Maternal Employment in Japan Over the Past 40 Years: Evidence from the Population Census

FUKAI Taiyo

This paper focuses on the challenge of balancing childcare and work, which is closely related to Japan's declining birthrate and persistent gender wage gaps. Using data from Japan's Population Census over the past forty years, the paper descriptively documents the working patterns of married women with children. With issues such as the child penalty and income thresholds in mind, the analysis highlights how parental employment has changed in response to childrearing and who is working, and in what ways. The results show that the substantial increase in employment rates among women in their 20s to 40s between 1980 and 2020 is largely driven by higher employment rates among married women with children. Although employment rates remain low immediately after childbirth, the widespread use of the parental leave system appears to have supported continued employment. Women who remain employed immediately after childbirth are disproportionately concentrated in professional occupations in the medical and welfare fields. In addition, among women who return to employment as their children grow older, many do so in part-time positions. In contrast, according to the Population Census, the employment patterns of men with children have changed little over the past forty years.

I. Introduction

One of the major news topics in Japan during the first half of 2024 was that the total fertility rate in 2023 was 1.20, the lowest on record in statistical history. The declining birthrate is a major issue not only in Japan but also internationally, and many researchers around the world, especially in advanced economies are conducting research on this issue. One of the factors behind the declining birthrate is that women tend to choose not to have

children or choose to delay having children due to economic reasons, such as earnings and employment stability, or the opportunity costs associated with interrupting one's career. In short, the issue of balancing childcare and work is inseparable from the issue of the declining birthrate. Over the past 30 years, there have been discussions in Japan on "work-life balance," resulting in the establishment of the "Work-Life Balance Charter" in 2007. The term "work-life balance" is now widely used.

Recently, increasing attention has been paid to the decline in women's earnings and employment rates associated with the birth of their first child. Since the analysis of child penalties by Kleven et al. (Kleven, Landais, and Søgaard 2019), many researchers have renewed their interest in this topic, and a growing body of work has examined this phenomenon internationally.[1] In Japan, analyses of child penalties are still limited, but Hsu (2021), using the Japanese Panel Survey of Consumers (JPSC), found that women's earnings declined sharply after the birth of the first child, leading to a decrease in employment rates in the short term and an inability to return to previous wage levels in the long term due to reduced working hours. Similarly, Komura (2022), using the "Longitudinal Survey of Adults in the 21st Century," reported that women's earnings decreased by approximately 60% at the time of childbirth and had not recovered even seven years later. This research trend has been facilitated by the increasing availability of administrative data and other sources that track individual earnings over time, as well as growing recognition that factors explaining gender wage gaps are related to childbearing.

Additionally, there is growing interest in institutional factors, particularly tax policies. Borella, De Nardi, and Yang (2023) analyzed U.S. data to point out that joint taxation, which increases the marginal tax rate for spouses, discourages women from working. Bick and Fuchs-Schündeln (2018) also demonstrated through international comparisons that differences in tax policies are important in explaining the employment of married men and women. Domestically, more attention has been drawn to the issue of income thresholds in the tax and social security systems, under which workers face higher income taxes or become liable for social insurance contributions once workers' annual income exceeds a certain level, and analyses focusing on the "1.03 million yen threshold," "1.06 million yen threshold," and "1.3 million yen threshold" have been conducted using local government tax data (Kondo and Fukai 2023). This line of research has been motivated by concerns such as the stagnation of women's employment growth in the United States and the age-related decline in women's full-time employment in Japan, often referred to as the "L-shaped curve."

Changes in women's employment due to childbirth and tax policies that affect their subsequent employment status are not only subjects of academic interest but also of policy attention. The "Annual Report on the Japanese Economy and Public Finance 2023" (Cabinet Office) uses the term "child penalty" in its discussion. Regarding tax policies, the "Enhanced Support Package to Help Overcome the Annual Income Barrier" has been implemented since October 2023 to enable individuals to work beyond the income thresholds. The "Basic Policy on Economic and Fiscal Management and Reform 2024" (decided by the Cabinet on June 21, 2024) also explicitly mentions the utilization of this package.

While there is growing interest in changes in women's employment associated with childbirth and in tax policies that affect their subsequent employment status, many aspects remain not well understood. One reason is the limited availability of surveys that can follow individuals' childbirth and employment histories over time. Nevertheless, it is still possible to extract useful insights from the data that are currently available. This paper uses the Population Census to describe how employment has changed and what the current situation looks like, focusing on women with children. Although the Population Census is not panel data and therefore cannot be used for strict estimation of child penalties, its large sample size enables us to capture the employment status of women with young children immediately after childbirth and the industries and occupations in which they are employed. Taking advantage of the strengths of the Population Census, this paper documents how the employment of women with children has changed over the 40 years from 1980 to 2020, noting the value of revisiting such

long-term trends.

The next section first provides an overview of the Population Census used in the analysis and explains how the census data are utilized. Subsequently, Sections III onward primarily focus on the employment of married women with children to examine their employment status immediately after childbirth and ten years after childbirth.

II. Data

The analysis utilizes data from the Population Census conducted from 1980 to 2020. The Population Census has been conducted every five years since the first survey in 1920, except during wartime. The census covers all people residing in Japan for three months or more, regardless of nationality, and collects data on age, household composition, employment status, and other items as of October of the survey year. This paper uses data from the Population Census during the period from 1980 to 2020, for which microdata is available. Since the Population Census is conducted every five years, data for each five-year period is available, but this paper uses data for every ten-year period to capture long-term changes. The 2020 census was conducted in the year when the COVID-19 pandemic began, and given that its impact on the labor market was particularly significant for women (Kikuchi, Kitao, and Mikoshiba 2021; Fukai et al. 2023), the results from 2020 should be interpreted in light of this context.

