

Exploring the Economic Implications and Challenges of an Ageing Population in the UK and China

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Abstract. Population ageing has evolved into a worldwide phenomenon. This paper aims to examine the trends and causes of population ageing, explore its economic and health implications, and investigate the policies and improvement measures implemented in the UK and China to address this issue. The research questions are: What are the main trends and causes of population ageing in the UK and China? How does population ageing impact the economy and health of these countries? And what policies and improvement measures have been implemented in response to population ageing? The study's findings will contribute to the literature on population ageing, particularly in the UK and China. The study's significance lies in the potential to guide policymakers in other countries grappling with the issue of population ageing. This paper concludes that population ageing has significant economic and health implications for the UK and China. However, both countries have implemented various policies and improvement measures, including developing elderly industries, healthcare financing, and pension policies, to mitigate the adverse effects. The study highlights the need for policymakers to implement more proactive measures to address population ageing.

Keywords: population ageing, demographic, labour, healthcare

1. Introduction

The demographic structure presents a more accurate measure of the current health of developing countries' populations and suggests that, like many other developed countries, the UK and China face the same problem: an ageing population. Population ageing is defined as there being a substantial proportion of elderly persons in a country's population. With improved economic well-being and better nutrition and medical facilities, people's lifespans are becoming ever longer. Undoubtedly, this trend has intensified due to rising life expectancy and declining fertility rates, raising concerns worldwide about the problems it may cause. As population ageing is an inevitable and major phenomenon, governments and societies are constantly formulating strategies to address it and monitoring their progress.

Population ageing is often seen as an economic and budgetary challenge for the future. Ageing is a long-term process with increasing social and economic implications, and the UK and China are currently experiencing a dramatic demographic transition, as the population around 65 and older is widely anticipated to climb substantially throughout the twenty-first century. Thus, profound developments will happen over the following years. This paper will analyse and explore the main

trends and causes of population ageing and examine its adverse effects on a country's economy and health. The focus of this paper is on the policies and improvement measures made in the UK and China in response to the ageing trend. The paper will demonstrate that introducing solutions to further the development of elderly industries, health care financing, and pension policies is effective, as the challenges of ageing can be largely delayed if more proactive measures are taken.

2. Literature Review

Population ageing is acknowledged to be one of the four worldwide demographic 'megatrends', namely population growth, population ageing, migration flows, and urbanization, which have a continuous and lasting impact on sustainable development [1]. In China, rapid economic development over the past thirty years has raised the living standards of millions of Chinese and significantly increased China's ageing population [2]. Due to lower fertility rates, there were approximately 176 million older people in 2019, representing 13% of the worldwide total. By 2050, the proportion of elderly persons is expected to reach 26%, exceeding that of most European countries. Zhai estimates that China's elderly population will peak at about 385 million in 2058 and then decline slightly by 2100, representing an increase of 31.54% at its peak [3]. Life expectancy, fertility, and mortality have all risen due to economic progress. Zhang et al. note that China confronts two serious difficulties: fast economic expansion and, as the most populous country, the greatest extent of population ageing [4]. Therefore, the connection between China's economic development and population ageing is crucial.

In the UK, the population aged over 65 is projected to increase twice as quickly as the employed, reaching 24 percent of people in 2037 [5]. As a Western European country, the UK has a higher life expectancy than most countries in the globe. Increasing lifespans and declining birth rates are the main reasons for the rising proportion of older people. Further, population ageing has concerning implications for the economy, health, and welfare systems. Individuals aged 50 and older are often less likely to enter the labour force. The elderly depend more on savings to cover expenditure and may have less assets. The interaction of a possibly tighter labour market and declining savings raises concerns. However, the state assistance has enhanced the relationship between the elderly and policymaking in the UK, improving the well-being of the elderly [6]. Population ageing also ushers in public health challenges. There is no doubt that the requirement and desire for the elderly will continue to increase, and the cost of medical services will undoubtedly rise as a result [7].

The current study on the economic effects of demographic change and population ageing in the UK and China has significantly contributed to understanding this issue. However, important gaps in our knowledge need to be addressed. The existing literature focuses primarily on the challenges of population ageing, with limited attention paid to the opportunities that demographic change may present. Future research should explore the effects of demographic shifts on healthcare costs, formulate effective policies to address the challenges, and provide new opportunities for enterprises catering to an ageing population. Studying the influence of demographic change on welfare programmes, including pensions and social security in the UK and China, is conducive to better understanding the economic impact of population ageing and developing effective policies to address the challenges it poses.

