Olivetti, Claudia

Article

Gender gaps in developed economies

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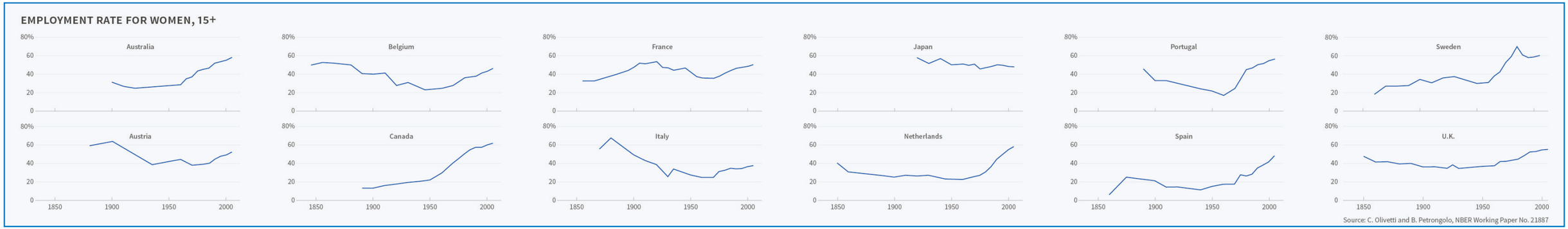

Figure 1a

Gender Gaps in Developed Economies

Claudia Olivetti

Women in developed economies have made remarkable progress in the labor market over the past century, resulting in clear convergence in human capital investment, employment prospects, and outcomes relative to men. However, gender differences in pay and employment levels persist. A vast and still growing literature has developed on the causes, characteristics, and consequences of both the improvements for women and the remaining disparities with respect to men. In this summary, I discuss findings from my recent work that contribute to this literature.

The American Experience in Comparative Perspective

Some of my recent research, partly joint with Barbara Petrongolo, has documented historic trends in gender gaps in the United States and other OECD economies.[1]

I combine pre-WWII data on labor force participation rates and sectoral employment by gender from the *International Historical Statistics Series*[2] with comparable post-WWII data from the International Labour Organization to construct a sample of developed economies for which data are consistently available from the late 19th century to the turn of the 21st century. The sample includes Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, the Netherlands, Norway, Portugal, Spain, Sweden, the United Kingdom and the United States.

Figures 1a and 1b display the resulting female employment-to-population ratio for women over 15 years old, by country. The female employment rate in the U.S. was 20 percent in 1890 and surpassed 60 percent in 2005. In other OECD countries, the rise in female employment only started in the postwar period, with Canada, Australia, the U.K., the Netherlands, and Scandinavian countries reaching levels similar or higher than those in the U.S. Despite growing during at least five decades, by the end of the 20th century the female employment rate in other European countries remained below the 60 percent mark, especially in Mediterranean countries, where the current level of female employment is similar to that observed in the U.S. or the U.K. during the 1970s. Japan is the only country in which female employment stagnated (at around 50 percent) throughout the postwar period.

On average, female employment increased between the mid-19th century and the first decade of the 21st century. However, and this is perhaps less well known, this increase did not happen monotonically. Figures 1a and 1b also show that there are large cross-country differences in the evolution of female employment between 1850 and 1950. While female employment grows monotonically in the U.S. and Canada, in most of the other countries there were important declines in female employment during these 100 years, either throughout the period (for instance in Belgium, the Netherlands, and Portugal), or after an initial rising phase (for example in the U.K., Italy, Spain, Austria, and most notably France). In fact, earlier work argues that even for the U.S., more inclusive measures of labor supply that cover both paid and unpaid work of married women deliver a U-shaped pattern, whereby female labor force participation declines during the 19th century, reaching the bottom sometime in the 1920s, before starting its steady rise during the rest of the 20th century.[3]

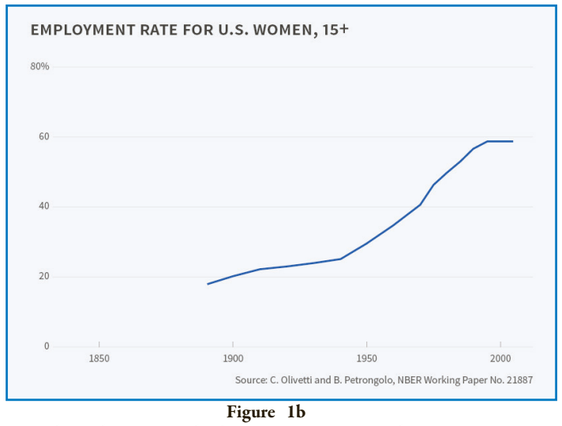

Figure 1b

Large gains in female employment were thus not a historical necessity, but largely a feature of the postwar period.

