Exploiting Demographic Age Structures to Maximize Economic Growth

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ABSTRACT

The evolving demographics of a nation are inextricably linked with its economic growth. A crucial aspect of a nation's demographics is its age structure, which is defined by the share of certain ages of the population. Differing age structures lead to different economic outcomes, which range from strain on a country's institutions to an increase in economic opportunity due to a higher share of economically active individuals. Age structures are often influenced highly by the phenomenon known as a boom generation, where many children are born in a specific moment in time within a nation. Policymakers should be aware of the age structure of the nation to propose solutions aimed at maximizing economic growth or minimizing losses. Regions such as East Asia, Southeast Asia, and the Middle East/North Africa have uniquely different age demographics, and this paper aims to propose policies that would align with their respective age structure.

INTRODUCTION

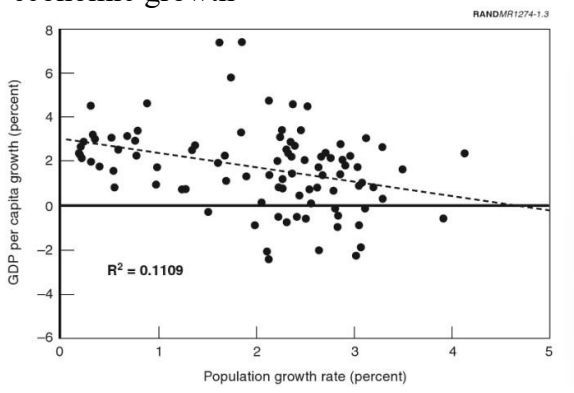
The question of whether economic growth coincides with population growth has been a contentious issue that has been approached by many economists in different ways. While some believe that population growth causes economic growth, some believe that it hinders it. The latter have been labelled as purveyors of a "pessimistic theory," which consists of arguments downstream from Malthusian economic theory. The critical idea of this theory suggests that population growth outpaces the total food supply of a nation, leading to a cycle of famines which causes population stagnation. Believers of this theory have postulated that the rapid population growth of the past one hundred years will lead to a large strain on fixed resources, an increase in government investment targeted at the needs of a population, and a lower standard of living. However, as the twentieth century has shown with its rapid population growth, the food supply is

rather stable in many populated areas of the world. This was due to many technological advancements and the stimulation for innovation in industries related to food. An example of an industry spurred by this increase in population would be agriculture. The Green Revolution has greatly increased the crop yield in developed nations and has required only a small percentage more of previously unused farmland to do so. Out of these discoveries the "optimistic theory" of population growth and economic growth emerged, speculating that the impulse of innovation due to strain on natural resources would cause a boom in the economy. However, most economists now believe in a "neutral theory," which states that economic growth is driven by a multitude of other factors, and that population growth alone cannot significantly predict economic growth but can be used as an asset to policymakers for maximizing economic growth.

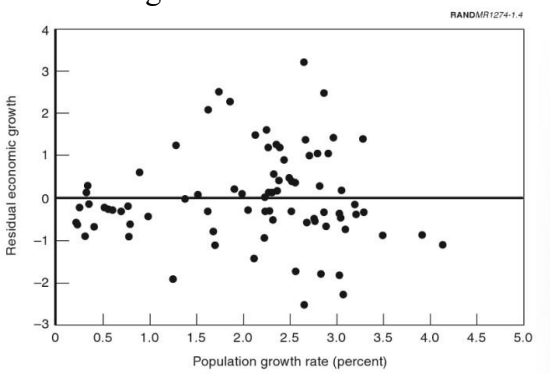
Other factors that contribute to economic growth include country size, education level, openness to trade, and quality of institutions, and when these are held fixed across all countries it is evident in Figure 1 that population growth alone is not a significant driver of economic growth.

Figure 1:

Population growth rate's effect on GDP per capita including other variables related to economic growth



Population growth rate's effect on economic growth holding other variables related to economic growth fixed



One aspect of population growth that can be exploited by policymakers to drive economic growth is the evolving age structure of a nation. A simplified age structure can be comprised of three categories of people including young, middle aged, and elderly, and it measures the total share of each of these age groups in a nation. Since each age group interacts differently with the labor market, the education system, and the healthcare industry, the evolving age dividends affect the amount of economic stress that is placed on certain institutions in a country. By understanding how the specific categories of age dividends interact with a nation's institutions, certain policy recommendations can be given to maximize economic potential and ultimately boost economic growth. The following sections will explore how different age structures affect a nation economically, and then will provide case studies of three regions/nations with radically different age structures and provide solutions to the exploitation of their age structures through policy recommendations.