There are several advantages and disadvantages to use the Population Census. One disadvantage is that it does not contain detailed employment information such as working hours or earnings. Although the Population Census provides information on whether individuals are employed, their employment type (e.g., full-time, part-time, or temporary), as well as their industry and occupation, it is not possible to conduct more detailed analyses of employment conditions using these data. Moreover, because the census does not include individuals' employment histories, it is not possible to track employment continuity or career progression.

On the other hand, the use of the Population Census offers many advantages. The most significant advantage is its full population coverage, which allows for an accurate depiction of nationwide patterns. Because childbirth is a relatively rare event in the population as a whole, the large scale of the census makes it possible to analyze it in considerable detail. In addition, the substantial sample size allows researchers to document aspects that have not been well described to date, such as the joint distribution of industry and occupation among employed mothers. This is particularly useful for understanding the labor markets women face and how their skills are utilized. Moreover, because the census provides data spanning the past 40 years, long-term changes and trends can be systematically examined. Thus, the Population Census is highly valuable for providing a comprehensive and long-term perspective on women's employment before and after childbirth.

Before conducting an analysis of women's employment before and after childbirth using the Population Census, it is necessary to describe in detail how children are identified. In the Population Census, identifying who is whose child requires the use of the variable indicating each individual's relationship to the household head. Specifically, the relationship between the woman being analyzed and the household head is confirmed, and then each child is identified based on that relationship.

First, in order to focus the analysis on women's employment, the relationship status of women in the target age group is identified. Then, based on this relationship, it is determined whether any household members are classified as the woman's child. For example, if the target woman is recorded as the "spouse" of the household head, the presence of household members recorded as "child" is checked. Likewise, if the target woman is recorded as the "child" of the household head, the presence of individuals recorded as "grandchild" is examined. In this way, co-resident children are identified. However, it should be noted that the Population Census can identify only co-resident children. For example, if children have grown up and moved away from home to attend

university, they will appear in the census, but not within the same household as the target woman, and therefore cannot be identified as her children. In addition, when multiple individuals are recorded as "child" or "grandchild" within a household, it is difficult to determine precisely which of them are the children of the target woman. Such cases, however, account for less than 1% of all observations, and their impact on the analysis is likely to be limited. For this reason, these cases are retained in the analysis.

Understanding how employment information is collected in the Population Census is essential for analyzing women's employment before and after childbirth. The Population Census is conducted in October of the survey year, and employment status is based on information for the previous month, September. Specifically, the census uses the "actual" method, asking respondents, "Did you do any work during the week from September 24 to 30?" This question format is the same as that used in the Labor Force Survey in Japan.

The Population Census offers eight response options for employment status: "Mostly worked"; "Worked besides doing housework"; "Worked besides attending school"; "Absent from work"; "Seeking a job (unemployed)"; "Did housework"; "Attending school"; and "Other (infants, the elderly, etc.)." These categories have been used consistently since the 1980 census, ensuring comparability across survey years. This consistency allows for a detailed analysis of changes in women's employment status over the past 40 years.

In this study, "mostly worked" is interpreted as full-time employment, and "worked besides doing housework" is interpreted as part-time employment. This interpretation follows the guidelines provided for completing the survey questionnaire. In addition, the Population Census contains information on major industry and occupation classifications for employed individuals. Although the census also includes questions on whether workers are employed on a regular or temporary basis, these items are not used in the present analysis because the response categories differ substantially across survey years.

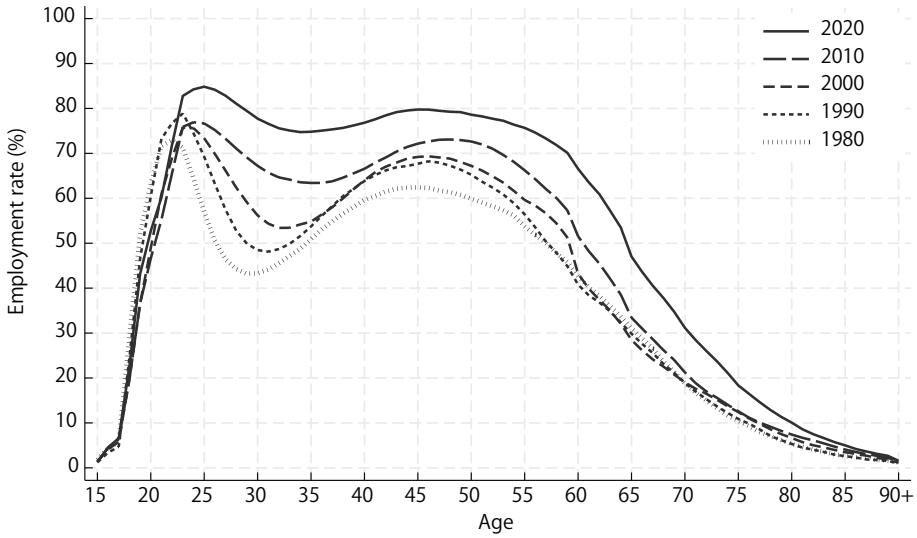
III. Changes in employment rates of women

First, Figure 1 plots changes in women's employment rates by age from 1980 to 2020. Looking at the overall trend, women's employment rates have increased over this 40-year period. In particular, the rise in employment among women in their late 20s to 40s has been pronounced. The deep trough in the M-shaped age profile that was clearly visible in 1980 has lifted by 2020, making the profile resemble a trapezoid rather than the traditional M-shape. Employment rates among women in their 50s and older have also gradually increased, indicating an expansion of the working age among women.

