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For Gender Equality in Scientific Careers,
in the Evaluation of Publishing:

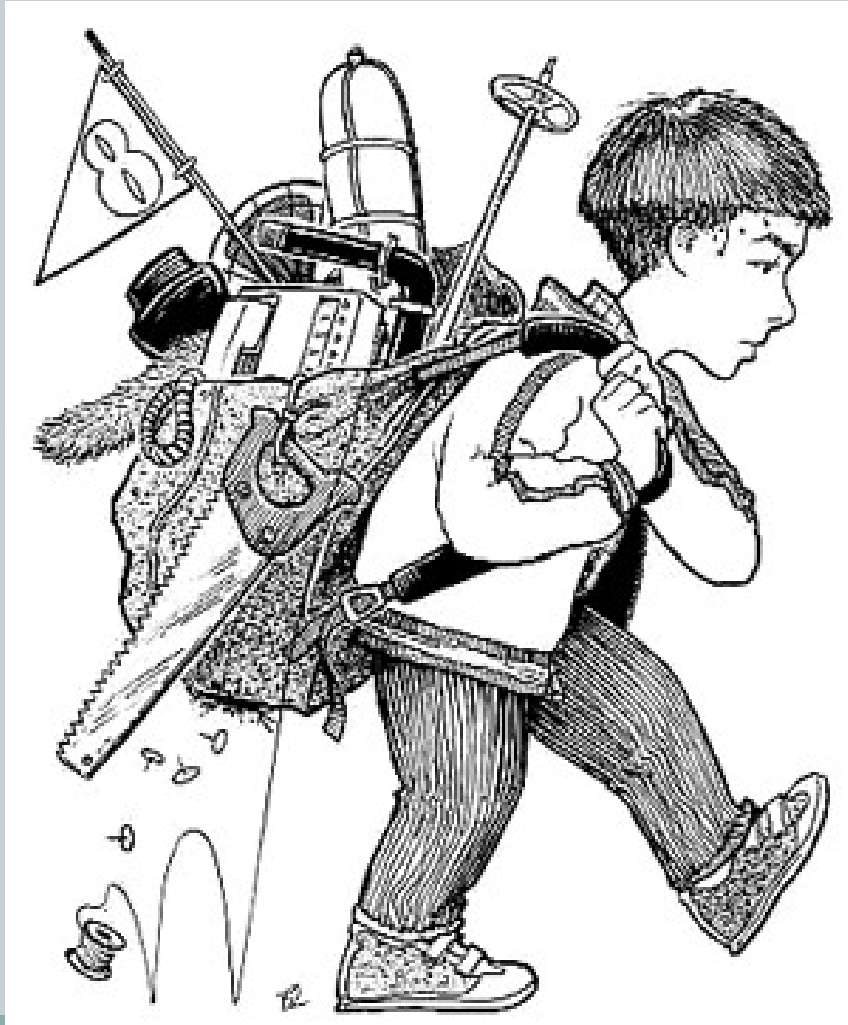
THE C FACTOR

Giampietro.Gobo@unimi.it

Università degli studi Milano

Dipartimento di Scienze Sociali e Politiche

Who will come first?



One slide would be enough...



1. Fathers and mothers are not yet equal in their academic performance (publishing)
 2. Could be equal if the family duties (e.g. child care) were equally distributed
 3. We know that this is not the case (not only in the Latin countries)
 4. So mothers cannot compete (on publishing) with fathers
 5. So we need to rebalance this inequality with a weight (a bonus) on mothers' publishing
- On how to succeed it, the discussion is open
 - But the need to do it, should be 'take for granted'

However, the referee...



- "Empirically questionable,
- over-simplified analysis;
- no reference to studies of science which show that the relation of scientific careers and gender is much more complex than assumed in the proposal".

How is (currently) evaluated the **individual** scientific production (publications)?



Counting (quantitative)

- H-index (quotations)
- Number of publications (medians)
- Impact-factor (IF) - journals
- Etc.

Classifications (qualitative or not accounting)

- In English
- Books versus articles versus book chapters
- With or without referees (journals)
- Taxonomy of journals (A, B and C)
- Taxonomy of publishers
- Affiliation, degrees from top universities, etc.