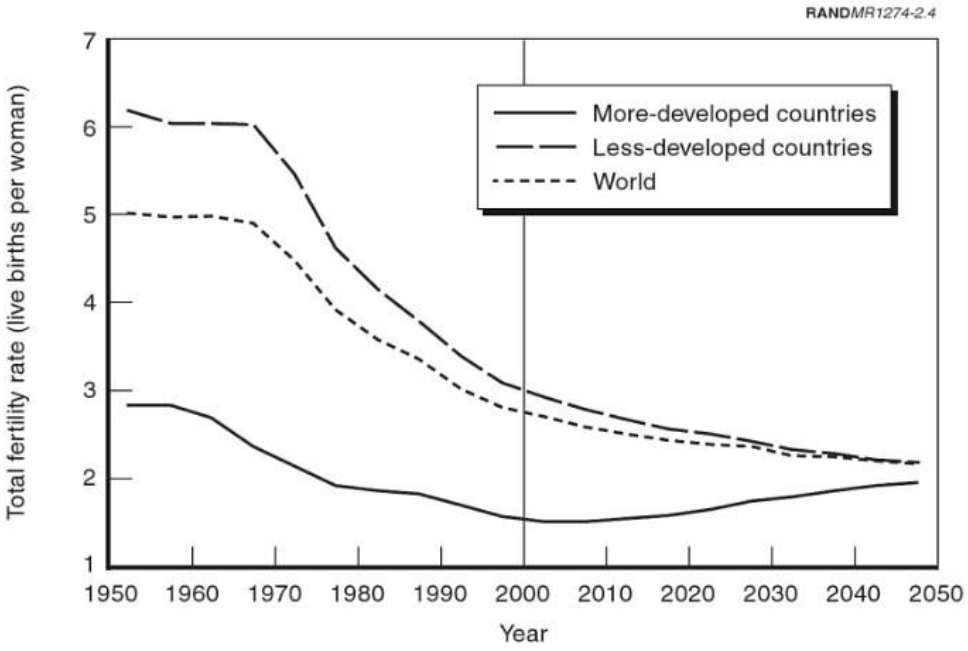
BACKGROUND – BOOM GENERATIONS

Each nation has a unique age structure defined by a multitude of things including historical events, previous policies, involvement in warfare, and many others. This often causes the disruption of a balanced age structure, meaning the share of their population is not distributed equally across their age. The most common cause of this is the phenomena of the "boom generation." This means that during a moment of time within a nation, more children are born than usual which creates a demographic wave as the more populous boom generation grows older and passes through the three major categories of age. Boom generations can be caused by many things, but the most recent and commonly cited example in developed countries like the US and Europe is the increase in births after the second world war because of an increased optimism for economic growth. More people felt economically sound during this post-war period

and gave them an incentive to have more kids as it was affordable. In underdeveloped countries, the most important cause of the boom generation after 1945 was the introduction of modern medical technology. This drastically decreased the infant mortality rate, causing a sharp increase in fertility for a brief period. Over time, the fertility rate drops due to the total allocation of medical technology across the country. This lag period between the initial drop of infant mortality and the subsequent fall of the fertility rate causes a boom generation. In figure 3, it is shown that the fertility rate dropped among less developed countries in great numbers since 1950 whereas only a small change occurred among more developed countries.

Figure 2

Fertility Rate Over Time Between More Developed Countries and Less Developed Countries



