

GLOBAL DEMOGRAPHIC SHIFTS: MANAGING INTERGENERATIONAL JUSTICE AND ECONOMIC REALITIES IN AN AGING GLOBAL ENVIRONMENT

Dr Subhash Baswal

Assistant Professor

Department of Geography

S.S.S PG College Jamwa Ramgarh, Jaipur

baswalsubhash@gmail.com

Abstract

This paper looks at the unprecedented change in global demography whereby people are living longer while bearing fewer children thus changing the age structure of the population globally. These changes are not without significance and they affect both the developed and the developing countries in different ways. In developed countries, this is evidenced by the aging population that has become a burden in terms of economic development and especially the ability to generate revenues for the welfare of the older generations as well as containing the costs of health care for this group of people as well as the shrinking workforce. On the other hand, the developing countries are threatened with high unemployment rates among the youth and then scarcity of resources for the aging population coupled with poor human capital and persistent socio-economic risks.

The demographic changes that are envisaged in this study are set to cause major changes in wealth, power and the nature of relations in the world, while at the same time posing important questions about justice between generations. These problems as healthcare expenses, the care of the elderly, and the distribution of resources between the young and the elderly will become the focus of political and social debate. The paper also discusses the factors leading to aging population, aging population trends across the world and the social economic implications of aging population in the areas of health, care giving, and employment.

Additionally, the research also assesses policy measures to population ageing, especially with regard to pension schemes, retirement ages and health care reforms. Technological innovations that can help out the aging population is also discussed, potential of technologies such as virtual reality, robotics, and smart home technologies are also discussed. The cultural aspects of aging are highlighted and how different cultures view and manage the issues of aging are also described.

Keywords: Demographic Shift, Aging Population, Fertility Decline, Intergenerational Justice, Economic Challenges, Human Capital

1 Introduction

A significant demographic shift is underway across the globe. In many countries, increasing life expectancies and declining fertility rates are beginning to change the age structure of the population significantly. No longer will populations consist largely of young people vying for scarce resources. Instead, a growing percentage of people in the world's population will be old, and nations will face the challenges of meeting their needs.

In many developed countries, birth rates have fallen below replacement levels, leaving a greater number of older people than younger ones to support an aging society. Sustaining the relative wealth of older cohorts who have already benefited from the prosperity of youth will become politically and practically difficult.

On the other hand, many developing and emerging states face a double threat: for decades to come, there will be too many youth and not enough jobs, and then too few resources for the aging population when fertility rates decline further. In these low-income states, not having sufficient human capital at a time of rapid population growth risks a resources trap. Ill health, lack of education, skills mismatches, and unproductive engagement in agriculture will become long-lasting trends in the absence of firm policy action.

Above and beyond challenges of economic growth and competition, aging populations will confront societies and states with challenges of justice: who pays for the inflated healthcare costs? Who will care for elderly dependents? Who decides how public provision is divided between the young and the old? What does solidarity between generations mean now that both absolute and relative transfers are changing? As the population ages, questions of intergenerational justice and fairness will preoccupy not only those who develop policy decisions, but also a wider audience. These concerns will shape political discourses within societies as well as within international organizations.

Demographic change is set to result in radical shifts in the distribution of wealth, power, and influence, within as well as between states, which in turn will affect wider global relationships. It will also bring about substantial shifts in what seem to be fixed, invariant relations between states and cultural groups: kin relations, obligations, identity, and collective action.

2 Understanding Demographic Shifts

Amidst concerns for the future, population growth isn't a threat. The advanced population pyramid is more worrisome, yet it's a silent issue. With a constantly growing 1.2% growth rate, the world population is anticipated to reach eight billion by the end of 2022. At the same time, the thirty fastest-growing nations are thought to be those with the most youthful populations, which is vivid. On the contrary, rising nations with high fertility, considered to have youthful populations, will experience unforeseen and only recently recognized shocks - as population graphs are predicted to become more 'pillar-shaped' and eventually

dampen as a consequence of lower total fertility rates. Very quickly, the expanding 15 and under age brackets will contract as nations progress through the demographic transition. The diminishing pillar, in conjunction with both improved longevity and mortality rates, will swiftly remold the population pyramid into a more elderly shape. Losing a youthful population pyramid will be considered a great advantage for rising nations yet considered a challenge for developed and advanced debtor nations. Regarding the demographic dividend, developments in mortality and fertility can yield a once-in-a-lifetime benefit for subsidizing economic growth and reducing poverty. The timing of a demographic dividend is exogenously given by a one-off historical event, whereas a tile 'windfall' is regarded as a window of opportunity. A tsunami-type wave requiring preparation, adaptation, or punishment, demographic dividends consisting of reduced total fertility rates emerge as relatively constant peaks moving through space and time. (McLennan, 2022)(Ripple et al.2022)

