Comparison of fertility between the Czech Republic and Japan

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Abstract

Modern methods in harmonization of data as well as increasing merging of cultures allows for new areas in international statistical analysis of relevant trends, specifically in the field of cross-continental comparisons. The purpose of this paper is to illustrate interesting conclusions from the comparison of fertility trends between the Czech Republic and Japan, as well as other relevant fields closely linked to the development of fertility. Both countries have a major problem with long term low fertility contributing to the inadequate population recovery (since 1975 the TFR of 2.41 in the Czech Republic and 1.91 in Japan has in 2019 dropped to 1.71 and 1.34 respectively). Simultaneously, the distribution of age-specific fertility rate experienced a significant shift into older age groups. Similarly, the marriage rate in both countries has also been declining, reaching 5.1 per 1000 persons in the Czech Republic and 4.8 per 1000 persons in Japan by 2019. As for public spending, in comparison with OECD average, the Czech Republic family benefit spending is slightly above average, unlike the below average spending in Japan.

Key words: aging society, fertility, marriage, family benefits

JEL Code: J12, J13

Introduction

The question of slowly increasing severity of society aging in most first world countries is nothing new. Today it is possible to come across a variety of freely accessible literature dealing with this topic, whether it means the overall trends across countries or more detailed analysis of region-specific factors. And yet, it is uncommon to find publications of international comparison with comprehensive cross-continental analysis between European and Asian countries. Nonetheless, with the continuous merging of cultures across the globe and the increasing strives for data harmonization, such analysis is not entirely unreasonable. Moreover, by doing so, it is possible to find rather interesting and sometimes unexpected

results. The main goal of this paper is to show some areas of demographic analysis which are possible with the data published by the respective statistical offices.

Regarding the countries and the topic chosen for the comparison itself, the paper will cover the differences in fertility patterns between the Czech Republic and Japan. The main reason for the choice was due to Japan being one of the countries most affected by society aging, thanks to having the highest share of total population over the age of 65. The chosen countries also have similar historical and societal factors affecting the evolution of fertility indicators, which were deemed interesting enough to warrant more thorough research.

1 Historical and societal similarities and differences

During the historical comparison of the Czech Republic and Japan, it is important to note the extensive historical background of Japan compared to the Czech Republic. This, amongst many other more cultural reasons, leads to a very traditional way of life of the Japanese, unlike the more progressive way of thinking in the Czech Republic, especially pertaining to certain topics in connection with fertility.

One of the main aspects of Japanese society is a predominantly collectivistic behaviour. While it is mostly displayed in work-related relationships, where the hierarchy forms an integral part of the work climate (Yamawaki, 2012), certain features can be perceived even in familial interactions. In combination with a strong adherence to tradition, this leads to many problems concerning gender equality, one of the main topics for Japan in connection with the ever-declining fertility and marriage rate (Iijima & Yokoyama, 2018). However, it is possible to observe an increasingly noticeable intertwining of individualism in certain areas of Japanese social life, leading to significant conflicts in interpersonal relationships and wellbeing (Ogihara, 2017).

On the other hand, while tradition has its place in the Czech Republic society, it is not considered to be an integral part of either work culture or family. Overall, it is possible to consider the Czech Republic to be more liberal, especially in areas of divorce, births outside of marriage, less strict dating culture and marriage views, etc. (Červenka, 2002).

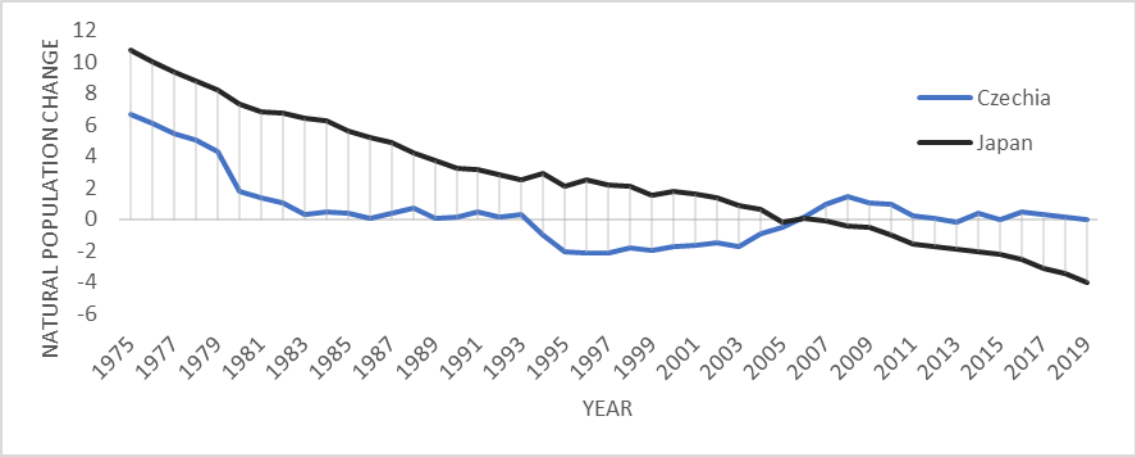
However, regardless of the cultural differences, both the Czech Republic and Japan have experienced a serious decline in fertility in the past several decades. As a result of the post-war measures introduced during 1950s to combat baby-boom, the total fertility rate started its continual drop until 1970s, when both countries underwent another short-lived

