

Japan's Demographics and the Lost Decades

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10 July, 2012

Introduction

Foundation of current Japanese economic and legal system was established immediately after the end of World War Two. The revised constitution became effective 3rd of May 1947. That year, Total Fertility Rate was 4.54, life expectancy was 50.06 (men) and 53.96 (women), and median age of population was 22 (51.67%). Post war reconstruction boom, baby boom, and Korean War boom followed. A ten year plan to double national income was implemented in 1960 and GDP grew an average of 11% every year, doubling GDP in six years. During this time TFR steadily declined while life expectancy and median age of the population steadily rose.

On 31st of May 1989, fearing inflation and overheated assets markets, Bank of Japan raised the policy interest rate from 2.50% to 3.25%. Four more hikes followed and the rate was 6.00% by summer of 1990. Nikkei Average fell from over 30,000 to below 20,000 by 1995. Unemployment rate increased to 3.2% during the same period from 2.1% in 1990. The bubble had burst. Bank of Japan began to cut the interest rate until it reached 0.3% in 2001, but Nikkei had fallen below 20,000 and unemployment had reached 5.0% by that time. Nominal GDP has remained flat for the past two decades. Nikkei has dropped below 10,000 after the Lehman crisis and has not recovered.

1990 was also a demographic landmark year. By 1990, life expectancy had risen to 75.92 (men) and 81.90 (women). Median age of population was 37. It became evident

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). The manuscript is prepared for *Population and Development Review Supplement, Population and Public Policy: Essays in Honor of Paul Demeny*.

that year that TFR had been 1.57 for the previous year and this fact is now referred as “1.57 shock”. The number was significant because it was lower than the TFR of 1.58 in 1966. The year 1966 was a particular year of the horse according to the Chinese zodiac “Hinoe-uma”, in which parents prefer not to have children based on superstition.² TFR being lower than Hinoe-uma year in a non-Hinoe-uma year was very alarming and extent of low fertility became known and understood by everyone.

The social alarm and concern lead the government to propose and implement various pro-natal policies. But unlike the economy that had changed direction, TFR continued to decline and life expectancy continued to rise. TFR in 2010 was 1.39 and life expectancy 79.74 (men) and 86.39 (women)³. Median age had risen to 47. So 1990 was not really a demographic landmark because trends remained the same before and after the year. But it was the year that started string of policies related to fertility that continues 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 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 do not contribute to the whole economy as in the old system.

In this paper, I first examine how the continuing demographic trend has manifested itself in the post 1990 Japanese economy. Then review past and present policies in light of economic environment and existing institutions (Demeny 1972). I conclude by examining new alternatives that may be effective in overcoming the mismatch (Demeny 1986).

Demographic and Economic Trends

As is now well known, the steady decline of TFR and rise in life expectancy has changed the age distribution of Japan dramatically (Table 1). Japan leads the world in this

² TFRs for 1964-1998 were 2.05, 2.14, 1.58, 2.23, 2.13 . Hinoe-uma occurs every 60 years, or every 5 cycles of the zodiac.

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

regard. The population age distribution had the typical pyramid shape until 1950 but since then, it has become pear shaped and now turning into top shape or inverted pyramid.

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							

There have been other changes closely associated with demographics. For instance, a significant change has occurred in how people are organized, namely what constitutes household. The average household size has declined, from 5.00 (number of members) in 1950 to 2.62 in 2009. Emergence of 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 58-60% range, since 1980. The main change in structure comes from single households and large families. 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 family also increased from 13.1% to 22.3%. (This is consistent with remaining proportion of nuclear families with children decreasing since there are less children being born.)

This change in structure of households of course is closely related to the social security system. Social security makes family support less important and reduces incentive to have children. Less children increases importance and dependency on social security while the revenue base (younger generation) deteriorates. The current system was designed when there were very few pensioners. In 1965, people over 65 were 6.3% of the population while people ages 20-64 was 57.1%. In 2012, numbers were 24.2% and 58.2%, meaning only 2.4 working people for every pensioner. Only about 50% of social

security payment⁴ is financed by contributions. The remainder comes from the national budget.

