



The Long Road Towards Women’s Equality in the Labour Market – Claudia Goldin’s Research on Historical Trends and Contributing Factors*

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Claudia Goldin won the 2023 Nobel Prize in Economics for her research on women in the labour market. Her body of work provides a broad, data-driven, historical overview of gender inequalities and evidence of the impacts of specific changes and institutional elements. We review her main findings regarding the evolution of women’s employment and earnings in light of key historical events. She documented a U-shaped labour supply curve over time, which challenged past notions of a monotonous positive relationship between economic development and women’s labour supply. Her work brought attention to complex forces that shaped the past, such as the rise of factory jobs, service-sector jobs and the contraceptive pill. Her research also points to remaining causes of inequalities, such as high-earning professions that disproportionately favour long work hours and continuous job attachment. Her work contributes to our knowledge of this social issue and has catalysed new areas of research.

Journal of Economic Literature (JEL) codes: J1, J31, J71

Keywords: Nobel prize, women’s labour market participation, gender pay gap

1. Introduction

As with many topics, the public discourse on gender equality in the labour market is often dominated by views at the two extremes. On the one side, the gender employment and pay gaps are often cited as evidence of discrimination against women, an injustice that still needs to be addressed. On the other side, many point out that women now have equal (or even higher) education levels as men, and they earn (almost) equally within occupations. They argue that the remaining gender gaps are simply a result of women’s own choices, and we do not need further policies or efforts aimed at equalising outcomes. It is statistical fact that

* The papers in this issue contain the views of the authors which are not necessarily the same as the official views of the Magyar Nemzeti Bank.

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The first version of the English manuscript was received on 22 January 2024.

DOI: <https://doi.org/10.33893/FER.23.1.135>

today, in most developed countries, a large part of the gender pay gap is explained by occupational differences and the lower work hours of women. Once these differences are controlled for, the unexplained gender pay gap is much smaller, although still not zero.¹ It is also clear that parenthood impacts men's and women's earnings and career trajectories very differently.² However, this is where the true debate begins. Are the different choices made by men and women due to innate differences in preferences and skills, so there is no need to address them? Or are they a result of remaining constraints on women's opportunities and aspirations, such as societal expectations, which should be addressed?

Rather than imposing pre-judgements of the role of nature versus nurture, the goal of scientific research is to maximise society's welfare by providing data-based evidence of the causes and impacts of these gaps. Such evidence can then be used to develop policies that help remove any obstacles that may be hindering women – and men – from utilising their abilities in an optimal way. Developing policies that allow individuals to achieve “outcomes that reflect their underlying abilities” (Niederle 2016) requires research on a wide range of factors related to educational and career incentives and opportunities. Goldin's body of work provides exactly this kind of data-driven, nuanced big picture view. A review of her findings reveals the evolution of our knowledge of gender inequalities. Her research shows how women's (and men's) opportunities and labour market outcomes evolved over time, due to economic development, institutional and labour market changes, and shifts in social norms. While her work focuses on the situation of American women, it led to similar avenues of research on many countries.³ This evidence can inform our expectations of how gender equality may develop in the future and serve as a basis for determining what policies can aid us in utilising women's and men's abilities and skills more efficiently as a society.

¹ In the US, the raw, or unadjusted gender gap in median earnings was 17 per cent in 2022 (OECD), while the unexplained or adjusted gap (the earnings gap we see after controlling for gender differences in characteristics such as education, occupation, work experience, region, and union status) is around 7 per cent (Economic Policy Institute 2016). Blau and Kahn (2016) document an unadjusted gap of 20.7 per cent, and an adjusted gap of 8.4 per cent.

² The motherhood penalty (lower earnings of mothers compared to non-mothers) has been documented in many countries; however, its magnitude varies greatly depending on institutions, family policies, and societal norms (Cukrowska-Torzewska and Matysiak 2020). The penalty is the lowest in countries that support parents' ability to balance childcare needs and work with widely available, affordable childcare and well paid, reasonably long leaves that can be shared by mothers and fathers. Bertrand et al. (2010) show that in the US, parenthood contributes significantly to earnings inequalities that develop over men's and women's lives through reductions in work hours and career interruptions.

³ In Hungary, there has also been a strand of studies focused on gender inequalities in the labour market. These include analyses of the gender pay gap (Takács 2021), occupational segregation (Ilyés – Lőrinc 2022), childcare availability (Lovász – Szabó-Morvai 2019), and the glass ceiling (Adamecz 2018).

