MARIE CURIE RESEARCHERS AND THEIR LONG-TERM CAREER DEVELOPMENT:

A COMPARATIVE STUDY

Presentation of the study results

People Programme Committee

Brussels, 19 December 2013

Study context

Main objective

To collect and organise information related to career development of Marie Curie researchers, and to present a comprehensive picture and a deep analysis of the long-term career paths after their Fellowship.

Population of former fellows: *researchers that have completed their MCF five or more years ago (i.e. under FP4, FP5 and FP6)*

Survey of MC fellows and control group

Direct interview programme

Bibliometric analysis

Operational objectives of the study

- **Mapping career paths** (MC researchers)
- **Comparing the careers** (MC and non-MC researchers)
- **Assess the extent of the correlation** (MC outcomes and career outcomes)
- **Analyse the gender gap**

Achieved Samples: profile of the respondents

Approximately 1,400 former Marie Curie fellows who took part in Marie Curie Actions funded under the 4th, 5th and 6th Framework Programmes for Research and Technological Development (1994-2006)

A control group consisting of approximately 1,500 EU researchers has been surveyed on the same dimensions

Demographics MC researchers

32% female

80% < 45 years old

98% doctorate holders

1. Natural sciences (75%)
2. Engineering and Technology (12%)
3. Social sciences (6%)

24% PhDs at top 100 university

59% research experience of between 11-20 y

14%	Italian	74%	EU15
13%	French	13%	EU13
12%	Spanish	4%	BRICS
12%	German	1%	US
5%	Greek	8%	Other
4%	British		
40%	Other		

Demographics control group

28% female

49% < 45 years old

92% doctorate holders

1. Natural sciences (65%)
2. Engineering and Technology (15%)
3. Medical sciences (10%)

22% PhDs at top 100 university

30% research experience of between 11-20 y

14%	Italian	72%	EU15
7%	French	10%	EU13
8%	Spanish	4%	BRICS
12%	German	3%	US
3%	Greek	11%	Other
8%	British		
48%	Other		

IMPACT ASSESSMENT
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KEY FINDINGS

General analytical framework

Independent variables

- Demographic char.
- Country
- Educ. background
- Sector
- Discipline

Researcher profile

- Motivation
- Type of MCF
- Duration
- Host profile
- Knowledge transfer

MC Experience

Dependent variables

Career drivers

- Career enablers
- Mobility effects

Career development

- Short-term empl.
- Continuity
- Career speed
- Family life issues

Professional output

- Publications
- Patents / trade
- Oth. sc. outputs
- Access to funds

Employment situation

- Title / responsib.
- Status/ conditions
- Employer ‘prestige’
- Income
- Satisfaction

Impact on Career Drivers (1)

Contribution of MC to Career 'Drivers'

- MCF had a comparatively **more pervasive effect on career drivers** than other fellowships

Career Drivers	MC	Other
A .The quality of training / research supervision received	6.69	**7.01**
B - Having access to high quality research facilities and laboratories	**7.78**	7.19
C - A solid preparation on the primary subjects of research	6.34	**6.41**
D - The complementary skills and competences developed (team working, leadership, project management etc.)	**6.78**	6.55
E - International mobility experience	**8.43**	7.90
F - Interdisciplinary / multidisciplinary skills	**7.27**	6.83
G - Productivity in terms of research output (e.g. publications, patents, keynote papers…)	**7.16**	6.97
H - A strong and widespread research network	**7.72**	6.86

Impact on Career Drivers (2)

Cross-sector mobility

- MC fellows experience slightly **greater cross-sectoral mobility** in their career
- Some half MCF are no longer in the sector they were employed before MCF. The main flow is **from university to other sectors**

[university; public sector employer; research lab / institute (private or semi-public); not-for profit entity; SME; large enterprise]

Multi- & Inter-disciplinarity

- MC fellows are **less likely to change discipline** after the MCF
- MCF **more effective in developing interdisciplinary skills**

Internationalisation of careers

- MC fellows have **worked in more countries** (+0.7), have **more frequently settled abroad** (37% vs. 21%), and more frequently collaborate on **joint international publications**.

