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Demographic Change and its Impact on Economic Growth

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Abstract Most advanced economies are facing demographic change, but all eyes are on Japan as the country holds the vanguard role in this issue with its very low birth rate and the highest life expectancy in the world. This paper aims at giving an insight into the possible impacts of demographic change on Japan's economy. At the same time, it investigates the influence of possible policies that can be implemented to address the issue. A special focus is on the attempt to increase the female labour participation rate as this approach is already part of Japan's economic strategy under the broad heading of 'Abenomics'. These policies are ultimately aimed at invigorating economic growth in Japan. To show the impact of demographic change and an increase of the female labour participation rate, a simple Solow-Swan-model is used and adjusted accordingly.

The paper is structured as follows. First, it will give an insight into the theoretical implications of demographic change, in a first section. This will be followed by an analysis of the gender issue as having an important role in this change. In a third section, the paper will look at the possible benefits arising from increasing the female labour participation rate and it will finish with some concluding remarks.

Keyword Low Birth Rates, High Life Expectancy, Gender Labour, Increase Female Labour Demographic Dhange in Japan

JEL Classification J11, J 16, O41, O53, I20, N33, N35

Demographic change in Japan – theoretical implications

The demographic situation in a country is characterised by the relationship between three groups in the population: the working population, the elderly and children. The structure of the population has therefore a large impact on economic growth. On the one hand, a rising number of elderly people increases the demographic burden through pension and health care costs, which have to be absorbed by the working population. If the share of the elderly in contrast to the share of the working population increases, an intergenerational imbalance appears (Aoyagi and Ganelli 2013) with the younger generation bearing a heavier fiscal debt than the older generation. On the other hand, low birth rates imply the increase of this intergenerational imbalance in the future, as there are not enough people to backfill the labour force. Hence, an increasing share of elderly people and a decreasing birth rate can be seen as the two edges of a sword named 'demographic change' that threatens most developed economies. Although these are problems that most advanced economies have to deal with, all eyes are on Japan as

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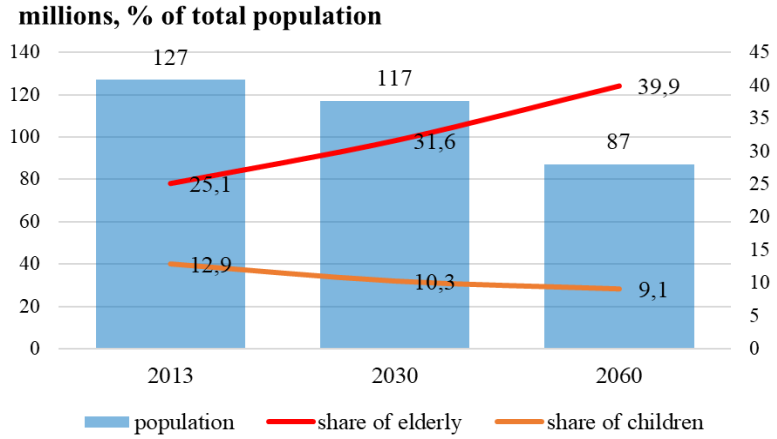
the country holds the vanguard role in these issues with its very low birth rate and the highest life expectancy in the world. The year 2005 marked a watershed for Japan regarding its demographic situation as the rate of the natural population change was negative for the first time and it has remained negative since (Statistics Bureau 2017).[1] According to Cabinet Office projections, the population is forecast to shrink by over 30 per cent from 127 million in 2014 to just 87 million by 2060 (Matsui et al. 2014). In combination with the fact that Japan has the highest level of life expectancy in the world (Statistics Bureau 2017), the Japanese population is not only shrinking but aging as well. By 2060 the share of the elderly, defined as persons aged 65 and above, is estimated to reach almost 40 per cent, whereas the proportion of children below the age of 14, is under 10 per cent, as can be seen in Figure 1.

Figure 1. Population forecast for Japan (2013 – 2060)



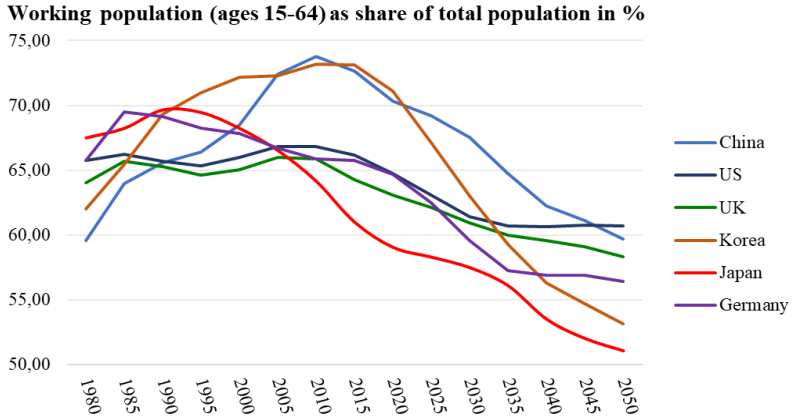
Source: own illustration based on data of Matsui et al (2014).

The rapidly rising amount of elderly people implies soaring pension costs and rising healthcare burdens. This is one reason why Japan's fiscal debt has exceeded 250 per cent of its GDP in 2017 (Statistics Bureau 2017). Public pension costs have been accounting for more than 10 per cent of GDP since 2011 (OECD 2017a). On the other hand, the declining birth rate and thus the decreasing proportion of children will have a massive impact on the evolution of the labour force, which is defined as the group of people aged between 15 and 64 years. Its share accounted for 60.3 per cent of the entire population in 2016, but it is projected to shrink to 51.8 per cent by 2050 (Statistics Bureau 2017). Japan is about to face "the sharpest labour force decline among advanced economies" (Steinberg and Nakane 2012: 4), as shown in Figure 2.

Many industrial sectors are already suffering from acute labour shortages. The current overall ratio of effective job offers to applicants is at a high 1 to 1, whereas in labour-intensive sectors such as security services, construction and mining, the ratio is at a much higher level of 3 to 5 meaning that there are 3 to 5 jobs available for every applicant (Matsui et al. 2014). A shrinking workforce could drastically lower the domestic economic output and thus GDP endangering thereby economic growth. This has partly explained why Japan has already handed over its ranking as the second biggest economy in the world to China (Steinberg and Nakane 2012). Furthermore, a shrinking population does not stimulate consumption and does not thus help to ease Japan's deflation problems (Matsui et al. 2010).