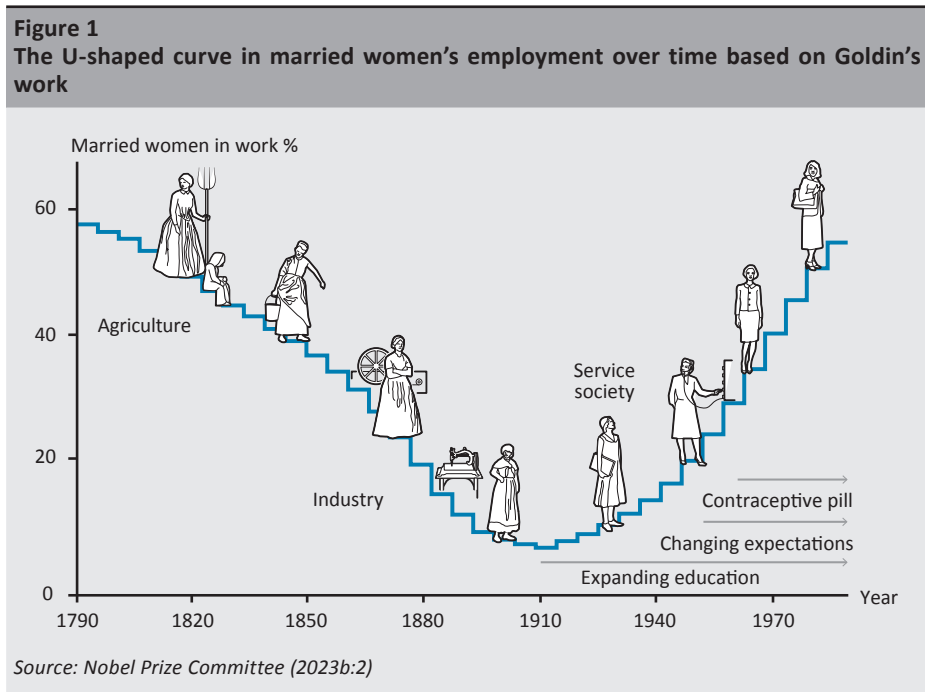
Before describing Goldin's research findings in detail, it is important to highlight why Goldin's prize is special in the history of Nobel Prizes. She received the Nobel Memorial Prize in Economics in 2023 for her research furthering the understanding of the role of women in the labour market, an area of study that was outside of mainstream economics when she started her research. Her contributions brought attention to a key issue and helped set off an ever-growing body of literature. She is the third woman to receive the Nobel Prize in Economics, preceded only by *Elinor Ostrom (2009)* and *Esther Duflo (2019)*, but both were shared winners (*Nobel Prize 2023*), while Goldin is the first to earn the prize for economic research alone. Furthermore, economic historians rarely receive the Nobel Prize in economics. In fact, the last economic historian to win one was Goldin's supervisor Robert Fogel, who shared it with Douglas North in 1993. Goldin cultivates the kind of economic history known as cliometrics, a method of economic analysis in which the theoretical and empirical apparatuses of economics are applied to the investigation of economic historical questions (*Cliometric Society 2023*). Most of Goldin's work involved the compilation of historical databases. Rather than revolving around a big idea or a theoretical model, this type of work consists of persistent, meticulous work as a historian. At the same time, the unified labour supply and demand framework Goldin used to analyse historical changes in gender inequalities also contributed more broadly to the field of economics. Her work drew attention to income and substitution effects in labour supply decisions, the impacts of self-selection into labour markets, and the interactions between markets and households. Research has highlighted further inequalities in health, education, personal autonomy and legal rights, and trends in inequalities have been related to industry structure, aggregate productivity and the efficiency gains from the allocation of talent.

Goldin's life path can be considered relatively uneventful. She attended prestigious universities such as Cornell and the University of Chicago. She received her PhD from the University of Chicago in 1972 under the supervision of Robert Fogel, whose supervisor was Simon Kuznets, who also received the Nobel Prize in 1971 (*Nobel Prize 2023*). She also maintained a close working relationship with Gary Becker, who received the Nobel Prize in 1992 (*Nobel Prize 2023*). Since 1990, she has been a professor at Harvard University, where she is the first female tenured professor in the economics department (*Goldin 2023*). Goldin is not the only economist who has carried out important research on the labour market differences between women and men. Before Goldin, we can point to the names of Ester Boserup or Gary Becker. However, today Goldin is considered to be the number one researcher in this topic, as evidenced by countless articles related to her name in the syllabi of Labour Economics courses at every university (*Adamecz – Isztin 2023*).

In the following sections, we summarise Goldin’s key findings related to the evolution of women’s labour supply over the last centuries and the main factors shaping these trends. We discuss her research on the gender earnings gap and underlying causes that still contribute to the gap today. We then discuss her findings related to issues related to work-life balance that are still hindering women in their careers and conclude by describing how her work led to fruitful further avenues of research on gender inequality.

2. Women’s labour supply over time

Goldin’s main contribution to the study of gender inequalities is that her research has significantly improved our understanding of the forces shaping women’s participation in the labour market. Note that labour supply, or labour market participation, refers to the number of women who are employed or actively looking for employment. *Figure 1* is a key summary figure that represents the results of her analysis of over two hundred years of data: the U-shaped curve in female labour supply curve. The figure indicates the main factors behind the U-shaped pattern over time and highlights the importance of married women’s return to the labour market and what it meant in terms of the cohort⁴ effects studied by Goldin.



