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Trends, determinants and the implications of population aging in Iran

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Abstract

Fertility and mortality decline are major drivers of Iran's population aging. A rapid and sharp fall in fertility rates over the past three decades as well as a substantial rise in life expectancy are causing rapid aging of Iran's population.

The present paper uses the 2015 United Nations Population Division data to discuss the trends, determinants and the implications of population aging in Iran. According to the medium fertility variant, people age 60 and older will represent 31 percent (almost 29 million people) of Iran's population by 2050. The population age 65 and older is projected to be 22 percent (more than 20 million) and that of aged 80 and older 3.8 percent (around 3.5 million) in 2050, that are almost four-times the corresponding figures in 2015. Data on the speed of population aging show that Iran is the second fastest aging country in the world in terms of the percentage point increase in the population age 60 and over between 2015 and 2050; Iran is second only to South Korea, by less than .01 percent.

The rapid population aging of Iran has significant implications for all societal institutions and decision makers that have to be addressed by the Iranian society. Gender-related issues and socio-economic security in old age are two key issues resulting from such a fast population aging. As with many rapidly aging populations, Iran needs a strategy for social and economic support for an aging population that will not promote views of aging people as a burden.

Keywords

Iran, population aging, fertility change, the speed of the population aging.

Trends, determinants and the implications of population aging in Iran [1]

1 Introduction and background

Iran's 79 million people in 2015 made it the 17th most populous country in the globe. Based on the medium fertility variant, its population size is projected to be around 92 million in 2050 but will decline to 70 million in 2100[2]; even with the decline projected for the next century, Iran is still among countries with large populations, ranking 19th and 26th in the world in 2050 and 2100, respectively (UN Population Division, 2015a). In addition, despite the fact that Iran's Total Fertility Rate (TFR) has been below the replacement level fertility rate (TFR<2.1) since 2000 (UN Population Division, 2015b), Iran's natural growth rate is expected to remain positive through 2050 due to the population momentum of an increasing number of women in child-bearing ages, a consequence of earlier episodes of high fertility.

Due to very rapid demographic changes in the past, especially a significant fertility decline along with the rise in life expectancy, Iran's population is rapidly aging. Iran's government officials are already concerned about population aging. For instance, while Iran has had one of the most effective, successful, and comprehensive family planning policies since the beginning of the 1990s, recently the country aimed to implement rash and sometimes punitive pronatalist policies to boost the birth rate. One of the justifications for considering the new policies is population aging. The issue of population aging has moved to the centre stage of policy-making in the country, shaping new policies and /or revoking the old one. There is an urgent need for information about the scope and trajectory of Iran's population aging and its implications for policies and decision-making. This paper fills some of the gaps in our knowledge about population aging and its implications in Iran. Most of the previous studies have been based on old data and projections. For instance, on the basis of the world population aging:1950-2050 (UN, 2002) report, Amini, Rusk-Ingman, and Sahaf (2013) indicated that people age 60+ and 65+ are predicted to represent 21.7 percent and 14.7 percent of Iran's population, respectively. However, according to the medium fertility variant in more recent analyses, the populations age 60+ and 65+ are projected to represent around 31 percent and 22 percent, respectively, in 2050. The differences in these projections are significant enough to necessitate the use of the most recent

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[2] The major reason for the population decrease is the disappearance of the "momentum effect" in 2050; a term to be discussed in greater detail later.

data to understand the scope and trajectory of Iran's population aging. In addition to the use of current data, the present paper is an improvement over previous analyses that used a stationary population model. This paper takes into account a dynamic approach to address Iran's population aging. Following Bloom et al. (2011), we calculate the percentage point increase in the population age 60 and older, age 65 and older as well as age 80 and older among countries with the 2015 population of 1 million or over between 2015 and 2050. These percentages can be seen as a proxy for the speed of population aging that can provide useful information on the dynamics and pace of Iran's population aging in a global context.

Using the 2015 United Nations Population Division data (UN Population Division, 2015b), the present study discusses the scope and trajectory of Iran's population aging as well as its implications. More specifically, the purposes of this paper are 1) to provide updated projections for the aging of Iran's population, 2) to examine the role of fertility policies and behaviours in shaping those trends and projections, 3) to look at the intersection of fertility and mortality changes in shaping those trends and projections, 4) to investigate the speed of Iran's population aging in a global context, and 5) to discuss the implications of Iran's population aging and policy challenges in coping with those implications.

1.1 Demographic transition and population aging: two faces of the same coin

One of the most significant achievements of humanity in the 20th century has been to increase life expectancy around the world, especially in the low and middle-income countries. This was a direct consequence of lowering infant and child mortality through the widespread introduction of public health measures such as vaccination, improved sanitation and nutrition.

Another major development in the low and middle-income countries has been the decline in fertility that has been happening at varying speed in different countries. The inevitable consequence of low fertility and mortality is an increase in the proportion of older people in the population. A similar trend started earlier in the high-income countries, with some important differences. In the absence of modern preventive medicine, mortality decline in high-income countries was more a consequence of, inter alia, gradual improvement in sanitation, clean water and other public health measures, while fertility decline was primarily due to urbanization, increased age of marriage, and changes to the family structure. This resulted in a gradual increase in the share of old people in the population.

