I Z A Institute
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DISCUSSION PAPER SERIES

IZA DP No. 14897

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Kailing Shen
Australian National University and IZA

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ISSN: 2365-9793

IZA – Institute of Labor Economics

Schaumburg-Lippe-Straße 5–9
53113 Bonn, Germany

Phone: +49-228-3894-0
Email: publications@iza.org

www.iza.org

ABSTRACT

Gender Discrimination

This chapter provides a bird's eye view of the literature on gender discrimination. The presentation of studies is grouped into five parts. Part 1 presents evidence of gender discrimination measured via various dimensions in various countries and contexts. Part 2 discusses in detail the gender wage gap—one of the most important measures of gender discrimination—as well as gender segregation and its origins. Part 3 discusses the close relationship between female empowerment and violence, and the experience of women of color. Part 4 covers gender behavioral differences. Part 5 presents studies on the experience of women trying to break the glass ceiling, as well as the differential effects of education on boys and girls.

JEL Classification: J16, J12, J13

Keywords: gender discrimination, gender wage gap, female empowerment, domestic violence, gender behavioural differences

Corresponding author:
Kailing Shen
Australian National University
Canberra, ACT
Australia
E-mail: kailing.shen@anu.edu.au

Introduction

I was taught that the way of progress was neither swift nor easy.

——Marie Curie

It is undeniable that much has been achieved in terms of gender discrimination in the past half century. Women can now hold driving licenses and have voting rights; and working outside the home is taken as granted. In fact, it has been some time since the number of girls overtook that of boys in university enrolment in the United States (US), China and many more countries. Also important is that the gender wage gap is narrowing. Nowadays, many young girls grow up truly believing they can thrive and contribute in a life of their own, aspiring to be like Marie Curie or Mulan.

However, as reality hits, it will be increasingly clear to them that there remain many unfair hurdles for them as young or old, east or west, north or south. In many real-life scenarios, while 'boys will be boys', girls are expected to be nice or largely invisible. Gender discrimination to date has mostly involved discrimination against females.

In the economics literature, despite the large and increasing numbers of gender studies, the element of gender has been ignored, except in studies all about gender. The representative (rational selfish) agent in an economic model must be a homeless male—there is no need to include concerns about safety or caring responsibilities. Fundamental differences across genders are largely ignored in economic research, just like in modern economies. In this sense, gender discrimination against females in a world designed by and for males is not surprising. Rather, it is surprising that it has taken so long and required so much effort to establish the very existence of gender discrimination in the economic literature.

Given the nature of the development of the literature on gender discrimination, this chapter both presents recent findings and summarizes important yet often-ignored earlier works from the 1970s. These different styles of studies are presented together to highlight their complementarity. Most of the time, individual studies are not discussed in detail by themselves. The approach in this chapter thus provides a big picture of the literature, which hopefully serves to inspire more insightful and systematic research for the benefit of both men and women.

The chapter is organized in five sections. Section 1 begins the chapter with studies testing the existence of gender discrimination. Section 2 covers the most salient aspect of gender discrimination; that is, the gender wage gap and related labor market measures such as skills differences and sectoral/occupational segregation. Here, several earlier descriptive studies describe the origin of these segregations. Section 3 focusses on the fight against gender discrimination in the developing world, a key theme of which is the interplay of gender empowerment and violence. The often-ignored interplay of gender with other forms of discrimination/oppression (race, class, and ageism) is also covered here. Section 4 covers gender discrimination at the micro level, presenting research on behavior differences unilateral or collectively in various contexts. Studies covered in Section 5 examine the struggle of women to break the glass ceiling and how the education production function might affect girls and boys—our future—differently.

1. The Existence of Gender Discrimination

Although gender discrimination appears ubiquitous, definitive evidence of gender discrimination is notoriously difficult to obtain because of the impossibility of comparing the experiences of individuals who are identical except for their gender. Among others, Heckman (1998) argues it is important to account for unobserved characteristics when evaluating the existence of discrimination. Some might argue there are more

similarities than differences across gender. For example, Bertrand (2020) explains how stereotypes can be self-fulfilling, and differences between the genders are small in many aspects according to Hyde (2014) and many other studies. However, it is still difficult to build a `perfect' case regarding gender discrimination.

This difficulty did not exist in the 1970s US, where differential treatment of men and women was explicit and widely practiced. For example, Martin (1976) discusses the pros and cons of gender-specific mortality tables in retirement payments. Martin (1976) considers that it would be unfair for many female retirees to be paid less than their male counterparts in the earlier years of their retirement. Later, researchers begin to subject the mainstream economic discourse to a gendered lens. Pujol (1984) discusses how Marshall's (1930) treatment of families versus individuals effectively makes females invisible, and their contributions marginalized in economic theory.