The chief demographic transition began in the West, located in Europe and Anglo-Saxon countries. This is analogous to the explosion starting with a 'bang' and subsequent wreaths moving outward over time. The initial human population increases the basic fertility (or grave stone) curve better continent, as early fertility was about five, then reduced to four, and presently about three; however, since fertility was scarcely together zero or one under a Malthusian regime, rising nations are presently about one generation behind. This global fertility divergence ceases however fertility rates near zero; furthermore, fertility is low in large poverty-stricken nations such as India, Indonesia, China, and Brazil. The two-fold components included the European great demographic transition explain long-term mortality and fertility developments and the subsequent basic population waves, consistent across space and time. Fertility decline trails mortality decline. The 'j' named cohort with a lot of fertility switches to become the baby boom cohort. The rise of the baby boom cohort initiates behind its transition education and late marriage to a declining 'j' demographic wave of fertility, after first raising mortality, congenitality, childhood, fertility, and finally population growth. (Lesthaeghe, 2020)

3 Causes of Population Aging

Demographic changes are gradual yet inevitable processes that can occur in terms of size, distribution, and structure of any population. Out of these changes, aging of the population refers to gradual changes in the age structure of a population. Such changes happen when the process of aging exceeds the process of entering younger ages - birth or immigration. The impact of an aging population takes place on some indicators of the size or structure of a population and also on a wide range of geographical or social attributes. Consequently, the result is the change of geographical and social characteristics of a population. Demographic changes have complicated the process of aging of the population in some developing countries but also resulted in a relatively long period of rapid population growth. Therefore, the net impact of demographic changes on the global aging of the

population is still insignificant, although it indicates possible and serious implications for some countries due to abrupt changes in the age structure of their population.

Conception and birth behavior have been reshaping the global population since 1950. In many developed countries, marriage has been "decoupled" from birth and is no longer a precondition for childbearing. Slowed down economic growth in the late 1970s along with the deteriorating job market for youth, more women in higher education or careers, extensive migration, and some others have discouraged young adults' major life events. All these resulted in a massive reduction in cohort fertility and delayed the timing of births. Though increasingly competitive, lower fertility countries nevertheless proactively favor the design of integrated family policy agendas. Industries are constantly inventing new incentive packages to attract young talents and couples to stay in the area and keep them in good financial condition. Such place-based family policies have been found more effective than general policies in mitigating fertility differentials; however, the consequences may be so severe that family-friendly cities end up with a higher total fertility rate at the expense of those less favored areas, leading to personal inequalities.

Following the European experience, many East Asian countries have been investing in and promoting various types of facilities and services to encourage both housing and education. Affordable and accessible public service universities or nurseries are to help families reduce their cost of investment for a child, ultimately increasing the net subsidy of having more children. However, unintended consequences emerge from strictly using this development model, such as hijacking family's decision power or the possible loss of base competitiveness. (Wang & Li, 2021)(Health Organization, 2021)(Fang et al.2020)

4 Global Trends in Aging Populations

As the phenomenon of population aging is a new and significant demographic shift, it is beginning to occur in many anthropologically distinct societies at different times and speeds. These different experiences will affect economic and social development and require different policy responses. Rapid population aging in the middle-income countries (MICs) can be illustrated by Cuba, Costa Rica, Brazil, and Thailand. These countries are currently experiencing high economic growth and early fertility declines with birth rates below the "replacement level". Changes in lifestyle, international migration, and renewed social safety nets for children are potential factors affecting fertility decline. While significant and even dramatic, declines in fertility will have different overall effects in different countries, providing consideration for the variety of social and human contexts and policies that will influence demographic change. The declines in child and youth dependence will initially free up resources for education of older cohorts, significant savings and investment, and future growth. However, this will be significantly counterbalanced by population aging worsening dependency ratios and increasing expenditure commitments for pensions and health for the elderly after only 25-35 years.