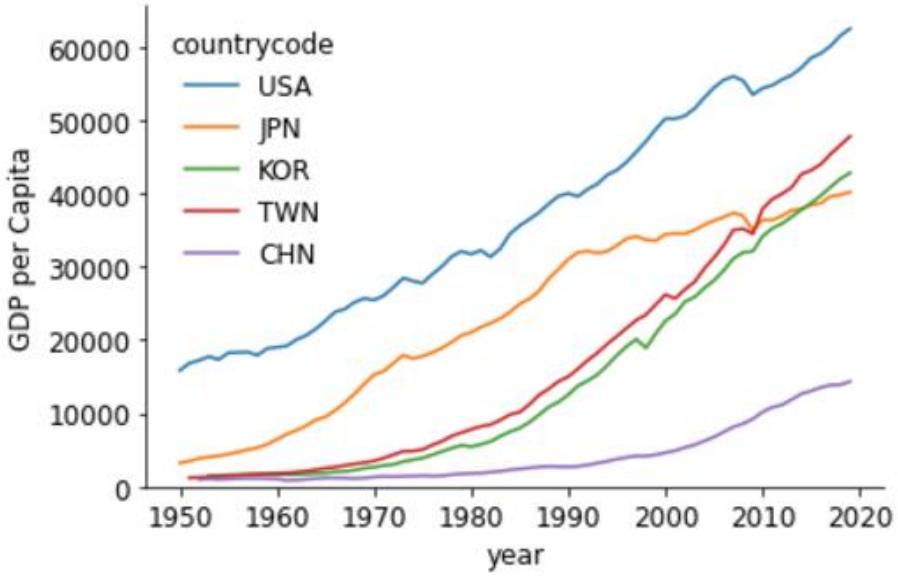
BACKGROUND – THE AGE DIVIDEND MECHANISM

Nations with unbalanced age structures often face moments of economic opportunity or decline, depending on the shape of their age structure. Countries with low dependency ratios face the former whereas countries with high dependency ratios face the latter. A dependency ratio indicates the percentage of the population that is not employed in the work force and depends on institutions to support them. When countries have a high share of young or elderly people, the dependency ratio is high. In the case where a country has a larger share of the young population, there will be greater strain on the education system. Therefore, more investments in education are often needed to account for the increase in students. When a nation is in this stage, there is much potential for creation of long-term economic growth. The more educated the boom generation, the greater is their human capital, which will maximize the potential for innovation when this generation enters the working age share. In the case where a country has a boom generation in its elderly stage, more strain is placed on the healthcare industry and government welfare programs. This stage often is associated with a slowing of the GDP growth rate and is most keenly felt in the region of East Asia. Policy makers facing an increased share in the elderly population must channel their focus on healthcare and retirement income to accommodate for the increased size of the elderly dependency ratio. Before a nation enters this stage however, they often see rapid economic growth since the boom generation enters the workforce. Countries like Japan and Korea saw rapid economic growth when its boom generation entered the workforce around the last three decades of the century. In a paper written by Rand Corporation, it states that the policy makers' successful exploitation of this massive increase in the workforce was "responsible for one third of East Asia's fast economic growth since World War Two" (Bloom).

Figure 3 showcases GDP per capita among several East Asian countries compared to the GDP per capita of the United States.

Figure 3

GDP Growth Rates in East Asian Countries
and the United States



A key insight to take away from Figure 3 is that China's growth rate was not as fast as countries like Japan, South Korea, and Taiwan. As stated earlier, population growth itself does not cause economic growth, and similarly, having a boom generation enter the working age can only lead to maximized economic growth if policymakers successfully exploit this demographic wave and if the economic structure of a nation is set up to allow rapid economic growth. China still has a massive base of citizens employed in agriculture, which hinders its GDP per capita growth. The most important action for policy makers to take upon a boom generation entering the work force is to increase labor market flexibility, focus on the creation of more jobs due to the increased size of the working age population, and to encourage savings and investments. This is a critical moment in a nation's economic lifespan and failure to successfully exploit the

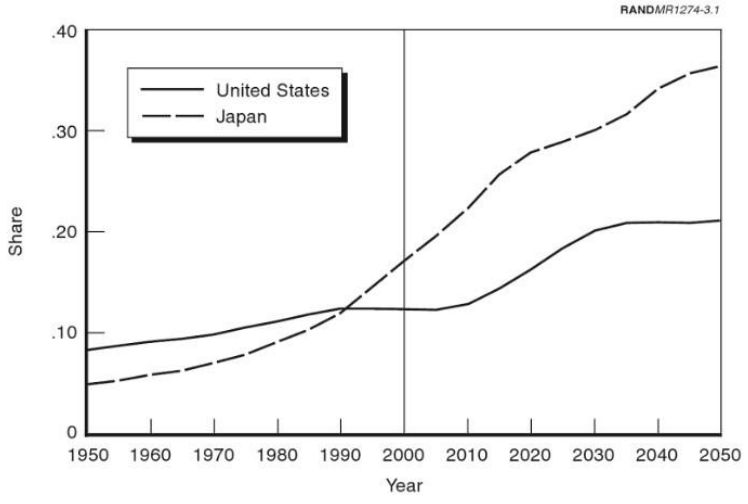
increase of the working age share can lead to a higher unemployment ratio, since more jobs need to be created to account for the increased size of the economically active population. Similarly, failure to account for an increased share in the young age can lead to strains on the education system and an unmaximized potential for the generation. And finally, the consequences of failing to account for a large elderly population leads to strain on the healthcare system and a decreased standard of living of the elderly due to lower retirement benefits.