Other labor market indicators consistently available for OECD countries over the postwar period—hours worked, employment rates of working-age women, wage gaps—confirm gender convergence in labor market outcomes post-1950, though there are interesting differences in the remaining gaps. In countries with a more-compressed wage distribution, such as Scandinavian nations, gender differences in pay are also more compressed than in countries with a wider wage distribution, such as the U.S. and the U.K.[4] Countries in which the employment gap has closed faster display relatively larger gaps in wages. The resulting cross-sectional negative correlation between wage and employment gaps is suggestive of important selection effects, at least for some countries.[5]

Determinants of Convergence

Women's changing roles in the economy, and the driving forces, whether technological or cultural, have been widely researched. Given the breadth and complexity of the phenomena being analyzed, there is obviously no one-size-fits-all explanation.

The expansion of the service sector with its attendant white-collar jobs greatly facilitated change.[6] Estimates from my work discussed earlier[7] indicate that the growth in female labor force participation in developed economies precedes the acceleration in growth of the service sector. Men may gain from the shift away from agriculture initially, with more robust manufacturing growth, but women who concentrate in service-sector jobs are well positioned in what will eventually be the leading sector. As intellectual skills grow in importance relative to physical power, increasing relative wages lower fertility and increase labor force participation.[8]

Other types of technological progress — for example in contraceptive technology[9] and new domestic appliances[10] — reinforce this process by affecting women's investment in human capital and fertility choices. Changing cultural norms and attitudes towards gender roles also played an important role.[11]

Claudia Olivetti is a research associate in the NBER's Labor Studies and Development of the American Economy Programs. She is a professor of economics at Boston College and an associate editor at the *European Economic Review*.

Her research focuses on women in the labor market, including wages, hours, and careers, and on intergenerational mobility and marriage institutions in historical perspective. She has recently worked on the Baby Boom and maternal health and on historical and comparative perspectives on the gender gap.

Olivetti received her Ph.D. in economics from the University of Pennsylvania in 2001 and also holds a Laurea in Statistics and Economics from the University of Rome-La Sapienza. Prior to joining Boston College, Olivetti was on the faculty at Boston University from 2001–15 and a fellow of the Radcliffe Institute for Advanced Studies in 2005.

Claudia is originally from Rome, Italy. She lives in Brookline, MA, with her husband, her son, and her furry Spinone Italiano, Stella.

Medical Progress in Maternal Health

Recent work with Stefania Albanesi shows that progress in maternity care was critical both to the rise in married women's labor force participation and to the increase in fertility between 1930 and 1960.[12] In the mid-1930s, maternal mortality was the second leading cause of death for women in childbearing years in the United States. Maternal morbidity was also rampant. For each death, 20 mothers suffered pregnancy-related disabilities. Medical advances improved maternal health, leading to a remarkable reduction in maternal mortality and morbidity over a 20-year span. These improvements, by enabling women to reconcile work and motherhood, contributed to dual increases in participation and fertility during the Baby Boom. The diffusion of infant formula — probably the most important innovation in infant feeding of the 20th century — also played an important auxiliary role in a period of high fertility.

The Service Sector

The expansion of the service sector may create jobs whose characteristics better match female preferences and household roles, and at the same time may increase the relative demand for female work as long as women have a comparative advantage in the production of services.[13] The labor demand element of the rise in the service economy is well positioned to generate gender convergence in labor market outcomes both in terms of employment and of wages, a feature that could not be rationalized on the basis of labor supply mechanisms alone.[14]

Post-1970, the relationship between the rise in services and female hours in developed economies can be grasped in Figure 2. Each line represents the joint evolution of the service share and female work hours in each country over decades, with each marker representing a decade from the 1970s to the 2000s. Positively sloped trajectories imply that both indicators are rising over time. The cross-country dynamics show clear evidence of convergence in both industrial structure and female hours over time, with some countries still lagging behind. For example, Greece and Korea in 2005 have similar female and service shares to those observed in the United States in the 1970s. The growth in the service share can explain at least half of the overall variation in female hours, both across countries and over decades.

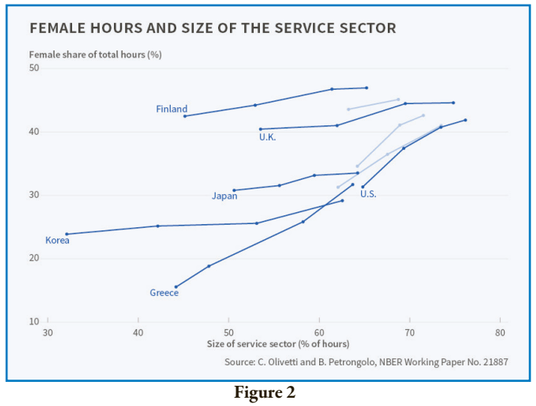

Figure 2

Heterogeneous Effects

Some aspects of gender convergence differ in interesting ways across skills. For example, countries with high employment gaps, typically in southern Europe, tend to have lower wage gaps than countries with low employment gaps, such as the U.S. and U.K., as the average working woman is more positively selected into employment than the average working man.

Gender gaps also vary widely across levels of human capital within countries. For example, in the U.S., the U.K., and countries in northern Europe, the gender wage gap is either rising with levels of education or roughly flat, while in southern Europe gender wage penalties are largest among the unskilled. Gender gaps in hours-worked fall with levels of education everywhere, but the gradient is highest in southern Europe and Ireland, where employment rates of unskilled women are lowest. This pattern of variation arguably reveals the importance of demand forces.

