Japan's Demographics and the Lost Decades

Reiko Aoki[1]
Center for Intergenerational Studies, Institute of Economic Research,
Hitotsubashi University

July 29, 2012

Introduction

The foundations of Japan's current economic and legal system were established immediately after the end of World War II. The revised constitution became effective on May 3, 1947. That year, the total fertility rate (TFR) was 4.54, life expectancy was 50.06 (men) and 53.96 (women), and the median age of the population was 22 (51.67%). The postwar reconstruction boom, baby boom, and Korean War boom followed. A 10-year plan to double the national income was implemented in 1960 and GDP grew an average of 11% every year, doubling in six years. During this time, the TFR steadily declined while life expectancy and the median age of the population continuously increased.

On May 31, 1989, fearing inflation and overheated assets markets, the Bank of Japan raised its policy interest rate from 2.50% to 3.25%. Four more hikes followed and the rate reached 6% by summer 1990. The Nikkei Average fell from over 30,000 to below 20,000 by 1995. The unemployment rate increased to 3.2% during the same period from 2.1% in 1990. The bubble had burst. The Bank of Japan began to cut the interest rate until it reached 0.3% in 2001, but the Nikkei remained below 20,000 and unemployment had reached 5% by that time. Nominal GDP has remained flat for the past two decades. The Nikkei dropped below 10,000 after the Lehman Brothers crisis in 2008 and has not recovered.

The year 1990 was also a demographic landmark year. By then, life expectancy had risen to 75.92 (men) and 81.90 (women), and the median age of the population was 37. It became evident during 1990 that the TFR had been only 1.57 for the previous year and this fact is now referred as the "1.57 shock." The number was significant because it was lower than the TFR of 1.58 in 1966. The year 1966 was the "year of the horse" according to the Chinese zodiac "*Hinoe-uma*," in which parents prefer not to have children based on superstition.[2] The TFR being lower in a non-*Hinoe-uma* year than in a *Hinoe-uma* year was very alarming, and the extent of low fertility became known and understood by everyone.

The social alarm and concern led the government to propose and implement various pro-natal policies. However, unlike the economy that had changed direction, the TFR

[1] Aoki received support from academic project on Economic Analysis of Intergenerational Issues: Searching for Further Development, funded by the Grant-in-Aid for Specially Promoted Research from Japan's Ministry of Education, Culture, Sports, Science and Technology (grant number 22000001).

[2] *Hinoe-uma* occurs every 60 years, or every five cycles of the zodiac.

Year	1964	1965	1966	1967	1968
TFR	2.05	2.14	1.58	2.23	2.13

continued to decline and life expectancy continued to rise. The TFR in 2010 was 1.39 and life expectancy 79.74 (men) and 86.39 (women),[3] and the median age had risen to 47. Although the demographic trends remained the same before and after 1990, it was the year in which a string of policies aimed at raising fertility was launched that continue to this day.

Japan's economic and legal institutions are gradually changing, but there is still a mismatch of economy, institutions and individual behavior. Policies designed for the old economy and institutions no longer change individual behavior as expected. Pro-natal policy is one such example. The mismatch also means that individual behavior no longer contributes to the whole economy as it did in the old system.

In this paper, I first examine how the continuing demographic trend has manifested itself in the post-1990 Japanese economy. The paper then reviews past and present policies. We will see the justification and delivery of fertility policy has changed taking into account the Japanese social and economic. Fertility policy has had to be adjusted to the progressive image of women not having children, and prolonged economic stagnation (Demeny, 1972). Fertility policy is now promotes balancing work and family (work-life balance) and doubles as economic stimulus package. I conclude by examining new alternatives that may be effective in overcoming the mismatch, such as voting system proposed by Demeny (1986).

Demographic and Economic Trends

As is now well known, the steady decline of the TFR and the rise in life expectancy has changed the age distribution of Japan dramatically (Table 1). Japan leads the world in this regard. The population age distribution had the typical pyramid shape until 1950, but since then, it has become pear-shaped and is now turning into an inverted pyramid.

There have been other changes closely associated with demographics. For instance, a significant change has occurred in how people are organized: namely, what constitutes a household. The average household size has declined, from 5 (number of members) in 1950 to 2.62 in 2009. The emergence of the nuclear family is a well-known phenomenon, but the proportion of nuclear households (couple, couple and unmarried children, one parent and children) has remained surprisingly stable in the range of 58–60% since 1980. The main change in structure comes from single-person households and large families. The proportion of single households has increased from 18.2% in 1980 to 24.9% in 2009 while that of three-generation households has declined from 16.9% to 8.4% during the same period. The proportion of couple-only nuclear families also increased, from 13.1% to 22.3%. This is consistent with the remaining proportion of nuclear families with children decreasing, as there are fewer children being born.

This change in household structure is related closely to the social security system. Social security makes family support less important and reduces the incentive to have children. Having fewer children significantly increases dependence on social security in retirement because of the lower income base provided by the declining numbers of the younger generation. The current system was designed when there were very few pensioners. In 1965, people over 65 comprised 6.3% of the population, while people aged

[3] This was the first time life expectancy declined in Japan. Life expectancy of women was 86.44 in the previous year, 2009.

20–64 comprised 57.1%. In 2012, these percentages were 24.2% and 58.2%, respectively, meaning only 2.4 working people for every pensioner. Only about 50% of social security payments[4] are financed by contributions. The remainder comes from the national budget.

In the FY 2011 budget, social security payments were equivalent to 30.1% of GDP. Recall that GDP has not grown in the past two decades while the number of pensioners has grown, although the baby boomers are yet to retire. Prolonged economic stagnation has resulted in tax revenue remaining flat. The public debt outstanding is expected to be equal to 145% of GDP at end of FY 2012, or roughly 17 times the annual tax revenue.[5] Debt servicing was 24.9% of the national budget (FY 2012), only slightly smaller than the pension payments[6] in the national budget share which was 29.2%. There is general agreement that the system needs to be changed. At the time of writing, the set of bills on pension reform and increasing the consumption tax is being debated in the upper house of the Diet. The bills have already passed the lower house.

