

Changes in Female Labor Supply, Fertility, and Employment Trends

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Abstract. Along with the changes of the times, there are different development trends in demographics, labor supply, and employment opportunities in various industries. The serious aging of the population, the lack of labor in the market, and the decline of the fertility rate have been social topics with serious impact. The female employment rate is also deeply related to it. However, the participation of women in various industries is closely related to their biological and social characteristics, which leads to different trends in the future development of each sector. Gender differences are unavoidable in the social selection process for employment, where family structure, aging population, socio-demographic structure, and salary distribution are all issues that cannot be ignored. On the other hand, the decline of the fertility rate and the female employment rate are closely related, and this relationship will have a profound impact on labor productivity, consumption, industry, and the demographic structure of society.

Keywords: Female employment supply, labor market, fertility rate, industrial differentiation.

1. Introduction

With the development of the times, the life cycle of female employment has changed significantly. For those born in the 1950s, their employment patterns show completely new characteristics compared with the previous ones. The different shapes of the employment life cycle show a gradual increase to the peak from the 1920s to the 1940s, followed by a decline in the 1950s, and now the new employment life cycle shows a high and flat initial state, with valleys in the middle and a longer gradual exit. The disappearance of the hump shape and the expansion of the top reflects a major shift in female employment patterns. By analyzing data from surveys of earnings, program participation, and health and retirement studies, scholars have delved into the growth of women's cumulative work experience among birth cohorts from the 1930s through the 1970s. Further research found that time of birth had a significant impact on changes in the labor force across cohorts and education levels and that factors such as taking a leave of absence or quitting a job also played a role. The study also showed that women of all ages experienced large increases in labor force experience, took significantly shorter post-partum leaves, and took longer to recover in the labor force for women who took paid or unpaid leave.

Over the past few decades, women's labor force participation rates have also changed significantly outside of the United States. The United States had a comparatively high rate of female labor force participation in 1990, placing it sixth out of 22 OECD nations. However, it saw a sharp slide in rating, falling to seventeenth position in 2010. According to the report, the relative drop in the U.S. female labor force participation rate has been somewhat impacted by "family-friendly" policies like parental leave and benefits for part-time work that have been put in place in other OECD nations. Women in other nations now have more job possibilities and facilities because of the implementation of these rules, which has raised the labor participation rate overall.

Such studies have delved into the changes in the female employment life cycle, explored the shifts in the United States' female labor force participation rate and the reasons behind them, and are of great significance in understanding the differences in the employment status of females across international borders as well as formulating relevant policies. It offers helpful references for advancing gender parity and economic growth and aids in a better understanding of the position and development trend of women in the job market. However, globally, the correlation between the

market's supply of women's labor and national fertility rates is inseparable from the differences in employment rates between the sexes, the policies of each country, and the social impact of each industry. This paper will organize and discuss the above in-depth to provide a more comprehensive understanding and deeper thinking, aiming to study the shifts in the employment of women across different industries, changes in the fertility rate, the variations in the market's labor supply according to gender, demographic structure, population aging, and the differences in the market's labor supply by gender. It also examines the impact on society of the demographic structure, the aging of the population, and the female employment rate.

2. Women's Employment in Various Industries

Today, women's employment in various industries shows diversified characteristics, and the industrial, industrial, and occupational structure of women's employment has been optimized in the economic restructuring [1].

2.1. Traditional Industries with a High Proportion of Women

In the education industry, there are many female practitioners, from preschool education to higher education, female teachers show a high proportion. Broadly defined feminine traits such as patience, attentiveness, and communication skills give them a unique advantage in teaching, and the stability of the teaching job is favored by many women. Women make up a large portion of the health care industry group, with nurses typically holding experience in caring for patients and performing health care operations; other positions in the health care industry, such as pharmacists and health care administrators, are also populated by women. The financial industry is also an industry with a high proportion of women. In financial institutions such as banks and securities, female employees have better performance in positions such as customer service, risk management, and financial analysis. The financial industry has a relatively better working environment and more room for career development, attracting many women to join it. Meanwhile, the wholesale and retail industry is also a popular choice for women. In positions such as sales, purchasing, and marketing, women usually maintain their keen market insights and good communication skills, enabling the promotion of business development. For example, in the field of clothing, cosmetics, and other retailing, the tendency and strategy of the market in society make some women hold the advantage of understanding and grasping the product is often better able to meet the needs of consumers.

