

## SCIENTIFIC REPORT

ESF Exploratory Workshop on

# The Labour Market For Scientists And Engineers

Maastricht, The Netherlands, 29 – 31 May 2008

Convened by:  
**Andries De Grip**

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Research Centrum voor Onderwijs en Arbeidsmarkt, Universiteit Maastricht

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*Co-sponsored by*



*Scientific Report*  
**Workshop The Labour Market for Scientists and Engineers**  
**Maastricht, May 30-31, 2008**

## **1. Executive summary**

The ESF exploratory Workshop on *The Labour Market for Scientists and Engineers* was organized by Professor Andries de Grip, Professor Bronwyn H. Hall, Dr. Wendy Smits (Maastricht University) and Dr. Geoff Mason (NIESR). The workshop focused on both theoretical and empirical research on various aspects of the labour markets for scientists and engineers, and brought together scholars of different disciplines such as labour economics, the economics of innovation, industrial organization, management sciences etc. In the workshop we successfully discussed various studies on different aspects of the labour market for scientists and engineers.

The workshop started with a keynote presentation of Professor Richard Freeman (Harvard and LSE) on the *Globalization of the labor market for scientists and engineers*. Furthermore 17 papers have been presented by one of the authors and discussed by all participants. The papers were grouped in the following five related research themes:

- Entering the labour market.
- Human capital and careers.
- Labour Mobility.
- Researcher Performance.
- R&D workers in industry.

Furthermore, we discussed the possibilities for future cooperation and possible follow ups. First, a selection of the papers presented at the workshop will be published in a special issue on 'The labour market for scientists and engineers' of the journal *Economics of Innovation and New Technology*. The workshop organizers will be the guest editors for this special issue. Second, the possibilities for funding a research network on the topic of the workshop will be further investigated.

## **2. Scientific content of the event**

The workshop started with a presentation of Dr. Zdenka Mansfeldova of the ESF Standing Committee for Social Sciences who informed us on the various ways in which ESF can support the cooperation of European researchers in the social sciences.

We started the discussion on the labour market for scientists and engineers by a keynote presentation of Professor Richard Freeman (Harvard and LSE) on the *Globalization of the labor market for scientists and engineers*. Freeman emphasized the importance of the topic and stated that scientific research on innovation and both policy makers do not seem to be fully aware of the fact that scientists and engineers are the key actors in innovation, and will therefore be crucial for the future competitiveness of developed countries. Freeman also discussed the purpose of the Science and Engineering Workforce Project (SEWP) at the National Bureau of

Economic Research (NBER) in the USA. Freeman, who is director of SEWP, also mentioned that he is highly interested in cooperation with European researchers in joint studies on the labour market for scientists and engineers.

After the presentation of Freeman and the following discussion, there have been five sessions in which altogether 17 very interesting papers have been presented and thoroughly discussed. The first session dealt with four papers on *entering the labour market*, focusing on the mobility of new PhDs in science and engineering in Norway, changes in the labour market entrance of PhDs in France, the determinants of delayed entrance into academic careers in France and the relationships between research, teaching quality and graduates employment in Italy.

In the second session, we focused on the development of *Human capital and careers* of scientists and engineers. The papers presented and discussed focused on human capital development in the Dutch labour market for scientists and engineers, the chances of scientists and engineers to obtain a supervisory position in the Netherlands, a comparative study of firm-internal labour markets for scientists and engineers in France and the UK, and the transferability of “inventors’ knowledge” after the displacement of scientists and engineers after the bankruptcy of the Dutch aircraft firm Fokker in the 1990s.

The third session dealt with one of the core issues from a policy perspective, *the labour mobility* of scientists and engineers. We started with a paper that analyzed to what extent the geographical distribution of scientific ideas is related to the mobility of scientists between universities in the US, followed by a study on the incoming and outgoing technology transfers related to the international mobility of German scientists. We ended this session with a study on the determinants of international migration of science and engineering graduates in 12 EU member states.

The fourth session focused more in depth on the *performance of scientists*. The first paper showed the huge differences in the productivity of academic researchers in Belgium, followed by a gender study on the effect of information technology on the publication gap between men and women in the US. The final paper in this session dealt with the question to what extent academic entrepreneurship in the life sciences induces a brain drain from universities to the profit sector.

In the fifth session, we focused on *R&D workers*. The first paper dealt with the question to what extent the lower wages of R&D workers can be interpreted as compensating wages which take account of the high preference of these scientists and engineers to work in a R&D job. The study focused on R&D workers in the Netherlands but the findings are probably relevant for R&D workers in many more countries. The second paper had a similar focus on the relative wages for R&D workers in France. Finally, we discussed a German paper which focused on the question whether inventors respond to the acquisition of the firm where they are employed by another firm.

