ONE

Introduction

> All the world's a stage, and all the men and women merely players; they have their exits and their entrances, and one man in his time plays many parts, his acts being seven ages.
>
> William Shakespeare
> From "As You Like It"

Shakespeare's seven ages of life begin with youth and progress through old age, which he describes as a period of second childhood when we live in oblivion, our senses largely gone. In Shakespeare's day in the late sixteenth and early seventeenth centuries, few people survived to an age we would today consider the seventh stage of life, as life expectancy at birth would have been between 25 and 30 years. Of those who made it to old age, many had to continue working until shortly before their death in order to meet their basic needs. Today, life expectancy is three times that of Shakespeare's era in the developed world and is nearing that in many of the developing countries. And when most people reach the final stage of their lifetimes today, what we now call retirement, their senses are still vitally intact and their lives are not all that different than those they lived before crossing into old age. But as our life expectancies have lengthened, our societies have grown older. As we look to the future, we expect them to grow older still.

A great deal has been written in recent years about aging populations in the developed economies of the world, and how the phenomenon will affect various facets of public and private life. Much of the discussion about population aging has focused on retirement systems. One concern is that the number of retirees will soon overwhelm retirement systems, which will then be unable to deliver on retirees' expectations. Another concern is that the working populations that support retirement systems will be so overtaxed that productivity will fall, bringing the history of steadily improving living standards since World War II to an abrupt halt.

This book explores the phenomenon of population aging, the issues it raises, and what our societies have been doing and might do about it. In telling the story, we look beyond the developed economies because populations are also aging in the developing economies, albeit more slowly than their richer counterparts. And some of the potential solutions to dealing with population aging would require more economic interaction between developed and developing economies.

We believe this analysis of population aging and its implications is different from many earlier studies, because it broadens the context of the discussion considerably beyond retirement system financing. This said, we devote three chapters to an analysis of pensions systems around the world, in recognition of their importance in the larger context of the aging issue. Beyond the discussion about pensions, the essence of this analysis is that population aging in the developed economies will present a relatively immediate problem for many of those macroeconomies. In many countries, policymakers will have to find ways to maintain or enlarge their workforces or otherwise increase productivity or, alternatively, face the dismal prospect of allocating a declining standard of living between the working-age and retiree segments of their societies.

Since the end of World War II, all of the developed economies have enjoyed steady economic growth and improvements in living standards. This remarkable economic success story has been helped along by improved health and education systems, new and better physical infrastructure, technology, and the relatively peaceful cross-national order that our governments have been able to establish and maintain. One cannot ignore, however, the role growing labor forces have played in this prosperity. In virtually every developed economy in the world today, the share of the total population now engaged in workforce activities is larger than it was in 1950, 1960, or over most of the last half century.

We believe that a half century of steadily improving standards of living has created an appetite in most of the developed world to continue the upward mobility. Indeed, any review of the five- to ten-year economic projections by currently sitting governments documents the expectation that these economies will continue to grow. The challenge for a number of governments is that their labor forces will start contracting during this decade and will continue doing so over much of the next quarter century and beyond. In most developed economies, even if the labor force holds steady in this decade, the contraction will likely occur during the next one. Policymakers in these societies may not be able to deliver on anticipated economic growth and improving living standards in the face of shrinking labor pools.

The issues related to population aging and its economic impact go beyond simply keeping the elderly out of poverty – that is affordable in the rich, developed world, despite the expected "graying" of the population. Instead, the issue is of stagnant or falling standards of living that could affect all segments of society in the developed world. If economic growth is brought to a halt by the changing demographic composition, pension policy is naturally one of the primary mechanisms for allocating the disappointing outcome across various segments of society. It is within this context that much of the angst over pension policy in the developed world is framed today.

The worry that our current retirement systems will demand taxes that are too high articulates a concern that workers' disposable income levels will fall or not keep appreciably abreast of improving worker productivity. If that happens, then workers will be producing more but receiving less, in that their productivity will not purchase the same increase in standards of living enjoyed by their parents. The worry that pension benefits will have to be reduced articulates the concern that retirees' disposable income levels will fall, potentially leaving future generations of our elderly more vulnerable to income insecurity.