[1] This rate records the number of births minus the number of deaths in a country and in a year.

Figure 2. Population forecast - Japan in comparison with other nations (1980-2050)



Source: own illustration based on data of The World Bank (2017).

While a shrinking workforce and a rising share of elderly people appear as manageable problems when dealt with separately, the two issues lead to massive economic implications when they happen together. For clarification, it makes sense to have a closer look at demographic dependency ratios. First of all, the "elderly dependency ratio" shows the relationship between the elderly and the economically active population (dependents per 100 people of working population). This ratio is estimated to increase by 79 per cent from 24 dependents per 100 workers in 2000 to 43 dependents per 100 workers by 2025 compared to a 52 per cent average increase in the OECD countries (CESifo 2003). The high increase is mainly due to the combination of the retirement of the so called first "baby boom" generation (e.g. people who were born after World War II in 1947-1949) and the aforementioned decline of the workforce due to low current birth rates. By 2050, the ratio will have risen further to 56 dependents per 100 of workforce. Although the increase will have slowed down a bit compared with the enormous surge between 2000 and 2025, it will still rise above the OECD average (CESifo 2003).

The "total dependency ratio" takes into account the fact that the economically active population does not only have to care for the elderly but for children as well. With the estimated 86 dependents per 100 workers by 2050, Japan displays one of the highest total dependency ratios in the world even above the OECD average of 72 dependents per 100 of labour force, - although this is already the highest region's average in the world (CESifo 2003). Estimates for 2050 show that only higher amounts can be found for some countries within Europe (CESifo 2003). Although Japan will not stand alone with its demographic problems, the country will be hit earlier than other countries.

As the demographic burden of children is lower than that of the elderly, the "needs weighted dependency ratio" is an adjustment of the total dependency ratio by applying weighting techniques. It assumes that the demographic burden of elderly people is three times higher than that of children. Even with this measure, which lowers Japan's demographic burden massively, Japan still ranks highly above the OECD average (CESifo 2003).

The first important implication of these demographic trends is in terms of output growth and of growth theory. The standard Solow-Swan-model augmented with a dependency ratio for taking into account the age structure of the population, referred to as the "Model of Silver Growth" (Weber 2010), is used in this paper. The Solow-Swan-Model was originally composed

for economies with a growing population but the assumption that the whole population is working will be changed by incorporating the dependency ratio.

A simple Solow-Swan-model using a Cobb-Douglas-function (Mankiw 2016) augmented by the factor of exogenous technology progress shows the growth perspective for economies that have reached the steady state (Gärtner 2009 and Acemoglu 2009). For simplification, it is assumed that the production function has constant returns to scale:

$Y = AK^{\alpha}L^{\beta}$ (1)

with Y denoting production; K capital; L labour; and A technology progress and with $\beta=1 - \alpha$ and $0 < \alpha < 1$.

By 2016, more than half of the Japanese population had completed tertiary education (OECD 2017b) thus it is sensible to augment the Solow-Swan-Model even further with a human capital term so as not to neglect an important input factor. Human capital is related to each worker and therefore it is not an exogenous variable. Studies show that there is a significant positive effect of secondary and higher education on growth, whereas primary education is indirectly growth-enhancing since it is a precondition for higher education (Barro 1997). The new production function becomes:

$Y = AK^{\alpha}(hL)^{\beta}$ with h = average human capital per worker (2)

which can be re-written as:

$Y = AK^{\alpha}(hL)^{(1-\alpha)}$ (3)

Given that the total population (N) is composed of the labour force (L) and of dependants (D) or given that $N = L + D$, it follows that the dependency ratio can be expressed as follows:

Dependency ratio: $\theta = \frac{D}{L} = \frac{(N-L)}{L}$ (4)

The share of the labour force (L/N) can be written as:

$$\frac{L}{N} = \left(\frac{N}{L}\right)^{-1} = \left(\frac{L+D}{L}\right)^{-1} = (1+\theta)^{-1} = \frac{1}{(1+\theta)} \quad (5)$$

GDP per capita can be expressed as: (6)

$$GDPcapita = \frac{Y}{N} = \frac{AK^{\alpha}(hL)^{1-\alpha}}{N}$$

$$= AK^{\alpha}(hL)^{1-\alpha} * \frac{1}{N}$$

$$= AK^{\alpha}h^{1-\alpha}L^{1-\alpha} * \frac{1}{N}$$

$$= AK^{\alpha}h^{\beta}\left(\frac{L}{L^{\alpha}}\right) * \frac{1}{N}$$

$$= AK^{\alpha}h^{\beta}\frac{L*1}{L^{\alpha}*N}$$

$= AK^{\alpha}h^{\beta}\frac{1}{L^{\alpha}} * \frac{L}{N}$ and when replacing L/N by its expression found in equation (5), GDP per capita becomes: (6a)

$$= AK^{\alpha}h^{\beta}\frac{1}{L^{\alpha}}\left(\frac{1}{1+\theta}\right)$$

To see how the dependency ratio affects the term, the first partial derivative with respect to is used as follows: (7)

$$\left(GDPcapita\right)' = \frac{\partial\frac{Y}{N}}{\partial\theta} = AK^{\alpha}h^{\beta}\frac{1}{L^{\alpha}} * \left(-\frac{1}{(1+\theta)^2}\right) < 0$$

Since the first factor is positive and the second is negative, the overall product in equation (7) is negative. As this represents the slope of equation (6a) it is demonstrated that the dependency ratio has a negative impact on the term.