Insofar as different industries employ a different mix of labor inputs, defined by gender and skill, we expect the industry structure to have an impact on gender gaps across countries and skills. In particular, it appears that differences in the service share are an important determinant of the cross-country variation in women's labor market outcomes.[15]

In the U.S., the labor supply of women was affected by World War II, but mostly among the upper half of women by level of schooling. Less-educated women were disproportionately pulled into manufacturing positions during the war and many probably did not remain in them afterward. The more-educated group, however, entered growing sectors like services that enabled them to remain to 1950 and beyond.[16] There is also evidence across countries and U.S. states suggesting that slowly changing social norms might give rise to a non-monotonic relationship between changes over time in women's educational choices and status in the workforce, on the one hand, and an important social outcome — the marriage market outcomes for skilled vs. unskilled women — on the other.[17]

Persistence of Gender Inequalities

Despite the convergence in gender trends documented in the literature, the remaining gender gaps in wages and employment levels, as well as in the types of activities that men and women perform in the labor market, seem remarkably persistent, even more so against the backdrop of reversing education gaps in most countries and stricter equal-treatment legislation.[18] Women are still the main childcare providers, and a substantial portion of gender inequalities in the labor market can be explained by fertility.[19]

Gender inequalities may have roots in gender differences in productivity and/or preferences, or labor market discrimination.[20] For example, my work with Albanesi shows that the persistence of gender gaps can be rationalized in the context of a model of gender statistical discrimination where household roles and market wages are tied through employers' beliefs about female labor force attachment and cost of work effort. In this model, factors that contribute to entrenching firms' beliefs about household roles — overly gendered family-friendly policies, for example — could contribute to *increasing* the gender wage gap by lowering the incidence and generosity of high-powered labor contracts for women.[21] The model indicates the possibility that policies aimed at encouraging the labor market involvement of women may backfire by raising the cost for employers of hiring women and by reinforcing their beliefs regarding women's comparative advantage in childcare and home production more generally. In fact, cross-country studies have shown that although generous policies are in most cases associated with higher female participation, they may have unintended negative effects on women's earnings or job segregation.[22] The model also suggests that the use of incentive pay might contribute to the persistent gender pay gap. Evidence from a sample of top executives for whom incentive pay accounts for a considerable share of total compensation seems to support this hypothesis.[23]

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NBER News

New Directors of Two NBER Programs

In September 2016, Catherine Wolfram, the Cora Jane Flood Professor of Business Administration at the Haas School of Business at the University of California, Berkeley, and an NBER research associate, will succeed Don Fullerton of the University of Illinois as the director of the Environmental and Energy Economics (EEE) Program. Fullerton launched the EEE Program in 2007.

In another leadership change, Stephen Redding, the Harold T. Shapiro '64 Professor of Economics in the Department of Economics and the Woodrow Wilson School at Princeton University, will succeed Robert Feenstra of the University of California, Davis, as the director of the International Trade and Investment (ITI) Program. Feenstra has led the Program since 1992, when the NBER's International Economics Program, which had been led by William Branson, was divided into the ITI and International Finance and Macroeconomics (IFM) Programs.

Conferences

Economics of Culture and Institutions

An NBER conference, "Economics of Culture and Institutions," took place in Cambridge on April 9. Research Associate Alberto Bisin of New York University and Faculty Research Fellow Paola Giuliano of the University of California, Los Angeles, organized the meeting. These researchers' papers were presented and discussed:

- **Alberto F. Alesina**, Harvard University and NBER; **Salvatore Piccolo**, Catholic University of Milan; and **Paolo Pinotti**, Bocconi University (Milan), "Organized Crime, Violence, and Politics" (NBER Working Paper No. 22093)
- **Jeremiah Dittmar**, London School of Economics, and **Ralf Meisenzahl**, Federal Reserve Board, "State Capacity and Public Goods: Institutional Change, Human Capital, and Growth in Early Modern Germany"
- **Christian Dippel**, University of California, Los Angeles, and NBER; **Stephan Heblich**, University of Bristol; and **Robert Gold**, Kiel Institute for the World Economy, "Globalization and Its (Dis-)Content: Trade Shocks and Voting Behavior" (NBER Working Paper No. 21812)
- **Sara Lowes**, Harvard University; **Nathan Nunn**, Harvard University and NBER; **James A. Robinson**, University of Chicago and NBER; and **Jonathan Weigel**, Harvard University, "The Evolution of Culture and Institutions: Evidence from the Kuba Kingdom" (NBER Working Paper No. 21798)
- **Enrico Spolaore**, Tufts University and NBER, and **Romain Wacziarg**, University of California, Los Angeles, and NBER, "Fertility and Modernity"
- **Konrad B. Burchardi**, Stockholm University; **Thomas Chaney**, University of Chicago; and **Tarek A. Hassan**, University of Chicago and NBER, "Migrants, Ancestors, and Investments" (NBER Working Paper No. 21847)

Summaries of these papers are at: http://www.nber.org/confer/2016/CIs16/summary.html