The empirical literature on gender discrimination in the labor market in the 1990s covers a variety of themes. Jones and Walsh (1991) empirically demonstrate that the degree of competition in the product market is negatively correlated with the share of female managers across manufacturing industries using Canadian data from 1971 and 1981. Moghadam (1991) considers that the systematic discrimination to which females are subjected in society is part of the social institution in Iran. The 1986 Iranian National Census of Population and Housing data are used to capture how females are treated as inferior and subordinate to males in a range of aspects (fertility, education, and employment) in this typical Muslim society. Wright and Ermisch (1991) empirically examine the robustness of gender wage gap estimates based on actual working experiences versus 'imputed working experiences', using data from the 1980 Women of Employment Survey in the United Kingdom (UK).

The most recent work on gender discrimination becomes more focused. Beblo et al. (2020) examine the complications associated with using immigrants' language background as an instrument to explain behavioral gender differences. They emphasize the potential confounding effects of selection of migration and intergenerational transmission of traits. BenYishay et al. (2020) examine the role of a communicator's gender in agricultural technology adoption, using a field experiment across 143 Malawian villages. Although there are no measurable differences in male and female communicators' knowledge about the new technology, other farmers consider female communicators as less capable and thus less willing to learn. However, when the communicator's role is explicitly reserved for females, there is no difference in female and male communicators' eventual effectiveness in transmission of the technology to other farmers. Card et al. (2020) examine whether or not there is gender discrimination in the reviewing and editing processes in top economic journals. They find that although female- and male-authored papers are treated similarly by female and male referees, and editors are influenced similarly by female and male referees, papers authored by females receive 25% more citations than similar male-authored papers.

As gender differences in education are commonly considered a major cause, as well as a consequence of gender discrimination, much effort has been made to examine the dynamics of the gender gap in education. For example, Grubb (1992) examines 3,478 immigrant servant contracts for German children in Pennsylvania from 1771 to 1817 and finds little difference between boys and girls in the level of education achieved. More recently, with more girls than boys starting to enroll in universities, this reverse gender gap in education is attracting much attention. Fortin et al. (2015) use a reweighted Oaxaca–Blinder decomposition approach and data from the Monitoring the Future surveys in the US from 1976 to 2009 to examine the evolution of the gender gap in academic achievement. They find the main factor in the emergence of a gender gap in favor of girls is the expectation that they will attend graduate or professional schools.

In a more direct approach, Zhang et al. (2021) test the existence of gender discrimination when education is comparable between men and women, using an audit study. They examine gender differences in receiving an interview invitation conditional on the job application, using fictitious resumes. Their experiment was

conducted in 2013 and 2014 in Beijing, China. They find female resumes are invited to 35% (or 7.61 percentage points) fewer interviews than are males. This gender difference is found to be mostly concentrated in computer and mathematics, architecture and engineering, and sales occupations; it approaches zero for business and financial operations, and office and administrative support jobs. Further, these gender differences are no lower among high-quality candidates.

Perhaps one of the most direct pieces of evidence for the existence of gender discrimination in the labor market is provided by Kuhn and Shen (2013) and Delgado Helleseter et al. (2020). Kuhn and Shen (2013) study the explicit gender preferences stated by employers in job postings on one of the major online job boards in China. Based on a sample of more than one million job ads, they find three major patterns in employers' explicit gender preferences: symmetry, in that the share of job ads for men and women are roughly equal; negative skill targeting, where there are fewer gender requests for higher-skilled jobs; and job—rather than firm—specificity, where firms frequently ask for men for some jobs and women for other jobs. These patterns are confirmed by Delgado Helleseter et al. (2020) using posting data from four job boards in China and Mexico. Further, they find a negative correlation between employers' gender requests for females, and the age specified in job ads. In other words, employers' advertised gender requests `flip' from strongly favoring women to strongly favoring men as the requested age increases.

It is fair to say that while the literature suggests that the extent of gender discrimination varies across many dimensions, the evidence for gender discrimination is now broadly established. The existence in one scenario and non-existence in another should be regarded as complementary, rather than contrary evidence. Together, these findings may help us to understand the mechanisms of gender discrimination.

2. Gender Discrimination in the Labor Market: Wages, Skills, Segregation, and Its Origins

2.1 The Gender Wage Gap

The gender wage gap has long been the single most examined dimension of gender discrimination. There is a vast literature on this topic. One obvious suspect in the gender wage gap is the preferences of men and women for certain jobs. Daymont and Andrisani (1984), using data for 1972 from the National Longitudinal Studies of the High School Class in the US show that the gender difference in preference for various work properties goes a long way to explaining the gender wage gap when first entering the labor market. Young men and women in their senior years of high school differ in their preferences for future jobs in terms of whether these jobs would allow them to help others, work with people, be a leader and make money. However, as gender wages converge in the 1970s in the US, the evolution of job features is emphasized. Philips (1982) suggests that technologically driven job homogenization in the manufacturing industries in Pennsylvania and New Jersey from 1900 to 1950 are a possible reason for contemporaneous gender wage convergence.