What types of working women have been increasing? Figure 2 focuses on women aged 25 to 49—an age group that experienced a substantial rise in employment rates between 1980 and 2020—and illustrates how their employment status (full-time, part-time, etc.) has changed over time. First, the share of women not in the labor force, shown at the bottom of each bar, has been declining year by year, indicating a steady increase in labor force participation among women in this age group. The percentage of women not in the labor force fell from 45.4% in 1980 to 18.8% in 2020. Next, the share of women who "mostly worked" during the survey period has changed markedly, rising from 30.6% in 1980 to 60.4% in 2020. Although the overall share is small, the percentage of women who were "absent from work" during the survey period has also increased since 2000—from 1.0% in 2000 to 2.8% in 2020. This increase likely reflects a growing number of women utilizing the parental leave system, which was legislated in 1992.

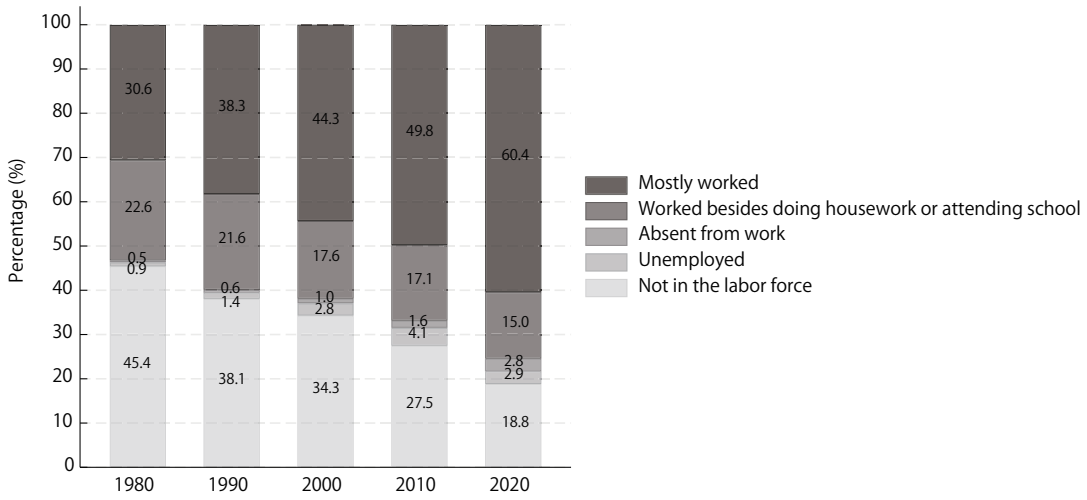
IV. Decomposition of factors behind the increase in women's employment rates

As shown in Figures 1 and 2, women's employment rates have risen substantially among those in their late 20s to late 40s. A major factor behind this increase is likely the growing number of women working full-time or



Source: Created by the author based on *Population Census* by the Statistics Bureau of Japan, Ministry of Internal Affairs and Communications.

Figure 1. Employment rates of women by age



Source: Same as Figure 1.

Figure 2. Breakdown of the employment status of women aged 25 to 49

in similar employment arrangements, who select the response category "mostly worked." In what follows, we take a closer look at the sources of this increase.

As above, we focus on women aged 25 to 49 and classify them into four groups based on "marital status (M)" and "the presence of children in the household (C)." We then decompose the change in employment rates between 1980 and 2020 into "changes in group composition" and "changes in employment within each group." For example, if the share of unmarried women—whose employment rates are relatively high—increased from 1980 to 2020, the rise in overall employment rates could be explained solely by compositional changes, such as an

increase in the proportion of unmarried women.

The decomposition method follows the standard approach used in earlier studies, such as Kawaguchi, Kawata, and Toriyabe (2021). Specifically, the employment rate of women aged 25 to 49 in a given survey year t, denoted as (e_t), can be expressed as a weighted average of the employment rates in each group ($e_{g,t}$) and their corresponding population shares ($s_{g,t}$):

$$e_t = \sum_g s_{g,t} e_{g,t}.$$

We set the year 1980 as the base year (t=0). Let the changes in group shares and employment rates from 1980 to 2020 be denoted by $\Delta s_g = s_{g,2020} - s_{g,0}$ and $\Delta e_g = e_{g,2020} - e_{g,0}$, respectively. Then the total change in the employment rate over this period (Δe) can be decomposed as follows:

$$\Delta e = \sum_a s_{g,0} \Delta e_g + \sum_a \Delta s_g e_{g,0} + \sum_a \Delta s_g \Delta e_g.$$

The first term on the right-hand side captures changes in employment within each group while holding group shares fixed at their base-year levels. This term therefore represents changes in the employment rate itself (the "employment effect"). The second term captures changes in group shares while holding employment rates fixed at their base-year levels, thereby indicating changes in the composition of the groups to which women belong (the "composition effect"). The third term represents the interaction between changes in group shares and changes in employment rates (the "residual"), which we do not interpret actively in this analysis.

The results of the decomposition are summarized in Table 1. Between 1980 and 2020, the employment rate of women aged 25 to 49 increased by 24.6 percentage points. Decomposing this increase shows that 21.5 percentage points are attributable to changes in employment within groups, while 7.2 percentage points are due to changes in group composition. Thus, the rise in employment itself is the dominant factor behind the overall increase. Notably, approximately 86% of the employment effect is accounted for by the increase in employment among women who were married (M = 1) and had children in their household (C = 1). This indicates that the employment rates of mothers increased substantially from 1980 to 2020, effectively lifting the bottom of the traditional M-shaped age–employment profile.