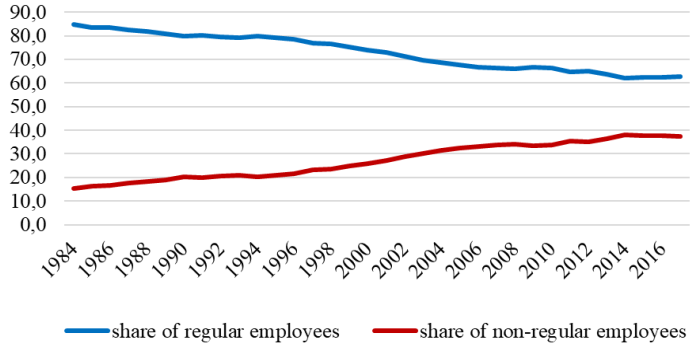
Consequently, a higher share of dependents lowers economic growth, but the final impact on economic growth depends very much on the other variables. Generally, a declining workforce (and concomitantly an increasing dependency ratio) can be compensated for by an increase in technological change or/and in physical capital (Gruescu 2007).

Explaining demographic problems in Japan – The gender issue

Japan has long been the synonym of economic performance and growth. As it has only few natural resources, Japan has always made a successful use of its population as an input factor. The Japanese employment system has gained the reputation for being unique and for being at the heart of Japan's economic success. To understand how such a famous system can be affected by adverse demographic trends, it is important to understand the system's mode of operation. The Japanese employment system was established in the post war period and it was based on the principle of life-long employment security combined with seniority-based wages. These attributes are still enjoyed today by regular employees. They have the advantage of secure full-time contracts until the mandatory retirement age, and of benefits from annually increasing wages. Furthermore, they benefit from intensive and continuous on-the-job-training so as to build up a multiple-skilled workforce. In return, the employees accept long working hours, frequent job rotation and even relocation to undesirable locations willingly (Yashiro 2011). Additionally, company unions, - instead of trade unions on a sectoral basis -, engage in annual wage bargaining in order to maintain harmony between employer and employee. Wage compensation for regular employees is given by bonus payment twice a year accounting for up to 40 per cent of the annual wage (Fortin and Sicsic 2009). Promotion is based on loyalty and granted to those who show the most effort (Yashiro 2011). The effort is often measured by the time the employee spends dealing with the company's issues, whether in the office directly or during his/her free-time.

Since the 1980s, a new cohort of "non-regular" employees has been on the rise; these workers either have part-time or open-ended contracts, or are not directly hired by the employer or have a status which is a combination of these three (Aoyagi and Ganelli 2013). They have lower wages and enjoy less promotion perspectives, although they carry out mostly the same work as regular workers (Jones and Urasawa 2011). In general, they enjoy fewer benefits than their regular colleagues and they support a core workforce of regular employees by ensuring flexibility depending on the business cycle. This employment system has been important to ensure employment stability and to contribute thereby to a welfare society in Japan. Hence, the general view in Japan is to hold on to this system (Yashiro 2011) although it leads to a divide on the labour market. As shown in Figure 3, the share of non-regular employees has almost constantly increased since 1984.

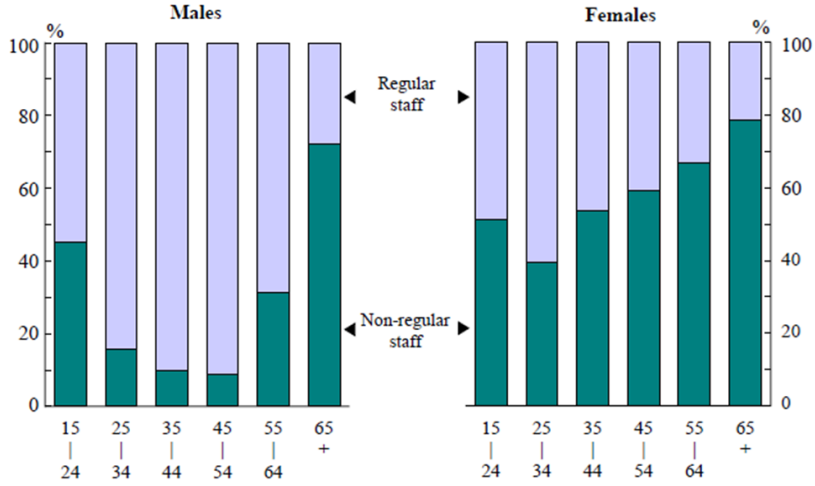
Figure 3. Shares of employment types (1984-2017)



Source: own illustration based on data of the Statistics Bureau (1996), Tokyo.

The divide appears across several characteristics of the population. First, the male labour participation (MLP) of the key productive cohort of 25-60 years is extremely high averaging 95 per cent with 90 per cent of these being in regular employment (Macnaughtan 2015). Figure 4 shows that the majority of men are in regular employment, whereas the majority of women in most age groups are not, with younger and older men more likely to be non-regular workers.

Figure 4. Employment Pattern by Gender and Age (2016)



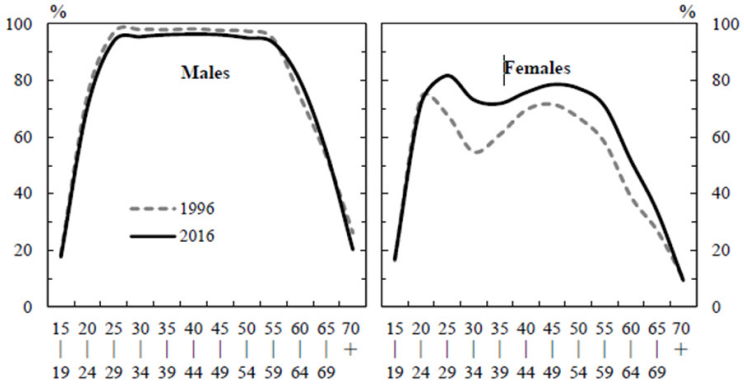
Source: Statistics Bureau (2017), Tokyo.

These findings raise the question as to whether non-regular employment is chosen or imposed upon. Figure 5 shows that many women stop working at the end of their twenties and this pattern is already well-known as Japan's "M-curve". Whilst the dip in the M-curve has flattened during the past two decades, it is still obvious.

The flattening is partly due to the increasing share of non-regular employment. With respect to the fact that the current female average age of first marriage is 29.4 and the average age to have the first baby is 30.7 (Statistics Bureau 2017), it seems that women interrupt their employment for becoming wife or/and mother. Almost 70 per cent of women drop out of the workforce after giving birth to their first child (Matsui et al. 2010) and 43 per cent of these women return to work later in their lives out of the 77 per cent in total that wish to return (Matsui et al. 2014).

