr. Ida E. H. Madsen<sup>1</sup>, Dr. Nidhi Gupta<sup>1</sup>, Dr. Ole Melkevik<sup>1</sup>, Prof. Andreas Holtermann<sup>1</sup>, Prof. Reiner Rugulies<sup>1</sup>

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**Background** Numerous studies have linked working conditions with an increased risk of both mental and somatic disorders. Most studies, though, use self-reported exposure data, which might bias results as they could be affected by individual-level factors such as pre-clinical baseline symptoms or negative affectivity. To overcome this limitation, we constructed a job exposure matrix (JEM) for psychosocial and ergonomic working conditions in the Danish workforce.

**Methods** We used self-reported data on the working conditions of 22,573 employees from 246 job groups, from the Work Environment and Health in Denmark cohort study year 2012. To construct the JEM we aggregated data on each working condition to the job group level (ISCO-08 classification). We estimated the variation within and between groups using multilevel modelling and the percentage of variation explained by job groups (intraclass correlation coefficient, ICC). We also examined strategies to improve ICC, e.g. varying the minimum number of participants required in each job group.

**Results** Preliminary findings suggest good performance of the matrix for ergonomic working conditions and emotional demands at work (ICC 30-55%), but poorer performance for other factors. Further results will be available at the conference.

**Discussion** The JEM covers the vast majority of Danish job groups, allowing for large scale studies relating working conditions to register-based outcomes in Danish employees without loss to follow up and selective attrition. Such analyses are less vulnerable to bias by individual level factors affecting reporting. However, it should be noted that they could bias associations towards the null by not incorporating the subjective experience of the participants.

**Conclusion** Job exposure matrices may be a useful tool to estimate ergonomic, and to some extent psychosocial working conditions. Applying such matrices allow longitudinal analyses of working conditions throughout the (work-)life course.

## **Changes in working conditions and physical health functioning in midlife and ageing employees**

Dr. Minna Mänty<sup>1</sup>, Dr. Anne Kouvonen<sup>2</sup>, Ph.D. Tea Lallukka<sup>3</sup>, Dr. Jouni Lahti<sup>1</sup>, Prof. Dr. Eero Lahelma<sup>1</sup>, Prof. Ossi Rahkonen<sup>1</sup>

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<sup>3</sup> Finnish Institute of Occupational Health, Helsinki, Finland

**Background** The aim this study was to examine the effect of changes in physical and psychosocial working conditions on physical health functioning among ageing municipal employees.

**Methods** Follow-up survey data were collected from midlife employees of the City of Helsinki, Finland, at three time points: Wave 1 (2000-2002), Wave 2 (2007) and Wave 3 (2012).

Changes in physical and psychosocial working conditions were assessed between waves 1 and 2. Physical health functioning was measured by the physical component summary (PCS) of the Short-Form 36 questionnaire at each of the three waves. In total, 2784 respondents (83% women) who remained employed over the follow-up were available for the analyses. Linear mixed-effect models were used to assess the associations and adjust for key covariates (age, gender, obesity, chronic diseases and health behaviours).

**Results** Repeated and increased exposure to adverse physical working conditions was associated with greater decline in physical health functioning over time. In contrast, decrease in exposures reduced the decline. Of the psychosocial working conditions, changes in job demands had no effects on physical health functioning. However, decreased job control was associated with greater decline and repeated high or increased job control reduced the decline in physical health functioning over time.

**Conclusion** Adverse changes in physical working conditions and job control were associated with greater decline in physical health functioning over time, whereas favourable changes in these exposures reduced the decline. Preventing deterioration and promoting improvement of working conditions are likely to help maintain better physical health functioning among ageing employees.

## **Obesity under employees of the lidA-study – Results of a linkage with primary and claims data**

Christoph Stallmann<sup>1</sup>, Prof. Dr. Bernt-Peter Robra<sup>1</sup>, Dr. Enno Swart<sup>1</sup>, Stefanie March<sup>1</sup>

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**Background** Obesity is a risk factor for severe, mostly chronic diseases, e.g. hypertension or type 2 diabetes. Among elderly employees (age 45+) those diseases are a reason for an increase in early retirement. The cohort study "lidA – leben in der Arbeit" ("living at work"; BMBF-FKZ: 01ER0826) interviewed 6,339 employees born in 1959 and 1965 in two waves (2011/2014) to analyse the connection between work, age, health and work participation.

**Methods** The aim of our analyses was to determine the prevalence of obesity among employees by combining the primary data with claims data of ten statutory health insurance funds (SHI). First, we calculated the body-mass index (BMI) using the participants self-reported height and weight. All participants were classified as obese if they had a BMI  $\geq 30$  in at least one survey wave. Via individual data linkage (informed consent) those primary data were supplemented with information's of diagnosed obesity (ICD-10 Codes: E65, E66) from the SHI-data. Obese participants and participants of normal weight were compared concerning several work-factors using a binary logistic regression analysis.

**Results** The overall prevalence of obesity under employees of the lidA-study is 20.9 % (n = 1,327). Among men the prevalence is higher than among women (♂ 23.0 % vs. ♀ 19.1 %,  $p \leq 0.01$ ). 64 cases of obesity could be identified using the additional SHI-data. The results of the regression analysis ( $R^2 = 0.27$ ) show significant differences between the groups relevant to sex, level of education and profession. Sitting work posture and heavy physical labour were identified as workplace-related risk factors.

**Discussion/Conclusion** A potential bias caused by imprecise self-reported information about height and weight, can be reduced using an individual data linkage. The prevalence of obesity clarifies the priority for workplace health promotion. Timely target-group- and profession-specific interventions can help to prevent early retirements.

## **Working life expectancy calculations in poor and good functional health among Dutch 55- to 65-year olds**

Maaïke van der Noordt<sup>1</sup>, Dr. Suzan van der Pas<sup>2</sup>, Prof. Dr. Dorly J.H. Deeg<sup>2</sup>,  
Prof. Dr. Theo van Tilburg<sup>4</sup>, Dr. Marianne Jonker<sup>1</sup>

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**Background** In demographic research, calculations on healthy and unhealthy life expectancies are common. These life expectancies provide information on the number of years people are expected to live in good and poor health. Given the rising statutory retirement age in many Western countries, methods to calculate healthy and unhealthy working life expectancies (WLE) could enrich current research on health and retirement.

**Methods** Data of the Longitudinal Ageing Study Amsterdam (LASA) were used. LASA is a continuing population-based cohort study on predictors and consequences of changes in functioning in ages 55+. In this study, the first four waves of Cohort 1 (1992-2002) and Cohort 2 (2002-2012) were used to compare healthy and unhealthy WLEs over two periods. Poor health was defined as having functional limitations and good health as having no functional limitations. Firstly, a three-state survival model was created. Secondly, WLEs in good and poor health were calculated using the MSM and ELECT packages in R.

**Results** 623 workers aged 55 to 65 years were included. In Cohort 1, the total WLE of 55 year old workers was 4.38 years of which 1.32 years in poor health. In Cohort 2, this total WLE was 5.54 years of which 1.56 years in poor health. For workers who were already in poor health at age 55, working life was extended by 1.40 years in poor health and by 0.38 years in good health. For workers in good health at age 55, this was -0.12 and 1.10 years, respectively.

**Discussion** Workers in poor health are observed to stay in the workforce longer. This may encourage employers and policy makers to facilitate older workers in poor health to keep them motivated and productive. The next step would be to identify specific needs of workers in poor health who continue working. However, the model has limited possibilities to include determinants.

**Conclusion** The calculation of WLEs from longitudinal data has added value for the study of extension of working lives.

## Scientific Session: Measuring change

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### Health determinants of work limitations among older construction workers in the United States – A longitudinal study

Dr. Xiuwen Sue Dong<sup>1</sup>, Dr. Rosemary Sokas<sup>2</sup>, Dr. Knut Ringen<sup>3</sup>

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<sup>3</sup> CPWR-The Center for Construction Research and Training, Silver Spring, U.S.A.

**Background** The aging workforce has brought many challenges. This study of older construction workers in the U.S. examines how work limitation (WL) is associated with age, employment, health behaviors, and health conditions.

**Methods** We analyzed 5 waves (2004 to 2012) of the Health and Retirement Study, a longitudinal survey of US residents age 50+. The study sample totaled 20,129 in 2004, and dropped to 13,564 in follow-up. About 1,000 respondents reported their longest job was in the construction industry. WL was derived from the question "Do you have any impairment or health problem that limits the kind or amount of paid work you can do?" Health determinants include self-reported and doctor-diagnosed conditions, health behaviors, and BMI.

**Results** WL increased rapidly in workers' later years. The prevalence of WL doubled from 14% in baseline to 33% at follow-up and contributed to retirement. WL was slightly higher for those who were still working full-time at follow-up, but significantly increased among retirees. Workers whose longest job was in construction more often reported WL; however, current construction workers reported WL less frequently than their non-construction counterparts. WL increased linearly with the number of chronic conditions, ranging from <3% for those without conditions to >80% for those with seven or more conditions. Lung disease, stroke, and back problems were more likely to lead to WL than other conditions. Smoking increased WL, particularly for current smokers. Regular exercise, even light exercise, reduced WL. WL also decreased with light and moderate alcohol intake, and escalated with underweight or obesity.

**Discussion/Conclusion** The results help characterize WL. As the workforce ages, policies to delay retirement become more necessary to reduce WL and promote healthy aging for workers in construction as well as in all industries.

### Towards retirement: Employability to explain heterogeneity in older workers' labour market pathways in the Netherlands?

Dr. Maria Fleischmann<sup>1</sup>

<sup>1</sup> Erasmus University Rotterdam, Department of Public Administration and Sociology, Rotterdam, The Netherlands

**Background** Supposedly as a consequence of the demand for longer labour market participation of older workers, how older workers participate in employment is becoming increasingly heterogeneous: E.g. while some retire directly, others remain in employment after

pension age. When investigating and comparing older workers' employment, the relation between their employability and their labour market participation is repeatedly stressed. In this paper, we investigate how older workers' employability relates to their labour market pathways towards retirement.

**Methods** We use unique longitudinal data from the Netherlands (STREAM, Study on Transitions in Employment, Ability and Motivation). The data cover about 15.000 respondents aged 45-64 (in 2010). Within the four years of the panel, respondents start retiring, with about 40% of the respondents being out of employment in 2014. As such, the data is extremely suitable to investigate pathways towards retirement in the Netherlands. Our analyses follow a three-step procedure. First, we use Sequence Analysis to detect complete employment pathways of older workers. We investigate which consecutive transitions older workers make in the labour market, e.g. between full-time employment, part-time employment, self-employment, unemployment or early retirement. Due to their different employment history, we explicitly discern men's and women's pathways. Second, Cluster Analysis is used to discover patterns of pathways towards retirement. Third, we investigate whether individual's self-assessed employability and recent investments in employability (e.g. training) relate to older workers' employment: how does employability shape their pathway?

**Results** Our results indicate three typical male and three typical female pathways towards retirement.

**Discussion/Conclusion** These pathways reflect specific combinations of pre-retirement and post-retirement labour market behaviour. Moreover, the pathways appear to be related to older workers' self-assessed employability.

## Changes in organisational injustice and changes in insomnia symptoms: Using observational data as non-randomized pseudo-trials

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**Background** Organizational injustice may affect sleep quality, but previous empirical studies have not addressed the temporality in the association. We thus examined, whether the onset and removal of the exposure to relational and procedural organizational injustice is associated with subsequent changes in insomnia symptoms.

**Methods** Participants were 24,287 Finnish public sector employees with data from three consecutive surveys between 2000 and 2012, contributing to a total of 36,189 observations. We applied a “pseudo-trial design” to determine temporality between deterioration in relational and procedural justice over the first two surveys, and onset of insomnia symptoms in the third survey. We additionally examined, whether removal of relational and procedural injustice was associated with better sleep in the third survey. Several social and health-related covariates were controlled for in generalized estimating equation based models, allowing to account for within person correlation.

**Results** Onset of relational injustice was associated with subsequent insomnia symptoms (OR 1.15; 95% CI 1.02-1.30), whereas no association was found for procedural injustice (OR 1.08; 95% CI 0.95-1.22), after adjustments for sociodemographic factors, health behaviours, comorbid conditions, shift work and apnoea. Removal of relational injustice was associated with better sleep after adjustments (OR 0.83; 95% CI 0.71-0.96). Removal of procedural injustice did not improve sleep (OR 0.91; 95% CI 0.77-1.06).

**Discussion** Onset of relational injustice could lead to insomnia symptoms while removal of such injustice could improve sleep. The association is independent of the pertinent risk factors, suggesting that modifications in these psychosocial exposures can contribute to sleep.

**Conclusion** These results suggest temporal associations between relational injustice and sleep quality, a key determinant of employee well-being and work ability.

## Early work-related physical exposures and low back pain in midlife: The Cardiovascular Risk in Young Finns Study

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**Background** Low back pain (LBP) is a highly prevalent and disabling problem among employees, and its work-related determinants have been widely examined. However, early exposure to the physically heavy work and its consequences for the low back are poorly understood. Thus, we examined whether heavy physical workload in young adulthood increases the risk of local and radiating low back pain in midlife.