2.2. Development in Emerging Industries

Nowadays, the Internet industry is a trend, in the field of new media operation, content editing, user experience design, and other fields, female practitioners gradually increasing. They are good at providing valuable suggestions for product optimization from the user's point of view. At the same time, with the rise of live broadcasting, short videos, and other platforms, many women have become well-known network anchors, and bloggers, through the creation of high-quality content to achieve personal value and career development such as Jittery, Xiaohongshu, microblogging, and so on. Although the technology industry has always been dominated by men, more and more women are entering the field in recent years. In software development, data analysis, artificial intelligence, and other positions, the need for innovative thinking gives women more opportunities. For example, the game industry has been growing rapidly in recent years, and companies are responding to the needs of different groups in R&D and creation, while the female group brings unlimited possibilities to the market.

2.3. Participation in Other Sectors

While the manufacturing and construction industries were male-dominated fields in the past, the percentage of female participation has increased this year.

For example, data from the Fourth Economic Census of Wuhai City shows that in 2018, the manufacturing industry accounted for 22.95% of the total workforce, of which women accounted for 26.5%. This shows that the manufacturing industry has a certain absorption capacity for female labor.

Women are engaged in more diverse positions in the manufacturing industry, and in addition to the traditional light industrial manufacturing field with more female participation, women are gradually playing an important role in some technical research and development, quality testing, production management and other positions. However, there are relatively few women in heavy physical labor and high-risk manufacturing positions.

The construction industry has seen an increase in female participation in recent years. 2018 data show that 9.5 million women work in construction across the country, accounting for 14% of all construction workers, up from 6 million at the end of 2013. By 2021, female positions on some construction sites were more diverse. For example, women accounted for one-third of the workers on the construction site of the “Ice Ribbon” at the Beijing Speed Skating Pavilion, and the ratio of male to female workers reached 1:1 at the construction site of the Vulcan Hills Square Cabin Hospital in Wuhan in 2020.

3. Differences in Labor supply by gGender

In addition to the fact that the labor supply of men and women varies across regions and industries, the aging trend has intensified with demographic changes, which have affected the labor supply of both women and men.

3.1. Distribution of Family and Work

Due to the prevalence of social roles, women's participation in the family will determine their working hours and career development. Men, in turn, may adjust their work arrangements in the face of increased family responsibilities in old age. At the same time, demographic changes will also affect the supply and demand in the labor market. One significant factor influencing shifts in labor market supply and demand is structural change.

3.2. Changes in Demographic Structure

On the one hand, population aging leads to a relative decrease in labor supply. As the percentage of the population that is elderly rises, the number of people of working age declines, which will result in the labor market having an inadequate supply of workers, in particular, there may be a shortage of labor in certain skills and trades, thus pushing up labor costs. In addition, demographic changes may also affect the quality and structure of the labor force. For example, changes in the proportion of young people with higher educational attainment will affect the skill level and innovation capacity of the labor force, which in turn will affect the competitiveness and development potential of the labor market. And as mentioned in the previous section, there are general differences in the participation of women and men in different types of industries due to physiological, social and other factors, so gender differences are closely related to demographic changes in the labor market.

3.3. Gender Wage Differentials

However, gender wage gaps are also prevalent. For example, in Korea, the gender pay gap is high, at around 30%; in Italy and Russia, there is also a large gap between the pay received by women and their male counterparts; and in countries such as France, China, and Australia, the gap between women's pays and that of their male counterparts is relatively small, at around 15%. In some countries, the gender wage gap is relatively small in public enterprises, but larger in the private sector. The study *The Gender Wage Gap: Extent, Trends, and Explanations*[†] suggests that, as of 2010, traditional human capital variables in the aggregate add up to little explanation of the gender wage gap, while gender differences by occupation and industry remain critical [2]. Moreover, the gender wage gap narrowed significantly more slowly at the top of the wage distribution than at the middle or bottom

and was significantly larger at the top by 2010. In the 2120s, there has been a significant trend of narrowing the difference. According to the BOSS Direct Hire Research Institute's 2021 China Workplace Gender Pay Gap Report, which was published in March 2022, in the year 2021, the median compensation for female workers was 7,017 yuan, which was 2.5% more than in 2020. The gender pay gap was 1.2 percentage points. The average pay level is 77.1% of that of urban male workers, and the gender pay gap has narrowed by 1.2 percentage points since 2020 [3].