Current labor force participation patterns in developed economies are the result of many changes over the last several decades. One of the most dramatic changes has been the retirement phenomenon itself. Fifty years ago in many of the developed economies, many more people worked well into their 60s than do today. Over this period, older people have become healthier and their life expectancies have increased dramatically. At the same time, the modernization of production techniques in manufacturing and the shift toward service-oriented work have reduced the strenuous nature of work for most people. If work is becoming less strenuous and people's ability to do it is improving, why are more workers retiring in their late 50s or early 60s?

The simple answer is that many of our societies have had a surplus of labor in recent decades. This was the result of two phenomena. The first was linked to a surge in fertility rates in many developed countries after World War II. Some 20 years or so later, these baby boomers began entering the workforces in their respective countries. The second phenomenon, which occurred about the same time in many countries, was that women entered the workforce in much larger numbers than ever before and often remained employed even after marrying and having children.

The duration of the baby booms varied from country to country, but by the mid 1960s the phenomenon had pretty much run its course across the developed economies of the world. The baby boom generations, which were larger than prior or subsequent generations, along with the different labor force patterns of women, swelled our workforces from around 1970 or so up until now. But those baby boom children are about to become the "elder boom" of the twenty-first century. In most countries, the lower fertility rates after the baby boom mean that there will soon be more workers exiting the workforce than entering it. The labor surplus of the last quarter of the twentieth-century is about to become history, one that we are not likely to repeat any time soon, at least not in any of the developed economies. A few countries have maintained combined fertility rates and immigration rates that suggest continued labor force growth over at least the next couple of decades, but even in these cases, the growth will be much slower than it was in the past.

Some people conclude we must radically change our retirement systems to cope with the new realities. The suggestions span a broad range and combination of options. In some cases, the debate focuses on whether our pensions should be organized as defined benefit or defined contribution arrangements. In others, it is about whether we should continue to support pay-as-you-go (pay-go) funding, where current workers' contributions are used to pay current retirees' benefits, or whether we should pre-fund plans by accumulating workers' contributions during their careers in order to diminish the burden on future workers' earnings. In yet other cases, the consideration is more about how we could modify the operating parameters of existing systems to bring them into financial balance without changing any of their basic structural characteristics.

We explore virtually all of these options in the analysis that follows but do not reach a specific conclusion about the best way for any particular country to deal with its demographic situation. We favor funding pensions to a much greater extent than they have generally been funded in the past, but we also explore systems in which pension funding has been more of an impression than a reality. We are largely neutral between the organization of plans along the defined benefit and defined contribution spectrums, although we explore the respective risks with the alternative systems. Our analysis supports a conclusion that to the extent policymakers are going to modify their retirement systems in ways that shift greater risks to individuals, these risks should fall more heavily on higher level earners.

In the final analysis, we believe that many societies will face a tradeoff between labor supply and standards of living. Societies that are determined to maintain or even improve their current standards of living will need to entice more people into the workforce and convince them to stay longer. This means looking at the incentives that now encourage people to retire at ages where they still are in good health and maintain the potential productive capacity to make a significant economic contribution to the national commonweal.

There are also other groups that should not be overlooked in attempts to increase workforce participation. We note that the rates at which various societies move their youth through their education systems and into the workforce vary widely. We do not advocate a return to the days of child labor, but there may be economic efficiency gains for some countries in streamlining their education systems, so young adults enter the workforce sooner rather than later. We also note that there are widespread variations in the labor force participation rates of women. We acknowledge the complexity of the situation and understand that expecting more women to join the labor force while also hoping to increase fertility rates may be impossible. The puzzle here is that countries like Italy and Spain have relatively low female labor force participation rates – and the lowest fertility rates in the developed world – while the United States, which has relatively high female labor force participation rates, has the highest fertility rate in the developed world. The answer to this puzzle is not simply that the United States has relatively more immigrants or minorities. Even among its native born white female population, the U.S. fertility rate is abnormally high by developed world standards.