In the FY 2011 budget, social security payment was 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. Debt outstanding is expected to be equal to 145% of GDP at end of FY 2012, or roughly 17 times annual tax revenue.⁵ Debt servicing was 24.9% of national budget (FY 2012), only slightly smaller than the national budget share (non contribution portion less returns from assets and local government share) which was 29.2%. There is agreement in Japan that the system needs to be changed. At the time of this writing, the set of bills on pension reform and increasing the consumption tax is being debated in the upper house of the diet. They have already passed the lower house.

Shifting structure of households reflects change in marriage patterns as well as fertility. Single households consist of widows and widowers and people of all ages who are not married. Less Japanese marry and if they marry they marry later than they used (Table 2). Furthermore, women's average age of first marriage was 28.6 in 2009⁶ and it was 2.19 years on average until she gave birth to her first child. This means average age of mother giving birth to her first child was 29.7. This is older than when a mother gave birth to her second child in 1975 (it 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 gave birth).

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

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

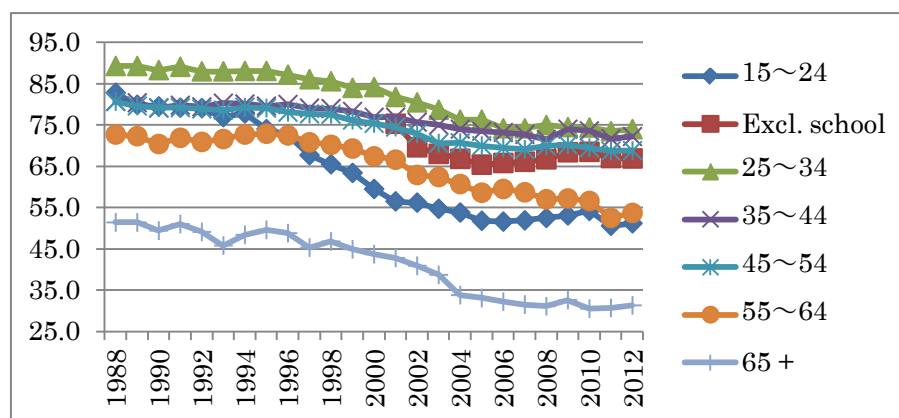
⁵ Ministry of Treasury, 2011, 2012.

⁶ Ministry of Health, Labor and Welfare 2011

One of the reasons why marriage is delayed is attributed to the employment status of 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 younger generation is not as bad 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.⁷ A greater proportion of younger people are “non-regular” employees compared to other age groups (other than people over 65 who are seeking re-employment).

Figure 1 shows proportion of regular workers by age group. Proportion for age group 12-24 increases when those in school (who would be part-time) are excluded. Although there has been overall decline of regular position, the decline is more prominent among the young and the oldest age groups. Definition of “non-regular” varies slightly by statistics but it basically refers to employees than have a status that is not regular, where regular employment in Japan means a life-time (until mandatory retirement age) employment at a firm.

Figure 1: Proportion of “Regular” Workers by Age Group



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

Source of increasing “non-regular” employment has been attributed to several factors (Asano et al 2010). There has been structural change in Japanese industry, namely decline of manufacturing and emergence of service sector. (In 1980, proportion of GDP from manufacturing, services, and communications were 28.0%, 14.2% and 1.6%. The

⁷ Effect of initial employment status on life time earning has been well documented (Shiraishi and Takayama, 2011).

proportions in 2010 were 19.4%, 19.1% and 5.4%.⁸ There has been a corresponding similar shift in work force among sectors.) Service sector is less physical capital intensive meaning adjustments to demand change relies more heavily on adjusting the workforce. Non-regular workers are easier to hire and fire. The same advantage of non-regular workers exist when there is great uncertainty about future demand. It is safer not to commit to regular workers when demand mind decline in the future.