**Methods** Longitudinal nationally representative Young Finns Study data among women (n=414) and men (n=324) aged 18-24 years in 1986 (baseline) were used. Physical heaviness of work was reported at baseline and follow-up (2007), and local and radiating LBP at follow-up. Covariates were age, smoking and body mass index. Logistic regression was used to examine the associations between physical heaviness of work and LBP. Additionally, the mediating effect of back pain at baseline was examined (the Sobel test).



**Results** After adjustment for the covariates, and as compared to sedentary/light physical workload, heavy physical workload was associated with radiating LBP among women (OR 4.09, 95% CI 1.62 -10.31) and men (OR 2.01, 95% CI 1.06 -3.82). Among men, early back pain mediated the association (p-value from the Sobel test=0.006). Among women, early exposure to physically heavy work showed the most consistent associations, while both early and late exposures were associated with radiating and local LBP among men. Persistently heavy physical work was associated with radiating LBP among both women and men.

**Discussion** Physically heavy work at a young age can have a long-lasting effect on the risk of low back pain. Early exposure to heavy physical work is associated with a higher risk of radiating low back pain in midlife particularly among women, while early back pain mediated the associations among men.

**Conclusion** These results highlight the need to consider both early and persistent exposures to prevent the adverse consequences of physical workload for the low back.

### **Developmental trajectories of multisite musculoskeletal pain from midlife to old age among women and men**

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**Background** Musculoskeletal disorders are major cause of severe long-term pain and work disability. Musculoskeletal pain commonly occurs in multiple body sites (MSP). Very little is known about the developmental path of MSP during work life and latter age. We investigated the developmental paths of multisite musculoskeletal pain (MSP) from midlife to old age and among women and men.

**Methods** A prospective population-based longitudinal study was conducted among Finnish municipal employees initially aged 44 to 58 with 28 years of follow-up. The baseline data were collected in 1981 (N=6257) with four follow-ups in 1985, 1992, 1997 and 2009. Musculoskeletal pain in multiple body locations were measured in all questionnaire survey waves. Altogether, N=2804 subjects were used in analysis who had data on musculoskeletal pain in 1981 and 2009, and at least in one wave between the baseline and the last follow-up. Group-based Latent class growth modelling (LCGM) was used to model the developmental paths of MSP separately for women and men.

**Results** Different trajectories group were identified for women (n=1813) and men (n=991). A three group trajectories of MSP for women was found: high decreasing MSP (32%), moderate-increasing (43%) and no pain increasing (25%). Two group trajectories were found in men: high decreasing (35%) and no pain increasing (65%). Widely fluctuating pain patterns in long term was not found in this study. Almost one third of studied women and men had high MSP with some sort of decreasing patterns in the follow-up.

**Conclusion** Different developmental paths in MSP seems to exist among women and men from midlife to later age. Overall, MSP was persistently present among one third of the population with no or little variation in long-follow-up.

## Interaction of work related biomechanical and psychosocial exposures in midlife as predictor of ADL disability in later life

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**Background** Work exposures during adult life may subsequently increase the risk of disability in old age. We investigated how work related biomechanical and psychosocial exposures from midlife separately and interactively predict ADL disability in later life.

**Methods** A total of 6257 people aged 44-58 years participated in the Finnish study of Municipal Employees (FLAME) in 1981 and were followed up for the next 28 years till 2009. Biomechanical exposure was created by using the extent of different physical and mechanical exposures and psychosocial exposure (job strain) was created by using the job demand-control concept of the Karasek model. ADL disability was created by using the sum score of 12 dichotomous ADL and IADL tasks. Negative binomial regression was used to calculate rate ratios (RR) and their 95 % confidence intervals (CI). Potential interaction between the two exposures was quantified by using the departure from additivity. The effect was estimated by computing the relative excessive risk due to interaction (RERI) along with attributable proportion (AP) due to interaction and synergy index (SI) and 95 % CI.

**Results** After adjusting for age, smoking, alcohol use, BMI and physical exercise the rate of ADL disability due to high biomechanical exposures was significantly higher among both women (RR 1.69, 95 % CI 1.42-2.01) and men (1.30, 1.09-1.54) compared to lower exposures. Likewise, high psychosocial exposures also predicted the ADL disability among women (2.01, 1.60-1.81) and men (1.42, 1.14-1.78). The interaction of two exposures also significantly predicted the ADL disability among women (2.35, 2.09-2.64) and men (1.60, 1.41-1.81), however the estimates were more than additive among women only (RERI 0.34, 0.03-0.65).

**Discussion/Conclusion** Work related exposures of midlife independently and interactively predict ADL disability of later life among both genders, interactions being more than additive predictor of later life disability for women.

## Special Session: Occupational Rehabilitation

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### Self-reported work ability predicts rehabilitation events and disability pensions

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**Background** The Work Ability Index (WAI) assesses a worker's ability to cope with her or his job demands. Our study examined the accuracy of the WAI in predicting rehabilitation measures and disability pensions in a sample of employees previously receiving sickness benefits.

**Methods** Employees aged 40 to 54 years who received sickness benefits in 2012 completed the WAI in 2013. Participants were followed-up until the end of 2014. Outcomes included amongst others approved rehabilitation measures and disability pensions. These data were extracted from administrative records. WAI scores were categorized as poor (7-27 points), moderate (28-36 points) and good/excellent (37-49 points).

**Results** Data of 2,149 participants were included (mean age: 47.8 years; 54.4% women). Of all participants, 21% reported poor and 38.4% moderate work ability at baseline. During the follow-up period 224 (10.4%) persons were approved a rehabilitation measure. Moreover, 35 (1.6%) persons received a disability pension. Frequencies of approved rehabilitation measures were 21.5%, 10.3% and 4.8% in employees with poor, moderate and good/excellent baseline work ability. Incidence rates of disability pensions were 4.9%, 1.1% and 0.5%. Average annual income from regular employment in 2014 was significantly lower in employees with poor baseline WAI scores (27,738 EUR vs. 34,071 EUR vs. 34,531 EUR). The duration of welfare benefits was increased (37 days vs. 15 days vs. 11 days).

**Discussion** Our findings confirm the prognostic relevance of the WAI in predicting the use of rehabilitation services and disability pensions. This is in line with recent findings from other European countries.

**Conclusion** The WAI is a potential tool to follow-up employees who have already had an elevated risk of permanent work disability due to previous long-term sickness absence. A web application was subsequently developed to support employees in identifying their need for rehabilitation.

### Influence of local job market on the success of vocational retraining

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**Background** The aim of vocational retraining (VRT) is to adapt the requirements of the job by changing the profession of the person. VRT are expensive and have a long duration. Therefore, knowledge of the relevant individual predictors as well as the impact of the local job

market on the success of VRT is of great importance. In our study we stressed this fact by focusing on the analysis of predictors for return to work (RTW) after VRT.

**Methods** Data from the scientific use file (SUF) of the German Pension Insurance (GPI) was used. All persons with VRT on behalf of the GPI from 2002 to 2009 were integrated. The local unemployment rate was linked with this data. Nine logistic hierarchical regression models were calculated using three different RTW definitions at three follow-up points (6, 12 and 24 months after VRT) as outcome criteria. Individual and regional predictors were integrated in these models as fixed effects with random intercepts of the region and the years. To test the variance of the effects cross-level-interaction terms of individual predictors and the local unemployment rate were integrated.

**Results** Up to 59,103 datasets in 412 regions over 8 years could be used (33% female, 43 years). The model fit was acceptable ( $AUC \geq 0.7$ ). In all nine models a significant association for the local job market was (for example RTW at 12 months follow-up:  $OR=0.62$ ). Sociodemographic, health-related as well as work-related information were significant RTW predictors. For most of these effects an interaction with the local unemployment rate was observed leading to stronger effects in regions with higher unemployment rates. Comparable results were found for different RTW outcome definitions.

**Conclusion** The local job market is a relevant predictor concerning the success of VRT. The direct influence not only results in a lower RTW chance in regions with higher unemployment rates, but the effects of most individual predictors are also much stronger in these regions.

### **Effects of wage subsidies on employment: Findings from a propensity score matched analysis**

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**Background** Wage subsidies shall provide an incentive to employers to consider employment of persons with health problems. The study analyzed employment effects of wage subsidies for persons who completed a medical rehabilitation program but were dismissed with restricted work ability for their last job.

**Methods** Data come from a longitudinal scientific use file provided by the German Pension Insurance Agency. We included persons aged 18 to 60 years who had completed a rehabilitation program due to musculoskeletal disorders between 2003 and 2005 and were evaluated as having limited work ability for their last job. Persons with and without wage subsidies were matched by propensity scores. Primary endpoint was the receipt of a disability pension within 3 years.

**Results** The sample included 2970 patients. Of whom, 374 persons (12.6%) were approved wage subsidies. The matched sample comprised 648 persons, i.e. 324 persons with wage subsidies and 324 persons without wage subsidies. The risk of a disability pension was reduced from 16.4% in patients without wage subsidies to 9.0% in patients with wage subsidies. The absolute risk reduction corresponded to a number needed to treat of 14 persons. Within 3 years the income from regular employment of persons with wage subsidies was 19600 EUR higher than compared to persons without wage subsidies. Stratified analyses showed that the effect on employment was stronger in patients with long-term sickness absence and unemployed patients.

**Discussion** The study provides evidence of the effects of wage subsidies for workers with health problems in Germany. Stratified analyses showed that especially high risk patients benefit from wage subsidies. A major study limitation is that propensity score matching is prone to biased effect estimations due to unobserved heterogeneity of the treatment groups.

**Conclusion** Wage subsidies should be approved in order to support returning to work if a former job cannot be done anymore.

## **The Search for Appropriate Comparison Groups in Evaluating Further Training Measures in Occupational Rehabilitation of Disabled People**

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**Background** As occupational rehabilitation (OR) is cost-intensive, it is of central interest to identify a general causal effect on labour market integration of disabled people. Due to moral and legal caveats, experimental approaches using randomized allocation to treatment and control group are not acceptable. Thus, quasi-experimental approaches are pursued. The study at hand presents potential comparison groups for rehabilitants in labour market re-integration taking part in further training measures.

**Methods** In the context of the project “evaluation of occupational integration assistance of disabled people” – financed by the Federal Ministry of Labour and Social Affairs –, administrative data of the Federal Employment Agency is processed and analysed. The data comprises all people applying for OR between 2007 and 2014. Sociodemographics are observed, as well as rehabilitation-process specifics, employment and programme biographies. However, except for the type and degree of disability and the binary characteristic “health limitations relevant for placement”, nothing can be said about health and occupational limitations. Several potential comparison groups are identified and tested for appropriateness and comparability using propensity score matching.

**Results** Three potential comparison groups are identified:

1. Persons submitting an application for OR, yet who are not taking up OR, but general further training measures.
  2. Persons who were accepted to OR, but never participated in any measure.
  3. Persons with “health limitations relevant for placement”, who have never applied for OR. They are assumed to be eligible for OR, but are unaware or unwilling to take up OR.
- Though there are differences between rehabilitants and their respective comparison groups, most differences can be balanced by propensity score matching. The first comparison group, however, is discarded due to low number of cases.

**Discussion/Conclusion** There are limitations to the presented comparison groups. However, some are identified to be appropriate for future studies using random sampling methods and quasi-experimental designs.

## Scientific Session: Work & health challenges for cohort studies, Part II

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### Long-term impact of occupational factors on aging in the French GAZEL cohort

Prof. Marcel Goldberg<sup>1</sup>, Prof. Alexis Descatha<sup>1</sup>, Annette Leclerc<sup>1</sup>, Dr. Sandrine Plouvier<sup>1</sup>, Erika Sabbath<sup>2</sup>, Dr. Claudine Berr<sup>3</sup>, Dr. Marie Zins<sup>1</sup>

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**Background** Disability in older age is a reflection of conditions that occur throughout life. Our objectives were to examine long-term effects, including after retirement, of work exposures to biomechanical, psychosocial and chemical factors over the life course.

**Methods** Data came from GAZEL, a longitudinal cohort established in 1989 among workers of the French national utility. The cohort is composed of 15,011 men and 5,614 women, now aged 62 to 77, holding a wide range of occupational positions. Data are prospectively collected in multiple waves from different sources, including detailed assessments of work-related exposures and of personal and health factors. Occupational exposures include measures of psychosocial and ergonomic factors assessed through questionnaires, and of chemicals using a company-specific job exposure matrix. Covariates cover many fields: social characteristics, health behaviours, and morbidity. Analyses were conducted on long-term effects (including after retirement, i.e. after cessation of exposure) of psychosocial, biomechanical and chemical occupational exposure on some health conditions. Depending on specific objectives and the nature of the variables different statistical methods were used: linear and logistic regression models, marginal models or weighted GEE.

**Results** The presentation will focus on findings regarding the long-term effects of occupational exposures on musculoskeletal disorders (back pain, knee and shoulders pain) and limitations, on the effects of psychosocial factors on fatigue and quality of life, and the effects of solvents exposure on cognition.

**Conclusion** The role of occupational factors on premature aging is poorly known and underestimated. Life course approaches might reveal that they are indeed major determinants of poor aging. Because working conditions are potentially modifiable, the public health implications of a better knowledge on the long-term effects of occupational exposure could be important.