The speed of aging in high-income countries has been much slower than that in the low and middle-income countries. For example, it took 115 years in France for the share of those 65 of years of age and older in the total population to double from 7 to 14 percent (He, Goodkind, and Kowal, 2016), compared with 23 years in China and 17 years in Iran (See Figure 4, and references therein). The slow pace of aging in high-income countries was

accompanied by the gradual emergence of the institutions of retirement and pension systems that initially were limited to the military, police and others who were at the service of the emerging nation-states in the 18th and 19th centuries[3]. From the late 19th century benefits of formal retirement and state pension schemes were gradually extended to other citizens, first starting in Germany under the well-known Bismarck's pension plan. Private savings and pension plans have also been encouraged through the variety of life insurance plans; that required regulatory frameworks to protect savers and retirees' assets. In short, the high-income countries had the time and institutional space to manage, albeit in piecemeal fashion, the gradual aging of the population. This contrasts with the situation in the low and middle-income countries where the institutional and regulatory infrastructure lag behind the fast-aging population.

It is not surprising that this rapid population aging has been viewed by some international institutions such as the World Bank and policymakers in some countries, including Iran, as a crisis[4]. The 'crisis' however has different meanings for different people. For most institutions, countries and policymakers, one crisis is the dependency of the old on the working age population and the financing implications of this dependency in relation to the raising of revenue and taxation. However, for others, in countries like Iran, population aging is viewed as a strategic threat of reduced population, irrespective of the fact that the population of these countries will be increasing for another 50 years before they settle down to their 2018 level in about 80 years time! Moreover, according to the UN estimates, the working age population in Iran is going to increase in the next 50 years, that if they were to be employed productively, they could provide the resources for the strategic needs of the country in any field - civilian or military.

The challenge is not about how to increase fertility through pro-natalist policies, but how to increase production (and productivity) through the employment of those who are already born and productive utilization of the labour of the old. Iran should plan to take advantage of this demographic dividend if it were to overcome its current economic and social problems.

[3] For an excellent review of the historical development of old-age care pensions see Troyansky (2016) and for a historical review of pension and life insurance in the USA see Weaver (1987).

[4] See, e.g., World Bank (1994).

2 Iran's demographic transition: the intersection of fertility and mortality changes

2.1 Iran's population growth rate and fertility policies

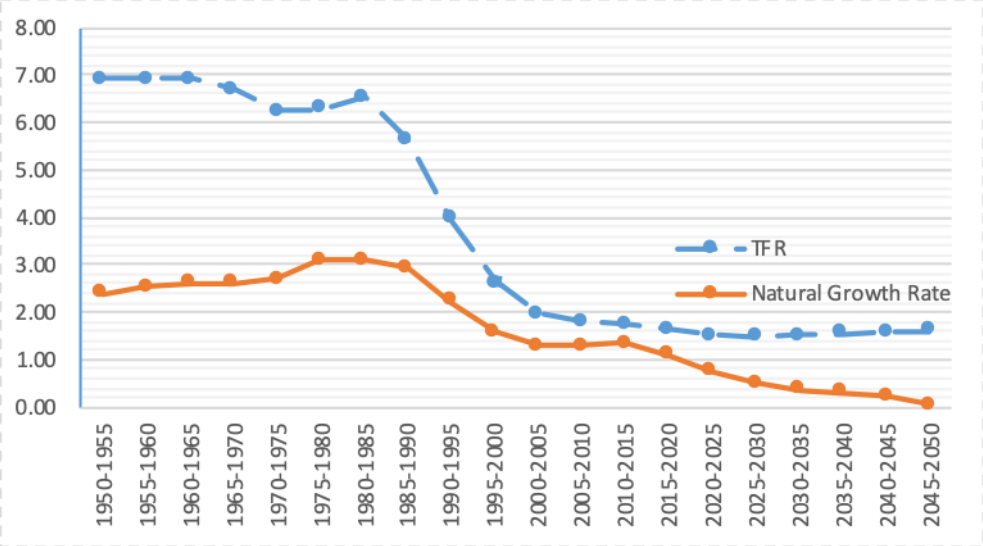
Iran implemented two fertility policies within a little less than three decades. Population policy was in favour of population rise and fertility increase until 1962 (Mirzaee, 2004). Due to decreasing infant and child mortality rates as well as improved public health, Iran's annual population growth rate and the TFR increased to 2.6 percent and 6.91 children per women, respectively between 1960 and 1965 (UN Population Division, 2015b). The increase prompted Iran's government to implement the first family planning program in 1967 to cope with the rise in fertility and population growth rates. Although the government directly and entirely supported the program, Iran's social, cultural and religious context was not ready for accepting the new policy and therefore it did not achieve its goals completely (Mirzaee, 2004). The TFR decreased by around 0.6 children per woman reaching 6.3 in 1975-1980 (UN Population Division, 2015b). Days after the Islamic Revolution in 1979, the Islamic government dismantled the program for over a decade and pursued pro-natalist population policies. This significant shift was made in policy because the Islamic government considered the program as a dictated western policy and found it unfit with Islamic thoughts; spreading Islamic thought, encouraging the early marriage, decreasing the legal age of marriage, and Iraq's war against Iran facilitated the significant shift in policy (Abbasi_Shavazi and Hoseini_Chavoshi 2011). As a result, the TFR increased to about 6.53 children per woman within five years after the revolution in 1980-1985.