CASE STUDY – JAPAN

One country in particular that has a larger elderly population is Japan. Similar to the United States, they experienced a boom generation right after the conclusion of the Second World War. The boom generation is now in its elderly stage, and the fertility rate in Japan is among the lowest in the world. Furthermore, the average age of Japan has reached around forty and "40% of elderly population lives alone with no extended family to provide for them" (Bloom) which ultimately results in a strain on government welfare and retirement income. Figure 4 represents the projected share of Japan's elderly population compared to the United States.

Figure 4

Japan vs. USA Share of Elderly

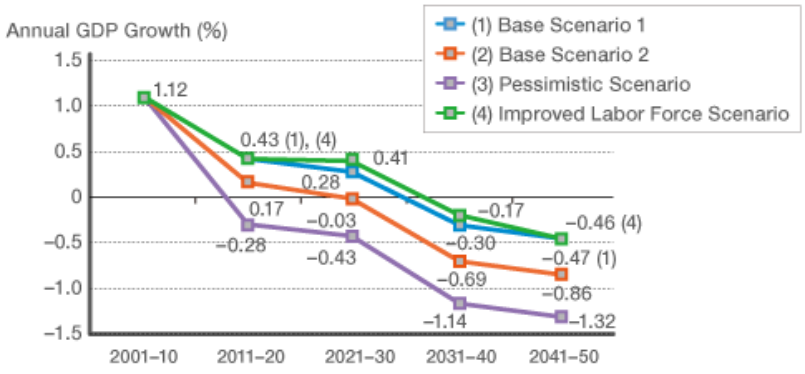


Since both countries experienced a boom generation around the same time, the share of elderly among both is expected to increase. However, in the United States, the prevalence of immigration among working age individuals contributes to a lower projected growth of the share of the elderly population compared to Japan who has far less immigration.

Japan's policymakers must prepare for this massive influx of the elderly population by designing policies that will account for the strain on the healthcare industry and government welfare. One proposed policy solution would be to expand the contribution to the National Pension system to age 65 instead of 60. The greater number of pensions the government receives from working age citizens, the more welfare they can give to the elderly population who does not have family members to support them financially. An increase in taxes could also be a suitable solution. Another thing Japan's policymakers must account for is the oncoming strain on the healthcare system. Since healthcare expenditure per capita is three times higher for elderly than non-elderly, Japan will have to focus its financial resources on healthcare. Japan's GDP growth rate is projected to decrease in all possible scenarios due to their boom generation entering the elderly stage as shown in Figure 5.