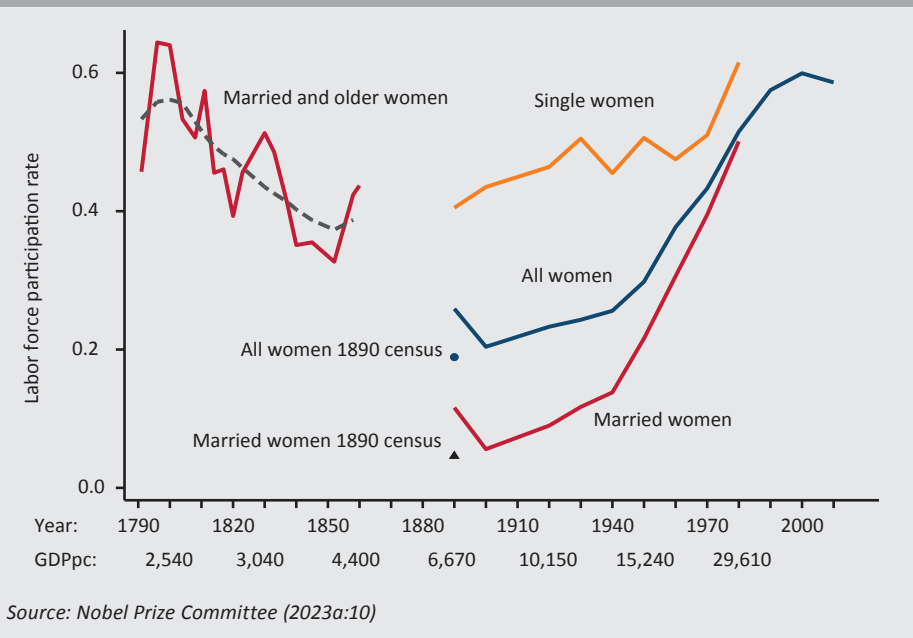
⁴ “The term “cohort” means a group born within some time interval and refers here to various constructed measures, rather than to the actual movements of individuals over time” (Goldin 1990:19).

Over the past few centuries, society has changed significantly. Since the industrial revolution, contemporary industrialised countries have achieved continuous economic growth. As a result, it would be easy to assume that the trend of women's participation in the labour market followed suit. However, Goldin's work showed that this is not the case (*Nobel Prize Committee 2023b*). Her book, published in 1990, entitled "Understanding the gender gap: an economic history of American women" can be considered a milestone in the research on this topic. It expanded the scope of and added depth to our knowledge significantly, as Goldin did not limit her analysis to recent decades, but rather looked back over the past 200–250 years.

As described by the *Nobel Prize Committee (2023b)*, Goldin used *the rearview mirror* to examine how the female labour force changed as the economy was transformed. To do so, she combined the methods of economic history and economics, resulting in a deeper understanding of the historical development of women's participation and employment. This work required meticulous data collection efforts and ended up challenging the validity of existing statistics and assumptions related to women's employment. Historical data collected on women's work were often underreported, and Goldin corrected for this by examining data sources working as a sort of detective. She researched the long-forgotten past by collecting information from various historical sources available in archives, such as diaries and accounts kept by widows (*Goldin 1990*).

In the 19th century, US census data was used to document a gradual increase in female participation rates. Goldin, however, questioned the quality of this database since there was hardly any accurate data from before 1940. She collected a large amount of previously unused quantitative and qualitative information, based on which she had more accurate data reaching back to the late 1700s. As a result, her work corrected previous participation statistics from 1790 to 1900 (*Nobel Prize Committee 2023a*). In analysing this new statistical data, Goldin identified a different pattern in the historical development of female employment (*Figure 1*) and labour market participation (*Figure 2*). This pattern resembles the letter U, in other words, in the US, the female employment and participation rates first decreased and then increased over time. Based on these figures, Goldin highlighted that, in contrast to earlier assumptions, the period of growth in labour supply in the 20th century was actually preceded by a decline throughout the 19th century.

Figure 2
The U-shaped curve in women’s labour supply over time based on Goldin’s work



2.1. Reasons behind the descending branch of the U-shaped curve

Goldin’s body of work provides a detailed look at the causes behind these changes through the exploration and analysis of the U-shaped pattern (Goldin 1986, 1990, 1995, 2002, 2006). In the highly influential book mentioned earlier (Goldin 1990), she addresses the role of women in the American economy, the history of the development of the female workforce, and the differences between women and men in terms of earnings and occupations in great detail. Her research placed a special emphasis on examining the changes in the societal roles of married women, which contributed greatly to the development of the U-shaped pattern. Goldin (1990) describes the reasons why the female labour force was underestimated in historical censuses and includes a discussion of the biases present in the definitions used during the accounting. By changing the interpretation of the definitions, Goldin was able to better capture the changes in the participation rates of women. Her expansion of the available historical data over time contributed greatly to a better understanding of women’s labour market participation.