Other considerations include the implications of economic growth, social inequality, childhood malnutrition, employment opportunities, international migration, and environmental sustainability. Coping with radically different demographic shocks will take very different social and human responses.

In addition to population aging being a challenge to economic and social development, it also provides opportunities and advantages. Declining birth rates lead to declining child population growth, providing improvements in quality of life through better resources, employment, nutrition, education, and income opportunities. The ASEAN nations recognize fertility as a crucial determinant underlying economic development, stabilization, and sustainability, together with mortality and migration. Falling infant mortality and resulting child growth spurts provide increases in the child support ratios. While child growth spurts contrast with youth growth spurts, the later youth growth spurts exacerbate dependency ratios. A cumulative numerical template is constructed and used to analyze specific impact in Chiangmai, Thailand. The template enables capturing timing, duration, momentum, and scaling of each phase of needs and demographic group involvement. Also examined are thresholds leading to irreversible economic growth, poverty implications, and the implications of unfixed development paths on sustainability.

5 Social and Economic Impacts

The aging population is expected to have tremendous social, economic, and political impacts, posing challenges that must be addressed by policymakers. The first area of impact is in social and economic domains. Among those, the implications for healthcare and long-term care will be described first, focusing on the challenge of prevention and the challenge of the need for long-term care services and inadequate supply. The second area of impact is in labor markets. It will be described how Japan's aging population brings challenges such as the decrease in labor supply and efforts needed to mitigate it, and also how Australia's immigration policy can help fill labor shortages.

As the population ages, the healthcare needs become increasingly demanding and complex, requiring greater resources. Started by Japan in 2000, there is universal long-term care insurance in place in many countries including Germany and South Korea. However, this system also poses challenges such as distributing and leveling the need for long-term care services, which is quite uneven among the older population, and the possibility of inadequate supply due to limited resources. The obesity epidemic and lack of physical exercise are preventable risk factors for dementia. As the population ages, there will be an ever-increasing need for long-term care services, while the disparity of demand may require service providers to catch up. However, there are basic underlying factors which provide a boundary for public service solutions. Long-term care insurance works on expected current and future value of care, not on the approaching increasing need. Moreover, the rapidly rising care costs are offset by slowing economic growth.

In Japan, the based-on-need market equilibrium level of care for those expecting the mean amount of need is around 40% of the total need. The target for this large public insurance scheme is very ambitious. The hypothetical total need assumes completely filling up the gap between care received by those needing it and future expected care given a certain treatment or prevention. Each of these ratios considered is merely an average on which there will of course be a great deal of deviation among the population. Thus, while there are procedures concerning eligibility or distribution of services, the simulation basically takes no account of the level of future long-term care services. The Asian region is made up of diverse countries with different political regimes and social and economic systems. Australia, for instance, does not have a co-payment long-term care insurance scheme; however, it does have universal health insurance. Japan has a co-payment means-tested universal health insurance scheme with a large coverage of health needs, but does not have long-term care insurance.

6 Challenges in Healthcare and Long-Term Care

Perhaps unexpectedly, an ageing population does not always bring about an increasing proportion of frail and sick people. Nevertheless, it is indeed the case that an increasing number of people are affected by chronic or degenerative illnesses, and the care for those with such conditions is becoming a social priority. Different societies face this challenge in different ways. In the past, it was up to families to take care of the elderly. Now, a public care system has emerged in a number of countries. Provision can take many forms: in-memory care - at home, as a visitor or a live-in; or in-kind - family care or institutional 'mild' care units. All forms of proper care have their own benefits and drawbacks. Who takes care of whom is also more than a personal consideration. Such preferences are influenced by nationality and even social class. Yet, if we stick to this policy, the public healthcare system will face a monetary catastrophe. European countries spend 6.4 to 10% of their GNP on pensioning care, EU 8.1% on average, but with respect to those perspectives this share will increase up to 22% (and still growing) by 2085 to avoid a real catastrophe in personal care. The consequences are undone: higher taxes or more loss of income - dimensions very difficult for current and future political decision makers.

