INTERNATIONAL MOBILITY OF WOMEN IN ICT CAREERS

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ABSTRACT

In recent decades, the movement of people is greater given the intensification of economic activities and the improvement of ICT. The mobility of scientists plays a double role in strengthening professional careers and improving R&D and innovation systems. In the ICT sector, labour supply in skilled jobs is much wider, and although women are much less represented than men, they may adopt different mobility behaviours in comparison to women in other areas of knowledge. In this article, therefore, we ask whether there are gender differences in ICT career mobility and what could help to explain them.

In this short paper we aim to briefly introduce the issue of women's international mobility and present some of the findings of our work in progress about flows of human resources in Science and Technology in relation to gender and Spain.

The transformation of traditional gender roles in the developed world and the modernisation process in developing countries has enabled women to adopt a more active role in the process of mobilisation. In Spain, however, deep gender differences are still present. Women still represent a minority in ICT areas of knowledge; therefore they are still underrepresented as mobility grant beneficiaries in these areas. However, the scarcity of women in the ICT area is accompanied by a higher success rate in mobility grants among women than their male counterparts in the same area. According to the literature and our findings, we can conclude that gender is an influential factor of mobility in ICT careers.

KEYWORDS

Mobility, Gender, ICT, Highly Skilled Human Resources

1. INTRODUCTION

The mobility of scientists plays a double role in strengthening professional careers and improving R&D and innovation systems. In the ICT sector, labour supply in skilled jobs is much wider, and although women are much less represented than men, they may adopt different mobility behaviours in comparison to women in other areas of knowledge. In this article, therefore, we ask whether there are gender differences in ICT careers mobility and what could help to explain them.

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2. INTERNATIONAL MOBILITY OF WOMEN

Mobility is defined as a change of residence, temporarily or permanently, for labour, social or personal reasons. In recent decades, the data shows that women from countries with fewer resources are more likely

than men of the same nationality to move to other countries. This could be related to different reasons summarized by the following key factors (Skachkova, 2007; OCDE, 2007):

- The need for the female population to leave their country of origin to progress professionally.
- The difficulties that women have to overcome, for example invisible social and professional barriers in their country of origin.
- The abandonment of the traditional role of women. In the past female migration projects were associated with their families' migration projects, thus related to women's traditional roles and accompanying their partners.
- At present, female mobility is subject to profound social changes, not always separated from family strategies when women are in a relationship. The negotiation of professional careers is a new factor to be analysed which can facilitate the prioritisation of female careers.
- In some collectives and nationalities it has been empirically demonstrated that women's mobility processes, carried out alone or accompanied by other female relatives, are linked precisely to the subsistence of their families living in their country of origin.

Although the validity of these hypotheses requires a specific in depth study, we consider that any of these circumstances, either independently or combined, increases the probability of female mobility. These circumstances have reduced the importance of masculine mobility in relation to global mobility.

The extension of educational attainment achieved by the female population allows all countries to count on a high percentage of highly skilled female workers. Mobility in tertiary education in non OECD countries indicates that there are higher rates of emigration among women (13,9%) than among men (9,7%). In Africa, the rate increases to 27,7% among women compared to 17,1% among men. In Latin America the percentage is 21,1% for women compared to 17,9% for men. The difference is less significant in Asia and Oceania and there is no gender gap in Europe and Northern America (OECD: 2008a, 2008b).

Docquier et al. (2007) found a high correlation between migration rates, gender gap and country of origin schooling rates. According to this data, where the gender gap in education is higher, the female population is more encouraged to seek employment opportunities abroad, promoting higher emigration rates for women. Their study found that the proportion of skilled women migrants has increased from 46.7% to 49.3% in the period of 1990-2000. This increase is due to the increased supply of a qualified female labour force as a result of educational credentials in developing countries.

Other studies show similar mobility percentages between women and men, especially early in their careers. This trend changes in the case of older women, when women postpone their mobility, or decide not to move, due to personal or family reasons (Ackers: 2004, 2005).