The shifting household structure reflects changes in marriage patterns as well as fertility. Single households consist of widows, widowers, and people of all ages who are not married. Fewer Japanese marry, and if they do marry, they marry later than they used to (Table 2). Furthermore, women's average age at first marriage was 28.6 in 2009[7] and it was 2.19 years on average until she gave birth to her first child. This means the average age of a mother giving birth to her first child was 30.79. This is older than when a mother gave birth to her second child in 1975 (which was 28.0 on average). In 1975, women married younger (average age of first marriage 24.7) and had children more quickly (1.55 years until she first gave birth).

One of the reasons for delayed marriage is the employment status of the younger generation. Unemployment has been 3–5% in Japan for the last two decades and although it is higher for people under 25 than other age groups, it has never been above 6%. This might look as if the employment position of the younger generation is not as bad as in other countries in recent years. However, there is a significant difference between younger and older workers in terms of type of employment with long-term implications.[8] A greater proportion of younger people are "non-regular" employees compared with other age groups (other than people over 65 who are seeking reemployment).

Figure 1 shows the proportion of non-regular workers by age group. The proportion for the age group 12–24 has increased dramatically since 1994, although level is less when those in school (who would be part-time workers) are excluded. There has been an overall decline of regular employment, but the decline is more prominent among the youngest and the oldest age groups. The definition of "non-regular" varies slightly by statistics, but it basically refers to employees that have a status that is not regular,

---

[4] The social security budget consists of three items: pensions (49.7% of the social security budget in FY 2011), health care (31.2%), and long-term care and other welfare payments (19.1%).

[5] Ministry of Finance, 2011, 2012.

[6] Pension payments from national budget together with contributions and pension payments from local governments make up what pensioners receive.

[7] Ministry of Health, Labor and Welfare 2011.

[8] The effect of initial employment status on lifetime earnings has been well documented (Shiraishi and Takayama, 2011).

where regular employment in Japan means lifetime (until mandatory retirement age) employment at a firm.

The source of increasing "non-regular" employment has been attributed to several factors (Asano et al., 2010). There has been significant structural change in Japanese industry: namely, a decline in manufacturing and growth of the service sector. In 1980, the proportions of GDP from manufacturing, services, and communications were 28.0%, 14.2% and 1.6%. The proportions in 2010 were 19.4%, 19.1% and 5.4%.[9] There has been a corresponding similar shift in the work force among sectors. The service sector is less physical and capital intensive, meaning adjustments to demand rely more heavily on adjusting the work force. Non-regular workers are easier to hire and fire. The same advantage of nonregular workers exists when there is great uncertainty about future demand. It is safer not to commit to regular workers when demand might decline in the future.

One implication of increasing "non-regular" worker status is that there is less human capital accumulation with tenure. In fact, less on-the-job learning is one of the distinct characteristics of nonregular workers (Kambayashi, 2010). Although not all non-regular workers have short-term appointments, there is greater uncertainty about future employment and earnings for them. This leads to young people delaying starting families or even abandoning the idea completely. There is great stigma attached to giving birth out of wedlock and there is very little social infrastructure to support single parents. Thus, the nonregular employment status of young people probably contributes to the decline of the TFR.

The employment status of young people is cause for great concern in terms of human capital investment. Unlike the United States where workers had to invest in human capital themselves by getting an MBA, Japanese workers typically did not obtain graduate degrees[10] or other forms of certification outside the firm. Long-term relationships had made it profitable for firms to invest in workers through on-the-job training. Workers were also willing to learn firm-specific skills because they were confident of their job security. This also meant there was no demand for postgraduate professional training or need for a midcareer labor market. As a result, both outside training opportunities and midcareer markets are underdeveloped in Japan. Non-regular workers have little incentive or means to educate themselves outside the firm. There is some danger of having a permanent large pool of unskilled workers of all ages.

Unlike the structure of households and pension system that were self-enforcing, an aging work force and non-regular employment are not self-enforcing. That is, they contribute to low fertility, but neither low fertility nor an aging population necessarily causes a

[9] Economic and Social Research Institute, 2010.

[10] An exception is graduate degrees in engineering and the sciences. In the past, engineers and scientists often started work in nonacademic institutions with a Master's degree. Then, they would submit a Doctoral thesis based on what they did at work. This was possible because doctoral programs were based on independent study and not on course work. This has changed in the last decade. Doctoral programs are now closer to the North American system with substantial course work often requiring full-time enrolment, at least in the beginning. Now a greater proportion of employees start work with a PhD.

predominance of nonregular employment of younger people. It is true that the older generation has "regular" status and is more difficult to dismiss, but this would not prevent the younger generation from being hired. Workers are hired when their marginal product is greater than the marginal cost, i.e., their wage. This will not usually change by dismissing existing employees.[11]

In the FY 2012 budget, pension payments are 53.6 trillion yen, health care 33.6 trillion yen and long-term care 7.9 trillion yen. These numbers dwarf Education expenditure of 4.1 trillion yen and Science and Technology expenditure of 4.96 trillion yen.[12] Investment in Education, Science and Technology is more important than ever because capital and workers need to be productive to compensate for the drop in the labor force.

Lack of public expenditure on education has an additional cost by increasing the cost of having children. There is a perception that public education has deteriorated.[13] Proportions of students in primary and secondary schools that attend private schools have increased sharply since the mid-1980s. The economic situation should discourage private schools, but many parents have lost faith in public education. This would also have raised the cost of having children.

We noted that generational differences in employment status imply less human capital investment in a new generation of workers. Lack of long-term commitments also means less opportunity for a new generation to contribute to the firm and to underutilization of young workers. Younger cohorts would be educated with new knowledge and are likely to be more innovative and take risks. Employment practices that do not accommodate the new demographic structure could be contributing to the recent lost decades.

Public Policies to Address Low Fertility

Most of the policies to be discussed in this section belong to "Low Fertility Policies" or, more precisely, "Policies to Address Low Fertility." There is a minority opinion in Japan that low fertility is not a problem. The term avoids implying low fertility is something that should be corrected, although many policies can increase the birthrate. Theoretically, these can include policies for the society or individuals to cope with fewer children, such as pro-immigration measures. I discuss immigration in a separate section.