Professional network established

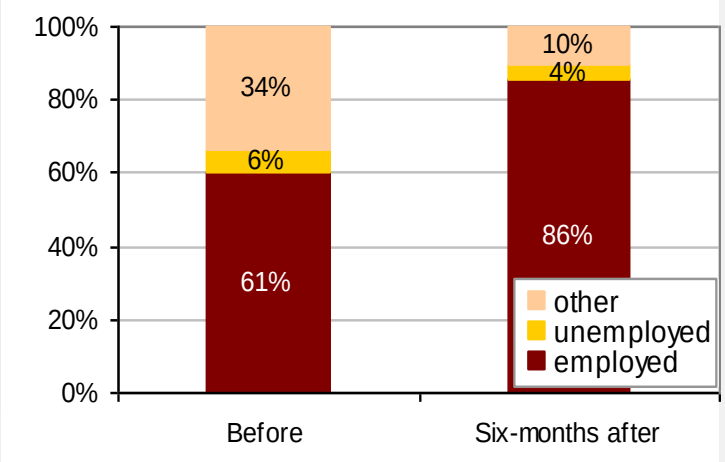
- The network established under MCF are somewhat **smaller but stronger** (+3.7% prob. of continuing the collaboration)

Impact on Career Trajectories (1)

Short-term employability

- MCF seemingly effective in **improving fellows' short term employability.**
- MC fellows are **more likely (+8%) of obtaining a permanent position** after the fellowship.

MC fellows



Other: students, trainees, unable to work etc.

Retention by Hosts

- MC fellows slightly **more likely to be retained by hosts**, especially after long fellowships (+11% prob.).

Career Speed

- Some mild **marginal short-term effects** especially for knowledge-intensive fellowship.
- No effects or **negative effects in the medium/long term** (academic titles).

Impact on Professional Output (1)

Impact on Publications

- **Number of articles published:** slightly greater for MC fellows, especially in the private sector (+3.4) and for individual-driven MCF (+5.5).
- **H-index citation**: MC fellows score on average one point higher on the citation index, again - especially in the private sector (+1.6) and for individual-driven MCF (+2.8).
- **Journal Impact Factor**: significant positive effect of MC, i.e. +0.29. Even more positive in natural science field (+0.34), engineering (+0.35). Possibly negative for humanities (-1.03)
- **Books and monograph**: possibly very limited positive effects of MC.

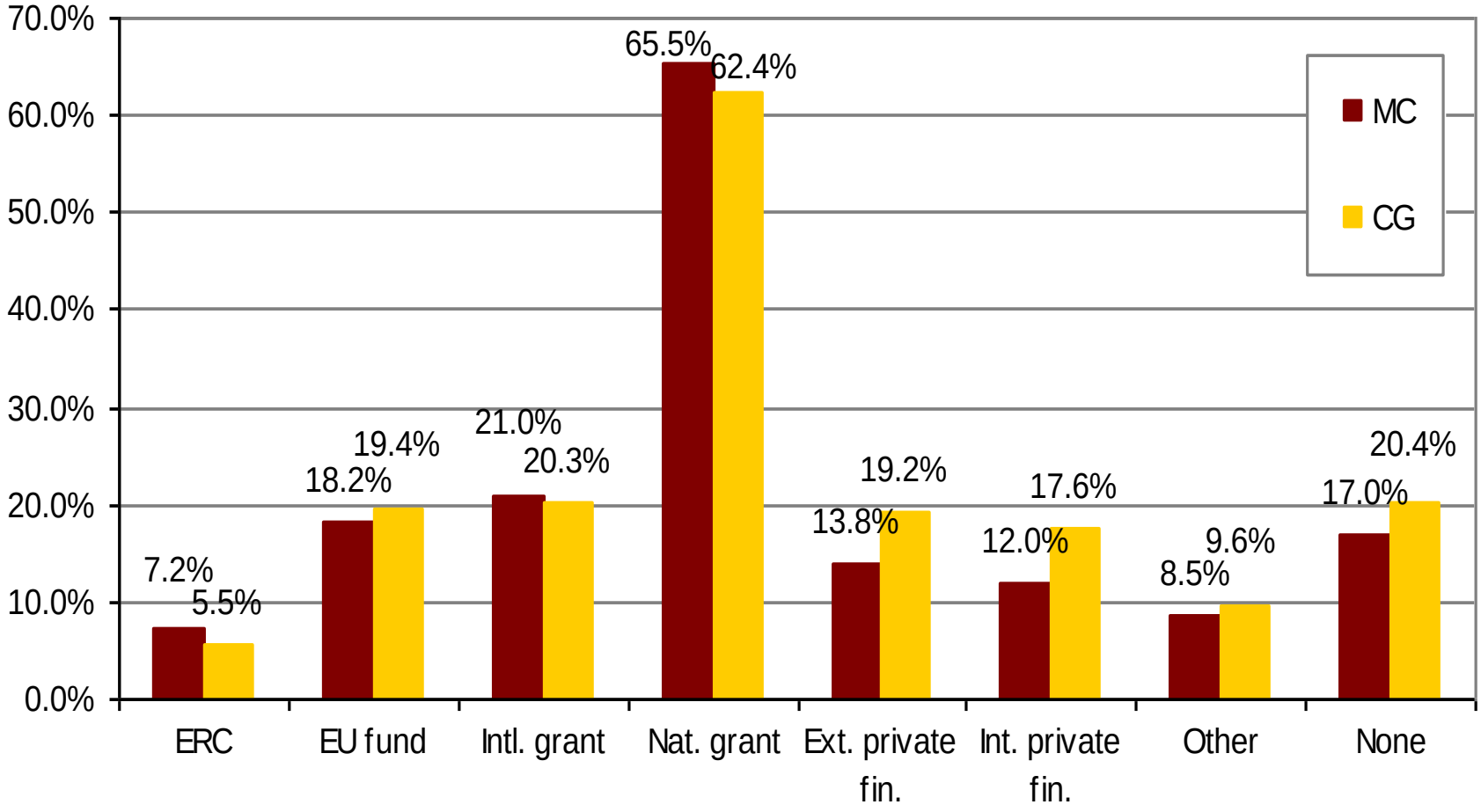
Impact on Professional Output (2)

