Demographic transition in Japan

Prerequisites and Consequences

Ritgerð til BA-prófs í japönsku máli og menningu

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Abstract

Demographic changes have had a significant impact on Japanese society in recent decades and the country is currently going through a demographic shift which presents new challenges. These changes are caused by several different factors and some of them can be explained by the so called Demographic Transition Theory. This theory is a useful tool to analyse the underlying causes for social developments, such as increased life expectancy and declining birth rates. A demographic transition can lead to different kinds of social issues like the ageing of society and population decline which in turn increase pressure on the health care and pension systems, lead to scarcity in the workforce and negatively affect productivity in the country. At the same time demographic changes create opportunities to improve different parts of the social structure and the Japanese government is trying to approach the whole situation in a positive way. If Japan turns out to be successful in dealing with the consequences of its demographic transition, it could serve as a good example for other countries that might one day have to deal with similar problems.
Table of contents

Introduction .......................................................................................................................... 4
1. Demographic transition in Japan ....................................................................................... 6
   1.1 Main aspects of the Demographic Transition Theory .............................................. 6
   1.2 How the demographic transition theory applies to Japan ...................................... 8
2. Current demographic situation in Japan ......................................................................... 11
   2.1 Increased life expectancy ......................................................................................... 11
   2.2 Low fertility ............................................................................................................. 15
3. How the demographic transition affects Japanese society .......................................... 20
   3.1 Socio-economic challenges ..................................................................................... 20
   3.2 Can the decline in population possibly have a positive effect? ......................... 24
Conclusion ......................................................................................................................... 27
Bibliography ....................................................................................................................... 29
**Introduction**

Over the course of time, developments in science and technology have significantly improved people's lives. The number of deaths from epidemic diseases has decreased, medicine advancement goes by leaps and bounds, diseases that previously were considered incurable are being treated and the general human life expectancy is far greater than it was only a century ago. All these advantages are a part of demographic changes, often referred to as a “Demographic Transition”. However, despite the positive changes due to this transition, some societies have been confronted with new challenges such as an ageing populations and a decline in birth rates.

When looking at statistics among countries, Japan currently has the highest number of senior citizens and unmarried individuals in the world. At the same time it ranks as one of the lowest when it comes to birth rates. Demographic changes and challenges that have emerged from this are among the most discussed topic in the country today. Newspapers frequently feature articles on unmarried people and governmental attempts to encourage young people to create families. Another common topic is what has been called the “graying” population and the issues that arise from this. This includes challenges such as pension reform and further development in a long-term health care for the elderly. It is therefore worth understanding in further detail what factors influenced the current situation in the country and how it might evolve over time.

In the University of Iceland, students in the Japanese language department were given the opportunity to practice their speaking skills with native Japanese speakers, for example exchange students, often in the form of short interviews with each other. In my case, I asked people several questions about their family and possible career. What turned out to be the most interesting question was on how they pictured their perfect future. Almost all of the male students focused on being able to spend time with their family and children, while Japanese female students were more focused on getting their dream job. To the question whether they wanted to get married, both genders answered that it depended on their work, or said they had not decided yet.

As a part of my studies in the Japanese language department I went to Japan for two semesters as an exchange student. During my stay there I had more opportunities to further explore my newfound interest in the demographic changes that have taken place.
in Japan and ask people questions on the matter. I spoke with married couples, both those who had children and those who did not, as well as with single people of different ages, and asked them about their views on marriage, child rearing, elderly care, work environment and other related topics. The married people seemed to feel grateful that they managed to find a partner, while the unmarried people showed a lack of interest in the subject and even implied they found it unnecessary to ever get married. Although the number of people I spoke with is insignificant and does not necessarily represent the opinions of the whole nation, it can in some ways reflect the current thoughts and trends in Japan and influenced me to further research the topic.

Demographic changes are affecting many different aspects of Japanese society and it is an interesting subject for further exploration. What is causing these changes? Is this development harmful in any way to the society and if so, what can be done to avert possible negative impacts? Are there any positive effects that might be derived from the demographic changes? Demographers have tried to explain these causes and effects in what has been called the “Demographic Transition Theory” and it can serve as a useful tool to analyse the impact of demographic changes and to make future predictions on further developments.

In this thesis I will examine how the Demographic Transition Model applies to Japan. What the main driving forces of the demographic changes that Japan has undergone in recent decades are, and how does it compare to other countries. The main factors that contribute to the development in Japan, such as the increased life expectancy and low birth rates will also be examined. These factors are resulting in a declining population which has both economic and social impacts on the society. Lastly, the thesis will question whether any positive effects or opportunities are to be derived from population decline.
1. Demographic transition in Japan

1.1 Main aspects of the Demographic Transition Theory

The population of our planet has grown significantly in the last few centuries and continues to do so. Yet, the development in the world's population varies in different regions. In fact in some regions a population decline is taking place instead of an increase, and this is the current situation in Japan. Shifts in population are invariably connected to socio-economic changes and it is therefore important to understand what causes these shifts and what can be done to avoid imbalances.

The theory of Demographic Transition was first proposed about a century ago by the demographer W.S. Thomson. A few years later the French demographer and politician A. Laundry also attempted to explain shifts in population. Around the time of the Second World War the American demographer F.W. Notestein further formulated the main concepts of the theory. These demographers mainly focused their attention on changes in the population structure in connection with the Industrial Revolution in the 19th century in Europe. The core concept of the theory is that birth rates and mortality rates decline as result of the transition from pre-industrialized to industrialized societies. The theory has been criticized and has sometimes been described as a generalization instead of an actual theory (Kirk, 1996, p. 361-364). However it can still be a useful tool for demographers to understand the patterns in population structure and how it shifts in both developed and developing countries.