It is an indisputable fact that females take on the lion's share of household production; the research challenge is how to relate this fact to female advancement in the labor market. Fuchs (1986) examines gender differences in hours of work and income between 1959 and 1979 and shows women were worse off in 1979 than in 1959 in terms of consumption of goods, services, and leisure. The highlight of this study is that non-market income from non-market working hours is empirically seriously considered using various assumptions. Further, the economics of scale in household production are also considered.

A subtler yet more direct approach to examining females' roles in household production in empirical studies is to consider female labor force participation as a selection issue. For example, it could be that females with higher potential market wages are more likely to choose to work. Failure to account for this positive selection

will bias the gender wage gap for employed men and women downwards relative to the hypothetical case when women were employed as much as men. Miller (1987) uses the 1981 Canadian census data for native-born, 25- to 64-year-olds to examine the gender wage gap with and without considering the labor force participation selection. He finds the imputed potential wage gap is 50%, much greater than the observed wage gap of 30% for the employed population. In a similar spirit, Even and Macpherson (1990) separated employment into the pension and non-pension sectors. They consider that the lower attachment of females than males in the labor market interacts with the screening role of pensions and leads to a more selected female group in the pension sector. Thus, the gender wage gap is narrower in the pension than in the non-pension group. They demonstrate this to be true using the sample of white married full-time workers in the private industry, from the May 1983 US Current Population Survey.

Phipps (1990) stands out as one of the first to consider the gender wage gap as a heterogeneous experience. Using the Luxembourg Income Study for 1981/82, Phipps (1990) shows how the experience of the gender wage gap differs significantly between higher- and lower-wage workers in terms of the nature of the issue. For higher-wage workers, the gender wage gap is driven mostly by personal and family characteristics; whereas for lower-wage workers, the gap is mostly influenced by occupations.

From a more macro and dynamic perspective, Fields and Wolff (1991) examine the interaction of employment growth, occupational segregation, industrial segregation and gender wage differentials using the 1970 and 1980 Census for the US. They find employment growth is correlated with less segregation across occupations and industries, as well as a lower gender wage gap. This may imply that the welfare of female workers is more sensitive/vulnerable to economic slowdown.

As a closely related concept of the gender wage gap, the feminization of poverty is concerned with income rather than wage. Wright (1993), using Family Expenditure Survey data from the UK shows little support for feminization of poverty for the period 1968–86. The study uses the three poverty measures of Foster et al. (1984): incidence of poverty; average deprivation of the poor; and relative deprivation of the poor.

In an across-country comparison, Blau and Kahn (1992) relate the gender wage gap to the wage structure. They show that the higher gender wage gap in the US in the 1980s relative to seven other industrial economies can largely be explained by a higher wage-inequality structure, despite female workers in the US comparing favorably with those in other economies relative to males, in terms of skills. In a similar spirit but a more focused study, Kidd and Shannon (1996) compare the gender wage gaps in Australia and Canada using data from the 1989 Canadian Labour Market Activity Survey and the 1989/90 Income Distribution Survey of Australia. Their results suggest that the more condensed wage structure in Australia thanks to a strong union movement is responsible for the smaller gender wage gap in Australia.

The narrowing of the gender wage gap in the US in the 1970s and 1980s is considered by Even and Macpherson (1993) to be partly a result of changes in union coverage. They show that the narrowing of the gender wage gap between 1973 and 1988 in the US is partially explained by the further decline of contemporary private sector unionism. Conversely, O'Neill and Polachek (1993) find that improved female education and work experience, as well as higher market return of female work experience, plays a substantial role in this convergence. They also find that the declining wages for male-dominant blue-collar work contribute. In a more comprehensive approach, Blau and Kahn (2000) provide an analysis of the gender wage gap in the US from 1978 to 1998. Various lines of research are discussed. In particular, they examine the relative contribution of gender-specific factors and wage structure in the converging dynamics of the gender wage gap. In particular, the role of occupational upgrading of women is considered to play an important role in the convergence.

From a life cycle and micro-dynamic perspective, Loprest (1992) highlights the widening of the gender wage gap in the first four years of entering full-time employment as a result of gender-specific effects of job

mobility, using the US National Longitudinal Survey of Youth for 1979–83. The idea of connecting job mobility and gender wage gap dynamics is further related to the firm-specific wage premium by Goldin et al. (2017) and Bruns (2019). Goldin et al. (2017) show that the widening gender wage gap by age is mostly due to men's greater mobility in regard to higher-paying firms and positions, at an age when women are experiencing greater family responsibilities in the first seven years after leaving school. Bruns (2019) examines the role that firm premiums play in the stagnation of the gender wage gap since 1995, using linked employer–employee data from West Germany. They find that men are more likely to work for high-wage, high wage-growth firms and that male firm premiums grow faster than female firm premiums for the same firm.