Impact on Other Scientific Outputs

- **Patents:** MC fellows appeared to have filed and commercialised less patents than other researchers, especially private-sector fellows (but sample is skewed and effects in this field take time to materialise).
- **Start-ups:** average no. of start-up enterprises established is marginally lower for Mc fellows.
- **Conferences:** greater participation of 'young' MC fellows (under 35) to international conferences both as keynote speaker than as ordinary speaker.
- **Scientific prizes:** higher number of prizes and awards received by 'young' MC fellows (under 35)

Impact on Professional Output (3)

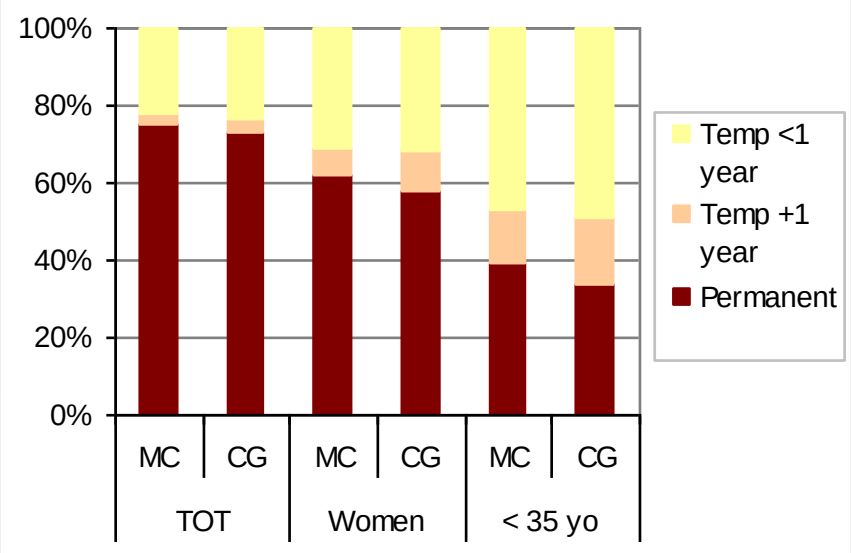
Access to Research Funds



Impact on Current Professional Situation (1)

Employment status and conditions

- MC fellows marginally **more often employed** than CG, and with **more stable contracts.**
- MC fellows more frequently **employed by top 100 institutes.** These are often the institutes where they carried out the MCF (ca. 25%).
- **no significant impact on income**, except some minor effect in the young classes.
- marginal positive effects of MC registered with respect to **income growth**



Impact on Current Professional Situation (2)

Job profile and qualifications

- MC fellows are **more likely to be still active in research** than CG (94% vs. 89%).
- MC fellows have a **much higher probability (+ 10%) of leading a team** of research (being ‘principal investigator’), especially in private sector (+ 16%), and when the MCF was carried out in a top 100 institute.
- MC fellows are more likely of holding the title of **associate professor** (+8%) or **full professor** (+6%), but are less likely to be **head of department** (-2%).

