

A Search for Potential Female Labor Forces in Japan's Aging Society

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Abstract

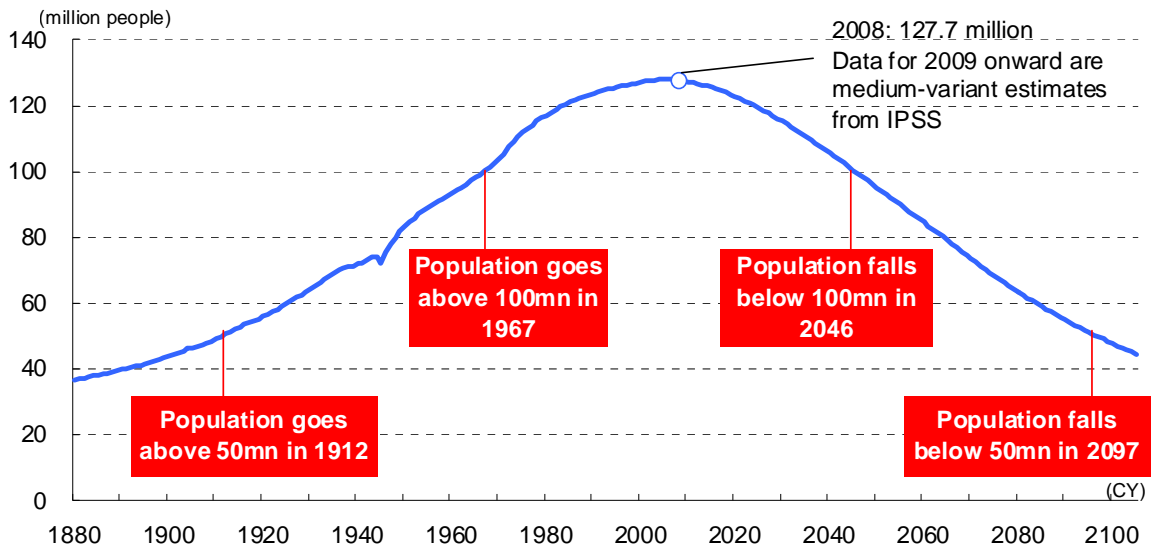
Low female labor participation is a well known feature of Japan's labor market. One way to cope with aging society, in which labor shortage is expected to be a serious problem, is to utilize potential female labor forces. There are more than three million women who wish to work but are not in labor market as of 2008. An effective policy is to provide sufficient capacity of daycare services so that they can work and raise children at the same time.

Somewhat surprisingly, demand for daycare services has been increasing since mid 1990s despite decreasing child population. Also, female labor force ratio and total fertility rate have been rising together very recently. The reasons behind those changes are not clear. However, at least women's behaviors seem to be changing toward a more desirable direction. Policies that support current changes are required.

1. Introduction

There is almost no doubt that Japan's population will decline. In the most quoted population projection, provided by National Institute of Population and Social Security Research (IPSS), Japan's population falls below 100 million by the middle of this century, and even below 50 million by the end of this century (Figure 1). The stark prediction that there will be only less than half of current population 100 years later is attracting eager attentions from all sorts of professions. In our investment industry also, Japan's demography is one of the main concern especially among foreign investors who consider investing in this country.

Figure 1. Japan's population projections



Source: Nomura, based on National Institute of Population and Social Security Research, Ministry of Internal Affairs and Communications

A decline in population is expected to be a heavy burden on the economy. From the point of view of corporate sector, it could mean a shortage of demand for their products. One obvious way to keep growing amidst shrinking market is to globalize businesses. Exporting or establishing branches abroad will, at least hypothetically, allow you to maintain the size of sales. Nomura Group's acquisition of Lehman Brothers' business is a very good example, but there are many others who seek the same way. I discussed elsewhere the importance of globalization for Japanese firms, and the exactly same argument applies even after the worldwide great recession we have seen since last year.

On the other hand, a decline in population could also mean a shortage in labor

supply. Since declines in demand and supply occur at the same time, net effects on prices are ambiguous. However, the main concern among market participants seems to be inflation. This should mean that they assume the impact on supply side of the economy will be bigger than that on demand side. This is not a bad assumption given that labor force tends to decrease more rapidly than total population because a declining population is a result of less and less younger people.

To avoid inflationary pressures stemming from labor shortage, Japanese citizens must find some people who can work for them. There are two obvious sources for additional labor supply; internal and external. Externally, we could invite more foreigners to our country to work. Japan's regulation on immigration is notoriously strict, but there have been some progresses. For example, the number of foreign residents has increased from 1.7 million in 2000 to 2.2 million in 2008. However, the speed of progress seems to look too slow to foreign investors.

Internally, we may be able to find people who want to work but are not working inside Japan. There have been efforts to elevate retirement age so that more elderly people can keep working until later in their lives. Clear successes of this policy can be seen in rapidly rising elderly labor force ratio. For example, labor force ratio for men aged 60-64 rose from 70.3% in 2005 to 76.4% in 2008.

But there exists another source of potential labor supply inside Japan; women. And that is what this paper primarily focuses on. I will first summarize the current state of female labor participation. Then I will discuss a complication that's involved in this subject, and propose a way to raise their participation rate. Finally, I will overview recent interesting changes in Japanese women's behavior that could imply that the situation is heading for a better direction.

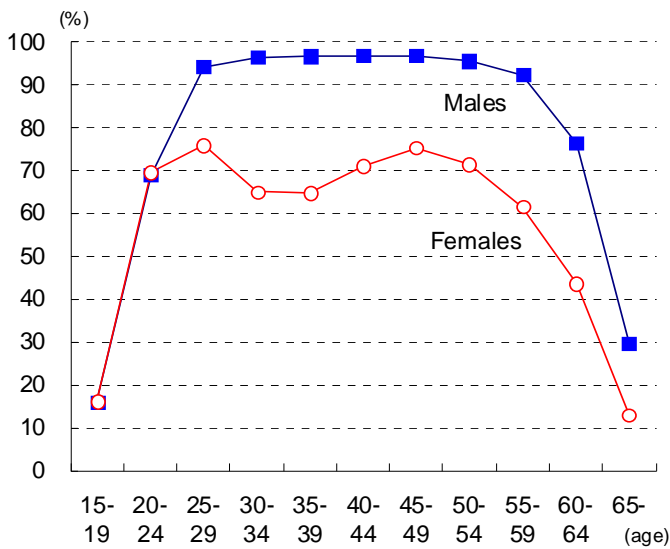
2. Female labor participation in Japan

Low female labor participation in Japan is a well known fact. As of 2008, female labor force ratio was 62% for those aged 15-64 (in this paper, labor force ratios are for those aged 15-64 unless otherwise specified), 23% points lower than the corresponding number for males (Figure 2). Admittedly, female labor participations are lower than those for males in many countries. However, international comparisons reveal that Japanese women tend to work less than women in other countries. For example, female labor force ratio in Sweden was 77% in 2008, and 69% in the US (Figure 3).

Notable feature of female labor participation in Japan is not only its low level, but also its age pattern. By-age female labor force curve shows a clear "M-shape" with a dent at the age of 30-39. In the field of demographic studies, this is an indication of

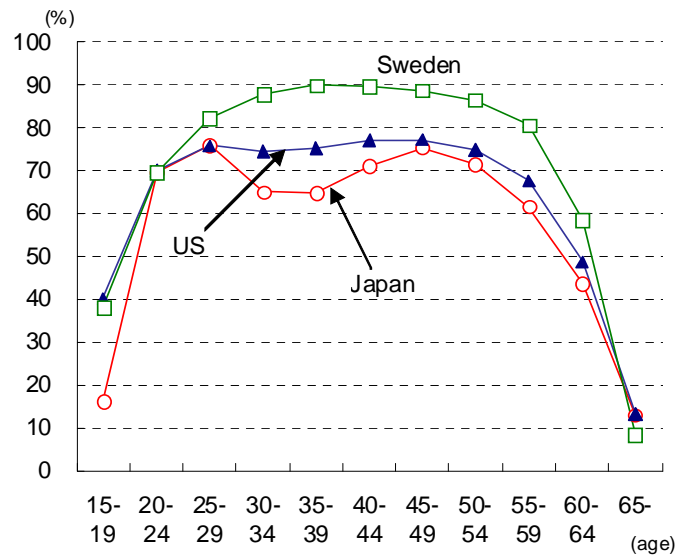
mass exit from labor market after marriage or giving birth. We can confirm that this is in fact the case in Japan by looking at female labor participation by marital status. Labor force ratio for those aged 25-39 was 53.5% for married women, while that for unmarried women was almost 90% in 2008 (Figure 4).