As continuous occupation is conditional for regular employment and thereby for building up a career, these interruptions are the reason why the share of regular employed women is low, and why they do not achieve a high position. According to the 2017 Global Gender Gap Report, Japan's female to male ratio of legislators, senior officials and managers levels is only at 0.14. An even worse image appears in the ratio of women to men in parliament. Only every tenth parliamentarian is female (WEF 2017).

Figure 5. Labour Participation by Gender (2016) – Japan's "M-curve"



Source: Statistics Bureau (2017), Tokyo.

The reason behind these patterns can be traced to the Japanese model of femininity, which dates back to Confucianism, stating that women belong to the home and are responsible for the family (Ianacone 2015). Several surveys confirm that this point of view is still valid to date, even among the younger generation (Macnaughtan 2015).

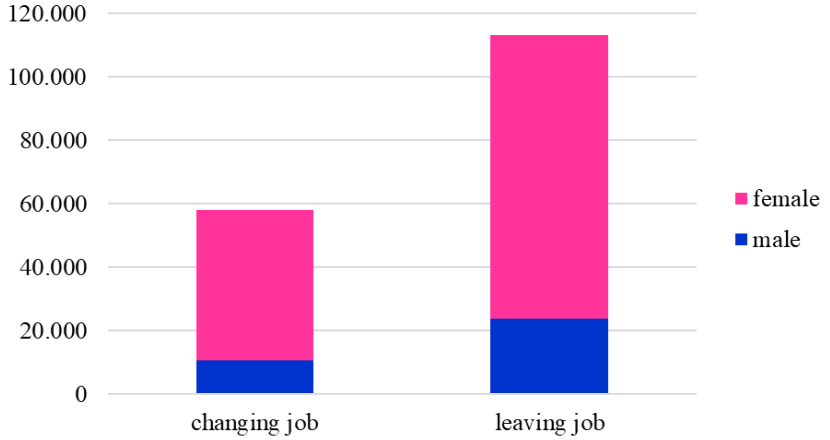
By keeping these traditions, several beliefs have solidified with enormous consequences for women. Of special note are "*Sansaiji shinwa*" ("the three-year-old myth"), which emphasizes the importance for children's development to be cared by their mothers during their first three years of life, and "*kyōiku mama*" ("education mum"), that says that a child must have a mother who monitors homework, gives additional educational tasks, provides home-made food daily and keeps in touch with teachers and other mothers (Macnaughtan 2015).

Regardless to these myths, there were more than 21,000 children on waiting lists for childcare facilities in 2014 (MHLW 2015). The lack of after-elementary-school-care has become so serious that it was named "*sho-ichi no kabe*" ("the first-grade wall"), and that it is seen as the main reason for female workers quitting their job in the eyes of the government (Chanlett-Avery and Nelson 2014). Nevertheless, there are even less places for children under two as they accounted for almost 85 per cent of the waitlisted children in 2014 (MHLW 2015). These numbers are biased because they do not include children whose parents are on parental leave or are not willing to accept any facilities (The Japan Times 2017).

Furthermore, the number of facilities offering care for ill children is low, so that in such cases the mother has to look for alternatives like relatives or staying at home (Steinberg 2012). Additionally, although Japan has some very liberal parental leave laws, only about 2 per cent of new fathers made use of these laws in 2015 (WEF 2016). In addition, Japanese men spend only about one hour per day on household and childcare (Matsui et al 2014).

Women are the care-givers with social responsibility for children as well as for the elderly. The share of females quitting their jobs to take care of elderly relatives is much higher than the share for their male counterparts, as shown in Figure 6. Even if the elderly are mentally healthy and do not need nursing care, many of them need assistance with daily life issues as they become less mobile with age.

Figure 6. Number of people leaving or changing their jobs for caregiving by gender (2012)



Source: own illustration based on data of Statistics Bureau (2011), Tokyo.

As long as women are carrying the "double burden" (WEF 2014), meaning balancing sole responsibility for the family and participating in the workforce, they cannot serve "the anytime/anywhere performance model" of Japanese work culture. Although Japan already ranks among the top places of annual worked hours (Matsui et al. 2014), it is not unusual for a worker to spend even more time with colleagues in her/his free-time to strengthen office cohesion (Chanlett-Avery and Nelson 2014). Due to the availability of new technologies, the working time has been extended to 24 hours, 7 days a week (WEF 2014). If women try to serve this model fully, they will not have time for a family, which will exclude them socially (WEF 2014).

Furthermore, women receive on average only 67 per cent of what their male counterparts earn for similar work (WEF 2017). This is due to the duality of Japan's labour market. The discrimination is against non-regular employees, as they receive lower wages for the same work and miss promotion perspectives by lacking training opportunities. But the truth is that almost 70 per cent of all non-regular employees are women and that they are in this position mainly because of their gender (own estimation based on Statistics Bureau 2017). Additionally, there is a lack of role models and opportunities due to the lack of female workers in higher positions (WEF 2014) as promotion is dependent on the "*Sempai-Kohai*-principle", meaning a senior (*sempai*) mentors juniors (*kohai*) and campaigns for them (Dietrich 1991). The only way to change this is to achieve a critical mass of women in these positions (Scott-Gall and Manohar 2013). More women quit their careers because of 'push factors': 63 per cent cite dissatisfaction with their work and 49 per cent feel they are stalled in their careers. 'Pull factors' are less important with only 32 per cent giving child-rearing as a reason (Matsui et al. 2014). So, women satisfied with their career will ponder before giving up their career for motherhood. This is especially true since the likelihood of a change from non-regular into regular employment is estimated at between 1.7 to 10.3 per cent chance depending on various factors such as age and previous types of contract and work (Aoyagi and Ganelli 2013).