For example, in the census reports, particularly before the 1940s, the term wife was used as an occupation title for those who were married, and these women were not included in the labour force based on the concept of gainful employment (Goldin 1995). Evidence from Goldin’s research (Goldin 1990, 1995) led to the

realisation that women who are married should not be automatically assumed not to work because they are housewives. It was also not uncommon for small farmers, agricultural workers, guesthouse managers, or other small business owners to work together with their wives. Additionally, women often worked in the cottage industry or produced dairy products and clothing at home, however, these activities were not well recorded in the historical data. From the modified statistical data, Goldin found that the employment rate of women in the American labour market in the late 1890s was almost three times higher than the census data showed (*Nobel Prize Committee 2023b*).

Many more women worked for wages or produced for market in their own homes or on their own farms than were registered in the census. However, Goldin showed that the income effect was negative; that is, an increase in income reduced the quantity of work offered. This was due to the fact that society looked down on married women who worked at that time, and it was a kind of stigma for these women (*Goldin 1995*). As industrialisation progressed, until the end of the 19th century and the beginning of the 20th century, women's participation in the labour market continued to decrease. The bottom of the U-shaped function, where it changes direction, is thought by *Goldin (1995)* to be in the 1920s. Based on the corrected data, *Goldin (1990)* summarises that the undercounting problem was much greater in the census periods before 1890. If we look at the statistics she supplemented, we can see a clear decrease in the female workforce, as well as how many married women did "hidden market work" (*Goldin 1986*).

With the American industrial revolution, the number of people working in agriculture decreased because they started working in the emerging factories, and thus many small rural businesses disappeared. *Goldin (1986)* examines the presence of older and married women in the labour market during this period in detail. She collected data on more than 12,000 households headed by unmarried or widowed women between 1791 and 1860 in Philadelphia. Data were from 27 city libraries and 3 state censuses. Goldin chose this region because it was the largest city and the capital of the US at that time. In this pioneering work, *Goldin (1986)* showed that many married women were working, even though this was not counted as work in the census. These were, for example, the jobs of seamstresses, boarding house managers, and laundresses, which they did at home together with their husbands.

Using an innovative quantitative analysis, Goldin examined the diaries of widows, for example, and came to the conclusion that in the 1790s, widows carried on the business of their successful husbands at a high rate. Thus, widows inherited professional experience that enabled them to become shoemakers, ironmongers or shop assistants. Goldin drew the important conclusion that many of these women were engaged in hidden market work even when their husbands were alive.

Her finding suggests that, with economic development, the labour force participation rate of married women first falls and only later rises (*Goldin 1986*).

Goldin also examined the situation of single, young women during this period, for whom industrialisation provided only supplementary work in some states according to their ability (*Nobel Prize Committee 2023a*), but even so, their employment declined from the second half of the 19th century. *Goldin (1990)* saw the reason for this decrease in the fact that society started to raise questions related to the growing number of female workers, such as whether women have the right to work, and thereby drew attention to a series of protective measures. Strong social norms, for example, that a woman should not work if she is already married, resulted in the fact that sooner or later single women who worked in the labour market ended up getting married, so even if they had a job, they gave it up. The American Industrial Revolution and social norms both reduced the opportunities for women to balance work and family life (*Goldin 1986*).

Based on *Goldin's (1986)* research, the labour force participation data for female heads of households show a seventy-year average of around 44 per cent with a slight downward trend. In many cases, the factors revealed by Goldin's research that were responsible for the decline were operating in opposite directions. Industrialisation and economic development reduced the presence of older women in the labour market. The movement of labour from the household to the market decreased the transmission of business knowledge within the family and the ability of widows to take on the responsibilities of their husbands' crafts. Related to this, the separation of the place of work from place of home increased the cost of participating in the market economy, particularly for women with young children.

The data collected and corrected by Goldin revealed that the well-known 20th century growth in the supply side of female workers was preceded by a sharp decline throughout the 19th century. Goldin's work also influenced others, contributing to the development of wider research on the topic (*Nobel Prize Committee 2023a*). *Goldin (1995)* examined a number of developing countries in terms of the historical development of female employment over time and found that a similar type of U-shaped function can be seen in other countries as well. These findings had broader implications for economic analysis, beyond the topic of gender inequalities. Economic theory suggests that the overall impact of higher earnings depends on two different channels: the income effect, which suggests that higher earning potential translates to women's higher desire to participate in the labour market; and the substitution effect, which suggests that higher earnings lead to women choosing to stay within the home, focusing more on unpaid work such as childcare when income constraints ease. Goldin's discovery of the U-shaped curve called into question whether income and substitution effects should be assumed to

be fixed over the process of economic development (*Goldin 1995*). In other words, there is no historically consistent association between the participation rate of women and economic growth. *Goldin (1995)* suggested that the reasons behind the change in the direction of the women's labour supply trend may be due to changes in the magnitude of the substitution effect relative to the income effect. During this time period, the substitution effect increased and exceeded the income effect, leading to a decrease in women's labour supply.