The best option for policymakers may be to organize their pension systems so they continue to offer older people real income protection when they can no longer work, being particularly careful to protect the welfare of those most economically vulnerable – those people who have lived their whole lives with low incomes. Beyond this, our retirement systems should employ strong incentives to encourage workers to continue working throughout their productive older years rather than withdrawing from the workforce at the early ages they do now. There are a number of different ways to achieve this end, as we explore in the concluding chapter of the discussion.

There are clearly benefits from societies putting away more for the future, but the specific mechanisms for doing so must be considered carefully. Utilization of funding also should be a central concern. Added pension funding should increase savings if it is to have a real effect on the macroeconomic outcomes, and increased savings can provide the greatest benefit over time if those savings are directed to investment opportunities that provide market returns. In economies where labor forces are contracting, added investment in the local economy may not be optimal. Therefore, it is important for state pension sponsors to consider the world marketplace and invest wherever expected returns are higher. To this end, policymakers in many countries will need to eliminate current inherent or specific legislative biases against cross-national investment of pension assets. In a short-term perspective, adopting new investment policies that appear to export jobs to developing economies may not be politically popular. But if labor force contraction in the longer term is inevitable and it means that domestic labor forces cannot satisfy the appetite of consumers, then being able to realize returns on assets invested outside the economy may be the most effective long-term way to augment domestic economic production. Policymakers also need to be mindful of the risks involved in different funding strategies and seek to keep these under control.

If the developed economies of the world are to become the investment engine moving poorer countries up the development ladder, policymakers need to work through organizations like the World Bank and the United Nations to make sure their capital can be utilized efficiently. The challenge in achieving this goal may be best summed up by quoting from a recent cover story in *Business Week* magazine focusing on the potential high-technology workforce evolving in India. Besides extolling India's promise as a market with tremendous potential labor resources, the article noted:

> For all its R&D labs, India remains visibly Third World. IT service exports employ less than 1% of the workforce. Per-capita income is just $460, and 300 million Indians subsist on $1 a day or less. Lethargic courts can take 20 years to resolve contract disputes. And what pass for highways in Bombay are choked, crumbling roads lined with slums, garbage heaps, and homeless migrants sleeping on bare pavement. More than a third of India's 1 billion citizens are illiterate, and just 60% of homes have electricity. Most bureaucracies are bloated, corrupt, and dysfunctional. The government's 10% budget deficit is alarming. Tensions between Hindus and Muslims always seem poised to explode, and the risk of war with nuclear-armed Pakistan is ever-present.[1]

[1] Manjeet Kripalani, Pete Engardio, and Steve Hamm, "The Rise of India," *Business Week* (December 8, 2003), p. 70.

If the developing countries can organize themselves to work with the developed economies of the world, there is a tremendous potential for mutual benefit. It is possible that dramatically improved standards of living and working conditions in India, China, elsewhere in developing Asia, across Africa, and in the Middle-East could simultaneously prove to be the real insurance against default by the retirement systems in the developed world.

TWO

Population Developments in a Global Context

There is a growing awareness around the world that national populations are aging. This phenomenon, which was not recognized until the later part of the twentieth century, is sweeping the world at different rates and for a variety of reasons. By itself, the fact that a particular country's population is aging would be of little consequence. In a world with increasing economic ties across borders, the aging phenomenon is likely to have significantly different implications from country to country, which will be heightened by differences in economic and governmental structures. Before we address these latter considerations, we first document the dynamics of population change across several countries.

A Brief Historical Perspective

The history of the human population is rife with uncertainty. National censuses taken at regular intervals are a relatively recent phenomenon. Sweden began the first census in 1750; the United States has conducted decennial censuses since 1790; and France and England have conducted them since around 1800.[1] Using qualitative data, however, statistical demographers have estimated the size of the world population using the observations of historians, archeologists, paleontologists, and anthropologists. Locations of cities and their estimated sizes are important clues. Historical descriptions of peoples and places are used in reconstructing estimates of areas. The ability of ecosystems to support humans in various

[1] Ansley J. Coale, "The History of the Human Population," *Scientific American* (September 1974), vol. 231, no. 3, p. 41.

