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Sri Lankan Population Change and Demographic Bonus Challenges and Opportunities in the New Millennium

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Acknowledgements

Executive Summary

This paper documents the growth and composition of the population of Sri Lanka. Demographic, economic and social consequences of age structural changes are examined, with special emphasis on the transitional age segments. Emerging population issues in the new millennium, such as ageing, disability and family transition, together with the disintegration of the traditional family system, the dependency burden, and female headed households in Sri Lanka are highlighted. The paper also discusses the policy implications of the findings.

Population growth in Sri Lanka is primarily due to the changes that occur in fertility, mortality and international migration levels. During the past decades, the total size, as well as the age and sex structure of the population has been exposed to irreversible changes. The Sri Lankan population has grown almost eight times since the first national census of 1871. The population increased from 2.4 million persons in 1871 to 20 million in 2010. The growth rate of the population currently is low, yet Sri Lanka adds around 250,000 persons annually to the total population. The current population spread shows a skewed distribution favoring the Western Province and the Wet Zone. The census of 2001 showed that a little less than 60 % of the population is located in the Wet Zone, which constitutes around 21 % of the total land area of the country.

Fertility began declining in Sri Lanka during the 1960s, largely due to the population planning drives of the Government of Sri Lanka, and to other socioeconomic transitions. By 1994, the Total Fertility Rate (TFR) of the country reached the replacement level of 2.1 live births on average for every woman (15-49 years) in the country. Nevertheless, the latest SLDHS Survey of 2006-07 shows that the fertility level is increasing and is currently at par with the fertility level of 1991. A slight decline in the age at marriage, marked declines in the use of terminal contraception, and a decreased trend in reliance on abortion as a family planning method, especially by married women, may be the key causes of recent increases in the levels of fertility.

Dramatic declines in mortality are another important issue in the demographic transition process, which was experienced by Sri Lanka in the post-World War II period. The longevity of males and particularly females has increased. The estimated life expectancy of males and females, using 2000-2002 data, show that life expectancy of males is around 68 years and that of females is around 77 years. Virtual eradication of malaria, expansion of health services and education, better distribution of food supplies and general improvements of the colonial economy of the country have caused a steady decline in the levels of mortality. The elderly population of 1.7 million enumerated in 2001 is expected to increase to 3.6 million by 2021, a doubling of the elderly population during the twenty-year period. The share of elderly will increase from 9.2 % in 2001 to 16.7 % in 2021, and to 25 % by 2041. Consequent to the declining trend in fertility and mortality in the coming years, the projected number of elderly will be 4.5 million in 2031, increasing to 6.3 million elderly in 2061.

In countries with smaller populations, migration may also emerge as an important determinant of population size. Hence, in such countries, migration may be an important factor to manipulate the desired population change. At present, over 250,000 persons leave Sri Lanka annually for

foreign employment, mainly as contract employees in Middle Eastern countries (Foreign Employment Bureau, 2009). Of those, nearly half are females in their prime reproductive age groups. Migration patterns have thus largely affected the size of the working age population and the relative size of the dependent aging population.

Due to the current phase of the demographic transition, which depicts a clear transition in the age structure of the population, the number of persons who can take care of the elderly has declined, while the number of persons who need extra caretaking and support has increased. The most affected by the transition are the 'old old' segment of the elderly, who need special care in terms of health care, companionship and psychological support. Consequently, an emerging population issue in the new millennium is the destitution and poverty of the elderly in Sri Lanka. In this regard, the longevity of females makes them the most affected segment of the society. The households will incur extra expenses to maintain the elderly in their homes. Accordingly, on average, every family will have one aged person to care for. (World Bank, 2008; De Silva 2007). To overcome this situation, elderly support systems have to be established, which will require allocating a large amount of funds to care for the elderly, especially to provide for their health services, pensions and for the needed social security. The security net and the needed institutional set up to cover this segment is either inadequate or still lacking in the government and private sectors of the country.

The growth changes, reflected in the projected population for Sri Lanka, show that the population will also undergo major changes in its gender balance in the coming decades. Since the latter part of the 20th Century, Sri Lankan females have emerged as the superior beneficiaries of socioeconomic progress, causing the sex ratio of the population to be female biased. The standard population projections for Sri Lanka indicate that in the year 2031, the size of the population will reach its peak of 21.9 million persons, and the sex ratio will be 94.4 males per 100 females. By 2071, the sex ratio will be reduced to a level of 92.4 males per 100 females. There will be an added 2.0 million persons to the present population base of 20 million, which in absolute numbers will be an enormous challenge for planning.

At the beginning of the projection interval in 2001, the total dependency ratio was 55 dependent persons for every 100 working age persons, of whom 41 persons were child dependents and 14 were old age dependents. During the projection horizon, child dependency will decrease to 25 by 2036, while the old age dependency will increase at a faster rate of 36 elderly for every 100 working age persons. The projected changes in these two segments of dependency in Sri Lankan population caused a reduction in the total dependency ratio from 55 in 2001, to its lowest of 53.6 dependent persons in 2006. Thereafter, the overall dependency will increase to 56 dependents by the year 2016, and to 58 by the year 2031. As a result of the rapid increase in old age dependency, which out-paces the decline in young age dependency, the projected overall dependency will increase significantly after 2041.

Thus, the age structure transition has produced a demographic bonus, covering the period of 1991 to 2017, which is conducive for an economic takeoff of the country. The dependency ratios imply that there is likelihood that the future age structure would have a favorable impact on the economy of Sri Lanka. About 2006, the Sri Lankan population had the best demographic environment or the "window of opportunity" conducive for rapid economic development.

However, by 2011, the dependency ratio will increase to the level that prevailed in 2001 (55 %). The low dependency ratio observed in contemporary Sri Lanka is a result of the past demographic trends. This opportunity needs to be used immediately. If this opportunity is missed, planners will have to address the consequences of an increasing dependency burden, which would further depress the efforts for required economic development.

Comparing South Korea's economic development, one of the Asian Tigers, shows that demographic transitional changes, similar to Sri Lanka's, have occurred in that country. Continuous implementation of seven- and five-year economic plans, during three and a half decades, has led South Korea towards an accelerated economic development and a transformation from a developing country to a developed one.

The prevailing political stability in Sri Lanka provides a congenial environment for accelerated economic development and maximization of knowledge economy to suit the current national and international demand for skilled labor. Another important area of human capital development is female technological and academic advancement to increase their competitiveness in the labor force. Women need to participate in policy positions at the managerial level in the public as well as private sectors. Their involvement as executives and managers will lead to accelerating the economic development process of the country.

The current environment is suitable to attracting direct foreign investment for the country to increase domestic savings and promote investment. The government's goal for the Ten Year Plan is to make Sri Lanka the "Knowledge Hub of Asia." Planned investment in human capital, set development goals for various sectors, and infusing technology into production should increase the diversified development of the economy, and create productive employment opportunities for the increased working age population. The sector analysis of the GDP and the employed population in agriculture, industry, and the service sectors show that current growth patterns of the economy are inadequate to achieve the necessary accelerated economic growth and foster maximum utilization of the last phase of the demographic bonus, before dependency ratios start to increase gradually.

The female-headed households have increased significantly during the past few decades, due to a variety of reasons; widowhood, migration, non-marital fertility and marriage instability could be some important causes. In recent decades, an increasing number of women, particularly rural women, have become heads of households because men, the traditional heads of households have gone to war or are working distant from their residence. Moreover, due to civil unrest and displacement in a number of countries in the region, large-scale migration of males as refugees, have created a situation where the females have assumed the task of running the household.

An efficient and viable social security system and a retirement benefits facility are important emerging priorities in Sri Lanka. Analysis of the current social protection system shows that the prevailing social security net is inadequate and needs improvement to meet the challenges of the new millennium.

1.   Introduction

This paper examines the population changes and the related causative factors, namely fertility, mortality and international migration in Sri Lanka. During the past decades, the total size, as well as the age and sex structure of the population, was exposed to irreversible changes. The age structure transition has produced a demographic bonus conducive for an economic takeoff. During this period, the proportion of people of working age (15-59) is larger than the fraction in the dependent age categories. The paper includes a sector analysis of the employed population in the agriculture, industry and service sectors to identify the growth sectors of the economy and to reveal the potential patterns and levels of utilization of the demographic bonus. Finally, the social safety net implications of the emerging population, such as the dependency burden, aging, disability and the disintegration of traditional family system in Sri Lanka are examined.

2.   Population Growth in the Past

The main source of population data for Sri Lankan for the early British period (circa1821 AD) is the Blue Book. It contains annual population estimates of the government agents. A systematic and scientific basis for enumerating the country's population was established in 1869 with the passing of the Census Ordinance (Ordinance No. 5 of 1869). It legalized a periodic census when the British Governor deemed it necessary. The first national census was made in 1871, and determined the population to be about 2.4 million (United Nations, 1976).

Sri Lanka's population has grown to 20 million in 2010, an almost eight-fold increase since the census of 1871. The population doubled 54 years after the first census (1925), then again in 35 years (1960), as a result of the relatively high population growth rate. The 2001 census calculated a population 18.7 million. By 2003, the population was estimated to be 19.2 million, a third doubling in 43 years (see Table 1). By 2010, the population of Sri Lanka had passed the 20 million mark.

Table 1: Population Growth and Density is Sri Lanka: 1871-2003

Year		Population (000')	Average annual growth rate (%)	Density (Per sq km.)
1871	2.4 million	2,400	-	37
1881		2,760	1.4	43
Double by 54 yrs		3,008	0.9	47
		3,566	1.7	55
		4,106	1.4	63
1921		4,498	0.9	70
1925	4.8 million			
Double by 35 yrs		5,307	1.7	82
		6,657	1.5	103
		8,098	2.8	125
1960	9.6 million			
1963		10,582	2.7	165
Double by 43 yrs		12,690	2.2	196
		14,847	1.7	230
2001		18,735	1.2	300
2003	19.2 million	19,252	-	307

Note:Except 1925, 1960 and 2003, the rest are census years.
Source: Department of Census and Statistics, Statistical Abstracts & Census Reports.

The growth of the Sri Lankan population during the present century has not been uniform. Until 1946, the average annual inter-census rate of growth never exceeded 2 % (see Table 1). The post-war years reveal a sudden spurt in the growth rate, which had increased to 2.8 % in the period 1946-53, and remained stable at the higher level during the period 1953-63, while the mortality rate decreased during the period, which in turn caused the population to grow rapidly. As a reaction to the latent problems caused by such rapid growth, since late 1950, the government has initiated policies and programs to reduce fertility. Consequently, after 1963, a clear decline in the population growth rate was discernible, and at present, it stands at about 1 %. The effective causes that triggered a decline in the population growth rate are the fertility decline among all fecund age groups of women and an increase in emigration, especially to the Middle Eastern and developed countries.

The present population growth rate is low, but Sri Lanka still adds more than 200,000 people to its population annually. The country covers a land area of 65,610 square kilometers, and ranks as one of the most densely populated in the Asian region. It is estimated that there will be a little more than 300 persons per square kilometer by the turn of the present century (see Table 1).

As in many other countries, the population of Sri Lanka is not evenly distributed. Some parts are very densely populated, while others are less populous. As noted in the last population census of 2001, about 57 % of the population was located in the Wet Zone, which constitutes only about 21 % of the total land area of the country. Colombo, the smallest of the 25 districts in Sri Lanka, has a population density, which is about 11 times the national average. Demographic trends, particularly the growing size of the population, and its uneven distribution, have made a strong

negative influence on the natural resource base of the country and there have been many efforts to achieve sustainable development and balanced growth.

The current population spread shows a skewed distribution favoring the Western Province and the Wet Zone. The census of 2001 showed that at least one-third of the population, in the 18 districts counted, was concentrated in the Western Province, and at least 80 % in the Wet Zone of the country (Department of Census and Statistics 2001). Urbanization is largely concentrated in these areas. The internal migration pattern of the country indicates that a bulk of the net population addition would be concentrated in and around the Western Province, which has approximately a ten times higher population density, compared to the Sri Lankan average of 307 persons per sq. km. A further increase of population density in the Western Province would aggravate the urban population problems, particularly in the unplanned urban environments.

3. Components of Population Change

3.1 Fertility

The population planning programs and policies from 1960 to 1994, which have been implemented by successive Sri Lankan governments to achieve targeted fertility decline, have been largely responsible for the spectacular decline of the birth rate. Such policy drives were necessary because Sri Lanka had become one of the most densely populated countries in Asia. Persistent population growth and the consequent pressure on the habitable land have been an increasing concern to the Government. The population growth has been far more rapid than could be sustained by the economy.

Gradual decline of the TFR from high to low, towards a replacement level is reflected in the rates calculated using data collected from the population censuses, the registration system, and from survey data for more recent levels. The TFR for selected years from 1953 to 2003-2006 are shown in Table 2. The rate decreased from 5.3 in 1953 to 3.4 in 1981, by almost two live births per woman, and dropped to a further 2.8 children per women in 1982-1987, and to 2.3 during 1988-1993 periods. Sri Lanka's fertility dropped by about 20% during the periods of 1982-1987 and 1988-1993 (Table2).

Since the 1960s, the fertility rate had started to decline, and by 1994, Sri Lanka had experienced several major transitions, reaching the crucial stage of replacement[1] level-fertility, and to even below that level. Demographers researching into determinants of population growth predicted that Sri Lanka would reach a TFR of 2.1 by the year 2000. It will be the only country in the South Asian sub-region to achieve that level of fertility before the new century, and ahead of the targeted time frame (De Silva, 1994). A total of 18 countries and areas in the Asian and Pacific region have reached below replacement fertility (Gubhaju, 2008).

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[1] Replacement-level fertility implies a total fertility rate usually between 2.1 and 2.2 children per woman, depending on a country's level of mortality. Since the infant mortality rate of Sri Lanka is at a very low level, its replacement fertility is defined as an average of 2.1 children per woman. Usually NRR of 1.0 is considered as the more appropriate measure to represent replacement-level fertility. However, due to unavailability of NRR values for Sri Lanka during the recent past, only TFR values are being used to identify replacement level in this study.

Table 2: Total Fertility Rate, 1953 to 2003-2006

Source	Year/Period	TFR
Census, registration	1953	5.3
Census, registration	1963	5.3
Census, registration	1971	4.2
World Fertility Survey 1975	1974	3.6
Census, registration	1981	3.4
Demographic & Health Survey 1987	1982-87	2.8
Demographic & Health Survey 1993	1988-93	2.3
Demographic & Health Survey 2000	1995-2000	1.9
Demographic & Health Survey 2006-07	2003-2006	2.3

Source: Ratnayake et al., (1994); Department of Census and Statistics (2009).

Below to Above Replacement

The indices related to fertility transition in Sri Lanka, particularly the TFR valued at 1.9 for the period 1995-2000, calculated from the SLDHS 2000, raised the general expectation among researchers that Sri Lankan fertility could remain stable, or even go below the level reported by SLDHS (De Silva, 2007). Nevertheless, at that juncture, needed changes were not imminent in Sri Lanka's policies and programs to maintain the level of fertility at the replacement or even at a lower plane.

Meanwhile, since the SLDHS 2006-07 indicated an unexpected increase in the TFR, the hypothesis of replacement level fertility, or even below that level in Sri Lanka in the new millennium was unconfirmed. The expectations of the population planners were not fulfilled. According to SLDHS 2006-07 (Table 2), the TFR calculated to be 1.9 during 1995-2000 had increased to 2.3 during the three years (2003-2006). The already existent below replacement fertility had increased to above replacement level. A reversed trend simply had surfaced in Sri Lankan fertility transition. The current fertility level of the TFR at 2.3 is identical with that observed in 1993 SLDHS for the 1988-93 period. Within the developing region, no single country has shown this kind of fluctuation in the TFR, once it had reached below the replacement level.