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 characteristic of non-regular workers (Kambayashi 2010). Though not all non-regular workers have short term appointments, there is greater uncertainty about future employment and earnings for non-regular workers. This leads to young people delaying starting families or even abandoning the idea completely. There is great stigma attached to having giving birth out of wedlock and there is very little social infrastructure to support single parents. Thus the non-regular employment status of young people probably contributes to decline of TFR.

Employment status of young people is cause for great concern in terms of human capital investment. Unlike the United States where workers must invest themselves in human capital by getting an MBA, Japanese workers typically did not obtain graduate degree⁹ or other forms 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 that they will not get terminated. This also means there was no demand for post graduate professional training or need for midcareer labor market. As result, both outside training opportunity and midcareer market are under developed in Japan. Non-regular workers have little incentives or means to educate themselves outside the firm. There is danger of having a permanent large pool of unskilled workers of all ages.

⁸ Economic and Social Research Institute, 2010.

⁹ Exception is graduate degree in engineering and sciences. In the past, engineers and scientists often started work in non-academic 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 coursework. This has changed in the last decade. Doctoral programs are closer the North American system with substantial course work often requiring full time enrollment, at least in the beginning. Now greater proportion start work with a Ph.D.

Unlike the structure of households and pension system that were self-enforcing, aging work force and non-regular employment are self-enforcing. That is, it contributes to low fertility but low fertility or aging population does not cause predominance of non-regular employment of younger people. It is true that older generation has “regular” status and is more difficult to dismiss. But this would not be preventing 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.¹⁰

In the FY 2012 budget, pension payment is 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 yen¹¹. Investment in Education and Science and Technology is important than ever since capital and workers need to be productive in order to compensate drop in labor force.

Lack of public expenditure on education has additional cost by increasing the cost of children. There is perception that public education has deteriorated.¹² Proportions of students in primary and secondary schools that attend private schools have increased sharply since mid-1980s. The economic situation should discourage private schools but many parents have lost faith in public education. This would have also raised the cost of having children.

We noted that generational differences in employment status imply less human capital investment in new generation of workers. Lack of long term commitments also means less opportunity for new generation to contribute to the firm and to under-utilization 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 prolonged lost decades.

¹⁰ There are special situations where dismissal of an employee raises marginal product of another employee. This would be case if the dismissed employee had imposed negative externality on others, for instance by being noisy or getting in everyone’s way.

¹¹ Science Promotion Budget (Kagaku Shinko Chosei-hi) 1.29 trillion is included in Science and Technology although it is included in Education and quoted separately. Both Education and S&T are allocated auxiliary budget during the fiscal year. Pension and other social security expenditure will not have such adjustments.

¹² There is anecdotal evidence to support this. Amount of material required by MEXT and number of school days have declined. Performance of Japanese students in international tests, such as PISA has declined.

Public Policies to Address Low Fertility

Most of the policies I discuss in this section belong to “Low Fertility Policies” or to put more precisely, “Policies to Address Less Children”. There is minority opinion in Japan that low fertility is not a problem. The term avoids implying low fertility is something that should be corrected, although most policies can increase birthrate if successful. Theoretically it can include policies for the society or individuals to cope with less children, such as pro-immigration measures. I discuss immigration in a separate section.

The pro-natal policy in response to the 1.57 shock, the first “Angel Plan” was agreed on by four Ministers (Home Affairs, Welfare, Labor and Construction) in 1994. It was list of policies in the “basic direction to assist child rearing” for the next ten years. Policies ran concurrently with “Emergency 5 year Childcare Project” to increase number of child-care centers and types of services (e.g., longer hours) offered for the very young (0-2 year olds). Emergency 5 Year Childcare Plan was implemented by Ministers of Finance, Home Affairs and Welfare.