The results of a similar analysis conducted at 10-year intervals from 1980 are presented in the lower portion

Table 1. Decomposition of changes in employment rates of women aged 25 to 49

	Total Δe	Employment effect $\sum_g \Delta e_g s_{g,0}$	Composition effect $\sum_g e_{g,0} \Delta s_g$	Residual $\sum_g \Delta e_g \Delta s_g$
1980–2020	0.246	0.215	0.072	−0.041
		$\Delta e_g s_{g,0}$	$e_{g,0} \Delta s_g$	$\Delta e_g \Delta s_g$
M=0 & C=0		0.007	0.162	0.014
M=0 & C=1		0.003	0.020	0.002
M=1 & C=0		0.019	0.023	0.009
M=1 & C=1		0.185	−0.133	−0.066
	Total Δe	Employment effect $\sum_g \Delta e_g s_{g,0}$	Composition effect $\sum_g e_{g,0} \Delta s_g$	Residual $\sum_g \Delta e_g \Delta s_g$
1980-1990	0.068	0.054	0.015	−0.001
1990-2000	0.024	−0.006	0.029	0.001
2000-2010	0.055	0.039	0.019	−0.003
2010-2020	0.099	0.096	0.005	−0.003

Source: Same as Figure 1.
Note: M is a binary variable where 1 represents being married, and C is a binary variable where 1 represents having a child in the household.

of Table 1. These results show that the contribution of rising employment was particularly large between 2010 and 2020.

V. Employment of women immediately after childbirth

1. Changes in employment rates immediately after childbirth

The previous sections showed that the employment rate of married women living with children increased substantially between 1980 and 2020. In this section, we focus on women living with children and examine, in particular, women aged 25 to 34—the age range in which childbirth is most common.[2] We begin by looking at the employment rate of women whose oldest child in the household (assumed to be the firstborn) is 0–1 years old, who are therefore considered to have just given birth to their first child.

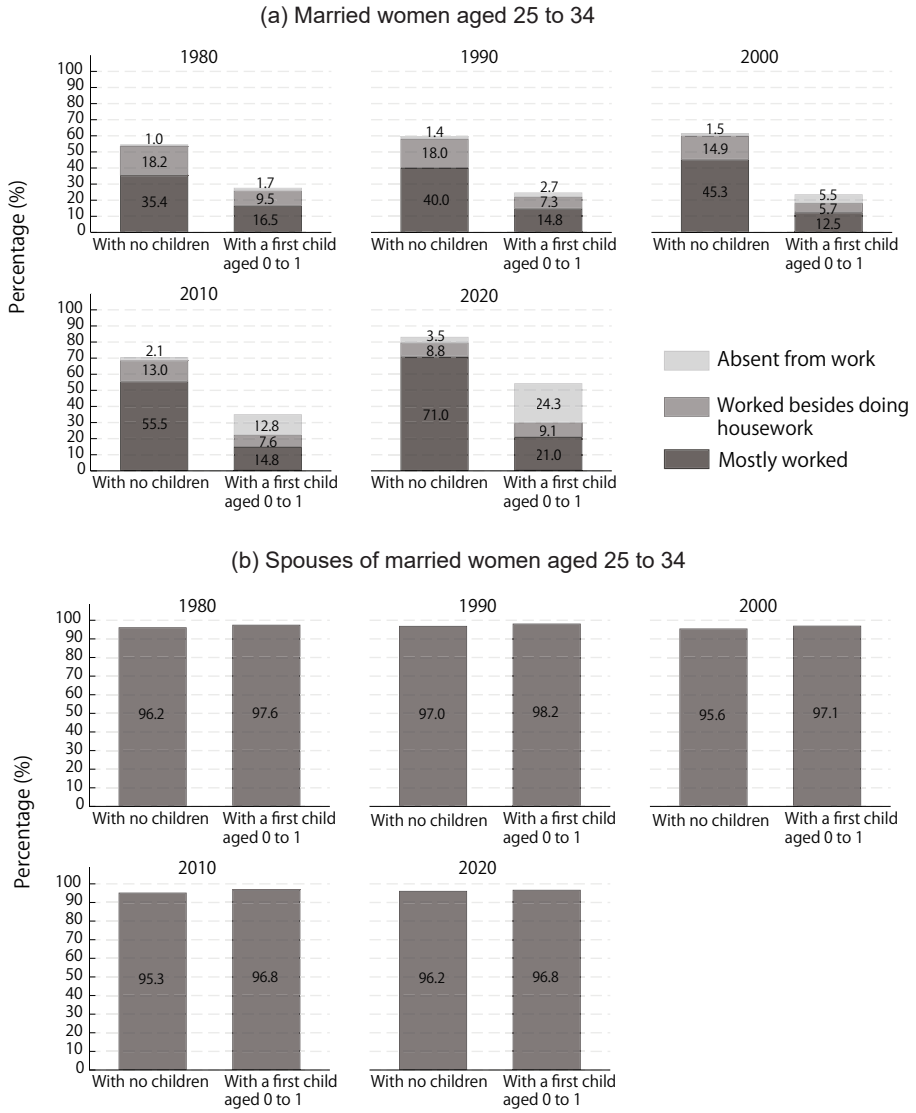
As a comparison, we also examine the employment rate of married women aged 25 to 34 who do not have children in their household. Comparing women who are assumed to have just given birth to their first child with married women who do not live with children is intended to provide a pseudo-estimate of the child penalty immediately after childbirth. However, this comparison does not necessarily correspond to the true child penalty because it simply contrasts women who have not yet given birth (married women without children) with women who have just given birth (married women with a 0–1-year-old child), rather than tracking changes in employment for the same individuals. Accordingly, the employment rate of women without children in their household is used only as a reference.

Figure 3 presents the employment rates of married women aged 25 to 34 and their spouses. For women, the employment rate immediately after childbirth is lower than that of women with no children in the household in every survey year from 1980 to 2020. This gap widened slightly between 1980 and 2000, reflecting rising employment rates among women not living with children. Since 2010, however, the employment rate of women immediately after childbirth has also increased markedly, driven in particular by a rise in the number of women taking leave rather than leaving employment altogether. This likely reflects the growing use of the parental leave system.