Figure 1: Change of TFR in Sri Lanka and Republic of Korea
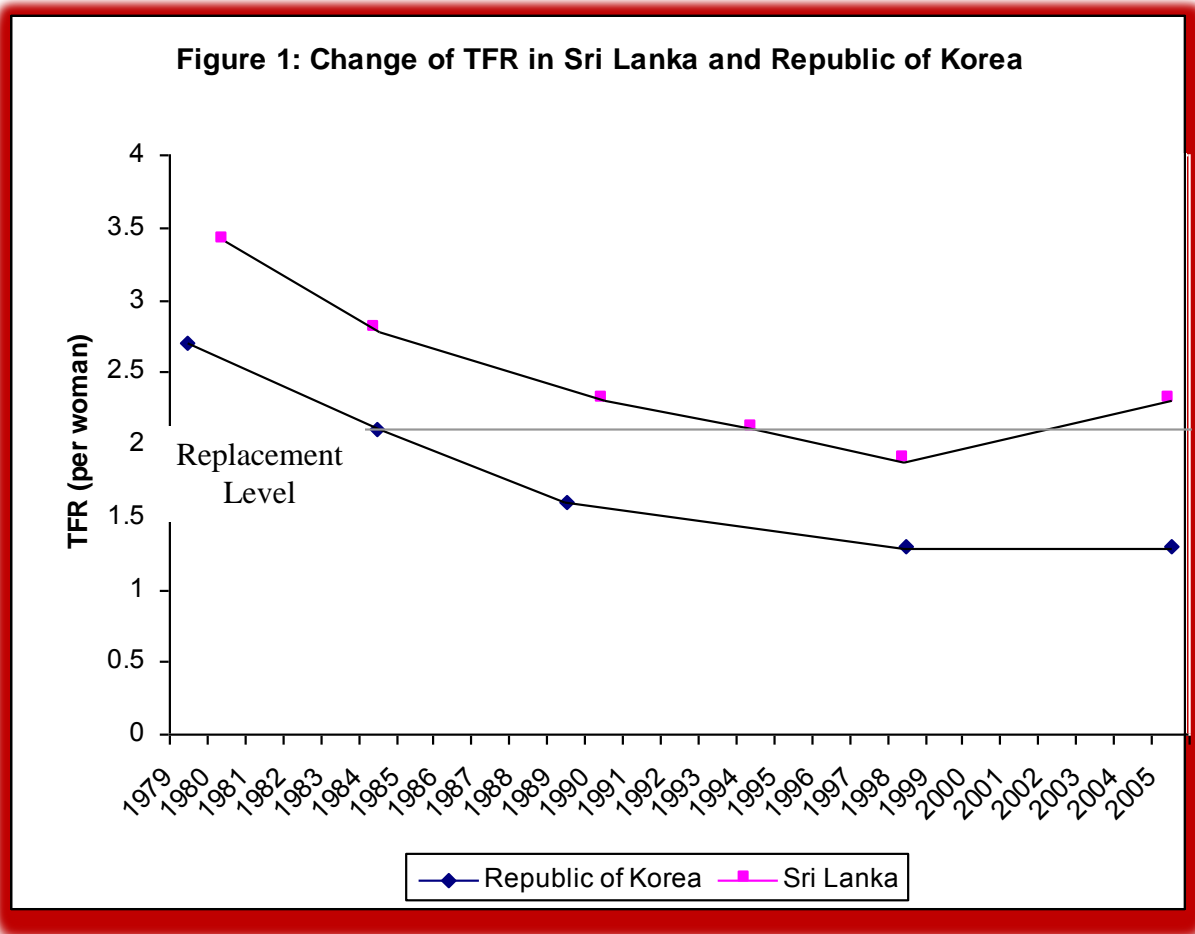
Sources: Date for Republic of Korea obtained from www.prb.org.
Data for Sri Lanka from various sources of Department of Census and Statistics.

Sri Lankan Fertility Change in the Regional Context

In the context of the economic transition that is taking place in Sri Lanka, it is logical to compare the fertility decline in the country with that of a newly industrialized economy (NIE). Congruent patterns of fertility decline can be observed when Sri Lanka's declining fertility levels and patterns are compared with that of the Republic of Korea. As shown in (figure1), the similarities are clear. Both Sri Lanka and the Republic of Korea show the same pattern of fertility decline, but Sri Lanka's fertility levels have always remained higher than those of the Republic of Korea. The Korean TFR dropped from 2.7 in 1980 to a replacement level in 1985, i.e., within a period of just five years (KIHASA, 1992). Whereas, Sri Lanka took about eight years for the TFR to drop from 2.7 in 1986 to the replacement level in 1994. The Republic of Korea had reduced fertility to below the replacement level (1.7) during the 1990-1995 period (Gubhaju, 2008). By 1998, the Korean TFR subsequently had reached the level of 1.3, which was very much below the level which prevailed in Sri Lanka at that time.

The reverse fertility trend, observed in Sri Lanka since 2000-2005, brought it closely at par with 'not yet replaced' fertility levels of a number of South Asian countries (Table 3). The exception is the TFR of Bhutan, a land locked country in the South Asian region. Bhutan's fertility level was 0.1 % less than that of Sri Lanka in 2007. Nevertheless, at that time, the TFR of Sri Lanka was still the second lowest compared with all the other South Asian countries. However, in all the other South Asian countries, the TFR had gradually been declining during the period 2000-2005 (Table 3). In contrast, Sri Lanka indicated an increasing trend in its TFR level, from 1.9 to 2.1 during the period, and to 2.3 in 2007.

Table 3: Total Fertility Rate (live births per woman) by Country in South Asia

Country	TFR (live births per woman)			
	1990-95	*1995-00*	*2000-05*	*2007*
Afghanistan	8.0	8.0	7.6	7.1
Bangladesh	4.1	3.6	3.2	2.9
Bhutan	5.5	4.3	3.0	2.2
India	3.9	3.5	3.1	2.8
Maldives	5.6	4.1	2.9	2.6
Nepal	5.0	4.4	3.8	3.3
Pakistan	5.9	5.0	4.1	3.5
Sri Lanka	2.2	1.9	2.1	2.3

Source: UNESCAP (2008); Sri Lankan data derived from Table 2.

Age Pattern of Fertility

The broader picture of fertility behavior can be comprehended through an analysis of age specific fertility rates. The age patterns of fertility indicate the tempo of childbearing, i.e., the age at which women begin to reproduce, when they cease childbearing, and any change in the pattern of childbearing over time. For example in Taiwan, where below replacement fertility has been achieved, fertility decline towards the replacement level occurred among all women of reproductive years (Lee, 2009).

Recent changes in the age specific fertility rates in Sri Lanka further support the contention that fertility levels had been increasing during the period 2003-2006 (Table 4). As shown in Figure 2 and Table 4, the age-specific fertility rates in the country increased in the early twenties, peaking in the age group 25-29 years, a slightly uneven plateau formation in the consequent years, and a gradual decline with declining fecundity of women. Over many decades, there had been no change in this age pattern of fertility. Between 1975 and 1993, large fertility reductions had occurred among all the age groups, except for teenage fertility (Table 4). Age specific fertility of all age groups had further declined significantly between 1993 and 2000. Thus, as depicted in Figure 2, between 1975 and 2000, older women and younger ones experienced a remarkable decline in fertility in this 25-year period.

Table 4: Age-Specific Fertility Rates of Sri Lanka (per 1,000 women)

Age	WFS 1975 1974	SLDHS 1993 *1988-1993*	SLDHS 2000 *1995-2000*	SLDHS 2006/2007 *2003–2006*	Percentage change *1995-2000 to 2003-2006*
15-19	31	35	27	28	3.7
20-24	146	110	83	102	22.9
25-29	161	134	118	147	24.6
30-34	158	104	98	122	24.5
35-39	126	54	40	57	42.5
40-44	43	14	8	14	75.0
45-49	6	4	1	1	0.0
TFR	**3.4**	**2.3**	**1.9**	**2.3**	**21.0**

Source: Department of Census and Statistics (2002; 2009).

De Silva, (1991) examining the prevailing declining pattern of ASFR concluded that 'women in Sri Lanka are inclined to limit the number of children at a relatively early age.' In Sri Lanka, until the year 2000, no change in the declining pattern of fertility had been observed in women from all socioeconomic strata. With the dawn of the new century, the age pattern of fertility for all ages, except the 45-49 age group, changed significantly by demonstrating a sudden unexpected increase. The ASFR's for the 25-39 age group in the 2006-07 SLDHS were even higher than the corresponding values reported in the 1993 SLDHS (Table 4).

The percentage change in ASFRs of the 2000 and 2006-07 SLDHS show that the largest increase was among the 35-44 age group. Although fertility had increased, the relative fertility change of the age group in which peak fertility occurred was slight, and the age pattern of fertility had remained unchanged (Figure 2). The latest SLDHS data show that the peak ASFR of 25-29 age group women, calculated as 147 per thousand women of that age group, is only 14 points less than the peak value of 161 per thousand women reported in the 1975 WFS (Table 4).

Figure 2: Age specific fertility rates, Sri Lanka
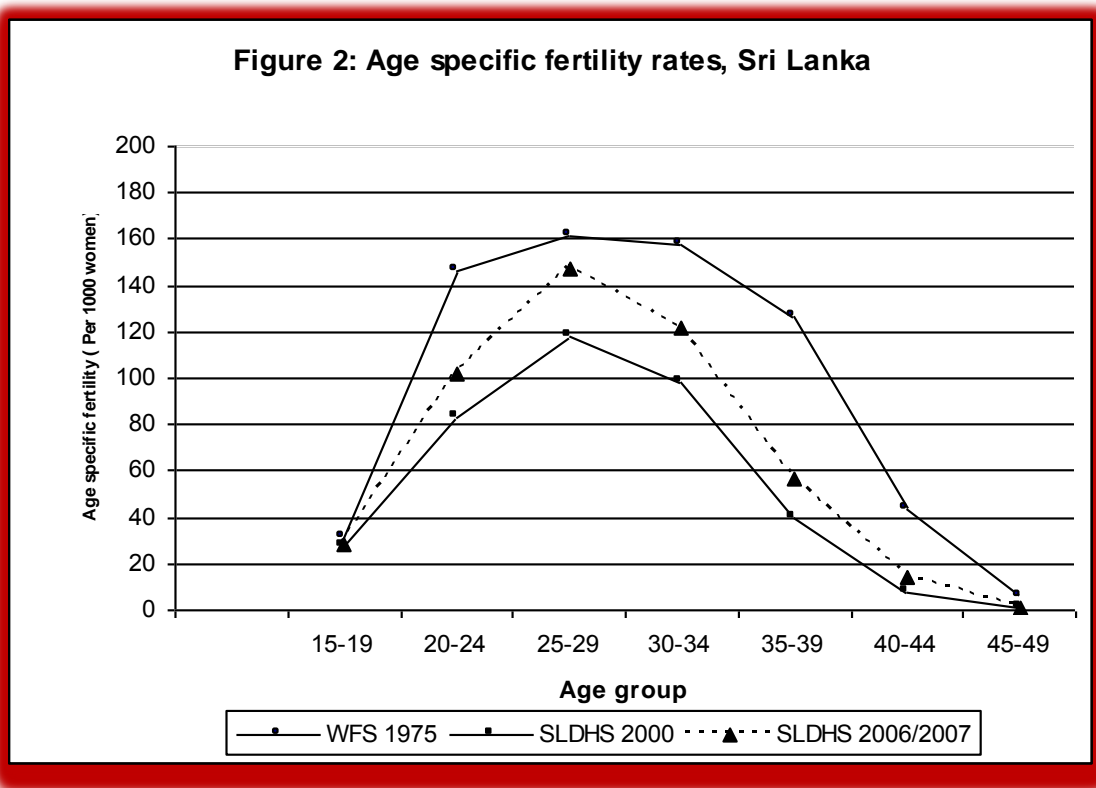
Source: Data based on - Department of Census and Statistics, 2002; 2009.

The adolescent fertility rate (15-19 age group) of Sri Lanka had increased by only 1% during the period 1995 to 2005. It remained constant thereon, even though the fertility rate of this age group had declined in most of the other developing countries except Pakistan, where a 14 point increase is indicated during the period 2005 to 2010 (Table 5). Substantial declines in the adolescent fertility rate have occurred in Afghanistan, Bhutan and Nepal, countries that had relatively higher teenage TFRs throughout the period (Table 5).

Table 5: Adolescent fertility (ASFR 15-19) rate by country in South Asia

Country	ASFR 15-19 (live birth per 1000 females aged 15-19)		
	1995-00	*2000-05*	*2005-10*
Afghanistan	166	131	113
Bangladesh	151	149	124
Bhutan	73	50	37
India	99	69	62
Maldives	45	26	23
Nepal	127	122	115
Pakistan	68	22	36
Sri Lanka	27	28	28

Source : UNESCAP (2008).

Determinants of Decline and Subsequent Increase in Fertility

Fecundity, a naturally complex process is also affected by several socioeconomic and biological variables. Additionally, the decrease or increase of the fertility level in any given country is largely determined by three non-genetic factors, such as changes in the age at marriage, use of contraception, and the practice of induced abortion, with a differential impact of these changing agents on fertility. For instance, an increase in the average age at marriage of females could have a negative impact on fertility, while a decrease in the age at marriage could affect the level of fertility in an opposite way (Jones, 2007).

Trends in Marriage Timing

The postponement of marriage contributes substantially towards a reduction in the level of fertility by limiting the total reproductive lifespan of the female, the cumulative effect of which influences the size of the individual families, and the population growth rate of the country. In Sri Lanka, during the past century, the female age at marriage increased almost by seven years. The delay in marriage, and its impact on fertility, has led Krik (1969) to refer to Sri Lanka as "the Ireland of Asia." Caldwell and others (1989) identified Sri Lanka as the leader in Third World Asia to experience a changing pattern in the age at marriage. By the mid-1970s, Sri Lankan females were marrying not at puberty but a decade later.

Universal marriage of females at an early age is common in a large number of South Asian countries. Sri Lanka, where marriage occurs very late and may no longer be considered as universal, is an exception to this regional convention. About 9% of females in the age group 40-44 and 5% in the 45-49 age group were never married and an upward movement of these never-married proportions had been a conspicuous general trend until recent times.

Postponement of the formal family formation in Sri Lanka is reflected in the behavior of the rate of marriage measure, the singulate mean age at marriage (SMAM) of females, which had increased by almost five years, from 18.3 years in 1901 to 23.5 in 1971 (Table 6). There was a slight decline of SMAM during the period 1975 to 1981, and since then, the average age at marriage of Sri Lanka has increased. On average, by 1993, females were marrying at the age of 25.5 years. Much research has indicated that up to 1970, marriage postponement in Sri Lanka was responsible for about 60 % of the fertility decline. Nevertheless, from the middle of the last decade of the twentieth millennium, the average age at marriage of females in Sri Lanka displayed a gradual decline. A noteworthy occurrence is that the latest SMAM of females (23.6 years), reported in 2006-07 SLDHS, is very much comparable with the corresponding figure of 1971.

Table 6: Trends in Singulate Mean Age at Marriage in Sri Lanka

Year	Male (years)	Female (years)	Age difference (years)
1901	24.6	18.3	6.3
1911	26.5	20.8	5.7
1921	27.0	21.4	5.6
1946	27.0	20.7	6.3
1953	27.2	20.9	6.3
1963	27.9	22.1	5.8
1971	28.0	23.5	4.5
1975 (SLWFS)	28.2	25.1	3.1
1981	27.9	24.4	3.5
1987 (SLDHS)	-	24.8	-
1993 (SLDHS)	-	25.5	-
2000 (SLDHS)	-	24.6	-
2006-07 (SLDHS)	-	23.6	-

Sources: Various sources of Department of Census and Statistics.

Data presented in Table 6 indicate that the SMAM of males was around 28 years for some time since 1981. It is to be noted that data is not available to study the recent trends in male age at marriage. Since the increase in the male age at marriage has been less rapid, the sex differential of the marrying age had dropped from over six years in 1901 to just over three years in 1981.

In Sri Lanka, the exposure to conception is closely related with the marital union. Therefore, it is logical to assume that increasing average age at marriage, particularly of females, is negatively related with fertility. The decreasing trend of female SMAM during the recent past would have at least partially contributed to the recent increase in fertility in Sri Lanka.

Trends in Contraceptive Use

High and effective prevalence of contraceptive methods is an important non-genetic determinant of the declining fertility level in a community. It is useful to examine the trends in the use of contraception in Sri Lanka and the recent changes in the prevalence rates if any, to elucidate the causes of recent fertility increase in the country. After 1970, the key determinant in the fertility decline was the control of fertility within marriage, and the decline in consequent martial fertility (Trussell, 1980; McCarthy, 1982). As suggested by the available evidence, the decline in marital fertility in Sri Lanka began before the national family planning program could have had much impact on the fertility decline (Alam and Cleland, 1981; Langford, 1982). After the inauguration of the national family planning program in 1965, the Government adopted a "cafeteria" approach, whereby the users could select the contraceptive method of their choice from a wide range available to them through the national program (Dangalle, 1989). In addition to the public sector, a number of nongovernmental organizations (NGOs) provided family planning services.