---

[11] There are special situations where dismissal of an employee raises the marginal product of another employee. This would be the case if the dismissed employee had imposed negative externalities on others: for instance, by being noisy or getting in everyone's way.

[12] The Science Promotion Budget (*Kagaku Shinko Chosei-hi*) of 1.29 trillion yen is included in Science and Technology although it is also included in Education and quoted separately. Both Education and Science and Technology are allocated auxiliary budgets during the fiscal year. Pensions and other social security expenditure will not have such adjustments.

[13] There is anecdotal evidence to support this. The amounts of material required by Ministry of Education, Culture, Sports, Science and Technology (MEXT) and the number of school days have declined. The performance of Japanese students in international tests, such as the Programme for International Student Assessment (PISA), has declined.

The pro-natal policy in response to the "1.57 Shock"—the first "Angel Plan"—was introduced by four Ministers (Home Affairs, Welfare, Labor and Construction[14]) in 1994. It was a list of policies in the basic direction of assisting child rearing over the next 10 years. Policies ran concurrently with the "Emergency 5-year Childcare Project" to increase the number of childcare centers and types of services (e.g., longer hours) offered for the very young (0–2-year-olds). The Emergency 5-Year Childcare Plan was implemented by the Ministers of Finance, Home Affairs and Welfare.

Following the Cabinet decision to adopt a new basic plan to address low fertility, the "New Angel Plan" was introduced by six Ministers (Finance, Welfare, Labor, Construction, Home Affairs and Education) in 2000. The new plan expanded the extent of policy from childcare services to employment and health care of mothers as well as education of children (but not mothers). Note that the policy concentrated on mothers and children.

In 2001, the Ministry of Health, Labor and Welfare introduced "Child and Childcare Support Plus One" expanding the focus of government to the family and families with children. The policy now included assistance to fathers, local institutions to support families with children, measures to support the next generation (meaning young people), and was implemented in the form of the "Law to Promote Policies to Support the Next Generation"[15] in 2002. The law obligated local governments and firms above a certain size to construct and commit to plans supporting workers and families with children. Firms and local governments compiled goals and action plans and thus the policy was successful.

The "Low Fertility Social Policy Manifesto"[16] was ratified the following year. The manifesto had four "important objectives": 1) raising strong children and independent youngsters; 2) assisting the coexistence of home and work and reevaluating working practices; 3) understanding the importance of life and role of the family; and 4) encouraging partnership and mutual support for child rearing. Objective 2 included goals such as allowing 10% of male and 80% of female workers to take parental leave, making it easier for women to go back to work after birth or child rearing (i.e., correcting the so-called "M curve"), and programs to promote a more proactive role of fathers in child rearing. Reflecting the demise of multigenerational families, objective 3 was educating the public to be more understanding of infants and families with children, such as by promoting opportunities for young people to interact with infants. Objective 1 included more traditional pro-natal policies, such as expanding childcare for preschool children and after-school programs, improving pediatric services, and promoting child health care, promotion of prenatal care,[17] childcare subsidy and reevaluation of tax policy.

---

[14] There was a major reorganization of government agencies in 2001. As result, two ministries Labor and Welfare & Health were merged into Ministry of Health, Labor and Welfare; Ministry of Construction was merged with three others into Ministry of Land, Infrastructure, Transport and Tourism; Ministry of Education was merged to become Ministry of Education, Culture, Sports, Science and Technology; Ministry of Home Affairs was merged into Ministry of Internal Affairs and Communications.

[15] *Jisedai Ikusei Shien Taisaku Suishin Hoh*.

[16] *Shoshika Shakai Taisaku Taikou*.

[17] Prenatal care is not covered by health insurance because pregnancy is not considered an illness. The cost of natural birth and standard stay (seven days) in hospital is 350,000-450,000 yen at public hospitals and can be up to 600,000 yen at private

Objective 1) stressed assisting young people to be independent. In addition to young people in "non-regular" jobs that do not have long-term prospects, young people who were "Not in Employment, Education or Training" (NEET; Genda, 2007) had become a great concern. However, there were separate programs of assistance and training for NEET.

In 2005, the Japanese population declined for the first time since the collection of vital statistics began in 1899. The TFR was at an all-time low of 1.26. The "New Low Fertility Policy"[18] was proposed the following year and a new Cabinet position "Minister of State for Measures for Declining Birthrate" was created to spearhead the new effort. The New Low Fertility Policy was established on two basic concepts: 1) changing social perceptions, and 2) policies based on valuing children and families. Concept 1 includes changing the role of fathers to be more involved in childrearing. The official "Life–Work Balance Charter" was ratified in 2007 and the "Life–Work Balance Action Plan" was put in place.

Japan's "Strategy Supports Children and Families"[19] was also implemented in 2007. The policy is based on the following calculation. Only about 2% of births are out of wedlock. The decline in the number of marriages is considered to be contributing to lower fertility. Furthermore, 30% of men and 23% of women are predicted to never marry by the year 2055. The expected number of children per couple is 1.69 leading to a TFR of 1.26. On the other hand, surveys indicated that over 90% of singles would like to marry and the ideal number of children is more than two. These numbers suggest a TFR of 1.75 is possible if people are able to take their ideal actions. This is still below the replacement level, but is higher than the current level, and would definitely reverse the trend if realized. The government is not involved in matchmaking, but supporting couples once they are formed is the next best thing.

The Strategy places measures to promote marriage, births and childrearing as "investments in the future" and the additional cost, expected to be as high as 2.4 trillion yen, is justified. This includes further expansion of early childcare, after-school care, and prenatal care.

The most recent round of pro-natal policies was proposed in 2008. "Nurturing Children that are the Future,"[20] is part of five goals for life assurance. It included a significant increase in childcare payments.

Childcare payments started with the original Angel Plan in 1994. It was 5,000 yen per month for the first and second child, and 10,000 yen for all subsequent children. From 2001, the income threshold was lowered so that 85% of all children of preschool age were eligible. Pro-natal policy funding was 315.3 billion yen in FY 2001. This includes extending childcare age, hours and other services, after-school care, prenatal care,

---

hospitals. Health insurance will give cash payments of about 400,000 yen after birth. Prenatal examination will be about 3,000 yen per examination. Health insurance will cover any emergency, including Caesarean delivery and hospital stay. The total bill for one pregnancy is considered to be at least 600,000 yen.