Due to a substantial and continuous decline in mortality rates, especially infant and child mortality, as well as a rise in fertility rate, Iran's natural population growth rate peaked at 3.1 percent in 1980-1985. Forced migration of Afghanis and Iraqis as a result of conflict increased Iran's population growth rate to almost 4 percent. To cope with such unprecedented population growth, Iran launched a new family planning program in 1988 with three objectives: delaying first pregnancy, discouraging pregnancy for women under 18 and over 35 years of age, and limiting family size to three children (Saadat, Chowdhury, and Mehryar 2010). Some of the features of the new policy were: providing all kinds of contraceptives for men and women for free, providing free vasectomy operations, as well as huge propaganda on the merits of having small family sizes throughout the country (Ghobadi, 2010). The program was supported by Iran's religious leaders and encouraged by international agencies and it was successful beyond the expectations; the natural growth rate dropped 1.28 percent and TFR went down to two children per woman, between 2000 and 2005. It should be noted that Iran's fertility decline cannot be totally credited to the government's family program (Abbasi-Shavazi, 2001). As Mirzaee (2004) has pointed out, in addition to the successful family planning program, socio-

demographic factors, such as rapid decline in infant and child mortality rates, delayed marriage, increased education of women, the rise in the cost of raising children, rapid urbanization, as well as the increase of public awareness about demographic issues played their parts to reduce fertility decline over the last few decades. We should also add other factors including women empowerment and taking control of their pregnancies, despite their loss of power in other areas of their social and private lives.

Figure 1 illustrates the intersection of fertility change and continued population growth rate in Iran from 1950-1955 to 2045-2050. Iran's natural growth rate peaked at 3.1 in 1980-1985 percent and then dropped to 1.3 percent in 2005-2010. In fact, the decline in Iran's population growth rate coincided with the beginning of the fertility transition. This confirms that from 1985 onwards, fertility has been one of the major drivers of Iran's population natural growth rate. Based on the medium fertility variant, Iran's natural growth rate is expected to decline to virtually zero percent in 2045-2050. In addition, from 2050 onwards, it is anticipated to decrease to less than zero percent.

Figure 1
The intersection of fertility change and continued natural growth rate from 1950-1955 to 2045-2050 (medium fertility variant)



Note: the UN, DESA projections are based on the medium-variant projection demographic technique that uses a probabilistic method taking account of past fertility experiences of a country and its future changes. For further details see: https://population.un.org/wpp/DefinitionOfProjectionVariants/.

Source: Authors' compilation based on United Nations, Department of Economic and Social Affairs (2015a).

2.2 Population momentum and its impact on Iran's population changes

As shown in Figure 1, Iran's natural growth rate slightly increased by 0.07 percent, rising from 1.28 % to 1.34 % over the 2000-2005 and 2010-2015 periods. The growth rate was increasing as the TFR was decreasing to below the replacement fertility rate (TFR<2.1) over the 2000-2005 and 2010-2015 periods, due to the population momentum. Generally, in any population, if the TFR is below the replacement level fertility rate then each generation will be smaller than the previous one. Sustained TFR that is below the replacement level fertility rate will ultimately result in a negative natural growth rate. However, on the contrary to this expectation, from 2000 onwards, Iran's population growth rate has slightly increased. This happens when a momentum factor is larger than one, reflecting the youthfulness of the current population age structure in Iran. According to Preston, Heuveline and Guillot (2001) "typically, a momentum factor larger than 1 is said to reflect the youthful age structure of the population on which replacement-level fertility is imposed" (p. 165). The more rapid and substantial shift in TFR will lead to a greater momentum factor.