Of course, job mobility can occur between sectors In general, gender segregation across sectors can affect aggregate labor market performance through a lack of mobility across sectors. Gregory (1991) argues that to understand the persistently high unemployment rate in Australia in the 1980s, four types of employee in the labor market should be considered: male and female, full and part time. When seen from this perspective the forbiddingly high transition costs for men and women to move between male and female, or full- and part-time jobs, are highlighted. In a similar spirit, in relating gender-specific costs for switching sectors with import competition, Brussevich (2018) explores how such connections play a role in narrowing the gender wage gap because of gender-specific mobility costs. Essentially, male-dominated manufacturing sectors face intense import competition, while female-dominated service sectors face little competition. When manufacturing sectors experience negative import competition shocks, male wages are pushed down much more than are female wages because it is much more difficult for males to switch sectors.

Thus, the literature on the gender wage gap is related to most mainstream issues in labor market studies and beyond: participation, firm-specific/industry-specific skills, mobility, education, experience, unionism, wage inequality, pensions and import competition.

2.2 Skills, Segregation and Origins

Gender segregation across jobs and occupations is consistently regarded as contributing to the gender wage gap and as a symptom of gender discrimination. For example, Kidd (1993) examines data from the Australian Bureau of Statistics 1982 Family Survey and a joint occupational choice and earnings estimation approach as suggested in Brown et al. (1980) and argues that an intra-occupational effect dominates the gender wage gap; noting that the occupations used in Kidd (1993) fit into seven broad categories: professional, administration, clerical, sales, transport, service, and labor/trade. In a general cross-cultural study into the origin of gender roles, Alesina et al. (2013) identify those differences in historical agricultural production technologies could be causally linked to current cultural differences in beliefs and values regarding whether women should work outside the home. Differing in style from Alesina et al. (2013), several earlier studies provide highly informative descriptions of the emergence of a gender segregation in the workplace.

Although the steel industry is strongly male dominated, while the canning industry has more equal numbers of male and female workers, there are common patterns in the dynamic struggle between capital and labor in the face of technological evolution in these industries. Accordingly, Stone (1974) and Brown and Philips (1986) report complementary findings for the US steel industry during the period 1890–1920, and the US canning industry from the 1860s to 1930s. Stone (1974) shows how the emergence of the division of labor was closely related to technological evolution in the steel industry, while Brown and Philips (1986) describe deskilling mechanization in the canning industry and how women were ostracized as hierarchical job ladders emerged in this process.

Technological changes could lead not only to occupational segregation but also desegregation. Prus (1990) describes how the US cigar industry experienced occupational desegregation overall while maintaining segregation within firms because of technological changes. Low-wage female workers were able to enter this industry because of a specific technological change in the cigar industry over the period 1860–1930, while occupational resegregation emerged with men hired exclusively as mechanics. In fact, a rapid decline in occupational segregation according to gender since industrialization in the US from 1870 to 1900 is described by Bertaux (1991).

When the gender wage gap is examined with an eye to gender segregation across occupations, it is easy to ignore the fact that occupations, or the gendered nature of jobs, themselves might be designed under the influence of gender discrimination. This is explained in detail by Goldstein (1992). In her case study, she examines how microelectronic firms in Scotland strategically transform their job structure in their adoption of new production technologies. In this process, dead-end jobs previously mostly held by women are replaced by newly designed, better-rewarded, higher-skilled career jobs targeting men.

Occupational segregation affects not only the gender wage gap, but also other monetary benefits. Ginn and Arber (1993) analyze the 1987 General Household Survey of the UK to examine the effects of household production on women's pension access. Occupational segregation not only affects the gender wage gap in a static sense; it also influences the dynamics of the gender wage gap when occupational composition evolves in an economy. Yamaguchi (2018) demonstrates that a substantial drop in the return to motor skills has a major effect on the gender wage convergence from 1980 to 2000 in the US.

Finally, the division of labor outside households is shown to be related to that within households. This connection is reflected in terms of how skill usage is related to marital status differently for men and women. Peto and Reizer (2021) empirically demonstrate significant gender differences in the use of various skills, conditional on education, country and cognitive test scores. They then show that such gender skill use differences are substantially exacerbated for coupled individuals. For example, while the likelihood of single females using numeracy skills at work is 8.9 percentage points less than that of single males, that of partnered females is 0.9 percentage points less than that of single females, and that of partnered males is 8.7 percentage points more than that of single males. The patterns are generally similar for literacy or information and communication technology skills. When gender differences in hours in employment and hours spent on housework are considered, this partner penalty effect is halved.

More recently, and at a much more granular level, Kuhn and Shen (2021) examine gender composition by job title as they study the effect of an unexpected (literally overnight) ban on explicit gender requests in the job market in China. They find male-dominated job titles correspond to highly specific skills (plumber, welder, electrician, mold fitter, fitter, CNC operator, etc.) whereas female-dominated job titles correspond to more general skills (receptionist, administrator, human resource manager, etc.). Such a gendered pattern of jobs is considered to be responsible for the asymmetric desegregation effect of the gendered ad ban as reported by Kuhn and Shen (2021).