fertility wave. At the same time, social reforms concerning gender equality and changes in family values were taking place in both countries, which further encouraged the decline in fertility, marriage rates and the increase of the average age of mothers to present day (Dimitrová, 2007; Muramatsu & Akiyama, 2011).

2 Results and discussion

One of the most significant results due to the changes in fertility behaviour is the concurrent change in development of natural population change both in the Czech Republic and Japan.

Fig. 1: Natural population change per 1000 individuals (1975 - 2019)



Source: Czech Statistical Office, Portal Site of Official Statistics of Japan

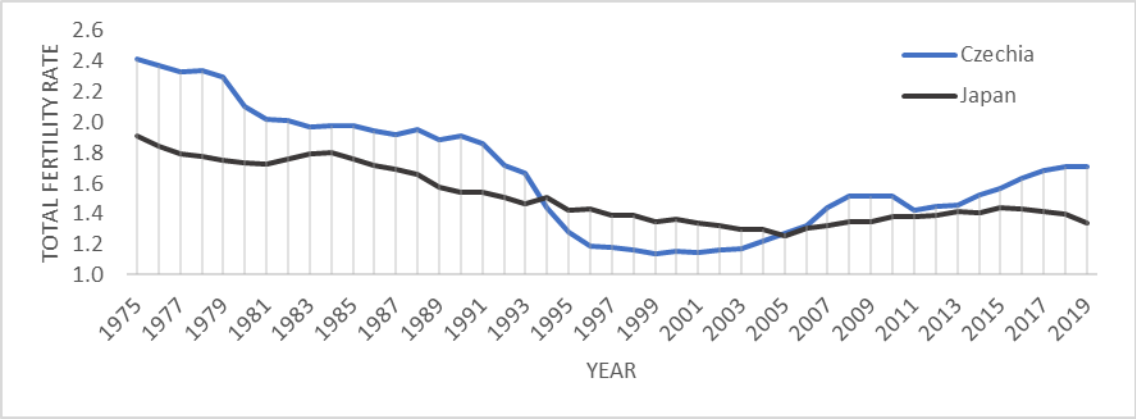
While the natural population change has been slowly declining since 1975, the overall development of the indicator in the Czech Republic and Japan has several distinctive differences. Based on Fig. 1, the natural population change in the Czech Republic has since 1983 been balanced, the figures close to zero, with a more significant dip into the negative numbers during 1994 to 2005, the lowest being 2.17 in 1996. Despite the insignificant contribution of natural population change the total population of the Czech Republic is still on the uprise. This can be explained by a considerably large migration factor, which has been keeping the situation of aging society under control.

Contrarily, migration in Japan is substantially less of a relevant factor, making Japan a highly ethnically homogenous country (in 2019 the population of Japanese was reported to be 97.9%). With the growing population of elderly, consequently leading to the aging of the female population, and the changes in fertility behaviour, the natural population change in Japan has been on a steady linear decline for several decades. Moreover, since 2007 the natural population change has been negative, reaching 4.07 by 2019.

1.1 The decrease of fertility and other trends

During the beginning of 1970s the total fertility rate (TFR) in the Czech Republic was significantly higher than Japan. Furthermore, TFR in Japan had already reached bellow the replacement fertility point, while the TFR in the Czech Republic would reach this point later in 1981. Although the situation is slightly better in the Czech Republic, both countries have a major problem when it comes to long term low fertility contributing to the inadequate natural population recovery.