2.2. The role of married women in the development of female employment

The increasing section of the U-shaped function and the underlying causes are discussed by one of Goldin's most influential studies (*Goldin 2006*). From the end of the 19th century, the female employment rate began to increase. She examined this 80-year long period and established the important role played by married women and cohort effects during that time. Additionally, *Goldin (1990)* also highlights that technological progress, the growth of service sector and increased levels of education added to the increasing supply of female labour. Until the first half of the 20th century, legislation, social stigma and other institutional barriers restricted the effects of these factors. *Goldin (1990, 2006, 2021)* established that there were three important changes: the expansion of education, changing expectations and the introduction of the contraceptive pill that played a prominent role in the growth of female employment. We next describe the distinct time periods analysed by *Goldin (2006)* and the driving forces behind their trends.

Goldin (2006) examined changes in the role of women in the economy, including the participation of women in the labour market in the US. She distinguished four main stages, referring to the first three as the evolutionary stages, and the fourth as the revolutionary stage, which she called "the quiet revolution". She analysed the difference between the two concepts based on three factors. The first is the horizon, where the length of time of women's labour market presence is taken into account. The second is identity, that is, whether women find their identity in their work. And the third is decision making, which looks at whether the presence of women in the labour market is the result of a joint decision if the woman is married, or if the woman is a "secondary worker" who adjusts her time to her husband's work.

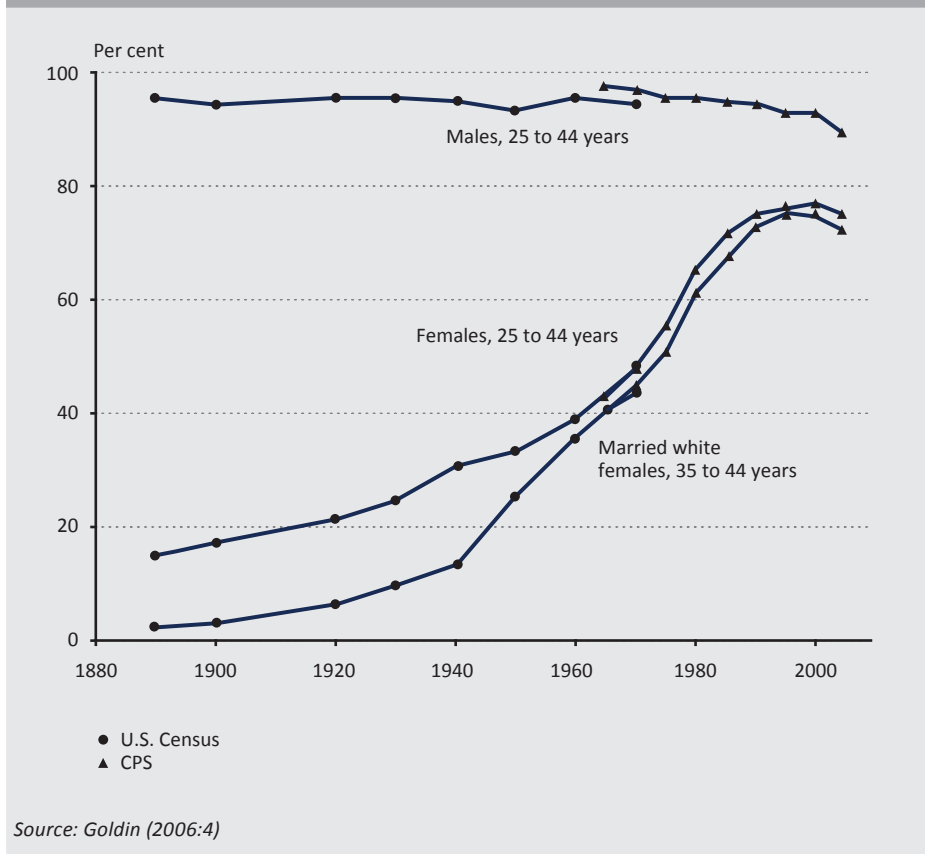
2.2.1. The evolutionary stages

The first phase was referred to as that of the independent working woman, which spanned from the end of the nineteenth century to the 1920s. Most working women were young and unmarried at that time. The most common jobs for them were piece workers and household jobs (cleaners, laundresses). A very small number of them were professional workers, mostly teachers and office workers. Their number increased significantly in the 1910s. Most of the working women were

undereducated and stopped working when they got married, except for the poorest and the most educated. Sociopolitical issues such as equal pay, the minimum wage and the maximum number of working hours entered public consciousness at this time.

The next phase spanned from the 1930s to the 1950s, and in this phase it became easier for married women to enter the workforce. Based on *Figure 3*, from 1930 to 1950, the share of married women in the labour market increased significantly. In 1890, 8 per cent of working women were married, in 1930 it was 26 per cent and in 1950 it was 47 per cent.