In summary, skill differences and occupational choices can hardly be regarded as exogenous when examining gender discrimination in the labor market. Thus, the gender desegregation process needs to consider underlying factors that lead to skill/occupational differences.

3. Fight against Gender Discrimination in the Developing World

3.1 Female Empowerment and Violence

Gender discrimination in the developing world is often more conspicuous and accepted by society than it is in the developed world. However, the fact that it is easier to prove gender discrimination in the developing world context does not make the fight against it any easier. Female empowerment in the developing world is often associated with violence.

In developing economies, females often experience dire conflict within their household, on top of conflict outside their household. Calvi (2020) uses amendments to the *Hindu Succession Act* introduced in several Indian states between 1976 and 2005 that make inheritance gender neutral, as an instrument to explore the connection between gender–age profiles in intra-household bargaining power and aged women's health/mortality outcomes in India. The findings highlight the importance of considering gendered asymmetry in poverty within households in developing economies. They also highlight the dire struggles faced by women within households; this gender conflict might intensify because of female empowerment. Guarnieri and Rainer (2021) use the historical natural experiment of British and French colonization of Cameroon to examine the effects of women's relative empowerment under a British versus French colonial regime. They find that higher employment and higher income for women is accompanied by higher rates of domestic violence.

However, technology and economic progress is not a sufficient condition for female empowerment. Morvaridi (1992) shows how socially structured division of labor between men and women could be intensified through technological progress and financial constraints. The study reveals the harsh and strenuous living conditions of women in the mountainous and least-developed region in Turkey (as is rather common across the developing world). This is because economic institutions might adapt to subject women to discipline and control within the family and society (Standing, 1989). Wilson (1993) argues that the workshop-based manufacturing in a rural mestizo community in Mexico in the 1980s is not empowering women or developing feminization of labor activity (Standing, 1989). Instead, it is just a form of compromise allowing exploitation of women's labor.

Moreover, it is not necessarily the case that productivity-improving programs or democratic industrial countries signify more gender-equal societies. Bhalotra et al. (2019) examine the differential effect of West Bengal's tenancy registration program on the mortality rates of boys and girls. Their results suggest that in a male-biased inheritance culture, a program that raises productivity and reduces inequality could simultaneously worsen the aggregate gender imbalance. Dilmaghani (2021) shows that the range of public policies designed to reconcile occupational and familial responsibilities in formerly communist countries is instrumental in women's empowerment. That study examines the broad dispersion in the number of female Candidate Masters listed by the World Chess Federation across countries. It argues that the much higher number of female chess players at the top of this competitive game in the (pre) communist countries suggests an important role for socio-political institutions in gendered attitudes and outcomes.

Although aggregate economic growth might not necessarily help women, it is undeniable that financial independence and institutional reform are integral parts of female empowerment. It is just that female empowerment often requires courage to fight against injustice. Mitra et al. (2021), using survey data collected in the Punjab province of Pakistan in 2014 show that women in households with access to remittance income are less tolerant of domestic violence. Garcia-Ramos (2021) examines the effect on intimate partner violence (IPV) of staged juridical adoption of unilateral and no-fault divorce in Mexico, using data from 2003 to 2016. The study finds that long-term IPV increases by 3.7 percentage points (a 21.4% increase on a 17.3 percentage

point average for the pre-adoption sample) in response to these legislative changes. Further, the effect is found to be driven by the experiences of women remaining in their marriages after the change.

A positive connection between female empowerment and violence is consistently reported in the literature. Erten and Keskin (2021) consider the inflow of refugees across Turkish provinces resulting from the Syrian civil war in 2011 as an exogenous shock to female employment and bargaining power in households. Their analysis shows a significant drop in physical, sexual, and psychological violence suffered by less educated married Turkish women as a result of their dis-empowerment. Field experimental evidence from Vietnam in a study by Bulte and Lensink (2019) illustrates that promotion of women's empowerment through entrepreneurship training actually increases IPV.

To complicate matters, measures of female empowerment can be quite sensitive to the instruments used. Peterman et al. (2021), using survey experiments involving transfer programs in Ecuador, Yemen, and Uganda demonstrate the complex nature of measuring women's decision making.

Overall, the literature suggests female empowerment in the developing world requires both deliberate economic and institutional reform; it does not come naturally as a by-product of economic growth.

3.2 Women of Color and of Age

The issue of gender discrimination and female empowerment is inherently complicated. This is reflected in how females might struggle differently from males, and in how gender interacts with race and other factors. For example, Gottfried and Fasenfest (1984) describe how female workers' resistance actions are shaped by the dual system of domination—capitalism and patriarchy—rather than more formal unions and strikes.