Impact on Current Professional Situation (3)

Effect on satisfaction

Factors	MC fellow (av. score)	Var. MC vs. non-MC
Job security	6.54	21%
Work conditions	6.70	21%
Resources for research	5.44	24%
Income	5.45	18%
Benefits	5.23	27%
Progress opportunities	5.46	32%
Responsibilities	7.05	20%
Independence	7.80	19%
Intellectual challenge	7.79	16%
Status/prestige	6.22	21%
Job location	7.17	24%
Contribution to society	6.25	14%
Overall satisfaction	**7.03**	**16%**

GENDER ISSUES AND MCF EFFECTS

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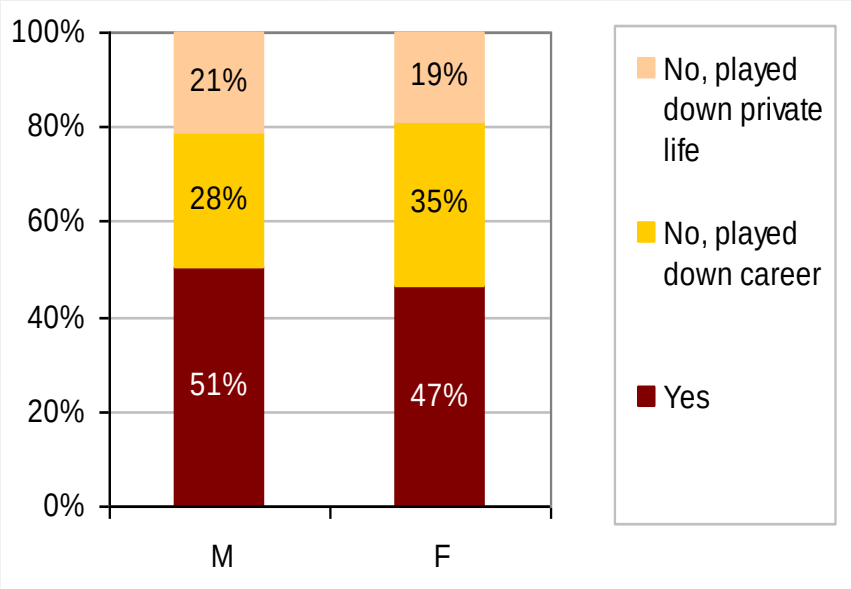
KEY FINDINGS

Disparities in Career Development

Career constraints

- Women report far **more frequent career 'breaks' than men** (56% vs. 24%)
- Women also experience more frequently **conflicts b/w professional target and private life**, and often this lead to **lower career targets**



Self-assessed discrimination

Experiences of discrimination

- About **one-third of female researchers** have reportedly suffered some kind of discrimination. The incidence seems **lower among young researchers** (under 35).
- The incidence is only **marginally lower in the MC sub-group.**