The level of contraceptive use among Sri Lankan women increased rapidly in the period following 1970. There was increasing awareness of contraception, not only for the purpose of cessation of childbearing, but also for the spacing of births. The level of contraceptive use increased from 34 % in 1975 to 62 % in 1987 and further to 70 % in 2000 (Table 7).

Table 7: Trends in Current Contraceptive Use by Modern and Traditional Methods Among Currently Married Women aged 15-49

Type of method	SLWFS 1975	SLCPS 1982	SLDHS 1987	SLDHS 1993	SLDAS 2000	SLDAS 2006-07
Modern	20.2	31.8	40.6	43.7	49.5	53.1
Traditional	14.2	26.0	21.1	22.4	20.5	17.0
All	**34.4**	**57.8**	**61.7**	**66.1**	**70.0**	**70.2**

Source: Various sources of Department of Census and Statistics.

The contraceptive prevalence had hardly changed during the present decade. According to the 2006-07 SLDHS, 70.2 % of the currently married women of reproductive ages were using contraceptives (Department of Census & Statistics, 2009).

The acceptance of modern contraception in Sri Lanka is a relatively recent development. According to the 1975 WFS Survey, 59 % of the current users of contraception were relying on modern methods, and the SLDHS 1987 (estimated) show that the proportion of modern method users had increased to 66 % (40.6/61.7)*100). This same estimation procedure, using SLDHS 2006-07, indicated that the corresponding proportion had further increased to 76 % (53.1/70.2)*100). Even at present, among current users, about one-quarter rely on traditional methods (Table 8), which implies that a substantial proportion of users in Sri Lanka still rely on the traditional methods.

Significant changes have taken place recently, concerning the preferred contraceptive methods, within the category of modern methods. Although modern temporary methods show a continuous increase, the same is not observed with regard to permanent methods. The latest SLDHS show that the proportions that use terminal methods, identified as male and female sterilization, had declined remarkably. For instance, of the currently married women in 1987, one-quarter relied on female sterilization, but by 2006-07 the corresponding figure had dropped to 16.4 % (Table 8). The same pattern of preference was observed regarding the male sterilization.

Table 8: Current Contraceptive Use by Method among Currently Married Women aged 15-49

Contraceptive method	% currently using		
	SLDHS 1987	SLDHS 2000	SLDHS 2006-07
Pill	4.1	6.7	8.4
IUD	2.1	5.1	6.9
Injection	2.7	10.8	14.3
Condom	1.9	3.7	6.0
Female sterilization	24.9	21.0	16.4
Male sterilization	4.9	2.1	0.7
Implant	0.0	0.1	0.4
Other (modern)	-	-	0.1
All modern methods	*40.6*	*49.5*	*53.1*
Rhythm	14.9	11.9	10.8
Withdrawal	3.4	7.1	6.1
Other method	2.8	1.5	0.1
All traditional methods	*21.1*	*20.5*	*17.0*
All methods	61.7	70.0	70.2

Sources: Department of Census and Statistics (2002; 2009).

Comparison of the two analytical periods also confirms that a remarkable decline in the proportion of women relying on the use of terminal methods had taken place. When the latest period 2000 to 2006-07 is compared to the previous periods 1987 and 2000, the proportions which used such methods, especially male and female sterilization, was higher during the previous phase than the proportion of the users of such methods in the latest period. This trend raises a pertinent question, whether there is an unmet demand for sterilization among Sri Lankan women, and whether the imbalance in the service delivery of permanent methods of family planning is caused by any unrevealed socio-cultural and religious issues, which have an effect on the fertility level of married women. Or, it may be a question of choice where women have diverted their reliance from contraception to induced abortion.

Practice of Induced Abortion

Despite the highly restrictive abortion law in Sri Lanka, indictments for criminal abortion hardly ever occur and offenders were rarely persecuted for abortion. In the past, the several attempts made by the Sri Lankan Government to liberalize the country's harsh abortion law were negated on moral grounds by the anti-abortion social leadership. Thus, abortion remains illegal in Sri Lanka under Article 303 of the Penal Code[2] of 1883.

Researchers tend to believe that prevalence of abortion in Sri Lanka is a legally unrecognized fertility control method (Langford, 1982: Caldwell and others, 1987: De Silva, 1991). A survey

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[2] Section 303 of the Penal Code provides that anyone voluntarily causing a woman with child to miscarry is subject to up to three years imprisonment and/or payment of a fine, unless the miscarriage was caused in good faith in order to save the life of the mother. A woman who induces her own miscarriage is subject to the same penalties.

conducted as early as 1984 using in-depth interviewing methods (Caldwell and others, 1987) showed that most couples in Sri Lanka believed that induced abortion occurred to a limited extent, while approximately one-fourth of respondents felt that it was common. The majority of those against induced abortion held adverse views on the practice of induced abortion, because of the danger rather than the associated immorality. However, during last two to three decades, the abortion services have become increasingly therapeutic. Thus, serious post abortion complications and deaths rarely have been reported.

There is concurrence among researchers engaged in abortion related research that evidence suggest there are about 125,000 to 225,000 induced abortions performed annually in Sri Lanka (De Silva & others, 2006). A community survey with a total population of over 100,000 gathered abortion experiences during the preceding three years. The study adopting the Randomized Response Technique (RRT), reported that on the average, the induced abortion rate of married women of reproductive ages amounted to 10.89 per 1,000 married women.

Although national surveys such as SLDHS had attempted to collect information on the incidence of induced abortion in Sri Lanka, the incidents were grossly under-reported. According to SLDHS 2000, among 6,385 ever married women of reproductive ages, 76 had induced abortions during their lifetime, which is even lower than the number of induced abortions amounting to 152 reported in the SLDHS 1993. The above pattern of reporting of the incidence of abortions may be due to the labeled criminality of the issue, while it also confirms the difficulty of collecting reliable data on induced abortions through official national surveys.

Undoubtedly the abortion services provided by NGOs and other service deliverers might have contributed significantly to the achievement of below replacement fertility in Sri Lanka. The general agreement among the researchers on marital status of the abortion seekers were that about 90-95 % of clients were married women.

A number of studies have shown that even though a small proportion of abortion seekers were not relying on any form of contraception, among those who used contraception, over two-thirds relied on traditional methods that had significantly higher failure rates when compared to the modern methods. Those who relied on traditional methods to prevent conception would have done so with the knowledge and assurance that other methods such as the induced abortion services for termination were available and could be used in case of unexpected pregnancy. Even though induced abortion is illegal, abortion services are available in many parts of the country at an affordable price.

3.2   Mortality

An accurate analysis of mortality trends using time series data is handicapped by the non-availability of reliable data for the earlier phase of past years, though a definite downward trend in the death rate is noticeable since 1921. The period 1921-1945 was generally a period of general decline in mortality (United Nations, 1976). Nevertheless, there were occasional bad years in which a heavy toll on deaths had occurred. The rapid mortality decline, observed during the post-World War II period in Sri Lanka, contributed towards achieving a phenomenal increase in the life expectancy of the Sri Lankan population. A parallel pattern of mortality decline during

the same period was observed in a number of other developing countries, including Mauritius, Cuba, and Mexico.

Sri Lanka has progressed substantially in reducing the mortality level of its population during a period covering more than seven decades, particularly between 1946 and 1981. The crude death rate declined from 30 deaths per 1,000 population in 1920 to six deaths by 2003. During this period, the life expectancy at birth increased by 21 years for men and 27 years for women. In 1952, female life expectancy was 2.1 years lower than that of males; however, the estimated life expectancy for the period 1980-1982 showed that the sex differential of life expectancy was 4.4 years higher for females. The estimated longevity of life for males during this period was 67.7 years and for females 72.1 years (Table 9).

Table 9: Life Expectancy at Birth (in years)

Year	Male	Female	Difference (F – M)
1900 -1902	36.4	34.2	-2.2
1920 -1922	32.7	30.7	-2.0
1945 -1947	46.8	44.7	-2.1
1953	58.8	57.5	-1.3
1962 -1964	63.3	63.7	+0.4
1970 -1972	64.0	66.9	+2.9
1980 -1982	67.7	72.1	+4.4
2000-2002	68.1	76.6	+8.5

Source: Department of Census & Statistics (1991); De Silva (2008).

The sharp decline in mortality in the post-World War II period was largely due to the eradication of malaria, expansion of health and education services, and better distribution of food supplies due to the general improvements in the country's economy (United Nations, 1976). The social infrastructure that was developed before Independence and the improvements in the economic well-being, together with an increase in the average level of consumption (Ministry of Health & Women's Affairs, 1992), rapidly yielded positive results in terms of an increase in the life expectancy among the Sri Lankan population. The health related indicators for Sri Lanka demonstrate a success story, despite the fact that compared to many countries in the world, the health expenditure in Sri Lanka is significantly low by any standard (WHO, 2002).

The efficient performance of the health system is mainly linked to the socioeconomic and political status of a given country. The life expectancy, derived from the life tables for Sri Lanka, using the latest available data, indicate an expected longevity of 68.1 years at birth for males in 2000-2002, a marginal increase of only 0.4 years higher than the figure reported (67.7 years) for 1980-1982. In contrast to males, the expectancy of life for females had increased from 72.1 to 76.6 years during these two periods, showing an increase of almost five years (Table 9). This trend shows that unlike in the past, large sex differences in life expectancy continue at present in Sri Lanka. In the 1980-1982 period, the gender difference of longevity was only 4.4 years, while in the 2000-2002 period it had increased to 8.5 years.

The Sri Lankan situation is not exceptional, since the female advantage in life expectancy had widened to 10 or more years in a number of countries in the world. Some of the countries where the highest levels of such difference were observed are contemporary Belarus (12.2 years), the Russian Federation (11.3 years), and Kazakhstan (11.1 years).

The Sri Lankan advantage in female life expectancy of over eight years clearly demonstrates that during the last two decades the socio-cultural and political factors were more favorable for females and not very supportive for the overall improvement of the health situation of males. Insurgency, civil strife, suicides, accidents, homicides, all of which were prevalent at high levels during the last three decades in Sri Lanka, have taken a higher toll on the lives of males, when compared to their female counterparts.

3.3   Migration

Unlike fertility and mortality, migration responds more rapidly to events such as war, famine, economic conditions and restrictions on immigration. In countries with small populations, particularly in determining population change, migration is often more important than either fertility or mortality. Hence, the government may consider migration to be a component of population change over which it can exert a substantial influence in the medium-term, and sometimes even in the short-term.

The notable trend in migration, especially after Independence in 1948, has been observed among the Sri Lankan Burgher community, who migrated to Australia and New Zealand. Official statistics show that 423,503 Sri Lankans left the country in search of opportunities during the period 1957-1971. Subsequently, the out-migration flow was more related to the exodus of professionals who migrated for permanent settlement in the more developed countries. This phenomenon, popularly referred to as the "brain drain," severely affected the economy of Sri Lanka. The inability of the government to provide suitable employment opportunities for the educated people in the country has been identified as the main reason for this migration trend. In the 1970s, the pattern of migration changed to mostly semiskilled and unskilled workers who left in large numbers on contract basis to West Asia for employment. The labor migration to the Middle East assumed significant proportions only after the introduction of the "free flow" migration policy of the Sri Lankan Government in the late 1970s. This phenomenon was initially triggered by the backward and almost stagnant economic base of the country, but subsequently, the out-migration of low- and middle-level workers increased as a response to the external stimuli.

Since the 1970s, economic development in the Middle East countries paved the way for massive technological development and an expanded construction industry, opening up new overseas employment opportunities for skilled, semiskilled, and unskilled labor from the South and Eastern Asian regions. This market expanded in the 1980s and 1990s. The contract labor migration trend, defined as a migration event for a short period only, mostly one to two years, with a facility for renewal, can be described as an extension of the previous out-migration pattern, but with a different focus. The impetus for contract migration for families in the region, providing labor resources for development work in the Middle Eastern countries, was large and varied. Such an economic impact is seen at the family, community and village level of the out-

migrants with an inevitable socio-cultural impact at the point of destination, and among the returnee migrants at the point of origin.

Contract labor migration involves most countries of South Asia. The major players are Bangladesh, India, Pakistan and Sri Lanka. Middle Eastern countries such as Saudi Arabia, Kuwait, U.A.E., Qatar and Lebanon are the major labor receiving countries, which have captured over 80 % of Sri Lankan labor departing to work in foreign countries. As reported by the Sri Lanka Bureau of Foreign Employment, the annual labor out-migration rose to 172,489 persons in 1995 from 16,456 in 1986 (Table 10).

Table 10: Departures for Foreign Employment, 1986-2008

Year	Male		Female		Total
	No.	%	No.	%	
1986	11023	66.98	5433	33.02	16456
1987	10647	66.02	5480	33.98	16127
1988	8309	45.09	10119	54.91	18428
1989	8680	35.11	16044	64.89	24724
1990	15377	36.08	27248	63.92	42625
1991	21423	32.97	43560	67.03	64983
1992	34858	28.00	89636	72.00	124494[*]
1993	32269	25.00	96807	75.00	129076[*]
1994	16377	27.22	43791	72.78	60168
1995	46021	26.68	126468	73.32	172489
1996	43112	26.52	119464	73.48	162576
1997	37552	24.99	112731	75.01	150283
1998	53867	33.71	105949	66.29	159816
1999	63720	35.45	116015	64.55	179735
2000	59793	32.82	122395	67.18	182188
2001	59807	32.50	124200	67.50	184007
2002	70522	34.61	133251	65.39	203773
2003	74508	35.51	135338	64.49	214709
2004	80699	37.59	134010	62.41	209846
2005	93896	40.60	137394	59.40	231290
2006	90170	44.65	111778	55.35	201948
2007	102629	47.23	114677	52.77	217306
2008	128821	51.12	123200	48.88	252021

Note: * - Airport Survey – SLBFE.
Source: Information Technology Division – SLBFE.

Females accounted for 33 % of the total migrants in 1986, but by 1995, the female component increased to 73 % of the total. At present, over 250,000 Sri Lankans leave the country annually, for foreign employment (Foreign Employment Bureau Sri Lanka, 2009). Of them nearly one-half are female. Over the past many years, female dominance has decreased significantly. It is

estimated that about 1.8 million Sri Lankans work in Middle Eastern and other countries under contract employment agreements (Central Bank of Sri Lanka, 2010).

Among the international labor migrants, the highest proportion is found to be from the 25-29 age group. It is also important to note that over 70 % of the migrants are in the prime reproductive age group of 20-39 years (Table 11). Of the total labor migration in Asia that supply labor for the foreign markets, the proportion of females in Sri Lanka is significantly higher than in any other Asian country. The Bureau has collected data on out-migration of Sri Lankan workers, but no statistics have been collected for the return of such migrants. Nevertheless, according to the official sources of the Bureau, the volume of return migrants in recent years from West Asian countries to Sri Lanka has been considerably less than the volume of out-migrants.

Table 11: Departure for Foreign Employment by Age Group and Sex

Age Group	Average (2005-2009)		
	Male	Female	Total
19 & below	1.5	1.6	1.5
20-24	17.3	13.2	15.1
25-29	25.3	19.5	22.2
30-34	16.9	18.2	17.7
35-39	13.5	16.9	15.3
40-44	9.6	15.3	12.7
45-49	6.7	9.3	8.1
50 & above	6.1	5.0	5.5
Not identified	3.0	1.1	1.8
Total	100.0	100.0	100.0

Source: Information Technology Division – SLBFE.

For many decades, the Department of Immigration and Emigration of Sri Lanka published data on international movements of arrivals and departures, rather than by their actual visa status (Table 12). Without detailed information on arrivals and departures visa status (temporary, semi-permanent or permanent), it is a difficult task to analyze the data in relation to international migration. At the same time, some Sri Lankans continue to obtain tourist visas to visit countries such as India, from where they subsequently travel to make a semi-permanent or permanent home in a third country with a better economic status. During the last two years, there were a large number of arrests of young men who attempted illegally to sail out of the country in an attempt to reach European countries. The volume of undocumented (illegal) boat travelers who left the country successfully could not be obtained.