Glenn (1985) highlights ethnic women's experience in the US from the mid-nineteenth century to the 1980s, arguing that this experience has always been very different from those of white women. The colonial labor system ensures that people of color are relegated to the worst jobs: insecure, low-paying, dangerous, dirty, and dead-end jobs. Further, none of three groups of ethnic women—African, Asian, and Latin American—have the luxury of the security experienced by White middle-class housewives. Their husbands are not able to support the family alone and their families are not protected from being separated for years or even decades. Living in perpetual survival mode at the mercy of others, ethnic women most often do not fight their husbands in regard to decision making; instead, they work closely with their families in small businesses that require minimal capital (e.g., laundries, restaurants, and stores) in extreme self-exploitation.

4. Gender Interactions: Unto, by and Collectively

Gender discrimination against women is not necessarily always a result of men's action. To understand gender discrimination, researchers often examine how men and women behave and are treated differently in a wide range of scenarios. After all, to eliminate discrimination against women, both men and women need to begin to act somewhere.

4.1 Gender Differences in Choices

In the same environment or context, men and women might make different choices. This might result from individual preferences, assumptions of others' expectations or a different response to the environment. Gender differences in choices might also emerge over time as individuals mature.

Men and women behave differently when they search the labor market, an environment with much inherent uncertainty and ambiguity. Using internal online job board data, Kuhn et al. (2020) examine how male and female job seekers respond to employers' explicit gender requests in job ads. They find that while both men and women respond consistently with the gender requests in their job application choices, requests for women have a much stronger effect on the share of female applicants than do requests for men on the male applicant share. Together with this evidence based on derived job title genderness, Kuhn et al. find female job searchers are more averse to ambiguity and uncertainty.

Men and women also behave differently in situations of overt competition. Niederle and Vesterlund (2007) show in a laboratory experiment that women are more likely to shy away from competition than are men. Many studies have expanded on this pioneering work. Buser and Yuan (2019) use both a lab experiment and the Dutch Math Olympiad to show women are more likely to stop competing after an initial loss. Ou and Pan (2021) show that when facing a range of tasks of various levels of difficulty and reward in a lab experiment environment, women tend to choose tasks that are less challenging and will earn more if they are assigned to more difficult tasks, while men earn less if assigned to a non-preferred hard task.

Babcock et al. (2017) find in a series of lab experiments that women are more likely to take on tasks that are less rewarding. These experiments demonstrate that such gender differences in outcome are mostly driven by the belief that women would volunteer more willingly. Landaud et al. (2020) find French high school students' choice of science as a major field of study differs between boys and girls and in different contexts. Girls in more competitive high schools are less likely to choose science than are girls in other schools, whereas the choices of boys are not affected by their school environment.

Alan et al. (2019) performed a field experiment involving children aged 10 or 13 years in Istanbul, Turkey. They find that a substantial gender gap in leadership willingness, to the disadvantage of girls, emerges when comparing across the two age groups.

Schlosser et al. (2019) examine 8,232 individuals who took both formal high-stake Graduate Record Examinations (GREs) in 2001 and voluntarily participated in low-stake experimental GREs in the US. They show that while men perform much better in these high-stake tests than do women, the gender gap shrinks in low-stake tests.

4.2 Men Help Men and Women Help Women?

Overwhelming evidence shows that both men and women behave differently towards other men and women. Although many studies identify gender homophily (i.e., preference for interaction with individuals of the same gender), there is some evidence that women do not always discriminate against men.

Men and women tend to choose agents/co-authors of the same gender. Chamboko et al. (2021) examine detailed customer microfinance transactions data in the Democratic Republic of Congo and Senegal. They find significant gender homophily in clients' choice of agents. McDowell and Smith (1992) examine the co-author choice and productivity of 89 men and 89 women who graduated from the top 20 US economics department's PhD programs from 1968 to 1975. Significant gender homophily in co-authoring is found, together with a higher likelihood for women to work in larger departments.

Female judges treat female cases more favorably. Knepper (2018) finds female plaintiffs' workplace sex discrimination cases are more likely to win compensation if handled by female judges, than are those handled by male judges, whereas the allocation of judges is random.

Men help men in the job market while women do not discriminate. Beaman et al. (2018) use a field experiment in Malawi to examine how incentives and constraints affect men's and women's job referral

choices. They find men consistently choose to refer more men regardless of incentives, if un-constrained, while men refer equally qualified women if they are told to choose women only. Women's behavior does not show such gender bias.

4.3 The Gender Composition of the Environment Affects Men and Women Differently

Men and women are affected differently by the gender composition of their competitors. Experimental evidence of this is first provided by Gneezy et al. (2003). They find that the performance of women deteriorates more when they compete against men than in all-female environments. Booth and Yamamura (2018) find similar results --- women perform better in all-female environments than in mixed-sex ones --- in their study of speedboat racing in Japan. They find men behave more aggressively while women behave less aggressively in mixed-sex situations. Conversely, Jetter and Walker (2018) find that women tend to take on more risk when competing with men and men become more risk averse when competing with women, in an examination of risk taking and performance of 8,169 contestants in 4,279 episodes of the TV show Jeopardy! In regards to potential mechanisms, the findings of Bursztyn et al. (2017) suggest that marriage market considerations might be an important underlying factor in gender differences related to choosing 'observable' competitive choices. Specifically, single females might want to avoid being seen by single males as ambitious.