Figure 2. Japan's labor force ratio (2008)



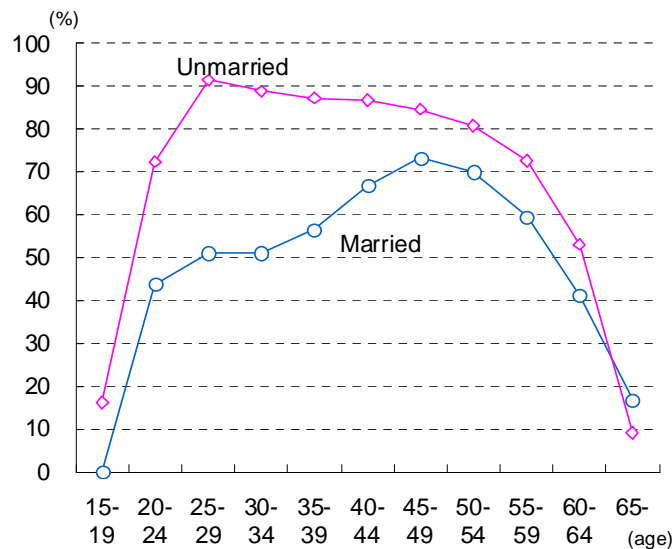
Note: Labor force ratio = #labor force/#population
 Source: Nomura, based on Ministry of Internal Affairs and Communications

Figure 3. Female labor force ratio (2008)



Note: The survey for the US includes people aged 16 and above. The survey for Sweden includes people aged 72 and below.
 Source: Nomura, based on Japan Ministry of Internal Affairs and Communications and International Labour Organization

Figure 4. Female labor force ratio by marital status (2008)

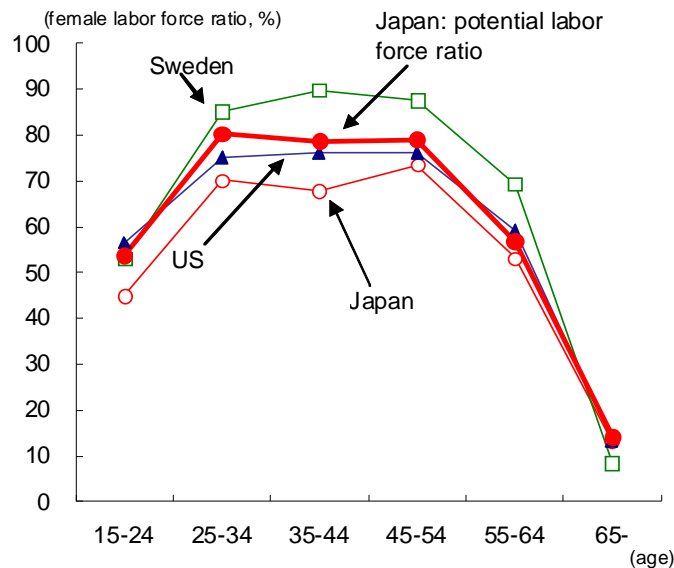


Note: Labor force ratio = #labor force/#population
 Source: Nomura, based on the Ministry of Internal Affairs and Communications

Why do Japanese women tend to work less? Hypothetically, it's possible that they just don't like working. If their preferences are different from Japanese men or women in other countries, even under exactly the same environment, Japanese women may be more likely to choose not to work. If this is the case, asking them to participate in the labor market may not make sense. Cost of making them want to work should be carefully compared with the cost of labor shortage to decide if it pays off to implement any policy to raise female labor participation.

Fortunately, that is not likely to be the case. There are many women who are not explicitly participating in the labor market but who still wish to work. Labor Force Survey gathers data of such people, which counted 3.16 million aged 15-64 in 2008. This is equivalent to 11% of female labor force and 5% of total labor force in Japan. If we simply assumed that all of the potential labor forces became actual ones, female labor force would increase by 11% and total labor force by 5%. Moreover, Japan's female labor force ratio would be 70%, still lower than 77% in Sweden but slightly higher than that in the US (Figure 5). I see no strong indication that Japanese women particularly dislike working.

Figure 5. Potential female labor force ratio in Japan (2008)



Note: Potential labor force ratio is calculated by adding the number of people who wish to work but are not seeking jobs to actual labor force. The survey for the US includes people aged 16 and above. The survey for Sweden includes people aged 72 and below.
 Source: Nomura, based on Japan Ministry of Internal Affairs and Communications and International Labour Organization

3. Impacts of more female labor participation

As I already mentioned, potential problem caused by labor shortage is inflation. We do not know when and by how much inflation will accelerate due to the declining population. What we know is that 5% increase in labor supply will certainly have an effect of calming inflation down. As an extreme case, suppose the additional 5% of labor force will be all unemployed. It implies a rise in unemployment rate by 5% points. Simply applying the slope of the Phillips curve in Japan, 5% points rise in unemployment rate corresponds to approximately 5% points decline in inflation rate.

The assumption that all of the new labor forces will be unemployed is obviously an exaggeration. My view is that further female labor participation could result in a creation of whole new types of demands. Women staying at home, of course, are not just sitting on their couches. They are very busy with all sorts of household works, such as cleaning, cooking, laundry, shopping, child care and elderly care. Those services they produce are vital for husbands, without which they cannot work outside till late for their income. In other words, household services provided by wives are an essential part of the entire production system.

The important point is that those household services are usually unpaid. That's why we don't have official statistics on the value of those works in our National Accounts. But we can roughly estimate it as follows. First, we obtain the length of time spent on unpaid household services per population per day from Survey on Time Use and Leisure Activities. Next, we obtain wage rates for jobs similar to those works from Basic Survey on Wage Structure. Total value of unpaid household services can be thus calculated by multiplying hours spent per day, wage rate, number of days in a year (365) and population, which was about 100 trillion yen in 2006, equivalent to 20% of GDP (Figure 6).

Of the 100 trillion yen, about 30 trillion was produced by non-working females aged 15-64. To start working outside is likely to force them less time to stay home, which in turn implies less time to spend on household works. To maintain the same amount of services provided to the household, those unpaid works must be outsourced. Stated differently, unpaid works must become paid works, or "marketized". That is, if more women participate in the labor market, at least part of the 30 trillion yen of demand for household services will be outsourced, creating new demands through markets.

But how much? Average non-working women aged 15-64 spends five hours a day on unpaid household works, while average working women at the same age spend three hours. Suppose that, if a woman who has not been working starts working, two hours

per day of unpaid works is outsourced. Multiplying it by wage rate and 365 gives us an estimate that annual outsourcing demand created by a woman newly entering job market is 800 thousand yen. Further assume that 3.16 million women, who wish to work but not seeking job, newly participate in the job market. The total outsourcing demand for household services is then 800 thousand multiplied by 3.16 million, which is 2.7 trillion yen.