Table 12: Arrivals and Departures and Net Gain/Loss

Period	Arrivals	Departures	Net gain/loss
1980-1984	2,509,144	2,960,896	-451,752
1985-1989	2,197,774	2,321,814	-124,040
1990-1994	3,600,308	3,749,216	-148,908
1995-1999	4,654,874	4,609,074	+45,800
2000-2004	5,574,387	5,634,152	-59,765
2005-2008	6,004,207	6,144,351	-140,144

Note: Arrivals and departures for entire five year period.
Source: Statistical Abstracts of various years.

Another stream of migration, which started in the aftermath of the 1983 communal riots, is the mass out-migration of Sri Lankan Tamils to countries like Canada, Australia, U.K., Switzerland, France, Germany and Norway. "This Tamil Diaspora" is considered to have been of immense economic support to the country. Presumably over 200,000 Tamils are living in the countries listed above.

In addition to this complex scenario of international migration since 1983, reliable data on refugee migration from Sri Lanka's Northern and Eastern provinces, destined particularly to India, is not available. Some of the refugees have already moved on from India to other parts of the world. Some still remain in India, while some have returned to Sri Lanka, and no reliable data are available for these migratory movements. However, after the cease-fire agreement between the Government and the LTTE in 2001, around 60,000 Tamils who were living in foreign countries returned to Sri Lanka.

After the defeat of the LTTE in May 2009, the government heavily engaged in the development of the Northern and Eastern provinces of the country. During the last 30 years of civil disturbances in these parts of the country, hardly any development activity had taken place. Consequent to the present accelerated development in these provinces, there is no significant refugee movement from Sri Lanka to India.

4.   Future Population of Sri Lanka

As a prerequisite of planning for the new millennium, an in-depth analysis of the contributory factors of growth patterns of the future population of Sri Lanka and the characteristics of related sociopolitical life is important. The population size, composition and distribution at any given point in time would determine the demand and supply of the sociopolitical commodities and services needed by the community. Population projections in this venue play two distinctive roles in development planning and policy formulation. Firstly, estimates of future population are taken into consideration when setting various economic and social planning targets to cater to social demands. Secondly, the consideration of the size of the probable future population may have implications for the desirable future pattern and the rate of growth. Nonetheless, prediction of the future course of all the determinants of growth of the population may not be a possibility. Indeed, the expectation that the population change can, in itself, be achieved entirely by the policies and programs of the planning process is not realistic. Yet, population projections can be used to estimate the likely impact and implications of the planning decisions and policy changes

on the aspired demographic change. Hence it can be concluded that the role of a demographer is not only to incorporate opinion on future birth and death rates, but also to influence the growth path of these events (Romanic, 1990a).

Assumptions for Components of Population Change

Fertility, mortality and migration are the three components of population growth of any given country. Different sets of assumptions have to be formulated for Sri Lanka to forecast the future course of these three components.[3] To examine the extent to which population policies may themselves influence and change the existing population trajectories is relevant in this regard. Various possibilities for population changes under several assumptions have to be examined, including the choice of population policy methods. In this connection, the past and current rates of fertility, mortality and international migration need to be considered. The standard population projection used in the forthcoming analysis is a simple combination of the standard assumptions on fertility, mortality and international migration taking the census year population of 2001 as the base year.

4.1   Size and Growth

Sri Lanka's total population will continue to increase in the foreseeable future, will be stable for some time, and thereafter, a declining trend could occur. According to the standard projection, the population of Sri Lanka would reach 20.5 million by 2011, and 21.6 million by 2021; however, beyond 2046, the size of the population would decline significantly (Table 13). The size of the population will decline to 18 million within seven and a half decades after the commencement of the 21st Century. During the period covering the second to the beginning of the fourth decade of the 21st Century (2021 to 2031), the size of the total population would be between 21.5 and 21.9 million, maintaining a fairly stable numerical size. The standard population projection indicates that in the year 2031, the population size of Sri Lanka would reach its peak of 21.9 million persons (Table 13 and Figure 3).

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[3] The cohort component method, which involves a sequence of computations that are repeated for successive five-year time intervals, is used for projecting the future trends of the Sri Lankan population. These computations are based on assumptions of future demographic conditions to update the age and sex structure of the population, and to derive various indicators of the population size, structure and changes.

Table 13: Projected Population, 2001 to 2081 (Standard Projection)

Year	Population ('000)	Growth rate (%)
1981*	14,847	-
2001*	18,734	1.40
2006	19,720	1.03
2011	20,558	0.83
2016	21,186	0.60
2021	21,580	0.37
2026	21,804	0.21
2031	**21,883**	0.07
2036	21,841	-0.04
2041	21,712	-0.12
2046	21,465	-0.23
2051	21,104	-0.34
2056	20,656	-0.43
2061	20,145	-0.50
2066	19,590	-0.56
2071	19,030	-0.58
2076	18,480	-0.59
2081	17,944	-0.59

Note: *Enumerated population at the census of population 1981 and 2001.
Source: De Silva (2008).

The absolute size of the Sri Lankan population will increase, despite the fact that its rate of growth will decrease gradually, as shown in Table 13. The population growth rate stabilizes at a very low, near zero level, when the crude birth rate equates the crude death rate and then the increase or decrease in population numbers will be minimal. As observed in the standard projection in Table 13, a near-zero population growth rate would be attained after the year 2031.

4.2   Main Features of the Future Population

The age and sex structure of a population is a significant parameter that influences current and future determinants of growth, namely fertility, mortality and migration. There are various methods to analyze the gender and age group specific structural composition of a population; nevertheless, only a few selected methods have been utilized for the forthcoming analysis.

Gender Balance

Although located in the South Asian region, Sri Lanka has not adhered to the common South Asian model. Of the total population of 18,734 enumerated in 2001, the sex ratio was estimated to be 97.9 (Table 14). In 2001, for every 100 females in Sri Lanka, there were only 98 males; whereas in 1953, there were 111.5 males, which clearly indicates that the sex ratio largely favored males at that time.

Table 14: Projected Population by Sex, 2001 to 2081 (Standard Projection)

Year	Male ('000)	Female ('000)	Sex Ratio (Males per 100 females)
1981*	7,568.2	7,279.1	104.0
2001*	9,268.1	9,466.2	97.9
2006	9,719.8	9,999.8	97.2
2011	10,099.0	10,458.8	96.6
2016	10,373.0	10,812.5	95.9
2021	10,538.5	11,041.4	95.4
2026	10,617.7	11,186.1	94.9
2031	10,629.0	11,253.5	94.4
2036	10,585.7	11,255.4	94.1
2041	10,502.4	11,209.9	93.7
2046	10,366.5	11,098.9	93.4
2051	10,176.1	10,928.0	93.1
2056	9,943.4	10,712.3	92.8
2061	9,686.3	10,458.6	92.6
2066	9,411.9	10,178.3	92.5
2071	9,140.1	9,889.5	92.4
2076	8,877.8	9,602.5	92.5
2081	8,627.6	9,316.2	92.6

Note: *Enumerated population at the Census of Population1981 and 2001.
Source: De Silva (2007).

During the 1990s, there were more females than males in the Sri Lankan population, and in the coming decades, the female favored sex ratio is expected to increase further, primarily due to the greater improvement in female life expectancy relative to that of male. For instance, as the standard projection highlights, when the Sri Lankan population reaches its peak in 2031, the sex ratio would be 94.4 males per 100 females, and by 2071, it would be further reduced to a level of 92.4 males per 100 females.

Age and Sex Structure

The age and sex composition of populations (either in absolute numbers or proportions), when plotted graphically, will produce an age pyramid. The base of a pyramid indicates the segment of the population in the youngest ages, while the top indicates the oldest ages. The proportions of people in the various age and sex categories change because of the continuous action of population growth components, namely mortality, fertility and migration. The pyramid is an illustration of the biological history of a population, the results of 100 years of births, deaths and migration.

Sri Lanka's population will undergo major changes in its age structure in the coming decades. The population age structures of 2001, 2026 and 2051, shown in Figure 3, clearly indicate the

impact of the rapid decline in fertility and the improvement in life expectancy. The age and sex structure of the population pyramid for the year 2001, demonstrates the effect of continuous changes, which occurred in various age, sex categories, due to changes in the population growth components. A number of important characteristics are visible. Firstly, the fact that the fertility levels had been reduced significantly and are still continuing to decline. This pattern is evident from the population pyramid, which has a relatively smaller base (0-4 years) compared to advanced age groups, that is, 5-9, 10-14, etc. Secondly, the proportion of children (< 15 years) is higher than the elderly population (60+ years). Thirdly, the proportion of working age population (15-59 years) is significantly higher than the combined proportionate magnitude of children and the elderly (Figure 3).

Figure 3: Projected Change in Age-Sex Structure of the Population, 2001, 2026, 2051
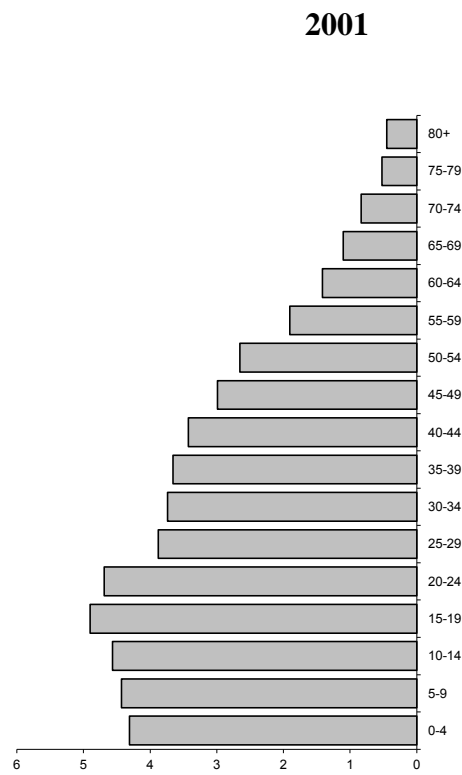
2001

2026
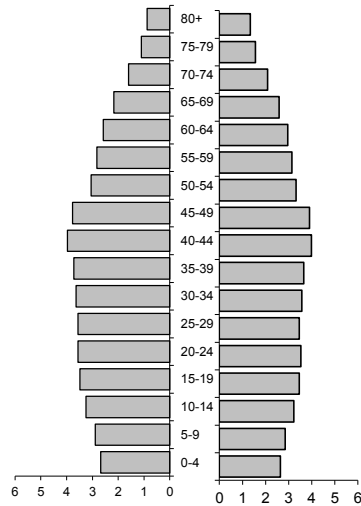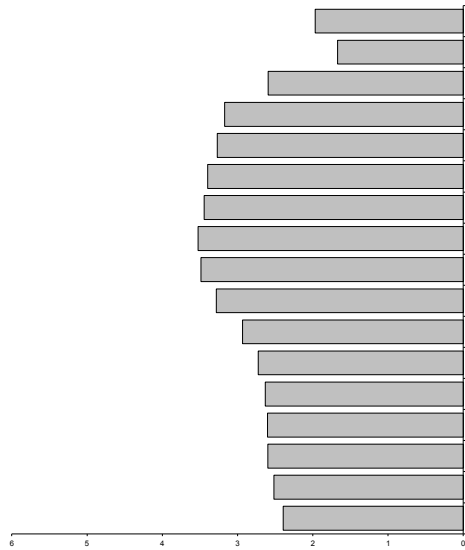
2051

The last diagram in Figure 3, which represents the projected age-sex structure for 2051, indicates a significant deviation from the 2001 structure. By the end of the present century, the pyramidal shape of the structure would largely disappear, and a high dependency pattern is expected, with its largest component in the older ages. Among the older age groups, the proportion of females would be significantly higher than that of males. The age and sex structure of 2051 demonstrate

the completion of the demographic transition; thus, the structure changed significantly from a pyramid shape to that of a barrel shape. Diagrams 2 and 3 of Figure 3 show the continuity of the observed pattern of the demographic transition up to years 2026 and 2051, respectively. By 2051, the elderly population will reach a significantly large proportion, and the female proportion of the 80-year population segment would be about twice that of the corresponding male proportion.

Population by Broad Age Groups

Children of less than 15 years are the most susceptible to the assumptions that have been utilized in all three projection scenarios. Their numbers will depend on the key determinants affecting the changes in fertility, namely the changes in the number of women in reproductive ages and changes in infant and child mortality.

The projected numerical size and percentage of children of less than 15 years of age are shown in Table 15. The child population of 4.9 million enumerated in 2001 is expected to decrease to 4.7 million by 2011. Because of the decline in fertility and due to continuing out migration, by 2031 their number will be about 3.5 million. As fertility virtually remains at a stable level, the numerical size of the child population will stabilize at 3.5 to 3.2 million during the period 2030 to 2040. Beyond that phase, the child population will continue to decline and would reach 2.7 million persons by the latter part of the 21st century.

Table 15: Number and Percentage Distribution of Population by Three Broad Age Groups, 2001 to 2081 (Standard Projection)

Year	Children (<15 yrs.)		Working Ages (15-59 yrs.)		Elderly (60+ yrs.)	
	Number	%	Number	%	Number	%
1981*	5,236.4	35.3	8,625.2	58.1	985.1	6.6
2001*	4,922.4	26.3	12,080.5	64.5	1,731.4	9.2
2006	4,807.4	24.4	12,836.7	65.1	2,075.7	10.5
2011	4,692.4	22.8	13,294.8	64.7	2,570.4	12.5
2016	4,523.6	21.4	13,591.9	64.2	3,070.2	14.5
2021	4,196.1	19.4	13,778.8	63.8	3,605.1	16.7
2026	3,825.3	17.5	13,863.2	63.6	4,115.0	18.9
2031	3,520.3	16.1	13,826.2	63.2	4,536.1	20.7
2036	3,363.2	15.4	13,589.3	62.3	4,888.8	22.4
2041	3,299.0	15.2	13,026.7	60.0	5,386.7	24.8
2046	3,244.7	15.1	12,389.5	57.7	5,831.2	27.2
2051	3,149.3	14.9	11,874.0	56.2	6,080.6	28.8
2056	3,018.3	14.6	11,401.3	55.2	6,236.1	30.2
2061	2,902.9	14.4	10,939.5	54.3	6,301.7	31.3
Year	Children (<15 yrs.)		Working Ages (15-59 yrs.)		Elderly (60+ yrs.)	
	Number	%	Number	%	Number	%
2066	2,839.0	14.5	10,415.9	53.2	6,335.3	32.3
2071	2,807.2	14.8	9,893.2	52.0	6,329.1	33.3
2076	2,769.3	15.0	9,451.3	51.1	6,260.0	33.9
2081	2,703.3	15.1	9,156.8	51.0	6,083.6	33.9

Note:* Enumerated population at the Census of Population 1981 and 2001.
Source : De Silva (2007).

The proportion of child population aged less than 15 years was about 26.3 % at the commencement of the projection in 2001, and is expected to decline steadily over the projection period (Table 15). The proportion will decrease to 16.1 % and 15.1 % in 2031 and in 2081 respectively. The increase in the life expectancy, particularly among the elderly groups, hides the effect generated from the recent increase in fertility, which will cause the percentage of child population to remain stable.

More than 35 % of the Sri Lankan population in 1981 was children, which indicated a key feature of a "young population" (Table 15). The relative magnitude of the proportion of children declined by almost 10 % in 2001. By 2006, children of less than 15 years comprised about one-quarter of the population.

The older population who are 60 years and beyond is expected to change significantly. Approximately one-million elderly were identified in 1981 (Table 15), comprising only 6.6 % of the total population. The numerical size and the proportion of the elderly had increased gradually

during the past many decades. The elderly population of 1.7 million enumerated in 2001 is expected to increase to 3.6 million by 2021, indicating that the elderly population will be doubled during the 20-year period. Consequent to the declining trend in fertility and mortality in the coming years, the projected number of elderly will be 4.5 million in 2031, and that number will increase to 6.3 million elderly in 2061 (Table 15). In terms of the proportion of elderly to the total population, a strong linear increase is visible, indicating that the elderly population comprising 9.2 % of the total population in 2001 would increase to 16.7 by 2021. By 2041, one out of every four persons in Sri Lanka is expected to be an elderly person. Demonstrating the effect of the demographic transition occurring in Sri Lanka, during the latter part of the 21st century, about one-third of the Sri Lankan population would be elderly (Table 15).