In the UK and China, examining the influence of population change on the labour force and productivity is important. While existing research has highlighted the potential challenges of an ageing workforce, research on its actual impact on labour market outcomes is limited. Although the existing literature provides a good understanding of the economic impact of population increase in the UK and China, more comparative research is needed on the similarities and differences between the two countries regarding the challenges and opportunities of population ageing. This research can provide policymakers in both countries with effective strategies to address the challenges of demographic change.

3. The Economic Implications of Population Transition in the UK and China

Population ageing poses a serious problem: the percentage of elderly people (aged 65 and older) is anticipated to rise globally from one in 11 (9%) in 2019 to one in six (16%) in 2050, primarily due to growth occurring middle-income and low-income countries [8-9]. Higher life expectancy is associated with a larger ageing population. The larger the percentage of older people, the more it contributes to absolute ageing and the greater the ageing problem. The old-age dependency ratio (OADR) is a popular indicator used to monitor shifts in population age structure. As fertility rates decline and expectancy increases, the relative elderly population grows while the percentage of younger people decreases. The elderly population presents possibilities and problems for policymakers and service providers at the regional level, notably regarding their influence on labour markets and regional economic dynamics. Although practically every country in the world, both wealthy and poor, is ageing, longevity remains an issue of profound concern. The following section will discuss and analyse the economic implications of this issue and suggest strategic measures to address population ageing.

Demographic changes, especially population ageing, significantly affect the global economy. The challenge of ageing populations is particularly acute in the world's two largest economies, the UK and China. Population ageing has an impact on economic growth to some extent. Widespread population ageing is often connected with adverse impacts, providing greater household spending, government budget and care workers pressure, and decreased economic expansion [10]. As the number of retirees increases, fewer people consume goods and services, decreasing overall demand. This might result in a slowing of economic development and a reduction in individuals' standard of living.

Population ageing is identified by a rise in the percentage of people as a whole who are 65 and older (65+). The absolute amount of seniors will be higher, the proportion of the elderly will be greater, the healthy life expectancy will be longer, and the working-age population will be relatively smaller. The UK population is ageing, which causes industrial, social, and political issues and boosts older people's reliance on the working-age population. As the proportion of elderly employees increases, productivity is expected to decline, as elderly persons are less productive than younger individuals. This will affect the country's economy, as a decrease in productivity will lead to a decrease in output and, therefore, economic growth, which may have a negative impact on labour force productivity. In addition, older workers typically have lower levels of productivity, which also reduces the overall productivity of the workforce, leading to job market gaps and a lack of labour and skills in businesses and public services.

Ageing is a global phenomenon at the beginning of the twenty-first century, and China is no exception to the trend: its population has aged at an unprecedented rate in the last 2 decades, a relatively short time compares favourably to many wealthy countries. The leading causes of population ageing are falling fertility rates and rising life expectancy. Even though expectancy is not considered a characterized by changes, the only factors that can impact the phenomenon of population ageing are those that directly impact the birth rate. A typical example of this is the 1979 implementation of the one-child policy in China. As the world's most populous country, China faces huge pressure from population ageing, whose effects are mostly seen on the health and labour market supply side. The slow growth rate of the working-age population, which will inevitably result in a labour shortage, is posing difficulties for the Chinese economy. Population ageing is an unstoppable trend. The kind of population ageing that China should adopt and what solutions it should adopt to meet the needs of sustainable socioeconomic development are the questions examined below. Table 1 clearly presents the reasons for this.

Table 1: Three-stages population ageing in China [11].

	Example Annual increase in the elderly population [Million]	Average annual growth rate	Expected ageing population [Billion]	Expected rate of ageing
Stage 1 (2001- 2020)	596	3.28%	2.48 (2021 Year)	11.17% (2021 Year)
Stage 2 (2021- 2050)	620	Above 3%	4 (2050 Year)	Above 30% (2050 Year)
Stage 3 (2051- 2100)	—	—	3-4 (2100 Year)	Around 31% (2100 Year)

3.1. Population Ageing and the Labour Market Productivity

Many factors drive economic expansion, and labour is among the most influential. As a country focused on labour-intensive industries, China's rapid economic growth relies heavily on labour to produce cheap labour-intensive products. China has also gained an advantage over other countries in international competition. The reduction in the employed population results in a decline in economic productivity, while the increase in the proportion of retirees boosts consumer spending among the non-working population. As a result, China could face a scarcity of domestic products and services, which could reduce Chinese exports abroad. This anticipated development would put an end to China's status as the 'factory of the world'. In addition, the changes triggered by China's ageing population may affect the Chinese domestic economy and spill over to other economies that import goods from China.