Following the Cabinet decision of new basic plan to address low fertility, the “New Angel Plan” was agreed by six Ministers (Finance, Welfare, Labor, Construction, Home Affairs and Education) in 2000. The new plan expanded the extent of policy from child-care services to employment and healthcare of mothers as well as education (of children, not mothers). Note that the policy concentrated on mothers and children.

In 2001, Ministry of Health, Labor and Welfare put forth the “Child and Childcare Support Plus One” expanding the focus 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 “Law to Promote Policies to Support Next Generation”¹³ 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.

¹³ Jisedai Ikusei Shien Taisaku Suishin Hoh

“Low Fertility Social Policy Manifesto”¹⁴ was ratified the following year. The manifesto had four “important objectives”: 1) raising strong children and independent youngster 2) assist coexistence of home and work and re-evaluate how we work 3) understanding importance of life and role of the family 4) partnership and mutual support for child rearing. Objective 2 included goals such as 10% of male and 80% of female workers 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”), programs to promote more proactive role of fathers in child rearing. Reflecting demise of multigenerational families, objective 3 was educating the public to be more understanding of infants and families with children such as by promoting opportunity for young people to interact with infants. Objective 1 included more traditional pro-natal policies, such as expanding childcare for pre-school children and after school programs, improving pediatric services, and promoting child healthcare, promotion of prenatal care¹⁵, child care subsidy and re-evaluation of tax policy.

Objective 1) stressed assisting young people to be independent. In addition to young people have “non-regular” that do not have long term prospects, young people who are Not in Employment, Education or Training (NEET, Genda 2007) had come to be a great concern. There were separate programs of assistance and training for NEET however.

In 2005, the Japanese population declined for the first time since vital statistics was started in 1899. TFR was all time low of 1.26. The “New Low Fertility Policy”¹⁶ was proposed the following year and a new Cabinet position, Minister of State for Measures for Declining Birthrate was created to spear head the new effort. The New Low Fertility Policy was based on two basic concepts: 1) changing social perception and 2) policies based on valuing children and families. Concept 1 includes changing the role of fathers to be more involved in childrearing. Official “Life-Work Balance Charter” was ratified in 2007 and “Life-Work Balance Action Plan” was put in place.

¹⁴ Shoshika Shakai Taisaku Taikou

¹⁵ Pre-natal care is not covered by health insurance because pregnancy is not considered an illness. Natural birth and standard stay (7 days) in hospital is 350,000-450,000 yen at public hospitals and can be up to 600,000 at private hospitals. Health insurance will give cash payments of about 400,000 yen after birth. Prenatal examination will be about 3,000 yen per exam. Health insurance will cover any emergency, including Caesarean delivery and hospital stay. Total bill for one pregnancy is considered to be at least 600,000 yen.

¹⁶ Atarashi-i Shoushika Seisaku ni Tsuite

“Strategy: Japan that Supports Children and Families”¹⁷ 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 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 year 2055. The expected number of children per couple is 1.69 leading to TRF 1.26. On the other hand, surveys indicated that over 90% of singles would like to marry and idea number of children is more than two. These numbers suggest 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 match-making 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 is the Future”¹⁸, is part of 5 goals for life assurance. It included significant increase of childcare payments.

Childcare payment started with the original Angel Plan in 1994. It was 5,000 yen per month for first and second children, 10, 000 yen for all subsequent children. From 2001, the income threshold was lowered so that 85% of all children of pre-school age were eligible. Pro-natal policy funding was 315.3 billion yen in FYI 2001. This includes extending childcare age, hours and other services, after school care, pre-natal care, 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). Family threshold was re-introduced the following year. Now children from families under the

¹⁷ Kodomo to Kazoku wo Ouen Suru Nippon Juyou Kadai

¹⁸ Mirai wo Ninau Kodomotachi wo Mamori Sodateru Shakai

threshold received 15000 yen per months for 0-3 year olds. Children from age 3 until completion of primary school received 10,000 yen per months if first and second child, 15,000 yen per months if subsequent children. Secondary school children receive 10,000 yen per month. There is payment of 5,000 yen per month for all children, irrespective of age or birth order, from families with income above the threshold.