Moreover, unmarried women represent a higher share of regular employment than married women (Aoyagi and Ganelli 2013). This is a reason for the increasing number of women deciding to stay single. In 2015, 14.1 per cent of women said to have made a decision for 'lifetime non-marriage' (Statistics Bureau 2017). Additionally, the number of marriages has decreased and the average age of the first marriage has been postponed to the early thirties. Combined with the low

share of babies born out of wedlock of around 2 per cent over the years (Fukuda 2016) it gives an explanation for the low birth rate as marriage seems to be a precondition to have children in Japan. There is a high correlation between a woman's decision for children and marriage. The recent unfolding situation of young men being insecure in the labour market results in a lack of trust in their ability to provide for a family (Ogura and Kadoda 2008), and this is one reason for delayed marriage. In contrast to the low average unemployment rate of 3.1 per cent, the unemployment rate for men up to their mid-30s is around 5 per cent (Statistics Bureau 2017). In addition, the share of men in non-regular employment under the age of 25 is over 40 per cent (Statistics Bureau 2017). As a result, the situation on the labour market has a negative impact on the birth rate, whether this is due to female decisions for careers instead of motherhood or whether this is caused by a more precarious situation for young men on the labour market; these all result in delayed marriage and family-building.

Benefits arising from increasing the female labour participation rate (FLP)

Raising the FLP is a main aspect of Prime Minister Abe's "Revitalization Strategy". The targets of Abe's Womenomics are a general lift of FLP to 73 per cent by 2020, a share of 30 per cent of women in leadership positions in all areas, increasing the part of first-time mothers returning to work after childbirth to 55 per cent, by bringing the childcare waiting lists down to zero by 2017 and enlarging the share of fathers taking parental leave to 13 per cent by 2020 (Matsui et al. 2014). The female labour participation (FLP) rate has continuously risen over the past years and it is currently at a high 63 per cent (WEF 2014). If it were to rise to over 80 per cent, matching that of males, this would add 7.1 million employees to the labour force (Matsui et al. 2014). This would ease the above mentioned demographic burden as it would counteract the shrinking of the workforce and thus affect the dependency ratios positively.

Moreover, increasing the FLP ratio in Japan is viable since Japanese women are highly educated. With 49.5 per cent of women having completed tertiary education in 2015, Japan ranks far above the OECD average of 37.2 per cent (OECD 2017d). Adding highly skilled workers to the labour force will have a positive impact on economic output. From a theoretical viewpoint, the Solow-Swan-model can be used and adjusted once again, starting with the previously used production function:

$$Y = AK^{\alpha}(hL)^{\beta} \tag{2}$$

The model can be modified with the assumption that only a share of the population is economically active (Hussain 2012).

$$L = \rho N \tag{8}$$

Combining equation (2) with equation (8) gives:

$$Y = AK^{\alpha}[h(\rho N)]^{\beta} \tag{9}$$

We assume that ρ is different for men and women; it is separated into for the economically active male share and for the female share. For simplification, it is assumed that exactly half the population is female.

$$L = \rho N = \rho_m \frac{N}{2} + \rho_f \frac{N}{2} = (\rho_m + \rho_f)\frac{N}{2} \tag{8a}$$

By replacing by this expression in equation (9) gives:

$$Y = AK^{\alpha}\left[h\left((\rho_m + \rho_f)\tfrac{N}{2}\right)\right]^{\beta} \tag{9a}$$

After solving and considering $0 < \beta < 1$ and $0 < \rho_m < 1$ and $0 < \rho_f < 1$, equation (9a) can be simplified as follows (Hussain 2012): (10)

$$Y = AK^{\alpha}h^{\beta}\left(\rho_m \frac{N}{2}\right)^{\beta} + AK^{\alpha}h^{\beta}\left(\rho_f \frac{N}{2}\right)^{\beta}$$

$$= AK^{\alpha}h^{\beta}\left(\frac{N}{2}\right)^{\beta} + AK^{\alpha}h^{\beta}\rho_f^{\beta}\left(\frac{N}{2}\right)^{\beta} \tag{11}$$

To see which implication the FLP has on GDP, the first partial derivative with respect to has to be calculated as shown below:

$$(GDP)' = \frac{\partial Y}{\partial \rho_f} = \beta A K^{\alpha} h^{\beta} \left(\frac{N}{2}\right)^{\beta} \rho_f^{\beta-1}$$

$$= \beta A K^{\alpha} \left(h \frac{N}{2} \rho_f\right)^{\beta} \rho_f^{-1}$$

$$(GDP)' = \beta A K^{\alpha} \left(h \frac{N}{2} \rho_f\right)^{\beta} \frac{1}{\rho_f} \tag{12}$$

As the first derivative represents the slope, it is necessary to find out whether it is positive or negative.

$$\frac{\partial Y}{\partial \rho_f} = \beta A K^{\alpha} \left(h \frac{N}{2} \rho_f\right)^{\beta} \frac{1}{\rho_f} > 0 \tag{13}$$

This implies that GDP will rise with an increase in the FLP, if MLP is kept constant. Various estimations suggest that enhancing the FLP ratio to the level of the MLP ratio could boost the GDP by between 12, 5 per cent (Matsui et al. 2014) and 14 per cent (Scott-Gall and Manohar 2013).

As the gross domestic product per capita () is more expressive when comparing economies, it is reasonable to have a look at it as well.

$$GDPcapita = \frac{Y}{N} = \left(A K^{\alpha} h^{\beta} \rho_m^{\beta} \left(\frac{N}{2}\right)^{\beta} + A K^{\alpha} h^{\beta} \rho_f^{\beta} \left(\frac{N}{2}\right)^{\beta}\right) * \frac{1}{N} \tag{14}$$

$$\left(GDPcapita\right)' = \frac{\partial \frac{Y}{N}}{\partial \rho_f} = \beta A K^{\alpha} \left(h \frac{N}{2} \rho_f\right)^{\beta} \frac{1}{\frac{N}{\rho_f}} > 0 \tag{15}$$

Consequently, there is a positive connection between an increase of the FLP ratio and GDP per capita as well. Moreover, a higher FLP rate would increase the disposable income of women and boost consumption. Although consumption has tended to be anaemic in the recent years of deflation in Japan, female spending trends have been resilient (Scott-Gall and Manohar 2013). Women tend to spend more on clothing and luxury goods, and they make most of the daily household spending decisions (Scott-Gall and Manohar 2013). In Japan, women control almost 65 per cent of all purchasing decisions (Scott-Gall and Manohar 2013). Additionally, there are multiplier-effects of a rising FLP, such as reducing entry barriers for women when entering the labour market and women's tendency to invest in other women's ideas. Therefore, it would start a virtuous cycle (Scott-Gall and Manohar 2013), meaning more women in the labour force would encourage even more women to join it - with all the aforementioned benefits.

