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From South to North: female scientists in Europe

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Abstract We examine the problems faced by women in Europe who wish to combine a career in science with family life, focusing on the situation in Italy, Germany and Sweden. Our survey shows strong differences from country to country. Some nations have infrastructures of taxation or professional childcare that are very supportive of working mothers; in others women face not only logistical but also societal barriers that prevent them from achieving a healthy work/family balance. By comparing these countries' attitudes and policies, we hope to find ideas worth importing in order to improve the lives of working women wherever they are.

INTRODUCTION

A smart, independent young woman shuts her eyes, spins a globe, stabs it to a stop with her index finger and says, "There!" Travel companies and advertising agencies make millions from such clichés. And there is a time in an academic's life – her PhD and first postdoc – when experiencing work overseas is relatively easy.

Of course, for many such women, the mobile phase of the life cycle doesn't last long. Soon her desire to travel – indeed, the desire to do research at all – begins to compete with family commitments. Compromises must be made. But in spite of how far women have come in recent years, a lot still hangs on where exactly our scientist stops her globe. The kinds of work/family balances that can realistically be reached vary considerably from country to country. Occasionally even within individual countries the differences are extraordinary.

Why focus on women? Don't men also want to settle down and start families as they get older? Of course they might, and most countries now recognise this – in principle. Nevertheless, women still work against a background of assumptions and expectations about their role in wider society. In many countries they are expected to be mothers first; the corresponding perception of men in similarly demanding fathers' roles is largely absent.

But the gender divide is not simply about motherhood.

Consciously or not, some jobs are perceived as being particularly women's work throughout the world, and, as we shall see, the scientific community is not immune to these prejudices. But the problems run deeper than mere prejudice. Even those societies that genuinely strive for equality frequently adopt policies which, though superficially neutral, affect men and women differently. At the same time, policies that are not neutral, but that deliberately aim to assist women, frequently

have perverse consequences that do more harm than good. And while some countries provide environments that are very hospitable for women in science, other countries have adopted policies that make life extremely difficult for them.

So what do the countries of Europe have to offer our young lady? Our own globe-spinning tour will look at three representative nations with strongly contrasting attitudes to women in science. In the Mediterranean, we will focus on Italy; we will then move through Germany and into Sweden, representing Scandinavia. Our journey sweeps from south to north – unfortunately at the expense of abandoning our spinning globe metaphor, since, as we know, globes don't spin that way.

ITALY

Unless there is something seriously unusual about our young scientist, she is much more likely to associate Italy with sunshine and fine food than she is to recall international economic agreements from the late 1950s. And yet it was in Italy, in 1958, that the Treaty of Rome stated that men and women should receive equal pay for equal work in what would later become the EU. Over fifty years on, has Italy kept its part of the promise?

On the surface, the answer is a clear yes. Indeed, Italy's gender wage gap (non-adjusted (1)) of 7 percent is one of the lowest in Europe (compare the UK's 19 percent, or Germany's 22 percent (2)). So in the workplace at least, women are paid almost as much as men.

But this fact disguises another inequality. On average, women work more than men – much more.

The gender wage gap measures the difference in *paid* labour. Labour that is not paid for is not counted. A country's gender wage gap is widened by the presence of professional child carers; this is because child carers are overwhelmingly female and generally poorly paid. In Italy, however, there is a complication: the weakness of the state-supported childcare system means that much of the business of raising children is done in the traditional family network of female relatives – grandmothers, aunts and sisters. No money changes hands in these informal arrangements, so they do not count towards the calculation of the gender wage gap: they bring the *paid* average up by making their labour unpaid rather than just poorly-paid. Italy's 7 percent figure looks less impressive when it is seen to stem partially from many more women working for free than in most other European regions.

A rather macho culture tends to excuse male relatives from mundane childrearing tasks. The female "second shift" of domestic work, by now mostly vanished from the rest of Europe, still lives on in Italy. This results in an astonishing imbalance: taking unpaid work into consideration, Italian women work 20 percent more than Italian men (3).

Despite rapid improvements in recent years, Italy has still not met its commitments to establishing extensive childcare coverage for young children. Parents are permitted additional leave if children under eight become ill, but scientists working on a contract basis – that is, the majority – are not able to benefit from this. Taking into consideration the overarching societal prejudices, the lack of political will need to make improvements, the creaking economy and the traditionalist labour market, it would appear that the informal family network is likely to remain indispensable for the near future. And however bad the situation is for Italian mothers, it would be far more difficult for our travelling postdoc, a foreigner moving to a new country without such a network to depend on.

