Paradigm shifts in demographic components in the new millennium and possible implications: A case study of Sri Lanka

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Abstract

This paper, using Demographic and Health Surveys, population censuses, and results of two population projections, attempts assess future population dynamics of Sri Lanka. Since the turn of the new millennium, fertility demonstrated an increasing trend where the average number of live births per woman increased from 1.9 in 1995-2000 to 2.4 in 2012. Although there was an increase in life expectancy of both sexes, after the cessation of civil war in 2009, male life expectancy increased significantly. At the same time departures of labour migrants dropped from 300,000 in 2014 to 200,000 in 2019. As per the population projection of 2015, which captured fertility upturn, the size of the population of the country was expected to increase significantly to 24 and 25 million by 2032 and 2042 respectively. On the other hand, the population projection of 2007, which did not capture the fertility upturn, indicated that the country was reaching population stability by the early 2030s with a population even below 22 million. However, with the increase in fertility and life expectancy, and drop in labour migration, significant growth of the country's population is now expected to be eminent. The aging process and the unexpected fertility upturn have contributed to overall dependency on these increases significantly, which would generate more pressure on the working age population and the State. It is not only that Sri Lanka at present stands at the last phase of the demographic dividend, other factors required for economic take-off such as political stability, investment, savings, and productivity, also not demonstrating an adequate improvement to harness this window of opportunity. Failing to implement appropriate policies and programmes, the rapid growth of the population and aging would also create serious socio-economic and environmental issues in

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the near future.

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1. Introduction

Sri Lanka is an outlier among the South Asian countries in many aspects due to its comparatively advanced demographic and socio-economic achievements, resulting from several decades of welfare policies, particularly targeting education and health (Jones, 2007; Abeykoon, 1998). However, due to substantial changes that took place in procreation, Sri Lanka could be again identified as an outlier in South Asia (De Silva et al., 2010). A substantial change in the demographic components, particularly in fertility behaviour, has been observed during the last two decades, which is of high relevance to policy formulation and implementation in Sri Lanka.

Since fertility is the most significant decisive factor of future size and structure of the Sri Lankan population an assessment of this unexpected fertility transition and its impact on the projected population is extremely significant and timely. Projections that were unable to identify the fertility upturn would have undoubtedly under-estimated the future size of the population compared with the projections, which have captured that upturn accurately. Apart from the fertility, mortality and migration in Sri Lanka also demonstrated sizable changes during the recent past.

This paper attempts to explore the following objectives. First, identification of fertility upturn, that occurred during the past two decades, and contributory factors of that unexpected transition. Second, an assessment of unexpected fertility upturn on the future size of the Sri Lankan population. Third, investigation of changes in age structure and its impact on dependency burden, and demographic dividend as depicted in two different projections, which is of high relevance to policy formulation in Sri Lanka.

2. Data and Methods

Data from multiple sources were used in this analysis. Data from the Department of Registrar General on vital statistics such as births, deaths, and marriages; apart from this source, data related to marriage, fertility, and contraception have been obtained from the national surveys such as Demographic and Health Surveys (DHS) in 1987, 1993, 2000, 2006-2007 and 2016. Although the population censuses of 1981 and 2001 did not have any direct question on fertility, the 2012 census, which was the 14th census of the country, did include a number of questions on marriage and fertility, such data have also been used in detail (Department of Census and Statistics, 2014).

To assess the impact of unexpected fertility upturn on various dynamics of the future population of Sri Lanka, results of the two population projections have been utilized; the latest projection by De Silva and de Silva (2015), which captured the recent fertility upturn and the other one by De Silva (2007), which was not able to capture the fertility upturn. Since the latest projection of 2015 captured the demographic changes more accurately, particularly the fertility component, it has been considered as more a reliable projection to assess the future demographic dynamics compared to the previous projection.

3. Unexpected trends in reproduction: Upturn in fertility

Although Sri Lankan fertility was at a very high level with a total fertility rate (TFR)[4] of 5.3 live births per woman in the 1950s and 1960s, by 1994 the TFR dropped to 2.1 indicating an achievement of replacement fertility (De Silva 1994). Demonstrating the continuation of the decline, the DHS 2000, has reported a TFR of 1.9 for the period 1995-2000 (Table 1).