Figure 3
Labour force participation rates for females and males by age and marital status, 1890 to 2004



The participation of female force in the labour market increased due to two factors: the first was an increase in demand for office workers and the second was the rapid increase in high school education rates (*Goldin 2006*). In 1900, 24 per cent of office workers were women, while in 1930 the ratio had increased to 52 per cent. This meant that young women could work in cleaner, more pleasant environments, with shorter working hours, and thus in more “respectable” workplaces before getting married.

Until 1940, there was legislation in place called the marriage bar that prohibited the hiring of married women, and newly married women had to leave the labour market (*Goldin 1990*). The modern concept of the labour force first appeared in the 1940 census, and the concept of gainful employment that was previously used changed (*Goldin 1995*). As a result, this is when part-time jobs first appeared in the data. At the same time, with the appearance of modern household appliances such as refrigerators and washing machines that freed up women's time, the aggregate labour supply of women increased.

Economists studying the labour market began to examine how husbands' income affected their wives' presence in the labour market. They found that the two values are negatively correlated. However, by the end of this time period, the correlation began to decline sharply. If it had not decreased, then the presence of married women in the labour market could never have increased significantly.

Goldin (2006) defined the third evolutionary stage as spanning from the 1950s to the 1970s, which she viewed as the roots of the Quiet Revolution. The presence of married women in the labour market continued to increase during this period. Part-time work became more and more widespread, and the proportion of women working less than 35 hours per week increased from 18 per cent in 1940 to 28 per cent in 1960. Provisions restricting the employment of married women were completely abolished. Married women were still considered secondary earners within households. Secretaries, teachers, nurses, social workers and librarians were the most common occupations for women. Opportunities for advancement were limited, and women were most often asked how fast they could type in job interviews.

Even though women were employed during most of their lives, their expectations differed significantly from those of men based on surveys of young women. Most were prepared to engage in short and temporary employment in various jobs, rather than thinking about a career. For most, attending a university was seen as a way to find the right spouse, not as the first step in a career. During this period, as

real wages increased, the employment of married women also increased, but the difference in earnings compared to men decreased only slightly.

2.2.2. *The quiet revolution*

The final stage in the evolution of women's labour market participation started from the late 1970s and continues to this day. Goldin refers to this phase as the Quiet Revolution. The growth in the labour market presence of women that occurred in the previous stage was an important prerequisite for the quiet revolution, but it is not an indicator of it. We discuss two main indicators here: the horizon and women's identity.

Based on *Goldin (2006)*, the expanded horizon means that women were able to predict their future careers more and more accurately. With these more accurate expectations they were able to invest in their education in better ways, and be hired into positions where they had more opportunity for advancement. They were now able to plan a career, not just a job. In the 1970s, young women increasingly expected to work later in life, unlike their mothers' generation. In the 1970s and 1980s, young girls enrolled in more and more college preparatory courses during high school and improved their scores in math and reading assessments. As a result, the proportion of female students in higher education increased significantly. This, in turn, impacted other decisions related to forming families: the median age at marriage for women with a degree was 25 years, compared to the 22.5 year median typical of the previous era. During this era, more and more women acquired legal, medical, pharmaceutical and economic training.

The other key indicator highlighted by Goldin relates to women's altered identities. A revolution could also be seen in changes in women's self-image. Since women got married later, they were able to "make a name" for themselves before having to change their name upon marriage. In the 1970s, almost all women took their husband's name, and in 1990, about 20 per cent of women who graduated from university kept their own name when they got married. Based on surveys conducted among university students starting in the 1960s, personal success (career, recognition) became more important to more women over time, and the importance of family became equally important for women and men. However, financial success was still seen as more important for men. The workplace became a key element of individual identity, even for lower-educated people. More and more women entered the labour market significantly better prepared and with the goal of having a successful career. Women's earnings increased compared to men's, so the gender difference in earnings decreased significantly. An increasing number of women became doctors, professors, lawyers and managers.

Based on Goldin's research, higher investments in education and changes in the expectations of married women and women in general were the main driving forces behind the increase in the female employment rate in the 20th century, despite the fact that many formal and informal barriers had also been eliminated. From the end of the 1960s, however, the research of *Goldin – Katz (2002)* drew attention to another key change, demonstrating the power of the pill. They showed that the availability of the birth control pill had a transformative role in shaping women's opportunities and contributed greatly to the development of the quiet revolution. Goldin and Katz found that the pill resulted in women investing more in their education because it allowed them to plan the timing of their marriage and childbirths more easily.