Figure 5

Projected Scenarios for GDP Growth Rate of Japan



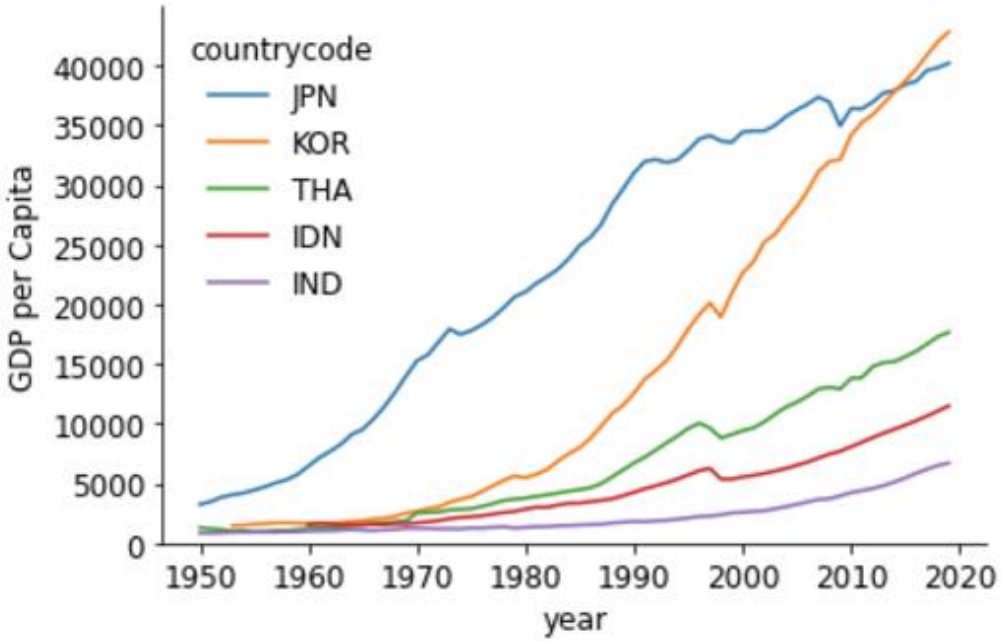
All four projected scenarios indicate a decrease in the growth rate, so the goal of Japan's economy would be to minimize its losses.

CASE STUDY – SOUTHEAST ASIA

In many countries located in Southeast Asia, they currently have their boom generation in the working age demographic. This was because they lagged behind East Asia in terms of when their boom generation started because medical technology took longer to reach these countries after World War Two. Countries like India, Bangladesh, Thailand, Indonesia, and others of this region are experiencing their prime demographic dividend and must focus on the economic maximization of this increased share of working age individuals. One policy recommendation, that has been adopted by a country like India, would be the increase in investments in important industries to expand the labor market. Some industries that India has heavily invested in are science and technology, and this mixed with their previous investment in educating the boom generation when it was in its youth has yielded massive economic growth. The increase in human capital mixed with their job creation, labor market flexibility, and size has allowed them to advance their economy immensely. Another policy recommendation for these Southeast Asian countries would be to incentivize people to save and to efficiently allocate this increase in private savings. While this would require macroeconomic policy reform, it is a crucial step to boost investment across all industries. Another policy recommendation would be an increased focus on foreign investment and an increased openness to free trade. Figure 6 showcases the GDP per capita among Southeast Asian countries compared to East Asian countries. The fertility lag is noticeable, and we see a general upward trend starting roughly in 1990 for India, Indonesia, and Thailand.

Figure 6

GDP Per Capita for Southeast Asian Countries
vs. East Asian Countries



CASE STUDY – MIDDLE EAST/NORTH AFRICA

Many countries within the Middle East/North Africa (MENA) region are in the early stages of their demographic dividend, meaning the greatest share of their population is young people. The boom generation is in its early stages which means that governments within this region should be focusing on investments in education to accumulate high human capital for when the generation enters the workforce. Some nations, like Syria, still have high fertility rates which would hinder the creation of a boom generation. A policy recommendation for a country like Syria would be to decrease the fertility rate to spawn a boom generation that can be invested in and exploited by policy makers. Some nations in the middle east in its early stages have failed to increase their labor flexibility which has caused unemployment. For example, in Saudi Arabia

some labor laws discourage private companies from hiring Saudi nations due to difficulty of dismissal. Inflexibilities like these in the labor market can hinder a smooth transfer of the boom generation entering the workforce. So, to avoid this, labor laws that increase flexibility should be proposed.

CONCLUSION

All these nations face an economic potential of some sort. Whether this potential is based on economic growth or economic decline is dependent on their age structure that is brought about by the demographic phenomenon known as a boom generation. Nations around the world must be aware of their age structure as differing age structures place more strain on different institutions. Economic policy should be aimed at either maximizing opportunities for these boom generations or minimizing their losses for when these boom generations contribute to high dependency ratios. However, this can only be attainable if the correct economic structures are in place. Many obstacles may stand in the way of developing nations, like government corruption and warfare, but economic opportunity always exists in pivotal moments and policy makers must always be aware of when these moments occur.

Works Cited

Bloom, David E. Canning, David. Sevilla, Jaypee. *The Demographic Dividend: A New Perspective on the Economic Consequences of Population Change.* Rand Corporation. USA, 2003.

Yasutake, Tango. “Global Japan: 2050 Simulations and Strateges.” *Nippon*. Nov 14. 2012. Web. 10 Dec. 2024.