In the theory, few different stages are taken into consideration, varying from 3 to 5 stages. The initial stage describes an early form of a pre-industrial society, where fertility and mortality rates are both high and population growth remains stagnant. At this stage it was common for children to start working at an early age and was considered necessary to sustain the income of the household. Mortality rates of both adults and infants were high due to reasons such as famines, diseases and poor sanitation. With developments in technology and medicine, and improvements in nutrition and sanitation, a transition takes place towards the second stage. When this stage has been reached, the birth rates remain high but mortality rates are considerably reduced, and as a result the population starts to grow. A decline in child mortalities
usually happens before fertility starts to decline, although in some countries (for instance in Sweden) that has not been the case (Kirk, 1996, p. 366). In later stages the population continues to grow, mortality rates keep decreasing, but coincidentally fertility rates start to decline. This sudden decrease in fertility can happen for different reasons. One of the main factors is believed to be the introduction of mechanization that revolutionized the working conditions for people, and facilitated and improved the quality of life. This reduced the need for human resources and also changed the nature of the labour market. The working environment also changed with increased participation from women. At the same time women had better access to education, their status was also being transformed with the introduction of birth control and family planning methods that had not existed before. This ignited a transition from bigger to smaller families. The final stage presupposes stability in the population, with fertility and mortality rates remaining low. With an improved health care system and prosperity the life expectancy rises and changes the age distribution, eventually resulting in an ageing population (Teitelbaum, 1975, p. 421).

The Demographic Transition Theory is still debated and not everyone agrees on every aspect of it. D. Reher suggests for instance that demographic changes themselves were an initial factor of the socio-economic development and not the other way around, stating that the demographic transition in Europe and in the West should be considered an autonomous process that had a large impact on different aspects of society (Lee, Reher, & Population Council, 2011, p. 11-13). R. Nielsen argues that there is not enough evidence to support the different stages of the theory regarding to population growth. He claims that there is insufficient evidence to support that there ever was a period of stagnation in population growth, which is supposed to happen in the early stages of the Demographic Transition Model. In addition, he argues that there is no evidence that the Industrial revolution was a driving mechanism of the population growth in Europe in the nineteenth century (Nielsen, 2016, p. 34-38).

The demographics of individual countries are certainly different from one another, and this imposes some limitations on the Demographic Transition Theory. For instance, it fails to take into account some unforeseen events such as wars or natural disasters. It also does not consider the effects of migration, nor does it predict the impact of technological developments on society, such as the introduction of the
internet and the rise of social media. Despite these limitations the correlation between demographics and socioeconomic changes in the society is still obvious and the theory helps to understand the main trends in the transformation of the population.

1.2 How the demographic transition theory applies to Japan

Based on the theory, demographic transition happens along with the industrialization of society. The whole impact of the Industrial Revolution is a way too comprehensive to describe in any sort of detail in this overview, but it is worth mentioning at least in part, due to its significance. Notably, industrialization took place in Japan almost a century later than in most Western countries and also happened at a much faster rate. The Industrialization of Japanese society is associated with the historical period called the Meiji period (1868-1912). During this period, radical changes occurred in the social and economic spheres of life in Japan. This includes the transition from manual labour to manufacturing, the introduction of compulsory education, the carrying out of tax reform, urbanization and the abolishment of the class system, which had been one of the main characteristics of the feudal community. At this point in time, the Japanese government was faced with two options. Either it would take measures to implement western technologies and learn from it in order to become a “stronger country” or become one of the many colonies of Western powers (Gordon, 2003, p. 61-73). Economic growth happened at a very rapid speed during this period of time and it heavily influenced the growth in population. By comparison, the population was 35 million people in the beginning of the Meiji period but had reached 50 million in the following period, the Taisho period (1912-1926). By the end of the Second World War the population in Japan had reached a total of 83 million. This clearly demonstrates the impact that industrialization had on population growth and it is safe to say that it resulted in Japan stepping into another stage of the demographic transition (Freedman, 2017, p. 144).

The next stages of the Demographic Transition Theory predict countries to experience low fertility rates and high life expectancy due to decline in mortality and improvements in healthcare. Currently Japan is one of the longest living nations in the world (OECD¹, Life expectancy at birth, 2018) while the birth rate in the country has dropped by more than 60% in the last 60 years (United Nations, 2017). In the middle of

¹ Organisation for Economic Co-operation and Development
the 20th century the Eugenic Protection Law was implemented in Japan and with it contraception and abortions were legalized. This also allowed the government to carry out enforced sterilization. The main objective of the new law was the “biological protection of the race”, but perhaps the most notable impact of it was that it significantly decreased birth rates in the country (Freedman, 2017, p. 144). It is worth mentioning that similar sterilization programs were implemented in other developed countries such as Sweden, Canada and United States (Nourse, 2016, p. 418). The law was not abolished until the year 1996.

The Total fertility rate in the year 2016 in Japan was 1,4 children per woman (OECD, 2018). Fertility below replacement is what occurs when fertility rate in the country goes below 2,1, and under those circumstances the population is considered to be unsustainable (United Nations, Department of Economic and Social Affairs, Population Division, 2013, p. 18). When looking at statistical data provided by OECD in the year 2016, the majority of developed countries had their total fertility rate ranking below 2,1. The rates of some developed countries were also measured below replacement level: United States with the rate of 1,8 and Sweden 1,9. Spain had an even lower ranking than Japan and was 1,3 children per women. Out of all countries the lowest birth rate was recorded in Korea, a total of 1,2.