The immediate impact of an ageing population on the economy will be on labour supply, production, and national income. As workers age and their bodies deteriorate, their physical strength and brains decline, making it difficult for them to perform at work. When most companies adopt new technologies or equipment, older workers find it challenging to adapt to the operation of the new technology or equipment, which further reduces labour productivity and has a direct adverse impact on economic growth. Relevant data show that the ageing population will lead to a year-on-year decline in China's labour force, with the labour force rate falling to 57% in 2030 [12]. China needs to modernise its industry structure and change labour-intensive sectors to minimise the implications of an ageing population on its economy.

Population ageing will affect labour employment levels, as senior employees are more inclined to retire, reducing the workforce. This will decrease the workforce participation rate, which is the percentage of the employed population continuously engaging in the work market. A decline in the labour participation rate will significantly impact the country's economy, reducing the number of workers contributing to the economy and increasing the number of pension-dependent retirees. An ageing population will result in a decline in the proportion of employees to retirees, creating a heavier retirement burden on those in the labour force.

In the UK, the percentage of individuals 65 and older has steadily and considerably increased over the past few years and is projected to continue. This is the combined result of longer life expectancy and falling birth rates. The economic impact of an ageing population is significant, as older people become less likely to be employed, which leads to a reduced workforce and reduced productivity. This situation puts pressure on public finances, as older people are more likely to rely on state-funded

pensions and health services.

Among the most significant issues posed by an ageing population is the provision of social and medical services. In the UK, the cost of providing these services will likely increase, putting pressure on public finances. This will lead to reduced funding for other public services, necessitating the development of new funding strategies by the government. In the UK, the over-65 population is anticipated to increase twice as quickly as the working people, reaching roughly 24 per cent of the workforce in 2037 [5]. This population ageing process and the ensuing social security changes pose a significant challenge to pensioners [13]. At the same time, the possible impact of population ageing on asset values is of great concern, with implications for all pension systems. Pensions combine retirement and labour market regulation institutionalization [14]. Different periods may be simpler for self-employed people to continue over age 65, as they are unfamiliar with the constraints of retirement organisation rules, have broader freedom to work and can return to work before persuading their company to rehire them [15]. Notwithstanding the increased opportunities to continue working, it is clear that age discrimination persists in employment [16]. Although UK firms frequently recognise the advantages of having workers of different ages, recruiting patterns imply they would rather recruit younger people [15, 17]. The ageing of the population has additional effects on employment and industrial productivity.

The extra spending of an ageing population has had a major impact on the British economy. In 2006, the gross domestic product (GDP) of the UK was £1,328,363 million, so an ageing population would add the equivalent of $((27.4/1,328.363) \times 100)$ to GDP per year over the 25 years from 2006 to 2031. $100) = 2.06\%$ [18]. According to Office of National Statistics (ONS) projections of population size, an ageing population could boost the British economy if the rise in domestic productivity is sufficient to fulfil the needs [19]. The pros and cons of a growing population for the economy could increase total expenditure in the UK. The country needs to put into perspective the impact of an ageing population and make plans to mitigate it.

3.2. Increased Healthcare Demands and Pressure on Social Services

As the population ages, the demand for healthcare increases, significantly impacting the economy. The rising proportion of elderly individuals leads to a rise in healthcare costs. Seniors generally suffer from greater rates of chronic disease and require more frequent medical attention, putting pressure on the healthcare system and the economy in general. Increased healthcare costs lead to higher tax revenues as well as negatively impacting the standard of living of citizens, resulting in higher healthcare costs for both the government and individuals. Kingston et al. mentioned that over the next 20 years, the elderly's need for complex care and support is anticipated to rise as more people reach the age of 85 or more, and thus the number of individuals relying on treatment for conditions such as dementia and co-morbidities will increase [20].

The ageing population drives up healthcare costs as older people require more healthcare services, putting enormous pressure on the healthcare system, while there are fewer workers to fund these services. Healthcare expenditure per capita is considerably higher for the elderly than for people of other ages. Changes in the population's age structure and an increased ageing population will significantly impact future health costs per capita in China. Although the government is responsible for healthcare expenditures, China's healthcare resource allocation framework is still unbalanced due to the significant economic discrepancy between urban and rural inhabitants and the vast infrastructure gap between cities and towns. As a result, there is inequity in healthcare services between urban and rural residents [21]. According to relevant information, the state and budgets at all levels concentrate 80% of health investments in cities, with 80% being focused on large urban institutions. Moreover, the huge cost of healthcare not only places a significant burden on the older people seeking to access healthcare but also poses a physical obstacle to China's projected economic

growth. The country needs to reform its healthcare system to meet its ageing population's needs. Doing so may require significant investment in healthcare infrastructure, staffing, and technology, which is very expensive and shows a downward trend.