[18] *Atarashi-i Shoushika Seisaku ni Tsuite*.

[19] *Kodomo to Kazoku wo Ouen Suru Nippon Juyou Kadai*.

[20] *Mirai wo Ninau Kodomotachi wo Mamori Sodateru Shakai*.

emergency pediatric care assistance and fertility consultation (does not include fertility treatment).

In 2010, the amount was raised to 13,000 per month and coverage was extended to all children under 15 (total cost 1,233 trillion yen). The family threshold was reintroduced the following year. Now, children from families under the threshold received 15,000 yen per month for 0–3-year-olds. Children from age 3 until completion of primary school received 10,000 yen per month if they were the first or second child, and 15,000 yen per month for subsequent children. Secondary school children receive 10,000 yen per month. There is a payment of 5,000 yen per month for all children, irrespective of age or birth order, for families with income above the threshold.

The "Policy Plan to Reduce *Taiki-Jido* to Zero"[21] (*Taiki-Jido* = waiting children) was implemented by a Cabinet decision in 2008, as a three-year plan to decrease children on waiting lists for childcare centers by increasing places in centers by 150,000. In 2008, there were 2,120,934 places for children in 22,909 childcare centers.[22] There were 2,022,227 children (21% of the age group) in those centers, but there were 19,550 children on waiting lists. In rural areas, there are no waiting lists, but in large cities, such as Tokyo, there are areas where the number of children on a waiting list is over 10% of capacity. In 2011, there were 2,204,593 places for children in 23,385 childcare centers. Twenty-four percent of the age group could be placed in centers but there were still 23,585 on waiting lists. The target was not accomplished, but both numbers placed and on waiting lists had increased over three years as well.

Merging childcare facilities and nursery school services has been proposed and debated. The concept includes both physically merging the facilities as well as creating a new single service provider catering for the newborn until they started primary school.[23] Merging solves two problems: excess supply of nursery schools and excess demand of childcare facilities. Unfortunately, the policy faces a coordination problem between MEXT and the Ministry of Health, Labor and Welfare. Nursery school is considered an education facility staffed by teachers, while childcare facilities are staffed by qualified childcare persons.

Discussion of Policies and Alternatives

Judging from the lack of change in the TFR, pro-natal policies so far have not been very effective. One of the reasons is lack of resources. The initial child allowance was 5,000 yen per month. To place that in perspective, the cost of a group lesson for two-year-olds at Yamaha Music Schools is 4,725 yen per month (three lessons). It is highly unlikely 5,000 yen affects the decision to have children, and furthermore, it does not inspire national commitment to supporting children. The current allowance of 15,000 yen is more credible, the value of which is about the average of monthly childcare fees.[24] However, it is worth noting that the cost of the allowance came under scrutiny and the measure passed the Diet only after an income threshold was introduced. The total cost

[21] *Taiki-Jido Zero Sakusenn*.
[22] Ministry of Health, Labor and Welfare, 2011.
[23] Nursery school starts at age 3 or 4, children attending for two or three years before entering primary school.
[24] Childcare fees are based on the amount of income tax paid by the family.

of the program is 2.28 trillion yen for FY 2012. The total cost of pension payments will be 81.417 trillion yen.

Policies to address low fertility include a bundle of measures proposed by different ministries. Targets are set in a variety of fields, many of which are only intermediate steps or instruments toward the achievement of final goals (Demeny, 1972). For instance, building new or improving existing childcare centers function as public works projects by the Ministry of Construction. The Minister of Construction was one of the four ministers who agreed on the first Angel Plan. The year 1989 was memorable not only for the "1.79 shock," but also for the first of a sequence of interest rate hikes that burst the bubble and eventually led to the lost decades. The Angel Plan doubled as a pro-natal policy and economic stimulation package.

The Life-Work Balance Policy also doubles as promotion of female participation in the labor force. Japanese women are underutilized in production outside the home. Japanese women are among the best-educated women, if not people, in the world, but have very low work force participation and the "M curve" is still prominent (Figure 2).

In 2011, 51.8% of females aged 18-21 years were attending universities or junior colleges; 69.9% of the same group was in higher education (university, junior college, long-distance university, polytechnics).[25] Over 90% of the age group has been high-school educated since 1975 and that number has been over 95% since 2000. Even in 1975, only 12.7% of females were in universities, but 20% were in junior colleges, meaning tertiary education participation was quite high. This means underutilization applies to older cohorts as well as the young. The proportion in junior colleges has declined while the proportion in universities has increased, overtaking junior college enrollment around 1995.

Life-Work Balance is attractive from a political point of view. Pro-natal policy suffers from being conceived as a policy that requires sacrifice from women. This is because increasing fertility is family planning in reverse. Family planning, which is a policy to lower the fertility rate, has been associated with progressive societies and the empowering of women by making childbearing an individual choice[26] (Demeny, 1972). It follows that to increase fertility, their ability to make choices may need to be taken away from women. In Japan, pro-natal policy has suffered from this problem, causing anxiety and suspicion among some women. Sometimes suspicion is realized when a politician openly complains that low fertility was a result of the selfish behavior of women.

Life-Work Balance overcomes this anti-woman danger. First, Life-Work Balance applies to men as well as women. The aim is that men should also balance family life with work by taking a more active role in home management, including childcare. This should allow the spouse (wife and mother) to allocate more time to work outside the home. Life-Work Balance empowers women by liberating them from traditional roles. It also lowers the cost of choosing to have children, and thus it may lead to higher fertility. At the same time, it increases participation by younger, well-educated women in the work force.

---

[25] MEXT 2012 "International Comparison of Education Indicators".

[26] Of course, this typology is not correct. It is possible to have forced family planning.