Although ageing of the Sri Lankan population continues, even at 2021, the proportion of children in the population would not be outnumbered by the elderly (Table 15, Figure 4). Between 2021 and 2026, the above pattern would change in the opposite direction. In 2024, the child percentage and the elderly percentage in the Sri Lankan population would equilibrate at 18 %, as shown in Figure 4. However, beyond 2024 the percentage of elderly will increase significantly, and the percentage difference between elderly and children will be widened in favor of the elderly.

Figure 4: Relative Size of Child (<15 yrs.) and elderly (60+ yrs.) Population (standard projection)
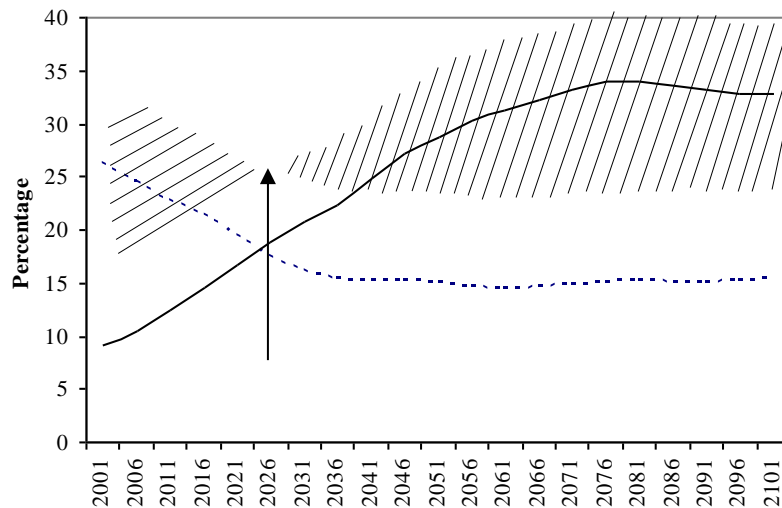
In contrast to the child population, the working age population between 15 and 59 years of age will continue to increase numerically until 2026, and show a decline thereafter (Table 15). The working age population, which was 8.6 million in 1981, increased to 12.1 million by 2001, and comprised 64 % of the total population. In 2006, it increased to 12.8 million, constituting 65 % of the total population and is observed as the peak when compared to the percentage share of the working segment of the populations of the latter periods, computed for the entire 21st century. Beyond 2006, the percentage share of this segment of the population declined gradually, and will reach 63.2 % in 2031, and 51.0 % by 2081. The proportionate share of the child population to the total population started to decline in the 1970s, while the share of the working age population increased.

The age structure transition in Sri Lanka is primarily the effect of past trends in fertility and mortality decline and the assumptions adopted for the future population growth patterns. The demographic transition experienced in Sri Lanka have not been uniform; nevertheless, the current phase of changes indicate that the Sri Lankan demographic environment is conducive to rapid economic development, given the condition that necessary socioeconomic polices are in place to achieve the maximum benefit of the situation.

4.3   The Dependency Burden

Changes in the different components in age structure have major implications for the country's socioeconomic and development activities. Thus, the economic effect of the changes in the functional age groups, namely children (0-14 years), adults of working age (15-59 years), and the elderly (60+ years) can be presented by a summary measure known as the dependency ratio. The age structure changes of a population determine the change in the level of demographic dependency. Three dependency ratios, comprising the child dependency, old age dependency, and the sum of these two fractions, known as the total dependency, are presented in Table 16. The dependency ratio is defined as the number of dependents to every hundred persons between 15 and 59 years.

Table 16: Projected Dependency Ratio, 2001 to 2101 (standard projection)

Year	Child Dependency (<15 yrs.)	Old Age Dependency (60+ yrs.)	Total Dependency
1981*	60.7	11.4	72.1
2001*	40.7	14.3	55.0
2006	37.4	16.2	53.6
2011	35.3	19.3	54.6
2016	33.3	22.6	55.9
2021	30.4	26.2	56.6
2026	27.6	29.7	57.3
2031	25.5	32.8	58.3
2036	24.7	36.0	60.7
2041	25.3	41.4	66.7
2046	26.2	47.1	73.3
2051	26.5	51.2	77.7
2056	26.5	54.7	81.2
2061	26.5	57.6	84.1
2066	27.3	60.8	88.1
2071	28.4	64.0	92.4
2076	29.3	66.2	95.5
2081	29.5	66.4	95.9

Source: De Silva: 2007

At the beginning of the projection interval in 2001, the total dependency ratio was 55.0 dependent persons for every 100 working age persons, of whom 41 persons were child dependents and 14 were old age dependents (Table 16). During the projection horizon, child dependency will decrease to 24.7 % by 2036, while the old age dependency will increase at the faster rate of 36 elderly for every 100 working age persons. The projected changes in these two segments of dependency in the Sri Lankan population will cause a reduction in the total dependency ratio from 55.0 in 2001 to its lowest of 53.6 dependent persons in 2006. Thereafter, the overall dependency will increase to 55.9 dependents by the year 2016, and to 58.3 by the year 2031. As a result of the rapid increase in old age dependency, which out-paces the decline in young age dependency, the projected overall dependency will increase significantly after 2041.

These dependency ratios imply that there is a likelihood that the future age structure would have a favorable impact on the economy of Sri Lanka. In the five-year period preceding 2006, the Sri Lankan population had the best demographic environment or the "window of opportunity" conducive for rapid economic development. However, by 2011 the dependency ratio would increase to the level which prevailed in 2001 (55 %). The low dependency ratio observed in contemporary Sri Lanka is a result of the past demographic trends. This is an opportunity that needs to be used immediately.

5. Demographic Bonus

Each country undergoes a period known as a "window of opportunity" or a "demographic bonus" during the age structure transition. The demographic bonus is the potential accruable gain by the society during the period of demographic transition in which there is a high ratio of individuals of working age, in relation to the old and young segments in the dependent age categories (children and elders). The U.N. Population Department has defined this period as a transitional time interval when the proportion of children and youth under 15 years fall below 30 % of the population and the proportion of people 65+ years and older below 15 % (UN population dept.).

5.1. Other Factors for Effective Use of Bonus

In almost all countries in Southeast Asia, the "window of opportunity" had a positive impact on economic growth. The general observation about these countries is that the period offering a demographic dividend or a window of opportunity was parallel with a phase of accelerated economic growth. Each single country of the newly industrialized countries, such as the Republic of Korea, Singapore, Hong Kong and Taiwan, had effectively utilized the "window of opportunity" offered by the best demographic environment. In each of these countries, the rapid economic take-off had taken place when the dependency burden was the least and the highest proportion of the population age structure was of working ages.

Population projections computed for Sri Lanka show that the country is currently undergoing a demographic bonus period, which began in 1991. According to the population projections, this window of opportunity is expected to last about 26 years (Figure 5).

Figure 5: Demographic Bonus of Sri Lanka
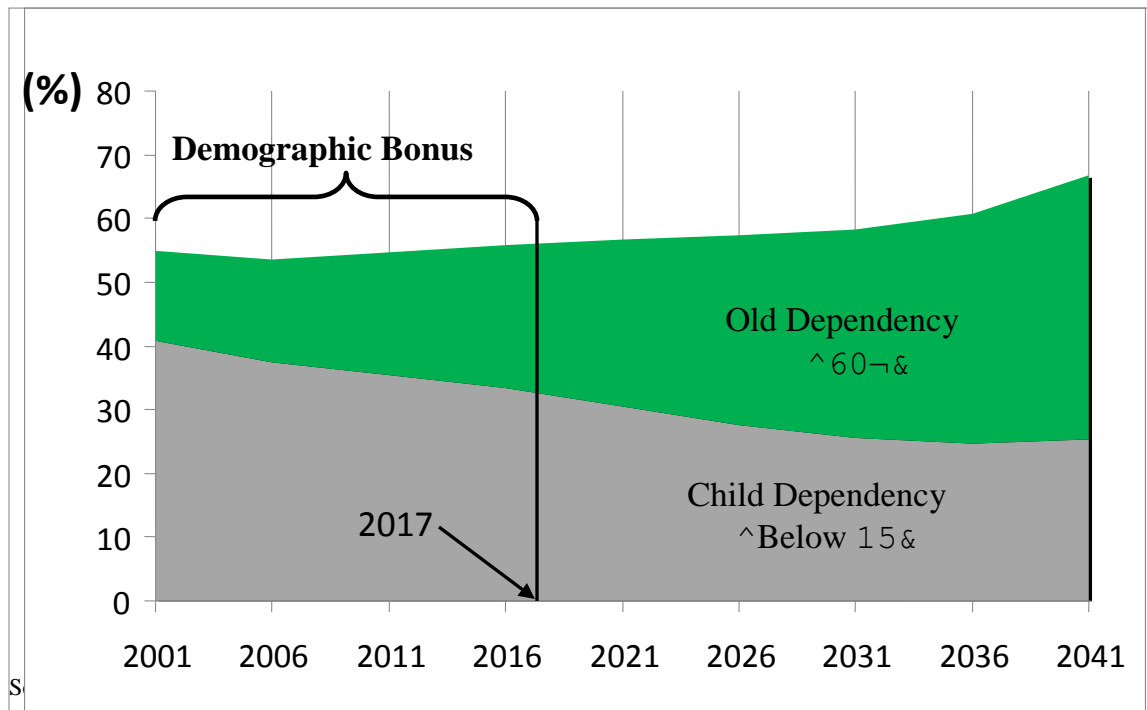
According to the standard projection, at the beginning of the present century, the number of children under 15 years was 4.9 million (i.e., 26.3 % of the total population), the size of which will decline subsequently. The same projection entails that the percentage share of children under 15 relative to the total population would also continue to decline. Yet, with the recent changes in fertility, the validity of the above projection is challenged, since there would be more than the expected increase in the child population as a result of the observed fertility increase.

6.   Other Factors Required for Development

The mere existence of a favorable demographic bonus would be ineffective without a proper environment for economic acceleration. An increasing working age population seeking gainful employment, but with no proper job opportunities will be a dilemma for a country. Nevertheless, in a congenial environment of political stability, adequate savings, investment potential, human capital and the knowledge economy, the optimum utilization of the demographic bonus to gain economic acceleration would materialize.

6.1   Political Stability

South East Asia's newly industrialized nations such as Singapore, Taiwan, South Korea and Hong Kong, also known as the "Asian Tigers," though currently politically stable and with strong governments, have faced severe internal problems in the past (Owen, 2004). Careful analysis of the sociopolitical and economic environment of the Asian Tiger countries reveal that these nations had overcome the internal political problems and had established strong governments with visions for economic development, with set goals, objectives and plans for accelerated economic growth (Deshpande and others, 2004). The governments maintained effective governance and law and order, and the people were motivated by these strategies and cooperated with the political leadership and the government.

After thirty years of war, Sri Lanka has regained political stability. In its long-term plans, the Government declared its vision, set goals, and targeted programs and plans for development. This presents an opportunity to harvest the remaining period of demographic bonus and to better prepared for the upcoming period of gradually increasing dependency rates.

The present political calmness is an ideal opportunity to attract foreign capital investments for development since opportunities have been created for such capital investment. In addition to the traditional emphasis on welfare expenditures in Sri Lanka, large construction projects have been undertaken to develop infrastructure and expand communication and telecommunication networks. Due to such investments, the opportunities as well as the potential for the employment of human capital will be high.

6.2   Savings

The question as to how the population's magnitude and growth would affect the economic growth of a country has been an area of contention and debate among demographers and economists. On matters pertaining to economic development, economists tend to concentrate only on population growth, ignoring the changing age distribution within the population. These changes are arguably important as the populations expand.

At different stages of life, the economic behavior and the needs of people vary and the responses of the economy to such needs also vary. Children less than 15 years require substantial investment in health and education. The elderly require additional health and care services. These changing needs relative to the life cycle stages affect the recurrent and capital expenditure behavior of the economy and the country's economic preferences. According to the Dependency Rate Hypothesis proposed by Leff (1969), as the dependency rate increases, the working age population has a heavier family consumption burden, which decreases the family savings rate and the physical capital accumulation.

The working age group of the population bears the responsibility for supporting the age groups who are in the dependent categories. Changes in the number of dependents may affect negatively or positively the weight of the economic burden on that group. Since the total dependency ratio is the sum of old and young age dependency ratios, even when the old age dependency ratio is

increased, the economic burden of the working age group may yet decrease to the extent of decreases in the young age dependency.

The demographic transitional experience is that when the numerical size of the young and the aged in the population increases, the share of the working age group and labor supply decreases. In such circumstances, the family consumption burden of the working age population would be heavier. It is rational to assume that in such a family environment, the elderly group may consume their lifetime savings, which they had cumulatively saved during their working period. This consumption syndrome based on the life cycle pattern of wants and needs entails that the savings rate of the earning individual, as well as the family, would decrease, which in turn would reduce the physical capital formation of the economy.

Until last decade of the 20th Century, an increasingly high dependency burden of the working age population had been a critical feature, which hampered the savings habit of the family unit. The total dependency ratio of the population in 2001 was 55 for every 100 persons of working age of whom 41 were young dependents and 14 old aged dependents (Table 16). In 1981, the ratio had been 72 persons, which confirms that the dependency load had been even higher previously. High dependence had been a continuous obstacle for the economic growth of the country. Nevertheless in 2006, with the commencement of the demographic bonus period, the dependency ratio had declined to 54 persons for every 100 in the working ages. The ratio will increase again to 55 dependents in 2011, and then continually increase throughout the entire projection period as shown (Table 16). The increases in the total dependency ratio are entirely due to the increase in the old age dependency. The population transition process causes aging in a country, which in turn will increase the old aged dependency (De Silva & Senarath, 2009). By the year 2031, for every four persons in the population, there would be an old aged dependent. Thus, the dependency burden ratio can be presented as 4:1 and higher (World Bank, 2008).

In a situation of a demographic bonus in a country, when the child and old age dependency is at a minimum level, the level of savings will increase. The thirty-year long internal war with the LTTE denied Sri Lanka the opportunity to maintain the domestic savings at a high level. Military requirements of the war compelled the government to spend large amounts of money for those purposes. The nonexistence of a long-term economic policy for the nation was another critical factor, which caused savings to decline. These prevailing conditions hampered the government in its efforts to utilize optimally the "Demographic Bonus" to gain economic prosperity (De Silva, 2007).

At present, an unexpected demographic challenge is discernible. In addition to the increasing proportions in the 'old age dependents' segment of the population, a sudden spurt in the level of fertility has occurred, which will eventually lead to an increase in the child dependency. In such circumstances, the demographic bonus accruable to the economy is liable to fade away causing an adverse effect on the economy. The expected domestic savings may not increase and the expected economic growth may not materialize. Along with other economic development policy considerations, the population aging phenomena should be a major policy consideration in Sri Lanka, and the relevant strategies and action plans need to be implemented.

6.3   Investments

The hypothesized close association between savings and investments is that any increases in savings will contribute towards further investments in a country. During a demographic bonus period, it may be anticipated that a similar relationship between savings and investments would exist. Nevertheless, an abrupt increase in fertility during such a period will tend towards a decline in savings. Similarly, when the population is aging, the tendency for investments to decline is high.

The life cycle hypothesis of consumption contends that an individual may plan a pattern of consumption expenditure, based on the expected income of his entire life time (Ando and Modigliani, 1963). The presumption in this instance is that a person in his early years of life spends and consumes either by borrowing from others or spending the assets owned from his parents. In his working years, he consumes less than the income, thus making net positive savings. He invests savings on assets to accumulate wealth to consume in the latter part of the life cycle. During the time of retirement, he again uses his savings as he consumes more than his income in later years of life. These assumptions of life cycle hypothesis would not be fully valid if he wishes to leave some assets or wealth for his children.

A continuous increase in the number of pensioners during the period 1992-2005 is indicated in Table 17. The commitment of the government to allocate an increased amount of funds annually to pay pensions is evident. The aged population who are not beneficiaries of a pension fund would normally benefit by spending their savings on consumption (Figure 6). Such a tendency will affect the economy at the macro level because there will be a decline in the total domestic savings (Dornbush and Fisher, 1978). In such situations, if domestic savings are insufficient for investment, alternative sources have to be sought.