Social pressure can play a negative effect on women's self esteem and their intention to pursue the professional challenges posed initially. The progressive abandonment of women in various stages of scientific careers is an empirically proven fact, as the gender gap increases more dramatically at the highest positions in comparison to lower levels within the same area of knowledge.

In scientific careers it is common to find couples who research in the same area or work in close environments. This phenomenon, known as a dual-career, has been investigated empirically, showing that women are more likely to have partners of the same profession than men. This situation often puts women in a subordinate position with respect to their male partner, because men's careers are often prioritised. The achievements of men are considered more important by the couple, which is detrimental to the career advancement of women, whose careers become "tied" to the careers of men (Ackers: 2005). Female researchers remain the weaker party in terms of the number of children they have which is clearly evident in statistics. Male scientists are more likely to have a greater number of children than female scientists, who are also more likely to remain unmarried than their male counterparts (Saltford: 2005).

Ackers (2004) outlines that while male careers are not subject to any requirement, other than the personal project, female careers are subject to men's careers, family strategies and the couples decision making, influenced by established social roles and the set up of the labour market (wage levels, expectations of stability and career advancement)

Men can develop their professional career consistently with a family life more easily than their female colleagues (Teichler and Mainworm: 1997). Women are more often in a situation of incompatible choices i.e. the decision to devote herself fully to her personal life or to her career. Male colleagues who are married, to a greater extent, have partners outside this demanding environment. That is why it is easier to find male

scientists with more children than women scientists. Mobility projects can split up couples. It is easier for a woman to abandon a promising career than a man - doing so in favour of her partner's career. For women it becomes more costly to pursue a full career if this means their performance as mothers becomes compromised. It is not lightly that many couples consisting of skilled professionals choose to delay the age of procreation until a certain state of stability is reached. This does not happen if less importance is given to the female career or if she has a profession in which she is already established.

Therefore, the longer and more demanding the scientific career - regarding the number of hours of work, - the more problems women encounter, preventing them from taking up an all consuming career that acquires prestige and success.

Moreover, women with dependents experience a lack of freedom of movement which impedes their more frequent mobility, - currently necessary for networking and attending events- that contributes to professional visibility and, ultimately, the achievement of a more advantageous position within the most influential scientific community (Addis, 2004). This behaviour becomes a recurring negative social process. The Mateo effect, is applicable to the situation described, and clarifies the reason why it is more difficult to find women in relevant positions of scientific and professional careers.

3. MOBILITY IN ICT CAREERS IN SPAIN FROM THE GENDER PERSPECTIVE

In order to analyse international mobility in ICT careers we have carried out research within the Spanish context. Firstly, we analyse publicly available data in Spain in relation to professional mobility and secondly, we present the main results of the analysis of our qualitative research.

As in most countries, participation of women in technology is a minority. Thus, in Spain, women represent approximately 20% of ICT students and professionals (Pérez Sedeño: 2004). The minority presence of women in the ICT areas is also reflected in the number of grants they receive. This horizontal segregation, together with vertical segregation, has to be faced by women in all areas of knowledge to achieve positions of greater responsibility (Castaño: 2008; González Ramos: 2009)

Figure 1 shows the unequal distribution of mobility grants between men and women, which is evidence of the existing huge gender gap. In 2004-05 only two out of six women would have received a mobility grant, and even less if we consider only the support granted in the ICT area. In this case, only one in ten people would be women.

	2004		**2005**	
	Women	Men	Women	Men
Total areas	32,0	67,9	28,5	71,5
TIC area	7,3	92,7	11,9	88,0

Source: AGE

Figure 1. AGE Mobility grants distribution. Areas of knowledge and Gender (%)

Scarcity of women in the ICT area is accompanied, however, by a higher success rate among women than their male counterparts in the same area, which clearly demonstrates female capacity. This indicator measures the ability to get a scholarship, taking into account the demands and the final number of awards in each program. ICT areas show a high success rate in most of the calls under the Spanish central government, a trend that also remains true in the case of mobility programs. Despite this, in figure 2, the success rate in the ICT area for 2005 is lower due to the decrease in the number of awards this year, as shown in figure 1.