There is anecdotal evidence that such structural or institutional change can have a positive effect on the TFR (Sakazume, 2007; Abe, 2012). Different social structures within Japan shed some light on this issue. There is a positive correlation between the TFR and the female labor participation rate in 48 prefectures. The group with the highest levels of TFR (around 1.5 in 2002) and female labor participation (around 70%) are from the part of Japan considered to be mostly rural and traditional. The same group of prefectures has one of the highest proportions of three-generation households (around 15% and 21.3% for Yamagata prefecture, which is the highest). It is not surprising that women in the three generations are able to work outside the home, even if they have young children. Data also show that full-time work participation is very prevalent in these prefectures; the proportion with full-time work is one of the highest (around 70% for 25-29-year-olds and around 55% for 40-45-year-olds). Women have full-time work, suggesting they have careers. Prefectures in this group have very traditional families where women with children have work and careers outside the home. Women are empowered, but not by staying single or choosing not to have children.

Immigration

One possible strategy for dealing with low fertility and an aging population is to promote immigration. With a sufficiently flexible immigration policy, we would expect that as the locally born working-age population declines and the capital-to-labor ratio rises, there would be an increase in immigration from countries with a surfeit of young workers and a deficit of capital (Sinn, 1997). However, there are claims that the size of immigration required to correct the worsening dependency ratio is very large and therefore unlikely to occur. Japan is estimated to need around 600,000 net immigrants per annum through to 2050 to maintain the dependency ratio at its 1995 level (UN, 2000).

There is both support for and opposition to immigration in Japan. In reality, firms have hired many foreign workers and the government has been accommodating. I give several examples of accommodating foreigners who come to Japan for the long term, but not permanently. The ideal worker would be in Japan when young, pay taxes and social security premiums, and then leave on retirement.

Naturalization in Japan is rare although it does not seem extraordinarily difficult. Conditions for naturalization are: 1) lived in Japan continuously for over five years, and be 20 years or older and of sound mind; 2) a record of good behavior; 3) has means (skills or assets) to support oneself, spouse and relatives; 4) does not have citizenship of another nation or will lose citizenship upon obtaining Japanese citizenship; 5) does not belong to organizations prohibited by law; and 6) is able to read and write at the second to third grade level. In 2011, 11,008 people applied for naturalization: 10,359 were approved, and 1,207 obtained Japanese citizenship. Both the numbers of naturalization applications and new citizens have declined over the past five years, while over a half of the applicants are from Korea.

The number of foreigners working and living in Japan has been increasing steadily since the early 2000s (Figure 3). Because overall employment in Japan did not grow during this period, the growth in the number of foreigners should be interpreted as passive immigration. Changes have been made to accommodate foreigners living and working in Japan. Until now, foreigners staying in Japan for over three months were required to register at local government (town, city) offices, according to the Foreigners' Registration Law, the so-called "foreigner registration." From July 2012, foreigners still

must register, but now it is done according to the Residents' Registration Law, which requires everyone, including Japanese citizens, to register at local government offices (Ministry of Internal Affairs and Communications, Statistics Bureau, 2012). From July, foreigners are included in the Residents' Register, not a separate register for foreigners. In this regard, foreigners receive equal treatment.[27] Foreigners living in Japan for more than three months have always been required to subscribe to National Health Insurance, Pension and Long-term Care Insurance, but now subscriptions will be based on the Residents' Register, as with all Japanese. Public school (elementary and junior high, which are compulsory) enrolment is also based on this register. Compulsory education is compulsory only for Japanese citizens, but noncitizens have access to free education.[28]

The Residents' Register also functions as the voters' roll. There is no separate registration to vote in Japan. The Election Committee mails voting ballots to people 20 years and older on the Residents' Register. Even though foreigners will be on the register starting in July 2012, they are not able to vote. However, giving permanent residents a vote has received serious consideration and was on some party platforms in the 2009 election. A subset of permanent residents called "Special Permanent Residents" is able to vote in Japan. Special Permanent Residents are ethnic Koreans who have lived in Japan for multiple generations. As citizenship by birth is *jus sanguinis,* offspring of Koreans living in Japan will not be Japanese unless they are naturalized. However, they are eligible for Special Permanent Resident status. Their voting right is based on a Supreme Court ruling that argues that they have long-term relationships with their community. Some believe that this *obiter dictum* can be applied to all permanent residents. Some local governments have given all permanent residents the right to vote in local elections.

There is another subset of permanent residents that could have *obiter dictum* applied. They are the second- and third-generation Japanese immigrants: i.e., offspring (children and grandchildren) of Japanese immigrants, known as *nisei* and *sansei*. *Nisei* and *sansei* are granted permanent residency automatically. As permanent residents are allowed to work, *nisei* and *sansei* can work in Japan even if they do not have the special skills necessary to qualify for working visas. Many Japanese immigrants, *nisei* and *sansei*, came to Japan from South America in the 1980s, when the Japanese economy was strong and there was a labor shortage. Many have remained in Japan and there are now several established communities of Japanese-Brazilians in and around Tokyo as well as near Toyota City.

Since FY 2009, candidates from the Philippines and Indonesia have been given special status to study in order to pass the national examinations to qualify as a nurse or certified care worker. They must pass the examination within three years in the case of nursing, and four years in the case of certified care workers, and 1,562 candidates have arrived this way, as at May 2012. The number who took the nursing examination in 2011 was 415, of whom 47 passed. The pass rate was 11.3%, which was a significant improvement from 4% in the previous year. There is no separate examination or special

---

[27] Equal treatment also means more centralized registration. There is an opinion that this will make it difficult for those working in Japan without proper status to obtain social services provided by local governments.

[28] An increasing number of non-Japanese students has led to some calling for the reexamination of public education in Japan. The goal of public education in Japan is to educate Japanese.

dispensation for non-Japanese, so the candidates must first master the Japanese language.

This program is not designed to function as a pro-immigration policy. In fact, the Ministry of Health, Labor and Welfare explicitly state that the program is part of bilateral economic cooperation agreements and not an attempt to address the shortage of nurses and certified care workers.

The Ministry of Education, Culture, Sports, Science and Technology has been promoting foreign students to come and study in Japan. This may also increase the number of foreign workers in the long run. In 2010, 8,467 students applied for work permits and 7,831 were allowed, a decrease of 17.2% of applications and decrease of 18.3% in permissions granted. The breakdown by nationality is shown in Table 3.

Political System

Figure 4 shows equivalent income (for each household member, taking into account economies of scale) before and after redistribution (adding pension, health service and other transfers, subtracting tax and insurance premiums) by age. The elderly have very low income initially. However, after redistribution, their income is higher than that of those aged 30–44, while children (0–14) have the lowest redistributed income.