Based on data published by the Japanese Statistics Bureau, in the year 2018 a total of 28% of the population in Japan was aged 65 and over (2018), leading Japan to currently have the highest number of the senior citizens in the world per capita. The population of Japan increased by 45 million between the years of 1950 and 2000 and reached its peak of 128,566 million people in the year 2010. This is an example of a transitional stage from high fertility and high mortality rates to a decline in both and towards a steadily growing population. Since the year 2010 the Japanese population has declined by more than 1,9 million and is now at 126,6 million people (Statistics Bureau, Ministry of Internal Affairs and Communications, 2018). The population of Japan is

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2 Eugenic Protection Law was introduced against the background of Japan’s rapid population growth right after World War II, the law was aimed at preventing births of eugenically inferior offspring. It authorized sterilization of those with intellectual disabilities, mental disorders or hereditary illnesses even without the consent of the people affected or their families (Editorials, The Japan Times, 2018).

3 The total fertility rate is the number of children that are expected to be born to women of child-bearing age. A rate of about 2.1 will produce a stable population. Less than this, the population will decline unless the shortfall is made up by immigration (OECD, 2018).
shrinking and getting older at the same time, and is estimated to drop by approximately 20 million more by the year 2050.

The Demographic Transition Theory can be very useful in spite of the criticism it has faced. There are some limitations to the theory, but it has nevertheless helped demographers to understand the developing structures and patterns, for example when it comes to age distribution. For example, predictions made in the year 1991 that the number of senior citizens would exceed 30 million in present day Japan turned out close to accurate (Sen, 1994, p. 2). This indicates that the theory has real value and the possibility of it being used to estimate future developments in the demographics in Japan. Shifts in demographics can lead to certain challenges and they require collective measures to be taken to avoid possible negative consequences. Nevertheless in order to understand what kind of measures might be necessary, we first need to explore what socioeconomic factors are at stake regarding the changing in age distribution.
2. Current demographic situation in Japan

The population in Japan is decreasing and ageing simultaneously. There are generally two main factors that contribute to this development. One is the ever increasing life expectancy that has partly to do with advantages made in health care and medicine. The other is connected with low birth rates, and it has recently become one of the most discussed topics in Japan. The institution of marriage seems to be undergoing radical changes and research seems to indicate that young Japanese are more comfortable with the thought of staying single and not having children. In this chapter these two main factors that affect the age distribution in Japan will be further examined.

In many regions of the world, life expectancy has significantly increased over the past two centuries and continues to do so. In contrast to the past, when our predecessors lived to the age of 35-45 years on average, the number of people at the age of 65 and above has grown dramatically. Scientists do not agree on what is the single biggest factor of increased life expectancy of the population of our planet, since each region has its own characteristics that affect its demographic changes. Nevertheless such factors as vaccination, antibiotics, improved nutrition and clothing, economic growth, public healthcare programs and sanitation are frequently named as the most important ones (Riley, 2001, p. 9-15). Japan has become known for longevity among its people and it is important to examine further what causes this increased life expectancy.

2.1 Increased life expectancy

Currently, Japan has the longest average life span out of all the countries in the world. The average life expectancy at birth\(^4\) for citizens of the country in 2017 was estimated by the OECD at 84.1 years for both genders. Japanese culture underwent radical changes from before the Second World War which strongly affected life expectancy. For instance, in the year 1937 the life expectancy at birth for men was only 47 years (Freedman, 2017, p. 145), but had already reached 65,3 years in the 1960’s. By this time, the average life expectancy for both men and women in the country was 67 years and was then similar to life expectancy rates in the Soviet Union. In spite of this rapid development, at that time Japan was still trailing behind the United States, where the

\(^4\) Life expectancy at birth is defined as how long, on average, a newborn can expect to live, if current death rates do not change (OECD, 2018).
Life expectancy was 69.9 years. When compared to statistics today, the average life expectancy in the United States is now at 78.6 and in the Russian Federation it barely reaches 72 years for both genders. This would seem to be an indication that Japan has been spending more than other nations on health care in the last few decades, yet interestingly enough this is not the case. In the year 2014 the total expenditure on health care in Japan was only 10.2% of the country’s gross domestic product whereas by comparison, it was 17.1% in the United States at the same time. Even though the total spending has grown by 7% in Japan since the 1960’s, this comparison indicates that there must be other factors than health care spending that are affecting this radical development in the country.

Generally, the reduction of deaths from both communicable and non-communicable diseases is thought to be a key element regarding increased life expectancy. Since scientists discovered the connection between germs and epidemic diseases, the need for improved hygiene and sanitation became apparent. At the end of the 19th century education became compulsory for all Japanese children and considerable emphasis was put on teaching them about hygiene. … students were instructed in the principles of cleanliness. This information passed from children to the home, and from mothers to women in general. Ideas of hygiene and disease prevention were further spread by directives on vaccinations and inoculations which, beginning in 1910, were required for school admission and were noted in school and graduation certificates (Ryūichi & Jones, 1995, p. 6).

This development and the introduction of sanitation had a large effect on Japan and greatly improved the situation from what it had been in the past.

