

Introduction to the Special Issue ‘The Determinants of Gender Gaps’

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This volume contributes to advancing our knowledge on the determinants of gender gaps. It focuses on the role of historical factors in shaping persistent gender gaps and on how careful institutional design can allow different outcomes to reflect only differences in abilities rather than differences in gender. The contributions collected in this volume emphasize that there is no unique determinant of the gender gaps and that the gender gap itself is a multidimensional, complex indicator. They also shed new light on critical factors which favour, on the one side, the emergence of gender gaps and, on the other, reduce their importance.

At the end of the 90s, differences in the accumulation of human capital and (taste-based or statistical) discrimination were the main explanation for gender differences on the labour market (Bertrand 2011). Though these explanations have not been abandoned, they have been enriched by analyses of gender differences in psychological traits and preferences and of social norms on what is appropriate for men and women, i.e. gender culture (see Fernandez 2007; Fernandez and Fogli 2009). The two keynote contributions by Alison Booth, together with Patrick Nolen and Paola Giuliano can be cast in this light.

Booth and Nolen study whether part of the observed gender difference in behaviour under uncertainty found in the literature (see, among the others, Gneezy et al. 2003; Niederle and Vesterlund 2007) might reflect social learning rather than inherent gender traits. Discussions of the origin of gender gaps in economic outcomes sometimes raise the issue of whether productivity-enhancing characteristics are gender specific or are instead developed by cultural values within a society. For example, they ask, have men evolved to be innately more risk-taking than women or have they become that way in part through cultural pressures? Their experimental work presented in this volume sheds light on this issue. They develop two sets of controlled experiments designed to see if single-sex classes within coeducational environments modify students’ risk-taking attitudes. By assigning students randomly to single sex or coeducational classes, they show that, while on average females are significantly less likely than men to make risky choices, on exposure to single-sex environments they behave the same as the males.

This suggests that part of gender differences in risk attitudes, which can explain gender pay gaps or glass ceilings, the lower presence of females in high paying jobs or in highly competitive environments, are actually malleable, and properly designed institutions can help overcoming, at least partially, socially constructed differences. Socialization, environmental, and institutional factors which have been proved to be crucial in explaining gender differences can actually be deeply rooted, as shown by the contribution of the second keynote speaker, Paola Giuliano. She presents the hypothesis that traditional agricultural practices influenced the historical gender division of labour and the evolution and persistence of gender norms. The participation of women in agriculture and the role of women in society in the pre-industrial period were remarkably different across ethnicities and strongly related to the type of agricultural technology adopted historically. The sexual division of labour was broadly associated to two technological regimes: shifting cultivation, where the majority of agricultural work was done by women, and plough cultivation, a system mostly dominated by men. In her contribution in this volume, Giuliano reviews the literature on the persistent effect of the impact of historical plough use on female labour force participation and fertility today. She also provides additional evidence showing that differences regarding the role of women across the two agricultural regimes were broader and persisted over time in other societal aspects, including the form of marital arrangements, the presence of polygamy, and the freedom of movement enjoyed by women.

This research highlights how, indeed, gender gaps are multifaceted. They appear in different environments – education, labour market, intra-household organization, politics—and call for appropriate institutional design in different realms. While gender gaps in education have been decreasing remarkably over time and their differences across countries have been narrowing, gender gaps in the labour market, in intra-household division of labour, and in politics are more persistent and still vary largely across countries (OECD 2012). Moreover, while the ‘quiet revolution’ (Goldin 2006) of women’s growing participation in work has been substantial starting from the 70s, it has shown a more stable path in the last decades, especially when we consider the employment gap between mothers and fathers of young children (Milligan 2014). Policies play a crucial role in influencing these trends.

The papers by Anelli and Peri and Tonin and Wahba concentrate on education; Pronzato focuses on the labour market; Aparicio and Vidal-Fernandez look at within-family organization; Balrunaite, Casarico, and Profeta explore political representation; and Stefani and Vacca consider the credit market and differential access to it by firms owned or managed by men and women.

With the closing—if not the reversing—of gender gaps in education and with the majority of countries displaying higher shares of female rather than male graduates, the attention in the economic literature and in the policy debate has switched to what boys and girls study, and namely to the low presence of female in STEM subjects (Science, Technology, Engineering, and Maths), which could influence their employability.

In their study, Anelli and Peri analyze whether the gender of a student's siblings affects the choice of College Major. Their intuition is that a family with same-gender siblings may encourage academic choices that are less gender stereotyped. They build a unique data set covering 30,000 Italian students who graduated from high school between 1985 and 2005, that allows them to identify siblings. They follow their academic careers from high school to college graduation and find that mixed gender siblings tend to choose college majors following a stronger gender-stereotypical specialization: males have higher probability of choosing 'male dominated' majors such as Engineering and Economics. Same-gender siblings, on the other hand, have higher probability of making non-gender-stereotypical choices.