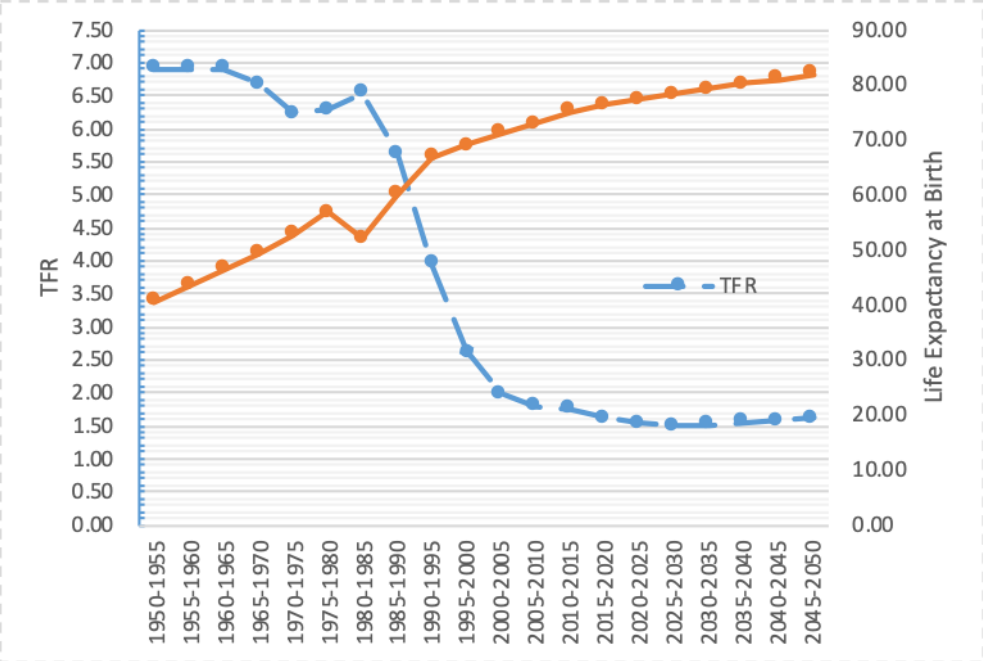
Iran's population momentum has significantly affected both the natural growth rate and the population size. As shown in Figure 1, from 2000 onwards, Iran's natural population growth rate was positive though the TFR was below the replacement fertility rate. The effect of the momentum factor is expected to persist in Iran's population structure by 2050, keeping Iran's growth rate positive. Iran's population size also is expected to increase by almost 13 million people between 2015 and 2050, reaching around 92 million in 2050. From 2050 onwards, the population size would gradually decline to 70 million in 2100. Since the population growth rate is expected to be negative from 2050 onward, it can be concluded that the effect of population momentum on population growth will be void in 2050, if Iran's TFR remains below the replacement level.

2.3 The determinants of population aging in Iran: fertility and mortality changes

The TFR has significantly decreased in Iran over the last three decades. The UN Population Division (2009) described it as the largest percentage decline in the world over the 1975-1980 and 2005-2010 periods. According to the UN World Fertility Report (2014), "in Iran Total Fertility [Rate] declined from a maximum of 6.9 children per woman in 1960 to 1.9 children per woman in 2005; that is, a decline in total fertility of more than 1.1 children per woman per decade" (p.5). Figure 2 depicts the variations in Iran's TFR and life expectancy at birth based on the medium fertility variant between 1950 and 2050. Iran's TFR was 7 children per woman in the 1950-1955 period that

decreased to 6 children per woman in the 1970-1975 period. Save for a small increase to 6.53 children per woman in the 1980-1985 period, it continued its decline dropping to 1.97 children in the 2000-2005 period which is below the replacement level fertility rate. In fact, the TFR decreased by 70 percent over a 25-year period (from the early 1980s to mid-2000s).

Figure 2
Iran's total fertility rate (medium fertility variant) and life expectancy, 1950-2050



Source: Authors' compilation based on United Nations, Department of Economic and Social Affairs (2015a).

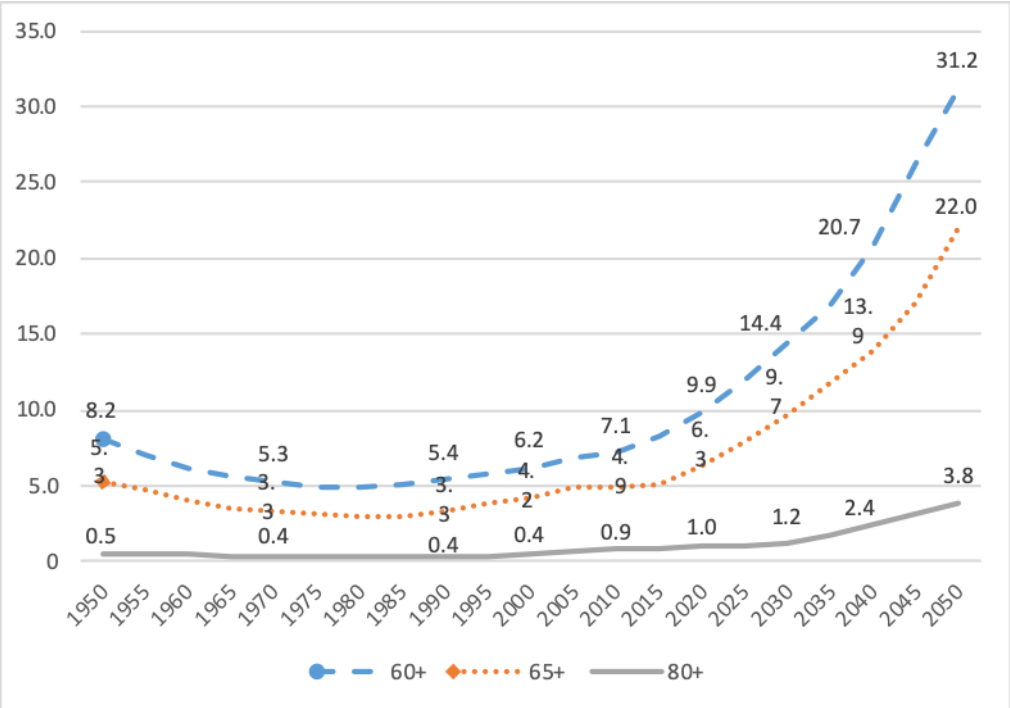
Life expectancy increased in virtually every single year between 1950-1955 and 2045-2050. Life expectancy at birth was almost 40 years in 1950-1955, increased by 17 years, reaching around 57 years in 1975-1980. Due to an eight-year war with Iraq, life expectancy dropped to 52 years in 1980-1985. Since then, it has gradually increased reaching 73 years in 2005-2010 and 75 years in 2010-2015, respectively. According to the 2015 revision of the World Population Prospects, Iran's life expectancy is projected to be approximately 80 years in 2050 (UN Population Division, 2015). Despite the fact that the fertility transition began after the mortality transition, it declined much faster, making Iran's population aging very rapidly.