Table 17: Number of Pensioners in Sri Lanka

Year	No. of Pensioners
1992	258,120
1993	293,719
1994	303,993
1995	310,854
1996	332,824
1997	342,343
1998	358,228
1999	364,472
2000	371,728
2001	383,838
2002	394,625
2003	400,000
2004	411,427
2005	418,923

Source: www.pensions.gov.lk

In Sri Lanka, an ideal environment has developed for investments because of the demographic bonus. During such a period, the working age population (15–59) would increase numerically in relation to other age structure segments in the population. The capacity to save is high in a period of demographic bonus, since the proportion of the working age population is higher than the proportions of old and young dependents. Nonetheless, only having an advantageous "window of opportunity" would not be helpful for a country to take off to an economic boom. Other factors need to be strengthened, including adequate employment opportunities for the high ratio of working age population.

Figure 6: Life Cycle Hypothesis
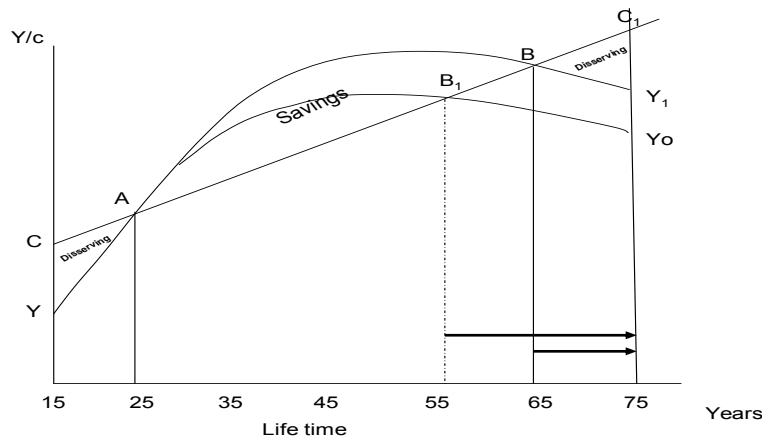
Source: Dornbush & Fisher, 1978.

The policy makers should make maximum use of this opportunity by preparing strategies to attract direct foreign investment to open industries in the country so that sufficient employment opportunities for youth are created and the envisaged accelerated development will take place.

The prevailing internal peace, after three decades of conflict in Sri Lanka, is an ideal period to invite foreign investments. Still the expected interest of the foreign investors to open factories in Sri Lanka has not materialized due to strong competition from India, Bangladesh, Malaysia and Vietnam. In contrast to those countries, the existing labor laws in Sri Lanka, the high salary scales of workers, and the higher cost of production, are among the reasons why this country is not attracting sufficient foreign investment.

6.4   Knowledge Economy

Solow (1956) using the concept of production function, attempted to study the relative importance of various sources of economic growth. The production function entails that the amount of total output produced depends on the amount of different factors of production used and the state of technology.[4] The Production Function Model rationalizes that increases in capital, labor and improvement in technology will lead to growth in the national output. The argument envisages that an advancement in technology leads to increases in productivity of factors of production. Increased improvements in technology or an increase in the total productivity causes a positive shift in the production function (Ando and Modigliani, 1963).

Among others, Amartya Sen further argues that the investment in production of knowledge and education makes workers and machines more productive. Therefore, human capital needs to be included[5] in the model. The workforce equipped with knowledge and education is referred to as human capital and is an important source of economic growth (Ando and Modigliani, 1963).

In Sri Lanka, it is imperative to expect substantial additions of initial youth entrants to the labor force during the demographic bonus period. This potential labor input to the country's economic growth could be enhanced by exposing the added labor input to technological and academic education. For such a purpose, the technical and technological education facilities in Sri Lanka need to be revised to suit the current market demand. New strategies have to be implemented by educators to train the labor force to use high-tech modern equipment.

Another important area of human capital development is the technological and academic advancement of females to increase their competitiveness in labor force participation. They should have opportunities in policy developing positions at managerial levels in public as well as in the private sectors. Their involvement in the capacity of executives and managers will lead to accelerating the economic development process of the country.

As per of the definition of Mahinda Chintanaya program that expects that "Sri Lanka should be the Knowledge Hub of Asia," could be achieved by generating human capital from the "demographic bonus," by increasing calculated investments for future benefits in education, and

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[4] $Y = A f(K, L)$
[5] $Y = A f(K, L, H)$ Where H represents Human Capital which was omitted by Robert Solow.

by imposing radical changes in the tertiary educational courses. In such instances, the knowledge could be used as a tool for future development. The capability of Sri Lanka to produce skilled specialists to cater to international demands would be a major leap forward for the growth in the knowledge economy. The globalization concept confirms that the labor force of a developing nation such as Sri Lanka should be able to undertake any challenge and compete with the developing nations in the world. Such visions had been the guiding principle of the architect of the modern Malaysia, Dr Mahathir Mohamed. He envisaged that Malaysia should be a fully developed nation on par with the United States and Japan (Nation's vision of Malaysia – 2020). Today Malaysia is one of the most powerful nations in Asia. Sri Lanka needs a vision to drive it towards the expected goal in economic development during the period of demographic bonus.

7.   Sector Composition of GDP and Patterns of Employment Generation

International migration for employment as a solution to the skilled labor deployment has been encouraged by successive governments. Planned export of human capital for employment would also bring in the much-needed foreign exchange. Nonetheless, policies should be in place for curtailment of the "brain drain" and the permanent migration of scarce human capital, such as the highly educated research experts, managers and specialists of Sri Lankan labor force.

Investigating the contribution of different sectors of the economy to the composition of the GDP, and the capacity of these sectors to generate further employment is appropriate when investigating the possibilities of maximum utilization of the human capital generated by the demographic bonus. Percentage distribution of the GDP for selected years by broad industrial sectors, covering the period 1990 to 2009 (Table 18, Figure 7), shows the GDP's behavioral pattern during the last two decades. Table 19 shows the absolute number of persons employed in different sectors. Table 20 is a comparison of the percentage sector shares of employment with that of GDP.

Table 18: Contribution to GDP from Different Sectors as a Percentage (%)

Sector	1990	2000	2005	2009
Agriculture	23.7	20.5	17.2	12.0
Industry	29.0	27.6	27.0	28.6
Service	47.3	52.1	55.7	59.3

Sources: Central Bank Annual Reports 1990-2000, 2009.

Figure 7: Change in Contribution to GDP from Different Sectors
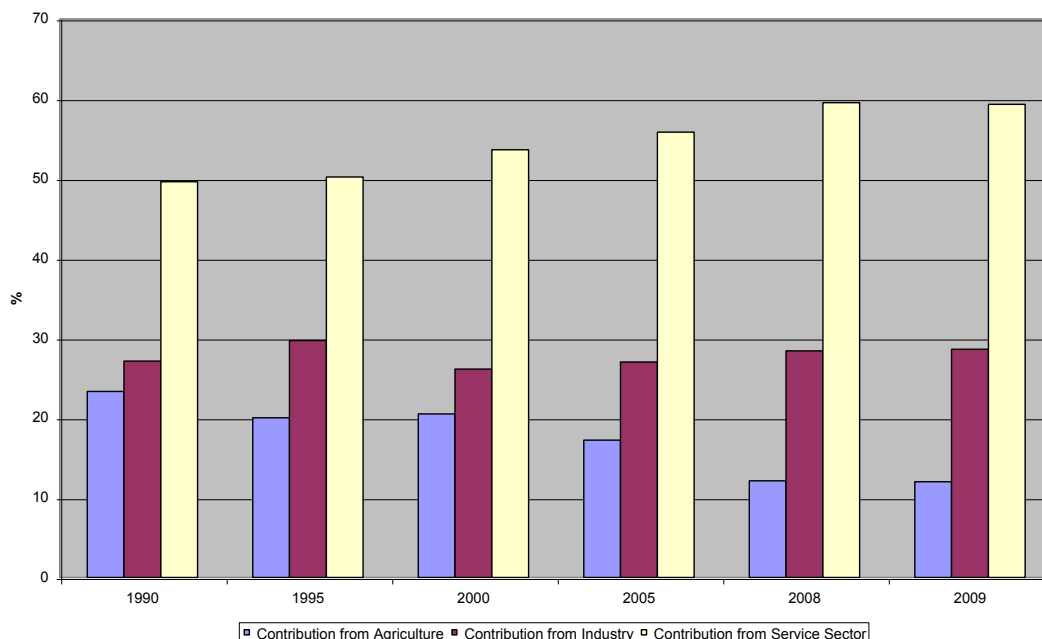
Source: Various sources of Central Bank.

The composition of GDP by industries shows that the sector shares had changed during the two decades under consideration. The share of agriculture declined continuously while the share of services had increased. The industries sector indicated a stagnant growth throughout the period.

The GDP share in agriculture shows a continuous decline. During the period 1990 to 2009, the agricultural sector's percentage share of the GDP declined by 12 percentage points, from 24 % in 1990 to 12 % in 2009. This trend dates to the last four decades. In 1970, the share of agriculture was as high as 28 %, while the industries sector share was approximately 17 %, and the services had made the highest contribution amounting to 53 % of GDP (Central Bank, 1983).

Analysis of the employed population by broad industrial sectors show that in 1990, approximately 2.4 million employees, comprising almost 47 % of the labor force of a total five million, were employed in the agriculture sector (Table 19). The proportion employed in this sector had declined to one-third of the total employed in 2009 (Table 20). Traditionally, agriculture was the avenue of employment for a large proportion of women too. The productivity in the sector had remained significantly lower, due to conventional conditions of increased labor input to limited agricultural land resources in the sector, and the tendency of the sector to be

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affected by natural disasters. The reduction of the employed in the agricultural sector during the period under consideration may be explained by the increases in employment in the industry and service sectors. The recent infusion of research and technology to agricultural development, and the efforts to modernize agricultural employment would have resulted in reducing the level of under-productivity in the sector (Central Bank of Sri Lanka, 2010). Yet the sector share of the GDP has declined continuously (Table 20). Further modernization of the sector, expansion of agricultural by products industries, development of marketing and storage facilities, increased exposure of female farmers to modern methods of farming, and increased investment in agricultural research may amplify the sector contribution to the GDP, as well as the sector's productivity.

Table 19: Absolute Number of Labor Employed in Different Sectors ('000)

Year	Agriculture	Industry	Services	Total
1990	2361	946	1740	5047
1995	1967	1162	2228	5357
1999	2205	1300	2578	6083
2000	2267	1456	2619	6343
2005	2306	1844	3368	7518
2008	2490	2005	3154	7648
2009	2476	1910	3216	7603

The estate sector, which created substantial employment opportunities for the working age population, traditionally has been the main export earner for the country, and still functions as one of the leading foreign exchange earners of the Sri Lankan economy (Central Bank, 2010). Expansion and diversification of commercial agriculture, search for new lucrative markets for the finished products, modernization of the finished product to suit market demand, etc will be avenues for creating employment opportunities for different age segments of human capital at various educational levels. The introduction of new, viable and sustainable, income streams from commercial agriculture exports would also help in accelerating the economic development effort of the country.

Table 20: Sector Shares of Employed as a Percentage of Total Employed and GDP as a Percentage of total GDP

Sector	1990		2000		2005		2009	
	Employed	GDP	Employed	GDP	Employed	GDP	Employed	GDP
Agriculture	46.8	23.7	35.7	20.5	30.7	17.2	32.6	12.0
Industry	18.7	29.0	23.0	27.6	24.5	27.0	25.1	28.6
Services	34.5	47.0	41.3	52.1	44.8	55.7	42.3	59.3

Source: Derived from Tables 18 and 19.

The hypothesis that productivity of an average worker in the agricultural sector is 33 % of the productivity of a worker in the service sector needs to be reassessed based on seasonality of agricultural employment, in consideration for the hours of work (Oshima, 1987), and the nature

of work during the working seasons. Nevertheless, the proportion of the labor force employed in agriculture remains higher than the proportion employed in the industry sector (Table 20).

Figure 8: Change in Employment in different sectors
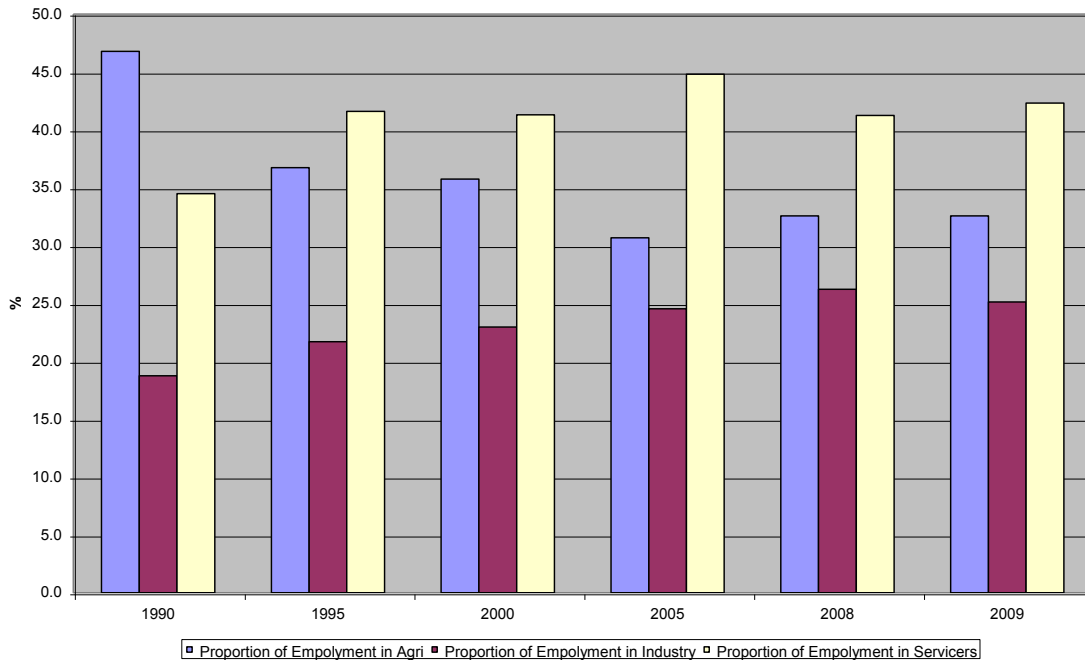
The percentage share of the industry sector of total GDP amounted to 29 % in 1990, and remained at a virtually constant level with slight fluctuations. In 2009, after a lapse of two decades, industry registered a marginal decrease of 0.4 percentage points (Table 18, Figure 7). The growth pattern of the industries sector from 2005 to 2009 shows that the contribution of all the constituting sub sectors, such as mining and quarrying, manufacturing, electricity gas and water, and construction had declined slightly (Central Bank, 2010).

Closer to one-fifth (19 %) of the total employed were in the industries sector in 1990, which increased to a quarter of those gainfully employed in 2009 (Table 20). The industry sector has shown a gradual yet, steady increase of employment throughout the period. Even though the industry sector's share of GDP remained virtually constant (fluctuating only from 27 to 29 %), employment in the sector increased by at least 7 percentage points (Table 20), which implies that the sector productivity had been declining. Nonetheless, the Central Bank Sri Lanka (2009) records that labor productivity in industry had increased, measured in terms of GDP per worker at constant prices.

The garment industry, which had expanded vastly from the late eighties (Department of National Planning, 1989), has been an important avenue of employment for the middle to secondary school educational institution graduates. In fact, the female youth unemployment, which was very high in eighties (Department of Census and Statistics 1983), was reduced substantially due the expansion of the garment industry (Peiris, 1997). Thus, female youth have been the major beneficiaries of garment industry jobs. The industry has become one of the leading foreign exchange earners for the country (Department of National Planning 1989, Central Bank of Sri Lanka 2010). It still has the potential to create further employment avenues for the youth segment of the demographic bonus. Nevertheless, the problems created by withholding of the

quota system hampered the industry due to the curtailment of export avenues of the finished products (The quota given by the European Union for the government exports of Sri Lanka to the Union countries ended in 2010.). The entrepreneurial foresight and the willingness to adapt to the changing environment shown by the apparel industry show that the industry has shown its ability to face the challenges to explore the most lucrative markets for the finished products (Central Bank of Sri Lanka, 2010). Finding alternative markets along with expansion of marketing possibilities enabled a large proportion of female youth to be saved from the threat of attrition from employment.

The service sector comprised at least 47 % of GDP in 1990, and the share increased to a little more than 59 % in 2009, an increase of 14 percentage points during the period, which is a relatively substantial expansion (Table 18). In the current decade (from 2000 to 2009), the service sector's share of GDP increased from 52 % in 2000 to 59 % in 2009, approximately a 7 % increase. Nonetheless, during the immediate half-decade period from 2005 to 2009, the contribution of the service sector was stagnant at 59 %.