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[4] *The replacement fertility implies a total fertility rate (TFR) 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 was at a very low level, of only 19 and 11 per thousand live births in 1990 and 2009 respectively, its replacement fertility is defined as an average of 2.1 children per woman.*

Table 1: Total fertility rate (number of births per woman) in Sri Lanka, 1953 to 2016

Source	Year/Period (Reference)	TFR (No. of live births per woman)
Census& registration,1953	1953	5.3
Census& registration,1963	1963	5.3
Census& registration,1971	1971	4.2
World Fertility Survey, 1975	1974	3.6
Census& registration,1981	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
Census,2012	2011	2.4
Demographic & Health Survey, 2016	2014-2016	2.2

Source: Department of Census and Statistics (2009, 2014 & 2017)

Indices related to fertility transition in Sri Lanka, particularly the TFR valued at 1.9 of the DHS 2000, aroused the general expectation among the researchers that Sri Lankan fertility could remain stable or even go below the level reported in the DHS 2000 (De Silva, 1997a; 2007; Abeykoon, 1998).

Results of the DHS 2006-07 were to identify first an unexpected increase in the TFR. The hypothesis of remaining at the replacement level fertility or even declining to below that level in Sri Lanka was therefore not to be in fact realized. The expectations of the population planners were not fulfilled. The TFR of 1.9 reported in DHS 2000 was increased to 2.3 by DHS 2006-07 (Table 1).

The TFR value of 2.4 obtained from population census 2012 data has confirmed this unexpected increasing trend of fertility in Sri Lanka. The fertility increase as observed in Sri Lanka has not been observed in any of the other South Asian countries so far, where the fertility has an upturn from below to well above replacement level (Perera, 2017). Interestingly, the TFR levels of Bhutan and Bangladesh in 2012 stand even lower than the Sri Lankan level and India at 2.6, only slightly higher than Sri Lanka (ESCAP, 2012). Although since the year 2012 there was a marginal decline in Sri Lankan fertility, the DHS 2016 also reported a TFR of 2.2, which is still stand above the replacement level (Table 1). This unforeseen increase in fertility would create significant impacts on the population size, age

structure and various dynamics of the Sri Lankan population in coming years.

Fertility increase has been reported in the recent past not only in Sri Lanka but also in a few other developing countries. For instance, a number of Central Asian countries, namely Kazakhstan, Uzbekistan, and Kyrgyz Republic reported a significant increase in fertility since the late 2000s (Spoorenberg, 2013). For an example Kazakhstan's fertility increased by almost 50 percent between the lowest fertility in 1999 and peak in 2009. In Egypt after declining TFR to three children in mid 2000s, it has risen back to 3.5 children in recent years (Goujon and Al Zalak, 2018). As per Egyptian researchers the reasons for this increase were women marring in younger ages and an increase in religiosity. Even in Algeria, after dipping to 2.2 in the early 2000s, TFR has increased to 2.9 in 2010 (Ouadah-Bedidi et al, 2012).

3.1 Comparison of Sri Lankan fertility trends with South Korea

In the context of the economic transition taking place in Sri Lanka, it is logical to compare the fertility decline that had taken place in a country with that of a Newly Industrialized Economy (NIE). Congruent patterns of fertility decline can be observed when analysing changing fertility levels and patterns of Sri Lanka with South Korea, a newly industrialized economy.

As shown in figure 1, similarities in the fertility of both countries are clear. Although in general over the past many decades, both Sri Lanka and South Korea show fertility decline, before the year 1973 Sri Lanka's fertility level (TFR) has always remained lower than those of South Korea. In 1963 when Sri Lankan women recorded a TFR value of 5.3 live births, the corresponding figure of South Korea was 5.6, and even in 1971 also the same difference was maintained. However, since 1973 to date Sri Lanka's fertility is at a higher level than South Korea.