	2004		**2005**	
	Women	Men	Women	Men
All areas	4,0	2,7	3,3	2,3
ICT area	5,2	2,1	2,0	1,7

Source: AGE

Figure 2. Success rate in AGE Mobility Grants. Areas and Gender (%)

Figure 2 shows the success rate between the sexes for all areas of knowledge and ICT areas. Women show a higher success rate in all areas, especially in ICT. In Spain there is no quota policy, and the highest percentage of female success must be attributed to the ability of women to obtain scholarships. We must conclude that the women involved in this knowledge area are very well trained.

Figure 3 also suggests that the presence of women is somewhat higher in those programs where the age cohort is younger. Second, post-doctoral training programs present a higher proportion of women among the beneficiaries. Female participation among foreign professors and technologists is third, followed by sabbatical and Spanish professors where women represent a minority.

	2005	
	Women	Men
Postdoctoral	25,0	75,0
Talent return	17,6	82,4
Foreigners	11,1	88,9
Spanish	5,0	95,0
Sabbatical	6,3	93,8

Source: AGE

Figure 3. Women and Men participation in mobility programs managed by AGE in ICT areas, 2005.

These results are consistent with the literature that suggests the lower tendency of women to develop flows of international mobility when reaching a certain development in their career because of their family. Of course, it should also be noted that in ICT areas of knowledge it will also be less frequent to find women in the professional categories of greater responsibility. This gender gap is present not only in Spain, it is common to other European countries and developed countries. So that even in mobility programs for foreign professors and technologists' gender segregation in ICT is also noticeable.

The qualitative analysis that has been conducted in our research has allowed us to delve into the reasons for the reduced international mobility of women in ICT sectors. Our findings follow a similar direction as stated above and confirm the main findings of the previous literature, also in the Spanish context. Mobility of women in ICT careers is deeply affected by personal reasons, especially family reasons.

Female careers are subjected to male careers. Although most people interviewed, men and women, have said they have taken their partner into account in the decision of international mobility, previously, women had to negotiate much more than men with their partners and families. Women tend to shorten their time away in order to reconcile family and their professional career. To look for shorter periods away or to seek grants that enables the mobility of the whole family seem to be strategies more likely to be experienced by women than men.

Most professional women have partners that also work in ICT sector, confirming that professional women are more likely to have partners in the same area of knowledge than men. Couples break up more easily due to woman's mobility because men are less likely to cope with the changes that mobility involves. Thus changes are primarily related to social or family pressures and men's difficulties to adapt to their new contexts.

Finally, as clarified by the literature, women are more likely to delay motherhood than men fatherhood as they have fewer children than interviewed men. The roles traditionally associated with women also negatively influence the ability to take risky decisions. Insecure job situations will be rejected, such as mobility projects that can threaten employment situations, even when their employment is already precarious.

4. CONCLUSIONS

The data highlighted that women are a minority in the international mobility of highly skilled workers. Even more so in the ICT sector. From our findings we can deduce that the minor international mobility of women in ICT areas of knowledge is not related to a reduced capacity for Technology. On the contrary, they suggest the existence of inequalities and the imposition of self-restrictions that relegate women to secondary roles in their professional careers.

The qualitative research carried out has allowed us to delve into the reasons for some of these inequalities in relation to mobility. Confirming most of the previously reviewed literature about mobility in Scientific Careers and gender in Spain, personal and family gendered factors, above all, determine international mobility of Women in ICT areas of knowledge. Women careers are more likely to be subject to male careers, they shorten their time away in order to reconcile their careers with family life, they are more likely to have partners in ICT than men, couples break up more easily with the mobility of the woman as men are less likely to cope with the mobility changes involved, and, finally, they delay childbearing and have fewer children than men.

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