Components of the service sector for years 2000 and 2009 are presented in Figure 9. Within the service sector, the wholesale and retail trade has been the highest contributor to GDP, which in 2009 constituted 39 % of the sector (Figure 9). Nevertheless the magnitude of the proportion of wholesale and retail trade has been declining (Central Bank of Sri Lanka, 2009). In 2000, the share of wholesale and retail trade was 40 %, of which particularly export and import trade has declined to 38.5 % in 2005. The downward trend continued until 2009. The domestic trade sub sector had increased by at least one percentage point (Central Bank of Sri Lanka, 2009).

Figure 9: Components within the Service Sector
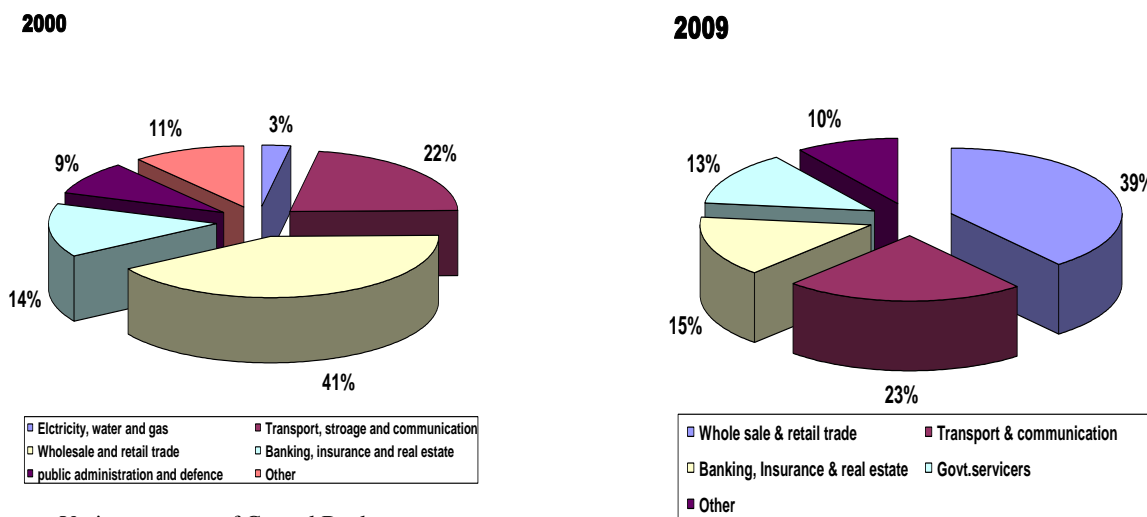
Source: Various sources of Central Banks.

Slight declines occurred in the sector's shares of restaurants and hotels and ownership of dwellings, while the government services fluctuated between 12.9 and 13.3 % of the sector. The share of banking and insurance services fluctuated around 14 – 15 % (Central Bank of Sri Lanka 2010). Transport and communication, the second important component of the service sector

comprised 23 % in 2009. A gradual increase of three percentage points from 20 % in 2000 to 23 % in 2009 occurred from 2000 to 2009. The share of employment in the services sector was approximately 35 % in 1990 and increased to 42 % in 2009, an increase of 7 % during the period (Table 20). The level of employment in the service sector had been increasing substantially up to 2005, but declined by 3 percentage points in 2009 (Table 20).

The country's economic growth mainly depends on trade and hotels, transport, storage and communication, manufacturing, and finance, insurance and real estate. These subsectors contributed 64 % of GDP in 2008 (Ministry of Labour Relations and Manpower, 2009).

8.   The Demographic Bonus of Asian Tigers: The Case of South Korea

Since 1970, the Korean population segment of children under and equal to 14 has changed considerably. In 1970, the child population was 42.5 % and by 2003, the percentage share was reduced to 20 %. This was due to the decline in the total fertility rate of Korea from 4.53 in 1970 to 1.19 in 2003. The share of the working age group had increased from 54.4 % in 1970 to 71.7 % in 2003. The share of the working age group increased but at a decreasing rate due to a decline in fertility. A noteworthy change in the age structure of the Korean population was the increase in the share of elderly in the population, which was 3.1 % in 1970, that rose to 7 % in 2003 and to 8.3 % in 2003. The share of the elderly segment increased as a result of the increases in life expectancy of the population from 62 years in 1970 to 77 years in 2003, coupled with a decreasing trend in the fertility rate. Finally, Korea became an aging society (Chong-Bum, 2006).

According to the dependency ratio hypothesis proposed by Leff (1969) when the dependency ratio increases the working age segment of the population has a heavier burden of providing adequate means of family consumption. High dependency ratio decreases the family savings and hence the country's physical capital accumulation capacity. The decreasing pattern of the dependency ratio in Korea during 1970 to 2003 period suggests that such a trend would have produced the required demographic dividend for the economic growth of the country.

South Korea capitalized on its demographic situation to seize the the favorable opportunities offered by international industrial restructuring. The Government selected the industries in which it had a comparative advantage, and provided resources, financial support and promoted the development of the national economy to launch its accelerated economic development (Chong-Bum, 2006).

With the help of U.S. foreign aid, the Government built infrastructure that included a nationwide network of primary and secondary schools, modern roads and a modern communications network. By 1961, South Korea had a well-educated, young workforce to provide a solid foundation for economic growth.

Seoul presumed that a well-educated and highly motivated workforce would produce low-cost high-quality goods that would find ready markets in the USA and in the rest of the industrial world. The Government expected the profits generated from the sale of exports to be used to expand capital investment, to provide new jobs, and eventually to pay off loans.

In the early 1960s, the country was poor and economic development was critical to lift it from poverty. However, the Government faced a critical problem of raising funds for the needed industrial development. Domestic savings were at a very low level, and the available domestic capital was inadequate. This obstacle was overcome by taking out foreign loans and offering attractive interest rates to entice local entrepreneurship into production. In contrast to Taiwan, Hong Kong, and Singapore, South Korea financed its economic program with foreign loans totaling US$ 46.8 billion in 1985, making the country the fourth largest Third World debtor.

South Korea created an Economic Planning Board in 1961, and it became the nerve center of the planning process to promote economic development. The Board was headed by a Deputy Prime Minister and staffed by business and economic professional. By the beginning of the 1960s, the Board had raised capital, allocated resources, directed the flow of credit, and formulated all of South Korea's economic plans.

South Korea administered a series of economic development plans. The government mobilized domestic capital and encouraged savings. Further, the type of industrial plants that could be constructed with the available funds was determined and the potential for development of the products for exports was reviewed. Nevertheless, the role of the government was not limited to such measures as mobilizing capital and allocating investments.

The government restructured the defense and construction. The economic planning Board established export targets, and monitored to ensure the targets were met. Additionally, government subsidized credit was made available to provide the producers additional access to the growing domestic market. Failure to meet such targets led Seoul to face the withdrawal of credit facilities (http://country studies. us/south –korea/47.htm)

South Korea's GNP grew at an average rate of more than 8 % per year, rom US$ 2.3 billion in 1962 to US$204 billion in 1989. Per capita income grew from US$ 87 in 1962 to US$ 4,830 in 1989. The manufacturing sector share of GNP was 14.3 % in 1962 and increased to 30.3 % in 1987. The ratio of domestic savings to GNP grew from 3.3 % in 1962 to 35.8 % in 1989. (http://country studies.us/south –Korea/47.htm)

9.   Emerging Population Issues in the New Millennium

9.1   Recent Increase in Fertility

Sri Lanka's recent increase in fertility[6] may have significant implications but it is too early to confirm these emerging trends. The evolution of fertility patterns will need to be continually monitored to assess the longevity of the fertility hike.

9.2   Aging

In Asian social traditions, the elderly are revered. However, the United Nations (1999) observes that industrialization, urbanization and new technology have brought about radical social changes, which have weakened the family support system in Asian societies. In these circumstances, the aging population is becoming a serious problem in many Asian societies.

Comparing the aging experience of western countries with that of Sri Lanka reveals that aging in Sri Lanka is occurring in parallel to a lower level of economic development. A favorable combination of fertility, mortality and international migration trends leading towards an age structural transition in the country, has resulted in a significant increase of the proportion of elderly population. Nevertheless, recent economic and social changes such as urbanization and increased female labor force participation (even though their labor force participation is relatively low still), have lessened the capacity of females to support the elderly.

The proportion of elderly population in Sri Lanka is higher than in other South Asian countries. In 1996, 9 % of women and 9.1 % of men in Sri Lanka's population were 60 years of age and over, which is a relatively large elderly population for a developing country (De Silva, 2007). The definition of "elderly" varies from society to society. In this paper, "elderly" is defined as those who are 60 years or more. The reason for taking 60 as a cut-off age is that, in both government as well as private institutions in Sri Lanka, the retirement age is between 55 and 60 years.

The international labor migration, largely concentrated among young adult working age groups, has increased during the last three decades, reducing the proportion of the working age population in the country. Because of the extent of youth's emigration, the proportion of the elderly in the population has increased (Korale, 1985; De Silva and others, 2008). Based on this emigration pattern and the future trends in mortality, fertility and international migration, the proportion of the population aged 60 and over is projected to increase by nearly 36 % from 9.2 % in 2001 to 12.5 % in 2011. By year 2041, about a quarter (24.8 %) of the Sri Lankan population will be in the 60 and above age group (Table 21).

During the period covering 2010 to 2041, the Sri Lanka population will increase moderately by about 9 % from 20 to 22 million. During this period, the elderly population (60 and above) will

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[6] The total fertility rate of Sri Lanka was reported as 2.3 for the period 2003-2006 (urban 2.2, rural 2.3, and estate 2.5) in the 2006-07 DHS is significantly higher than the TFR observed in the 2000 DHS, which was 1.9 for the period 1995-2000.

increase from 2.5 million in 2010 to 5.3 million in 2041, an increase of over 100 %, or a doubling of the elderly population.

Table 21: Age Composition and Growth of the Elderly Population, 1971-2071

Year	Age (percentage)			Percentage & number of elderly (60+) % No. (000')	Annual growth rate	
	60-74	75+	60+		Total population (%)	Elderly (60+) (%)
1971*	80.5	19.5	100.0	6.3 807	-	-
1981*	79.5	21.1	100.0	6.6 986	1.60	2.04
2001*	77.0	23.0	100.0	9.2 1731	1.17	2.83
2011	77.2	22.8	100.0	12.5 2570	0.93	3.95
2021	77.2	22.8	100.0	16.7 3605	0.49	3.38
2031	71.8	28.2	100.0	20.7 4536	0.14	2.29
2041	69.0	31.0	100.0	24.8 5387	-0.08	1.72
2051	68.0	32.0	100.0	28.8 6081	-0.28	1.21
2061	61.5	38.5	100.0	31.3 6302	-0.47	0.36
2071	60.3	39.7	100.0	33.3 6329	-0.57	0.42

Note: Enumerated population percentages at the census.
Source: De Silva (2007).

9.3 Structural Changes among the Elderly

The age, sex and marital structure of the elderly population are important variables to consider when planning to meet their social service demands. The age composition of the elderly population changes, because of the tendency of the older age groups within the elderly population to expand more rapidly. The elderly are grouped in two categories, the "young old" (aged 60-74 years) and the "old old" (aged 75 and above). The proportion of the "old old" was only 23 % of the total elderly population in 2001, but is projected to increase to 28.2 % in the year 2031 (Table 22). According to the past fertility rates and the present mortality rates, the proportion "old old" will continue to increase. In 2071, the proportion of "old old" will be 39.7 % of the total elderly population.

Different proportions of males and females in the elderly age groups reflect the differential mortality and migration events that have occurred over the lifetime of cohorts. According to Table 22, the proportion of females in the elderly age groups is rapidly increasing. The sex ratio among the elderly population has declined from 113 males for every 100 females in 1981 to 88 in 2001, and is projected to decrease to 78 by the year 2031. This decline is stronger among the "old old" groups. The life expectancy of females is higher than that of males, signifying that a larger number of females compared to males survive till old ages. The sex ratio of the total population of Sri Lanka, and much more the elderly population, is increasingly becoming disproportionately female biased (Table 22).

Table 22: Sex Ratio of the Elderly Population, 1971 – 2071

Year	Age		All 60+
	60-64	75+	
1971*	126.0	106.2	121.8
1981*	114.6	107.2	112.9
2001*	89.11	84.6	88.05
2011	85.21	73.7	82.45
2021	83.74	69.0	80.15
2031	82.31	67.6	77.90
2041	82.54	66.7	77.30
2051	85.69	65.1	78.57
2061	87.55	66.6	78.88
2071	87.30	67.2	78.74

Note: Sex Ratio - Number of males per 100 females.
 *Enumerated population percentages at the census.
Source: De Silva (2007).

One of the most significant demographic variables to identify the social well-being of the elderly is marital status, which indicates the manner in which people organize their everyday lives. Although the level of permanent celibacy is very low in Sri Lanka, relatively more elderly males than females are single (De Silva, 1997). Marital status to a certain extent defines the living arrangements of persons. For social security, as well as economic reasons, the living arrangements may be especially important to the elderly.

Widowhood is more prevalent among women than men. The proportion of widows who were 60-64 years of age increased by about three times that of widowers in the same age group, while the proportion of widows in the 60+ age group, increased by about four times that of widows, during the period 1981 to 1994. There are three reasons for the high rates of widowhood among elderly females. First, wives are generally younger than their husbands. Second, higher life expectancy of females is a consequence of the lower mortality of females at all ages. Third, the frequency of remarriage among widowers is greater than widows, which may be reflected in the lower proportion of widowers than widows among the elderly. Those who are in a marital union have someone not only to share their difficulties with, but also to positively influence their physical and mental stability. Thus, as found in many Asian countries, it appears that women in Sri Lanka are also disadvantaged, in terms of access to companionship and assistance in their later years.

9.4   Disability

Parallel to the rapid ageing phenomenon of the Sri Lankan population, the incidence and prevalence of disabilities have increased. Apart from aging, civil disturbances experienced in recent times have also aggravated this situation. Irrespective of the cause, disability is associated with many economic, social and demographic implications.

The 2001 population census contains the most recent information on disability. Comparing the 2001 data with the 1981 census figures provides worthwhile information on the demographic characteristics of the disabled. One major constraint in comparisons is the inconsistency of how disability is defined by the two censuses (Department of Census and Statistics, 1981; 2003). The current study established a set of definitions on disabilities to enable comparative analysis without such constraints (for definitions used for disability, please see Appendix I). The basic measure of comparison was the number of disabled people per 10,000 population. The analysis using the data from the two censuses focuses on four types of disabilities (blindness, hearing and speaking, hands, and legs) prevalent at the time, and on the six age groups classified from 50-54 years to 75+ years.

A steady decline in the prevalence of blindness is observed from 1981 to 2001 in the 50-54 to 65-69 age groups, but a conspicuous increase was observed among the 70 and older, in both sexes. During the period 1981 to 2001, vision disability increased marginally from 21.8 to 22.5 per 10,000 population among the elderly population (age 50 and above) as a whole. The contributory factors, which arrested any significant increase in vision disabilities, were improvements in education, including health education, and knowledge of eye care, as well as access to health facilities with specialist treatment.

The hearing and speaking disabilities increased dramatically among all the age groups, with a greater frequency in the older age groups. In totality, the level of disability had increased from 17.4 in 1981 to 55.7 per 10,000 population in 2001. Environmental factors such as noise pollution, both at home and work places, violence, and bomb explosions may be the prime causes for the increased prevalence of these disabilities (Department of Census and Statistics, 1981; 2003).

Disability of the hands has increased in females and males. Females recorded an increase from 14.7 % to 37.1 %, while males from 28.9 % to 61.5 % during the inter-census period. Home and road accidents, bomb blasts, and occupational hazards were some of the causes. Disability of the legs either in one or both is caused mostly by paralysis. But the number of persons with loss of one or both legs was few. Diabetes and pre-vascular diseases are the causes of amputation of legs. The incidence of this category increased for both sexes during 1981 and 2001. Behavior of the elderly in their dietary pattern, consumption of liquor and tobacco, and sedentary lifestyles contributed to the chronic nature of these diseases. Disability of legs might be due to civil war casualties, largely caused by land mines.