Due to strict governmental policies which were implemented in the 17th century, Japan remained a relatively closed and isolated country until the second half of the 19th century. This changed significantly with the industrialization of the country. The economy was growing and trade was flourishing, making port cities more important than ever. With urbanization on the rise port cities also became more densely populated. This development led to an increased usage of the water transport system, which at the time had become one of the main means of transportation within those cities. As a result, the water transportation system and the major ports with their densely populated areas were exposed to risks from infectious diseases that were being transmitted by water.
The challenges of fighting infectious diseases required a modernization of the water supply system. When faced with similar challenges, countries in Europe had implemented ways of separating the drinking water supply and the sewage system (Riley, 2001, p. 70-73). This method of separation was highly expensive and only the wealthiest countries could afford to implement it. Because of these high costs Japan did not invest in the new sanitary systems until the late 20th century and the health risks from cholera, for example, remained high in the 1940’s. The breakthrough in fighting those waterborne diseases in Japan came with the introduction of water disinfection in late 1950’s when the Waterworks Act and later the Sewerage Act, were implemented (Ministry of Health, Labour and Welfare, 2009). This seems to have been a turning point because in the decades that followed Japan experienced a rapid growth in life expectancy and a decline in mortality from diseases, such as cholera and typhus. When compared, in the year 1937 only 26% of Japanese households had access to fresh water supplies (Riley, 2001, p.53-54) while nowadays that number is close to 100% (Ministry of Health, Labour and Welfare, 2009).

A major breakthrough in the fight against communicable diseases came with the discovery of how effectively the antibiotic Streptomycin was in treating tuberculosis. It was also showing promising results in treating other infectious diseases. Streptomycin was discovered in the 1940’s and the scientists involved in that discovery were rewarded with a Nobel Prize in the year 1952. Free treatment of tuberculosis, which was a combination of prescribing this new antibiotic and performing chest X-ray examinations, was made available Japan in the 1950’s (Ikeda et al., 2011, p. 1098). This successfully reduced the number of deaths from infectious diseases and as a result, life expectancy increased even more.

The public health insurance system has also played a vital role in the fight against diseases. In the year 1961 the universal health insurance system was established in Japan and with it almost the whole population received health insurance (Reich, Ikegami, Shibuya, & Takemi, 2011, p. 1051). It is worth mentioning that there are two different types of insurance plans in Japan. One is the Employees’ Health Insurance System which covers the employed population, and it was introduced in the year 1922. The other is the Community Health Insurance System which covers self-employed population and temporary workers, and this came into effect just few years before the
Second World War. Both are now part of the mandatory National health Insurance (Sakamoto, Rahman, Nomura, Koike, & Yasunaga, 2018, p. 7-25).

Mortality rates in the first half of the 20th century were mainly due to infectious diseases and tuberculosis as the leading cause of death. After a successful fight against communicable diseases, cerebrovascular diseases became one the main cause of mortality in the country in the 1950’s. Deaths from strokes were usually associated with high blood pressure. Mortality rates from strokes fell with the introduction of new programs by the government in the years between 1969 and 1982. The main purposes of these programs were to lower daily salt consumption and to measure blood pressure (Ikeda et al., 2011, p. 1099).

Although salt consumption remains high in Japan due to high usage of seasonings which contain large amounts of salt, the Japanese diet is generally thought to have a positive effect on human health. According to a study done in the Laboratory of Food and Biomolecular Science in Tohoku University, the diet in Japan includes several beneficial elements such as “steaming and raw cooking methods… high use frequency of soy products, fish (shellfish), vegetables (pickles), fruit, green tea, seaweed, and mushrooms…” along with “…the high use frequency of fermented seasoning (soy sauce, miso, vinegar, mirin, and sake)”. The study explains that the Japanese diet, in combination with physical activities, reduces the risk of obesity (Asano et al., 2019, p. 173).

It is a well-known fact that many Japanese people engage in physical activity on a daily basis. This is partly related to commuting, especially in big cities such as Tokyo and Osaka, where the use of public transportation is generally preferred over the use of personal cars. Commuting to school by walk or by bicycle has been commonly practiced in Japan since the 1950’s and it is believed to be one of the reasons for low obesity among children in Japan (Mori, Armada, & Willcox, 2012, p. 11). The OECD report from the year 2015 provides data on obesity rates among adults in different countries and Japan was found to have the lowest rate of them all. The percentage of people suffering from obesity in Japan was only 3,7% of the adult population while at the same time it was 38,2 % in the United States for instance. As reported by the World

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5 Cerebrovascular diseases – diseases that affect blood vessels of the brain, the most common example is a stroke.
Health Organization, “obesity is one of the main factors of diseases such as diabetes and diseases related to heart and blood vessels” (World Health Organization, 2018).

Nowadays, mortality rates in Japan are mostly caused by predominant diseases such as different forms of cancer, heart diseases and pneumonia (Ministry of Health, Labour and Welfare, 2018). Tobacco smoking is still quite common in Japan and has not yet been banned in public places such as bars and restaurants. According to Ikeda et al., smoking is one of the main causes of diseases of the respiratory system and diseases associated with cerebral circulation, as well as being one of the causes of cancer. Therefore it has been predicted that the reduction in tobacco consumption in Japan can lead to even more increased longevity in the country (Ikeda et al., 2011, p. 1100).

With the current situation of longevity in Japan, the country has come a long way in its fight against various types of diseases, both infectious and non-infectious. By virtue of breakthroughs in medicine and science, many of those diseases have been eliminated, but there is still something to strive for in improving the health of the population. There are few important prerequisites of the increased life expectancy in Japan, such as education, sanitation, hygiene, diet and preventive health care measures. Increased life expectancy is surely a great achievement of humanity, but at the same it is one of the biggest contributing factors to the current problem of the ageing population in Japan. It is also one of the leading causes of the population decline that is now taking place in the country. The other leading cause is low fertility.