Policy Plan to Reduce Taiki-Jido to Zero¹⁹ (Taiki-Jido = waiting children) was implemented by 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.²⁰ There were 2,022,227 children (21% of age group) in those centers but there were 19,550 children in waiting lists. In rural areas, there are no waiting lists but in large cities, such as Tokyo, there are areas where number of children on waiting list is over 10% of capacity. In 2011 there were 2,204,593 places for children in 23,385 childcare centers. 24% of age group was able to be placed in centers but there were still 23,585 on the waiting list. The target was not accomplished but both number placed and on waiting list had increased over three years as well.

Merging childcare facilities and nursery schools services has been proposed and debated. The concept includes both physically merging the facilities as well as a creating a new single service provider catering to new born until starting primary school²¹. Merging solves two problems: excess supply of nursery schools and excess demand of childcare facilities. Unfortunately, the policy faces the coordination problem between MEXT and 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 lack of change in TFR, pro-natal policies so far have not been very effective. One of the reasons is lack of resources. The initial child allowance

¹⁹ Taiki-Jido Zero Sakusenn

²⁰ Ministry of Health, Labor and Welfare, 2011.

²¹ Nursery school starts at age 3 or 4, children attending for 2 or 3 years before entering primary school.

was 5000 yen per month. To put in perspective, cost of a group lesson for two year olds at Yamaha music schools is 4725 yen per month (3 lessons). It is highly unlikely 5000 yen effect 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 is about the mode of monthly childcare fees.²² But it is worth noting that the cost of the allowance came under scrutiny and the measure passed the diet only after income threshold was introduced. The total cost of the program is 2.28 trillion yen for FY 2012. Total cost of pension payments will be 81.417 trillion yen.

Policies to address low fertility is 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 (Demery 1972). For instance, building new or improving existing childcare centers functions as public works project for Ministry of Construction. Minister of Construction was one of the four ministers that agreed on the first Angel Plan. 1989 was memorable not only for “1.79 shock” but for the first of sequence of interest rate hikes that bust the bubble and eventually lead to the lost decades. Angel Plan doubled as a pro-natal policy and economic stimulation package.

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

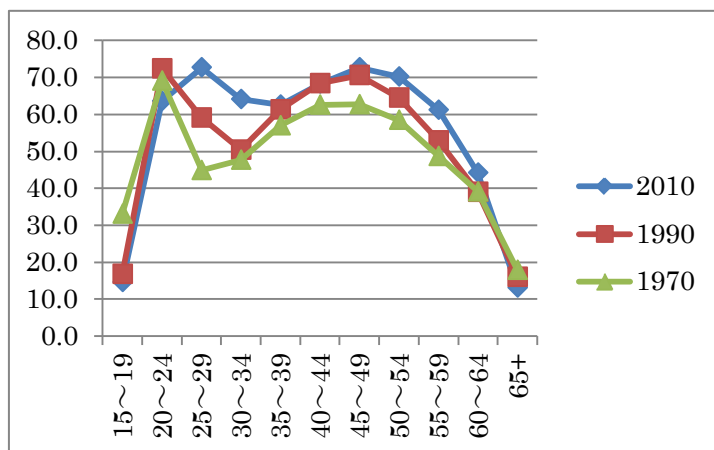
In 2011, 51.8% of females 18-21 years old were at universities or junior colleges, 69.9% of the same group was in higher education (university, junior college, long distance university, polytechs).²³ Over 90% of age group has been in high school since 1975 and the number has been over 95% since 2000. 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 under-utilization applies to older cohorts as well as the

²² Childcare fees are based on size of income tax paid by the family.

²³ MEXT 2012 “International Comparison of Education Indicators”

young. (Proportion of junior college has declined while proportion in universities has increased, overtaking junior college enrollment around 1995.)