### Does age modify the association between work environment and the incidence of poor general health?

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**Background** Very few studies suggest that age modifies the association of working conditions with health. We hypothesize that 1) physical work demands are more detrimental for older workers' health, 2) relational psychosocial factors (e.g. leadership quality) are more detrimental for older workers' health and 3) psychosocial job factors (e.g. influence at work) are more detrimental for younger workers' health.

**Methods** We analyzed two-four five-year cohorts in the Danish Work Environment Cohort Study with a total of 13,947 observations from 7,762 employees (follow up participation rate 74%). Physical work demands were assessed via demanding body postures and heavy lifting; psychosocial job factors via work pace, influence, opportunities for development; psychosocial relational factors via support from manager, quality of leadership. Self-rated health (SRH) was measured with a single item. Effect modification was defined as the deviation from additivity and examined by calculating Excess Relative Risk due to Interaction (ERRI). The reference group was employees aged 18-32 with low exposure.

**Results** Physical factors: Regarding demanding body postures we found ERRI to be statistically significant among older women and among older men. Regarding heavy lifting we found statistically significant ERRI among older women, but not among men.

Psychosocial factors: In most cases no significant ERRI was found. Only a few psychosocial job factors were modified by age among males; with increasing age low possibilities for development and low influence had a stronger association to poor health.

**Discussion** The findings in the present study suggest that physical work demands, in particular demanding body postures, but not psychosocial factors have a stronger impact on health of older workers than that of younger workers.

**Conclusion** Physical work demands seem to have a stronger effect on older workers health than that of younger workers'. This has practical and methodological implications.

## Loneliness and Depression: The Role of Employment

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**Background** Loneliness, described as the perceived absence of adequate social relationships, has been linked to poor health and increased depressive symptoms. As employment provides daily routine it could be used as a distraction, helping lonely individuals to avoid confronting with their loneliness, thus buffering the effects of loneliness on depression. Following retirement, social contact and engagement require more self-directed efforts, and one's social functioning may play a more significant role in contributing to one's mental health and wellbeing than during the working years. We examined whether the effect of loneliness on depressive symptoms is moderated by employed status, hypothesizing that the effect will be stronger among retirees than employees.

**Method** We used 2 waves of the Health and Retirement Study (HRS) to test our hypothesis. The HRS is a representative survey of the American population aged 50 years and older. Loneliness was measured at 2010, and depression at 2012 and controlled for at 2010. We compared the effect of loneliness on depression between those who worked at 2010 and retired by 2012 to those who worked continuously between 2010 and 2012. Mean age at 2010 was 63.

**Results** The results confirmed our hypothesis, such that the effect of loneliness on depression was stronger for those who retired between 2010-2012 than for those who stayed employed.

**Conclusion** By providing routine and social interaction, employment protects from the translation of loneliness to depressive symptoms. The transition to retirement could result in increased sensitivity to loneliness, and thus increased depressive symptoms. Those who experience loneliness while employed could be at risk for maladjustment to retirement. Providing lonely retirees structured activities could increase their well-being and protect against that development of depressive symptoms in retirement.

### **Life satisfaction in different stages of the retirement transition: Initial findings from the HEARTS study**

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**Background** The retirement transition is commonly seen as a process of adjustment to new life circumstances. From a resource perspective, the level of adjustment is dependent on the individual's capability to cope with these changes. In turn, the individual's capability is the result of the amount of resources available to the individual. Previous research has shown that self-esteem, autonomy, social support and self-rated physical health can be related to the individual's well-being in the retirement adjustment process. However, little is known about how these resources are related to each other, and to what extent a shortage in one resource can be compensated by the presence of another.

**Methods** Life satisfaction was studied in a cross-sectional sample of 4 917 individuals aged 60–66 from the Health, Aging and Retirement Transitions in Sweden (HEARTS) Study. The importance of self-esteem, autonomy, social support and self-reported physical health was investigated in three different stages of the transition.

**Results** The analysis show that the four resources together accounts for 39–45 % of the variation in life satisfaction. Autonomy is shown to be the most important resource for life satisfaction, in all three stages of the transition. In addition, multiple interaction effects reveal that the importance of a resource is dependent on the level of another resource, particularly for individuals in the transition-stage.

**Discussion** The results emphasize the individual's need for control over changes during the retirement transition. Multiple interaction effects indicates that a shortage in one resource could, at least to some extent, be compensated by the presence of another. Planned follow-ups will reveal if resource change can be related to a change in life satisfaction.

**Conclusion** This study highlights both the importance of psychological resources in the retirement transition and the relevance of studying the transition as a process rather than an isolated event.



## Scientific Session: Gender

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### Opening Presentation

#### Gendered life course and retirement

Dr. Ingrid Mairhuber<sup>1</sup>

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Despite the increasing labour market participation of women in almost all EU countries, there are still significant differences between women and men. Due to the persistent gendered division of labour, these differences are especially pronounced in prime-age, but have effects on the whole working life. Although there are country-specific differences, longer career breaks and periods of part-time work due to unpaid family work (e.g., childcare or elderly care) are still more common for women than for men. In addition, notwithstanding large country specific differences, women on average still earn less than men. Contingent upon the characteristics and design of the pension system, these differences may be mitigated, perpetuated or even amplified both with regard to the access to and the amount of the pension. More or less distinct gender pension gaps are the consequences. Since the second (occupational) and the third (individual) pillars of the pension system are also earnings-related, gender differences are pronounced even in countries where the first pillar is residence-based. Far reaching pension reforms implemented in almost all EU countries over the last decades have on the one hand even strengthened the links between pension income and previous earnings or contributions. In more-pillar countries with residence-based basic pension, shifts from the first to the second and third pillar have been undertaken. In order to increase gender equality, on the other hand, pension credits for childcare and elderly care have been introduced.

Against this background, the main aim of the presentation is to show how the gendered integration into the labour market and the gender pay gap affect the retirement possibilities as well as the pension income of women and men in different welfare states, and how recent pension reforms have contributed to mitigate or amplify the gender pension gaps. Finally, some remarks on how gender pension gaps could be prevented or reduced will be made.

## How to explain gender-specific differences in intentions to retire early? - Results of the lida cohort study

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**Background** Early retirement is still common in industrial nations with ageing populations like Germany. In these countries the loss of work force by early retirement can be crucial regarding the preservation of social security systems and the global competitiveness. Only 18% of men and 13% of women in the age of 64 were still in work in Germany in 2013 (Dietz 2014). Therefore investigating factors influencing the intention to retire early (IRE) can be relevant under preventive aspects. Literature about gender-specific retirement intentions is sparse. Study goal was to investigate gender-specific differences in factors influencing IRE.

**Methods** 3961 employees born in 1959 or 1965 and prone to social security contributions who participated on both waves (2011, 2014) of the lidA-study were part of this analysis. The associations between socio-demographic, health- and work-related as well as non-work-related factors and IRE were compared between men and women with multiple logistic regression analysis. If differences were observed, we tested for gender-specific interactions.

**Results** Men had more often thoughts on early retirement than women ( $p < .001$ ). Gender-specific differences could be shown for work-related stress measured by effort-reward imbalance (Siegrist 1996) and for work-family conflict. School education was associated with IRE in men, only.

**Discussion/Conclusion** The gender-specific differences we found are in good agreement with the current state of knowledge. Provided that IRE is a good predictor of real later retirement behavior these results point to usefulness of gender-specific work-related as well as political interventions to prevent early retirement.

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### Gender and work life exits

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**Background** In a European perspective, Sweden has comparatively high work participation generally among older people. However, like in most countries, there has been a manifest gender difference. In a study carried out 2006, where the exit ages in different occupational

groups were mapped, men exited work 2.5 years and women 3.3 years before age 65 (the retirement norm). The present study was undertaken so as to find out if this gender difference prevails.

**Methods** The project was carried out as a population study employing methodology used in demographics to predict life length at birth. Calculations of expected remaining work life length were based on the outflow from working life. The study was based on the Swedish national labour statistics, covering all employees who had an occupational definition in 2006 and who were in the age range 35-64 years during 2007-2010.

**Results** It was found that people now worked longer in almost all occupations. The gender difference was marginal (0.02 years); the previous difference is gone. This observation complies with current governmental statistics concerning exits from work life due to disability pension and age pension; in 2011, women exited work at 63.8 years, compared to 63.9 years for men.

**Discussion** Exit ages among Swedish men and women tend to equalize. We hypothesize that this development reflects a dramatic reduction of newly approved disability pensions. In 2006, about 30 per cent more women than men received disability pension. The major diagnostic chapters were mental and musculoskeletal illnesses. In the time period 2006-2011, the gender difference in number of approved disability pensions in these chapters diminished gradually and had disappeared in 2011. The new, more restrictive disability pension policies introduced have had a more negative effect on female applicants generally.

## Occupational class trajectories in physical health functioning among ageing female employees

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**Background** Changing occupational class differences in health are poorly understood among ageing employees. We examined occupational class trajectories in physical health functioning among female employees facing retirement, and the contribution of work factors to these differences.

**Methods** The data derived from Helsinki Health Study baseline mail surveys in 2000-2002 (n=8960, response rate 67%) and follow ups in 2007 and 2012. 6528 female participants (ages 40-65) were included. Occupational classes were managers, semi-professionals, clericals and manual workers. Functioning was measured by the Short Form 36 physical component summary (PCS), with scores from 0 to 100 and higher scores indicating better health. Physical and mental strain of work and employment status were measured. Growth curves were estimated using mixed models.

**Results** Functioning declined by age in all occupational classes. At age 40 the PCS score for female managers was 52.5 (95% confidence interval 51.9-53.2) and for manuals 50.7 (49.6-51.7). At age 60 the scores were 48.0 (47.1-48.9) and 41.3 (39.8-42.8), with a gap widening from 1.8 to 6.7 scores. Adjusting for strain of work had minor effects on the class trajectories

in functioning. For those who remained employed the trajectories were similar, but the class gap was slightly narrower. For those who retired the class gap was very large but narrowed by age.

**Discussion** Among female employees facing retirement age physical functioning was the better the higher the occupational class. Functioning declined in all occupational classes but the pace was the faster the lower the class, leading to a widening class gap towards age 65. Strain of work had only minor effects on the class trajectories in functioning, whereas early retirement led to a wide but narrowing class gap over age.

**Conclusion** Workplace measures are needed to prevent declining physical functioning among ageing female employees in general and among lower class employees in particular.

### **The interplay of work-privacy conflicts, health and work ability in older employees. Does gender make a difference?**

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**Objectives:** Work-privacy conflicts have been found to be associated with health-related problems and a decrease of employee's workability. However, ongoing research is needed to clarify to what extent these conflicts are also relevant for health related measures like the health functioning, e.g. employee's workability, and if changes over time play a special role in these associations. We assumed a predictive effect of WPC on workability and mediating effects of mental and physical health of the employees in this association. Due to the results of earlier studies gender differences in the interplay of these factors were suggested.

**Methods:** Data from personal interviews of 3,778 employees born in 1959 or 1965 and participating in the German IliA (engl.: living at work) cohort-study in 2011 and 2014 were included. WPC were measured by the COPSOQ scale and workability by the Workability Index (WAI). Mental and physical health were measured by SF-12 (2 scales). Data of each factor was collected on both times. The interplay of the variables was tested in a multiple mediating analysis (Hayes, 2013). For this, the mean and difference values over both times were calculated for all variables. Regression models were calculated, firstly adjusted for sex, age and education. In a second step, models were stratified for sex.

**Results:** Results show that the effect of WPC on work ability is predominantly an indirect effect: It is primarily mediated over mental and to some degree over physical health. To a small degree also changes of mental health but not in physical health contribute to this association. While these observations are quite similar between women and men, the total effect of WPC on WAI as well as the indirect effect were slightly stronger in women.

**Conclusion:** These findings support a predictive effect of WPC on WAI which is predominantly mediated by mental health. In our data gender doesn't make a big difference, only slightly stronger associations were found for women.

## Special Session: Are retirement ages still on the rise in the North?

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### Is age and ageing important for extending working life? Conceptualisation of ageing in relation to factors in working life

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**Background** The specific thing of an older worker in relation to others is their aging. The aim of this study was to explore and understand the complexity of ageing in relation to factors of importance for working life participation.

**Methods** A discourse analysis of documents was used of an review including 128 articles to construct a theoretical model of ageing in relation to factors of importance to work life participation.

**Results** Four different concepts of ageing were identified and seems to in different ways affect older workers' ability to extend their working life:

- (a) biological ageing relates to people's health in relation to their physical and mental work environment, their pace of work and recuperation needs;
- (b) chronological ageing relates to statutory retirement age and policies and economic incentives devised for older workers by society, unions and organisations/enterprises;
- (c) social ageing relates to inclusion in different social groups, the attitude of managers, organisations and family members, the leisure activities and surrounding environment;
- (d) mental/cognitive ageing relates to self-crediting, motivating and meaningful activities, competence and skills in working life.

**Conclusion** Societies today focus mostly on chronological ageing by looking to increase the retirement age with regard to statutory pension systems, e.g. beyond 65 years of age. However, the inter-relationships between chronological, mental, biological and social ageing need to be considered in relation to the nine areas identified as being important to work life participation when aiming to provide a sustainable working life for the increasing numbers of older workers in modern society. The theoretical model developed in the study may be a contribution to the critical debate in order to provide an inclusive and sustainable extended working life, there older workers can and want to work.