Figure 6. Value of unpaid household works (2006)

(trillion yen)

	Total											
	Male					Female						
	Working		Non-working			Working		Non-working				
	15-64	65-	15-64	65-	15-64	65-	15-64	65-	15-64	65-	15-64	65-
Total	101.7	17.0	9.8	1.2	1.9	4.1	84.7	33.1	3.3	30.2	18.1	
House chore	67.5	8.0	3.5	0.7	1.1	2.7	59.5	23.1	2.8	18.9	14.7	
Cooking	35.4	3.0	1.3	0.2	0.4	1.1	32.4	12.8	1.6	10.0	7.9	
Cleaning	16.8	2.9	1.2	0.3	0.4	1.0	13.9	5.2	0.6	4.7	3.5	
Laundry	12.1	0.9	0.5	0.1	0.1	0.3	11.2	4.4	0.5	3.6	2.7	
Sewing	0.6	0.0	0.0	0.0	0.0	0.0	0.6	0.1	0.0	0.2	0.3	
Others	2.6	1.1	0.5	0.1	0.2	0.4	1.4	0.7	0.1	0.4	0.3	
Shopping	19.6	6.1	4.0	0.3	0.7	1.1	13.6	5.8	0.4	4.9	2.5	
Child care	12.8	2.5	2.1	0.1	0.1	0.2	10.3	3.7	0.1	6.0	0.5	
Elderly care	1.7	0.4	0.2	0.0	0.0	0.1	1.3	0.5	0.1	0.4	0.4	

Source: Nomura, based on Ministry of Internal Affairs and Communications "Survey on Time Use and Leisure Activities" and Ministry of Health, Labor and Welfare "Basic Survey on Wage Structure".

2.7 trillion yen is equivalent to 0.5% of GDP. This is comparable with a fair amount of fiscal stimulus measures taken by governments in economic downturns. Creation of new demand will partially offset the inflation-calming effect of higher labor participation. But the impact of 5% increase in labor supply does not seem to be offset completely by 0.5% increase in demand. In the first place, demand shortage is also a problem caused by declining population. Raising female labor participation is likely to have favorable effects both on supply and demand side of the economy, with stronger effects on supply side.

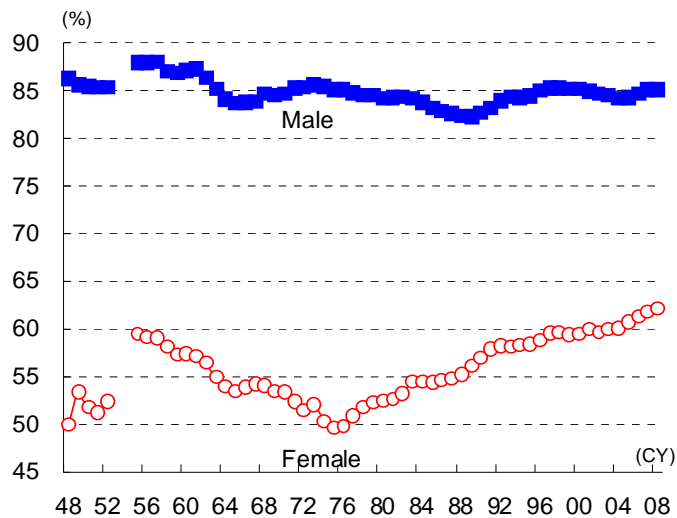
4. A policy dilemma

Admittedly, raising female labor participation is not an ultimate solution to the declining population. But it does make the negative impact on the economy smaller. If this is the case, why don't we just ask more women to get in the labor market? In fact, female labor force ratio has been rising during the past 30 years, from about 50% in 1975 to above 60% in 2008 (Figure 7). There has indeed been a significant improvement in this regard. It may seem as if the adverse impact of declining population will be

automatically offset by rising female labor participation.

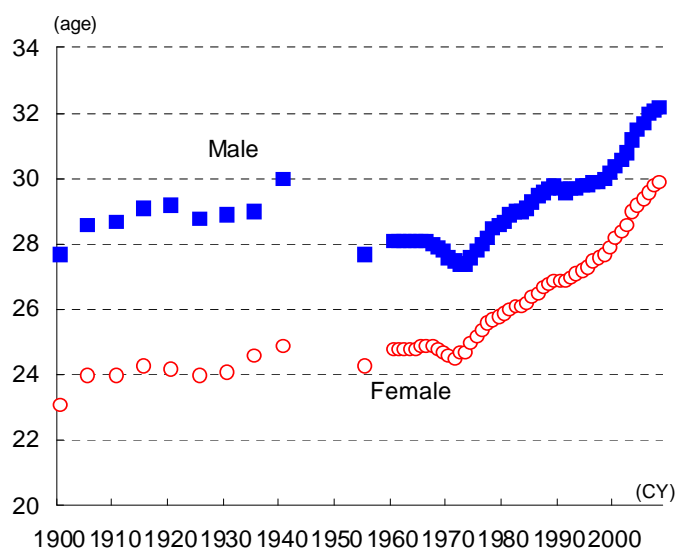
Unfortunately, more complication is attached to the upward trend in female labor participation. Almost at the same time as the ratio started rising, also started was an upward trend in the average age of marriage (Figure 8). For females, the average age of marriage in 1970s was around 25. In 2008, that number went up to almost 30. Women's life schedule seems to have shifted further into the future by five years during last 30 years.

Figure 7. Labor force ratios in Japan: age 15-64



Source: Nomura, based on Ministry of Internal Affairs and Communications "Labor Force Survey"

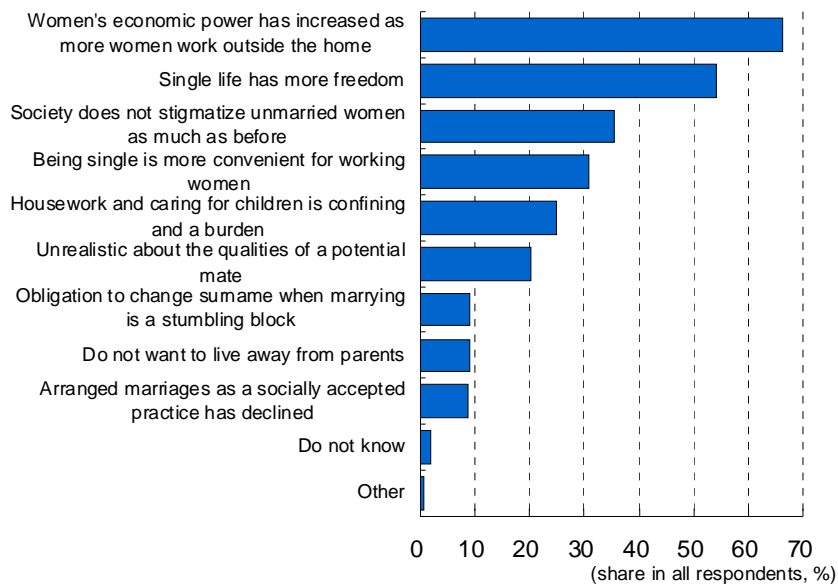
Figure 8. Average age of marriage in Japan



Source: Nomura, based on Ministry of Health, Labor and Welfare

Why a later marriage? Rather than specifying a complex decision problem for women to analyze their behaviors, which is way beyond the scope of this paper, let's simply look at the result from a public opinion poll gathered by the Cabinet Office in 1997. 66% of the respondents said it was because women had more jobs and money that they were choosing to get married later in their lives (Figure 9). If this interpretation is correct, no wonder two upward trends started almost at the same time. It was higher labor participation that caused later marriage.