The merits (qualitative)

- The content of publication

The **abstract** evaluation: desperately seeking the **society**



The previous grid seems reasonable. However, it is:

1. abstract
2. detached from social dynamics
3. epistemologically naïve
4. politically inexperienced
5. poorly reflexive

It takes no account of how these indicators:

- are (socially) constructed, and
- which representations, mental models and tacit knowledge... they embody.

e.g.: H-index



- Among the many limitations of the h-index,
- one relates to the fact that it looks more to the quantity than the quality of scientific production (which would gain by reading its contents or through peer review);
- h-index rewards those who wrote many publications, and get a low number of citations;
- In fact, the h-index rises by 1 point each time a publication reaches the number of 10 citations (in progression: h-index 2 with 2 publications with 11 cites; index 3 with 3 publications with 12 cites, and so on).
- So for the index is pretty much the same thing that a publication is cited 10 or 1000 times: the index rises always and only 1 point.
- e.g.
Tuhiwai Linda Smith, Decolonizing methodologies: Research and indigenous peoples, 1999: 5871 cites
Tuhiwai Linda Smith, Towards the new millennium: International issues and projects in indigenous research, 1998: 16 cites
- For this reason, this index favors the mere quantity: instead I would prefer having written one article quoted a thousand times (which makes my h-index equal to a paltry 1) that 10 articles mentioned a few dozen times each (which would make my h-index equal to 10).

Tacit assumptions embodied in h-index



- This index favors who writes many papers (a quantitative concept of productivity)
- instead of who writes a few but high quality.
- So it promotes mediocrity (powered also with self-citations) instead of excellence

The **society** in the evaluation



- Q1: Who better to perform (with equal intelligence) on the h-index?
Who writes more!
- Q2: (in theory), who can write more?

A reasonable ranking would be as follows:

1. Single
 2. person with partners without children
 3. person with partners, with 1 child
 4. person with partners, with 2 children
 5. person with partners, with 3 children
 6. etc.
- Let's leave out all other possible combinations (have a family ill or disabled, have an / a partner away for work, etc.).
 - I'm talking about **people**, not men or women.
 - So, at the moment, **gender** has not yet been introduced

reasonable slowdown



- Is it reasonable to assume that those who have children (with the same intellectual capacity of who have not children), have had a slowdown in scientific production (beyond their reduced research activity and institutional presence)?
- Is it reasonable to ask a corrective, a weighting, an adjustment, which takes into account the indicator **C**, that is the number of **children** and their care activities?

A *society-sensitive* (and *mother-sensitive*) *evaluation*

- The previous reasoning would be for both women and men, if both participate equally to the care of children, housework, chores, etc.
- We know that is not the case, so the argument now becomes **mother-sensitive**
- If men and women are different (and often unequal) in society, we cannot think that the **effects** of this diversity (and inequality) are suspended when we pass to the scientific production
- The same applies to the **mothers** ...
- Instead there is currently no attention to a differentiated assessment of scientific production, pretending therefore that, in this respect, men and women, **fathers and mothers**, are (or should be) identical.

Unfortunately, few data for **mothers** ...



- Researches which compare the scientific production between men and women (to see if indeed there is a difference) rarely report the data if these women have (or not) a child
- because there are few academic **data-bases** which have this indicator / data... which is important for a more accurate assessment, because
- on the side of scientific production, it seems reasonable to assume no differences between men and women if **both are without children;**
- In other words, if we look at what happens in society:
 1. if are **children** (in addition to diseases, care of parents, lack of means of livelihood and so on, that however here we do not take into account) **a possible major cause of slowdown of the scientific production** (and the difficulty of doing research, participating the institutional life of the dept., participating to conferences etc. that here we do not take into account) and
 2. if the **care of children** is left mainly to **mothers**
 3. current research and comparisons **rarely hive off this data**
 4. and therefore do not help us to understand whether there is a children impact on women's scientific production

An **indirect** reasoning...

We must therefore limit ourselves to:

1. look at comparative research between men and women
2. and then "weigh" these results
3. through a virtual or "thought experiment" (gedankenexperiments), with the use of 'conditional contrfactuals' (Van Dijk 1977: 79-81), such as *modus ponens*: "if ... then";
4. a cognitive procedure used in economics, physics , cognitive science, history, etc.