3 Population aging trends in Iran

3.1 Iran's population by 60+, 65+, and 80+ age groups between 1950 and 2050

Figure 3 illustrates the percentage of Iran's population in the 60+, 65+, and 80+ age groups between 1950 and 2050. The percentage of aged 60 and older was 8.2 percent in 1950, slightly decreased to 5.3 percent and almost 5 percent in 1970 and 1980, respectively. From 1980 onwards, it has continuously increased, jumping to nearly 8 percent in 2015. According to the medium fertility variant, the proportion 60 and older it is expected to increase to around 20 percent in 2040 and to almost 31 percent in 2050, projected four-fold increase by 2050. People age 60 and over will number around 29 million out of a total population of 92 million by 2050. The percentage aged 80 and over was negligible (0.5 percent) until 2000. The percentage is expected to jump to 2.4 percent and 3.8 percent in 2040 and 2050, respectively. People age 80 and over will number around 3.5 million out of a total population of 92 million by 2050.

Figure 3
The percentage of aged 60 years and older, 65 years and older and 80 years and older in Iran, 1950-2050 (medium fertility variant)



Source: Authors' compilation based on United Nations, Department of Economic and Social Affairs (2015a).

Kunkel, Brown, and Whittington (2014) identified the point at which people age 60 and older outnumber children younger than age 15 as a demographically revolutionary situation with social, cultural, economic, and political consequences. According to the medium fertility variant, it is expected that the population age 60 and older will outnumber children younger than age 15 in Iran by around 2035. Therefore, Iran will be in a truly revolutionary situation by around 2035.

3.2 Iran's aging indicators: median age and dependency ratios (1950 to 2050)

Table 1 depicts Iran's aging indicators on the basis of estimates and projections made by the UN Population Division (2015) in selected years from 1950 to 2050. The median age of 21.9 years in 1950 gradually decreased by almost 4.7 years between 1950 and 1990, reaching 17.2 years in 1990. Since then, it is continuously increasing to 40.9 years in 2040 and 44.7 years in 2050.

Table 1
Aging indicators in Iran, selected years (medium fertility variant)

Indicators	1950	1970	1990	2000	2010	2015	2020	2030	2040	2050
Total Population (thousands)	17119	28514	56169	65850	74253	79109	83403	88529	91205	92219
Population aged 0-14 (percentage)	36.3	44.1	45.4	34.9	23.5	23.6	23.3	17.9	14.5	14.9
Population aged 15-64 (percentage)	58.5	52.6	51.3	60.8	71.6	71.3	70.4	72.4	71.6	63.0
Population aged 60+ (percentage)	8.2	5.3	5.4	6.2	7.1	8.2	9.9	14.4	20.7	31.2
Population aged 65+ (percentage)	5.3	3.3	3.3	4.2	4.9	5.1	6.3	9.7	13.9	22.0
Population aged 80+ (percentage)	0.5	0.4	0.4	0.4	0.9	0.9	1.0	1.2	2.4	3.8
Median age (years)	21.9	17.7	17.2	20.8	26.9	29.5	32.4	38.3	40.9	44.7
Total dependency ratio (per 100)	71.1	90.1	95	64.4	38.7	40.2	42	38.1	39.7	58.6
Child dependency ratio (per 100)	62.1	83.9	88.5	57.4	32.8	33.1	33.1	24.7	20.3	23.7
Old-age dependency ratio (per 100)	9	6.3	6.5	6.9	6.9	7.1	8.9	13.4	19.4	34.9

Source: Authors' compilation based on United Nations, Department of Economic and Social Affairs (2015a).

The total dependency ratio is calculated as the population age 0-14 plus aged 65 and over divided by the working-age population (15-64 age group). Iran's total dependency ratio was almost 71 percent in 1950 and grew to 95 percent in 1990. This means that there were 95 people age 0-14 and age 65 and older per 100 people age 15 to 64 years in 1990. After that, the figure decreases to about 40, with some fluctuation around that number. Besides the notable decrease in the total dependency ratio, there is significant demographic change reflected in the extent to which children and older people contribute to the total ratio.