We ended the workshop with two sessions on the *perspectives for future cooperation* and *possible follow ups*. All participants were very enthusiastic on the topics discussed in the workshop and are eager to participate in future activities on these topics. In particular two follow ups had been discussed more thoroughly:

- a selection of the papers presented at the workshop will be submitted for a special issue on 'The labour market for scientists and engineers' of the journal *Economics of Innovation and New Technology*. The four workshop organizers will be the guest editors for this special issue.
- Making a proposal for an ESF Research Networking Program or another program that could subsidize a research network and/or matching our group to the SEWP group in the USA. Dr. Geoff Mason (NIESR, London) and Professor Andries de Grip (Maastricht University) will further investigate these possibilities for continuation.

### **3. Assessments of the results, contribution to the future direction of the field**

Most papers presented at the workshop were high-level studies. A selection of these papers will be published in a special issue in a leading journal in the field of innovation studies: *Economics of Innovation and New Technology*. We presume that most of the other papers which had been written for the workshop will be published elsewhere. Moreover, several prominent researchers in the fields of innovation and labour economics from the USA joined the workshop, which enabled us to intensify the contacts between these researchers and the European researchers who participated in the workshop. Obviously, also the relations between the European researchers in the field have been intensified by the workshop, which may lead to further cooperation and the establishment of a research network.

Maastricht, June 10, 2008.

Prof.dr. Andries de Grip  
Faculty of Economics and Business Administration  
Maastricht University  
Netherlands.

## 4. Final programme

Friday, 30 May 2008

**9:15 - 9.30 Opening**

**Chair: Andries de Grip**

Presentation of the European Science Foundation (ESF)  
Dr Zdenka Mansfeldova (ESF Standing Committee for Social Sciences)

**9.30 - 10.30 Keynote address**

Globalization of the labor Market for Scientist  
Richard Freeman (Harvard University and LSE, US)

**10.30 - 11.00 Coffee break**

**11:00 - 13:00 Entering the Labour Market**

**Chair: Geoff Mason**

*\* Paper presenter*

From research to business: mobility among new PhDs in science and technology  
*Terje NAESS\**

French engineering graduates in corporate R&D: Is it worthwhile?  
*Jean-Paul BELTRAMO,\* Julien CALMAND, and Patrick MONTJOURIDES*

The determinants of delayed entrance into the academic career : the case of France  
*Jean- François GIRET\* and Liliane BONNAL*

The Relationship between Academic Research, Teaching Quality and  
Graduates.Employment Outcomes  
*Natalia ZINOVYEVA\* and Mauro SYLOS LABINI*

**13.00 - 14.00 Lunch**

**14:00 - 16:00 Human Capital and Careers**

**Chair: Ben Kriechel**

Human Capital Development in the Labour Market for Scientists and Engineers  
*Andries DE GRIP\* and Wendy SMITS*

The chances of graduate scientists and engineers of obtaining a supervisory position  
*Ger RAMAEKERS\*, Hans HEIJKE and Christoph MENG*

What's left of internal labour markets for scientists and engineers? New evidence from  
the UK and France  
*Geoff MASON,\* and Hiroatsu NOHARA*

Transferability of Inventors' Knowledge after Displacement  
*Ben KRIECHEL\* and Katrin HUSSINGER*

**16.00 - 16.30 Coffee break**

**16:30 - 18:00 Labour Mobility**

**Chair: Andries de Grip**

The Geography of Scientific Ideas and the Mobility of Scientists: U.S. Evidence  
*James ADAMS\* and Roger CLEMMONS*

Researcher mobility and technology transfers: How patriotic are university scientists?  
*Christoph GRIMPE\*, Jakob EDLER, and Heide FIER*

What affects International migration of European science and engineering graduates?  
*Jan SAUERMANN\*, Andries DE GRIP and Didier FOUARGE*

**19.30 - 22.30 Dinner**

**Saturday, 31 May 2008**

**09.00 - 10.30 Researcher Performance**

**Chair: Wendy Smits**

The Great Divide in Scientific Productivity. Why the Average Scientist Does Not Exist  
*Stijn KELCHTERMANS\*, and Reinhilde VEUGELERS*

The Effect of IT on the Publication Gap Between Women and Men in Academia  
*Paula STEPHAN\*, Anne WINKLER, and Sharon LEVIN*

Life Scientist Mobility from Academe to Industry: Does Academic Entrepreneurship Induce a Costly "Brain Drain" on the Not-for-Profit Research Sector?  
*Dirk CZARNITZKI\* and Andrew A. TOOLE*