Figure 2: Female Labor Participation by Age Group²⁴



Life-Work Balance is attractive from political point of view. Pro-natal policy suffers from being conceived as policy that requires sacrifice from women. This is because increasing fertility is family planning in reverse. Family planning, which is fertility policy to lower fertility rate, has been associated with progressive society and empowering women by making child bearing an individual choice (Demery 1972). It follows that in order to increase fertility, ability to make choices must be taken away from women.²⁵ In Japan, pro-natal policy has suffered from this problem. There is anxiety and suspicion among women. Sometimes suspicion is realized when a politician openly complains that low fertility was result of selfish behavior of women.

Life-Work Balance overcomes this anti-women danger. First of all, Life-Work Balance applies to men as well as women. Men should also balance family life with work by taking more active role (or bearing more burden) at home production 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 her 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 of younger well educated women in the workforce.

²⁴ Ministry of Internal Affairs and Communications, 2010.

²⁵ Of course this typology is not correct. It is possible to have forced family planning.

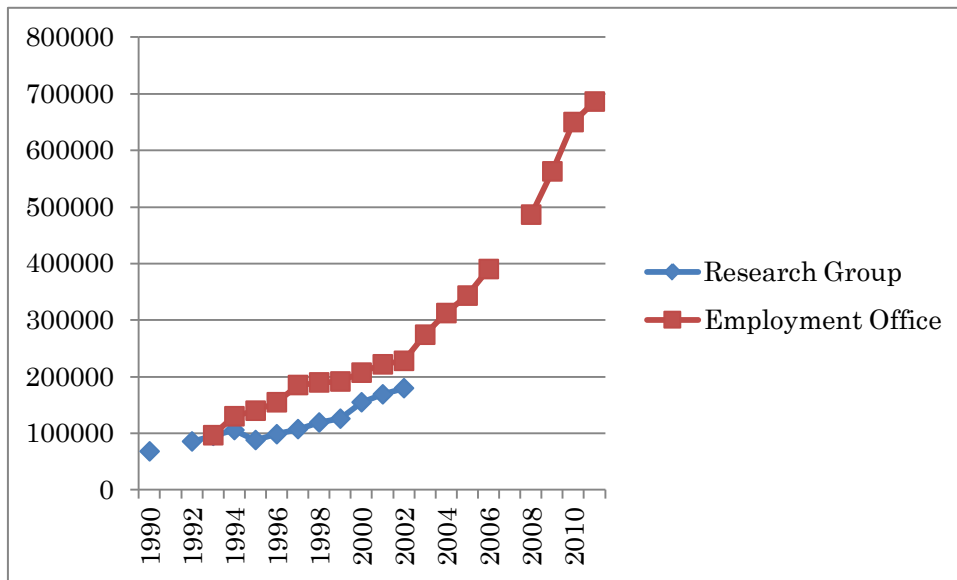
There is anecdotal evidence that such structural or institutional change can have positive effect on TFR. Different social structure within Japan shed some light on this issue. There is positive correlation between TFR and female labor participation rate of 48 prefectures in Japan. The group with highest levels of TFR (around 1.5 in 2002) and female labor participation (around 70%) are from part of Japan considered to be mostly rural and traditional. The same group of prefectures have one of the highest proportion of three generation households (around 15 % and 21.3 % for Yoamagata prefecture which is the highest). It is not surprising that women in the three generation are able to work outside the home even if they have young children. Data also shows that full time work participation is very prevalent in these prefectures - proportion with full time work is one of the highest (around 70% for 25-29 year olds, around 55% for 40-45 year olds). Women have full time work, suggesting a career. 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 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 will 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 for 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 in order to maintain the dependency ratio at its 1995 level (UN, 2000).