On a related note, *Goldin and Rouse (2000)* explored the role of discrimination in hiring using a quasi-experimental change in the hiring practices of major American symphonic orchestras in the late 1970s. The abolition of the marriage bar and open discrimination did not put an end to subtler discriminatory practices. Symphonic orchestras were historically composed of mostly males, and conductors often expressed a preference for male musicians. However, over time, the number of female musicians increased significantly. Goldin and Rouse utilised the fact that there was a change in the audition procedures of these orchestras in order to study whether discriminatory practices were present. The orchestras adopted blind auditions, where a screen concealed the candidate's identity from the hiring committee, while earlier, auditions were conducted face-to-face. Analysis of data on auditions, audition types, musicians and outcomes showed that blind auditions increased the probability that women advanced to the next round and were hired. This suggested that employer gender discrimination in hiring was still present. However, it also suggests that hiring practices such as blind auditions can successfully decrease the realised impacts of discriminatory preferences.

3. The gender gap in earnings

Goldin's work has also added key insight to our knowledge of the causes behind the gender earnings gap. The earnings gap did also not relate linearly to economic growth. It was relatively low during the industrial revolution between 1820–1850, increased during 1850–1930, held steady between 1930 and 1980, and decreased markedly around 1980 due to improvements in human capital and work experience, before plateauing around the current level in the last few decades.

Goldin (2014) summarises the convergence of earnings and highlights a key factor behind remaining inequality. She argues that rather than governmental policies,

further improvements in the relative pay of women must stem from changes in the labour market and firms' policies. The way work hours are organised and remunerated in many professions, and in particular many high-earning professions, disadvantages women by rewarding long work hours and inflexible schedules. Since, as time use data shows, women still take on more household and care duties than men even when they work full time, they are not able to stay at work longer or work on nights and weekends and thereby achieve promotions and higher pay.

Bertrand et al. (2010) studied the evolution of the earnings of MBS graduates over the course of their lives. They found that while the earnings of recent male and female graduates are nearly identical when they enter the labour market, their earnings gradually diverge over time, with males earnings 60 log points more one decade after they graduate. They show that this can be explained in a large part by female graduates' shorter work hours and career interruptions, which are related to motherhood. This suggests that women still choose between their family and careers, in the sense that they are not able to compete with men in terms of work hours once they have children, and therefore suffer a disadvantage in terms of promotion and earnings growth.

However, as *Goldin (2014)* points out, this disadvantage of women can be decreased if workplaces allowed more intertemporal flexibility, without penalising fewer work hours. *Goldin and Katz (2016)* illustrate this based on the gender earnings gap and part-time earnings penalty within the pharmaceutical industry. They show that technological advances, which allowed pharmacy workers to become more easily substitutable, led to more flexible schedules and a lower penalty for part-time work. This, in turn, made this one of the most gender-equal industries in terms of the gender earnings gap. Some further professions such as IT and healthcare have similarly achieved gender convergence in earnings through increased temporal flexibility. On the other hand, professions in the legal, financial and corporate sectors tend to reward long work hours and labour market attachment more, leading to larger gender earnings gaps.

4. The development of the relationship between family and career

Some of Goldin's further work provides even deeper insight into the forces shaping women's labour market outcomes, in light of changes in their opportunities in terms of balancing work and life responsibilities. Based on what has been described so far,

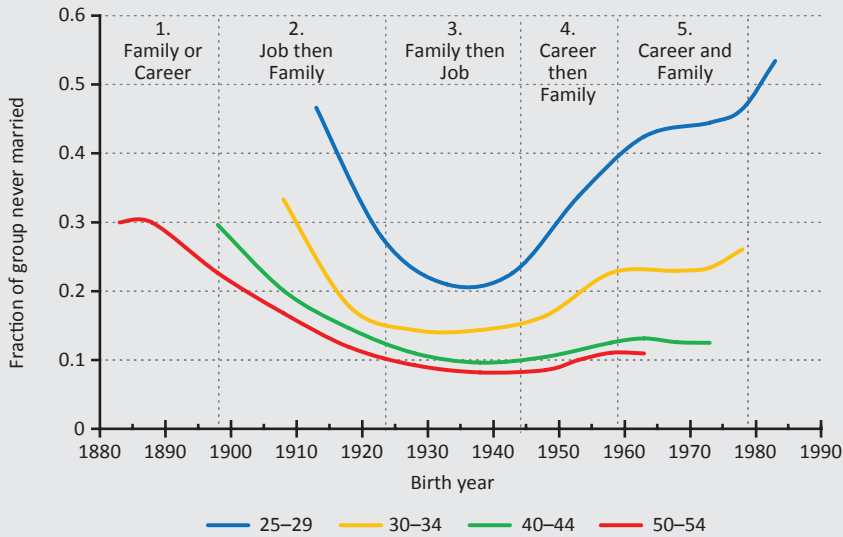
Goldin (1990, 2006, Goldin – Katz 2002) attributed the increase in the participation rate of women's labour supply from the beginning of the 20th century to the following three main reasons (along with many other formal and informal factors): lifelong learning; changes in women's expectations and their identity; and legalising the birth control pill. As a sort of summary of her work so far, *Goldin* pointed out in her 2021 book entitled "Career & Family: Women's Century-Long Journey toward Equity" that it is very useful to distinguish between five generations of American college-graduated women in order to understand the development of the labour market over the past 100 years.