Figure 9. Reasons for women getting married later: an opinion poll (1997)



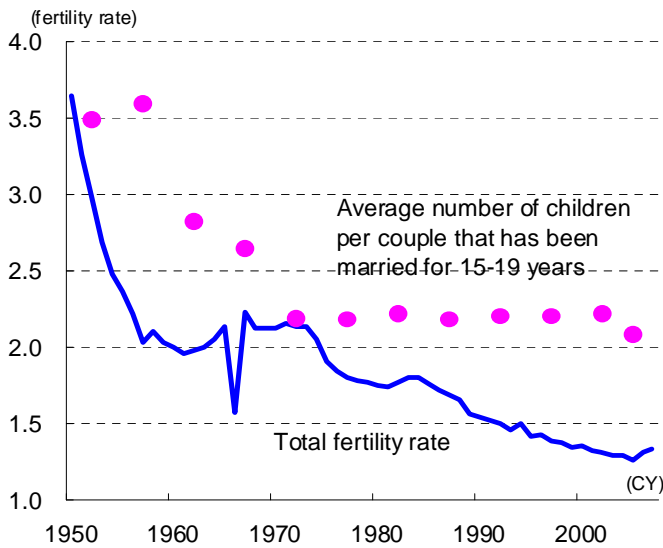
Note: Respondents are 20 years or older, both men and women.
Source: Nomura, based on Cabinet Office

When to marry is of course a personal choice. From the point of view of corporate business, however, this becomes a problem because later marriage is the major source for the decline of total fertility rate (TFR). The average number of children per married couple has been very stable at slightly above two since 1980s (Figure 10). Once they are married, Japanese couples tend to have two or more children. Then it must be that it was less number of marriages that caused the decline in overall TFR. A breakdown analysis of the source of decline in TFR provided by IPSS also suggests that the major source of the decline in fertility rate has been less number of marriages since 1980s (Figure 11). The number of children per marriage has actually been contributing positively to TFR during that period.

Thus, I have established, although informally, a chain causation from higher female labor participation to later marriage, and later marriage to lower fertility rate.

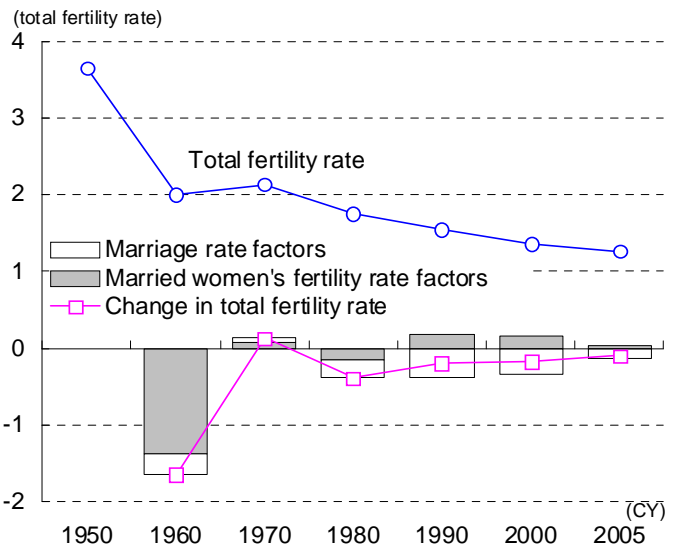
Higher female labor participation has been the *cause* of declining fertility rate. Ironically, now we expect a higher female labor participation to be a *cure* for problems caused by declining fertility. Here, we are facing an obvious policy dilemma, or possible vicious spiral. Just shouting out loud claiming that there should be more women working, based on the logic of equal chance of work or feminine rights or whatever justification, could further decrease fertility rate.

Figure 10. Fertility rates in Japan



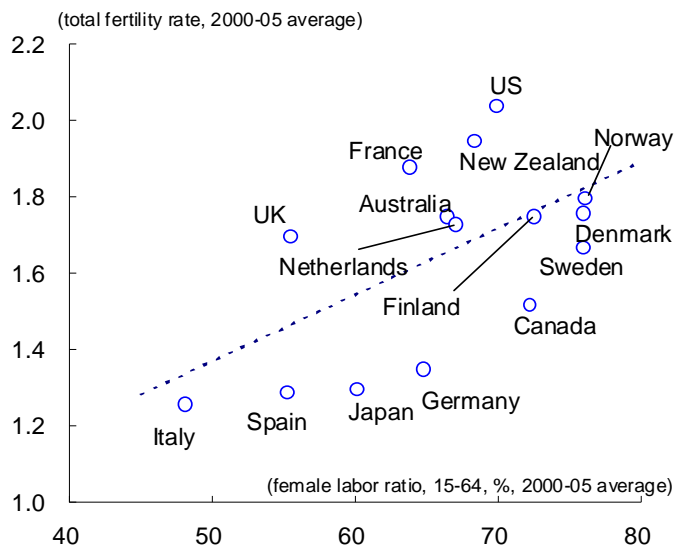
Source: Nomura, based on Ministry of Health, Labor and Welfare, and National Institute of Population and Social Security Research

Figure 11. Factors affecting the total fertility rate



Nomura, based on National Institute of Population and Social Security Research

Figure 12. Total fertility rate and female labor force ratio



Note: Labor ratio for UK is for age 15 and older.
Source: Nomura, based on United Nations and International Labor Organization

What is going on? It seems to me that Japanese women are facing serious tradeoff between work and marriage. They are forced to choose either keeping their jobs or getting married, but not both. This conjecture, for which I cannot provide any theoretical or empirical proof, nevertheless fits well to my personal experience.

This is not to say that it's impossible to raise female labor participation without further decreasing TFR. In fact, an international comparison reveals a *positive* correlation between female labor participation rate and TFR (Figure 12). It does not imply any causality, but it does imply that high female labor participation and high fertility can coexist in a same country. The vicious spiral between labor participation and fertility does not always have to kick in. What we have to do is to eliminate the tradeoff Japanese women are facing.

5. A suggestion to achieve higher female labor participation and total fertility rate

What exactly is it that's making it so difficult for women to choose both work and marriage? This is very likely to be not only economic but also social, psychological, cultural and environmental question. I do not attempt to provide a comprehensive discussion here. Instead, let's look at data and think about what we can tell.

Labor Force Survey gathers information about the reason why females who wish to work choose not to go into labor market. Among such 3.16 million females aged 15-64, 1.14 million, or more than a third, answered that the reason was too much work of housekeeping and childcare (Figure 13). Therefore, what we can do to make it easier for women to work and marry is to somehow take the load off from their household jobs. One possible way is to make their husbands watch TV less and participate in household work more, but I am not sure if this is a very realistic policy objective.

**Figure 13. Number of female not in labor force but wish to work:
by reason not to seek for job**

(million people)

	Total	No prospect of finding a job						Cannot keep working due to housekeeping or childcare	Health problem	Others
		nearby	suitable for own knowledge or skill	with favorable working hours or salary	because of economic or seasonal cycle	Others				
Total	3.16	0.98	0.18	0.11	0.45	0.06	0.17	1.14	0.38	0.57
Age										
15-24	0.57	0.16	0.02	0.02	0.06	0	0.06	0.05	0.03	0.27
25-34	0.84	0.14	0.02	0.02	0.07	0.01	0.02	0.54	0.08	0.07
35-44	0.96	0.3	0.04	0.03	0.19	0.01	0.03	0.47	0.09	0.09
45-54	0.43	0.2	0.04	0.02	0.09	0.02	0.03	0.06	0.09	0.08
55-64	0.36	0.18	0.06	0.02	0.04	0.02	0.03	0.02	0.09	0.06

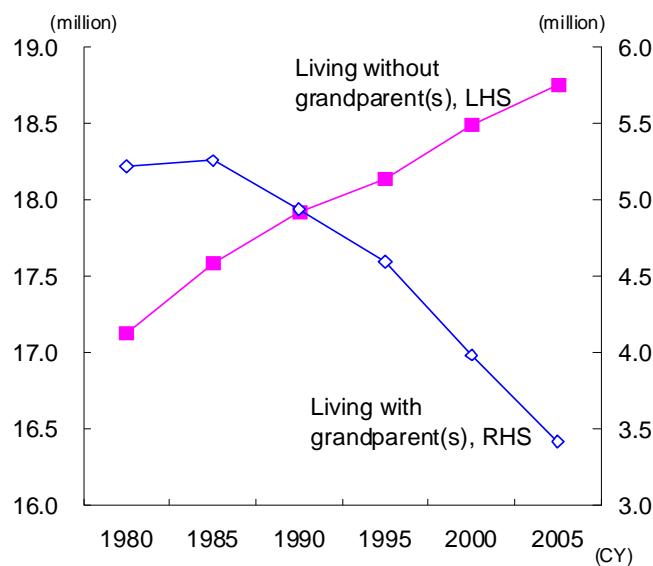
Source: Nomura, based on Ministry of Internal Affairs and Communications "Labor Force Survey"

An alternative way is to provide sufficient supply of outsourcing industry of household services. I already claimed that higher female labor participation will create outsourcing demand for household works. Here, I claim that development of household service industries enhances female labor participation. That is, female labor participation and household service industries are in a mutually reinforcing relationship.