Fig. 2: Total fertility rate (1975 - 2019)

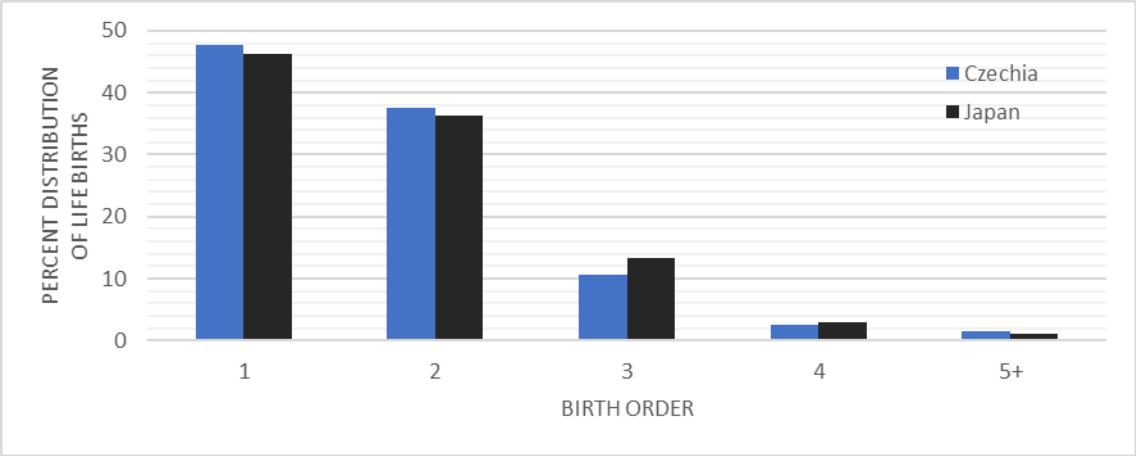


Source: Human Fertility Database

After the dissolution of Czechoslovakia in 1993 during the next decade the TFR drops drastically, even bellow the already low numbers in Japan, only recovering by the middle of 2000s (Fig. 2). Although the TFR both in the Czech Republic and Japan had been on a slight overall incline after the turn of the century, by the year 2019 the growth has noticeably slowed down. Since 1975 the TFR of 2.41 in the Czech Republic and 1.91 in Japan has dropped to 1.71 and 1.34 respectively, the average TFR during the reporting period being 1.66 in the Czech Republic and 1.51 in Japan.

Due to the aforementioned societal changes during 1970s, it is possible to observe several factors contributing to the decline of TFR. The main factors in Japan could be named to be the change in the age distribution in marriages, postponing of child births in favour of self-development and career as well as the overall burden of childcare (Piotrowski et al., 2019). Similarly, in recent decades the Czech Republic has been going through a political, economic, and social transformation, and the changes that took place in society have been reflected in the change of the demographic behaviour as well as the change in the overall population climate (Arltová & Langhamrová, 2009).

Fig. 3: Percent distribution of live births by birth order in 2019



Source: Czech Statistical Office, The Portal Site of Official Statistics of Japan

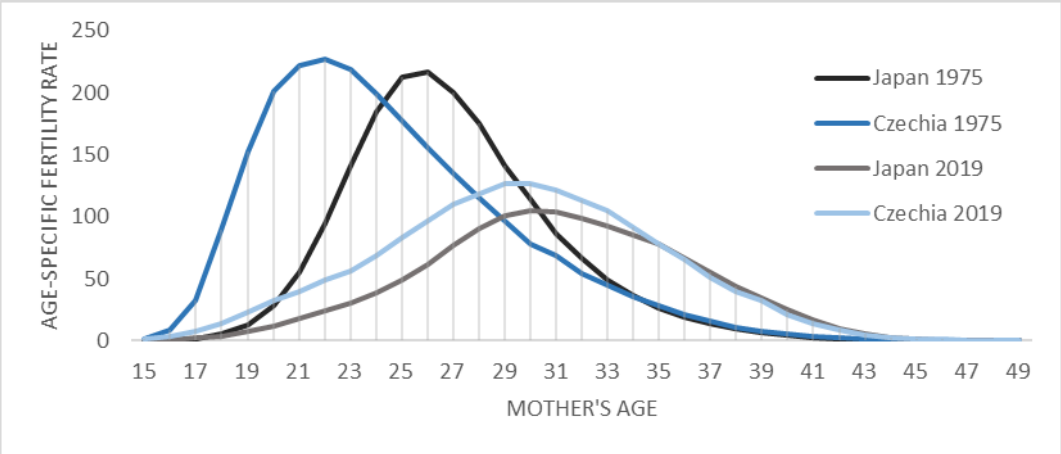
Referencing Fig. 3, both Czech and Japanese couples are less likely to birth more than two children, cumulative percentage of the first two categories in birth order reaching 85.4% in the Czech Republic and 82.6% in Japan of the overall number of live births in 2019. While Japan does have slightly higher share of children born in consequent categories, both countries still have a very similar distribution of children based on birth order typical for most first-world countries.