The level of national production, such as the GNP, is a function of labor, physical capital and technical change or innovation. It is reasonable to assume the size of the labor force will not be increasing or may even decrease. Production must come from better physical capital, such as machines that are more efficient and technological change. Investing in human capital will make the labor force more productive and is also necessary for innovation. Decreasing pension payments by 1% and increasing education or science and technology expenditure by 1% may increase future GNP by more than 1%, thereby more than making up for the reduction in pension payments now. This is investment at the national level.

Such intertemporal redistribution—namely, forgoing consumption today and investment to raise consumption in the future—is very common behavior. In the past, when people lived in multigenerational households or in villages, intergenerational decisions (intertemporal becomes intergenerational distribution because people in different stages of life coexist) were made very much like an individual one, by someone in charge. The decision maker took into account how distribution affected members at different stages of life (young or old) differently. On the other hand, each member knew that throughout their lifetime, their standard of living evened out.

After pensions and public education were established, intergenerational distribution became the task of national governments. When governments are elected, then intergenerational issues become political issues and election platforms.

However, not all generations are represented in the political process. In Japan, people under the age of 20 are not able to vote.[29] It is not surprising that despite the skewed

[29] In Japan, a person becomes legally an adult at the age of 20. Only adults are allowed to drink alcohol and vote. Females must be at least 16 years old and males must be at

income distribution of Figure 4 and persistence of low education expenditure, there is very little political concern. One way to correct this situation is to give everyone with a role in intergenerational distribution a right to vote, including children. As children are not considered to have the intellectual maturity to vote, parents could proxy vote (Demeny, 1986). Let us refer to this system as "Demeny voting." We already have parents making various decisions on behalf of children, such as when and which doctor to consult and trust, and which school to attend.

The natural question is why would current voters agree to expand the number of voters? Historically, there have been two great voter expansions in the past, both achieved by democratic process. That is, the original voters chose to expand although his or her vote would become less important as a result. The first case was the franchise expansion from only wealthy men to all men. The second case was women's suffrage. A man's vote counted for one-half of what it was after this expansion. Both expansions became necessary after fundamental changes in economic and social institutions resulting from the industrial revolution. The original voters found it was beneficial to expand the number eligible to vote.

How would the current voters benefit by giving votes to children? Inclusion of future generations in the political process makes it possible for current voters to commit and allocate resources to the future. Even if each voter individually realized the benefit of allocating more resources to the future, he or she would also rather not incur the costs and having others do it. That allows them to be free riders, eating their own cake now and eating another one next year. Because all voters think this way, it becomes impossible to allocate resources to the future as a collective. By giving a voice and representation to the future in the political process, there would be a new demand for resources to be allocated to the future. Investing in the future would be beneficial to many of the elderly given the life-expectancy level. However, heavy debt obligations impose costs on the current generation in the form of debt service costs, including higher rates from a deteriorating credit rating (Oguro et al., 2012).

We calculated how Demeny voting would change voting blocs using the 2005 household census. Under the current system, 24% of eligible voters are parents of children under 18 years of age (Figure 3). On the other hand, those who are concerned about pension levels (i.e., those aged over 55) constitute 43% of the voters and are therefore more powerful in the minds of politicians. A Demeny voting system would increase the parent bloc to 37% and reduce the bloc of over 55-year-olds to 35%, thus creating a more balanced incentive for politicians to take family policy seriously (Aoki and Vaithianathan, 2009).

Furthermore, a survey of voters has indicated surprisingly high support for Demeny voting. Support was highest among parents with at least one child under the age of 20 (68% supported). Support was lowest among parents with only older children (31% supported). These would be older voters. Support by voters without children (which includes both those that never have children and those who plan to have children in the future) was 44% (Aoki and Vaithianathan 2012).

---

least 18 years to be legally married. However, parental approval is necessary to marry before adulthood.

Concluding Remarks

There is common agreement that it is necessary to change economic and political systems to accommodate the demographic situation to improve the economy. However, "investment in the future" is a popular slogan, but resources are not being allocated accordingly. To break this vicious cycle, we need to do something different. Japan is leading the world with its low fertility and aging population, and faces a situation without precedent that requires solutions without precedent.

We should reevaluate the role of families. Choosing between starting a family or not is what is liberating, not which is chosen. Family structure can be a constraint on individual optimization, but it can also be a resource that softens other constraints. Thus, a nonnuclear family does not have to be limiting young couples, but can expand their opportunities. It may be possible to increase the labor force both in the short run with higher female labor participation and in the long run with a higher TFR.

Another needed fundamental change is the political process. Demeny voting should be given serious consideration. Everyone involved in resource allocation should be given a voice. Giving the future generation representation also allows the current generation to commit to the future. This will be beneficial to the current generation as well.

References

Abe, Yukiko, 2012. *"Regional Variations in Labor Force Behavior of Women in Japan,"* Mimeo, Graduate School of Economics and Business Administration, Hokkaido University.

Aoki, Reiko and Rhema Vaithianathan, 2012. *"Intergenerational Voter Preference Survey—Preliminary Results,"* CIS Discussion Paper No. 539, Center for Intergeneration Research, Hitotsubashi University.

Aoki, Reiko and Rhema Vaithianathan, 2009. *"Is Demeny Voting the Answer to Low Fertility in Japan?"* CIS Discussion Paper No. 435, Center for Intergeneration Research, Hitotsubashi University.

Asano, Hirokatsu, Takahiro Ito, and Daiji Kawaguchi, 2011. *"Why Has the Fraction of Contingent Workers Increased? A Case Study of Japan,"* RIETI Discussion Paper Series 11-E-021. Research Institute of Economics Trade and Industry, Tokyo.

Cabinet Office, 2012. *"Heisei 24 Child Rearing White Paper"* (*Heisei 24 Nendo Kosodate Hakusho,* in Japanese).

Demeny, Paul, 1972. "Population Policy: The Role of National Governments," *Population and Development Review,* 1(1) (Sep. 1975):147–161.