From 1990 onwards, the child dependency and old-age dependency ratios have moved in opposite directions in almost every year. The child dependency ratio was 62 children to every 100 working-age people in 1950, gradually increased to around 84 in 1980, and peaking in 1990 at 88.5 children per 100 working-age people. From 1990 onwards, it continuously decreases to the lowest percentage at almost 24 percent in 2050. The old-age dependency ratio is expected to increase to 8.9 and 13.4 in 2020 and 2030, respectively. The sharp rise in the old age dependency ratio from around 9 per 100 in 2020 to around 35 in 2050 is expected to significantly influence Iran's economy in general and the pension system in particular. Iran has more than 30 years to prepare for its fast-aging population by taking advantage of the demographic dividend offered by its current young population.

3.3 Iran's population aging in a global context

Table 2 provides a snapshot view of the speed of aging in some of the fastest aging countries in the world between 2015 and 2050. Iran is the second fastest aging country in the world in terms of the percentage point increase in the population aged 60 and over between 2015 and 2050. Iran also is expected to take 7th place in the world with the highest percentage point increase in the population age 65 and older between 2015 and 2050.

Results also show that most of the countries with the largest percentage point increase in the population aged 60 and older and as well as aged 65 and older between 2015 and 2050 are projected to be among developing countries, mostly located in Asia including the Middle Eastern countries. However, most of the countries with the highest percentage point increase in the population age 80 and older between 2015 and 2050 are projected to be in developed European countries. None of the Middle Eastern countries including Iran are expected to be among the top 15 countries with the highest point increase in the population age 80 and older.

He, Goodkind, and Kowal (2016) proposed "the number of years for a country's population aged 65 and over to double from 7 percent of the total population to 14 percent as a commonly used indicator for the speed of population aging" (p. 12). As shown in Figure 4, in France, it took 115 years the percentage of aged 65 and older to increase from 7 percent to 14 percent (1865 to 1980), and it will take an additional 42 years for the percentage to increase from 14% to 21% (1980 to 2020). In South Korea, as the first rapidly

aging country in the world, the percentage is expected to double in 2018 and to triple in 2027. In other words, the doubling of the percentage is already underway in South Korea, where it is expected to end in 2018. In the case of Iran, based on medium fertility variant, the percentage is projected to double within 17 years and triple within 26 years.

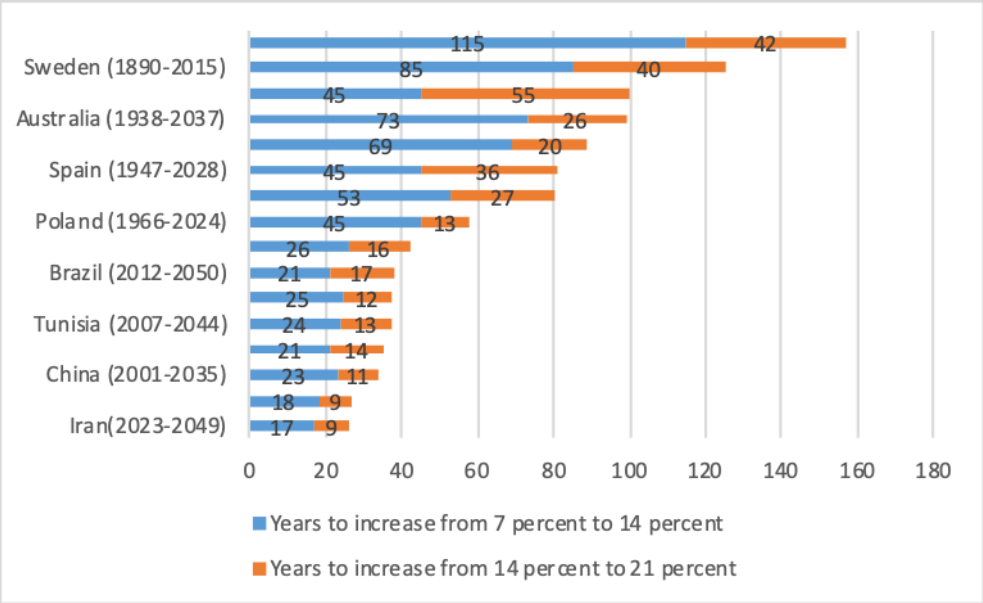
Table 2
The world's top 10 countries with the highest percentage point increase in elderly population, 2015-2050 (medium fertility variant)