Furthermore, there is clear evidence that companies with a higher share of female senior management and board members perform better in terms of return on equity and earnings margins than those with a lower fraction (Süssmuth-Dyckerhoff et al. 2012). This is due to the behaviour and attitudes women bring along, e.g. they take less inconsiderate and risky decisions, they emphasise employee development more, they encourage creativity and expression of opinion in the decision-making process and they widen the perspective for, especially female, consumer behaviour (Süssmuth-Dyckerhoff et al. 2012).

Given that many women work as non-regular workers, either willingly or by force, the gender divide contributes to the duality of the Japanese employment system which in turns reduces total factor productivity (Danninger et al. 2012). In addition, this duality has a direct impact on women as they enjoy only limited opportunities in terms of training and education. Furthermore, working as a non-regular worker unwillingly means that the employee would prefer a regular position, and this is likely to affect his/her morale and job efforts negatively (Danninger et al. 2012). Further, the duality has a negative impact on job satisfaction and social cohesion as it increases income inequality and could lead to the perception that economic growth

is not distributed fairly (Danninger et al. 2012). This is important since, again, 70 per cent of all non-regular positions in Japan are held by women.

However, it seems that there is the danger that an increasing FLP will decrease the birth rate even more. This view is especially popular in Japan and it is one of two myths that have solidified and seem to be extremely difficult to discredit. On the one hand, the myth that more working women means fewer jobs for men and on the other hand, the myth that raising the FLP rate will lower the birth rate further (Matsui et al 2014). The first myth does not hold if one considers that women often work in different fields than men. The second myth does not stand much to the test, since several variables – other than the FLP rate – explain the declining fertility rate in almost every advanced economy.

Evidence shows that economies with a high FLP such as Sweden, the Netherlands, Denmark or the UK also have a higher birth rate. The same is visible regarding the prefectures of Japan. Prefectures with a higher FLP have a higher fertility rate (Matsui et al 2014), although we should remind the fact that correlation does not imply causality. The connection between the two variables is closely connected with surrounding conditions, but Japan is in a lucky position to borrow suitable policies from countries with similar demographic issues.

For example, the 'family-friendly Scandinavians' policy could provide Japan with some ideas on how to extend and harmonize its current childcare system. Not only the country needs more child care facilities, something already enshrined in Abenomics, but it also needs to be more adjusted to the necessities of the parents without extra fees; a nurse needs childcare at different times compared to an office worker, but probably she earns less to pay for it. Especially for jobs with rotating shifts in the health sector, which is in demand due to the aging population, supporting on-site or 24/7-facilities would be beneficial. Furthermore, making the child allowance conditional on workforce participation could help to raise the FLP (Matsui et al 2010). Moreover, the parental leave benefits in Scandinavia are generous; on the one hand, it extends over 16 months and represents 80 per cent of the salary but on the other hand, it is only available if the father takes at least two of these 16 months. Such a provision could raise the share of Japanese men taking parental leave and develop more empathy for their wives and the children (Matsui et al. 2014).
With reference to the Dutch system, an adjustment of part-time work regulation could be advisable. In the Netherlands, part-time work is equal to full-time work in every respect. There is no wage gap, promotion opportunities are good and taxation and social security benefits are equal. Although the Japanese government has made a step to better secure part-timers by October 2016, it is only a drop in the ocean, as the new provision only applies to companies with more than 500 employees, and is conditional on annual income, weekly working hours and duration of employment (Matsui et al. 2014). Comprehensive social security codes could be implemented and the dependent exemption abandoned. It would be even better to narrow the gap between non-regular employees and regular employees by bringing down the labour market duality, e.g. by extending the rights and benefits for non-regulars. The UK's 'right to request' empowers parents to ask for flexible work arrangement regardless of their position (Matsui et al. 2014). Moreover, this right would help to implement more flexible work arrangements, especially concerning the times at office, e.g. by supporting home-office. This would also be beneficial for men, because as more and more women stay unmarried, obviously more men stay unmarried as well and they will have to take care of their parents on their own (Matsui et al. 2010).

In addition, easing immigration laws could help to fill labour market gaps and unburden women. Prime Minister Abe addressed this issue in 2014, but nothing has happened yet. Furthermore, helping women with re-employment after childbirth could raise the FLP as only 43 per cent are able to find a job although 77 per cent of them wish to work again (Matsui et al.

2014). Establishing recruitment and re-training centres would enable more women to re-enter the labour force. Moreover, although the government has almost reached its 30 per cent target of women in ministerial positions, they do not hold any leadership positions and the number of female parliamentarians remains low as stated earlier (Macnaughtan 2015). Increasing the number of women in politics would definitely help to build more awareness of the problem.
Moving away from the current seniority-based promotion practice and launching a transparent advancement system with fair and objective evaluation would definitely encourage more women to participate meaningfully in the labour force. Especially the aforementioned 'push factors' would lose their strong impact. That is very hard to change in Japanese companies, but it will be particularly beneficial for global firms (Matsui et al. 2014). Generally, introducing more flexible employment contracts could be an idea for a soft drift into a less dual labour market. For women at the start of their career, it would be most beneficial if they no longer have to choose between career and family (Steinberg and Nakane 2012).

Norway was the first country that introduced a women-on-board-quota to ensure their participation in the labour force as Norway understands the importance of the female point of view (Scott-Gall and Manohar 2013). Introducing quotas could be an idea for Japan to ensure more women in leadership positions. Clear targets must be set in the first place in order to achieve them. Australia has recognised that only men can change their attitude towards women, and not the other way around. And since men are more easily influenced by other men it introduced the "Male Champions of Change" to bring the message of diversity and strategies to men by men who have already acknowledged the importance of the issue. A similar approach are the "30 per cent Clubs" of UK and Hong Kong which try to build awareness for diversity among business leaders. Similar organisations already exist in Japan, but they focus on women and their training and thus they tend not to be fully adequate (Matsui et al. 2014).

However, the only way to achieve gender equality is the change of society's mindset, but this is the hardest job to fulfil and the one which will take the longest time. Nevertheless, Japan's gender equality has to start in its homes (Matsui et al. 2014) and in its minds.