4.4 Men and Women are Treated Differently in Group Decisions

In this set of studies, the decision is made collectively, and the process is supposed to be gender neutral. However, men and women arrive at different outcomes. Antecol et al. (2018) examine the effects of a gender-neural tenure clock stopping policy on assistant professors hired in the top 50 economics departments in the US from 1980 to 2005. They find this policy increases men's likelihood of winning tenure in their first job but decreases it for women. Sarsons et al. (2021) find men are rewarded by tenure whether they co-author or single author their research, while women are penalized for co-authored works. Their study also show similar patterns in credit attribution in group work. Mengel (2021) examines the gender bias that arises when performance ratings are decided collectively and finds that significant bias against females and deliberation exacerbate the problem. She also finds that providing participants with information about gender bias in prior sessions does eliminate the gender bias.

Although the literature documenting gender differences in behavior is large and growing, a set of normative questions remain. Should women behave like men? Can women behave like men? What about the reverse? Should we expect women to behave like men in a society largely designed by and for men? Would it be our final success in combating gender discrimination when women behave like men? If not, what is the goal? Who has the legitimacy to define this goal?

5. Gender Discrimination: Hope and Future

5.1 Women to the Top with Families

As more females become top decision makers, Green and Homroy (2018) show they can indeed make fair contributions. These authors examine the effect of female participation on the boards of large European firms. Their evidence shows that female board participation (especially on-board committees) leads to better performance for these large firms.

Nonetheless, while for many observers the ideal family seems to be where men and women share the caring responsibility equally, the reality is that women are left with most of the household work even in developed economies. This is shown to be one of the major hindrances in women's professional progress in the market. Butikofer et al. (2018), using Norwegian registry data, demonstrate that the motherhood penalty for women is much higher among top earners. Further, their results show that women in professions with more nonlinear wage structures (like those for an MBA or law degree) are penalized much more and more persistently for motherhood.

The gender wage gap for top earners seems to be related to progress both within and across firms, although as stated above it is often more difficult for females to change jobs when they are constrained by household production responsibilities. Albrecht et al. (2018) examine the wage history of men and women born in the 1960s with a university degree in business or economics using registry data for Sweden. They find that men experience higher wage-growth both within and across firms, and this is the main driver for the growing gender wage gap over the lifetime seen in the data.

The glass ceiling metaphor can be quite accurate when gender discrimination is invisible but still effective. Beyond the easily observed gender wage gap, there may be many other forms of gender discrimination among top earners. Laband and Lentz (1993) show that although there is little evidence for explicit sex discrimination in the legal profession, female lawyers may still experience subtle forms of discrimination and lower job satisfaction.

More broadly, the caring responsibility affects most women's labor market participation. Padilla-Romo and Cabrera-Hernandez (2019) use various survey and administrative data for Mexico from 2005 to 2016 to examine the effect of the gradual implementation of full-time school programs on women's labor supply. They show that all-day schools increase mothers' labor force participation, weekly working hours, and monthly earnings. It thus makes sense that women take their labor market outcome into consideration in their fertility decisions. Doepke and Kindermann (2019) analyze the household fertility bargaining process and conclude that the key to increasing fertility is to lower mothers' childcare burden.

The caring responsibility could also lead to gendered job design. Horrell and Rubery (1991), using survey data, show how men and women are employed under various working-time arrangements. They find that when flexibility is desirable, women tend to work in part-time and casual arrangements, while men tend to work overtime or perform shift work. That is, the study shows how gender and working-time organization are closely related.

As a matter of fact, women's degree of empowerment is almost inseparable from their marriage—as mothers and as wives. Bertrand et al. (2015) demonstrate an aversion to the situation in which a wife earns more than her husband in the US. Their evidence suggests that couples in which the wife earns more than the husband are more likely to divorce. The relationship between marriage stability and gender views is further examined by Kabatek and Ribar (2021). Using Dutch registry and US survey data, they find that couples are more likely to divorce when their daughters become teenagers, compared with when their daughters are younger. This risk is much higher for couples with conflicting gender roles. Folke and Rickne (2020) used Swedish register data from 1979 to 2012 to study gender differences in the divorce rate for individuals promoted to be parliamentarians, mayors, or chief executive officers of firms with more than 100 employees. They find that women but not men experience significantly higher divorce rates because of such promotions. Their analysis further shows that couples that divorce after the wife's promotion are those in which the husband plays a dominant role.

Female empowerment in the marriage context could also improve women's labor market performance. Angelini et al. (2019) examine the effects of the staggered introduction of unilateral divorce laws in seven European countries (Austria, Belgium, Denmark, France, Germany, the Netherlands, and Spain) from 1970

to 1981. Using the Survey of Health, Aging and Retirement in Europe data for 2006/07 and 2009/10, they find that these laws lead to an increase in household savings, as well as females' labor force participation, numeracy, trust in others, and dispositional optimism.