Rank	Country	60+	Rank	Country	65+	Rank	Country	80+
1.	South Korea	23.0		Singapore	22.2		Singapore	11.4
2.	Iran[5]	23.0		South Korea	22.0		South Korea	11.1
3.	Singapore	22.5		Thailand	19.6		Cuba	10.8
4.	Thailand	21.3		Cuba	18.7		Germany	8.8
5.	China	21.3		China	18.0		Italy	8.8
6.	United Arab Emirates	21.1		Spain	17.0		Spain	8.0
7.	Cuba	20.3		Iran	17.0		Portugal	7.9
8.	Oman	20.2		Bosnia and Herzegovina	16.6		Austria	7.8
9.	Bahrain	19.8		Poland	16		Thailand	7.8
10.	Lebanon	18.5		Oman	15.3		Chile	7.6
-	World	9.3	-	World	7.8	-	World	2.8
-	-	-	-	-	-	-	Iran	2.9

Note: Some of the percentages look similar due to rounding decimals to nearest tenth; none of the listed countries are in the same rank.
Source: Authors' compilation based on United Nations, Department of Economic and Social Affairs (2015a).

[5] In Iran, the percentage was just 0.01 percent fewer than South Korea.

Figure 4
The number of years for percentage aged 65 and older in total population to double and triple: selected countries



Source: Iran's data is based on authors' calculation using United Nations Population Division Data, Department of Economic and Social Affairs (2015a). The data on the countries listed in the graph were adopted from He, Goodkind, and Kowal (2016).

4 Social and economic challenges of population aging in Iran

As one of the fastest aging countries in the world (see Figure 4), with a tripling of the number of 65 years of age and over from 2.8 million in 2000 to 9 million in 2030 (see Table 1), Iran faces social and economic challenges. All aging societies face these challenges, but for Iran, these issues are arising in a context of intense internal economic problems of poverty, inequality, youth unemployment, as well as political and cultural conflicts. Two key challenges are gender-related issues and socio-economic security in old age.

4.1 Iran's population aging and gender-related issues

One of the first issues to consider is the gender life expectancy gap. Iran has had an interesting life expectancy trajectory in the past 70 years. In the 1950s, male life expectancy (at 43 years) was five years higher than female's (at 38 years); by the late 1970s, that gap had narrowed to 3 years (52 years for males and 48 years for females). This gap was typical of low and middle-income countries. Following the Iran-Iraq war of 1979-1987 that resulted in at least 134,000 deaths and 60,000 missing (Ferretti 1990) of exclusively male armed forces and combatants, Iran male life expectancy dropped to 50 years and that of females went up to 58 years. By 2015 this gap narrowed down to one year (74 for men, 75 for women); it has been estimated that this gap will widen to two years (76 for males and 78 for females) by 2030 (UN, 2015). This is a typical gender life expectancy gap in the low and middle-income countries (WHO 2014, World Health Statistics 2014, pp. 42-44).

Such age gaps in life expectancy matter for the socio-economic security of men and women as they age. In general, the male breadwinner model, male asset ownership within households, subordinate position of women in society, and gender pay gaps undermine women's independent capacity to accumulate assets and entitlement to welfare and pension rights. The situation is worse in countries where gender discrimination has deeper institutionalized roots.

In a patriarchal society like Iran, the gap in the socio-economic security of men and women starts much earlier in life and carries through their life until old age. Despite the fact that there is a little gap between men and women with regard to school attendance, literacy, university graduation and other areas of human development, labour force participation for women age 20 and above was 15.2 percent in urban areas and 12.9 percent in rural areas in 2006. Those rates were significantly higher among males; 79.4 percent in urban areas and 85.4 percent in rural areas (Salehi Esfahani and Shajari, 2010). Lack of labour force participation limits women's accumulation of assets in their own right. There is also a long list of legal barriers to women's pursuit of economic independence such as the need for the consent of husband to employment.

Gender pay gap, as well as most women being employed in the low paid jobs compared with men further, undermines their independent economic position.

Another example is the Islamic inheritance law which entitles female siblings to half the share of male siblings. Moreover, wives are entitled to a tiny share of the family asset after the death of their husband but are entitled to the deceased's occupational and state (social insurance based) pension. However, formal pensions in Iran cover mostly the formal sector including government employees. Women's dependent economic position continue throughout their lives and weakens following the divorce or the death of their husband. Female-headed households comprise a large section of the poor households in Iran (Shadi Talab, 2004). Women in Iran face the prospect of an economically vulnerable old age and the expectation that they will bear responsibilities for caregiving throughout their lives.

4.2 Iran's population aging and socio-economic security in old age

Socio-economic security and welfare in old age are based on a combination of accumulated resources: income from labour, assets including own pension savings, family support in- kind or cash, and institutional support from the state and employers in the form of state and work-based pensions, health coverage and other benefits. The relative contribution of the above sources to the welfare of the old people in Iran varies significantly across different socio-economic groups. In general, richer households rely on their resources while the middle and lower socio-economic groups have to rely on family and government-based institutional support.