Figure 1: Change of TFR in Sri Lanka and South Korea, 1963 to 2016
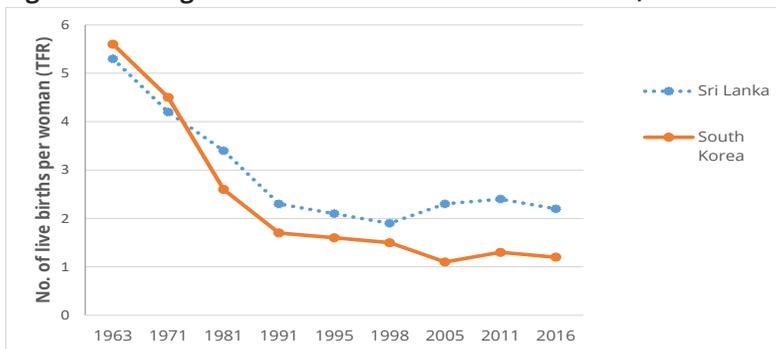
Sources: Date for Republic of Korea obtained from www.prb.org
Data for Sri Lanka is derived from various sources of Department of Census and Statistics.

The Korean TFR dropped from 2.6 in 1981 to a replacement level in 1985, i.e. within a period of just four years (KIHASA, 1992), whereas Sri Lanka took about thirteen years for TFR to drop from 3.4 in 1981 to the replacement level in 1994 (Ban et al. 2002; De Silva, 1994; 2015). Korea had reached below replacement level (TFR of 1.7) during 1990-1995 period (Gubhaju, 2008), and subsequently by 2005 the Korean TFR reached a level of 1.1, which was substantially much below the corresponding fertility level of Sri Lanka. Since 2000, Korea maintain a TFR value in the range of 1.0 – 1.3 (Lee and Kim, 2013), one of the world's lowest-low fertility figures.

It is not only the below replacement fertility maintained by Korea during the last three decades (1985-2016), it may also continue this low fertility experience in coming decades unless there is emergence of strong pronatalistic attitudes from the Korean people (De Silva, 2015). However, Sri Lanka, on the other hand, was able to maintain replacement fertility only for a short period and since the early part of the last decade, fertility has demonstrated an upturn movement (De Silva et al, 2010). Along with the increasing trend of fertility in Sri Lanka, by 2005 and 2016 the difference in TFR of Sri Lanka and Korea has reached a value of over one child approximately. Interestingly after achieving the lowest total fertility of 1.1 live births per woman in 2005 South Korean fertility has increased marginally, while Sri Lankan fertility increased significantly after the achievement of below replacement level (Figure 1).

3.2 Factors contributed to fertility upturn

Fertility, a naturally complex process is also affected by several socio-economic 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. However, the impact of these changing agents on fertility also varies. 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).

Decline in mean age at marriage

The postponement of marriage was a significant contributor to the decline in fertility in Sri Lanka during the 20th Century. The mean age at marriage (SMAM) of females increased from 18.3 years in 1901 to 25.5 years in 1993. Females marrying on average at age 25.5 years observed in 1993 were the highest ever value recorded in Sri Lankan history (De Silva, 1997b). However, since then age at entry to the marriage of both males and females demonstrated a significant decline.

Between 1993 and 2012, the mean age at marriage of females has declined from 25.5 to 23.4 years, while the figure for males has dropped from 28.3 to 27.2 years over the period 1994 and 2012. The female age at marriage reported in the Census 2012 and DHS 2016 indicates a stabilization of female age at marriage between ages 23-24 years in Sri Lanka (Figure 2). A substantial decline in the mean age at marriage of males and females observed in Sri Lanka has hardly been observed in any of the other Asian countries (De Silva, 2014).

Figure 2: Trends in mean age at marriage of females, 1963 to 2016
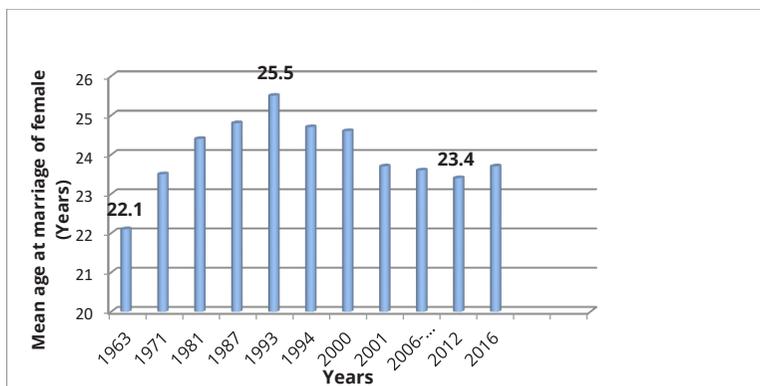
Source: various reports of Department of Census and Statistics.