## **Collaborative research for Age Management – For Special session "Are retirement ages still on the rise in the North?"**

Ph.D. Rebecka Arman<sup>1</sup>, Prof. Ewa Wikström<sup>1</sup>, Ph.D. Daniel Seldén<sup>2</sup>, Prof. Roland Kadefors<sup>3</sup>

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**Background** In order to promote a longer work life, the organizations that employ people have an important role to play. The aim of this project is to study the workplace conditions and practices which inhibit and/or promote a prolonged work life.

**Methods** The study is designed as a process intervention that takes place within the framework of a "research consortium", i.e. a longitudinal collaboration between researchers and practitioners. HR-representatives and line managers currently involved in Age Management in their organizations, from seven large Swedish public and private organizations, take part in the regular meetings of the consortium. The meetings are designed to exchange ideas, knowledge and experience of ongoing practices. This paper is based on the analysis of detailed notes from participative observations of the meetings and qualitative interviews with the participants.

**Results** We report on the initial processes and consequences of the action research collaboration. The variation of themes discussed during meetings, show a changing and multifaceted meaning framework for what is considered relevant to issues of prolonging work life and implementing Age Management. This includes discussions of occupational health, recruitment of talent, employer branding, promoting work motivation, giving financial advice, legal restrictions and age discrimination. The described justifications, perceived support and initial consequences for the participants of joining the consortium are also analyzed.

**Discussion/Conclusion** In the Swedish context, experiences and systematic knowledge are limited from implementation of policies and practices at the company and organizational level, for delayed retirement. Our study contributes to current knowledge of interventions and work place practices. If organizational actors are not involved, other national policy reforms will have only marginal effects.

## **Rising average retirement age – A successful case**

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**Background** This study focuses on effects of the ageing worker policies at the Norwegian Maritime Directorate. After moving headquarter in 2006 from Oslo to Haugesund, they struggled to re-staff vacant positions. In 2008 the Directorate launched their ageing worker policies as a response to the rough competition regarding recruitment and retention of competent workforce.

**Methods** The study used a panel interview study design with four waves, interviewing thirteen staff and their managers. The researchers participated in one-day bi-annual seminars with managers and staff aged 57 years and more, and attended meetings with the HR-staff and

union representatives from 2007 to date. Data from the HR-department was used for evaluation of age and retirement.

**Results** The policies contains the seminars, two weeks of paid leave and annual bonuses from age 62, and attention to special competence needs during the annual performance appraisals. They recruit older staff, especially retiring merchant navy officers, who possess the unique competence from working at sea. The interviews identified two staff members who were dissatisfied with reductions in their work span, and both left the organisation within a year. The rest coped well with continuous changes in the organising, content and methods of the work, and took on training and new responsibilities. The managers were satisfied with their older staff, except one manager worrying about the cost connected to the reduced working hours. From 2006 to 2015, the average retirement age in the Directorate increased with 3 years from 65 to 68 years, as compared to an average of about one year in the Norwegian working life.

**Discussion** The ageing worker policies, which was a response to acute lack of competent staff, was successful. The driving factors were the focus on recruiting and retaining of the entire organization.

**Conclusion** Ageing worker policies may succeed when the entire organization is positively involved.

## Changes in preferred retirement age

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**Background** For many workers, the question of when to retire is an issue several years before retirement is an option. We ask: 1) How stable are people's preferred retirement age (PRA) over a five-year period? 2) Do preferences alter when life-circumstances alter?

**Methods** We use data from the first (T1) and second wave (T2) of The Norwegian study on life course, ageing and generation – NorLAG, N= 1060 workers aged 50 to 61 at T2.

**Results** At T1 90% specified at which age they preferred to retire. After five years (T2) a majority had changed their PRA; 57% preferring later and 14% preferring earlier exit than they preferred at T1. Except for changes in subjective health, changes in life-circumstances were not tied to changes in PRA. In contrast, changes in work aspects (stressfulness, working hours, appreciation from the management, opportunities for learning etc.) was tied to changes in PRA. Negative changes in work related factors predicted earlier PRA and positive changes predicted later PRA. Overall, though, changes in subjective health and in work related factors explained changes in PRA only to a small extent.

**Discussion** If politicians want to influence retirement behavior, it seems sensible to start already when individuals form their wishes and make their plans. However, wishes and plans are based on assumptions about the future. If reality changes, plans and wishes might alter as well. It is often assumed that factors in the private sphere (i.e. retirement of the spouse, loss of the spouse) are important for retirement plans. It is therefore surprising that changes in life-circumstances are unrelated to changes in PRA. However, changes in subjective health and changes in work related factors do play a role in changes of PRA.

**Conclusion** Changes in preferred retirement age seem to be more influenced by changes in aspects of work than by changes in life-circumstances outside work, and PRA may thus, to some extent, be susceptible to interventions in working life.

## **Has the older employees in the workforce increased? Study of the total Swedish population regarding exit from working life**

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**Background** The amount of older people has increased during the last year. But has the work life participation also increased? This study investigated: absence and early exit by retirement from the workforce for different professions in the total Swedish population. By looking at sickness benefits, disability pension and unemployment, early statutory pension, employment pension and unregistered economic supply.

**Methods** A register based study of the total Swedish workforce population of 55–64-year-olds, measured in 2004 and 2011.

**Results** The total proportion of individuals aged 55–64 in the workforce increased between 2004 and 2011, but the increase was mostly in professions with lower educational requirements, a lower salary and dominated by women. Both in 2004 and in 2011, men in professions with higher educational requirements more often exit working life with an early statutory pension and employment pension. In contrast, professions with lower educational requirements more often absence working life with sickness benefits, disability pension and unemployment compensation than other professions in both 2004 and 2011.

**Conclusion** The change in regulations seems to have contributed to an overall shrinking proportion of individuals within the sickness benefit and disability pension schemes. At the same time the proportion of individuals taking an early pension has increased. The results indicated a tendency of passing on the costs of labour-market exit within different economic compensation arrangements, as well as to the individuals themselves; for example, less sickness benefit, disability pension, but more statutory pension and employment pension earlier.



## Poster Session I

### Ageing in cognitive performance and circulatory system of surgeons under 24-hour duties

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**Background** Ageing causes the decline in body functioning. In this, some occupationally vital functions in mental workers do not deteriorate over the years. At the same time, harmful work place factors could cause the accelerated ageing in body functions. The aim was to reveal the age and experience related changes in cognitive functions and circulatory system of surgeons working daily duties.

**Methods** 66 surgeons (23-74 y.o.) were tested using computer based cognitive tasks and measuring blood pressure (BP), heart rate (HR), height and weight. Hemodynamic parameters were calculated.

**Results** Normal age and experience related declines were revealed in cognitive performance of surgeons: in the short-term memory capacity, in the attention switching, in the velocity of the information flow processing that demanded an attention concentration, under time pressure – also in the productivity of the information flow processing. Age and experience related improvements in the quality of the attention concentration and its preservation (independence on age or experience) under time pressure could reflect the professional importance of this characteristic for surgeon working. An increase in deviation of 2-sec intervals estimation with an increase in 24-h duty experience could evidence the accelerated aging in this function owing to the regular night working. Age related increase in systolic BP was found along with age and experience related decreases in HR, systolic and minute circulatory volume, Kerdo's vegetative index, increases - in periphery vascular resistance, circulatory failure index and pulse pressure. The difference in systolic BP in the upper extremities become higher after 10 years of 24-h duty experience ( $p<0,03$ ), in diastolic BP - after 19 years ( $p<0,04$ ).

**Conclusion** So, accelerated ageing in cognitive performance and circulatory system of surgeons is found to be caused by 24-h duty experience. In this, professionally important attention concentration quality is being preserved by years.

### Job strain and the risk of atrial fibrillation: Results from the Swedish WOLF study

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**Background** Atrial fibrillation is a common heart rhythm disorder affecting 1-3 % of the adult population. Atrial fibrillation is associated with increasing age and is more common in men than

in women. Several life-style factors have been identified as risk factors for atrial fibrillation, but less is known whether work-related stress may affect the risk. The aim with the present study was to evaluate if work-related stress, defined as job strain, is associated with the risk of atrial fibrillation.

**Methods** Data from the Swedish Work, Lipids and Fibrinogen (WOLF) study was used, comprising 10,121 working men and women (mean age 42.5 years), with baseline examination in 1992-1998. Information on atrial fibrillation was derived from national registers. Work-related stress was defined according to the job demand-control (job strain) model and categorized into low strain, passive, active and high strain jobs. Cox proportional hazard regression was used to estimate hazard ratios (HR) and 95% confidence intervals (CI).

**Results** During a median follow-up time of 13.6 years, 253 incident atrial fibrillation cases were identified. In age, sex, and study part adjusted models, high strain was associated with a 50% increased risk of atrial fibrillation compared with low strain, the result being borderline statistically significant, HR 1.50 (95 % CI 0.99-2.27). The association was stronger after 10.7 years of follow-up, HR 2.13 (95 % CI 1.13-4.04). In a sub sample of the study population with repeated measurement of job strain, a tendency of a dose-response association between job strain and atrial fibrillation was observed: HR 1.68 (0.83-3.40) for those exposed at one time point, and HR 2.28 (0.70-7.44) for those exposed at two time points, compared with those unexposed at both time points (p-value for trend 0.06).

**Conclusion** The results from this study provide support to the hypothesis that work-related stress is associated with an increased risk of atrial fibrillation.

### **The Study on Mental Health at Work (2011/12): First results on burnout from a representative sample of the German workforce aged 31 to 60 years**

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**Background** Research on the association between work and mental health is rare for Germany, particularly on burnout and in a longitudinal perspective. Since mental disorders are a leading cause of early retirement, this is of high importance for public health and governances.

**Methods** "The Study on Mental Health at Work" is a representative sample of the working population aged 31 to 60, initiated by the Federal Institute for Occupational Safety and Health. The sample is drawn from the integrated employment biographies with a two-stage cluster procedure: 1) 206 municipalities are randomly selected and 2) participants from the respective municipalities. Information on working and employment conditions, work ability, functioning, mental health, motivational aspects, as well as sociodemographic characteristics is collected in computer-assisted personal interviews between November 2011 and June 2012. Sensible data including burnout is assessed with an enveloped paper pencil questionnaire. Cross-sectional data are analyzed to generate hypotheses to be tested in the longitudinal data.

**Results** Overall, 4,549 interviews are conducted, out of which 4,511 interviews are analyzable (response rate: 36%). Slight derivations are detected comparing the characteristics of our sample with the basis working population. The burnout prevalence is 10% in men and 11% in women (Oldenburg Burnout Inventory  $\geq 3$ ). Higher quantitative demands and job insecurity are

related to more burnout, whereas higher workplace resources, e.g. leadership quality and degree of freedom, result in lower burnout prevalence rates.

**Discussion** Although the response rate is quite low, the analyses show that the sample is representative for the German working population. Burnout is related to psychosocial working conditions.

**Conclusion** This study provides first representative data on working conditions and mental health for Germany. The 2nd wave will allow studying causal relationships and predictors of early retirement.

## **The dependence of the functional state of farmers depending on age**

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**Background** The aim was to find out a share of influence of age on changes of physiological parameters of farmers in dynamics of shift.

**Methods** All studies have been carried out among workers of four typical farms. The workers were distributed in four groups. The 1 age group - 21 - 30 years, the 2 -31-40, the 3 group- 41 - 50 years and the 4 - from 51 years and more. The heart rate, the arterial pressure , the indexes of memory, attention, muscular strength were studied during the shift.

**Results** The parameters of systolic and diastolic blood pressure were increased in dynamics of shift in all groups and were maximal at the operators of 4 group. The results of testing on study of nervous activity shows that the starting condition of the operators of first age group were the best, they showed higher results , however in dynamics of shift their results were worsened, remaining higher on the absolute meanings. The time of attention test was increased on a measure of "aging" of groups, however at the persons 2, 3 and 4 groups occur improvement of performance of the test, reduction of time at the end of shift. The improvement - increase of speed of reaction took place at the persons of 2 group and of 4 groups. The parameters of muscular force in dynamics of working shift have decreased almost at all groups of the operators.

**Discussion/Conclusion** We constructed graphic structures of a functional condition of the operators stock breeders on age groups in first and last hours of shift. It was find that distinction in functional condition between groups of different age are expressed more strongly, than at the persons of one age under influence of industrial loading. It is possible to assume, that at presence homogeneous on age of groups of the farmers, the changes of physiological parameters under effect of professional activity would be more unequivocal and are more subject to optimization.

## **Productive ageing in familialistic welfare regimes: A longitudinal analysis of activity determinants for Italy and South Korea**

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**Background** Overwhelming concerns with prolonging working lives as a response to population ageing discount the fact that older people remain economically productive beyond paid work. This is especially true in familialistic welfare regimes, where women's and older people's contributions to informal service provision are substantial, and longer working lives may undermine the basis for family support to dependent members. Broadening the definition of productivity to include work, volunteering, grandparental and adult care, this study investigates the individual and family circumstances determining participation in such activities in old age in Italy and South Korea. These rapidly ageing familialistic welfare states have been chosen because of economic and cultural differences that have led older people to assume family roles as 'breadwinners' in Italy and as 'dependents' in Korea.