There are many types of household works that have to be outsourced. Opportunities to outsource cooking seem to be already available in many ways, at least in Tokyo. We could go to restaurants, buy ready-made dishes at base floors in department stores, order pizza, sushi, Chinese noodles, Italian pastas and French courses by phone or the internet. There are not many choices to outsource cleaning and laundry. We still seem to have strong hesitance towards asking strangers to come in to our own house and clean dirty floors, kitchens or baths, or wash our dirty shirts, though it is gradually becoming common.

An obvious shortage can be observed in childcare industry. The number of children aged 0-5 is about 6.5 million as of 2008. On the other hand, the capacity of daycare centers is merely 2.1 million. If all mothers of children aged 0-5 want to work, daycare centers are simply not available for two thirds of them. Of course, not all mothers choose to work, and daycare centers are not the only choice. However, since more and more couples choose to live separately from their parents (Figure 14), daycare services are becoming more and more indispensable to stimulate female labor participation.

Figure 14. Number of households with children



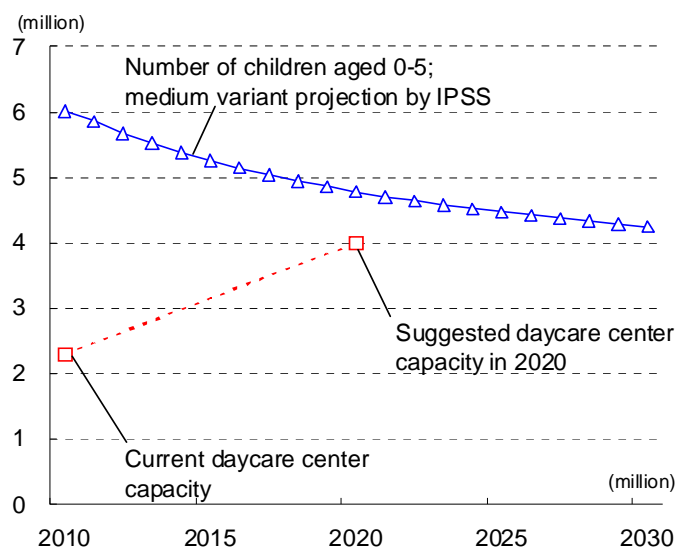
Source: Nomura, based on Ministry of Internal Affairs and Communications "Population Census"

In fact, the number of children waiting to enter daycare centers amounts to 25 thousand in 2009, which is equivalent to 1.1% of daycare capacity. Furthermore, it is very likely that there are many more children who did not even submit application forms because of too little possibility to enter. This is why daycare shortage problem has been a big debate in Japan's political scene.

How many more daycare capacity do we need? If we want to provide sufficient capacity for all the mothers who have children of age 0-5 right now, the necessary capacity would be more than six million, which is three times more than the current level. This is not a possible goal to achieve instantaneously, so we have to set a schedule of increasing daycare supply into the future. The difficulty is that there will be less and less children. We are short of daycare supply right now, but if we build too many daycare centers, there will be over supply. This is a very complicated dynamic problem, which I do not attempt to establish and solve here.

Let's just say that our policy perspective is ten years. According to the medium-variant projection provided by IPSS, the number of children aged 0-5 will be 4.7 million in 2020, instead of the current level of 6.5 million. If we were to provide enough daycare services to every child in 2020, we need 2.6 million more daycare capacity on top of the current capacity. However, not all children will utilize daycare centers. In addition, since the number of children will keep decreasing, the optimal level of daycare capacity is likely to be less than the number of children at any point of time.

Figure 15. How many daycare capacity do we need?



Source: Nomura, based on National Institute of Population and Social Security Research, and Ministry of Health, Labour and Welfare

Therefore, my policy suggestion would be to keep increasing daycare capacity aiming at four million in 2020, which is about two million more from the current capacity (Figure 15). To achieve this goal, the capacity needs to expand by 200 thousand each year. Assuming that capacity per daycare center is 100, an increment of 200 thousand of capacity translates to two thousand daycare centers. Along the way, we must keep our eyes on actual demographic development and modify our supply schedule, since it is possible that the policy action itself has an effect on total fertility rate, and since population projection is not always accurate.

6. Changing behavior of women

Japan's population is decreasing. We need aggressive policy reactions, especially more daycare centers to eliminate tradeoff between work and marriage. This seems to be the general consensus in Japan, and the current paper has discussed the issue along the same line.

However, this view has so widespread that I fear it's becoming a stereo typed image. As I was trying to gather data to tackle this issue, I came to realize that there have been significant changes in household behavior that seem to have not drawn as much attention as they should. Those changes seem to imply that Japanese women are heading toward the direction of more work and more children at the same time. Of course, these changes may not be big enough to reverse the declining trend of Japanese population. They could even just be only temporal phenomena.

But at the same time, those changes could be permanent. I could not identify the cause, so the possibilities are still open. I would like to point out what I found, and leave the rest to future discussion.

1) Increasing demand for daycare

I already mentioned the severe shortage in daycare supply. But one may wonder why there are so few daycare centers in Japan, especially where the number of children started decreasing many years ago. In fact, we have 40% less children aged 0-5 now than in 1980s (Figure 16). How can we have shortage in daycare?

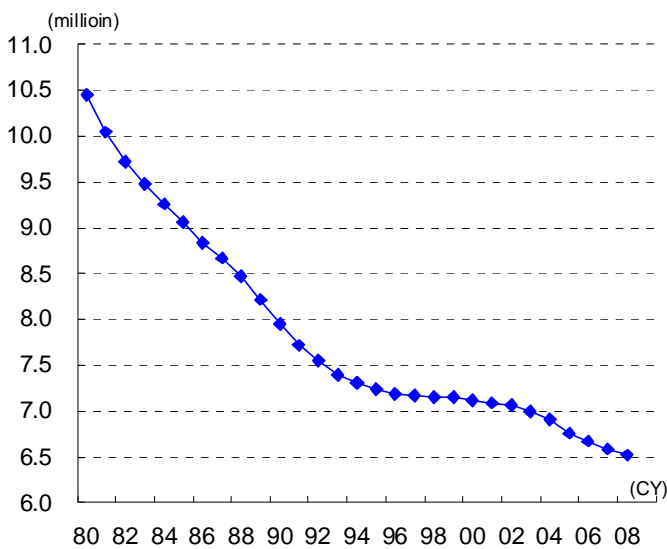
The general consensus seems to be that this is a policy failure. There are many kinds of regulations on the operation of daycare centers, such as minimum floor area per child, minimum number of caregivers per child, maximum hours of operation and so on. It is argued that those restrictions are so strict that enough daycare supply is not provided. And, since those regulations have existed for a long time, they argue as if there has always been severe daycare shortage for a long time.

Although I agree that the situation would be better with less regulation, I also want to emphasize the sudden change in demand for daycare services. The number of children in daycare centers had been decreasing till 1994 when it fell just under 1.6 million. This is very natural because the total number of children had been decreasing. It is also natural that daycare capacity had been shrinking, facing declining demand.

What was surprising was that the number of children in daycare centers suddenly started *increasing* from 1995, despite the continued *declining* trend in total number of children. It has kept increasing since then, and now we have 28% more children in daycare centers than in 1994 (Figure 17). It even *exceeds* the level in 1980. The dramatic turn in daycare demand should have been very difficult to foresee beforehand, given the decreasing trend in the total number of children.