Although the number of women working immediately after childbirth has increased, many still leave their jobs at that time. In 2020, while the employment rate for married women without children exceeded 80%, the employment rate of women whose first child was aged 0–1 was only around 55%. Even though this is only a pseudo-measure, this gap captures what can be viewed as a child penalty immediately after childbirth. It is important to note, however, that the mere fact that some women leave employment after childbirth does not, by itself, indicate a problem. Some women leave work to focus on childcare, while others do so because balancing work and childcare is difficult. The term “child penalty” may give the impression of punishment, but what the data show here is simply that the employment rate of women immediately after childbirth is low. Turning to the employment status of the spouses, men’s employment rates show little variation depending on whether they live with children. Men’s employment remains high even after childbirth, in clear contrast to women.

2. Occupations and industries in which the target women are employed

Numerous studies, both in Japan and abroad, have documented that women’s employment rates drop immediately after childbirth. Figure 3 presents results consistent with this finding. However, much less is known about the characteristics of women who continue working during this period. To gain insights into what kinds of work arrangements enable women to remain employed while raising children, it is important to describe the characteristics of those who continue working after childbirth. Using the large-scale Population Census, we examine the joint distribution of industries and occupations among women who remain employed immediately after childbirth. For comparison, we also report the corresponding distribution for married women who do not



Source: Same as Figure 1.

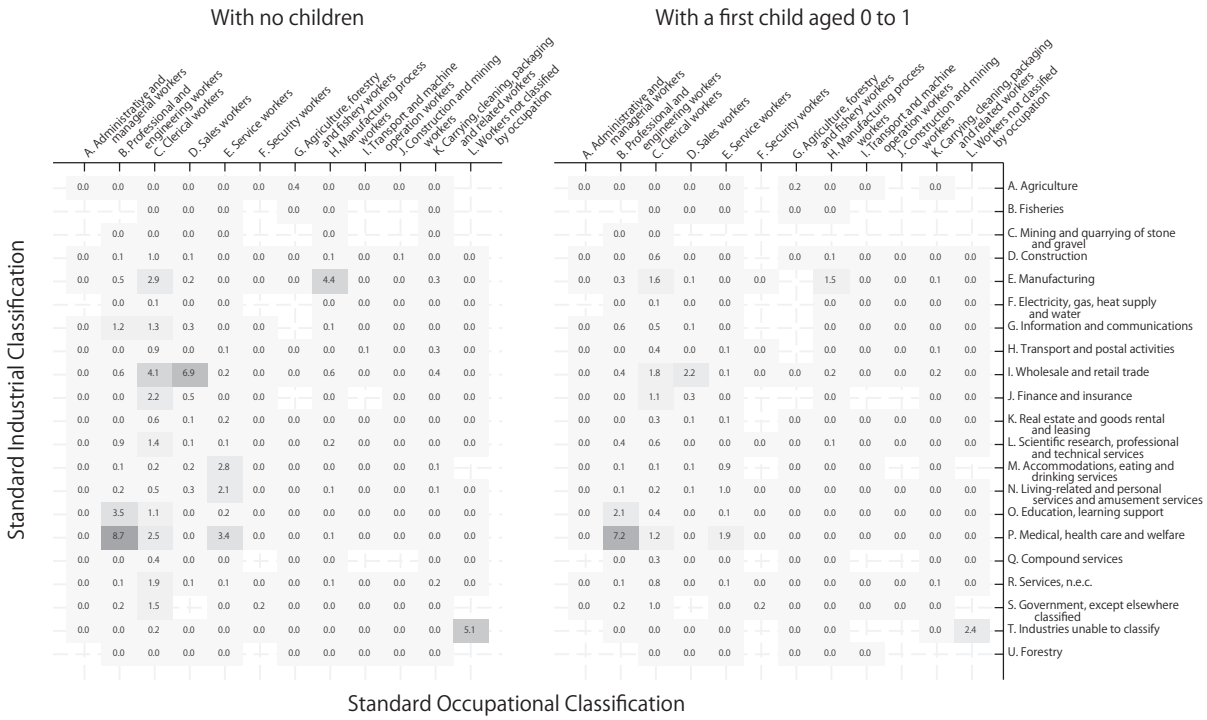
Figure 3. Employment rates of married couples with a first child aged 0 to 1

have children in their household.

The analysis uses the same sample as in Figure 3 and presents the results for 2010. Figure 4 shows the distribution of married women "with no children" and those "with a first child aged 0–1" across major industry and occupation categories. The figure reports the share of each category among all women in each group, excluding the "not employed" category, which accounts for the largest share.

Among married women who continue working immediately after childbirth, a large proportion are classified as "Professional and engineering workers" in the "Medical, health care and welfare" industry. This group likely includes doctors and nurses working in hospitals, as well as childcare workers and long-term care workers. Overall, women in professional and engineering occupations exhibit a strong tendency to remain employed after giving birth.

A similar pattern is observed among married women with no children: many are also "Professional and engineering workers" in the "Medical, health care and welfare" industry, and the overall distribution is broadly



Source: Same as Figure 1.