Changes in fertility behaviour due to different cultural policies between the countries can also be observed in the share of births outside marriage. With the gradual loosening of strict adherence to traditional norms when it comes to the topic of marriage, the share of births outside marriage in the Czech Republic has been steadily increasing, reaching 47.8% in 2018. Meaning, almost every other child is being born to an unmarried couple. On the other hand, Japan, a country heavily reliant on tradition, even after several societal reforms, still adheres to a very negative bias towards unmarried women with children. As such, for the last two decades the share of births outside marriages in Japan has been close to 2,0%. Based on this information, when analysing the factors involved in the continual decrease of fertility over the years, it could be argued that the changes in marriage behaviour in Japan could have had a stronger impact on fertility behaviour.

1.2 The increase of the average age of mothers

One of the concurrent effects with the gradual decline of TFR is the gradual increase of mean age of mothers. Same as many other factors connected to fertility, a significant change in the age distribution of mothers can be observed after the reforms in 1970s.

Fig. 4: Age-specific fertility rate (1975 – 2019)



Source: Human Fertility Database

As is evident from Fig. 4, both in the Czech Republic and Japan the distribution of age-specific fertility rate in 2019 has undergone a distinctive shift into the higher age groups, in stark contrast with the distribution from 1975.

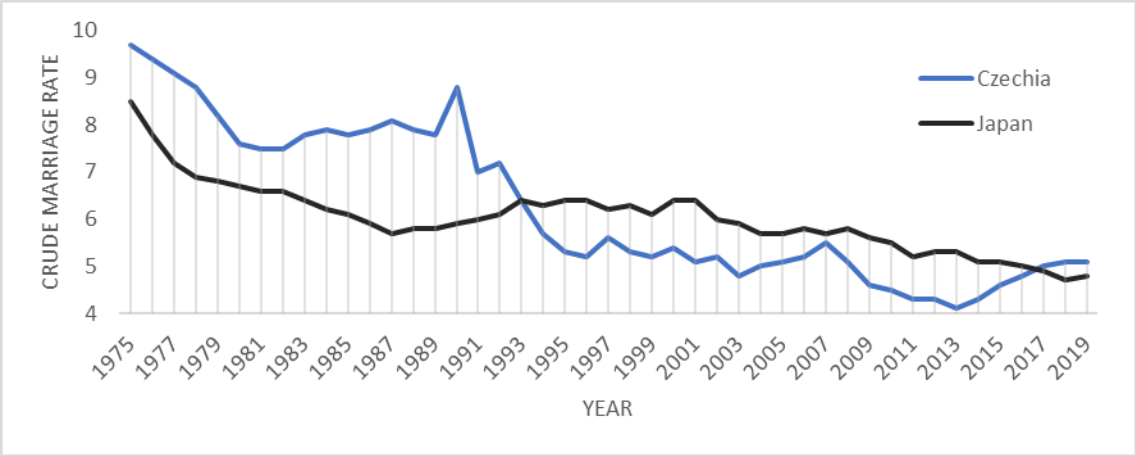
In 1975, most Czech women birthed children at the age of twenty to twenty-four. However, by 2019 most women birth children around the age of thirty. The situation in Japan is similar, albeit in 1975 the age distribution had already been more inclined into the older age groups than the Czech Republic, around twenty-five to twenty-seven years old. Nevertheless, by 2019 the age distribution has also moved to be around the thirtieth mark.

Aside from the overall shift of the distribution to the right, the overall intensity of fertility in individual groups has decreased as well. Moreover, the differences in the age distribution between the Czech Republic and Japan had been much more noticeable in 1975, while the distribution in 2019 is much the same, with Japan having marginally lower intensities in the younger age groups.

1.3 The current trends in marriages

Subsequently, the factors involved in the decrease of fertility are also connected to the reasons behind changes in marriage trends. Moreover, marriages can also influence certain fertility behaviours, as is the case with children born out of wedlock.