**Methods** The data consists in four waves each of two highly comparable surveys, the Italian sample of the Survey of Health, Ageing and Retirement in Europe and the Korean Longitudinal Study of Aging, containing detailed information on over 2,500 Italians and over 10,000 Koreans aged 50 and above, respectively.

**Results/Discussion** Baseline results indicate that, in Italy, higher socioeconomic status is associated with increased probabilities of employment and family support provision, while in Korea the opposite is true; and that older Korean women might use grandparental care as a way of reciprocating financial support received from their children. Further longitudinal analyses are being carried out using marginal models.

**Conclusion** The study fills a gap in the longitudinal study of later-life productivity determinants, and suggests interesting ways in which families adapt to their members' support needs in the absence of adequate public provision.

## **Retirement Pathways – Evidence from a cross-national study in 13 European countries**

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**Background** European societies today face an increasingly adverse ratio of people in employment and people in retirement as a result of the demographic change, economic recession and decreasing employment. This development may constitute a serious challenge for the future sustainability of pension systems and the European welfare states in general as expenses for health, care and pension benefits for older people are expected to increase in the future. Since the 1990s, European governments have reacted to this challenge by enacting pension policy reforms with the aim to keep employees longer in employment. However, while addressing the pull factors into retirement by diminishing the incentives to retire, the push factors out of employment remained unaddressed. As a result we observe an increased diversity of pathways into retirement. With this research I aim to explore the distribution and forms of different retirement pathways in 13 European countries from 1990 until 2008.

**Methods** As retirement pathways are shaped by previous events in people's lives and are thus the result of life-course patterns, a longitudinal study with a life-course perspective is needed. Moreover, the fact that retirement pathways are defined by the country specific institutional arrangements of the labor market, the welfare and pension system highlights the need to address this research topic in a cross-national study.

**Discussion** Using the retrospective Sharelife data, I propose to discuss my first preliminary results from applying sequence analysis as a descriptive method to analyze retirement patterns focusing on the extent of change and continuity from 1990-2008 and the extent of variation and similarity across countries.

**Conclusion** Expecting international variation and change I will conclude that retirement reforms have different effects in European countries and that diversified approaches rather than a one-fits-all approach is needed in addressing the challenge of maintaining sustainable pension systems.

## Disability pensions in Montenegro

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**Background** Due to transition and economic crisis there is a number of disability pension claims in Montenegro. Only small part of it is grounded. So, we conducted the study to assess trends in disability pensions in Montenegro.

**Methods** The study was conducted based on data of Montenegro Pension and Disability Insurance Fund (PIO) for the period from 2008 to 2015 year. During this period, there were 30,055 solved requests and out of these there were 7736 (25.74%) cases with total loss of workability which received disability pension. According to data received from PIO there is clear domination of males in the group which lost workability 5466 (71.44%) versus females - 2173 (28.56%). It should be mentioned that among employed population of Montenegro there is also domination of males 56% versus females 44% but this difference is not so prominent like in case of disability pension cases. Based on this results one could postulate that higher percentage of disability pension in male population might be connected with the hard physical labor and poor conditions in the "male" workplaces.

**Results** Among the retired employees dominate the oldest groups of 40 to 50 years (30.8%) and from 50 to 60 years (63.5%), which indicates that a relatively small number of retirees in the group younger than 40 years (5.7%). A similar distribution was observed in distribution according to length of service. In the male group of retired persons it was clear domination of group with 30-40 years of service (42.4%) followed by the group 20-30 years is 38.2% which means that 80.6% of retired male had between 20 and 40 years of service. In females, the situation is somewhat different. The largest population was with the length of service from 20 to 30 years (48.7%), which is close to the values that were registered in men between 30 and 40 years of service.

**Discussion/Conclusion** These results indicate, as expected, that the most cases with loss of working capacity performance is in elderly and within male employees who have more than 20 years.

## Health and social well-being in a population of workers exposed to asbestos

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**Background** The purpose of this study was to evaluate the current situation of mental health and psychosocial of asbestos sufferers in the region of Ferrol (Spain). We try to verify if there are variables of social well-being able to differentiate chronically ill patients affected by asbestos poisoning from healthy people. The information was collected from two groups. 110 male patients with asbestos poisoning were age-matched in blocks to a comparison group of 70 "healthy" controls, that nowadays do not have any symptoms of occupational disease, all of them were current or retired employees of the largest naval company in Spain.

**Methods** Two tests were used, the Hahn et al. (2010) questionnaire and the SCL-90 Derogatis test.

**Results** There was no homogeneity of variation in the following variables by means of the Levene test: Somatization ( $F = 16.614$ ; sign. 0.000); Anxiety ( $F = 8.506$ ; sign. 0.004); Hostility ( $F = 9.432$ ; sign. 0.002); GSI ( $F = 7.584$ ; sign. 0.007); and General energy levels ( $F = 9.803$ ; sign. 0.002). T-tests revealed differences in negative social companionship (-.3936), limitations (-.2540), and satisfaction (.5374). The study variables were statistically significant according to the ANOVA test, with values above the significance level of 1/1,000.

**Discussion** Participants affected by asbestos poisoning showed high occurrence rates of psychological health variables such as somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, psychoticism, and global severity index.

**Conclusion** The data found in this research lead to similar conclusions derived from work on respiratory diseases, such as the ones by Piirila et al. (2005). It is also consistent with work related to quality of life in general or various chronic diseases, such as the one by Hees et al.(2010). It also show how these diseases manifest serious psychological problems.

## Poster Session II

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### **Age Management practices in enterprises: Beyond or behind corporate responsibility**

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**Background** The paper considers the dilemmas facing employers as they strive to resolve competing demands from government to keep people working, challenges emanating from new skill demands in consequence of economic, social and technological advances and resolution of the strengthening demand of many workers to exit when they choose.

**Methods** With the aim to obtain a greater understanding of how employers can encourage and facilitate the continued participation of older workers and increase the effective retirement age, the paper maps practices from private companies in the field of active ageing. The analysis covers experiences from companies with more than 250 employees operating in different sectors within a specific area in the North of Italy. The paper assumes that age management can be considered by a company not only as human resource management issue but also a social one. In this perspective, choices about hiring older people or defining special initiatives for over 50 employees rely not only on costs/benefits analysis but also on discretionary responsibility. Theoretical perspectives on corporate social responsibility can help to better understand which mechanisms support a better age management policy inside a company and in the relationship between a company and its social environment. The paper tests a hypothesis about the relevance of CSR motivations in age management practices in the selected panel of companies.

**Results** Preliminary results show that hiring decisions are still strongly influenced by efficiency and productivity evaluations.

**Discussion/Conclusion** The lack of adequate competencies and skills in over 50 workers results as main critical issue. As regards to initiatives for over 50 employees, health and social dimensions persist as not relevant for HR managers of selected companies.

### **Chinese medical staffs in private hospitals are more productive than those in public hospitals, really?**

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**Background** Job stress exceedingly impairs the productivity of medical staffs and hospitals through causing poor health and extremely high presenteeism. Increasing evidence reports

that Chinese medical staffs, especially in Tertiary hospitals, are suffering extremely high job stress from their patients, colleagues, family and even the whole society. However, empirical evidence about Chinese medical staffs in private hospitals is still lacking. Thus, we aim to investigate whether the medical staffs in private sector are as stressful as their colleagues in the public hospitals of China, and whether job stress still causes presenteeism through health.

**Methods** We analyzed representative samples aged 20 to 65 years from the HMJ hospital (n=211), the representative private hospital in China, and from representative tertiary public hospitals in China (n=859). We first used linear additive models to test whether the differences in challenge stress and hindrance stress were due to being in private or public sector. Then, we investigated the relationship among challenge stress, hindrance stress, health and presenteeism using structure equation modelling.

**Results** Health mediated the relationship between challenge stress, hindrance stress and presenteeism, however, while health is assessed with a metric that considers functioning domains and social wellbeing. The staffs in private sector were less stressful, and therefore more productive than those in public sector.

**Discussion/Conclusion** It is possible for policy-makers and hospitals deans to comprise interventions aimed at sustainable employment, such as effective stress interventions to improve the psychosocial factors at the workplaces, targeting different aspects of stress and health of medical staffs and improving the productivity and quality of health care services in both public and private health sector.

## **Successful return to work after sick leave due to common mental disorders: A mixed-methods follow-up study**

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**Background** The return to work (RTW) process of people with common mental disorders is a complex process affected by a broad range of different individual and external factors. In Germany, evidence is still lacking in terms of disease-related, individual and work-related factors that predict a successful and sustainable return to work among employees with common mental disorders.

**Methods** Within a mixed-methods approach that combines quantitative and qualitative study methods, it is the aim to investigate the return to work process at the intersection of medical system and workplace. 300 persons, aged between 18 and 60 years, part- or full-time workers, with a diagnosed common mental disorder, from two psychosomatic rehabilitation facilities and two psychiatric clinics will be interviewed via telephone at four points in time (at the end of the clinical treatment, after 6, 12 and 18 months, respectively). In addition, there will be more deepening qualitative interviews with 32 out of 300 participants at three points in time (at the end of the clinical treatment, after 6 and 12 months). The survey period will start in July 2016 and will end in spring 2018. The quantitative data will be analysed using multivariate models, e.g., survival analyses and other regression models. The qualitative data will be analysed with the "Documentary Method" by Bohnsack. Outcome measures are the duration until return to work, the time to full RTW as well as the sustainability of the return to work. Main predictor variables are disease-related factors (e.g., diagnosis, comorbidities, treatment), personal factors (e.g., social demographics, RTW-expectation, RTW-self-efficacy, ability to work, general health perception, functioning) and work-related factors (e.g., early contact to company, professional RTW-support).



**Results** Results will reveal RTW-periods among employees with a common mental disorder in Germany. Furthermore, the process of returning to work with a common mental disorder will be made transparent.

### **Sustainable employability for workers aged ≥55 years: An explorative study in Belgian companies**

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**Background** The European Agency for Safety and Health at Work (EU-OSHA) will publish country-specific e-guides in 2016 promoting older workers' sustainable employability. Each e-guide will be based on insights concerning the type of information and tools employers are looking for to implement effective approaches to promote sustainable employability. This study aims to assess the specific needs of Belgian employers concerning older workers' occupational health and safety issues.

**Methods** A cross-sectional study was conducted among Belgian employers in April 2015. A 13-item questionnaire addressed (1) the needs and importance given to sustainable employability in companies, and (2) knowledge regarding relevant national policies. The questionnaire was distributed electronically to the management of 22,084 companies (private sector).

**Results** In 89% of the responding companies, sustainable employability of workers aged ≥55 years plays an important role. 70% have no active sustainable employability policy/initiative. 18% experience difficulties promoting sustainable employability. 86% indicate no need for support to promote sustainable employability. The respondents noted the following health complaints among workers aged ≥55 years: work-related health problems (31%), stress (26%), work agreements/type of work (17%), work/life balance (15%), and career development and/or training (9%). Topics concerning health and well-being of workers aged ≥55 years requiring the most attention include motivation (30%) and adaptation of the workplace to their (health) requirements (26%).

**Discussion** The e-guide should a) raise further awareness among employers about the importance of implementing an active sustainable employability policy to prolong working life in a healthy and productive way, and b) include tools to address work-related health problems and stress, motivation, and adaptation of the workplace to the (health) requirements of workers aged ≥55 years.

### **Work health promotion in health care workers – Own proposals for empowerment of resources and workability**

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**Background** Work health promotion increasingly becomes an efficiency factor in economies and the social sector - especially in the most strained health-care sector. Active participation

of employees in designing activities of health promotion is known to be essential for its success.

**Methods** We composed a questionnaire (sent out by mail to employees Ø 50 y, collected anonymously) on work strain and health workers' input for health promotion. We received 316 answers in total (from 275 women and 38 [12%] men).

**Results** 55% of these health workers have worked 30 to 39 y in this profession. 92% are employed 20 to 40 h/week, 7% work longer, in night shifts: 27 women & 3 men in the age 50-54 y and 16 women and 3 men Ø 55 y. Independent of night shifts, they complained of 4 major health discomforts: back pain, neck and throat pain, tension headaches, and pain in the arms and shoulders. In 65% health complaints improve when away from work – especially: concentration and memory problems, tiredness and psychological problems. In parallel to hospital work, women predominantly are taking care for family members in need, housekeeping and organization of social life. Private health care in women and men is similar (mostly: sports, relaxation, hobbies). Health care workers aged Ø 50 years specified the following work health promotion methods to be helpful in preserving and/or improving their workability: functional back muscles training, training of relaxations techniques, eye muscle training, technique of coping with stress, and relaxation training together with the outdoor functional kinetics.

**Discussion/Conclusion** In addition to organizational and management changes, the health promotion methods named by the workers themselves, although already partially implemented, will in future focus specifically on the ageing health workers to keep and preserve their workability in the General Hospital in Vienna. A second evaluation in ageing health care workers will be performed in 2 years.