The overall picture of disabilities among the elderly set is of a dramatic increase from 1981 to 2001, with the exception of blindness, which recorded only a marginal increase. Since 1971, an increasingly large number of males and females have migrated permanently or semi-permanently to foreign countries for their own or their family's well-beings. Almost all those who have made this international migratory movement would have been free of disabilities. This migratory trend may have contributed indirectly to the significantly higher observed disability rate among the elderly of age 50 years, and over in Sri Lanka in 2001.

The disabled elderly were mostly females. An increasing proportion of working age population, particularly females, had entered the labor force, and workplace hazards also could have been a leading cause for the increasing disability in Sri Lanka. The workers who are engaged in industries such as mining, forestry, construction and agriculture developing counties are often at higher risk of occupational injuries or diseases than those in other industries.

9.5   Family Transition

Family can be defined as a group of persons, related to each other, through blood, adoption, or marriage. Nevertheless, comparative data on the family, based on the above definition is not available. The available statistics relate to households, defined by location, community or living arrangements. Surveys and censuses usually cover all households, not merely family households; nevertheless, the latter type constitutes a major proportion of the available data, which enables the characteristics of the totals to be identified as those of family households.

Disintegration of the extended family system is one social issue of the demographic transition. Traditionally, in Asian countries most young people after marriage live jointly with their parents, and later move to a place of their own when economically or socially possible. However, Lloyd C.B. and N. Duffy (1995) show that families are becoming more dispersed. Young and elderly adults, spouses, and other relatives who might otherwise have shared a home are now more likely to live apart from one another.

Change in Size and Structure of the Family

Households grow larger when children are born or ageing parents move in, and then reduce in size again when the elderly parents die and the grown children leave the household to start their own family (Lloyd C.B. and N. Duffy (1995). Average household size could be considered a proxy for the average family size. Estimates obtained for the former are presented in Table 23.

Table 23: Average Household Size in South Asian Countries

Country	1980s	1990s	Around 2005
Bangladesh	5.7	5.2	4.7
India	5.5	5.4	4.8
Nepal	5.8	5.5	4.9
Pakistan	6.6	6.7	7.2
Sri Lanka	4.9	4.5	4.0

Source: DHS Data Base.

Comparing the average household size of South Asian countries from 1980 to 2005 generally indicates a declining trend. India, the largest country in the region, had its average household size decline from 5.5 to 4.8 members. While in Pakistan, where fertility had not declined significantly, an increase in the average household size is noted during the same period (Table 23). In these countries, the nuclear family is not the norm, since high fertility and social and cultural factors favor co-residence of the extended family, where non-relatives also may live. Over the past three decades, Sri Lanka has demonstrated a clear decline in the average household size and reported the lowest figure for the region. The present average household size of Sri Lanka is about three members less than the corresponding figure for Pakistan.

A few decades ago in South Asian countries, single-person households were virtually nonexistent. Nevertheless, consequent to the population ageing, migration, and the social and economic changes occurring in the region, there is an emerging trend of single-person households. For example, over the last couple of years in Nepal, the proportion of single-person households increased from 3.2 in 1990s to 5.0 % in 2005 (Table 23).

9.6   Female-Headed Households

In many Asian societies, the oldest male is designated the household head, the authority figure, or the person who fulfills the tasks of the household heads, regardless of whether he is the primary source of economic support of the family (Ayad and Others, 1997). Nevertheless, female-headed households have become a steadily growing phenomenon in many countries in the world, including Sri Lanka.

Increase in female-headed households could be due to a variety of reasons, and as Bruce and Lloyd (1992) indicated, widowhood, migration, non-marital fertility and marriage instability could be some of the important causes. In recent decades, an increasing number of women, particularly rural women, have become heads of households because men, the traditional heads of households have gone to the war front or are working far away. Moreover, in a number of countries in the region, due to civil unrest and displacement, large-scale migration of males as refugees, have created a situation where the females have to take over the task of running the household.

The highest proportion of female-headed households in South Asia is in Sri Lanka with 19 % in 1990s and 23 % in 2005 (Table 24). In Sri Lanka, the increase is mainly due to political unrest and social strife in the southern areas of the country in the late 1980s, and the civil war in the Northern and Eastern areas. Consequently, a significant number of young widows have emerged as female heads of households.

A noteworthy feature of female-headed households is that the majority of household heads are widowed women, and the average size of their households is comparatively smaller. As noted in the 1994 Demographic Survey of Sri Lanka, 56 % of the female heads were found to be widowed, while only 37 % were currently married. In contrast, only 2 % of the male heads were reported to be widowed, while 95 % were currently married (Department of Census and Statistics, 1997).

Table 24 does not permit the identification of single-parent households headed by women, but data from developed countries have shown that in the vast majority of cases, the single parent is the mother (De Silva, 2005). The households of South Asian countries may contain a substantial proportion of female-headed households (Lloyd and Desai, 1992).

In the 1990s, of all the South Asian countries, the proportions of female-headed households were lowest in Bangladesh, Pakistan, and India, with less than a tenth of the total number of households in the respective countries. In Nepal, there were 12 female heads, in every 100 households; while in Sri Lanka, nearly one-fifth of the total number of households was headed by women (Table 24). In most South Asian societies, except Pakistan, by 2005 the incidence of female-headed households had increased (Table 24). Nepal nearly doubled its proportion during the period 1990 to 2005. Irrespective of the fact whether they are heads of households or not, in South Asian households, the females traditionally shoulder most of the household responsibilities.

Table 24: Percentage of Single Person Households and Households Headed by Women in South Asian Countries

Country	% of single person households		% of households headed by women	
	1990s	Around 2005	1990s	Around 2005
Bangladesh	1.2	2.1	8.0	12.8
India	2.8	5.2	9.0	14.4
Nepal	3.2	5.0	12.0	23.4
Pakistan	2.9	1.2	7.0	8.5
Sri Lanka	3.3	4.8	19.2	22.8

Source: DHS Data Base.

A new social issue, observed in many developing countries in the context of these female-headed households, is that most of these households have only one adult who is the sole earner of the family income. Many of these households are smaller than the male-headed ones. The 1993 National Household Survey of Sri Lanka showed that 66 % of households in the country comprised of 1-4 members, with only 44 % male-headed. In many instances the male-headed households were comprised of more than one member who was economically active.

9.7 The Social Security System and Retirement Benefits

An important segment of the emerging population issues in Sri Lanka is the need for an efficient and viable social security system and a retirement benefits facility. Such a program should have an effective operational capability to achieve the declared goals of the social security schemes and the identified Millennium Development Goals. The mechanism will provide a security net to cover all the social security expectant individuals who are socially, economically, financially, psychologically and physically handicapped. The main drawbacks to fulfill this task are the limited amount of resources that the Government of Sri Lanka is capable of spending for this purpose. A substantial proportion of the handicapped population is unaware of the importance of social security schemes and are therefore not advocating for the development of a viable social security system. The insufficiency of organized institutions to develop a mechanism and deliver services is another reason for its non-existence.

The public services delivered by the Sri Lankan Government dating back more than six decades since independence mainly targeted the disadvantaged in society. Free education services to the school-age population, free health services for all has reaped many benefits. These free services were the change agent, which led towards the current demographic transition.

The public assistance schemes administered by a host of government institutions, including the Department of Social Welfare, and the annual budgetary allocations for income subsidies, food subsidies for persons without any means, physically and mentally handicapped, destitute segments and those defined as "under the poverty line" were an integral part of the Government's welfare service delivery. Despite the existence of welfare services, the problem developed that the public assistance schemes subsidizing income was meager and did not keep apace with the continuously increasing cost of living.

Traditionally, security mechanisms for the neediest in society were delivered by family customs and norms. The children and the elderly were identified as those who most needed security and support of the family. With the disintegration of the traditional extended family, reduction in its size and the phenomena of nucleation of the family, the traditional social security mechanisms for the socially handicapped began to be disrupted.

Due to the current phase of the demographic transition, the number of persons who can take care of the elderly has declined, while the number of persons who need extra caretaking and support has increased. The most affected are the 'old old' segment of the elderly, who need special care in terms of health care, companionship and psychological support. Consequently an emerging population issue in the new millennium is the destitution and poverty of the elderly in Sri Lanka. In this regard, the longevity of the females makes them the most affected segment of the society. In the absence of appropriate social protection and safety nets systems, the households will need to spend significant resources for the elderly. On average every family will have one aged person to take care of. (World Bank, 2008; De Silva 2007).

The introduction of the market economy to Sri Lanka in the 1830s during the British period saw the emergence of a generation of salary earning public servants and consequently the commencement of a Public Servants Pension Scheme. This scheme is considered a fully subsidized pension scheme covering the entire public service, and administered by the Government Pensions Department. A Pension Act was effectuated in Sri Lanka as early as 1901, which became a part of the statutory law by the enactment of the Judicial Officers Ordinance Number 2 of 1947. In spite of the popular belief that the government pension is fully subsidized, a public servant has to contribute at least 4% to 7% of his/her salary towards the Widows/Widowers and Orphans Benefit scheme upon drawing a salary from the Government. When public service salaries are increased, the pensions are also subject to modest pension revisions. Government pensions also are adjusted for the rising cost of living requirements. The Public Servants Pension Scheme is an emerging population issue in the new millennium due to its continually expanding nature. The total expenses of this scheme comprise nearly half of the allocation for personnel emoluments in the recurrent Government budget.

A large proportion of the population is not covered by the Public Servant's Pension scheme. Until recently, farmers, fishermen and the self-employed who constituted the larger proportion of the employed in the labor force were not covered by any social security scheme or pension benefit scheme, leaving most of them destitute in their old age. Recent parliamentary enactments such as the Farmers Pension and Social Security Benefits Scheme – 1987, and the Fishermen's Pensions and Social Security Benefits Scheme – 1991, have attempted to overcome these anomalies. These schemes can be described as partly Government subsidized and partly voluntarily contributed private sector schemes. The Farmers Pension Scheme, administered by the Agricultural and Agrarian Board, is open to farmers who are 18-59 years of age in the low-income group who need coverage by the public security system. However, the coverage of the farming community in this social security scheme is inadequate. A large proportion of the needy farmers are still not covered. Relative to the costs of living, the pensions paid to farmers and fishermen are inadequate.

The Self Employed Pension and the Social Security Benefits Scheme, operational since 1996 for the self-employed and informal sector workers, is administered by the Sri Lanka Social Security Board. It is a voluntary, self-contributory scheme partly subsidized by the state and mainly dependent on the voluntary contributions of the self-employed and the informal sector workers. The issue regarding this scheme is that it is not as popular as is desired, probably due to the inadequacy of the subsidy payment. The paid retirement pension amounted to only half of the Farmers Pension. Even though the self-employed and the informal sector of the labor force constitute a large proportion of the working population and it is continuously expanding, the membership for this social security scheme is not increasing. Nevertheless most of the self-employed and the informal sector workers are meager income earners and end up on the borderline of poverty in their old age. If the objective of a pension scheme is to ensure a secure and adequate source of income for the retirees, that objective is unfulfilled in the case of the Self Employed Pension and the Social Security Benefits Scheme.

A Public Service Provident Fund with limited capacity was established in Sri Lanka in 1942 to cover certain categories of public servants who did not benefit from the Government pension schemes. Currently, the Employees Provident Fund (EPF) and the Employees Trust Fund (ETF) provide the needed social security for retired private sector workers. The EPF was enacted by an act of Parliament in 1958, and covers employees in the cooperative and private sectors. The EPF depends on the compulsory contributions of both employers and employees, while the ETF is financed by the employer's contributions amounting to not more than 5 % of the employee's salary, and provides benefits after employment termination. Both these schemes operate as lump sum retirement benefits.

10.   Concluding Thoughts

The pattern of changes in fertility mortality and migration levels which has caused irreversible changes to the population age structure of Sri Lanka are such that, the pyramid shaped population age structure in 1981 will take the shape of a barrel, within the immediate period of five decades from 2010. The incongruence of the demographic transitions in Sri Lanka to the nature of economic development have created a number of demographic, social and economic problems that need to be addressed immediately.

The population ageing phenomena is an unavoidable demographic issue in the latter period of the demographic transition. The changing agents that had effectuated the transitional process have also caused the disintegration of the family traditions and irrevocable damage to the traditional old age social security mechanisms. The increased dependency burden is an inevitable feature of the declining size of the working age population.

The economy has not adhered to the emerging problems of the aforementioned demographic changes. The stagnant economy and the inadequacy of employment opportunities for those seeking gainful employment have intensified the emerging demographic and social problems. The under-productivity of those who are already employed has been a recurring problem of the underdeveloped economy. Inadequacy of economic planning procedure to harness the window of opportunity through the transition process is one important issue to be addressed immediately

if the current problems are to be resolved. The inadequacies of the social security net to cover those population segments that need social security are also an important issue to be addressed.

In the absence of an appropriate policy response, such demographic challenges will have grave social and economic implications. Policy makers will need to implement structural reforms in a timely manner to achieve economic development and make maximum utilization of the last phase of the window of opportunity created by the demographic bonus, taking advantage of the prevailing peace and political stability.

Appendix I

Comparison of Disability Figures of 1981 & 2001 Censuses

To affect the above comparison, age-specific disability among the elderly needs to be computed by analyzing the disability data collected during the two respective censuses of 1981 and 2001. However, several differences exist between the two censuses with respect to the definitions of disability and the basis of data collection (Chamie, 1989).

The basis of collection of data on disability at the two censuses 1981 and 2001 were as follows:

a) The 1981 census collected data only on physical disability, whereas the 2001 census collected data on both physical and mental disabilities.
b) Within physical disabilities, the following broad categories of physical disability can be identified for both censuses.
   i) Disability in seeing
   ii) Disability in hearing and speaking
   iii) Disability in hands
   iv) Disability in legs

However, within these broad categories the 2001 census included more types of disability under each category than the 1981 census. Hence, more persons were categorized as disabled at the 2001 census.

c) While the 1981 census covered all 25 districts of the island, the 2001 census covered only 18 districts excluding seven districts in the Northern and Eastern Provinces.

Due to above reasons, certain consistency needs to exist in the process of comparison. In doing so, the following criteria were adopted.

   i) Comparison was limited to physical disability
   ii) Even within a particular category of physical disability mentioned above the data were selected only from types of disability that both censuses have collected.

Thus for the purpose of this comparing physical disability, the following definitions were adopted to maintain uniformity between the two censuses 1981 and 2001.

   A) Disability in seeing – This category of disability included only blindness. Under blindness, only persons who are totally blind in both eyes are included. Blindness in one eye or weak visions in the eyes was not included.
   B) Disability in hearing and speaking – This category of disability included the following types of disability.

a) Deafness – Only those persons who are completely deaf in both ears. Deafness in one ear or hearing weaknesses in ears was excluded.

b) Muteness – Only those persons who are unable to speak at all are considered mute. Defects of speech are not included.
c) Deaf and mute or deaf-mute – Persons who are totally deaf and totally mute come under this type.

    C) Disability in hands – This category included the following types.

a) Loss of one hand – Loss of one hand below elbow is included. Loss of fingers not included.
b) Paralysis of one hand – By paralysis is meant complete inactivity of the hand. A weakness in a hand was not included.
c) Loss of both hands – Loss of both hands below elbows is included here. Loss of fingers not included.
d) Paralysis of both hands – This includes the complete inactivity of both hands. Weakness in hands not included.

    D) Disability in legs – This category included the following types:

a) Loss of one leg – Loss of one leg below knee is included under this type of disability. Loss of fingers not included.
b) Paralysis of one leg - Complete inactivity of one leg. Weakness not included.
c) Loss of both legs – Loss of both legs below knees. Loss of fingers not included.
d) Paralysis of both legs – Complete inactivity of both legs. Weakness not included.

    iii) The basic measure used for comparison namely the "number of disabled persons per 10,000 population" was calculated as follows, with respect to age and sex.

a) For 1981, the number of the disabled and the total population for all 25 districts were taken.
b) For 2001, the number of the disabled and the total population were taken only for the 18 districts from which data were collected.

In carrying out the analysis, number of persons within each five-year age group of the elderly (persons of age 50 years and above) with above types of disability was extracted from 1981 and 2001 census respectively. The data on persons with age unspecified were adjusted using the proportional redistribution method. Such adjusted data on different types of disability were grouped under the appropriate category of disability given above. Hence there were four categories of disability namely:

    A) Disability in seeing
    B) Disability in hearing and speaking
    C) Disability in hands
    D) Disability in legs

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