Tonin and Wahba focus on the gender gap in enrolment for a bachelor's degree in Economics. They investigate the sources of this gap by looking at the university admission process in the UK. Using a 50% random sample of administrative data covering all university applications in 2008, they find no evidence of universities discriminating against female applicants but rather show that girls are less likely to apply for a bachelor's degree in Economics, even if once they apply their likelihood of enrolling is the same as that for boys. They observe that girls are less likely to study Maths in high school, which deters them from applying to study Economics at the university level. However, even among those who have studied Maths, females are less likely to apply than males, suggesting that differences in the choice of A-level subjects cannot explain the whole gap.

Turning from education to the labour market, and shifting focus from gender gaps to female labour force participation, Pronzato focuses on lone mothers, an especially fragile group. Lone mothers are overrepresented among the poor in many European countries, with detrimental consequences for them and their children. Even in Norway, the country her study focuses on and which is known for solid welfare policies, lone mothers are at least three times more likely to be poor than married mothers. In the contribution to this volume, Pronzato investigates whether the Norwegian welfare reform in 1998, which increased the lone-parent benefit levels and introduced working requirements, besides having a positive effect on lone mothers' labour supply and on poverty reduction, was also cost-effective. By estimating a discrete choice model of work and welfare participation decisions, she identifies how the design of the

policy could have been improved to further reduce poverty among lone mothers.

Aparicio and Vidal-Fernandez study how grandmothers' availability for child care purposes affects the labour force participation and fertility of daughters. The possibility of grandmothers to look after grandchildren depends on their own labour supply. When grandmothers work, intergenerational income transfers to their daughters may increase at the expense of time transfers, with no clear impact on daughters' labour supply. Exploiting changes in the legal retirement age in Italy, this article shows that grandmothers who participate in the labour force provide less child care, their daughters are more likely to have children and less likely to participate in the labour force. This can be explained by the increase in income transfers which compensates for the reduction in time transfers.

Politics is known to be the area in which gender gaps are the widest. Gender quotas are an example of institutional design which may have a strong impact on gender gaps, by reducing female underrepresentation in specific contexts. Interestingly, these types of policies may also have additional, less expected results, which are worth investigating. These include, among the others, an increase of the quality of representatives (Baltrunaite et al. 2014). Baltrunaite, Casarico, and Profeta in their contribution to this volume analyse the introduction of gender quotas for candidate lists in Italian local elections for a short period of time. As not all municipalities went through elections during this period, they can identify two groups of municipalities and use a Difference in differences estimation to analyse the effect of gender quotas on the age of elected politicians. They find that gender quotas are not only associated with the election of more women, but also with the election of politicians that are younger by more than one year. The effect occurs mainly due to the reduction in age of elected male politicians and is consistent with the optimizing behaviour of parties or of voters.

Access to the credit market is another dimension where gender differences seem to emerge. Firms owned or managed by women have more difficulties in accessing bank finance, they use smaller amounts of credit and less heterogeneous sources of external finance than their male counterparts. Stefani and Vacca show that these differences are largely explained by characteristics such as business size, age, and sector of activity that make firms managed or owned by women structurally different from those led by men, leaving little room for a gender effect.

Still focusing on the firm's side, Caliendo, Fossier, Kritikos, and Wetter ask whether the different risk aversion of men and women, which is documented by a large experimental literature, may contribute to explain gender gaps in entrepreneurship. Using data from a large, representative

German household panel, they find that the higher risk aversion among women explains a large share of the entrepreneurial gender gap. Education also plays an important role, while the Big Five factors of personality traits (openness to experience, conscientiousness, extraversion, agreeableness and neuroticism) do not. However, the experimental result according to which women are more risk averse than men is challenged by Filippin and Crosetto in their contribution to this volume. They show that this result may crucially depend on methodological issues. In practice, they provide evidence of the existence of an outcome reporting bias in this context, which drives the apparent higher risk aversion of women.

The investigation of the historical factors put forward by Giuliano is further developed by the contributions of Bertocchi and Bozzano, and Carmichael, Dilli, and Rijpma.

Bertocchi and Bozzano focus on the role of family in explaining gender gaps origins and persistence. They consider the role of family structure, captured by cohabitation and by the inheritance rule (partition versus primogeniture) and explore the link between family structure and gender gaps in education. Focusing on Italy in the period 1861-1901, they find that, after controlling for economic, institutional, religious, and cultural factors, higher female to male enrolment rate ratio in upper primary schools is associated with nuclear residential habits and equal partition of inheritance. They also find that the effect of inheritance rules persists over the 1971-2001 period.

Carmichael, Dilli, and Rijpma also contribute to the understanding of historical factors which are related to gender gaps. They build a new worldwide index of gender equality that captures the level of gender equality since 1950. Using this index, they find that, although the level of development of a country matters in explaining gender gaps, the variables measuring the long-lasting institutions of countries (mainly religion, family structure, and legal origins) are as important as economic development in determining gender equality outcomes, both across countries and within each country over time.

Overall, the contributions collected in this volume present a variety of new investigations into the determinants of gender gaps: on the one side, they contribute to revealing the historical roots of persistent gender differences, on the other side, they explore new dimensions of already known critical institutional factors, and previously unexplored channels through which they influence gender outcomes. The lessons we can draw from these contributions will be helpful for scholars interested in gender issues, as well as for policymakers and practitioners engaged in realizing a more gender-equal society.

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