3.3. Impact of Ageing on Social Security and Pension Systems

An ageing population will put greater financial pressure on pension support systems. As the older population, more people relying on retirement savings and pensions to support their lifestyles will increase. Pressure is thus put on the financial stability of retirement funds and pension schemes, with a corresponding reduction in benefits for retirees. An impact on economic stability and growth is also expected, as retirees will reduce their expenditure, affecting the overall demand for products and services. In addition, pension provisions will grow increasingly expensive, resulting in higher taxes or lower benefits for citizens.

The evolution of the British pension system takes into account the rise of active ageing policies, analysing its impact on British pensions and the extension of working careers while highlighting the need to use a lifelong strategy to address active ageing. It demonstrates how a plan for active ageing might help the British address the issues an ageing population poses. This points out how crucial it is to regard the elderly like an economic and social capital and minimise social involvement obstacles. For the above reasons, the country has begun to implement and introduce policies and strategic measures for public pensions, including diminishing the generosity of retirement schemes, raising the statutory retirement age, and restricting retirement benefits [22]. Hence, the country can modify its government pension system by eliminating the incentive to retire between 60 and 65. Tax and benefits laws should be modified to promote and capitalise on the advantages of a long career.

4. Approaches and Measures to Mitigate Population Ageing

4.1. Vigorously Develop the Ageing Industry

Although the problem of population ageing is irreversible, the country is making continuous improvements in formulating policies and improving them. By analysing the shifting trends of the older population, a series of effective measures can be taken regarding wellbeing and public health organisation. Government measures can help prevent and better implement interventions in the field of ageing. China's rapid expansion of the ageing field will begin in three ways:

1) Continue to encourage capital investment. The government should strategically stimulate and direct the flow of personal funds into the aged sector, provide economic and fiscal policies to the ageing industry regarding loans, and monitor how to utilise capital investment.

2) Develop the industry for senior goods. In addition to satisfying the basic needs of older people, like clothing, accommodation, and vehicle, there is a need to drive the development of elderly goods that reflect intelligence and humanisation, such as elderly care, healthcare, and educational counselling. Taking supply-side structural reform as the primary strategy, the market for senior goods should be actively explored and the supply steadily expanded, boosting needs development and contributing to economic expansion.

3) Vigorously promote a modern elderly service sector.

Constructing an elderly service sector in every city of the region is important to preserve a unified system of continuous improvement partners who are relevant to the senior population and to cultivate goods suited for the elderly.

Notwithstanding subsequent modifications to the UK government's pension system, the provision of pension payments in the UK continues to be considerably lower than that in European countries [23]. In 2014, 2.9 million persons between the ages of 50 and state pensionable age remained jobless in the UK, and the state spent approximately £7 billion on unemployment payments for this

demographic [24]. In the context of UK pensions and the need to extend working life, a comprehensive strategy may help tackle the challenges of an ageing workforce and the social security system's constraints and improve older people's lives [25]. Such a strategy should not merely concentrate on paid work and retirement; the term 'activity' should embrace any meaningful endeavours that promote the well-being of people, especially their families, local communities, and daily life.

4.2. Financing Healthcare

Technology can be applied in unexpected ways to help the ageing population. Assistive technologies, including wearables and connected home technologies, can facilitate care and enhance the standard of life of older people [26]. Technologies that combine artificial intelligence (AI) capabilities and robotics can be utilised as a component of LTC solutions. For instance, the super-ageing country of Japan has long pioneered LTC technology adoption [27]. Furthermore, machine training techniques are driving the evolution of precision medicine that can create enormous quantities of quantifiable biomarkers, synthetic molecules, and patient information [28]. Technological advancements offer the ability to provide reasonably priced, high-quality LTC [29].

Wellness will decrease the financial costs associated with, and postpone the necessity of long-term services (LTC), which consists of services aimed at satisfying a people's health or personal medical requirements and assisting people to live as privately and comfortably as feasible if they cannot manage their lives independently [9]. Currently, the majority of older adults will require LTC at some time. Informal care used to be the major cause for elderly individuals with disabilities, yet as a result of shifting demographics and fast socioeconomic change in several ageing nations, especially China, dependence on family support has become unsustainable. Hence, a formal healthcare system is required, and governments should carefully design their long-term care systems to guarantee that elderly persons have equitable access to services and funding. Technology improvements, which might be critical in establishing innovative techniques for providing care delivery models, should also be considered.