2.2 Low fertility

Along with development in the field of medicine and with a higher quality of life in developed countries, the general life expectancy has grown steadily. Japan now has the highest life expectancy in the world, but at the same time the country’s population is decreasing. Along with industrialization and better access to education, there have been many changes in the social and economic aspects of life. For example, it has become increasingly common for couples to live together without getting married. The number of couples who choose not to have children is also growing bigger. There is even an increase in the number of people who prefer to stay single, either because of circumstances or simply because they choose to do so. This has indeed been the development in Japan. Statistics show that more and more people are staying single. In
the year 2017 23.4% of men and 14.1% of women were still single in their 50’s (Kyodo, 2017). Since the mid-20th century many developed countries have experienced a decline in fertility and Japan is no exception. The decline in birth rates is often associated with the availability of family planning and contraception, access to higher education for women and their increased involvement in the labour market.

In Japan, family planning and contraception undoubtedly played big role in fertility decline and created a tendency for people to have smaller families. Abortions were legalized in Japan in the year 1949 and added to the means of contraception, which until then had mainly been the usage of condoms. It is worth noting that contraceptive pills were not legalized in Japan until the year 1999 (Kato, 2009). Data on fertility rates is available from the year 1947 and it shows that decline in birth rates between the years of 1949 and 1950 went down from 4.6 to 3.6 children per woman. This seems to be an indication of what affect the legalization of abortions had on birth rates. Ever since, there has been a continuous decrease in fertility in the country (The Human Fertility Database, 2016).

Traditionally in Japanese society, men are expected to be breadwinners while women are responsible for child rearing and taking care of the elderly. Women are also supposed to take care of house chores and if they earn any income outside the home, it is often seen as a secondary. While some families remain traditional, there is a growing number of instances where a parent is single, or where both of the parents are employed. Japan is known for its painstakingly long working hours and for a business culture where employees are expected to stay at work at least as long as their superiors. Workers are also subject to psychological pressure from superiors and co-workers to participate in the socializing activities after work, including drinking parties known in Japanese as nomikai. Unfortunately there are still cases of maternity harassments or mатаhара taking place in some companies. This occurs when men are chosen over women, especially if they have children, as the preferred choice of employee due to business trips, long working hours and because of possible future transfers to other cities, which can be difficult for mothers. Thus the reluctance of Japanese females to

\footnote{The health ministry was discouraged from legalizing the pill in the 1960s due to pressure from abortion doctors with vested interests, who also expressed concerns over prescription drug abuse and side effects (Kato, 2009).}
have children is often connected with inflexible work environments and the fear of being demoted or losing their jobs if they get pregnant and plan to give birth.

Despite the fact that both genders in Japan are allowed to take parental leaves until their child reaches the age of 1, paternity leaves are far less common than maternity leaves. For instance, in the year 2015 only 2% of men took paternity leaves, while at the same time it was concluded that only 38% of females returned to work after giving birth (Turner, 2017). Reports published by the Ministry of Health, Labour and Welfare in Japan states that 65% of females who actually returned to work found it very difficult to combine work and raising a child (Ministry of Health, Labour and Welfare, 2018).

In her article, Patricia Boling compares Japan to France and suggests that in developed countries that have achieved more progress in gender equality, there is more likelihood of both genders participating in domestic work. The article also states that Japanese women spend three times more time on doing house chores than their French female counterparts. At the same time Japanese men generally do not contribute to housework, much due to long working hours. Child upbringing in Japan demands an active participation from the parent (and in the most cases it is the mother) in school-related matters such as homework or exams preparations, and this obviously makes it difficult for women to find a balance between work and family (Boling, 2008, p. 314-316).

Tsuguhiko Kato, Division Chief of the Department of Social Medicine in the National Center for Child Health and Development in Tokyo, claims that Japan’s low fertility might be explained by what is called the “gender role transformation”. She argues that during the transitional time when women got more involved in the labour market, the role of men in the society hasn’t changed as much; hence participation in house chores and child rearing did not increase from the male’s side. This presumably resulted in females postponing creating a family or not creating them at all in order to preserve their jobs and income (Kato, 2018, p. 15). In another study by Zeman et al. it is stated that:

…most of the lowest-fertility countries remain strongly gender-unequal fostering the traditional male-breadwinner model and not actively supporting the reconciliation of work and family… (Zeman, Beaujouan, Brzozowska, & Sobotka, 2018, p. 680).
To support this statement, the gap in wages in Japan can be considered as an indicator for the current status of gender inequality in the society. Based on OECD data in the year 2017 it was 24.5%, which means that the income of females in Japan is only 75.5% of the average earnings of males. By comparison in Iceland the wage gap between genders in the year 2017 was 9.9% and in the United States it was 18.2% (OECD, 2018).

In a study performed in the year 2014, it was assumed that since females find it hard to balance their work and family duties, childcare facilities might not meet the current demands in childcare. The study also states that public spending on childcare in Japan is rather low compared to other highly developed countries. As a result, there is a lack of childcare facilities in the country and children must stay on waiting lists for long periods of time. In turn, this creates certain difficulties for women going back to work after giving birth. Several private childcare facilities do exist, but they might not be affordable for families with low or medium income. The study suggests that a lack of public childcare facilities might negatively affect female’s opinion on family planning (Lee & Lee, 2014, p. 73-82).