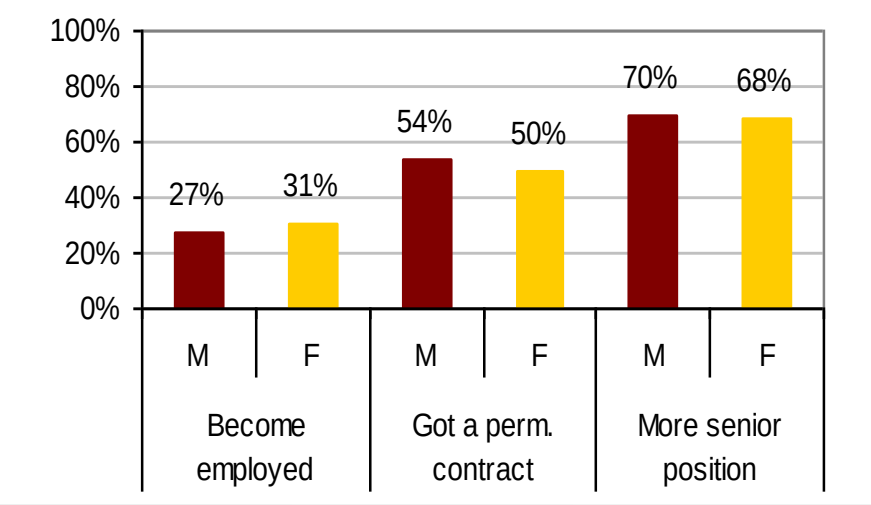
Types of discrimination

- **Job qualification and condition**: by far the most frequent, especially cases of male colleagues with same level of experience and skills having a more qualified position, and/or a higher salary.
- **Employability and career progress**: frequent cases where maternity (actual or planned) was considered an obstacle to employment or career progress
- **Grave misconducts**: some 7 in 10 cases reported concern sexual harassment (but in various instances not considered very severe)

Disparities in the MC experience

Differences in immediate career effects

- MC proved more effective in **enhancing the immediate employability** of women than men
- Instead, a **greater share of men obtained a permanent contract** after the end of MCF
- The chances to **move to a more senior position** after MCF are high for all fellows, but seemingly slightly higher for men



Career Outcomes and MC effects (1)

Impact on scientific output

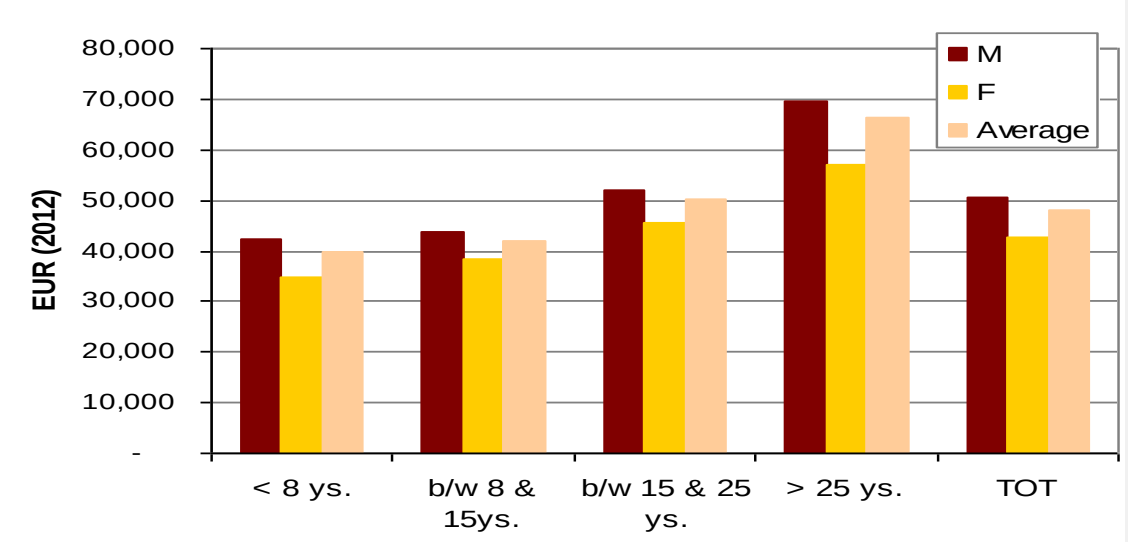
- **Number of articles published:** smaller for female researchers (- 5.7) but mitigated by participation to MC (+3.3)
- **H-index citation**: Also smaller for female researchers (- 1.5) but significantly offset by participation to MC (+1.7)
- **Journal Impact Factor**: no significant discrepancy found b/w women and men. MC female researchers has a higher JIF than non-MC (+0.48)
- **Patent submitted**: significantly lower for women, and not influenced by MC.
- **Invitations as keynote speaker**: lower than men (-1.5) and not influenced by MC.
- **Access to research funds**: significant outcomes registered for access to EU/intl. grants, which appear lower for women in general, but significantly offset in the case of MC female fellows.

Career Outcomes and MC effects (2)

Differences in employment status and conditions

- Women appears slightly **more frequently unemployed** than men, and less often employed under a permanent contract
- The **professional title and position of women appear generally lower than men** (especially professorship title), but the MC female subgroup is typically in a better position than non-MC researchers.
- **Job satisfaction is somewhat lower** among women, but only marginally.

- the **income level of women is lower** than men for all degrees of professional experience



THANK YOU FOR YOUR ATTENTION

Sara Gysen – sara.gysen@gfk.com

Tommaso Grassi – tgrassi@economistiassociati.com