

The gendered cost of a career decision

A study of gender differences in the transition to work of PhD graduates in Italy

The bulk of research stresses that the very first years after PhD completion are extremely important for future career development. These early years' productivity and employment outcomes certainly come with strong implications for the future career and create conditions for succeeding or not career opportunities [Scherer, 2001]. For the PhD graduates a turn point between academic and non academic track may be irreversible [Carrigan et al., 2017]. Moreover young researchers (especially women) face subsequent work-family conflict due to the structure of academic work, that requires full involvement in the research process and does not allow for interruptions in a career - the price being a loss of connections with the scientific network - not to say that an academic career often requires relocation to find tenure-track positions [Wolfinger et al., 2009].

Gender differences are likely to play a role in this picture. Most Italian PhD students defend their dissertation when they are close to turn thirty years old. That is an age at which occupation choices are drawn jointly with by other choices to shape the life course – in particular, marriage and fertility choices.

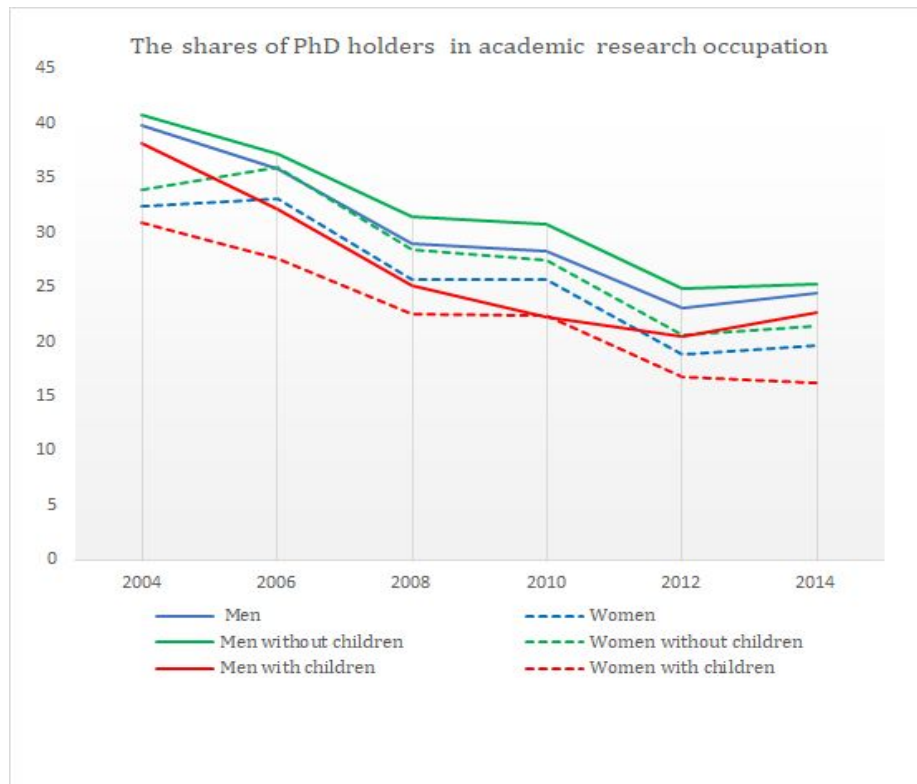
The number of scientific publications is a strong predictor of academic prestige that reflects in a scientist's curriculum vitae and links to the rank promotion. The early studies [e.g. Long, 1992] found strong evidence of women's disadvantages in term of productivity that persists during all career time. Recent data also confirm that on average female scientists are less productive than their male colleagues [e.g. Mairesse and Pezzoni, 2015; Abramo et al., 2009]. The causal link between scientific productivity and career advancement is not so obvious, though, and can go in both directions. It is true that researchers with a better scientific record are more likely to attain an academic position. But attaining an academic position could open access to the sources required for research activity and therefore for further publications [e.g. Long and McGinnis, 1981]. The effect of having children on the productivity as well as on the chances for promotion differs for men and women [Long et al., 1993], yet the empirical evidences of the effect of children on the productivity are quite controversial.

In this paper we propose an empirical model to assess the causal relationships between scientific productivity, professional opportunities and fertility choices, with an emphasis on how those relationships differ across genders.

As for the analytical strategy, we exploit the cross-sectional data from six educational cohorts of individuals who obtain their doctoral degree in Italian universities from 2004 to 2014 (“Indagine sull’inserimento professionale dei dottori di ricerca” collected by ISTAT). The PhD holders have been surveyed 4-6 years after their graduation, collecting basic information on their occupational outcomes, their scientific productivity measured as the number of published articles after PhD completion, as well as their fertility choices. The model we estimate includes three equations. The first one is to model the process of selection into academic positions versus any other type of occupation. The second equation is to model the determinants of scientific productivity, particularly the role of academic positions and of fertility choices. The third equation is to model fertility choices.

As usual, the main empirical problem we deal with is how to account for the confounding variables. As an example, consider the case of the first equation. Put it simply, here we model the behavior of the committee in charge to screen applicants for an academic position (the typical case - being a postdoc position). We have available information on the academic record of the applicants which is available to the selection committee too. The question is whether the committee has available information on the scientific quality of the candidates other than those available in our dataset. We propose a simple strategy to answer this question. Similarly, we deal with the confounding problem in the other two equations.

Our preliminary results show that in spite of relative homogeneity in terms of educational background women persistently are less likely than men to follow an academic path, the gap in favor of men being slightly more pronounced among those PhD holders who already have children at the time of the interview [see the picture below].



With respect to the number of publications we also document that on average women are less productive than their male colleagues, the gender gap persisting across all the cohorts we consider. In turn we discovered that the academic occupation bears a positive causal effect on the research productivity and its effect is more pronounced for men than for women. So the PhD holders in Academia have higher productivity than those who go out of university career. Our causal claim is based on the evidence that male and female PhD holders are relatively similar in terms of educational outcomes – i.e. when they complete their PhD course – implying that there is no systematic difference across genders by the time they enter the Academia.

Summing up, our contribution consists in an analysis of new data on career attainment of young PhD holders in Italy to shed new light on the old “puzzle of scientific productivity”, emphasizing how much that puzzle is gendered. The comparative approach over a sequence of six cohorts facing a major decline in the probability to obtain an academic position gives an opportunity to detect how much the reduction in the chances of getting an academic position affected the across gender differences.

Short bibliography

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