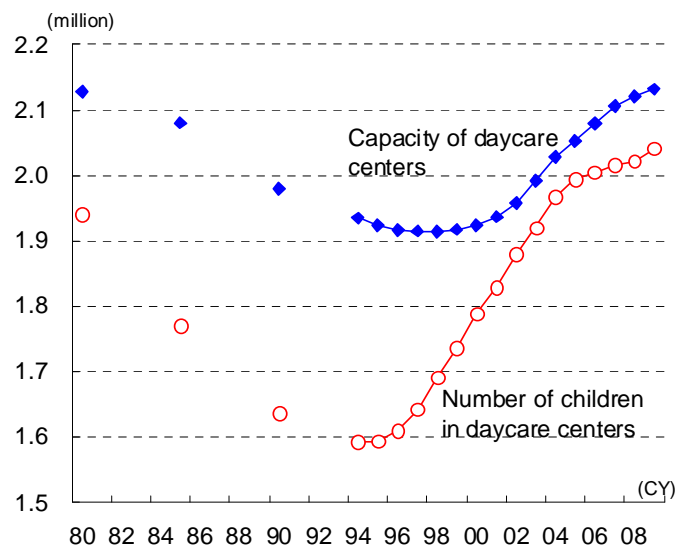
Following the major turn in the demand trend, total capacity of daycare center started increasing as well. However, occupancy rate is still close to 100%. There is a long list of children waiting to enter daycare centers that amounts to 25 thousand, or equivalent to 1.1% of the capacity of the daycare centers, as I mentioned already. Again, if there was less regulation, there would be more daycare capacity provided. However, it seems to me that the most important reason why we have daycare shortage is the unexpected burst of daycare demand that somehow occurred in the middle of 1990s. Policy debate tends to miss this point.

Figure 16. The number of children of age 0-5



Source: Nomura, based on Ministry of Internal Affairs and Communications

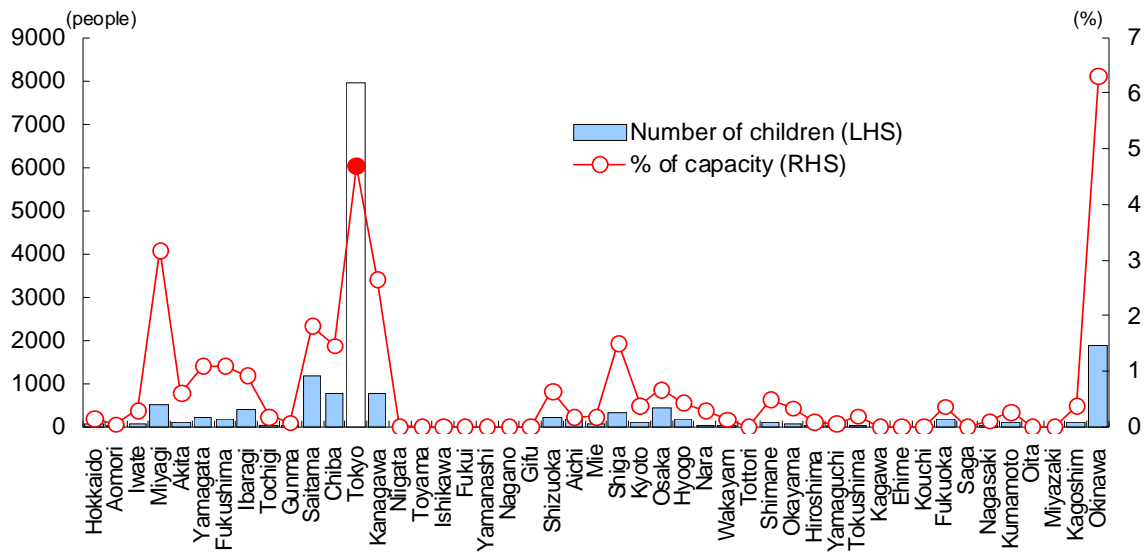
Figure 17. Daycare centers in Japan



Source: Nomura, based on Ministry of Health, Labour and Welfare

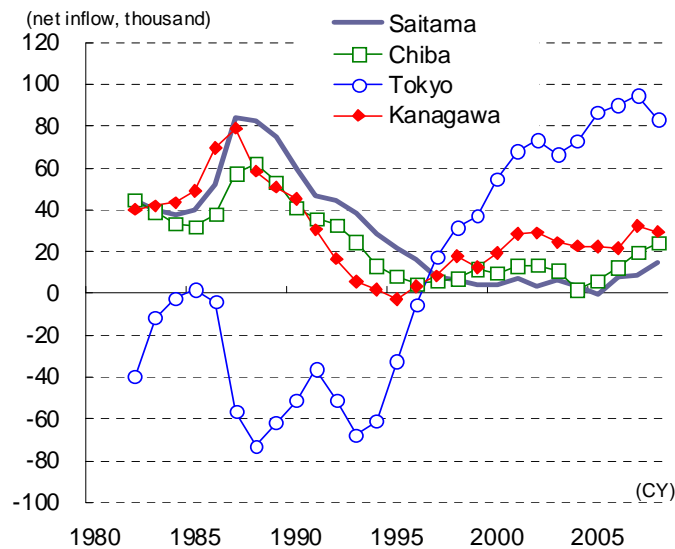
It is often emphasized that shortages in the supply of daycare services is particularly severe in Tokyo. This is undoubtedly true; almost half of the children on the waiting list are located in Tokyo. When you look at the relative size of waiting list to daycare capacity, Okinawa, the prefecture consisted of southern islands, comes to the top. However, Tokyo still comes to the second position (Figure 18). It's fair to say that supply shortage problem is particularly severe in Tokyo.

Figure 18. Children waiting to enter daycare centers (2009)



Source: Nomura, based on Ministry of Health, Labour and Welfare

Figure 19. Population inflow to the metropolitan area

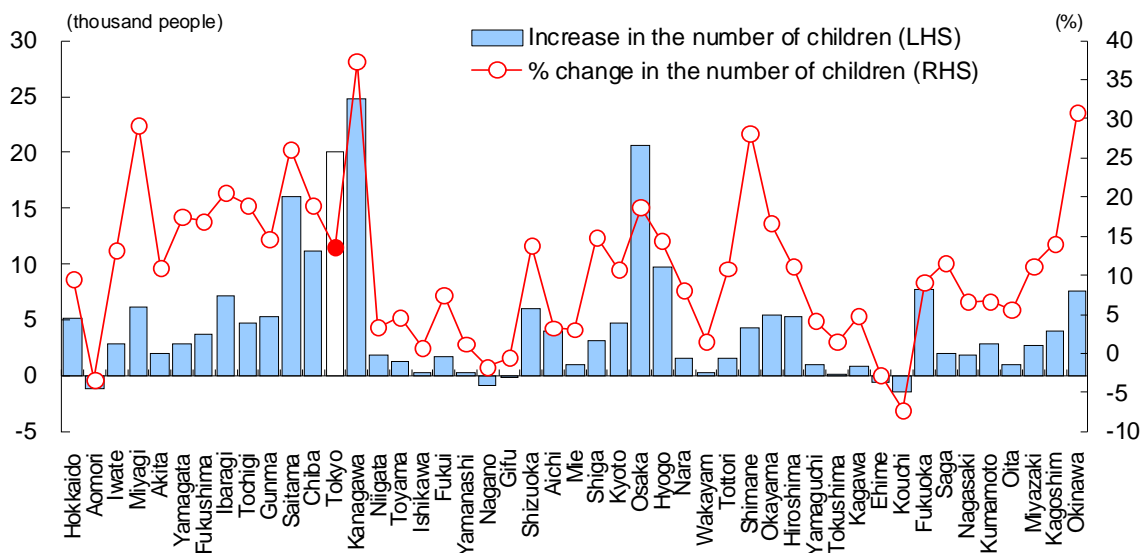


Source: Nomura, based on Ministry of Internal Affairs and Communications

The reason why Tokyo's performance is so poor in providing daycare services is not clear. Perhaps it was particularly difficult for Tokyo to foresee the sudden increase in daycare demand. Tokyo had been experiencing net population outflow until mid 1990s. Interestingly, despite its high average income, Tokyo was a base of emigration. However, net flow of population turned to positive in 1997. Since then, more and more people are coming into Tokyo (Figure 19). People who relocate their residence to Tokyo are likely to be younger generations. It's possible that the surprise increase of daycare demand has been particularly big in Tokyo.