Fig. 5: Crude marriage rate per 1000 persons (1975 – 2019)



Source: OECD Family Database

Basing on the development shown in Fig. 5, after 1970s both countries experienced a noticeable drop in the number of marriages per year. Before 1993 the crude marriage rate in Japan had been significantly lower than the Czech Republic, but since the massive drop of the crude marriage rate in the Czech Republic after 1990, the numbers had been continually dropping up until 2013, when they reached their all-time low (4.1 marriages per 1000 persons). Although the rate in Japan experienced a slight increase during the 1990s, as did the rate in the Czech Republic after 2013, by year 2019 both countries have reached similar levels in their marriage rates (5.1 in the Czech Republic and 4.8 in Japan).

As with the changes of mean ages for mothers, the same can also be observed for mean ages at first marriages.

Tab. 1: Mean age at first marriage in Japan

Year	*Groom*		*Bride*		*Difference of mean age between the bride and the groom*
	Mean age	Difference	Mean age	Difference	
1995	28,5	-	26,3	-	2,2
2000	28,8	0,3	27,0	0,7	1,8
2005	29,8	1,0	28,0	1,0	1,8
2010	30,5	0,7	28,8	0,8	1,7
2015	31,1	0,6	29,4	0,6	1,7
2020	31,0	-0,1	29,4	0,0	1,6

Source: The Portal Site of Official Statistics of Japan

The mean age of Japanese couples when entering their first marriage has been on the rise, increasing since 1995 from 28.5 for men and 26.3 for women to 31.0 and 29.4 respectively in 2020 (Tab.1). Incidentally, with the slow increase in the age at first marriage comes a decrease in the age difference between the groom and the bride (from 2.2 years in 1995 to 1.6 years in 2020). Every five years, the mean age of Japanese grooms has been increasing on average by half a year, with the biggest increase of one year recorded in 2005. Following the grooms, the mean age of brides has also been rising, albeit at a slightly faster rate of seven months on average per five years (highest increase being one year in 2005).

Tab. 2: Mean age at first marriage in the Czech Republic

Year	*Groom*		*Bride*		*Difference of mean age between the bride and the groom*
	Mean age	Difference	Mean age	Difference	
1995	26,7	-	24,6	-	2,1
2000	28,9	2,2	26,5	1,9	2,4
2005	30,8	1,9	28,1	1,7	2,6
2010	32,2	1,4	29,4	1,3	2,8
2015	32,4	0,2	29,8	0,4	2,5
2020	32,6	0,3	30,4	0,6	2,2

Source: Czech Statistical Office

Same situation can be seen in the Czech Republic (Tab.2), although the mean ages have since 1995 risen to be higher than the ones recorded in Japan (from 26.7 for men and 24.6 for women to 32.6 and 30.4 in 2020). Furthermore, the average age difference between Czech couples did not decrease, in fact during the referenced period it experienced a noticeable increase, which returned to its original level by 2020. On average, the mean age of grooms and brides has been increasing by one year and two months every five years, the biggest increase recorded in 2000 (around two years for both sexes).

At the start of the referenced period, the mean ages for both grooms and brides were higher in Japan; however, by 2005 both mean ages in the Czech Republic have since surpassed the ones recorded in Japan.

1.4 Family benefits public spending

Aside from the factors dealing directly with the changes in social relations and family values, fertility behaviour can also be influenced by other external factors. One of these factors is the governmental support meant to increase the overall fertility in the country via providing

monetary or in kind benefits to motivate young generations to increase childbirth. Furthermore, benefits and financial support for families is a highly debated topic regarding governmental interventions in family policy, due to being one of the more direct ways to control fertility behaviour, especially relevant for Japan politics.

While the changes in family policy and population policy alone are insufficient to significantly influence the decrease in fertility, as questions of how to make fertility more desirable and meaningful and how to encourage the related social systems to promote people's spontaneity both in marriage and childbearing should also be given proper attention (Nishimura, 2020), it is still an important area of comparison regarding international factors affecting fertility.