Women's scholarly productivity



- Women are more productive in the age group 50-54; while men in the group age 45-49 (Kyvik 1990)
- **For both men and women, married and divorced persons are more productive than single person (Kyvik 1990)**
- **Women with children are more productive than women without children (Kyvik 1990)**
- The statements in red are based on de-contextualized statistics, devoid of social dynamics:
 1. who are the women with children?
 2. How many do they have? 1, 2 or 3?
 3. Are they supported (by relatives and so on)?
 4. At what social class they belong to?
- Although men and women start out as assistant professors with similar productivity, after 6 years men have significantly more publications (Long, Allison and McGinnis 1993)
- 1989-1991: men 6.9 articles, women 5.6 (20% fewer) (Kyvik and Teigen 1996)
- 1989-1991: male faculty member under age 40 published twice as many article equivalents than their female counterparts, whereas for faculty over age 40 the difference is small (10-15%) (Kyvik and Teigen 1996)



- Tower, Plummer and Ridgewell 2007:
- top six journals in the world, as rated 2006 Thompson' ISI index, two for each category: 2 in **science** (Science and Cancer Journal for Clinicians), 2 in **business** (Academy of Management Review and Quarterly Journal of Economics) and 2 **social science** (Archive of General Psychiatry and Harvard Law Review)... 😊
- They find no difference (in 2005) in productivity when the % of the women participating in the academic work force is factored in: 30-35% of participation rates in academy university position and represented almost 30% of the authors in the top tiered journals
- Also no significantly statistical difference in journal IF ratings between women and men
- **However:**
- They refer of 6 top journals only...
- they do not check if those women have (or not) children;
- only the variable 'gender' is taken into consideration; not the C (children) one;
- the same 'bug' is in Vange et al. (2005) and Dasaratha, Raghunandam, Logan and Barkman (1997)

The Italian women economists



- Zacchia (2013) has surveyed the Italian situation of 301 women economists (lecturers and readers),
- comparing them with men located at the same academic level.
- Results:
- **books**: only 3.6% of women has at least 1 book in the last ten years. Men are 9%
- **articles in top journals** (zone A): 26% of women has at least 1 publication in the last ten years. Men about 90%.

Gender disparities in academic publishing:

causes



Causes of underproduction of academic women in research outcomes:

1. Women and men tend to collaborate with coauthors of the same sex; because there are a relatively few women in faculties, women **have more difficult to find coauthors** (Ashcroft, Bigger and Coates 1996; Suitor, Mecom and Feld 2001; Bentley 2003)
2. Females are more likely to **work in non-tenure track, part-time and temporary positions, to work in teaching colleges...** less time for research and publishing (Dasaratha, Raghunandam, Logan and Barkman 1997; Mathews and Andersen 2001; Robinson 2006)
3. **more involved in service activities at the expense of research** (Dasaratha, Raghunandam, Logan and Barkman 1997; Maske, Durden and Gaynor 2003, Corley and Gaughan 2005; Robinson 2006)
4. **disadvantaged by family responsibilities** (men spent more time in university and less at home, even among married faculty), especially during **child-rearing years** (Mathews and Andersen 2001; Bentley 2003; Suitor, Mecom and Feld 2001)

Contextualizing indicators (and consequently indices and factors)

- To achieve gender equality in scientific careers is necessary **to adopt different criteria for the assessment of CV, and in particular of the scientific production;**
- Why normalize the scientific production for age (as proposed by different statisticians) and not for children?
- If the previous reasoning seems reasonable, we can think about **remedies** (also standardized ones), which take into account the social dynamics and inequalities of being mothers, in order to better assess the production scientific. Such as:
 1. **to normalize, give a score, a weigh, a coefficient etc.. to those who have children (C) or**
 2. **to give priority to the quality of publications, rather than quantity: candidates indicate 3 publications (which they consider the best, the most innovative) and the assessment will be based on those only. So at least the referees will read them ... ☺**

Other alternatives: the care-factor...



- Instead of a mother-sensitive factor, we might think about a **care-sensitive factor**, which can recognize both fathers mothers.
- This could broaden the consensus on this proposal
- However technically speaking, a care-factor would be a more complex, more difficult to operationalize

Learning from the past



- Only a few decades ago, the “affirmative actions” were seen as an attack to the merit, a discrimination against the most talented people, an obstacle to the free market of intellectual capacities.
- However now, it is not (thankfully) no longer so.
- When will we have a "contextual evaluation", a “reflexive assessment”, a reflection on the contextualization of scientific production?
- A debate about the C-factor could be a chance.