However, what we have to bear in mind is that Tokyo is not the only place where childcare demand is growing. Between 2001 and 2009, the numbers of children in daycare centers have increased in all prefectures but five in Japan (Figure 20). The increment during that period was largest in Kanagawa, followed by Osaka, and then Tokyo. Tokyo ranked in 18th in terms of the rate of increase in children in daycare centers. Thus, increase in daycare demand is not a Tokyo-only phenomenon. Instead, it seems to be a trend spread all over Japan. Tokyo's supply shortage outstands probably because of the sudden swing in population flow that made demand increase particularly difficult to foresee.

Figure 20. Change in the number of children in daycare centers between 2001 and 2009

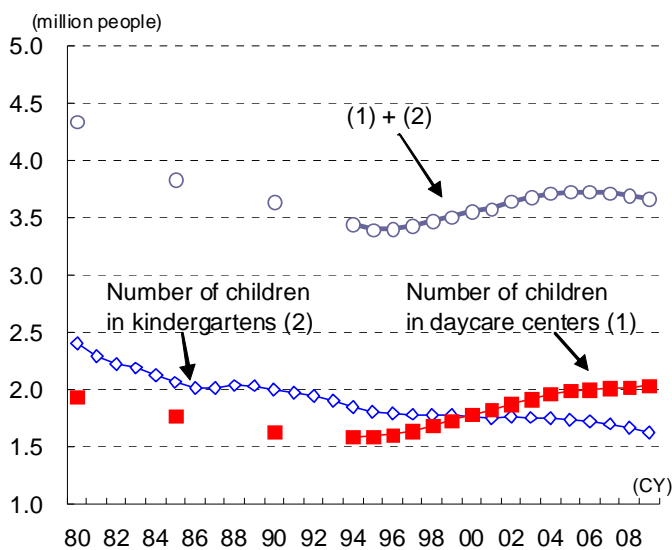


Source: Nomura, based on Ministry of Health, Labour and Welfare

Why the increase in daycare demand despite the decrease in the number of children? As always, there are many possible explanations. One such explanation is a substitution between daycare and kindergarten services. The idea of kindergartens in Japan is close to preschools in the US. They are not so much about study but mostly playing, and what children do in daycare centers and kindergartens are not distinctively different. Therefore, daycare services and kindergarten services can be substitutes to some extent. There would be little surprise if there had been a large demand shift from kindergartens to daycare centers.

While we cannot ignore this possibility, it's difficult to see that the substitution had actually occurred. The number of students in kindergartens has been in stable declining trend since 1980 (Figure 21). I cannot observe particularly distinctive impact on the trend around the time when children in daycare centers started increasing. Also, total number of children in daycare centers and kindergartens began to increase in the latter half of 1990s. Therefore, it's not possible to explain the dramatic increase in daycare demand only by substitution between daycare services and kindergarten services.

Figure 21. Number of children in kindergartens and daycare centers



Source: Nomura, based on Ministry of Health, Labour and Welfare and Ministry of Education, Culture, Sports, Science and Technology

In the first place, there still exist significant differences between the two institutions. Children can usually stay longer in daycare centers than in kindergartens. Also, parents must have jobs to let their children enter daycare centers, while kindergartens don't require parents to have jobs. These differences come from the

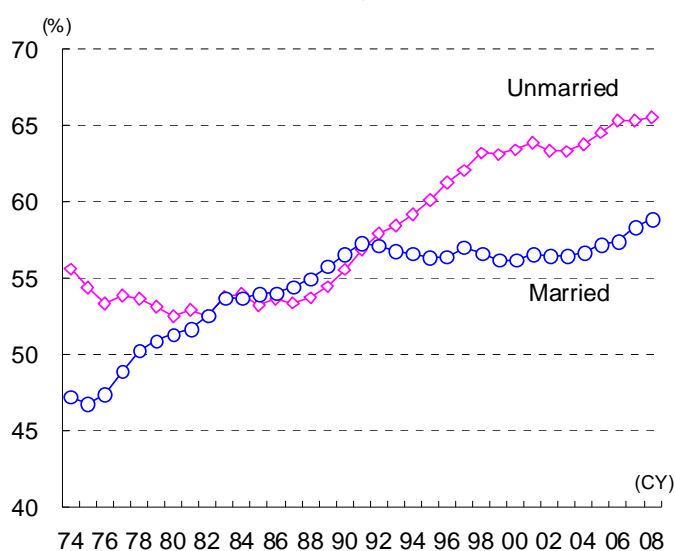
difference in the purposes of the two systems; daycare centers are primarily for those parents both of whom want to work, while kindergartens are designed as a part of educational system. What children do is very similar, but two institutions that have different goals cannot be perfect substitutes.

2) Rising female labor participation and total fertility rate

One may wonder if the reason why demand for daycare services is growing is that more mothers are working than before. Japanese economy was in the middle of the *lost decade* when the number of children in daycare started increasing. Perhaps more mothers started to work to supplement the declines in their husbands' salary. Though it's a very reasonable story, I could not find evidence that supports this view. Labor force ratio for married women stayed more or less at the same level in the mid 1990s (Figure 22).

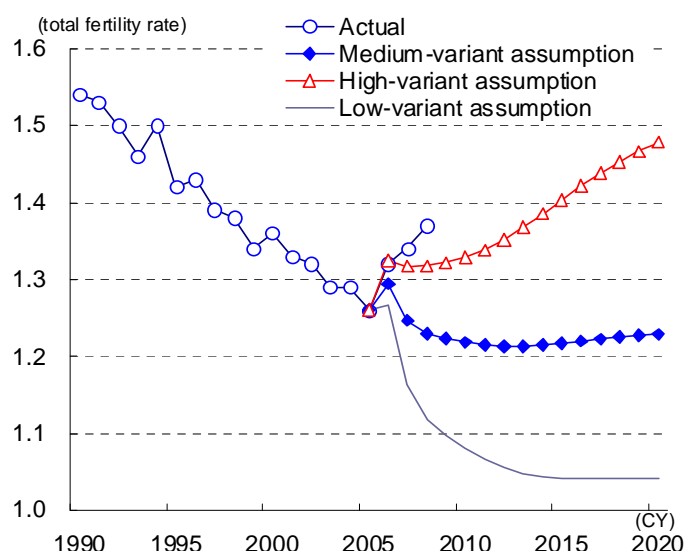
Instead, what I would like to point out here is that labor force ratio for married women began to rise more recently, especially from the mid 2000s. I think this is interesting because it seems to have coincided with a rise in fertility rate (Figure 23). I already argued that rising female labor participation was the cause of declining fertility. The same argument does not apply to the last three years.