**10.30 - 11.00 Coffee break**

**11.00 - 12.30 R&D Workers in Industry**

**Chair: Bronwyn Hall**

How large is the compensating wage differential for R&D workers?  
*Wendy SMITS\* and Arnaud DUPUY*

Working in R&D activities: is it worthwhile for a French engineer?  
*Jean BOURDON\*, Jean-Jacques PAUL and Claire BONNARD*

Inventors' response to firm acquisitions  
*Katrin HUSSINGER\**

**12.30 - 13.15 Perspectives for Future Cooperation**

**Chair: Geoff Mason**

**13.15 - 14.15 Lunch**

**14.15 - 15.00 Follow up discussion Future Cooperation**

**Chair: Andries de Grip**

## 5. Statistical information

### Gender Repartition:

Gender:	Number:
Male:	16
Female:	14
Total:	30

### Geographical Repartition:

Belgium		4
Czech Republic	1	
France	7	
Germany		4
Netherlands	6	
Norway		1
United Kingdom		3
United States of America		4
TOTAL NUMBER OF PARTICIPANTS:		30
TOTAL NUMBER OF COUNTRIES :		8

## 6. Final list of participants

	FAMILYNAME	FIRSTNAME	COMPANY	ADDRESS1	ZIPCODE	CITY	COUNTRY
1	Adams	James	School of Humanities and Social Sciences	Rensselaer Polytechnic Institute	12180-3590	TROY NY	United States of America
2	Basri	Ester	OECD	2, rue Andre-Pascal,	75775	PARIS CEDEX 1	France
3	Beltramo	Jean-paul	Iredu-cnrs	Université de Bourgogne - Pôle AAFE	21065	DIJON	France
4	Bonnard	Claire	IREDU			DIJON	France
5	Bourdon	Jean	IREDU Université de Bourgogne	B.P. 26513	21065	DIJON	France
6	Czarnitzki	Dirk	K.U.Leuven	Naamsestraat 69	3000	LEUVEN	Belgium
7	De Grip Fernandez	Andries	Research Centre for Education and the Labour Market (ROA)			MAASTRICHT	Netherlands
8	Zubieta	Ana	University of Sussex	The Freeman Centre	BN1 9QE	BRIGHTON	United Kingdom
9	Freeman	Richard Jean-	NBER	1050 Mass. Ave.	MA 02138	CAMBRIDGE	United States of America
10	Giret	François	IREDU	Pôle AAFE - Esplanade Erasme	21065	DIJON	France
11	Goeggel	Kathrin	Centre for European Economic Research			MANNHEIM	Germany
12	Grimpe	Christoph	Centre for European Economic Research (ZEW)	L7, 1	68161	MANNHEIM	Germany
13	Hall	Bronwyn	University of California, Berkeley	549 Evans Hall # 3880	CA 94720	BERKELEY	United States of America
14	Hiroatsu	Nohara	Laboratoire d'Economie et de Sociologie du Travail (LEST)			AIX-EN-PROVENCE	France
15	Hoedemakers	Caroline	Univeristy Gent			GHENT	Belgium
16	Hussinger	Katrin	University of Maastricht	Tongersestraat 53	6211 LM	MAASTRICHT	Netherlands
17	Kelchtermans	Stijn	University College Brussels (HUB) & KU Leuven	Stormstraat 2	1000	BRUSSELS	Belgium
18	Kriechel	Ben	IZA			BONN	Germany
19	Lam	Alice	School of Management, Royal Holloway, University of London	Egham Surrey	TW20 0EX	EGHAM, SURREY	United Kingdom
20	Mansfeldova	Zdenka	Academy of Sciences of the Czech Republic	Department of Sociology of Politics	110 00	PRAGUE	Czech Republic
21	Mason	Geoff	NIESR			LONDON	United Kingdom
22	Naess	Terje	NIFU STEP The Norwegian for studies of Research and Higher Education	Wergelandsveien 7	0167	OSLO	Norway
23	Ramaekers	Ger	ROA	P.O.Box 616	6200 MD	MAASTRICHT	Netherlands
24	Sauermann	Jan	Research Centre for Education and the Labour Market (ROA)	P.O. Box 616	6200MD	MAASTRICHT	Netherlands
25	Smits	Wendy	CBS			HEERLEN	Netherlands
26	Sprietsma	Maresa	Centre for European Economic Research	L7,1	68161	MANNHEIM	Germany
27	Stephan	Paula	Georgia State University	Box 3992	30302-3992	ATLANTA, GEORGIA	United States of America
28	Veugelers	Reinhilde	KU Leuven			LEUVEN	Belgium
29	Zinovyeva	Natalia	BETA, University Louis Pasteur			STRASBOURG	France
30	Romans	Margo	Maastricht University (local organisation)				