As stated before, encouraging men to take parental leave could help to raise awareness for household and childrearing (Matsui et al. 2014). Equality can only start at home and if it has settled once it will be handed over to the children growing up in this home. To support this mechanism the government could launch programmes to encourage fathers to spend more time with their children. Educational units about diversity could be implemented already at early stages of schooling; this would strengthen awareness among children (with essays about their father's job or their mother's daily life).

Moreover, myths and beliefs need to be abandoned (Matsui et al. 2014) and clarification campaigns have to be initiated. They could be promoted by utilising prominent and popular faces like actors and singers, as well as managers or politicians.

Conclusion

Japan's aging population increases its demographic burden and thus it endangers its economic growth. Since its population is not only aging but shrinking as well, the danger amplifies as less people in the workforce have to bear the rising costs. The low current birth-rate implies that this issue will be exacerbated in the future. For that reason, it is sensible to aim at an increase of the birth-rate, on the one hand, and to backfill the labour force as well, on the other. This issue is already in the focus of Abe's government by targeting an increase in the FLP, but it appears to be much harder to achieve than initially planned as only little has happened so far, except for increasing the number of childcare places.

These struggles are rooted in Japan's labour market system. Japan's economic slow growth after the burst of the bubble has led to changes in the labour market and has caused a lot of uncertainty, resulting in lowering the birth rate. The employment system worked well in the past, but it is no longer adequate to respond to current labour market problems. Raising the FLP is indeed one way to improve Japan's position as it can help to improve the economic situation, to hamper the demographic burden and, under a number of appropriate conditions, even end up in an increase of the birth rate. Nevertheless, a meaningful increase of the FLP can only be achieved if it is accompanied by a reduction of the labour market duality as well as by the promotion of gender equality. As long as women are bearing the sole responsibility of all caring-related issues, they cannot participate in the labour force in the same way as their male counterparts. Although Japan has many opportunities in terms of suitable policies ahead, when looking at the example of more equal countries such as the Netherlands, it appears that the hardest point to change is its society's mindset. Obviously, this change cannot happen of its own accord, but it can be gradually shaped by appropriate government policies. By only aiming at an increase in child-rearing facilities, Abenomics provides only part of the solution.

References

Acemoglu D (2009) Introduction to modern economic growth, New Jersey: Princeton University Press.

Aoyagi C, Ganelli G (2013) The Path to Higher Growth: Does Revamping Japan's Dual Labour Market Matter? IMF Working Paper, WP/13/202. Available: http://www.imf.org/external/pubs/ft/wp/2013/wp13202.pdf [accessed 07 Nov 2017]

Barro RJ (1997) Determinats of Economic Growth: A Cross-Country Empirical Study, Cambridge (Massachusetts): MIT Press.

CESifo (2003) Demographic Dependency Ratios, CESifo DICE Report: Journal for Institutional Comparison, Vol.1, No.3; 69-71, Munich: The international platform of Ludwig-Maximilians University's Center for Economic Studies and the Ifo Institute for Economic Research. Available: https://www.cesifo-group.de/ifoHome/facts/DICE/Social-Policy/Pensions/Demographics/dice-rep-depen-old-age.html [accessed 07 Nov 2017]

Chanlett-Avery E, Nelson RM (2014) "Womenomics" in Japan: In Brief, CRS Report; R43668, Washington DC: Congressional Research Service. Available: https://www.fas.org/sgp/crs/row/R43668.pdf [accessed 07 Nov 2017]

Danninger S, Kashiwase K, Lam WR, Nozaki M, Shin J, Steinberg C, Tokuoka K (2011) Japan: Selected Issues, IMF Country Report No.12/209; Washington DC: International Monetary Fund. Available: https://www.imf.org/external/pubs/ft/scr/2012/cr12209.pdf [accessed 07 Nov 2017]

Dietrich WS (1992) In the Shadow of the Rising Sun: The Political Roots of American Economic Decline, 2nd ed.; Pennsylvania: The Pennsylvania University Press.

Fortin A, Sicsic M (2009) Japan's changing labour market and how it is affecting its growth model, TRÉSOR-ECONOMICS, No.65, 1-8, Paris: Ministère de l'Économie, de l'Industrie et de l'Emploi – Direction Générale du Trésor et de la Politique éconimique. Available: https://www.tresor.economie.gouv.fr/file/327023 [accessed 07 Nov 2017]

Fukuda N (2016) Marriage and Fertility Behaviour in Japan: Economic Status and Value-Orientation, Singapore: Springer Science + Business Media.

Gärtner M (2009) Macroeconomics, 3rd edition; Edinburgh. Prentice Hall Europe Financial Times (Pearson Education Ltd.).

Gruescu S (2007) Population Ageing and Economic Growth: Education Policy and Family Policy in a

Model of Endogenous Growth, Müller, Werner A. and Bihn, Martina (eds.), Heidelberg: Physica-Verlag.

Hussain, S (2012) Growth Effects and the Determinants of Female Employment in Pakistan: A Macro- and Microeconomic Analysis. Busse, M, Debiel, T.; Hartmann, C, Kaltenborn, M, Karl H, Löwenstein W (eds.), UAMR Studies on Development and Global Governance, Vol.61; Berlin: Logos Verlag.

Ianacone R (2015) Japanese Public Opinion on "Womenomics" [online], The Maureen and Mike Mansfield Foundation. Available: http://mansfieldfdn.org/mfdn2011/wp-content/uploads/2015/01/AOPD-Ianacone-commentary-FINAL.pdf [accessed 07 Nov 2017]

Japan Healthcare Info (2016) Nursery, Daycare and Kindergarden [online], available: http://japanhealthinfo.com/child-health-and-childcare/daycare-and-kindergardenpreschool/ [accessed 07 Nov 2017]

Japanese Nursing Association (2016): Nursing for the older people in Japan: 2. Nursing for the Older People: Current Situation and Challenges [online], available: https://www.nurse.or.jp/jna/english/pdf/info-02.pdf [accessed 07 Nov 2017]

The Japan Time (2017) Day care waiting lists grow for third year straight as more women get jobs, The Japan Times [online], 01 Sep 2017, available: https://www.japantimes.co.jp/news/2017/09/01/national/social-issues/shortage-slots-day-care-centers-worsens-third-straight-year-2017/#.Wfr8-IjR5PY [accessed 07 Nov 2017]

Macnaughtan H (2015) Womenomics for Japan: is the Abe policy for gendered employment viable in an era of precarity?, The Asia-Pacific Journal: Japan Focus, Vol.13, Issue13, No.1, 1-19. Available: http://apjjf.org/-Helen-Macnaughtan/4302/article.pdf [accessed 07 Nov 2017]

Mankiw GN (2016) Macroeconomics, 9th ed.; New York: Worth Publishers.