The declining trend in the mean age at marriage of females during the past decade has contributed significantly to the recent increase in fertility from below replacement to well above the replacement in Sri Lanka. During the past few decades in Sri Lanka divorce and separation rates have increased significantly and the majority of their entry into the re-marriage has contributed to the fertility increase in Sri Lanka (Siriwardhane and De Silva, 2015).

Decline in contraceptive use

The contraceptive prevalence among Sri Lankan women increased rapidly in the period following 1970. There was increasing awareness of contraception not only for the purpose of ceasing childbearing but also for the spacing of births. The contraceptive prevalence rate (CPR) increased from 34 percent in 1975 to 62 per cent in 1987 and further to 70 percent in both DHS 2000 and 2006-07 (Table 2). However, as of the DHS 2016, CPR has dropped significantly to 64.6, which is the lowest CPR level reported over the last three decades. Apart from the significant decline in CPR, the question could be raised in relation to the change of methods (method mix) by the users over the past few decades, which also tend to influence the level of fertility.

Table 2: Contraceptive use among currently married women (aged 15-49), 1987 to 2016

Contraceptive method	Per cent currently using contraception			
	DHS 1987	DHS 2000	DHS 2006-07	DHS 2016
All modern methods	40.6	49.5	53.1	53.6
All traditional methods	21.1	20.5	17.0	11.0
All methods	**61.7**	**70.0**	**70.2**	**64.6**

Sources: Department of Census and Statistics (2002; 2009; 2017)

One of the important reasons for the drop in the proportion of women relying on permanent methods is the family disputes in Sri Lanka. During the past many years, the stability of the Sri Lankan families had deteriorated (De Silva, 2003; 2005). Consequently, many married men and women would not have opted for permanent methods to plan their families as there was the possibility of changing marital partners during the life cycle of their marriages. This was further aggravated with the Tsunami and other natural disasters, where sterilized men and women who lost their children, had no chance of replacing them.

Although modern temporary methods have increased over the past few years, due to the significant drop in the acceptance of permanent contraceptive methods, some of the women would have experienced unwanted pregnancies, primarily due to the user or method failure (De Silva et al., 2006). Since the abortion services were hardly available during the past few years most of the unwanted pregnancies would have ended-up as live births and this phenomenon might have partly contributed to the recent fertility increase.

Withdrawal of abortion service

Before 2006, despite the highly restricted abortion laws in Sri Lanka, a large proportion of women with unwanted pregnancies were able to terminate their pregnancy (De Silva, 1992 and 2015). Fertility decline observed in 1980s and 1990s was significantly related to this practice. However, by the beginning of the year 2006, the government launched a well-coordinated drive to bring to halt the abortion services provided in the country by (I)NGOs and some private facilities. As a result, almost all abortion service centres were closed down, and therefore the majority

of women, who had unwanted pregnancies in the recent past, did not have access to such services. Thus a sizable proportion of such unmarried and married women were forced to retain the pregnancy and deliver the child at the end of the gestation period. This new environment might have contributed to a certain extent to the increase of fertility during the recent past.

During the past 15-20 years attitudes towards fertility in the Sri Lankan society have changed. Recent evidence that has surfaced highlighted a clear drop in the priority for the national family planning programme in the country. There were many pro-natal sympathizers who justify pro-natal activities by arguing that the country needs more births–'small family is beautiful' type slogans have disappeared from society and a large proportion of couples preferred to have two or three children (De Silva et al., 2010).

Having experienced natural (Tsunami) and man-made (civil strife) disasters, most couples in Sri Lanka has revised their fertility preferences towards higher side and the outcome is the increase of fertility. In addition to the large scale disasters due to changes in socio-economic environment in Sri Lanka, most couples also would have changed their fertility preferences (De Silva et al., 2010).