GERMANY

The German labour market is strong at the moment, making it a good environment for work and research for both sexes. And yet the country has its own, often surprising, inequalities. Women are largely excluded from reaching the top positions in their careers: across Europe, women make up 24 percent of senior management; in Germany the figure is 13 percent (4). German executive boards are > 95 percent male (5). Men have little incentive to ease the imbalance: by taking time off near the birth of a child they jeopardise their holidays, since Germany, almost unique among European countries, does not provide "sick" leave for fathers during that period.

German women also face surprisingly strong societal barriers for so modern a country. The word *Rabenmutter*, meaning "raven mother", applies to working mothers who "abandon" their children to childcare. It is a particularly nasty term of abuse in a country that places so much emphasis on traditional gender roles in the family; there does not appear to be an equivalent expression in other languages. Even if our adventurous young scientist happened to specialise in ornithology, she would probably take little comfort in knowing that ravens mate for life, care for their young, and are among the smartest creatures on the planet. Nevertheless, the social stigma of the *Rabenmutter* is considerable, and the venom it can produce can be overwhelming, particularly when compared to the neighbouring country of the Netherlands, where mothers are considered

"lazy" if they don't return to work within 3 months of giving birth. Germany showers its mothers with money. As well as receiving 156 weeks of parental leave, mothers have access to 156 family-related subsidies worth €170 billion per year (6). One prominent example is their system of splitting taxation, where couples are taxed based on their combined income. The scheme presupposes a single major breadwinner, with a minor partner able to top up this salary tax free (up to a point). It is not an inherently gendered system, but in traditionalist Germany the incentive is for women to stay at home while men bring home the bacon (7).

It's been many years since Mr Gorbachev tore down that wall; nevertheless, Germany remains a deeply divided nation. The Communist ethos of aggressively applied egalitarianism still lingers in the former GDR, where it is much more common to see women working. Nursery provisions have been available in the East since the Soviet years; these were almost unheard of in the West until fairly recently, where even now it is extremely difficult to secure a nursery position for children under 12 months. Having to take these 12 months off can leave a woman without a job if she becomes pregnant during her postdoctoral research, since universities typically make use of temporary contracts no longer than 1–3 years.

The problems continue. Although kindergartens do ease the burden on mothers of slightly older children, these frequently operate only half-days. So do many schools. The logistical challenges of raising children, without hurting her career, begin to look daunting for our young scientist. Is there some other country that would make her life easier?

SWEDEN

If there is hope, it lies nearer the poles. We Jeremiahs of the European south look to Scandinavia for our utopia: a mythical land of breezy egalitarianism, strong state support and a socially conscious government. But how does the reality compare with the perception?

In countries such as Sweden, gender equality reigns supreme. With both partners in a family equally expected to work, childcare becomes essential, and in Sweden this is both socially acceptable and easily affordable.

Just as both halves of a family are expected to work, both are expected to take parental leave; and although men tend not to take as much leave as women, they take far more than in the rest of Europe. The attitude contrasts starkly with that of more traditional countries: while German mothers who go back to work early are targets of opprobrium, Swedish men who remain at work are often seen as "bad fathers" and "reluctant husbands" (perhaps they will one day go as far as coining a term like "*korpappan*" – a Swedish "*Rabenvater*" or "raven father").

The average Scandinavian woman works more hours than the average German woman. And yet, perhaps surprisingly, the fertility rates are high: 1.91 in Sweden, compared to 1.38 in Germany (8). In fact, this is a general and very clear trend across Europe: ready availability of professional childcare means women don't have to choose between children and a career, but can have both. France tells the same story even more forcefully: women return to work very soon after birth, but that doesn't stop the country from having a fertility rate of 2.01, the highest in the European Union.

Perhaps surprisingly, the nations with the most equal involvement of women in the workforce show the largest gender divides

between job sectors (9). Just as with Italy's low gender wage gap, this comes, in part, from the fact that only labour that is *paid* for is counted in the statistics. Whereas in Italy housework chores are done in the family network, Sweden has moved the task into the labour market to be done professionally. If this has created a job sector that is mostly female, it is only by formalising work that is generally done by women anyway, whether paid for or not. This raises an important point: equality of opportunity does not translate into equality of outcome. Some of this inequality certainly stems from societal attitudes towards women; but isn't there something to be said for the idea that men and women are *inherently* different from each other?



well be the case; but if she wants to settle down and start a family while maintaining a scientific career, there are some countries that would make it easy for her, and others that would make it harder. Meticulous soul that she is, she might make a list. She wants kids and a career. Which society provides the best infrastructure? Which society allows the greatest flexibility of work hours? And in which society would she avoid the hostile glares of traditionalist neighbours? Expressed in these terms, it seems her list would lead her to Scandinavia, with its open mind-set and its advanced childcare system. She could start packing her bags tonight.