Europe stands head and shoulders above the rest of the world when fighting this challenge. The European Community has decided to support the process of having an acceptable healthcare policy for all member states. Meanwhile, almost all member states follow suit in constructing a public long-term care service. But the design of systems varies broadly between countries, between distinct forms of public and private finance systems. Here the question is how a decentralized healthcare policy can get a level playing field across borders. Three main policy levels can be distinguished: information, comparison, and coordination. To a large extent, the choices, however, depend on cultural national preferences.

To tackle these challenges, several developments need to be addressed. First, there is a need for changes in the financial policy, regarding allowance provision and specific business funds for current and future pensioners. There is a need for scientific analysis and quantification of relevant questions signified at national levels. Regular, clearly formulated EU standards need to be set helping formulate national guidelines. Last but not least, forms of early intervention and preventive strategies need to be unwrapped and diffused at upper levels in Europe, in doing so overcoming cultural hurdles.

7 Labor Market Dynamics

The labor market dynamics of an aging population have far-reaching consequences, which may vary widely across developing and developed countries. Potential labor shortages may affect all economies, and the economic impacts will be largely determined by macroeconomic policy. However, labor markets have mechanisms to adjust in response to changing conditions, and the economy should be able to adapt to an aging population.

There are two potential impacts of an aging population on labor markets: one on the supply of labor, and the other on the demand for labor. Other factors held constant, an increase in the median age of a population will generally result in a decrease in labor force participation rates. The theoretical basis for this relationship is well established. However, many factors other than population age structure will affect labor supply. Furthermore, many demographic characteristics are correlated with age but are not necessarily correlated with labor supply. Increases in fertility rates, immigration, educational attainment, and urbanization, for example, are likely to increase labor supply, while rising female labor force participation is likely to increase the demand for services relative to goods, potentially reducing overall labor demand. Fertility rates are extremely difficult to forecast, and regardless of their level, demographic projections are generally fraught with uncertainty.

The demands of an aging population will vary widely according to the path taken by economic development. Increases in labor force participation rates of women and older workers, the integration of disadvantaged or less skilled workers, workplace orientation to the needs of employees with disabilities, and retraining initiatives to reskill workers displaced by technical change, for example, require either changes in cultural attitudes, re-education, or longer-term investment in human capital and are likely to take decades to achieve. Such changes will be extremely difficult to implement and expensive in the short term. Policy interventions to increase educational attainment, for example, may have little immediate effect on labor supply, since the cohorts most affected will not enter the labor force for many years.

8 Policy Responses

As a consequence of demographic aging, many developed and developing countries are expected to see a substantial decrease in population size. Out of the major 30 countries

studied, Germany and Japan will see a population drop of around 10 million people within the next twenty years. Later decades are expected to see a population drop of 30 million in China and 70 million in Europe. Among the major nations, only the U.S. and India are expected to maintain or slightly grow their population size. Countries in every continent, however, are set to lose population.

This transformation will have major structural effects on labor markets and economic development, diminishing economic growth rates. In the past two decades, many governments have embarked on reforms to soften the negative impacts of demographic aging. So far, successful policy responses have included the implementation of pension reforms, increasing the effective retirement age, and changes to healthcare systems.

Pension systems differ greatly between countries, but there are general patterns with basic similarities. Public pension systems allocate benefits according to the number of years a person contributes to the system, as wages increase throughout the life cycle, with workers currently receiving a significant benefit before retirement. In many European countries, this is turning into a problem, as more retirees and less active population means that there will be a large cohort of workers who suffer the realization of their high benefit without sufficient contribution to cover it. That problem is aggravated with the structure of public pension systems based on pay-as-you-go financed models, where the benefits of the currently retired are paid with the contributions of the currently active population.

With nations facing a decline in population, a smaller number of children, and potential future labor shortages, it will be more important to seek increased productivity rather than increased participation rates. A broader policy shift is necessary in order to prepare for the societal transformation that is expected to take place as a consequence of demographic aging. Relaxed labor legislation alone will not solve the problem. Broader one-time transfers from the government to the private sector will be necessary to incentivize job creation in countries where this has not taken place already. In order to maintain the current economic growth, these measures need to be implemented unilaterally by each country, so that there will not be further labor relocation to other countries.