4. Changes in other key demographic components
Increase in life expectancy
Prior to 1962, the female life expectancy at birth had been lower than the male which can be largely attributed to high maternal mortality rates which stood at two digit levels. The life expectancy since the period 1962–1964 showed that female life expectancy surpassed that of the male by 0.4 years. Since then the life expectancy for both sexes had increased considerably and favored females more than males. During the time of 1980-82 the life expectancy at birth for males and females had reached 67.7 and 72.1 years respectively.

For the period 2000-2002 male life expectancy at birth in Sri Lanka was estimated to be 68.1 years, while the corresponding estimate of females was 76.6 years (Table 3). Thus over the period of 1980-1982 and 2000-

2002 male life expectancy increased very marginally (0.4 years) while the corresponding achievement of female life expectancy was significant (4.5 years). It is worth noting that during 2000-2002 a female achieved 8.5 years of longevity than a male–a significantly large gender gap has been noted. However, the corresponding difference in the period of 1980-1982 was only 4.4 years (De Silva, 2008).

Table 3: Life expectancy at birth (in years)

Year	Life expectancy at Birth		
	Male	**Female**	**Difference (F – M)**
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
2011-2013	72.0	78.6	+6.6

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

During the period 2011-2013, the male and female life expectancy has increased to 72 and 78.6 years respectively (Department of Census and Statistics, undated). Along with this increase, the gender gap in life expectancy at birth has reduced to 6.6 years. Between 2000-2002 and 2011-2013, the male life expectancy has increased by 3.9 years while the corresponding increase among females was only 2 years. The observed significant increase in male life expectancy should be attributed to the cessation of prolonged civil strife in 2009, which virtually eliminated a large volume of premature deaths among males.

Drop in labour Migration
The mass contract labour migration from Sri Lanka commenced in 1976, with the first major rise in oil prices in Middle East Countries. Initially, high demand in such countries was for males to work in construction sites and later largely absorbed females for domestic work (Karunaratne, 2012). Some of the main reasons behind this exodus of labour migrants are the internal adoption of open market policies and the persistent demand for Sri Lankan labour in the Middle Eastern region.

Departures for foreign employments in 1986 were 14,456 and it gradually increased to 182,188 in 2000. Since the year 2002, the annual departures for foreign employment stand over 200,000 and by 2014 it rose to over 300,000 persons (Table 4). However, since 2014 the volume of annual departures indicates a significant drop. The number of departures in 2017 was only 212,000, which indicate a drop of labour migrants by almost 30 percent from 2014 to 2017; the male and female values have dropped by 27 and 34 percent respectively. As of the latest data, only 203,186 departures were reported for 2019.

Table 4: Departure for foreign employment by sex, 1986-2019

Year	Male		Female		Total
	Number	**%**	**Number**	**%**	
2000	59,793	32.8	122,395	67.2	182,188
2001	59,807	32.5	124,200	67.5	184,007
2002	70,522	34.6	133,251	65.4	203,773
2003	74,508	35.5	135,338	64.5	209,846
2004	80,699	37.6	134,010	62.4	214,709
2005	93,896	40.6	137,394	59.4	231,290
2006	90,170	44.7	111,778	55.3	201,948
2007	103,476	47.4	114,983	52.6	218,459
2008	128,232	51.2	122,267	48.8	250,499
2009	119,381	48.3	127,745	51.7	247,126
2010	136,850	51.2	130,657	48.8	267,507
2011	136,307	51.8	126,654	48.2	262,961
2012	143,784	50.9	138,547	49.1	282,331
2013	175,185	59.7	118,033	40.3	293,218
2014	189,924	63.2	110,489	36.8	300,413
2015	172,788	65.6	90,655	34.4	263,443
2016	160,306	66.0	82,510	34.0	242,816
2017	139,268	65.6	72,724	34.4	211,992
2018	129,712	61.4	81,499	38.6	211,211
2019	122,201	60.1	80,985	39.9	203,186
2020*	32,589	60.5	21,286	39.5	53,875

Source: Source: Based on various reports of the Sri Lanka Bureau of Foreign Employment.
*Note: * - provisional*

Globalization which has contributed significantly to labour migration has now faced with a very global health issue COVID-19. Due to this pandemic annual departures of Sri Lankan labour migrants were dropped to less than 60,000 in 2020 (Table 4). Due to poor economic viability, most of the labour hiring countries in coming few years would restrict recruitment of foreign workers to their labour markets. In the same time a relatively a higher volume of returnees would be expected in coming years. As of the Foreign Ministry of Sri Lanka more than 60,000 workers were brought to

Sri Lanka, however a large number is demanding the State to bring them back due to COVID-19 and employment related issues.