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

Figure 3: Number of Foreign Workers in Japan²⁶



Naturalization in Japan is rare although naturalization does not seem extraordinarily difficult. Condition for naturalization are, 1) Live in Japan continuously for over 5 years, 20 years or older and be of sound mind, 2) good behavior, 3) Has means (skills or assets) to support oneself, spouse and relatives, 4) Does not have citizenship or will lose citizenship upon obtaining Japanese citizenship, 5) Does not belong to organizations prohibited by law, 6) Able to read and write at level of second to third grade. In 2011, 11,008 people applied for naturalization, 10,359 were approved, and 1207 obtained Japanese citizenship. Both the numbers of naturalization applications and new citizens have declined for the past five years. (Over one half of applicants are Koreans.)

Foreigners working and living in Japan have been increasing steadily since 1950s (Figure 3). Since overall employment in Japan did not grow during this period, the growth of foreigners should be interpreted as passive pro migration. 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 the local government office according to the Foreigners Registration Law, so called “foreigner registration”. From July 2012, foreigners still register but according to Residents Registration Law, which requires everyone, including Japanese citizens, to register at the local government office. From July, foreigners will be included in the resident

²⁶ Ministry of Health, Labor and Welfare, 2011 (Employment Office). Ministry of Labor 2004 (Research Group).

register, not a separate register for foreigners. In this regard foreigners receive equal treatment. Foreigners living in Japan for more than three months have always been required to subscribe to the National Health Insurance, Pension and Long Term Care Insurance, but now subscription will be automatic since they are all administered by local governments based on resident register. Public school (primary and intermediate, which are compulsory) enrollment is also based on the register. Compulsory education is compulsory only for Japanese but non-citizens have access to free compulsory education.²⁷

Resident register also functions as the voter role. There is no separate registration to vote in Japan. The Election Committee mails voting ballots to people 20 years and older on the resident register. Even though foreigners will be on the resident register starting July 2012, they are not able to vote. However, giving permanent residents a vote has been seriously considered and was on some party platforms in 2009 election. A subset of permanent residents called “Special Permanent Residents” is able to vote in Japan. Special Permanent Residents are ethnic Koreans that have lived in Japan for multiple generations. Since citizenship by birth is *jus sanguinis*, off spring 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 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., off springs (children and grandchildren) of Japanese immigrants called *nisei* and *sansei*. Nisei and sansei are granted permanent residency automatically. Since permanent residents are allowed to work, nisei and sansei can work in Japan even if they do not have special skills necessary to qualify for working visas. Many Japanese immigrants, nisei and sansei came to Japan from South America in 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 city of Toyota.

²⁷ Increasing number of non-Japanese students has lead to some to call for re-examine public education in Japan. Goal of public education in Japan is to educate a Japanese.

Since FY2009, 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 3 years in case of nursing and four years in case of certified care worker and 1562 candidates have arrived as of May 2012. 415 took the nursing exam in 2011 of which 47 passed. The pass rate is 11.3% which was a significant improvement from 4% of previous year. There is no separate exam or special 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, Ministry of Health, Labor and Welfare explicitly state that the program is part of bilateral economic cooperation agreements and not an attempt to address shortage of nurses and certified care workers.

Ministry of Education, Culture, Sports, Science and Technology has been promoting foreign students to come and study in Japan. This may also increase foreign workers in Japan in the long run. In 2010, 8467 students applied for work permits and 7831 were allowed, a decrease of 17.2% of applications and decrease of 18.3% in permissions granted. Break down by nationality is in Table 3.