The previously mentioned study by T. Kato does in some ways support the hypothesis that the decision of having a child might for some couples be associated with “the financial burden…such as the high cost of children’s education” (Kato, 2018, p. 18). According to Zeman et al. people in East Asian countries including Japan, experience the most amounts of pressure when it comes to investment in children’s education, and this negatively affects birth rates (Zeman, Beaujouan, Brzozowska, & Sobotka, 2018, p. 679). In discussing the subject with a man in his 50’s, whose company provides tax consulting services in Nagoya and who considers himself to be a representative of the upper-middle-class, he stated that even Japanese people with high income often have to start collecting money for their children's education, even long before they are born, if they want them to study in prestigious institutions (Mr. Nishiura, personal communication, February 19, 2017). It is worth mentioning here that private spending of individuals for higher education in Japan is much higher than the amounts provided by the government, and was 65.9% of the total amount spent on higher education in the year 2017. If those numbers are compared to Iceland for instance, the amount spent by individuals for tertiary education is only 8.7% of the total money spent, and the remaining costs are covered by public expenditure (OECD, 2018).
There are seemingly many underlying causes for decreasing birth rates in Japan. Starting from the post-war period, the country has experienced major changes in fertility due to demographic transition. Contraception has had effects on family patterns and with more participation from women in the labour market they seem more reluctant to start a family. This might be explained by the complicated business culture that expects full devotion from employees and does not properly support flexibility for working mothers. The financial burden of raising children also seems to have an effect on low fertility. In addition, the current availability of childcare facilities does not seem to meet the demands of modern society.

Both low fertility and a higher life expectancy lead to challenges to the society, both social and economic, most of them connected with the decline in population. In the next chapter some of them will be further explored.
3. How the demographic transition affects Japanese society

As previously mentioned, the Japanese society has undergone a considerable demographic transition and is now faced with some difficult challenges that derive from that transition. One of the most apparent consequences is population decline. In the last chapter the two main causes for such a decline were explored. They are the matter of increased life expectancy and the matter of low fertility, which both lead to an ageing society and a decrease in the population. Historically societies have not experienced such demographic changes before and the ageing of the population seems to be occurring everywhere in the developed countries. The ageing of society will lead to a number of changes in all spheres of life. Since it is a complex phenomenon, it is hard to find a definite solution to the challenges that might arise from this demographic shift.

Currently the Japanese population is ageing faster than any other in the world. This creates certain issues that the society must resolve and come to terms with. However, this development could also present an opportunity for improvements in the social structure. Based on how well the Japanese people manage to adjust to these changes and develop tactics to deal with the challenges, other communities could learn from them and implement those tactics, if they proof to be successful. In this chapter the different socio-economic impacts of the demographic transition will be examined.

3.1 Socio-economic challenges

Japan is the 3rd biggest economy in the world with a GDP of 5.37 billion dollars, after the People’s Republic of China and the United States (OECD, 2018). Currently the dependency ratio in Japan is 66.5% (The World Bank, 2018). A dependency ratio is the percentage of individuals, such as children and elderly people, who are dependent on the working population. The working population is thought of as people between the age of 15 and 64 (OECD, 2018). The age dependency ratio in the year 2017 in Japan was 45%, which means that per every 100 working people there were a total of 45 elderly people. For example in the United States and Iceland, the age dependency ratio was 23.5% and 22% respectively in the year 2017. When the current situation in Japan is compared to the 1960’s when the country experienced a rapid economic growth, the

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7 The age dependency ratio only refers to correlation between elderly people and the working population
age dependency ratio was only 8.7 elderly persons per 100 working adults. The United Nations predicts that by the year 2050 the age dependency ratio in Japan will increase to 60%, while the total dependency ratio will exceed 80% (Katsumata, 2000, p.1). When the dependency ratio is calculated, only age categories are considered and it does not consider individuals among the potentially working population that are not involved in labour. It therefore does not include for example productive age mothers who have not returned to work after childbirth or people over 65 who chose a late retirement and are still working. Thus the actual dependency ratio might be different in reality. Yet it is still high in comparison with other developed countries and shows the pressure put on the working group to cover the needs of the dependents in Japan.

The shrinking and ageing population in Japan does inevitably lead to a shortage of labour force participants. This has a negative effect on traditional Japanese companies that practice lifetime employments and operate on seniority-based wage system. For these companies a workforce shortage will negatively influence the number of available employee experts. One of the characteristics of traditional companies is the custom of training the employees during those long working hours and socializing activities mentioned in the previous chapter. Instead of storing knowledge in databases or workflows, which new employees could access on their own, the knowledge is transmitted directly from senior employees to the new or less experienced ones. Since the Japanese population is rapidly ageing, more and more employees become seniors and retire, or will retire in the near future (Coulmas & Lützeler, 2011, p. 272).

One of the consequences of workforce shortages is that companies are forced to offer higher wages in order to attract new employees. Higher wages are certainly desirable for employees but they will eventually result in increased inflation and might demand higher taxes. The general consumption tax in Japan today is 8%. It is believed that the government might be forced to raise it to 10% and that it could happen as early as October 2018. Some even argue that the consumption tax should be raised up to 15% for a more sustainable economy, and that it especially applies to bigger cities like Tokyo (Gover, 2018).