Although long-term care services in China rely heavily on home care, the availability of informal care in the setting of an ageing population due to low birth rates, distorted gender ratios and high levels of internal migration, The accessibility of informal care seems to be of particular relevance for several reasons [30-32]. Elderly individuals from low-income areas and those living far from children who have migrated away are much less likely to obtain help and assistance and will more probably require publicly supported care. However, proper care is underdeveloped in China compared with developed countries, particularly in the vast rural regions, and the availability and effectiveness of long-term care remain restricted [33].

In response to the ageing framework, the UK has introduced policies and strategies on pensions, offering the concept of 'active ageing', a strategy that promotes the idea that older person's rights would allow a rising population to stay healthy. It will also decrease the pressure on health and social care services, thus pensions costs by keeping people in employment for longer. The 'active ageing' approach has evolved to become a critical strategy solution to the difficulties of population ageing [34]. It focuses on people's capacity to preserve their independence and realise their potential, regardless of age. Moreover, it recommends numerous methods to assist in alleviating the ageing workforce, including social support for older individuals.

The policy encourages delayed retirement in several ways, including raising the state pension age; in 2008, the UK planned a gradual rise to the age of 68 by 2046. Some EU countries have recently adopted similar approaches [35]. Furthermore, it shows that the elderly can address the difficulties of population ageing not only by postponing their retirement but also by remaining active following retirement [36]. In addition to ensuring an appropriate retirement income, pension plans may be

essential in prolonging a working career. They should therefore remain at the centre of the programme for active ageing [35].

5. Comparison of the Strategies Implemented in the UK and China

The major difference between the plight of the UK and China is that China, with its phenomenal growth rate and the one-child policy introduced in 1980, got there faster when rapid population growth was seen as an obstacle to economic growth. The UK is undergoing substantial demographic trends as its population ages, reflecting growing life expectancy and the baby boom generation. These patterns have little impact on the economy's quarter-on-quarter growth. However, demographic trends are leading to profound structural changes in the economy. If the UK is to prevent a further downturn in possible economic development, productivity will need to improve, likely requiring sustained investment in physical and human capital [37].

Demographic change, particularly the ageing population, in the UK and China has significant economic implications. In the discussion above, this paper addressed demographic change and the issues associated with population ageing. In the UK and China, the difficulties of ageing populations are compounded by the lack of savings and the requirement for increased investment in social and medical services. This may result in higher amounts of public debt, which will put pressure on public finances and limit the ability of governments to respond to other economic challenges, such as rising inequality and falling living standards.

The ageing populations in the UK and China have resulted in substantial economic shifts, particularly in the employment and demand for social care services. In British, the elderly population is anticipated to increase by more than 50% by 2039. Hence, the country will need to find ways to support this growing population, which will require more social and health services. The cost of providing these services will likely increase, resulting in less funding for other public services.

In China, the workforce is being significantly impacted by the ageing population. As the population ages rapidly, fewer people will be able to work and contribute to the economy. This will reduce the number of workers who can contribute to the tax system and a decline in overall economic output. In addition, since the elderly population increases, the requirement for social and health services will rise, putting pressure on the country's healthcare system. Countries must develop social protection programmes that are sustainable in the long term to alleviate poverty, eliminate inequality, and enhance the social functioning of the elderly.

In both countries, the UK and China, people are living significantly longer than in previous decades. The United Nations Population Division projects a further increase in global life expectancy to 76 years over the next fifty years and that the number of people over 60 will rise from the current 800 million (approximately 11% of the world's population) with about 2 billion in 2050, a 22% increase in the worldwide population [38]. As almost all countries, rich and poor, are ageing, longevity is a high-profile issue.

6. Conclusion

In conclusion, the economic implications of demographic changes in China and the UK are far-reaching and complex and pose significant challenges for both countries. The reduction in workforce participation, the rise in healthcare costs, and the impact on the pension system and workforce are just a few of the challenges posed by this demographic shift. To address the challenges above, governments and businesses must work together to develop policies and plans that support economic growth while also addressing the requirements of an ageing population and ensuring that both countries' economies remain strong and sustainable in the future.

The difficulties and policies associated with an ageing population are of great importance for

modern governments. Demographic changes have led to increasing ageing in both the UK and China. To address the issue of population ageing and mitigate the rapid growth of the elderly, the governments in both countries have been planning different types of robust policies and trying to integrate them with national development planning. This paper examines the data using graphs and academics. Although population ageing is a concern for all countries, governmental agencies have made considerable progress, and technology is also advancing. The issue of an older population is unavoidable, yet this government may minimise it to a certain degree by taking effective measures.

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