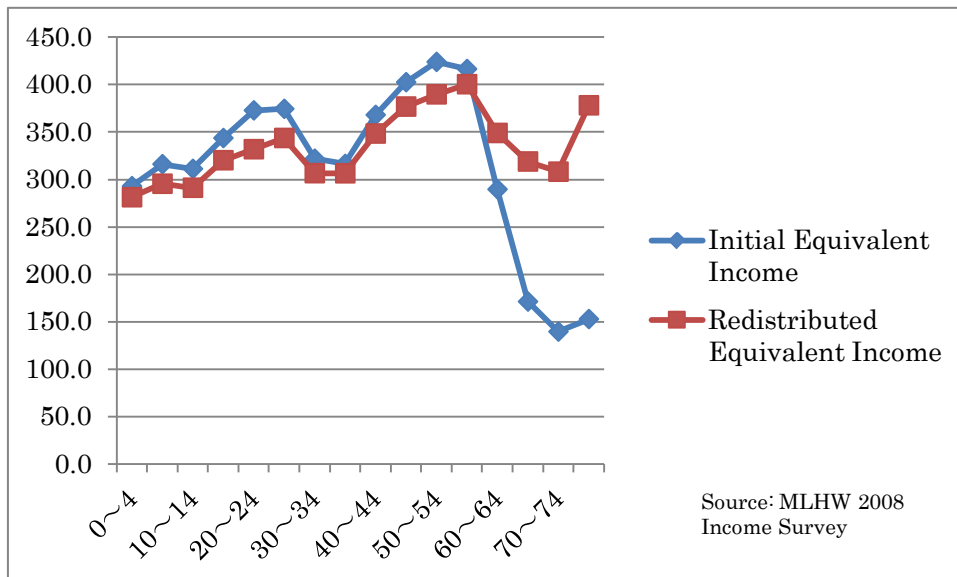
Table 3

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

Political System

Figure 4 shows equivalent income (per member household income, 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 30-44. But children (0-14) have the lowest redistributed income.

Figure 4: Equivalent Income by Age



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

Such intertemporal redistribution, namely forgoing consumption today and investment in the future (and consume in the future) is a very common behavior by individuals. In the past when people lived in multi-generational households or in villages, intergenerational decisions (intertemporal becomes intergenerational distribution because people in different stages of life co-exist) were made very much like an individual one, by someone in charge. The decision maker took into account how distribution effect members at different stages of life (young or old) differently. On the other hand, each member knew that throughout their life time, things evened out.

After pensions and public education were established, intergenerational distribution became 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 age of 20 are not able to vote.²⁸ It is not surprising that despite the skewed 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. Since children do not have mental capacity to vote, parents can proxy vote (Demery 1986). Let us refer to this system as Demery voting. We already have parents make various decisions on behalf of children such as when and which doctor or to trust and see or which school to attend.

The natural question is why would the current voters agree to expanding 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 will become less important as result. The first case was the franchise expansion to all men, from only wealthy men. The second case was the women's suffrage. A man's vote counted for one half of what it was after expansion. Both expansions became necessary after fundamental changes in economic and social institutions as result of industrial revolution. Original voters found it was beneficial to expand.

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 also would rather not and have others do it. This allows eat the cake now and eat it again next year. Since 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 will be demand to be allocated resources by the future. Investing in the future will be beneficial to many of the elderly given life expectancy level. Heavy debt obligations impose costs to the current generation in form of debt service costs including higher rates from deteriorating credit rating (Oguro et al 2012).

²⁸ In Japan, a person becomes legally an adult at age 20. Only adults are allowed to drink alcohol, drive, and vote.

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. Demeny voting system will increase the parent-bloc to 37% and reduce the over-55-years bloc 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 the Demeny voting. Support was highest among parents with at least one child under 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).

Concluding Remarks

There is common agreement that it is necessary to change economic and political systems to accommodate the demographic situation in order to improve the economy. However, “investment in the future” is a popular slogan but resources are not being allocated accordingly. In order to get out of the vicious cycle, we need to do something different. Japan is leading the world in low fertility and aging population. Japan faces a situation without precedent which requires solutions without precedent.

We should reevaluate 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 non-nuclear 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 long run by higher TFR.

Another needed fundamental change is the political process. New system such as Demeny voting should be given serious consideration. Everyone involved in resource

allocation should be given a voice. Giving future generation representation also allows the current generation to commit to the future. This will be beneficial to the current generation.

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