Table 2-1. *World Population, Total Births, and Years Lived, 10,000 BC to AD 2000*

Demographic Index	10,000 BC	0	1750	1950	2000
Population (millions)	6	252	771	2,530	6,235
Annual growth (%)	0.0008	0.037	0.064	0.569	1.812
Doubling times (years)	8,369	1,854	1,083	116	38
Births (billions)	9.29	33.60	22.64	10.42	6.25
Life expectancy at birth	20	22	27	35	58

Source: Massimo Livi-Bacci, *A Concise History of World Population* (1989) (Malden, Mass.: Blackwell Publishers, Inc., second English edition, 1997), p. 31. For births, life expectancy, and years lived, the data refer to the interval between the date at the head of the column and that of the preceding column (for the first column, the interval runs from the hypothetical origin of the human species to 10,000 BC).

eras – e.g., pre-agricultural, agricultural, industrial – are important considerations. While historical population estimates are based on these sorts of non-quantitative clues, there appears to be order of magnitude comparability across demographers' estimates of world population at specific points in time. One such set of estimates is reflected in Table 2-1. Although other estimates of world population at the various early dates in the table vary, the trends are consistent. It was concerns over these trends that led Thomas Malthus to start a debate about how demographic growth affects economic development.

Malthus observed that the population increased at a geometric rate, while the resources available to sustain it grew at only an arithmetic rate.[2] His observation is borne out in the continually shortening period over which the population has been doubling. Joseph Schumpeter tells us that Malthus really borrowed this idea from Botero, who had developed it toward the end of the sixteenth century, more than 200 years before Malthus developed his mathematical specification of the theory.[3] The logic of the mathematical formulation is that mankind eventually would outstrip the resources needed to survive, with the proliferation of people leading to an ever increasing impoverishment of the masses. Pushed to its limit, the scarcity of resources, especially food, would constrain the population's natural instinct to expand. Massimo Livi-Bacci reports that from the sixteenth to the early eighteenth centuries, European countries experienced

[2] Thomas R. Malthus, *An Essay on the Principle of Population* (1798) (Norton, New York, 1976).

[3] Joseph A. Schumpeter, *History of Economic Analysis* (New York: Oxford University Press, 1954), p. 255.

repeated subsistence crises with subsequent adverse demographic consequences.[4]

The implications of the Botero-Malthusian concern can be appreciated by as simple an exercise as multiplying the number two by itself six times versus adding it to itself six times. The answer to the first problem is 64 but the answer to the second is 12. Princeton demographer Ansley Coale illustrates the intuitively surprising implications of the geometric compounding process. He tells of the "legend of the king who offered his daughter in marriage to anyone who could supply a grain of wheat for the first square of a chess-board, two grains for the second square and so on. To comply with this request for all 64 squares would require a mountain of grain many times larger than today's worldwide wheat production."[5]

The alternative perspective on population also evolved during the seventeenth and eighteenth centuries. At that time, the perspective was of countries that were poor in goods but rich in opportunity, and the concern was under-population. Schumpeter tells us that many economists felt that a "numerous and increasing population was the most important *symptom* of wealth; it was the chief *cause* of wealth; it *was* wealth itself – the greatest asset for any nation to have."[6] He names several early English economists in the "populationist" camp. He suggests that German and Spanish economists of the day held this view most strongly because both countries had experienced depopulation for decades. The underlying theory is that humankind is ingenious in devising ever more efficient ways to utilize the resources available to it.

While this debate dates back to the seventeenth century, it has never been fully resolved. The potential compounding effect of the worldwide birthrates during the second half of the twentieth century set off new alarms about population explosions and their implications. During the decade of the 1940s, the annual growth in the world's estimated population was 1 percent per year. During the 1950s, it jumped to 1.8 percent. During the 1960s, it was an estimated 2.03 percent per year.[7] By the mid-1970s, the unprecedented population growth rates led Coale to estimate that in "less than 700 years there would be one person for every

[4] Massimo Livi-Bacci, *A Concise History of World Population* (1989) (Malden, Mass.: Blackwell Publishers, Inc., second English edition, 1997), p. 85.
[5] Ansley J. Coale, "The History of the Human Population," p. 43.
[6] Joseph A. Schumpeter, *History*, p. 251.
[7] United Nations, Population Division, *Demographic Indicators 1950–2050 and Sex and Age Quinquennial 1950–2050* (1998 Revisions).