Although there are various estimates exist, the stock of Sri Lankan labour migrants are currently ranged 1.5-1.8 million who are employed at various foreign labour markets. Same as the stock, data on return labour migrants is also poor. However, if the annual departures decline significantly in coming years that would deteriorate the volume of foreign remittances coming to the country. Similar to the other migrant sending countries, the government of Sri Lanka too believes in the positive attributes of migration. i.e reduction of unemployment at home, and the overall reduction of poverty due to migrant worker remittances (Karunaratne, 2012).

Labour migration: Emerging issues

The future trends in international labour migration from Sri Lanka depend on the demand for foreign labour in Middle East countries and elsewhere and as to what extent Sri Lanka could supply that labour to those countries under a competitive environment. Demographic trends in most of the European Union and East Asian countries demonstrate labour shortages at present or in the near future, thus they expect to fulfill their requirement from labour sending countries including Sri Lanka (Guardia and Pichelman, 2006). Despite continued attraction towards Gulf Cooperation Council (GCC) countries, South Korea, Maldives, Cyprus and Malaysia have gained prominence in the recent past. Apart from promoting labour migration to new attractive destinations, as Karunaratne (2009) indicated policy makers should encourage and promote Sri Lankan entrepreneurs' to suitable countries of the world, which would generate a new set of benefits to Sri Lanka.

Although Sri Lankan labour migrants are declining since 2014, the arrival of regular and irregular foreign workers are been observed in many parts of the country. Among them, Chinese and Indian workers stand at the highest levels. Apart from this inbound trend, around 100,000 workers are expected to work in the Colombo Port City by 2027 with its full function. Apart from these workers, a sizable number of them would bring their families to Sri Lanka. These foreign workers and their family members

would be an additional component of the population growth of Sri Lanka, which would be realized in the next five years time.

5. Implications of unexpected demographic trends on population dynamics

As observed in previous sections all key demographic components (marriage, fertility, contraception, abortion, life expectancy, and labour migration) in Sri Lanka during the past 10-15 years have demonstrated unexpected trends.

Almost all these trends observed in the past 10-15 years were not hypothesised by demographers and other social scientists in Sri Lanka. Although these unexpected trends would create various implications in near future, the present study highlights only three selected domains, namely total population including age-sex structure, dependency, and demographic dividend.

The unexpected changes that occurred in various demographic components; particularly the increase in fertility has made it necessary to undertake urgent revision to the existing population projections. Thus the recent projection published by UNFPA in 2015 is an outcome of such exercise (De Silva and de Silva, 2015).

A comparison of projection results of this latest publication (De Silva and de Silva, 2015) has been made with the previous one (De Silva, 2007) to identify the impact of changes in key demographic components on Sri Lankan population. However, before engaging in such comparison it is important to note the differences in assumptions, particularly the fertility scenario used in these two projections. The fertility level assumed for the future in both projections were varied significantly; the level of total fertility rate (TFR) assumed in 2007 projection is significantly lower than the 2015 projection. Since the projection by De Silva (2007) was unable to identify the significant upturn in fertility, due to the unavailability of data, that projection results tend to under estimate the future size of the population. However, the latest projection by De Silva and de Silva (2015) captured the upturn in fertility well, thus it tends to provide more reliable estimates on the volume of future population.

5.1 Growth of total population

After obtaining independence from the British, the first census of Sri Lanka was carried out in 1953, which recorded a population of 8.1 million. Since then censuses were conducted in 1963, 1971, and 1981. The enumerated population of the country in 1981 was reported as 14.8 million (Table 5).The size of the total population of Sri Lanka in census 2001 stood at 18.7 million and by 2012 census it has reached 20.4 million mark.