Iran does not have a universal age-related or citizen-based pension scheme (like state pension in Europe or social security in the US). However, it has a range of employment-related pension schemes that are managed either by the Social Security Organisation (Ministry of Cooperatives, Labour, and Social Welfare) for private sector employees or various state pension schemes for civil servants, armed forces and other government employees. Some of these institutions have a long history and date back to the establishment of the modern state infrastructure in the early 20th century. Since the Revolution of 1979 several institutions have been established that offer support to the family of those who died during the Iran-Iraq war (e.g., Martyr – Shahid – Foundation) or support families who are on meagre income or are without any able-bodied male breadwinner (Imam Assistance Committee – Komiteh Emdad Emam). Their support is means- tested with the former covering 1.5 million and the latter 0.5 million in 2016. There are also religious endowments that are expected to use the proceeds of their endowments that in some case are vast, like the foundation based on the endowment of the Eighth Imam in Mashhad known in Farsi as Astan Ghods Razavi.

The formal pension schemes cover mainly men given the male dominated structure of the formal employment in Iran, but women do inherit the pension of their deceased partners. There is a great deal of variation in the

adequacy of pensions, which depend largely on the final salary/income. For example, the high-ranking civil servants, military and police officers who retire on high final salaries do have a reasonably adequate pension, but the majority of pensioners struggle to cover their basic living expenses. In recent years there have been widespread demonstrations by pensioners protesting against inadequate pensions due to high inflation.

Finally, there is also the near-universal cash transfer scheme of Iran (Yaraneh Naghdi) that currently pays 450,000 rials (about US$3.75 at the exchange rate of 120000 rials to a dollar in July 2019) a month to every Iranian citizen who have to register to receive it[6]. By default, the older Iranians are a beneficiary of the cash transfer scheme. However, a cash transfer of this amount is totally inadequate to cover the basic needs of food, clothing, healthcare and housing of an older person.

[6] The Iranian government has tried to close the cash transfer scheme to those on higher income like medical doctors, lawyers, top management and other highly paid professionals.

5 Conclusion

The speed of aging in Iran is truly remarkable, its population of 65 years and over will triple in 26 years (2023 – 2049) compared with 157 years in France, 100 years in the UK and 89 years in the US) (see figure four). Iran is ill-prepared for such a rapid population aging, it neither has the economic foundation of these other countries nor has the financial and institutional infrastructure that these countries developed over many decades. Providing care for a growing aging population will be one the most significant challenges faced by Iranian families. However, do all the families have the resources to look after their older members? The simple answer is that in the case of the vast majority they do not have sufficient resources, but continue to do so out of familial and humanitarian solidarity at a cost to themselves, in particular to the female members; care is a very gender-based activity all over the world. Family support should also be put in the context of declining the average household size in Iran, that changed from 5.1 in 1986 to 4 persons in 2006 (Aghajanian and Thompson 2013). Moreover, nuclear family, which as the percentage of total households increased from in 79.2 percent 1986 to 83.8 percent in 2006 (Aghajanian and Thompson 2013), has replaced multi-family/generational households further reducing the capacity of the family to provide old age care.

In the absence of adequate family resources, there is a need for social policy measures that would supplement family resources and support the broad developmental agenda and ensure societal and macro-level inter-generational support. The most basic objective of any state intervention is to maintain and increase families' resource base. This is different from a hands-off state policy leaving care issues to the family that effectively increases the burden on the family and women within it.

In the context of inter-generational support, state intervention could have the objective of improving the family budget through subsidies and de-commodifying (through regulation and intervention in the market) of the basic necessities of life. De-commodification does not necessarily mean the free provision of goods and services. It could take different forms such as rent control, subsidized medicine and staple food, and subsidized education[7]. It is of note that some of these subsidies like that to education are not directed at

[7] De-commodification has to be put in the context of the existing subsidies such as fuel and energy which may be of greater benefit to high-income groups. The reform of such subsidy structure has to be combined with a de-commodification/subsidy structure that would benefit the low and middle-income groups.

elderly but by freeing resources at family level indirectly contribute to the family budget and thus improve its capacity to care. Moreover, old age could be set as a target for direct subsidies to the elderly; the most obvious example is state-sponsored health insurance and subsidies to medicine for chronic diseases that are usually associated with age. For example, studies of household expenditure on health and food in Iran revealed a high degree of inequality; the Gini coefficient of inequality was 0.48 between 1998 and 2012 (Ghiasvand, et al., 2015) and out-of-pocket expenses comprised 54 percent of household health expenditure over the same period (WHO, Global Health Expenditure database, quoted in Giasvand, et al., 2015). In 2014, the Health Evolution Plan of Iran was introduced with the main objective, inter alia, of reducing the out-of-pocket expenses and reducing the burden of healthcare expenditure on low income families that has had some success in meeting its objectives, but its sustainability is in questions given its financing costs (Moradi-Lakeh and Vosoogh-Moghaddam, 2015).

In summary, although Iran's rapid fertility decline and population aging have important social and economic implications, they should not be seen as demographic catastrophes. Such views could hinder positive public and policy responses; as witnessed by the pro-natalist policies promoted by the most powerful conservative political leaders in Iran, who have called for the downgrading and even withdrawal of family planning services. Demographic transition and population ageing, instead, should be understood as a genuinely new situation which will significantly affect the economy, pension system, public policies, labor force, as well as health care system in Iran.

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