THE GREAT UNIVERSALS

All societies treat men and women differently. Those countries that will admit to doing so either say it is to complement certain natural abilities of women, or to compensate for their shortcomings. In either case, the assumption is that women are fundamentally different from men. Does the data back this up? In many ways, the answer is yes. Aside from obvious differences in biology women are, in general, both less self-confident and less competitive than men (10). They take fewer risks with their careers (11). They are less adventurous in their job applications, preferring to consider only those for which they feel they are well-qualified (12). Women value fair play more highly than men and are less willing to embellish their CVs to dazzle prospective employers. They are more willing to make concessions in contract negotiations, often resulting in them getting a raw deal. Women also tend to find their income a less defining aspect of their status: for men, it's much more a case of what you earn is what you are.

Intriguingly, some studies indicate that women might be better scientists than men: although they submit fewer papers than men, their claims are better substantiated by the data (13). Nevertheless, women are 2.8 times more likely to drop out of a scientific or technical job than men are, and 13 times more likely to vanish from the labour market altogether (14). Perhaps these differences are inflicted by society; perhaps they are an innate biological consequence of bearing a pair of X chromosomes. In either case, what can be done, and must be done, is to recognise the inequalities that exist, however they arise, and allow women to compete with men on a level playing field.

PICKING AND CHOOSING

A smart, independent young woman shuts her eyes, spins a globe, then realises that this is a foolish way of choosing where to do her postdoc. Picking a country at random suggests that one destination is as good as another. For a brief stay this may

But then she thinks: if she's looking to be a mother and scientist, why should she have to move at all? Why can't things be better where she is right now? She became a scientist to change the world, after all.

There is no shortage of data on which to act. Europe is a diverse continent. Neighbouring countries often have starkly different attitudes to women in science. While others might see Europe as a chaotic mess, our scientist sees it as a gigantic social experiment where different policies are tried out and assessed. The results are in. What ideas work, and should be adopted generally? What ideas don't, and should be abandoned before they can do more harm?

One suggestion that is often heard is to introduce quotas for female representation. This idea has been pioneered in Norway, but many European scientists – even those who would stand to benefit from it – prefer the meritocratic ideal of being rewarded for the achievements of hard work regardless of gender. Additionally, many female “token” professors or executives face problems *because* they are the only women at that level. As (often unwilling) representatives of their entire gender, their appearance becomes mandatory at every boring meeting to which at least one female specimen must be dragged. They also become the first point of contact with female students, and are expected to take on the administrative burden that goes with that unasked-for responsibility.

Parents generally, and women especially, value flexibility in their working lives. A company wishing to make parents' lives easier might arrange for all meetings to be held before 4 p.m.; in countries such as Sweden and Denmark, where family time is treasured, this is already fairly normal. Such an arrangement costs most companies little to implement, and the added flexibility allows parents to go home early, enjoy family life in the afternoon, and do out-of-office work in the evening if required.

Allowing parents to work from home wherever possible would be a benefit, but here science faces a particular challenge: very few people have fume hoods built into their living rooms. However much paperwork there is to do in science, it depends on experiments which must be done in a laboratory environment. One possibility is for universities

to allow students to do the hands-on lab work for scientists during pregnancy and parental leave. Our expectant-mother scientist would be able to add leadership and delegation to her CV as she supervises her student remotely, without having to breathe any toxic fumes.

A CELEBRATION OF DIVERSITY

Different societies will always have different problems, different solutions, and different definitions of a solution. Europe is a marketplace of ideas. Like any good market it has customers, the male and female scientists who travel from country to country in search of the perfect place to settle down. For some women, there is no higher or more exalted ideal than to manage a house full of kids, financially supported by a loving husband; there are countries where this is readily attainable. For others, only exact career parity with men will do, and for those tricky customers the choices are limited and rather imperfect; nevertheless, there are decent approximations to be found. How can we ensure that all tastes are catered for? Only by learning from each other, comparing notes, as we have done here, to see which policies achieve their desired ends and which do not. We hope that one day, our scientist, globe-spinning or not, will end up in a place that will let her follow her dreams, whatever they happen to be.

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