## Workability Index among ageing Hungarian workers

Dr. Ferenc Kudász<sup>1</sup>, Dr. Krisztina Nagy<sup>2</sup>, Zsófia Kövágó<sup>3</sup>, Dr. Imre Nagy<sup>4</sup>

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**Background** Several sectors and occupations were identified as a risk for low workability. The Hungarian population is ageing. The Workability Index (WAI) has not been applied on large scale in Hungary. The aim of the study was to map the workability among ageing Hungarian workers in sectors of interest.

**Methods** The WAI was distributed among occupational health services, which received a fee per completed questionnaire. Quotas in the six occupational groups aged 45+ were set by sample size estimation. Data collection took place in 2014-15. The contractor anonymised and digitalised data that the authors checked and analysed. Risk factors were revealed by logistic regression and their effects were shown by odds ratios (OR). The research received ethical approval and was granted by the European Social Fund.

**Results** Questionnaires of 1314 teachers, 226 general practitioners (GPs), 872 construction, 503 agriculture, 825 automotive industry and 1100 healthcare workers (HCWs) were used in the statistical analysis. The majority of the participants worked in two North-Western counties of Hungary. Average age was 53.4 years, the average WAI was 40.5. WAI was poor in 3.2%, moderate in 20.5%, good in 40.9% and excellent in 35.3%. The worst average WAI (37.3) was measured among construction workers, while agriculture, HCWs and GPs got better (39.7,

40.1, 40.5), and automotive workers and teachers had the best (41.9, 42.2) scores. 47.9% of construction workers had poor or moderate workability. This sector had the worst average subscores for questions 1-2, 4-7.

**Discussion** Poor-moderate WAI was associated with older age (OR: 1.8), higher body mass index (OR: 1.6), higher weekly working hours (OR: 1.4) and physical work (OR: 2.6). While overall Hungarian data are in line with the international findings, sectoral patterns do not necessarily agree.

**Conclusion** The poor results among construction workers can be a human resource drawback for the current revitalisation of the sector.

## **A Joint Approach on Ageing Workforce of ICOH Romania and EU OSHA/Romanian Focal Point**

Prof. Carmen Busneag<sup>1</sup>

<sup>1</sup> National Romanian Television - Occupational Health Department, Bucharest, Romania

Since 2015, ICOH Romania and the EU OSHA Romanian Focal Point have initiated a successful collaboration during the EU OSHA 2014-2015 Campaign on Stress Management. The EU OSHA Campaign provided a multifaceted approach on stress as a work related risk factor where the expertise of the occupational medicine professionals played a crucial role. ICOH Romania's contribution to the EU OSHA 2014-2015 Campaign definitely represented a success factor as regards the attainment of its key objectives, more precisely to get a broader picture on the work related stress for various professional categories and activity sectors at national level in terms of its effects upon workers' health, organizational performances, economic and societal costs. In addition, both entities had the advantages of concomitantly tackling the campaign topics on the basis of the international/European and national data basis and networks.

The ongoing EU OSHA 2016-2017 Campaign "Healthy Workplaces for All Ages" has four major objectives i.e. "promoting sustainable work and healthy ageing from the start of the working life; preventing health problems throughout the working life; providing ways for employers and workers to manage occupational safety and health in the context of an ageing workforce; and encouraging the exchange of information and good practice." (Source: The EU OSHA Campaign website available at <https://osha.europa.eu/en/healthy-workplaces-campaigns/2016-17-campaign-healthy-workplaces-all-ages>).

European workers are ageing. By 2030, workers aged over 55 are expected to make up 30% or more of the total workforce in many EU countries. This creates challenges for employees, employers and businesses. It obviously appears the necessity of managing risks from the first to the last day of work; the importance of rehabilitation and return-to-work policies and of tackling age discrimination whenever it appears thus leading to healthier and more productive workplaces as they address the challenge.

## **The influence of work environment, age and psychosocial risks on Spanish workers**

Ph.D. Adela Reig-Botella<sup>1</sup>, Jaime López Golpe<sup>1</sup>

<sup>1</sup> Department of Psychology, University of A Coruña, Coruña, Spain

**Background** The purpose of this study was to analyse the relation between work environment, age and psychosocial risks of workers who belong to different companies of the auxiliary shipyard military industry in Navantia, Ferrol (Spain).

**Methods** Data was collected from 572 shipyard workers in Ferrol, 472 men and 95 women with a mean age of 38 years and work experience of 14 years, from a population of 1.538 people who belong to 33 companies of the auxiliary industry, providing services in the shipyard Navantia-Ferrol. The questionnaire was made of 80 questions and it was divided in eight different sections. Descriptive statistics, reliability analysis of the variables scales of measurement and Correlations were calculated. The response format which we used is of Likert type with five alternatives. The analysis was made with the statistical programme SPSS 23.

**Results** The reliability of the scales of measurement of the variables shows a high degree of reliability in the Work environment and Psychosocial risks Scales. Emotional engagement correlates negatively with psychosocial risks and it doesn't correlate with the commitment for continuity. There is also a negative correlation between normative commitment and psychosocial risks. Emotional engagement correlates positively with work environment; it also correlates with the commitment for continuity. There is also a positive correlation between normative commitment and psychosocial risks.

**Discussion/Conclusion** The data found in this research leads to similar conclusions derived from previous work, such as the one by Najder et al. (2015), Fishta & Backé (2015), Rojas et al. (2014) and Pineda (2007).

## Scientific Session: After retirement

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### Opening Presentation

#### **Paid work beyond pension age in Germany and the UK. Quantitative and qualitative evidence**

Prof. Simone Scherger<sup>1</sup>

<sup>1</sup> University of Bremen, Germany

More and more people are in paid employment although they already receive a pension and/or are in pension age. The presentation will discuss the questions of who is most likely to work past pension age, how this work is viewed by the older persons themselves, and which consequences it has with regard to life satisfaction. For this purpose, quantitative and qualitative evidence on this subject is reported, drawing from a project comparing Germany and the UK. The results indicate that there is a multiplicity of constellations of and motives for employment in pension age, and that the group of those who pursue such employment tends to be very selective: For example, men, those in better health, better educated people and the self-employed are more likely to work past pension age. On the whole, among the many motives for working, reasons such as enjoyment, the appreciation through work or the aim to keep fit and active are more important than financial reasons. With regard to the latter, it has to be differentiated between poverty and the wish to maintain a certain living standard. Finally, quantitative evidence suggests that the life satisfaction of most working pensioners does not change or improves after having started work again.

## **Working beyond age 65 in the Netherlands: The Longitudinal Aging Study Amsterdam**

Prof. Dr. Dorly J.H. Deeg<sup>1</sup>, Maaïke van der Noordt<sup>2</sup>, Dr. Suzan van der Pas<sup>1</sup>

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<sup>2</sup> VU University Medical Center, Amsterdam, The Netherlands

**Background** Because of population aging, many countries are taking measures to stimulate labour market participation beyond ages that used to be statutory retirement ages. In view of age-related declines in health, these measures beg the question to what extent subsequent cohorts of older workers are fit enough to work and what characterises individuals with prolonged workforce participation. This study addresses these questions for the Netherlands, by comparing the physical and cognitive health of people aged 65-74 across 20 years (1992-2012), a period during which a series of measures were taken to discourage early exit from the labour market, but statutory retirement age remained at 65 years.

**Methods** From each of the seven waves of the population-based Longitudinal Aging Study Amsterdam during 1992-2012, the same age group of 65-74 was selected. Within those who did paid work and those who did not, physical health (chronic diseases, self-reported and objective physical functioning, self-rated health) and cognitive functioning (MMSE) were examined across time using Generalized Estimating Equations, which account for interdependence of data across waves.

**Results** Workforce participation rose from 9 to 20% in men and from 3 to 13% in women. Education levels of workers were higher than of non-workers. Over time, workers showed increasing levels of education; the type of work somewhat shifted from physical to mental. In both workers and non-workers, the prevalence of chronic diseases increased, disability and self-rated health remained stable, and cognitive functioning improved. Workers had generally better health than non-workers, which difference remained constant across time, but the difference increased for disability. The better health among workers was accounted for by the higher level of education in the workers.

**Conclusion** The health gap between workers and non-workers suggests the need for workplace measures, in particular for lower educated workers.

## **Why older workers work beyond the retirement age: A qualitative study**

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<sup>4</sup> VU University Medical Center, EMGO institute for Health and Care Research, Department of Public and Occupational Health, Amsterdam, The Netherlands

**Background** A group of older workers decides to continue their engagement in work activities beyond the statutory retirement age. Little is known on why these older workers choose to extend their working lives while receiving a pension. However, in the context of rapid population

ageing and the pressure on social security systems, it is relevant to understand what encourages older workers to extend their work participation. In this study, we aim to provide insight into the reasons of older workers aged 65+ (employees or self-employed persons) to extend their working lives.

**Methods** A qualitative research design was used, starting with individual semi-structured telephone interviews, and followed by focus groups in order to elaborate further on the hypotheses that emerged from the interviews. Participants for the interviews were recruited from an existing cohort study among persons aged 45+, STREAM (Study on Transitions in Employment, Ability and Motivation). Participants for the focus groups were recruited from companies and temporary employment agencies. The data was subjected to thematic analysis.

**Results** Fourteen interviews were conducted and four focus groups will be conducted before summer 2016. The interviews provided insight into preconditions for prolonging working life, such as being healthy enough to work, having favorable terms of employment and having a stable social situation. Moreover, motives found for prolonging working life were: worries about life as retiree and the benefits of having work (i.e. additional or necessary income, maintaining daily routines and social contacts). The results from the focus groups will be available at the conference.

**Discussion/Conclusion** Based on our preliminary results, this study shows that there are different preconditions and motives that encourage older workers to extend their working lives. These results may contribute to the development of work-related interventions that enhance prolonged working lives.

## **Changes in physical activity during transition to retirement: A cohort study**

Dr. Sari Stenholm<sup>1</sup>, Dr. Anna Pulakka<sup>1</sup>, Prof. Ichiro Kawachi<sup>2</sup>, Dr. Tuula Oksanen<sup>3</sup>,  
Dr. Jaana I. Halonen<sup>4</sup>, Ville Aalto<sup>3</sup>, Prof. Mika Kivimäki<sup>5</sup>, Prof. Jussi Vahtera<sup>6</sup>

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<sup>6</sup> Department of Public Health, University of Turku, Turku, Finland; Turku University Hospital, Turku, Finland

**Background** Retirement is a major life transition which may affect lifestyle. The aim of this study is to examine within-individual changes in physical activity during the transition from full-time work to retirement.

**Methods** The study population consisted of 9,488 Finnish public-sector employees who retired in 2000–2011 and who reported their leisure-time and commuting physical activity before and after retirement. On average, participants provided data at 3.6 (of the four) repeat examinations during 10 years before and 10 years after the retirement. Physical activity was self-reported and was expressed as weekly metabolic equivalent task (MET) hours. Generalized estimating equations were used to examine physical activity trajectories around retirement.

**Results** Among participants entering to statutory retirement physical activity first increased by 1.81 MET-hours (95% confidence interval [CI] 1.20 to 2.42) during 4-year retirement transition,

but then decreased by -1.80 MET hours (95% CI -2.83 to -0.79) during the subsequent post-retirement period. Older retirement age, higher occupational status and fewer chronic diseases were associated with greater increase in physical activity during transition to statutory retirement.

**Conclusion** Statutory retirement appears to be associated with a temporary increase in physical activity. Intervention studies should examine ways to maintain the increased activity level after retirement.

### **Predictors of returns to work following retirement: A prospective analysis of Germany, Russia and the United Kingdom**

Dr. Loretta Platts<sup>1</sup>, Prof. Karen Glaser<sup>2</sup>

<sup>1</sup> Stress Research Institute, Stockholm, Sweden

<sup>2</sup> King's College London, Institute of Gerontology, London, United Kingdom

**Background** Individuals may return to paid work following retirement, a phenomenon described as “unretirement”. By following recent retirees over time in Germany, Russia and the United Kingdom, we examined whether unretirement is more common for people who are facing financial hardship.

**Methods** Data are drawn from four prospective surveys: the German Socio-Economic Panel Study (1991–2013), the Russian Longitudinal Monitoring Survey (1994–2013) and, for the United Kingdom, the British Household Panel Survey (1991–2008) and Understanding Society (2010–2014), harmonized ex post. Unretirement behaviour was examined using Cox regression in relation to demographic covariates, as well as education, health and financial adequacy.

**Results** Unretirement was common, affecting around 28% of Russian retirees, 19% of British retirees and 13% of German retirees, confirming previous largely North American studies depicting retirement as a fluid and flexible process. In each country, retirees with more education, higher income and better health more often returned to work. Financial concerns predicted returns to paid work in Germany, but not in either Russia or the United Kingdom.

**Discussion** These results suggests that retired people represent a substantial pool of potential labour, but there was little indication that those most in need were unretiring in Russia and the UK.

**Conclusion** Encouraging greater reliance on employment in later life may cause hardship among older people unable to find suitable work and potentially exacerbate social inequalities.