Scarcity in workforce is definitely a challenging issue and needs to be approached from different angles. It may be a reason for politicians to reconsider labour
policies and deem it necessary to create a more flexible environment for working mothers, for as previously stated a big percentage of females does not return to work after giving birth. There might also be reason to further engage senior citizens in the labour market. With growing life expectancy and more prosperity, individuals can stay productive longer than before. The Japanese pension system currently allows late retirement after the age of 65 and further improvements could be made to encourage people to work until a higher age. However, answering what kind of jobs senior citizens are able to perform based on their abilities and experience requires another research.

One possible solution to the problem of labour shortage would be to attract foreign workers to Japan. This might especially be necessary when it comes to nurses or workers in construction and agriculture (Gover, 2018). It is common in various different countries for these jobs to be considered less desirable by the local population, perhaps due to their difficulty. Others are not convinced that migration will affect dependency ratios sufficiently enough, and also point out the possible social challenges that may arise from integration (United Nations, 2007, p. 59). Immigration policies in Japan are complicated and the issue of immigration is not without controversy. Another obstacle for integration might be the language proficiency, since foreign languages are not widely spoken in Japan.

In the book Imploding Populations in Japan and Germany: a comparison Professor of Reitaku University, Shigemi Kono states that among the negative consequences of the demographic transition in Japan is the effect it has on the economy in connection with the reduction of consuming goods and supplies. A decrease in the consumption of goods and supplies occurs because of population decline, and that leads to lower economic growth. Due to shifts in the age distribution the consumption market is also ageing in Japan and it is a well-known fact that consumption behavior varies between different age groups. For example the older generation tends to spend more than the younger one on health care and health related products. This also imposes challenges for companies to meet the requirements of ageing consumers. Low fertility rates along with decline in population will also result in educational institutions not having enough students (Coulmas & Lützeler, 2011, p. 43). It might still have positive effects such as less crowded classrooms and a more individual approach when it comes
to teaching. On the other hand it might also lead to the closing of some institutions because they are no longer required.

One of the main questions stemming from an ageing society is how to provide care for the elderly. Long-term care services were implemented in Japan at the end of the 20th century, and these include social services but do not cover medical services. Long term insurance care is partly funded by taxes and partly by insurance premiums from the working population. A decrease in the labour market can make it problematic to finance these services and might require more governmental expenditure. In turn this goes back to the problem pertaining to increased taxation and further burdening of taxpayers. The current number of care facilities in Japan is not particularly high since the majority of the elderly receive care from their families, as has long been the customary in the country. It is obvious that the current number of care facilities does not meet the requirements of the rapid ageing society. To meet those demands the government has been promoting the “Community-based Integrated Care system” since the year 2012:

CbICS\(^8\) comprises four main elements: self-help (Jijo) provided by the individual or their family, mutual aid (Go-jo) provided through an informal network involving local health volunteers, social solidarity care (Kyo-jo) provided by organized social security programs such as LTC insurance, and government care (Ko-jo) provided by public medical and welfare services or by public assistance funded by tax revenues (Sudo, Kobayashi, Noda, Fukuda, & Takahashi, 2018, p. 8-9).

Although the idea behind this new system could work in theory, it is easy to see how it could be difficult to find enough health volunteers mentioned in the description above, especially when considering labour shortages and long working hours that most employed individuals must endure. Traditionally, caring for elderly parents is considered to be obligatory for their children, and as previously noted, women are often seen as the main caregivers for the elderlies of the family. According to the concept of the Community-based Integrated Care system, care provided by family is expected to remain as one of its main integral parts. When taken into account that caregivers might be employed and experiencing their most productive years, it might create enormous physical and psychological pressure to take care of an old parent with dementia for instance. Often people are not able handle both work and taking care of their old or ill

\(^8\) Community-based Integrated Care system
parents simultaneously. Even though the current system allows employees to take up to 93 days of leave for taking care of a family member, it might not be enough in some circumstances. Thus the only alternative for some people is to quit their job. Statistics show that over 400,000 people quit their jobs in order to take care of their parents in the period between the years 2007 and 2012 (Editorials The Japan Times, 2015). These numbers will only continue to grow unless some changes are made to the system of long-term care and more flexible family friendly environment policies are implemented.

Along with the health care, another part of the social security in Japan that is affected by population decline is the pension system. The existing pension system in Japan is universal. “Revenue for Public Pension includes contributions, investment return from pension funds and the national subsidy (from tax revenue), and they cover the expenditure for public pension benefits” (Ministry of Health, Labour and Welfare, 2018, p. 13). A growing number of senior citizens leads to more money spent on sustaining the pension system. Since it is partly funded by the government it raises expenses for the social security. In the last 33 years the total spending on pension has risen from 3.87% to 10.24% of the country’s GDP (OECD, 2018). Since the remaining part of the system is paid for by the working population, which is currently shrinking, it will lead to increased need of private security funds which some people might not be able to afford. Furthermore, this might negatively affect female senior citizens who have lower wages than males. The life expectancy of females in Japan is longer than it is for males, but at the same time their total time spent at work is usually shorter, resulting in pension gaps between the genders (Ince Yenilmez, 2014, p. 747).

3.2 Can the decline in population possibly have a positive effect?

Demographic changes in Japan have undoubtedly affected different aspects of daily life. Although some of the consequences might be challenging for the society, others might create opportunity for innovations and social improvements. One thing that immediately comes to mind is that fewer people might have less negative effect on the environment. According to Professor Kono, among positive effects that come with population decline is less environmental degradation. A smaller population would also lead to more space for inhabitants and lower real estate costs (Coulmas & Lützeler, 2011, p. 43).
The working environment needs to be more flexible, especially in the light of low fertility and labour shortage, and therefore this situation might be an opportunity to make jobs more available for working mothers for example. Improvements in the health care system will also help people to stay employed and pursue their careers, and reduce pressure on family members of the elderly. The same principle applies for improvements in child rearing support. Labour shortage has also pushed technology to progress in the field of robotics which can be utilized in several different fields of society.