Table 5: Population enumerated at the census and growth rate, 1953-2012

Census date	Enumerated population	Inter-censual growth		Average annual growth rate (%)
		Number	%	
1953 March 20	8,097,895	1,440,556	21.6	2.84[a]
1963 July 08	10,582,064	2,484,169	30.7	2.63
1971 October 09	12,689,897	2,107,833	19.9	2.22
1981 March 17	14,846,750	2,156,853	17.0	1.67
2001 July 17	18,797,257	3,950,507	26.6	1.16
2012 March 20	20,359,439	1,562,182	8.3	0.74

Note: a- Growth refers to 1946-1953 period.
Source: Various reports of the Department of Census and Statistics.

There had been a population growth spurt in the post-war years. The rate shot up to 2.84 percent in the period 1946-53, and remained more or less the same during the period 1953-63 (De Silva, 2015). After 1963 there was a clear decline in the rate of growth while at present it stands at below one percent. The average annual growth rate during1981-2001was 1.16 percent, while during the period 2001-2012 it was 0.74 percent. However due to fertility up-turn and other factors during the coming years slightly higher growth rate would be expected (De Silva and de Silva, 2015).

Projected population

As highlighted in previous sections, during the past 10-15 years fertility has demonstrated an upturn. In such an environment what could be the future size and structure of the Sri Lankan population?   As per the most recent population projection of Sri Lanka, published by the UNFPA in 2015, the size of the population of the country would increase significantly in coming decades – 25 million by 2042 and even beyond 26 million by 2060s (De Silva and de Silva 2015). As of table 6, this is a significant departure from earlier projections that indicated the country's reaching population

stability by the early 2030s with a population slightly below 22 million (De Silva, 2007). This deviation is mainly due to the increase in fertility from below replacement to above replacement level in the past 10-15 years. As of the more reliable latest projection, it is more likely that in after another 20-25 years the country's population would be over 25 million mark by adding another 5 million to the 2012 population base.

Table 6: Comparison of projected populations of 2007 and 2015 publications and deviations

Year	Projected Population[a] (millions)		Difference in absolute No's (millions)	Difference (%)
	De Silva & de Silva (2015)	De Silva (2007)		
2012	20.4*	20.7	-0.3	-1.45
2017	21.3	21.3	0.0	0.00
2022	22.2	21.6	0.6	2.78
2027	23.0	21.8	1.2	5.50
2032	23.8	21.9	1.9	8.68
2037	24.4	21.8	2.6	11.93
2042	24.9	21.7	3.2	14.75
2047	25.3	21.4	3.9	18.22
2052	25.6	21.0	4.6	21.90
2057	25.7	20.5	5.2	25.37
2062	25.8	20.0	5.8	29.00

*Note: * Standard projection results.*
Source: De Silva and de Silva (2015) and De Silva (2007)

Apart from the change in projected size of the population, due to the fertility and life expectancy increase, population dynamics such as age structure, dependency ratios, and demographic dividend would be expected to change in coming years and such changes are discussed in subsequent sections.

5.2 Changing age structure
Of the 20.4 million population enumerated in census 2012, one-quarter has been identified as children (less than 15years), while 62.4 and 12.4 percent were found to be in working ages (15-59 years) and elderly (60+ years) respectively. Although the projected child population in 2022 by De Silva (2007) is 19.1 percent, the projected figure for that year by De Silva and de Silva (2015) is 23.9 percent (Table 7). Interestingly as of the latest projection, the proportion of children in 2022 would also be more-or-less same as the corresponding figure of 2012 census.