Demeny, Paul, 1986. "Pronatalist Policies in Low-Fertility Countries: Patterns, Performance and Prospects," *Population and Development Review,* 12(Supplement):335–358.

Economic and Social Research Institute, Cabinet Office, 2010. "*National Income Accounts*."

Genda, Yuji, 2007. "Jobless Youths and the NEET Problem in Japan," *Social Science Japan Journal* 10(1):23–40.

Kambayashi, Ryo, 2010. *"Attributes of Recent Nonregular Employees in Japan,"* Global COE Hi-Stat Discussion Paper Series 120, Hitotsubashi University (*Jyo-you・Hi-seiki Rodousha no Shoshou ,* in Japanese).

Ministry of Health, Labor and Welfare, 2011. *"Summary of Childcare Facility Related Situation,"* Equal Employment–Child and Family Bureau (in Japanese).

Ministry of Health, Labor and Welfare, 2011. *"Vital Statistics."*

Ministry of Health, Labor and Welfare, 2011. "On Foreign Nurse and Certified Care Worker Candidates based on Economic Partnership Agreements." (In Japanese)

Ministry of Health, Labor and Welfare, 2011. *"State of Employment of Foreign Workers."* Employment Stability Bureau (in Japanese).

Ministry of Internal Affairs and Communications, Statistics Bureau, 2010. *"Labor Force Survey."*

Ministry of Internal Affairs and Communications, Statistics Bureau, 2011. *"Census (2010, 2005)."*

Ministry of Internal Affairs and Communications, Statistics Bureau, 2012. *"Changes to the Basic Resident Registration Law – Foreign Residents will be Subject to the Basic Resident Registration Law."*
http://www.soumu.go.jp/main_sosiki/jichi_gyousei/c-gyousei/zairyu_english.html

Ministry of Labor, 2004. *"Report of Research Group on Employment Management of Foreign Workers,"* Employment Stability Bureau (in Japanese).

Ministry of Finance, 2011. *"Reference Materials on Japan's Fiscal Situation"* (in Japanese).

Ministry of Finance, 2012. *"Reference Materials on Japan's Fiscal Situation – Appendix on FY 2012 Budget"* (in Japanese).

Sakazume, Satoko, 2007. "On Relationship Between Birth Rate and Female Labor Participation by Prefecture," *Modern Sociology Research* 10:137–150.

Sinn, Hans-Werner, 1997. *"The Value of Children and Immigrants in a Pay-As-You-Go Pension System: A Proposal for a Partial Transition to a Funded System,"* NBER Working Papers 6229, National Bureau of Economic Research, Cambridge, MA.

Takayama, Noriyuki and Kousuke Shiraishi, 2012. *"Does Bad Start Lead to a Bad Finish in Japan?"* CIS Discussion Paper 547, Hitotsubashi University.

Oguro, Kazumasa, Manabu Shimasawa, Reiko Aoki and Takashi Oshio, 2012. "Demographic Change, Intergenerational Altruism, and Fiscal Policy - A Political Economy Approach," *Applied Economics*, forthcoming.

United Nations, 2000. *"Replacement Migration: Is It a Solution to Declining and Aging Populations?"* UN Development Program.

Tables and Figures

Table 1: Trends in Basic Demographics

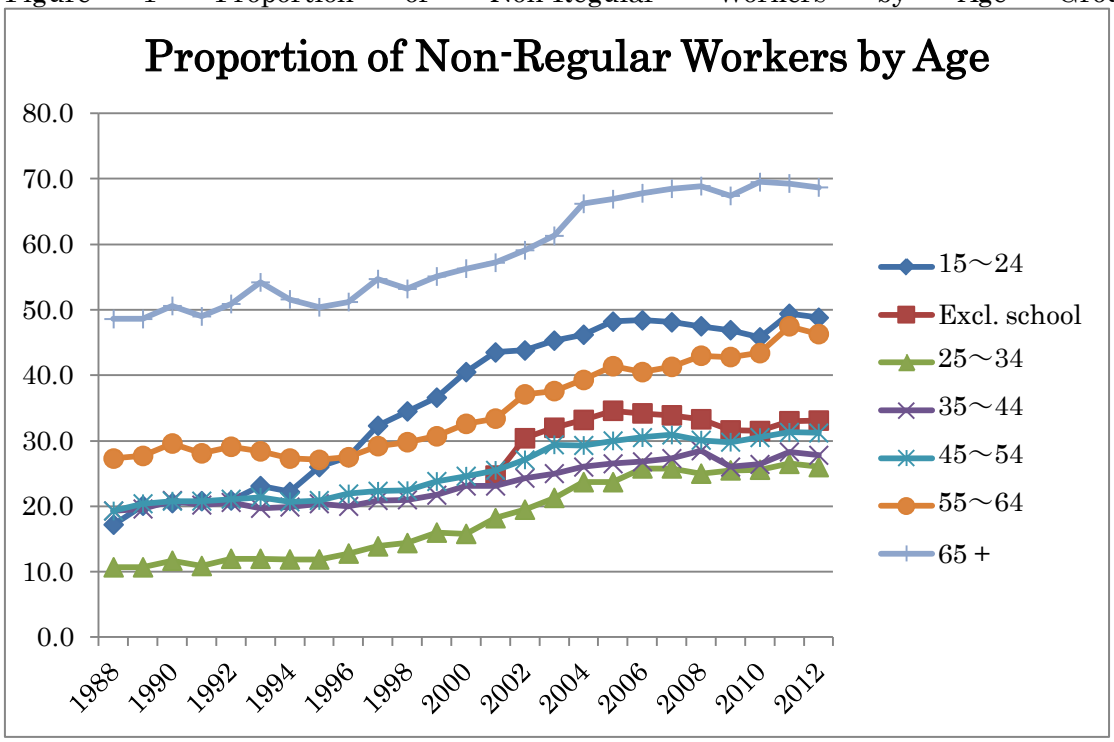
	1950	1960	1970	1980	1990	2000	2010
TFR	3.65	2.00	2.13	1.75	1.54	1.36	
Life Expectancy Men	59.57	65.32	69.31	73.35	75.92	77.72	79.74
Life Expectancy Women	62.97	70.19	74.66	78.76	81.90	84.60	86.39
Median Age	22	25	28.5	33.5	37	41	47
Source: Ministry of Internal Affairs and Communications, 2011							