Figure 4. Distribution of industries and occupations among married women aged 25 to 34 in 2010

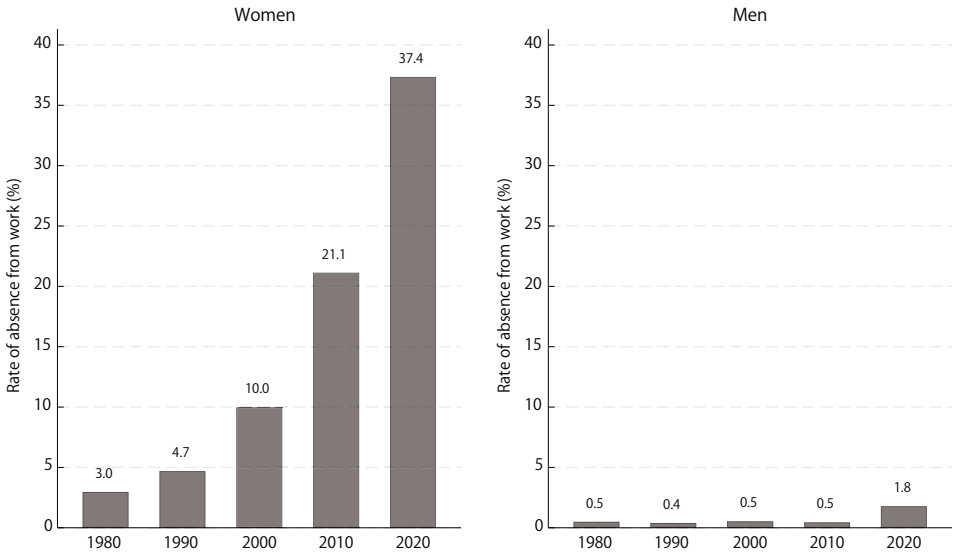
similar. However, compared with women immediately after childbirth, married women with no children are more frequently found among "Sales workers" and "Clerical workers" in the "Wholesale and retail trade" industry, as well as "Manufacturing process workers" in the "Manufacturing" industry.

It is difficult to interpret this difference. One possibility is that many women employed in "Wholesale and Retail Trade" or "Manufacturing" leave their jobs after childbirth. Another possibility is that the difference reflects the industry–occupation combinations in which women with children are more likely to work. In any case, the results suggest that the professional or technical nature of an occupation plays an important role in whether women continue working after childbirth.

3. Changes in the proportion of people absent from work

Another point evident from Figure 3 is the increase in the number of married women who are absent from work after childbirth. Therefore, this section focuses on absence from work. Under the parental leave system in place as of 2020, employees can generally take leave until their child reaches one year of age, except in situations where childcare is unavailable or when both parents take leave under the "Mother and Father Childcare Leave Plus" program. Accordingly, we examine the proportion of people absent from work among those whose first child is 0 years old.

It is important to note that the Population Census captures absence from work only during the last week of September of the survey year. Although the census does not identify whether those who reported being absent were taking parental leave, most absences following childbirth are likely to correspond to statutory maternity leave or parental leave. Furthermore, because the census records individuals who are on leave at a single point in time—rather than those who have taken leave at any time in the past—it inevitably underestimates the actual



Source: Same as Figure 1.

Figure 5. Rate of absence from work among married women aged 25 to 34 with children aged 0 years, and their spouses

take-up rate of parental leave. However, if the duration of leave taken has remained relatively stable over time, the census still allows us to capture trends in parental-leave take-up.

Figure 5 presents the percentages of married women aged 25 to 34 whose first child is 0 years old who were absent from work, along with the corresponding percentages for their spouses. Only a few percent of women were absent from work between 1980 and 1990, but the share increased to 10% in 2000 and to 37.4% in 2020. This indicates a sharp rise in leave-taking following the introduction of the parental leave system in 1992.

Another advantage of this approach is that it enables us to capture the spread of parental leave. According to the "Basic Survey of Gender Equality in Employment Management" published by the Ministry of Health, Labour and Welfare, the take-up rate of parental leave among women has remained largely unchanged since it exceeded 80% in 2007. This figure represents the proportion of women who took parental leave out of all women who gave birth within the same firm, and therefore excludes those who left their jobs during pregnancy. An important point evident from Figure 5 is that the number of women who are presumed to have taken parental leave among those who gave birth increased substantially between 2010 and 2020.

Looking at the corresponding graph for men, the percentage of those absent from work is low, and the increase over time is modest. This may partly reflect the shorter duration of parental leave available to men, but it also indicates substantial gender disparities in the use of the parental leave system. These patterns suggest that parental-leave take-up is a key factor shaping women's employment, and that its use has expanded as the system has become more widespread.

VI. Employment of women after childbirth

1. Employment status 10 years after the birth of the first child

The analyses conducted thus far have focused on the employment status of women with children aged 0 to 1 immediately after childbirth, presuming these children to be their firstborn. However, to understand changes in

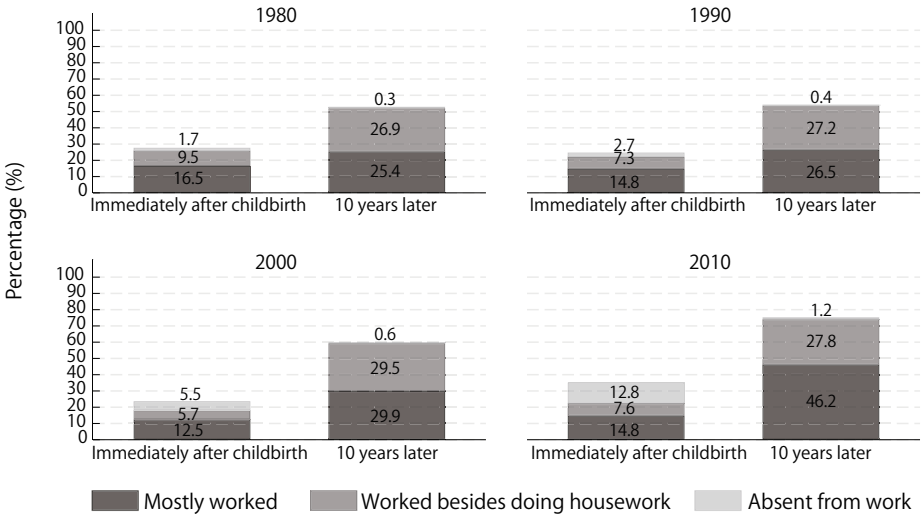
employment associated with childbearing, it is important to examine not only the period immediately after childbirth but also developments over subsequent years. Here, we can take advantage of the Population Census. The earlier analyses focused on women aged 25 to 34 with children aged 0 to 1. Ten years later, these women would be 35 to 44 years old and have children aged 10 to 11. Because the Population Census is a full-count census that covers the entire population, it almost certainly includes these women, enabling us to observe changes in their employment status. Of course, it is not possible to track the same individuals perfectly, as some may divorce or separate and thus appear in different household types in later years. Nevertheless, it is still possible to capture changes in employment among groups of women who are nearly identical.