Matsui K, Suzuki H, Eoyang C, Akiba T, Tatebe K (2010) Womenomics 3.0: The Time Is Now [online], Japan: Portfolio Strategy, Goldman Sachs, available: http://www.goldmansachs.com/our-thinking/investing-in-women/bios-pdfs/womenomics3_the_time_is_now_pdf.pdf [accessed 07 Nov 2017]

Matsui K, Suzuki H, Akiba T, Tatebe K (2014) Womenomics 4.0: Time to Walk the Talk [online], Japan: Portfolio Strategy, Goldman Sachs, available: http://www.goldmansachs.com/our-thinking/outlook/womenomics4-folder/womenomics4-time-to-walk-the-talk.pdf [accessed 07 Nov 2017]

MHLW (2015) For Achievement of the Zero Children Waiting List [online], Ministry of Health, Labour and Welfare, Government of Japan, available: http://www.mhlw.go.jp/english/policy/children/children-childrearing/dl/150407-03.pdf [accessed 07 Nov 2017]

OECD (2017a) Pension Spending [online], OECD Data, available: https://data.oecd.org/socialexp/pension-spending.htm [accessed 07 Nov 2017]

OECD (2017b) Educational attainment and labour-force status [online], OECD Stats, available: http://stats.oecd.org/viewhtml.aspx?datasetcode=EAG_NEAC&lang=en [accessed 07 Nov 2017]

OECD (2017c) Unemployment rate [online], OECD Data, available: https://data.oecd.org/unemp/unemployment-rate.htm [accessed 07 Nov 2017]

OECD (2017d) Educational attainment and labour -force status [online], OECD iLibrary, available: http://www.oecd-ilibrary.org/education/data/education-at-a-glance/educational-attainment-and-labour-force-status_889e8641-en [accessed 07 Nov 2017]

Ogura S, Kadoda T (2008) Effects of Public Policies and Labor Market on the Fertility of Japanese Women: Analyses of Multicipal Data [online], available: http://www2.ier.hit-u.ac.jp/pie/stage2/English/report/PR0906/3.10%20ogura.pdf [accessed 07 Nov 2017]

Richardson D (2010) Chapter 3 Online Annex1 [online], Annexe en ligne de "Assurer le bien-être des enfants", available: https://www.oecd.org/els/family/44362348.pdf [accessed 07 Nov 2017]

Scott-Gall H, Manohar S (2013) Fortnightly Thoughts: Women's Work: Driving the Economy, Equity Research, Issue53; New York: Goldman Sachs. Available: http://www.goldmansachs.com/our-thinking/investing-in-women/research-articles/womens-work.pdf [accessed 07 Nov 2017]

Statistics Bureau (1996) Historical Data [online], available: http://www.stat.go.jp/english/data/roudou/lngindex.htm [accessed: 28 Nov 2017]

Statistics Bureau (2011) 2012 Employment Status Survey [online], available: http://www.stat.go.jp/english/data/roudou/lngindex.htm [accessed: 28 Nov 2017]

Statistics Bureau (2017) Statistical Handbook of Japan 2017, Shinjuku-ku: Statistics Bureau, Ministry of Internal Affairs and Communication of the Government of Japan. Available: http://www.stat.go.jp/english/data/handbook/index.htm [accessed 07 Nov 2017]

Steinberg C (2012) Can women save Japan (and Asia Too)? Finance & Development, Vol.49, No.3; p.1-4, Washington DC: International Monetary Fund. Available: http://www.imf.org/external/pubs/ft/fandd/2012/09/pdf/steinberg.pdf (last access: Sep. 12th, 2016)

Steinberg C, Nakane M (2012) Can women save Japan?, IMF Working Paper, WP/12/248; Wahington DC: International Monetary Fund. Available: https://www.imf.org/external/pubs/ft/wp/2012/wp12248.pdf [accessed 07 Nov 2017]

Süssmuth-Dyckerhoff C, Wand J, Chen J (2012) Women Matter: An Asian Perspective: Harnessing female talent to raise corporate performance. New York: McKinsey & Company. Available: http://www.mckinsey.com/search?q=Women%20Matter%20An%20Asian%20Perspective [accessed 07 Nov 2017]

Weber L (2010) Demographic Change and Economic Growth: Simulation on Growth Models. Heidelberg: Physica-Verlag.

WEF (2014) Closing the Gender Gap in Japan. Geneva: World Economic Forum. Available: http://www3.weforum.org/docs/WEF_ClosingGenderGap_Japan_Report_2014.pdf [accessed 07 Nov 2017]

WEF (2016) Why did only 2% of new fathers in Japan take paternity leave last year?[online], World Economic Forum, available: https://www.weforum.org/agenda/2016/01/why-did-only-2-of-new-fathers-in-japan-take-paternity-leave-last-year [accessed 07 Nov 2017]

WEF (2017) The Global Gender Gap Report 2017, Geneva: World Economic Forum. Available: http://www3.weforum.org/docs/GGGR2015/cover.pdf [accessed 07 Nov 2017]

The World Bank (2017) Population Estimates and Projection [online], available: https://data.worldbank.org/data-catalog/population-projection-tables [accessed 28 Nov 2017]

Yashiro N (2011) Myths about Japanese employment practices: An increasing insider-outsider conflict of interests, Contemporary Japan: Journal of German Institute of Japanese Studies Tokyo (DJI), Lifestyles in Transition - Antecedents and Consequences of Social Change HC, Kohlbacher F (eds.), Vol.23, No.2, 133-155; Berlin and New York: Walter de Gruyter. Available: http://www.degruyter.com/downloadpdf/j/cj.2011.23.issue-2/cj.2011.008/cj.2011.008.xml [accessed 07 Nov 2017]