Figure 22. Female labor force ratio for those aged 15-64



Source: Nomura based on Ministry of Internal Affairs and Communications "Labor Force Survey"

Figure 23. Total fertility rate in Japan

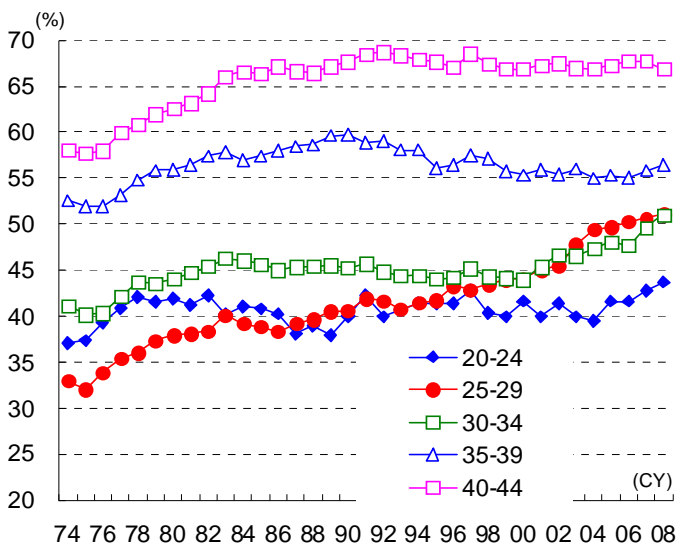


Note: Assumptions are those used in IPSS population projection. Source: Nomura, based on Ministry of Health, Labour and Welfare, and National Institute of Population and Social Security Research

There may be no surprise in rising female labor participation, given that the latest several years was a period of economic boom. It must have been easier for females to get jobs. On the other hand, a rise in fertility rate must have been a surprise. Population projection provided by IPSS as of 2006 assumes it to stay between 1.20 and 1.25 at least until 2020 in its medium-variant estimate. The actual TFR so far has exceeded not only the assumed TFR in medium-variant estimate, but also that in high-variant case.

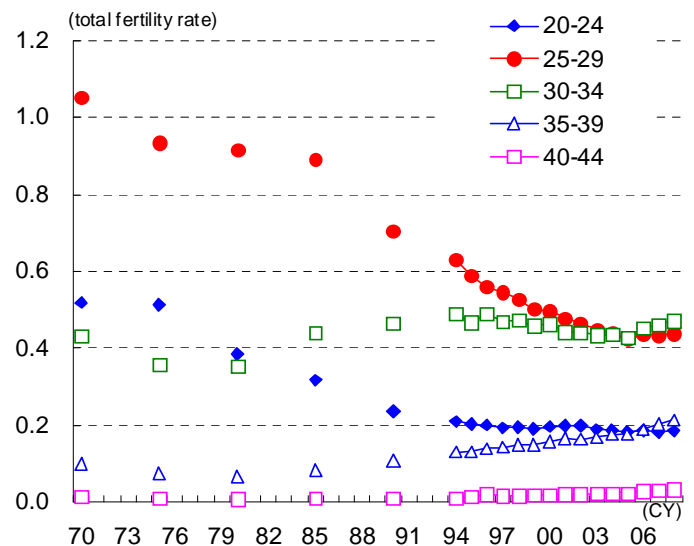
The rise in female labor participation and TFR are not dependent on particular age groups. Labor force ratio for married women increased in every age group from 20 to 49 except for those aged 40-44, between 2005 and 2008 (Figure 24). Also, TFR stayed unchanged or rose in all age groups during the same period (Figure 25).

Figure 24. Labor force ratio of married females by age



Source: Nomura, based on Ministry of Internal Affairs and Communications "Labor Force Survey"

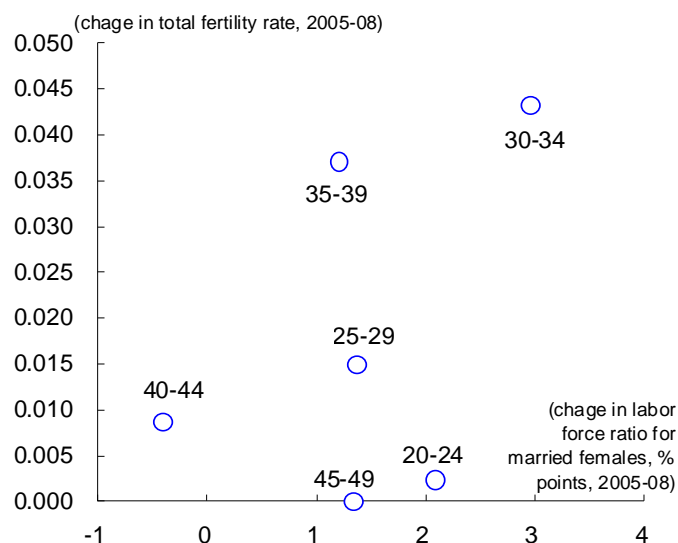
Figure 25. Total fertility rate by age



Source: Nomura, based on Ministry of Health, Labour and Welfare

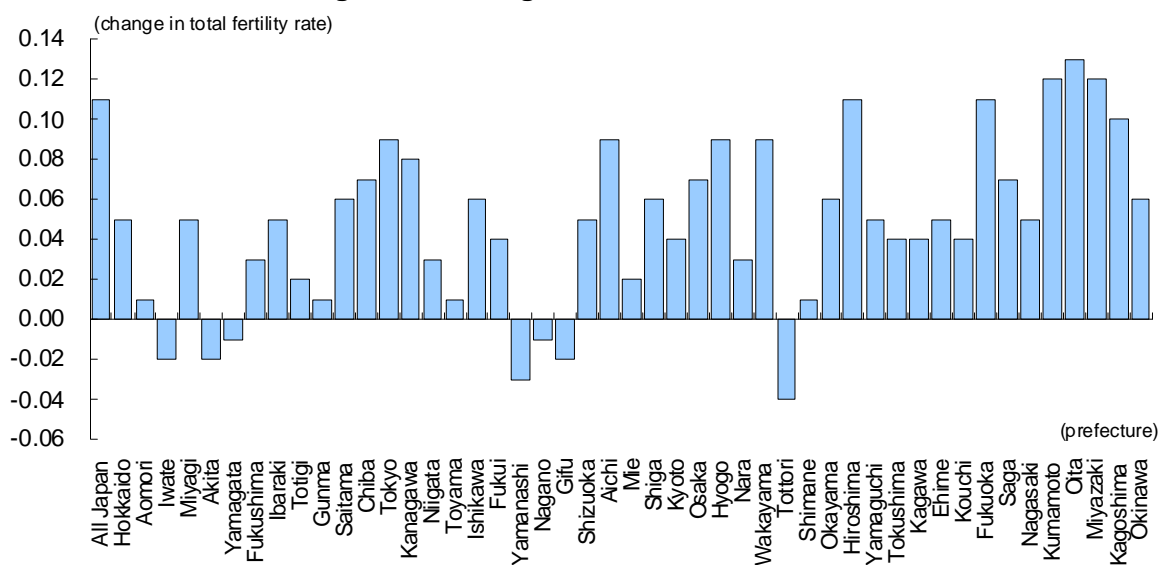
Labor force ratio for married women aged 30-34 rose by close to 3% points since 2005. It was the biggest gain among all age groups. Interestingly, this age group also gained most in TFR during the same period. Furthermore, we can even observe a hint of positive correlation between gains in labor force ratio and TFR among age groups since 2005 (Figure 26). Again, my argument that higher labor participation causes fertility to fall does not seem to apply.

Figure 26. Change in labor force ratio and TFR



Source: Nomura, based on Ministry of Health, Labour and Welfare, and Ministry of Internal Affairs and Communications

Figure 27. Change in TFR from 2005 to 2008



Source: Nomura, based on Ministry of Health, Labour and Welfare

How about geographical bias? Among 47 prefectures in Japan, TFR declined since 2005 only in seven (Figure 27). I have not constructed regional labor participation data. But at least recent upturn in TFR seems to be fairly a nation wide phenomenon, not dependent on any shocks on particular region.

7. A slightly brighter future?

Demand for daycare centers is growing. Labor force ratio for married women and fertility rate are both rising at the same time. Why? I don't have good explanations yet. But at least female behaviors are changing in Japan. And all those changes seem to me to be pointing toward a desirable direction of more labor participation and more children.

Of course, those changes may not be big enough to reverse the declining trend in population or to eliminate the adverse effects from it. They may be even only temporal. But that is exactly why we have to be aware of the favorable changes that are happening in front of us, and try to help them change further. I already proposed more provision of daycare centers. Also, private enterprises can work on creating better environment for females by, for example, providing daycare services in their office buildings. We have worried enough. It is time to move.