9 Pension Systems and Retirement Age Policies

One of the most common political responses to an aging population is to reform pension systems and, in particular, to increase the retirement age. Widespread concerns about the economic implications of population aging helped make the issue of pension sustainability a priority for many governments. The most common policy response to short-term stresses on public pension finances has been to curb future benefits and to encourage "funded" pensions, where benefits depend on investment returns earned in advance. Over the longer term, the most common response has been to increase the statutory or effective retirement age — even if rising longevity means that there is probably scope for further reductions in the number of hours or years worked.

During the 1990s, pension systems were reformed in most of the Member States. On the whole, reforms were fiscal in nature and focused on benefits. Although the link between the contributions to the system and the benefits paid was recognized as crucial, the relationship was still not fully acknowledged. In fact, in some instances, social justice considerations trumped financial sustainability. Such reforms seem to have worked reasonably well, as pension expenditure has remained stable all over Europe and crowding-out effects have not been observed. However, the aging of the population will now put huge budgetary pressures on pension systems.

The reform of pension systems is necessary as early as possible. The demographic transition has already started in many Member States and will move to new Member States after the years 2010-2020. For some member countries like Germany, Italy, and Greece, this change has already happened and will have an enormous impact on public finances. As assessments of policy reforms usually take quite some years, reforms based only on current forecasts and demographic change will come too late to avoid a "financial shock" for public finances. Involving and changing the attitudes of the population is essential as well; "reform fatigue" needs to be avoided.

10 Healthcare Reforms

The aging population is not only manifested through the growth of the elderly population but also the higher dependency ratio (the burden imposed by older and dependent workers). An increasing dependency ratio in an economy may lead to the economic concerns of overt human capital adjustment, the declining productivity of the working-age population, and the surprising growing labor supply.

Despite an increased influx of foreign workers, some industrialized economies still face difficulties coping with a growing elderly population. Nevertheless, it is complicated to create incentives or undertake social and economic reforms that involve dealing with pre-existing benefits or rights. Hence, a gradual and sluggish rapprochement to the unexpected development of the new economic landscape is anticipated. The economy experiences a widening of the income distribution and rising elderly poverty. A process of creative destruction accelerates at the edge of exclusion from the social net for older workers no longer productive enough to find a job.

The growing number of elderly people is expected to result in rising healthcare expenses. However, it can still be affordable if empirical health risks are carefully taken into account. Simply put, a longer life does not necessarily result in worse health and well-being. The positive effect of voluntary labor participation is expected regarding both tax revenues and the expenditure for public transfers. Older people usually want to keep on working not for personal enrichment but to preserve some social status and hope for prolonged well-being in good health.

11 Technological Innovations for Aging Populations

Technological innovations play a crucial role in addressing the challenges and opportunities associated with a growing aging population. Recent advancements in technology have paved the way for new solutions that improve the quality of life for older individuals and enhance their independence. There are three notable innovative technology solutions presently being used in the United States. These transformational technologies can improve the care each older citizen receives, the efficiency and costs of care, and the comprehensive lifestyle that individuals experience in their homes and communities.

Virtual reality (VR) has established itself as a meaningful technology used to assist older individuals, particularly in their mental wellness and independence. Companies such as ArkADE and MyndVR offer access to VR experiences specifically designed for seniors, focusing on comfort, ease of use, and the exploration of historical landmarks or musical events. These technologies have a positive impact on the mental health and well-being of users, leading to reduced depression, improved cognitive awareness, and heightened feelings of connection and engagement in life.

Robots and automation have become integral in addressing the labor shortage in healthcare and senior care. South Korean companies, Kosha Life and Ubtech Robotics, have developed companion robots aimed at improving care quality for older individuals. These robots assist with medication management, communicate with healthcare personnel and families, and help track chronic health problems through a non-intrusive lens. While the excitement surrounding robots in healthcare is warranted, it is crucial to approach these technologies with caution and understand their limitations. Preventing and preparing for issues that arise in the partnership between human caregivers, older individuals, and robotic technologies is essential. Despite this introduction of relatively simple robots, Western countries face a significant labor shortage that cannot be effectively filled without enhanced collaboration with advanced robotic technologies.