The analysis compares the employment status of married women aged 25 to 34 with a first child aged 0–1 during the period from 1980 to 2010 with that of married women aged 35 to 44 with a first child aged 10–11 during the period from 1990 to 2020. This approach allows us to see how women's employment patterns evolve as their children grow older. As Figure 3 shows, men's employment status is expected to remain largely unchanged; therefore, the analysis focuses on women.

Figure 6 presents the results for each reference year. As the figure shows, employment rates increase substantially over the subsequent 10-year period across all cohorts. Even among women who gave birth around 1980, the employment rate rises from 30% to 50% over 10 years—a 20-percentage-point increase. For women who gave birth around 2010, the employment rate exceeds 70% ten years later, indicating that many women begin working in some form as their children grow older.

The employment rate ten years after childbirth for the 2010 cohort—around 70%—is close to the employment rate of women with no children shown in Figure 3. If this value can be interpreted as representing their pre-childbirth employment rate, it may suggest that women who were originally inclined to work are returning to employment as their children grow older. This interpretation is consistent with Hsu (2021), who finds that women's employment rates recover in the long run.

Another point to note is that a large share of women who are working ten years after childbirth report



Source: Same as Figure 1.

Figure 6. Employment rates of married women with children aged 0 to 1 in a given target year and married women with children aged 10 to 11 in the survey 10 years later

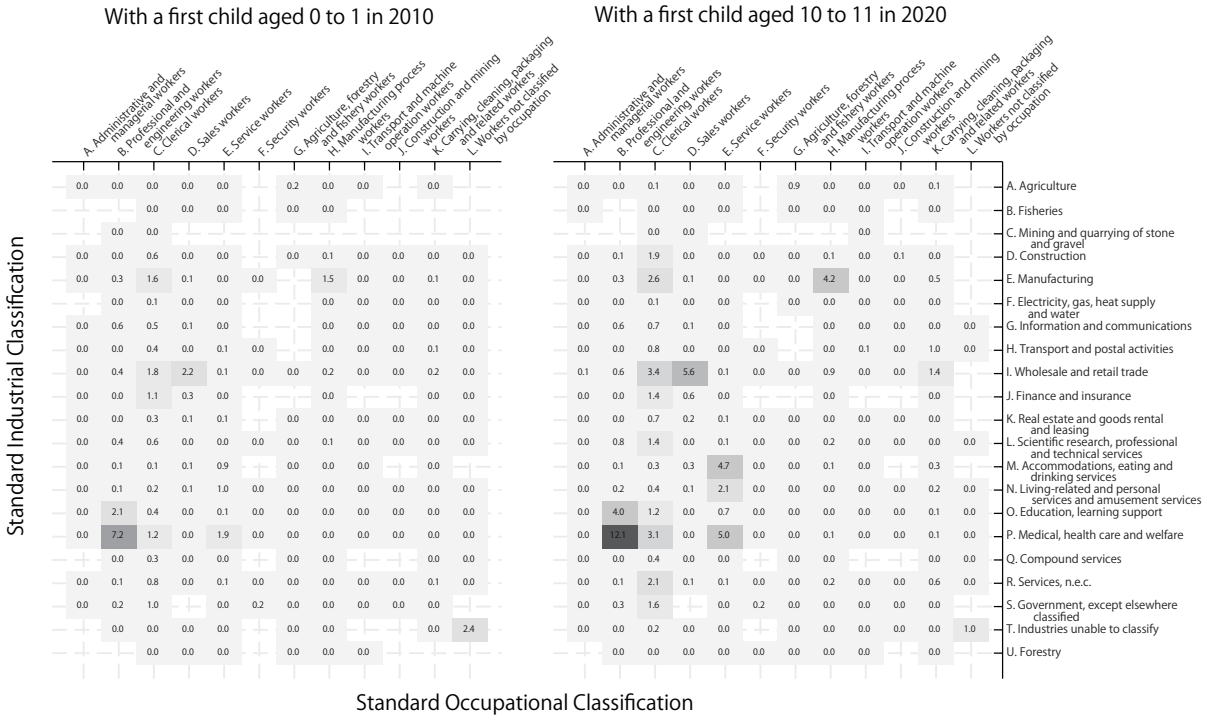
"working besides doing housework." Without panel data, it is unclear whether these women are newly entering employment in the category of "working besides doing housework," or whether those who were previously "mostly working" have shifted into this category. Nevertheless, it is evident that part-time or similar forms of "working besides doing housework" account for a substantial proportion of women who begin working once their children are older. Although the precise figures vary, this basic pattern has remained largely unchanged since 1980. This result suggests that, over the past forty years, issues such as income thresholds faced by part-time and temporary workers have continued to be relevant for women raising children.

2. Changes in the industries and occupations in which the target women work

As shown in Figure 6, the employment rate rises sharply from immediately after childbirth to ten years later, with many women beginning to work as their children grow older. Where do these women work during this period? To examine this, we compare the joint distribution of industries and occupations among women who are working immediately after childbirth with that of women who are working ten years after the birth of their first child, following the same approach as in Figure 4. As in Figure 4, each figure reports the share of women in each category among all women in the relevant group, and the "not employed" category—which accounts for the largest share—is excluded.