## Scientific Session: Cross-national Assessment

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### Opening Presentation

#### **Cross-national epidemiological assessments –opportunities and challenges**

Dr. Martin Hyde<sup>1</sup>

<sup>1</sup> University of Manchester, United Kingdom

Globalization generates an increased need and capacity for cross-national studies. Such studies have many benefits. They allow; i) us to assess whether some countries gaining whilst others lose out; ii) for a 'case study' approach to look at the impact of policies and iii) to explore whether the 'determinants' of health and well-being are the same in different countries or whether mechanisms for good and bad health are country specific. However, there are a number of serious challenges: i) the relation between the unit of analysis and the unit of observation; ii) generating comparable samples and iii) conceptual and item comparability/validity across studies. In this introductory presentation for the session on comparative research, I will outline these challenges, how they might impact on undertaking research on work, health and retirement and possible solutions to these issues. In so doing I will review recent innovations in data harmonisation as well as the rise in digital technologies as possible solutions. Following this we will have 3 excellent papers by authors who each take an explicit cross-national approach to studying the factors that impact on work and retirement in later life.

## **Working conditions and retirement: how important are HR policies in prolonging working life?**

Dr. Jürgen Bauknecht<sup>1</sup>, Dr. Andreas Cebulla<sup>2</sup>, Dr. Mikkel Barslund<sup>3</sup>

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<sup>2</sup> The South Australian Centre for Economic Studies, Adelaide, Australia

<sup>3</sup> Centre for European Policy Studies (CEPS), Bruxelles, Belgium

**Background** Human resource policies improving satisfaction with the way work is organized, how well work is rewarded, and in general satisfaction with the workplace is often identified as key drivers in prolonging working life and avoid early retirement among older workers. While best practice HR policies are in general an intrinsically good thing, there is little evidence as to how they impact length of working lives.

**Methods** In this study we link the retirement decision to a number of indicators of work satisfaction for 12 European countries using the longitudinal dimension of the SHARE data set. We then use these results to construct synthetic individuals with maximum work satisfaction and simulate the best-case potential of HR policies in extending working lives.

**Results** Our results suggest that the potential for HR policies to promote longer working lives is in itself limited. As an example, if all 50-54 year olds were very satisfied with their general working conditions this would result in an average increase of working life of less than half a year.

**Discussion/Conclusion** We compare this finding with the effectiveness of other policies to extent working lives. Better HR policies and age management policies can only be one tool in a multifaceted policy response to extend working lives.

## **Sustainable work over the life course for women and men in Europe**

Greet Vermeylen<sup>1</sup>

<sup>1</sup> Eurofound, working conditions and industrial relations unit, Dublin, Ireland

**Background** Sustainability of work has become an important issue in policy discussions in many countries in the European Union. Sustainable work over the life course covers two aspects: on the one hand, ensuring that people have the circumstances which allow them to work, taking into account their needs and possibilities throughout the life course, including health, care responsibilities, skills and employability, motivation and on the other hand, ensuring that people are able and willing to continue to work until retirement age, taking into account the impact of various aspects of working conditions on sustainability of work.

**Methods** This paper will explore the issue of sustainability of work on the basis of both quantitative and qualitative research. Analysis will be carried out the 6th EWCS, a cross-sectional European-wide survey of workers, capturing a wide range of employment and working conditions, as well as health aspects, work-life balance, engagement and job sustainability. This will be combined with analysis of policies related to sustainability of work in a series of countries, either more general policies related to quality of work, as well as specific policies dealing with sub-aspects mostly focussing at integration into the labour market of people with health issues and care responsibilities (for children and other dependents). Taking into account the limitation of a cross-sectional dataset, a life course perspective will be built on the analysis of workers in different life stages. The aim is to identify main patterns and

associations as well as combining them with qualitative information on policies, with a view of understanding some of the answers which have been formulated at national level to address some of the issues related to sustainability of work.

## Early Retirement and Well-being in Europe

Ulrike Waginger<sup>1</sup>

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**Background** In the past years a growing body of research has focused on the economic and social impacts of high early retirement rates in several European countries. Little evidence may, however, be found on the individual consequences of an early exit from working life. Remaining productively and socially active in later life has frequently been suggested to support health and well-being. Hence, the question arises how the large number of early retired persons in Europe cope with their inactivity from paid work in terms of health and overall well-being and whether engagement in other social and productive activities may serve as a substitute for lost functions.

**Methods** The study at hand examines data from the Survey of Health, Ageing and Retirement in Europe (SHARE) from 11 European countries to answer the question whether retiring before statutory retirement age is related to disadvantages to well-being. Well-being is captured using measures of health in general (self-rated health), the depression scale CES-D, and the quality of life scale CASP-12. It is taken into account whether respondents engaged in voluntary or charity activities, in paid work of a small extent, or provided support to family or friends, whether early retirement was chosen or forced, and whether poor health was the reason to retire early. Additionally, key socio-economic influences of well-being after retirement, such as marital status, income and education, as well as age and gender, are considered.

## Scientific Session: National policy

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### Health as a predictor of early retirement before and after introduction of a flexible statutory pension age in Finland

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<sup>3</sup> CMIST and Social Statistics, University of Manchester, Manchester, United Kingdom

**Background** Little is known of how pension reforms affect the retirement decisions of people with different health statuses, although this is crucial for the understanding of the broader societal impact of pension policies and for future policy development. We assessed how the Finnish statutory pension age reform introduced in 2005 influenced the role of health as a predictor of retirement.

**Methods** We used register-based data and cox regression analysis to examine the association of health (purchases of psychotropic medication, hospitalizations due to circulatory and musculoskeletal diseases, and the number of any prescription medications) with the risk of retirement at age 63–64 among those subject to the old pension system with fixed age limit at 65 (pre-reform group born in 1937–1941) and the new flexible system with 63 as the lower age limit (post-reform group born in 1941–1945) while controlling for socio-demographic factors.

**Results** Retirement at age 63–64 was more likely among the post- than the pre-reform group (HR=1.50; 95% CI 1.43–1.57). This reform-related increase in retirement was more pronounced among those without a history of psychotropic medication or hospitalizations due to circulatory and musculoskeletal diseases, as well as among those with below median level medication use. As a result, poor health became a weaker predictor of retirement after the reform.

**Discussion** Contrary to the expectations of the Finnish pension reform aimed at extending working lives, offering choice with respect to the timing of retirement may actually encourage healthy workers to choose earlier retirement regardless of the provided economic incentives for continuing in work.

**Conclusion** Stricter pension eligibility criteria may be needed in order to achieve longer working lives. However, future policy development should also take into account that those with poorer health may not be able to extend their working lives regardless of the policy environment.

## Promotion of Age Management in developing countries

Dr. Cheikh Al Khalifa Aboubacar Cisse<sup>1</sup>

<sup>1</sup> Occupational Physician in Private sector, Dakar, Sénégal

**Background** Life expectancy has significantly increased in almost all countries, especially in industrialized ones. This is the result of progress made in fighting against infectious diseases and improvements in the quality of the living conditions of people everywhere in the world. This in turn has had a great positive impact on the health of ageing people, on their work ability in particular. Paradoxically, this favorable situation has been associated with an employment crisis, the consequences of which are characterized by unemployment, and precarious jobs, downsizing, outsourcing, and financing crises in retirement institutions. However until quite recently, many countries have only considered age management through recruitment and retirement age aspects.

**Methods** We have studied the main Senegalese's occupational legal provisions to see how age issue is considered in our country.

**Results/Discussion** Many provisions have been made in labor code to precisely define recruitment and retirement ages. The first article of the 2015 enactment says that retirement age can be increased in order to ensure the good balance of pension schemes. This last compulsory regulation clearly shows that my country is only interested in the financial survival of its retirement institution. For this reason, age management, as it is currently conceived and implemented in European countries, is not yet on the agenda of developing countries such as Senegal. We already know that age as a non-modifiable factor will influence the workers' health status. However, Senegal, like many other developing countries, has a labor code and several decrees which have important legal provisions regarding the protection of the health and safety of all workers.

**Conclusion** Although we do not yet have the same experience as European countries in this domain, our legal framework offers us relevant OSH provisions which can be considered as a starting point for the promotion of age management in enterprises.

## The effect of Italian pension reforms on male workers' health

Chiara Ardito<sup>1</sup>, Roberto Leombruni<sup>1</sup>, Angelo d'Errico<sup>2</sup>, David Blane<sup>3</sup>

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<sup>3</sup> Imperial College London, London, United Kingdom

**Background** Pension reforms have been increasingly put at the core of Italian and European agenda, by promoting the labour-market participation of older people, restricting possibilities for early labour-market exit, and increasing the age at which workers become eligible for retirement.

**Methods** This paper investigates the effect of a hardening of age prerequisites for retirement on the incidence of cardiovascular diseases and all-cause mortality at 68-70 years old, on a large sample of Italian men with high labour market attachment (N=50,143). The problem of endogeneity of retirement is addressed by adopting an Instrumental Variable identification strategy, which exploits the exogenous changes in national pension rules, in a quasi-natural experiment set-up. The analysis is performed using WHIP-HEALTH, a longitudinal administrative database on working histories and health.

**Results/Discussion** Results showed a significant detrimental effect of extended working life. A one-year delay in retirement increased the incidence of hospitalization for cardiovascular diseases and all-cause mortality at 68-70 years old by 2.6 and 2.1 percentage points respectively. Both the estimates were highly significant ( $p\text{-value} < 0.01$ ) and the instrumental variable performed very well ( $F\text{-test for instrument relevance} > 152$ ).

The health risk associated with postponed retirement was heterogeneous, as for manual workers, lower income earners and those who had longer careers suffered the highest health risk associated with retiring with one-year delay.

**Conclusion** When designing and evaluating a policy, its unintended health effects should always be taken into account. This pension reform contributed unintentionally to increased health inequalities. Disadvantaged workers not only worked in worse or poorer working conditions with a lower salary, but also received lower pension benefits for shorter time, given their reduced life expectancy.

## **Exit from Work: Determinants of Illness-related Disruptions in Professional Life and Processes of Reorientation**

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<sup>1</sup> Bundesverband Deutscher Berufsförderungswerke e.V., Berlin, Germany

**Background** Individuals who are suffering from a chronic disease and can no longer work in their profession are facing a major turning point in their lives. On the part of patients and their families, it requires enormous work to cope with this new condition, such as to reorient and rearrange life in this new social situation and to regain participation in working life. This study examines how the process of a forced career change is being experienced and shaped. It is explored which and how multifarious dimensions influence that process of exit from work and strategies of reorientation as well as forms of participation.

**Methods** This work follows the methodological approach and research style of the Grounded Theory. 11 patients suffering from a chronic disease resulting in a disruption of their professional life were interviewed twice over a course of two years to depict the processual character of exit from work and reorientation.

**Results** Exit from Work is determined by three concepts: dimensions of work, disruption and reconstruction. These concepts have an impact on reorientation processes as well as on return to work and participation in work life.

**Discussion** The impacts of health-related-disruptions in professional biographies are multi-dimensional and induce different processes of reconstruction. They depend on framing conditions, such as age, profession, aims in life and concepts of illness or work. These conditions determine the radius of impact, intensity and quality of change as well as course and strategies of reorientation.

**Conclusion** From the professional perspective concepts of success and participation should be critically examined with respect to the biographical meaning of the persons concerned. They should consider the unpredictable trajectory of a chronic illness, which leaves the persons affected in an insecure position and require constant readjustment.

## Keynote

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### Work, health and retirement

Prof. Hugo Westerlund<sup>1</sup>

<sup>1</sup> University of Stockholm, Stockholm, Sweden

Governments across the industrialised world are for economic reasons trying to push up the de facto retirement age. Improved health among older persons is a prerequisite for this change, but the knowledge about the possible health consequences of postponed retirement age is limited. In a series of papers based on French, Finnish, British, Swedish and US data we have analysed the possible health effects of retirement, which indicate that retirement tends to be a relief for those who suffered from suboptimal self-rated health, sleep disturbances, fatigue, depression or headaches, whereas there seems to be no immediate effect on the risk of incident chronic disease. There are also indications that physical activity might increase following voluntary retirement. In ongoing project, we are furthermore analysing how work and behaviour related factors influences healthy life expectancy. Working conditions seem to have a fairly substantial impact on how long people can expect to remain in good health, also independently of socioeconomic position. The keynote will briefly summarise these studies and the state of the evidence regarding the health effects of work and retirement. A particular challenge is that increased financial incentives to work longer are likely to benefit those with the best health, best jobs and often also highest incomes, whereas those with the worst health, worst jobs and lowest income are at risk of suffering further setbacks in terms of both personal finances and health. The keynote will discuss these problems in light of the emerging scientific evidence.

## International Interdisciplinary Conference Work, Age, Health and Employment



### Current challenges in retirement research

Hans Martin Hasselhorn  
Melanie Ebener  
University of Wuppertal

### *Retirement research at the beginning of the 21st Century*

Although differing in pace and magnitude, all European countries are witnessing increasing life expectancies and a compositional shift from younger to older age groups. To sustain economic growth, prosperity and social development, many countries have formulated the need to increase the employment participation of people at higher working age. The degree of urgency is reflected at all levels of the European policy agenda. The OECD views sustaining economic growth under conditions of population ageing by far as the most pressing global policy challenge for the next fifty years.<sup>1</sup>

Older workers' transition from work to "non-work" (mostly "retirement"<sup>2</sup>) has for long been a matter of research (henceforth termed "retirement research") and is currently experiencing a boost of scientific attention in Europe and North America. Today, various scientific disciplines are contributing to retirement research, including gerontology, psychology, sociology, economics, social epidemiology, health sciences and occupational health.