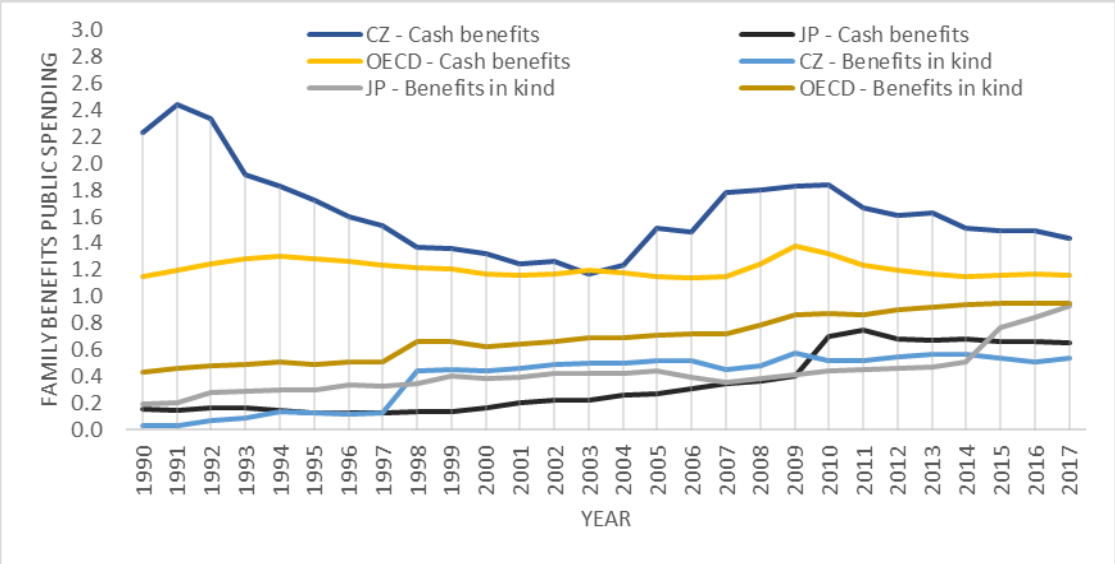
The comparison of governmental support for families in the Czech Republic and Japan was based on the chosen OECD indicator, where „*family benefits spending refers to public spending on family benefits, including financial support that is exclusively for families and children. Spending recorded in other social policy areas, such as health and housing, also assist families, but not exclusively, and it is not included in this indicator* (OECD, 2022). “

Compared to the OECD average, the development of the indicator in the Czech Republic is slightly above said average. Contrarily, family benefits spending in Japan is initially greatly below average, only rising to be slightly below average by 2017.

Based on the way support is provided, the indicator can generally be divided into cash benefits and benefits in kind, i.e., monetary support or financing of other areas (e.g., kindergartens). In most member states, cash benefits make up a considerably larger part of family benefits spending; however, in the recent years the share of benefits in kind has been on the rise.

The comparison of cash benefits and benefits in kind between the Czech Republic and Japan are portrayed in Fig.6. A significantly larger portion of family benefits spending in the Czech Republic is provided via cash benefits, although by 2017 the share of cash benefits has decreased (from 2.23% cash benefits and 0.03% benefits in kind in 1990 to 1.44% and 0.54% in 2017). Conversely, cash benefits and benefits in kind in Japan are provided in almost equal amounts. Moreover, in 2017 benefits in kind make up a higher percentage of GDP than cash benefits (from 0.15% cash benefits and 0.19% benefits in kind in 1990 to 0.65% and 0.93% in 2017). In comparison with the OECD average, only cash benefits in the Czech Republic are noticeable above average.

Fig. 6: Family benefits public spending, total % of GDP (1990 – 2017)



Source: OECD Social Expenditure: Aggregated data

Conclusion

The yearly natural population change in the Czech Republic has since 1983 been close to zero, with a more significant dip into the negative numbers during 1994 to 2005, the lowest being 2.17 per 1000 persons in 1996. On the other hand, the natural population change in Japan has been on a steady linear decline for several decades reaching a decrease of 4.07 per 1000 persons by 2019. Nevertheless, both countries have a major problem with long term low fertility contributing to the inadequate population recovery (since 1975 the TFR of 2.41 in the Czech Republic and 1.91 in Japan has dropped to 1.71 and 1.34 respectively). Simultaneously with the decrease of TFR, the distribution of age-specific fertility rate has likewise undergone a significant shift into older age groups. While in 1975, women in both the Czech Republic and Japan birthed children on average in their early twenties, nowadays the mean age of mothers for both countries is approximately thirty. Similarly, the marriage rate in both countries has also been declining, reaching 5.1 per 1000 persons in the Czech Republic and 4.8 per 1000 persons in Japan by 2019, while the mean age of Japanese couples when entering their first marriage has been on the rise, increasing since 1995 from 28.5 for men and 26.3 for women to 31.0 and 29.4 respectively in 2020. As for family benefits spending, the Czech Republic provides a significantly larger portion of benefits via monetary means, while Japan spending is mostly equal in cash and in kind benefits. However, in comparison with the OECD average, only the cash benefits in the Czech Republic are noticeable above average.

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