The analysis presents results for married women with a first child aged 0–1 in 2010 and for married women with a first child aged 10–11 in 2020. Thus, the 2010 results correspond to the right-hand panel of Figure 4. As shown in Figure 7, the largest increase ten years after childbirth is again observed among "professional and engineering workers" in the "medical, health care and welfare" industry. In fact, 12.1% of women with a first child aged 10–11 are employed in this industry–occupation combination.

Other industry–occupation combinations that increase ten years after childbirth include "sales workers" and



Source: Same as Figure 1.

Figure 7. Distribution by industry and occupation of married women with children aged 0 to 1 in 2010 and that of married women with children aged 10 to 11 in 2020

"clerical workers" in the "wholesale and retail trade" industry; "service workers" in the "accommodations, eating and drinking services" industry or in the "medical, health care and welfare" industry; and "manufacturing process workers" in the "manufacturing" industry. These categories likely include many doctors, nurses, childcare workers, and long-term care workers. Overall, women in "professional and engineering" occupations tend to continue working after childbirth.

Further detailed analysis is needed, but it is noteworthy that the industry–occupation distribution of women ten years after childbirth closely resembles the distribution for married women with no children in 2010, shown in the left panel of Figure 4. This may suggest that, as their children grow older, women tend to return to their original occupations or to occupations similar to those they held before childbirth.

VII. Conclusion

The challenge of balancing childcare and work is closely connected to issues such as the declining birth rate and gender wage gaps, and has been widely debated for nearly three decades. In recent years, particularly with the improved availability of panel data, increasing attention has been paid to gender disparities in employment trajectories around childbirth—exemplified by the child penalty—as well as to institutional features, such as income thresholds in the tax and social insurance system, that influence the employment of married women.

In this context, this paper has aimed to descriptively examine two questions using data from the Population Census: how parental employment has changed over the past forty years in connection with childrearing, and who is working and in what ways. Although the Population Census does not provide detailed information on income or working hours, it offers an accurate nationwide picture of who works and where. Moreover, by using data from 1980 through the most recent wave in 2020, we can document changes in the employment of parents over approximately half a century.

The analysis yields several findings regarding the employment of parents raising children. First, the rise in employment rates among women aged 20 to 49 from 1980 to 2020 is largely attributable to higher employment rates among women with children. Although the long-standing pattern in which married women immediately after childbirth have lower employment rates than married women without children has persisted over the past forty years, the results suggest a steady increase in the number of women who continue working after childbirth through the use of parental leave.

Moreover, among women who remain employed immediately after childbirth, many work in professional occupations within fields such as medical care and welfare. The analysis of employment ten years after childbirth further shows that the pattern in which many women begin working as their children grow older has remained stable over the past forty years. In recent years, the number of women working full-time has increased, although a large share continue to work part-time.

The results also reveal that as children grow older, more women become employed as sales workers, clerical workers, service workers, or manufacturing process workers. In contrast, the employment status of married men with children has shown little change over the past forty years, according to the Population Census.

The analysis presented in this paper suggests several implications. First, an increasing number of people are making use of policy measures such as the parental leave system. A natural next step is to conduct policy evaluations to assess the effectiveness of these measures—for example, whether similar outcomes would have been observed in the absence of parental leave provisions. Second, the concentration of post-childbirth employment in specific industries and occupations highlights the importance of analyzing factors such as the use of skills during the childrearing period, the potential skill depreciation associated with time away from work, and the educational and occupational choices that women may make in anticipation of future childrearing. Furthermore, given that many women continue to work part-time while raising children, institutional features

such as income thresholds have substantial implications for the Japanese economy as a whole. Finally, as the results show, changes in employment associated with childbirth are observed almost exclusively among women. The persistent gender differences surrounding childrearing over the past forty years remain an important area for future research.

This paper has summarized what can be learned from simple descriptive statistics using the Population Census. However, there remain many questions that have not yet been addressed, as well as limitations inherent in the census data. A natural next step is to describe the circumstances of individuals in a variety of situations. For example, the impact of childbirth is likely to vary by educational attainment, and descriptive evidence on factors such as three-generation co-residence (Sasaki 2002) and regional differences (Abe 2013) is also needed. Although more refined analysis will require attention to issues such as selection, it is essential first to document what is happening. Given the large sample size of the Population Census, there is still much to be gained from exploratory work, including applications of machine-learning methods. At the same time, because the census is cross-sectional, it is difficult to follow the same individuals over time. For analyses of this kind, administrative data—which have become increasingly available in recent years—are likely to be especially valuable.

As we move toward more rigorous analysis of issues such as the child penalty and income thresholds, it will be important to draw on multiple data sources, leveraging the strengths of each, in order to obtain a clear understanding of current conditions and to carry out credible policy evaluation and hypothesis-driven research.

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Notes

1. The phenomenon in which having children leads to declines in women's labor supply and earnings has been extensively studied in economics and sociology (Hill 1979; Korenman and Neumark 1992; Waldfogel 1997, 1998; Phipps, Burton, and Lethbridge 2001; Budig and England 2001, etc.). Since Kleven, Landais, and Søgaard (2019), the term "child penalty" has become widely used, and this paper also adopts this term, although it is not necessarily the most precise expression. The phenomenon is also described as the "motherhood effect" or the "family gap," and the author's views on this terminology are summarized in Fukai (2024).
2. For middle-aged and older women, there is a possibility that their children have already left home for university or other reasons. Therefore, this paper focuses on relatively younger women.

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FUKAI Taiyo
Associate Professor, Department of Economics, Gakushuin University.