One of main concerns stemming from population decline is the shortage of human resources. In the industrial era, mechanization has made it possible to reduce the need for manual labour, for example in agriculture. Further progress with implementing automatization and computer technologies has helped to reduce manpower to a greater extent and has helped to increase labour productivity. Today robotization in Japan is seen as a possible solution to address the problems derived from a lack in human resources, especially regarding elderly care facilities. The investment in robotics might surely be costly and some might argue if that it is too expensive to establish. It can still be a good opportunity for improving productivity and reducing stress on the workforce. Some people in government have shared their doubts and argued that robots can never replace caregivers. According to Atsushi Yasuda, the director of robotic policy in the Ministry of Economy, robots cannot replace human resources entirely, but can be of great value when it comes to assisting both the caregivers and people who need assistance with their daily needs and exercise. They can also serve a purpose in leisure and entertainment. The robot “Pepper” from the company SoftBank is now “used in about 500 Japanese elder care homes for games, exercise, routines and rudimentary conversations” (Reuters, The Asahi Shimbun, 2018).

The demographic changes are likely to push Japan in the direction of increased equality and a more family friendly working environment. As mentioned before, many female workers do not return to work after childbirth, and this has to do with the current business culture and traditions based in patriarchy. The fact that this group of human resources is not properly utilized results in more burden on taxpayers and less productivity for companies. By making this system more family friendly and flexible for mothers, for example in terms of maternity leave and shorter working hours, this
could easily be achieved. Expanding the amount of available child care facilities and eliminating waiting lists would also make it easier for females to go back to the labour market. The same goes for expanding and improving long term care for the elderly, which can help people to remain occupied in work.

The current Japanese government is making efforts to see opportunities in the challenges that arise from demographic changes in the country. This has been done by implementing extensive reforms targeting specific areas that need improvement. These efforts have also lead to investment in new technologies that can help improve productivity and solve the work crisis. A comprehensive reform to increase the participation of women in the workforce is also under way and strives to “embrace diversity”. It the effects can already be seen from this development, which can for example be seen by an increase in females in management positions. The number of women joining the workforce has also increased significantly in the last 5 years, growing by 2 million since the year 2012. The governmental plan is to increase the number of child care facilities which will further support women to participate in labour. There have also been efforts to make it easier for people over the age of 65 to remain a part of the workforce if they are willing to do so (The Government of Japan, 2018, p. 01-08).

With all these reforms in can be argued that firm steps are being taken in right direction by the Japanese government in order to adapt the society to occurring changes. A positive approach is being taken in dealing with consequences of the demographic shift, and authorities try to see opportunities for improvement in different areas of the social and economic structure.
Conclusion

Demographic changes have had a significant impact on Japanese society in recent decades and the country is currently going through a demographic shift which presents new challenges for the society. These changes are caused by several different factors which are best explained by the so called Demographic Transition Theory. This theory is a useful tool to analyse the underlying causes for developments and changes in the social structures happening over periods of time. Good examples of this are increased life expectancy and declining birth rates, both of which are connected with advances in medical sciences and the effects of industrialization. However, these positive developments do contribute to different kinds of social problems, such as an ageing society and population decline. Demographic theory can also better help to understand the effects and consequences that follow these new challenges.

Not all demographers and scholars agree on every aspect of the Demographic Transition Theory and it is still a subject of debate. Most scholars argue that advantages in technology and science are the main cause for demographic changes, such as population decline and lower fertility rates. Others have entertained the possibility that it might be the other way around and that the demographic changes are actually causing advantages in technology and science in their own right. Recent breakthroughs in robotics and medical sciences might actually support this latter approach.

Curiously, when statistics are used to compare the effects of demographic changes on developed societies, it can be seen that Japan has seen more rapid changes than most other countries. This especially applies to the period following the Second World War and the period after the Japanese society became industrialized. With the introduction of contraception and the legalizing of abortions the society has seen a sharp decrease in birth rates, a development that continues to this day. There have also been major developments in treating all sorts of diseases, which has increased life expectancy in the country. This has led to an ageing society and population decline to an extent not yet experienced by other developed societies. This makes Japan very applicable to the Demographic Transition Theory and the development in the country can be studied by others to better prepare for the effects of demographic changes.
Almost every aspect of life in Japan has been affected by demographic changes. Issues like the ageing society and population decline have brought new challenges to society that need to be carefully dealt with by authorities. This includes a higher dependency ratio between the working population and the elderly. It is also creates circumstances that put increased pressure on the health care and pension systems. Moreover demographic changes lead to scarcity in the workforce and less overall productivity in the country. Nevertheless, demographic changes have also presented new opportunities and the current government in Japan has chosen a positive approach to deal with these changes. For example, a reform is being implemented that creates more diversity in the labour market by working towards more gender equality and flexibility for working mothers to return to work after giving birth. Authorities are also looking for ways to expand child and health care facilities and investing in new technologies.

If Japan turns out to be successful in dealing with the consequences of its demographic transition, it could serve as a good example for other countries to learn from. Recent publications of governmental policies show the prevailing ambition that current authorities have in resolving the issues, and that the government wants to “commit to become a pioneer in establishing a social model for other countries that will inevitably experience similar social situations in the coming years” (The Government of Japan, 2018, p. 03).
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