Table 2: Proportion Unmarried in Age Group (%)

Age	25-29		30-34		50	
	Men	Women	Men	Women	Men	Women
1970	46.5	18.1	11.7	7.2		
2010	71.8	60.3	47.3	34.5	20.1	10.6

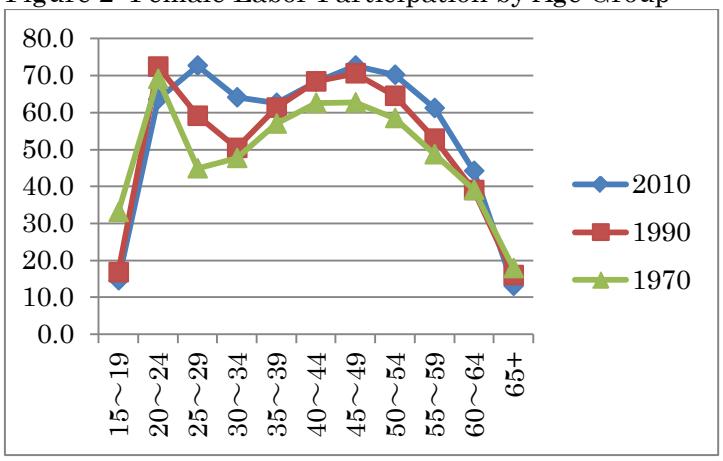
Source: Ministry of Internal Affairs and Communications, 2011

Figure 1: Proportion of "Non-Regular" Workers by Age Group



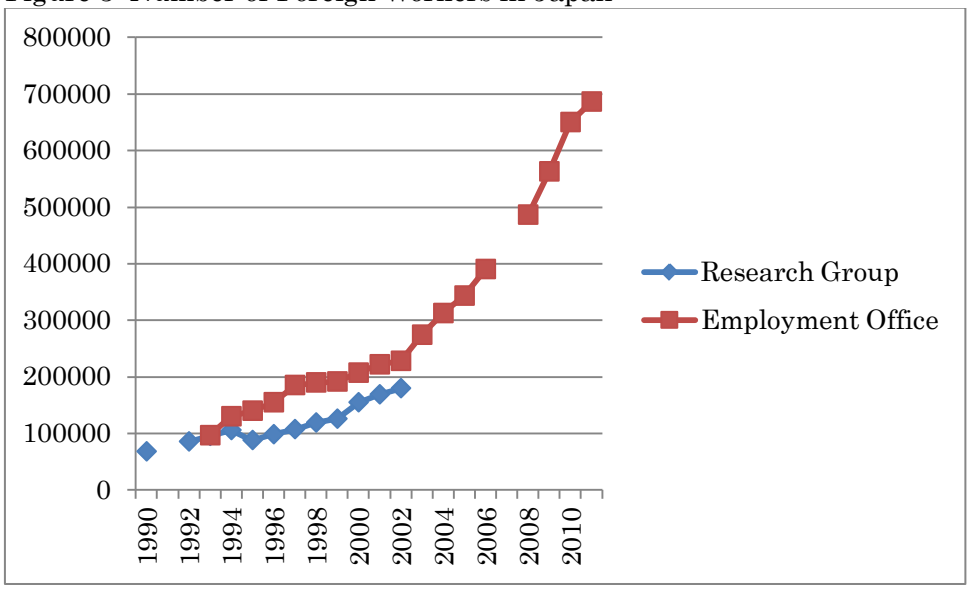
Source: Ministry of Health, Labor and Welfare, 2012.

Figure 2: Female Labor Participation by Age Group



Source: Ministry of Internal Affairs and Communications, 2010

Figure 3: Number of Foreign Workers in Japan

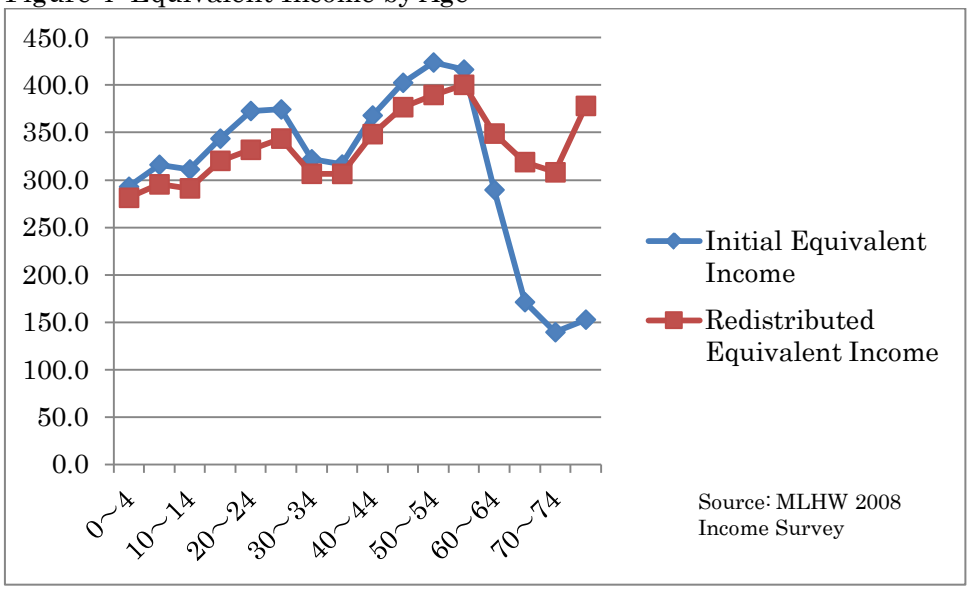


Source: Ministry of Health, Labor and Welfare, 2011 (Employment Office). Ministry of Labor 2004 (Research Group).

Table 3: Legal Foreign Workers from Asian Countries

Nationality	Permission to Work	Change from 2009	Rate of change (%)
China	4874	-1459	-23.0
Korea	1205	-163	-11.9
China (Taiwan)	279	-6	-2.1
Vietnam	167	-6	-3.7
Nepal	141	-32	-18.5

Figure 4: Equivalent Income by Age



Source MLHW 2008