They are dealing with issues such as

- Why do workers work as long (or short) as they do?
- How is the *process* of retirement / exit from work?
- What are the (manifold) consequences of working "longer" for individuals, enterprises, society?
- Extending working lives: how? voluntarily or forced?
- Working past retirement age: who? what? why?
- What are the effects of policy measures undertaken to make people work longer?

Often, the different disciplines follow specific approaches to the topic: psychologists, for example, by focusing on an inner process from preference and decision to retire till the realisation of retirement (e.g. Beehr 1986<sup>3</sup>, Wang & Shultz 2009<sup>4</sup>), while social epidemiology is looking for social and occupational determinants of early retirement (e.g. Dragano & Schneider 2011<sup>5</sup>); economists often investigate the impact of financial

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<sup>1</sup> OECD (2014) OECD 50-year global scenario: Shifting gear. <https://www.oecd.org/eco/growth/Shifting%20gear.pdf>

<sup>2</sup> Today, „retirement“ is not the clear opposite of „working“. In countries such as Norway and the UK, working while drawing a pension is rather common in later working age.

<sup>3</sup> Beehr TA (1986) The process of retirement: A review and recommendation for further investigation. *Personnel Psychology* 29: 31-55

<sup>4</sup> Wang, Mo; Shultz, Kenneth S. (2010) Employee retirement: a review and recommendations for future investigation. *Journal of Management* 36(1): 172-206

<sup>5</sup> Dragano N, Schneider L (2011) Psychosoziale Arbeitsbelastungen als Prädiktoren der krankheitsbedingten Frühberentung: Ein Beitrag zur Beurteilung des Rehabilitationsbedarfs. [Work Related Psychosocial Factors



(dis-)incentives on the individual's choice between work and leisure (e.g. Stock & Wise 1990<sup>6</sup>).

### **Five research challenges**

The authors see five main challenges for retirement research today. The first three stem from the JPI MYBL<sup>7</sup> fast track activity "Understanding Employment Participation of Older Workers" (JPI UEP), where a group of 46 scientific experts from ten European countries and Canada was set up to identify new research needs in the field by critically reviewing research findings, approaches and methodologies. In their final report, the authors have identified three research challenges: a *conceptual gap*, a *regional gap*, and a *thematic gap* (for details see Hasselhorn & Apt 2015<sup>8</sup>). Below, we quote the research report summary of these three research gaps and extend them by two more: an *ethical* and a *dissemination challenge*.

#### **1. Research challenge: The conceptual gap**

The JPI UEP project group found that a broad view of retirement requires a conceptual framework, which locates retirement within the context of different determinants on the micro, meso and macro level and allows for a life course perspective, for example the *lidA conceptual framework on work, age and employment*<sup>9</sup>. Many studies do not adopt a systems view and multifactorial approach and thus may overlook the emerging theme of retirement fragmentation. This also relates to the frequent lack of specific longitudinal research approaches and the application of life course perspectives. The JPI UEP group also points to the lack of broadly conceptualised cross-national comparative settings in research. For the advancement of research on the employment participation of older workers, the JPI UEP working group recommends increased multifactorial thinking, more multilevel approaches, the differentiated consideration of exit routes, the consideration of population subgroups and their distinct characteristics in terms of gender, social or occupational status, migration/ ethnicity or age, and a general openness as to the selection and combination of methodological approaches. (modified from: Hasselhorn & Apt 2015, p 13)

#### **2. Research challenge: the regional gap**

Research on employment participation of older workers was found to be distributed very unevenly across the countries participating in the review. Across almost all domains of the chosen framework, the countries with the highest research coverage are Norway, the Netherlands, Canada, Finland and Sweden. Some countries have

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and the Risk of Early Disability Pensioning: A Contribution to Assessing the Need for Rehabilitation] *Rehabilitation* 50:28-36

<sup>6</sup> Stock J. Wise DA (1990) Pensions, the option value of work, and retirement. *Econometrica* 58(5), 1151-1180

<sup>7</sup> The *Joint Programming Initiative "More years, better lives - The potential and challenges of demographic change"* (JPI MYBL) was established with the support of the European Union in 2010 to address the major societal challenge of demographic change.

<sup>8</sup> Hasselhorn HM, Apt W (2015) Understanding employment participation of older workers: Creating a knowledge base for future labour market challenges. Research Report. Federal Ministry of Labour and Social Affairs (BMAS) and Federal Institute for Occupational Safety and Health (BAuA). Berlin. [http://www.jp-demographic.eu/wp-content/uploads/2015/07/JPIUEP\\_Brochure1.pdf](http://www.jp-demographic.eu/wp-content/uploads/2015/07/JPIUEP_Brochure1.pdf)

<sup>9</sup> The *lidA conceptual framework on work, age and employment* has been developed under the assumption that a broad view is key to gain a deeper understanding of employment participation at higher working age. It combines 11 so called domains: social position; domestic domain; work organisation; work content; health; work ability; motivation to keep working; finances; legislation, labour market and the social context. (for details, see Hasselhorn & Apt, p 23-24)

specific thematic profiles with outstanding research in selected fields, take for example, Belgium with respect to legislation and the UK with qualitative research approaches. In Germany and Austria research coverage was found to be somewhat lower and in Poland rare. There may be several reasons for this unequal distribution of research; one certainly is that researchers in the Scandinavian countries and the Netherlands benefit from the easy access data to register data. Several large cross-national research collaborations on ageing, work and retirement exist already. The findings of the JPI UEP working group indicate that this research needs to be intensified in several countries, widened to include more scientific disciplines, and directed towards cross-national long-term cooperation. (modified from: Hasselhorn & Apt 2015, p 13, 112)

### 3. *Research challenge: thematic gaps*

There is a number of thematic gaps, which the JPI UEP working group recommended to close by adopting a differentiated view in retirement research. To name a few: the *role of health* in the context of retirement, potential *domestic and household factors*, *new work exposures* like the increased use of technology or higher flexibility in work settings and their possible impact on retirement, the *role of older women*, the relation between *migration and retirement*, *social position*, the *employers' perspective*; the opportunities for *organisational intervention*, and the *societal costs and gains of policy changes*. (modified from: Hasselhorn & Apt 2015, p 13)

### 4. *Ethical challenge of retirement research*

“Retirement” is not a natural law but a social construction. In most countries, the understandings, arrangements and the formal regulation of “retirement” are determined by power relations of the public and of social stakeholders. The often immense intensity of these debates does not surprise as they are about the distribution of social as well as individual resources: first and foremost, of *capital (money)*, but also of *self-determination of life-time*, and similarly of *access to work, education, and social esteem*. This together makes “retirement” a *normative and ethical issue*.

In current times of ageing populations in combination with public financial austerity, there is a high pressure on policy and public to reconsider “retirement”, its underlying understandings and not least its regulation. However, as we know, retirement is a complex phenomenon (Hasselhorn & Apt 2015) and not easy to understand, neither for the societal stakeholders nor for policy. Here, the research gets into the focus of public interest: it shall explore, describe and explain “retirement” and, finally, predict and produce future scenarios. Yet all societal groups involved have their particular interests in this ethically loaded issue. One consequence is that retirement research is easily exposed to external normative expectations.

It is the authors' concern that the quantitative and qualitative intensity of the public debate around retirement and its timing bears the risk to (more or less) subtly influence retirement researchers' premises, questions and views and by that – as a consequence – change the quality of this research domain. Such premises could be

- *that retirement research should support policy to solve demographic challenges by extending working lives.*

Extending working lives is one of several possible strategies to solve current demographic challenges. Often it is commonly perceived as the “best” solution. Here, retirement research is at risk to mirror dominating societal interpretations. The consequence is that in many retirement studies *exit age* is the only outcome of

interest and sometimes is regarded by researchers as measure of “success”. Such a conception may overlook potential costs of the extension of working lives, such as risks for the individual workers’ health, well-being and self-determination; risks for the organisations’ productivity and, not least, hidden social cost which may impose as health-related expenses as well as inter-generational conflicts in society.

- *that retirement research should support “active ageing” policies.*

In the past decade, “active ageing” has become a politically popular concept that also guides research funding. The WHO defines “active ageing” broadly as “continuing participation in social, economic, cultural, spiritual and civic affairs, not just the ability to be physically active or to participate in the labour force”<sup>10</sup> (WHO 2002). This concept was adopted by WHO in the late 1990s to be more inclusive than the formerly used concept “healthy ageing”. Nevertheless, it is a normative approach that wants individuals to “plan and prepare for older age, and make personal efforts to adopt positive personal health practices at all stages of life”. This, however, is not possible for all individuals in the same way reflecting different chances and conditions in the life course. While WHO is pointing out this aspect, the public discourse about “active ageing” often does not consider this aspect. So criticism concerning the concept of “successful ageing” – as it has been recently reviewed by Martinson and Berridge<sup>11</sup> (2015) – also seems applicable to “active ageing”.

- *that retirement is seen as “good” and a recompense for the working life.*

There is a risk for retirement research to regard the retired status per se as “good” for the individual and as a recompense for a negatively connoted working life. From that point of view the extension of working life imposes as threat and penalty. In Germany, about 45% of the workforce belong to the group of *low- and unqualified workers* and *manual workers*. This group bears substantially increased risks for poor health, especially at higher age (Burr et al 2013). For many (but certainly not all) older members of this group, work may constitute a continued threat for health and retirement may indeed be a necessary and “good” step in life.

Yet, the authors are also aware of the basic conclusion which Waddell and Burton draw in their review “Is work good for your health and well-being? (2006, page ix, <sup>12</sup>): “There is a strong evidence base showing that work is generally good for physical and mental health and well-being.” Epidemiological studies indicate that large groups of employees have substantial health resources even at higher working age. In Germany these are *professionals, managers, engineers* and *technicians* (see, for example, Burr et al 2013<sup>13</sup>), which constitute about 20% of the working population. Many of the people belonging to them have enjoyed work throughout their working life and personally benefitted from the diverse health and quality of life enhancing effects that work can have. For these groups the prolongation of the working life would have a completely different impact than for the first.

<sup>10</sup> WHO (2002). Active Ageing. A Policy Framework. Contribution of the World Health Organization to the Second United Nations World Assembly on Ageing, Madrid, Spain, April 2002. Online: [http://apps.who.int/iris/bitstream/10665/67215/1/WHO\\_NMH\\_NPH\\_02.8.pdf](http://apps.who.int/iris/bitstream/10665/67215/1/WHO_NMH_NPH_02.8.pdf), retrieved: 26.8.2016.

<sup>11</sup> Martinson M, Berridge C (2015) Successful aging and its discontents: A systematic Review of the Social gerontology Literature. The Gerontologist 55:58-69

<sup>12</sup> Waddell G, Burton AK (2006) Is work good for your health and well-being? TSO, London

<sup>13</sup> Burr H, Kersten N, Kroll L, Hasselhorn HM (2013) Selbstberichteter allgemeiner Gesundheitszustand nach Beruf und Alter in der Erwerbsbevölkerung. Bundesgesundheitsbl Gesundheitsforsch Gesundheitsschutz 56:349-358 <http://www.baua.de/de/Publikationen/Fachbeiträge/artikel34.pdf>

In consequence: evaluative and normative statements on the timing of retirement (“success”, “reward”, “failure”, “threat”) need at least to differentiate between social and occupational groups.

### 5. *Dissemination challenge*

Retirement research should not only strive to maximise its quality, but also its impact on society and policy. While some disciplines seem to be more heard in this respect – e.g. economists –, others have ostensibly less public attention. One explanation may be that researchers of some disciplines are more likely to make use of large nationwide register-based data. The mere representative nature of such findings is often appealing to policy. Another trailblazer for public and policy interest is the availability of high quality cohorts such as ELSA, STREAM, and lidA, specifically assessing the transition from work to retirement from a broad perspective.

From our point of view the following aspects could help to increase the impact of our work:

- *Dissemination between research communities*

Retirement researchers from all disciplines should take the initiative to increase the scientific exchange – especially across borders of research communities. It may belong to our responsibility to exchange, create joint understandings, and – where appropriate – harmonize and combine research methods and tools (e.g. cohort studies).

- *External dissemination*

Considering the public relevance of the field, retirement research should put much emphasis on dissemination towards policy and public – here, some disciplines are more advanced than others (see above). The biggest challenge here is that researchers from all disciplines learn (right from the beginning) to consider the relevance of their respective research work for different stakeholders. This may mean to give dissemination a higher priority in the researchers’ daily work, yet it also implies a conscious selection of research issues to be dealt with and – not least – to use a language that the different target groups can understand.

Retirement research in times of continued ageing of work forces is a great opportunity. The challenges listed above indicate that it is also up to us, to which degree we can take advantage of this opportunity. WAHE2016 constitutes an attempt to estimate the potential for real research advancement. We are fully aware of the difficulty of such undertaking and are therefore excited to follow the conference – up to the final panel and plenary discussion.

Hans Martin Hasselhorn & Melanie Ebener

# International Interdisciplinary Conference Work, Age, Health and Employment



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