4. Implications of Fertility and Female Employment Rates

Fertility continues to be a highly discussed social issue globally, with the total fertility rate declining by more than 50 percent over the past 70 years, and with women as the dominant gender group in childbearing, individual women's awareness of fertility and their willingness to participate in the workforce is reflected in society. The relationship between fertility and female employment has economic and social implications.

4.1. Relationship between Fertility and Female Employment Rate

According to the data relationship between the special combined birth rate (TFR) and the OECD countries' female employment rate (FLPR), before the 1980s, the birth rate was higher in the countries with lower female employment rate, and after the 1980s to the 1990s, the birth rate became higher in the countries with high female employment rate. In other words, the correlation coefficient of the tendency and strength of the relationship between the birth rate (TFR) and the female employment rate (FLPR) was negative before the 1980s, and it went from being negative to positive with the year 1986. There is no direct relationship between the rates of female employment and fertility; the fundamental determinant of the fertility rate is the degree of difficulty in reconciling work and childbearing. This balance depends on the family environment, the workplace environment, the regional environment, and the legal environment. The higher the degree of compatibility, the lower the opportunity cost of childbearing, the more people tend to go into childbearing, which determines the level of fertility [4]. At the same time, the flexibility of work also determines the degree of "balance", and with the improvement of maternity leave and other institutional policies in various countries, and the development of childcare programs, etc., which can enhance women's flexibility of work, the degree of balance brought about by the flexibility of work increases the fertility rate, and the relationship between the fertility rate and the employment rate of women is thus positively proportional.

4.2. Impact on Population, Industrial Structure and National Economy

Three main factors have an impact on demographic change: capital, labor, and human capital. When other factors remain constant, a decrease in the absolute number of people of working age will lead to a decrease in potential employment, which in turn affects the potential growth rate. This means that, with the change of demographic structure, the labor force participation rate and the natural unemployment rate will obviously have a non-negligible impact, and their changes will also cause changes in potential employment, which will ultimately affect the potential growth rate. However, the capital stock is impacted by the capital formation rate, which is determined by the population dependence ratio. The capital formation rate is the ratio of capital formation to GDP. The savings rate will decline as the population dependency ratio increases, followed by a decline in the capital formation rate, which will ultimately impact the potential growth rate [5]. The population of the elderly rises dramatically, and the proportion of newborns falls when the population ages and the fertility rate falls. This alters the demographic composition and can impact a nation's prospective GDP growth rate. For example, a low fertility rate may result in a smaller market for mother and child, early childhood education, and other related industries. People may also save more money and cut back on current consumption to deal with the future of old age and other issues, which will have a certain inhibitory effect on the economy's growth. This means that a declining fertility rate will result

in a smaller family and a lower demand for housing, education, childcare, and other aspects of consumption, which will not be conducive to the development of related industries.

5. Conclusion

This paper summarizes the situation and trend of women's employment in various industries. Education, health care, finance, wholesale and retail industries are the main choices for women's employment, which is mainly due to the stability of the long-term demand for this industry, career development opportunities, and the market's tendency to women's choices. With the demand of the market, new industries are also showing favoritism to women. Although the proportion of women employed in the manufacturing and construction industries has increased overall, the data shows that men still dominate the industry. Secondly, gender differences in labor supply cannot be ignored, which is mainly reflected in the impact of gender groups in the distribution of family and work, the impact of demographic problems mainly caused by the aging population, and the differences in salaries between genders in different countries. At the same time, the positive correlation between the degree of reconciliation brought about by work flexibility and the socio-economic impact of fertility and female employment is explored. Women's labor supply has always been an important issue in society, and the economic situation of each country is closely related to it, so it is inevitable that the topic of childbearing also comes up. The impact of fertility on the real economy is long-lasting and persistent, so countries around the world need to fully understand the significance of improving fertility strategies to support balanced population growth over the long run, and to provide effective fertility policies for this purpose. For example, they should improve the level of eugenics services, fully implement screening and evaluation of the dangers of pregnancy, case control of high-risk pregnancy and childbirth, and treatment of critical illnesses, so as to safeguard the health of mothers and children; they should also strictly oversee the use of related technologies and tighten regulations on assisted human reproduction technology services, as well as standardize the use of technology for assisted human reproduction. In addition, the maternity leave and maternity insurance systems have been improved, and social childcare benefits have been strengthened, therefore lowering the expenses of parenting, schooling, and childbearing.

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