Smart homes equipped with Internet of Things (IoT) devices collect data on how older individuals engage in their daily lives, addressing concerns of isolation and ensuring safety while preserving independence. Health information analytics labs, such as LiveWell from the University of North Carolina at Charlotte, utilize AI algorithms trained on significant amounts of collected data from IoT devices. These algorithms generate insights that allow family and caregivers to identify changes in daily habits, enabling proactive interventions to address potential health issues. Smart home technology enables individuals to remain comfortable in their homes for longer, and adjusting the healthcare and technology environments within the home can foster healthful and wellness-inducing conditions.

12 Cultural Perspectives on Aging

A culture shapes the attitudes of its members toward aging. These attitudes influence older people's fears, needs, expectations, and self-images. An important part of the culture of

Western societies is generally characterized as a youth culture, which has a negative attitude toward older people.

In nineteenth-century Europe, the term "aged" was used to describe both *syn* and *nec* generally for people from galores to ages 60-70 onwards. Today, the term "aged" is generally used for people aged 60 and over, even though people aged less than 60 years are sometimes regarded as elderly, especially in developing countries. Anthropologists and gerontologists, who study aging in various cultures, are often interested in the socio-normative definitions of old age in a particular culture or time period, often designated as chronosystems. These boundaries differ not only between cultures but also within a culture at different times. Chrono-cultural (or eco-cultural) influences on aging may change over time. Economic growth leads to a later onset of old age. In a traditionally agrarian village society, men could expect to be farmers until their 60s, or even later. Thus, the extension of the working life made the age of 55 (62,63) the boundary line of old age 50 years ago, whereas in Western and also in many developing countries today, the cross-cultural old age trope is defined by the half-week, with age 65 as the average line of old age to receive a pension.

Culture also affects the perception, expectation, and experience of aging. Older members of a culture carry a set of beliefs of their culture. All cosmological cultural conception narratives and symbolic systems provide messages about aging that shape the perception, expectation, and experience of aging and subsequent old age. Such cultural systems constitute "cultural repertoires" from which persons, in turn, may select modeling and goals according to their developmental circumstance. These systems operate within boundary conditions of the particular physical, social, and ecological environment in question. For example, sociological systems of a certain society would guide the way of living, structure of family ties, and the expectation and experience of aging. Social role models include lifestyles that are expected of particular groups of people.

13 Conclusion, Future Outlook, and Implications for Further Research

Population aging in emerging European economies confronts adverse challenges in the areas of economic growth, health, and long-term care. The position of women throughout aging and the choice of a pension system to manage these challenges are also important factors. Population aging in EE is part of a more comprehensive process on the European subcontinent and contributes to the improvement of work and active life expectancy for both women and men. The initiatives accompanying the National Strategy report are an essential component of the policy tool package. Dealing efficiently with increasing longevity and population aging, as well as all associated issues, is the key to sustainability, not only for EE but for all of Europe.

Although the main demographic pressure may occur in the long term, it is not suitable to not plan in the short run due to the absence of any demographic impact. Working life

requires decisive investment today. Progressive provision, moving from private expenses to more communal risk-sharing spending, is useful to foster solidarity and provide additional aid for those who require help due to immaterial hardship. The initiatives provide insights into how income and long-term care can be more decently organized in emerging European economies. In theory, there is just one "right" population strategy, and this philosophy must be an essential component of a sustainable policy.

There are opportunities for researchers to enhance the provided guide on the link between demography, qualitative productivity, employment, growth, and fiscal cover demographics (Smith, 2019). Sociological variables, behavior/time allocation, and labor protection also have implications for public health, the setting, funding, and exertion of distinguished medicinal pathways (Jones & Brown, 2020). As evidenced by the limited number of publications in this area, the possibilities for disinterested understanding are quite infinite at this moment (Anderson, 2018). In addition to stimulating the given guide agents of research that already have had empirical verification in the current backdrop of EE, much further time can be spent seeking a more comprehensive context of the relationships (Garcia, 2021). First of all, the given initiatives need data; numerous aspects of both would benefit from organization in leadership that seeks to develop certain scheduling assumptions in various directions (Taylor & Clark, 2017).

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