The differentiation among the groups concentrated on their aspirations, and on the decisions that they made between employment and family. Women faced barriers in both areas throughout the century, such as marriage bars or limitations in many positions. *Goldin* used birth year as the determinant factor in the classification. Within each group, women are largely uniform in terms of the constraints they faced, and the aspirations formed within the limits of those constraints. Although the groups were different, each one passed a meaningful baton (guideline) on to the next generation.

In order to reach a more precise understanding of the changes in women's choices, ambitions and opportunities over the past century, *Goldin* created reliable definitions of "the family" and "the career." Based on *Goldin (2021:20)*, "family is defined as having a child," and the expression "career" is not limited to just having a job. For the women she analysed, a career is defined as "long-lasting, sought-after employment for which the type of work often shapes one's identity."

Goldin (2021) highlighted that the age of marriage is an important indicator distinguishing among the various groups. The five groups she defined are referred to as: Family or Career; Job then Family; Family then Job; Career then Family; and Career and Family (*Figure 4*). Whether a woman marries late, early, or not at all, the decision is related to her plans for a career and for having children. *Goldin's (2021)* found a general U shape in the fraction of college-graduate women who remained never married by age.

Figure 4
Fraction of College-Graduate Women Never Married by Age and Birth Group



Source: Goldin (2021:34)

The main characteristics of these five groups shed light on the evolution of women’s situation in the labour market and within households. The first group was composed of white college-graduate women who were born around the 1880s. They still had to choose between family and career. Those who chose to pursue a career generally gave up on having a family and having children. The members of the next group were born at the beginning of the 20th century and got married relatively later. The example they learned from the previous generation was that they had to give up their careers and accept that they would first have a job and then start a family. Due to the influence of marriage bars, they also accepted that after starting a family they could no longer work. The third group included college-graduate women who were born around 1930 and got married at a young age. They had a large number of children and, after starting a family, continued their studies and went to work. All of this was possible due to the easing of labour market restrictions.

The fourth group is characterised by the fact that it is composed of women who are married, have children, have a job and work under better labour market conditions. This is because most of the members of this group graduated around the 1970s, the period of the quiet revolution. The women of the previous generation could not build a career, they only had jobs, but this changed in the case of the fourth group. The children of the quiet revolution wanted to see their work as a lifelong vocation, i.e. they wanted a career before a family. The liberalisation of divorce also

shaped women's views, as the facilitation of divorce made it more risky to invest in husbands' human capital but not in that of their wives.

The fifth and final generation includes those born since 1958, who graduated around or after 1980. These women again enjoyed a broadening of opportunities and improved labour market outcomes. Advances in medical technology and social changes have enabled them to balance their careers and families more than any previous generation of women. In the words of Goldin (2021:44):

"Each group took the baton and ran an additional length of road, jumping hurdles and trying to dodge barriers. And each generation has been faced with ever-changing constraints – as well as a host of technological advances, in the household and related to reproduction, that have smoothed the path forward."

5. Conclusion

Goldin's research has not only reshaped our knowledge of the key forces that determine gender inequalities in labour market outcomes. It has also shaped the evolution of research in economics related to this topic. Her work drew attention to the importance of these issues and the complexity of the causes behind them, and opened up a blossoming literature investigating the impacts of governmental policies, corporate incentives, psychological differences, and social norms and stereotypes. Her analyses of gender inequalities are far-reaching in scope, demanding in terms of data collection and innovative in that she presented her empirical findings within a unifying framework of labour supply and demand. She started her work on this topic at a time when she was one of a few female economists at top institutions and when research in this area was not encouraged or appreciated. Her dedication, hard work and persistence have opened the door for many women researchers who are following in her footsteps and contributing to our understanding of the opportunities and constraints women face.

As Goldin's work illustrates, removing barriers that may still be keeping women from achieving all they can in terms of their careers benefit firms and our society as a whole. Equal opportunities can lead to greater efficiency in terms of the utilisation of the abilities and skills that both men and women bring to the labour market. Goldin explores why gender gaps persist despite women's gains in education and equal pay legislations that have been introduced in most countries. Her work shows that gender gaps in the labour market are not simply due to individual choices, but rather the result of a complex set of social, economic and cultural factors. Her findings contributed to the development and adoption of specific policies aimed at promoting gender equality. Her research on the impact of childcare costs informed policies such as state-subsidised childcare and paid parental leave. Her research on bias and discrimination in hiring and promotions helped underline the importance

of equal pay legislation, standardised, objective hiring and evaluation practices, and pay transparency laws. Goldin's work also highlights the importance of education and training and of policies that promote gender equality in education. Her recent research outlines the role of the intertemporal flexibility of jobs and substitutability among workers, and the need to rethink traditional expectations of work hours.

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