5.2 The Education Production Function for Boys and Girls

The gender gap in education levels is often considered one of the most important causes of the gender wage gap. To what extent is this gap due to parents' differential treatment of sons and daughters in the developing world, where education might not be affordable for everyone? Findings from Gertler and Glewwe (1992), Deolalikar (1993), and Parish and Willis (1993) suggest that, in Peru, Indonesia, and Taiwan, daughters are treated differently from sons, but not to the extent that they are excluded outright from basic education.

Gertler and Glewwe (1992) use data from the 1985–86 Peru Living Standards Survey to estimate the willingness of parents to pay to send their children to school. Their estimates suggest that although parents are willing to pay more for their sons to go to school than their daughters, their willingness to pay for daughters is high enough to cover teachers' salaries. Deolalikar (1993) uses data from the 1987 National Socioeconomic Survey of Indonesia and the 1986 Economic Census of Indonesia to examine gender differences in return to education and school enrolment. Their findings suggest there is no gender differential effect of household or community characteristics on enrolment. Parish and Willis (1993) use data from the 1989 Taiwan Women and Family Survey to examine the issue of intra-household resource allocation in a patriarchal oriental society. They examine how sons and daughters are treated differently by their parents in terms of education investment and marriage arrangement. The findings suggest it is most likely that current credit constraints limit parental education investment in early-born children, especially daughters; whereas later-born children are treated similarly, whether sons or daughters.

Besides parents, schools and teachers play the most important role in the development of school children. In this context, it is shown that boys and girls respond differently to the environments in which they are educated. Alan et al. (2018) examines the effect on students' achievement outcomes of the views of their teachers about gender roles, among 4,000 Year 3 and 4 students in Turkey. They find that although boys are not affected, girls are negatively affected if their teachers have traditional gender views. Gong et al. (2018) examine the effects of teacher gender on students' academic performance and non-cognitive outcomes, using the 2014 China Education Panel Survey data with 8,988 Year 7 and 9 students. They find that girls, relative to boys, benefit from having female teachers not only in terms of scores but also regarding mental status and social acclimation. The findings of Porter and Serra (2020) also support female teachers' positive role model effects on female students in a university context. Hermes et al. (2021) examine the effects of providing relative performance feedback to third-year students' academic performance in Germany. They find this treatment is effective among low-achieving female students, but not other students.

Because girls now outnumber boys in university enrolment in many major countries, it is perhaps time to seriously consider whether boys achieve their potential to the same extent as do girls in universities. The issue of gender discrimination against females will not be successfully tackled with either gender being left behind.

Summary

Gender discrimination exhibits in numerous ways, although in most cases it is females who feel it constantly. Studies on gender discrimination have been growing in number and evolving in terms of topics and approaches since the 1970s. To complete a thorough review of the literature would require many years of work; instead, this chapter provides a bird's eye view. Unavoidably, many important studies are left out. However, the survey does cover all the main sources of evidence.

Gender discrimination in the labor market can be captured using various measures and is not uniform across industries or occupations. For women in the developing world, female empowerment is closely related to violence. The experience of ethnic women can be very different from that of white women. It is common for men and women to make different choices, behave differently, and react differently to the same environment. For women to break the glass ceiling, they often must compromise their marriages. Although some gender differences in behavior could be due to nature, some are nurtured.

Taken together, progress has been neither swift nor easy. Nonetheless, research on gender discrimination may be critical in this way. First, the swift transition to work from home in the initial months of the COVID19 pandemic shows how jobs can be flexible. Given that one of the key factors hindering females' labor market performance is their household caring responsibilities, it is a good time to think seriously about what the option set truly consists of for female empowerment.

Second, we are experiencing a period of rapid technological adoption and there are many discussions on the future of work. Only when the differences between men and women by themselves and in a collective environment are properly considered can such a transformation in job design be successful.

It is an oversimplification to suggest that the ultimate target for the labor market is to achieve 50:50 men and women in every occupation/firm. It seems that we have some idea about what we do not want, but we are still searching for our objective function.

Cross-References

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- Overconfidence in Labor Markets
- Gender and Preferences in the Labor Market
- Group Identity, Ingroup Favoritism, and Discrimination
- Team Decision-Making
- Social Norms and the Labor Market
- Wage Policies, Incentive Schemes, and Motivation
- Performance Feedback and Peer Effects
- Fair and Unfair Income Inequality
- The Formation and Malleability of Preferences and Noncognitive Skills
- Behavioral Household Economics
- Affirmative Action and Employment
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- Covid-19 and Working From Home

Acknowledgments

Responsible Section Editor: Klaus F. Zimmermann.

The article has benefited from the valuable comments of the editor, and Peter Kuhn and Jacquelyn Zhang. No financial support is received for this work. There is no conflict of interest.

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