Table 7: Projected population in three broad age groups by two different projections done in 2007 and 2015

| Age group | Enumerated Population 2012 | Projected Population 2022 | | Projected Population 2032 | |
| | | De Silva 2007 | De Silva & de Silva 2015 | De Silva 2007 | De Silva & de Silva 2015 |
	%	%	%	%	%
< 15	25.2	19.1	23.9	15.9	21.4
15-59	62.4	63.8	59.8	63.0	58.6
60+	12.4	17.1	16.3	21.1	19.9
Total	100.0	100.0	100.0	100.0	100.0
N (Million)	**20.4**	**21.6**	**22.2**	**21.9**	**23.8**

*Source: De Silva and de Silva (2015) and De Silva (2007)*

The projected volume of child population for the year 2022 in two projections demonstrates a significant difference (Figure 3). Although the difference in child population is noted to be 1.2 million (5.3-4.1 million) in 2022 the corresponding difference in 2032 is 1.6 million (5.1-3.5 million). The reason for this difference is originated from the fertility upturn observed in the past 10-15 years. The 2007 projection was unable to pick-up the unexpected fertility upturn – in fact, fertility upturn in Sri Lanka was first noticed in the Sri Lankan demographic environment in the DHS 2006-07 (Table 1).

Although only 12.4 percent of the enumerated population is noted as elderly in 2012 census, in both projections, the proportion of elderly projected for the year 2022 and 2032 is significantly higher (Table 7). Unlike the child proportion, the elderly proportion reported by De Silva (2007) is marginally higher than the corresponding figures by De Silva and de Silva (2015). This highlights the fact that in the earlier projection (De Silva, 2007), the upturn in fertility was not captured as that child proportion was significantly lower. Consequently, the proportion of the elderly population reported to be higher.

Ageing of the population is well demonstrated in the both projections and more-or-less same volume of the elderly population (60+ years) is projected for 2022 as well as for 2032 (Fig 3). Although the projected results are fairly consistent and related to the ageing process what is important to note is during 2022 and 2032 one could expected addition of one million elders; in 2032 the volume of elderly would be 4.6-4.7 million. Compared with a 2.5 million elderly observed in 2012, doubling of that

would occur by another 20-25 years. It is important to note that as of the more reliable latest projection (De Silva, 2007), around 2034 the volume of child and elderly population would equilibrate at around 5.0 million.

Figure 3: Projected population in three broad age groups by two different projections done in 2007 and 2015
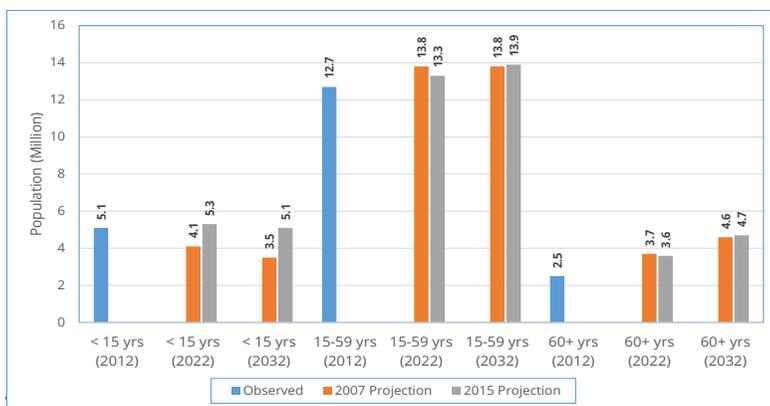
Of the enumerated population in 2012, 62.4 percent identified as in the working ages (age 15-59). Figures projected by De Silva (2007) for 2022 and 2032 are marginally higher than the enumerated proportion of working ages in 2012 (Table 7). However, interestingly as of the latest projection (2015), the proportion of the working age population (58.6 percent) is significantly lower than the corresponding figure presented in 2007 projection (63 percent).

Although a marginal difference could be noted in the volume of working age population (15-59 years) in both projections in the year 2022, as of 2032 the projected working age populations in both projections are very similar in volume (13.8-13.9 million). If a comparison is made with the 12.7 million enumerated working age population in 2012, with more reliable 2015 projection, a significant increase in this group could be noted (12.7 to 13.9 million). This confirms the fact that during the coming next 10-12 years Sri Lanka would have a significantly large working age population, which will have a significant impact on the country's labour force – the growth of the labour force would be a positive one.

5.3 Change in the dependency ratio

The age structure changes of a population determine the change in the level of demographic dependency. Changes in the different components in age structure have major implications on the country's socio-economic 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. 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 8.

Table 8: Comparison of dependency ratios reported in 2007 and 2015 projections

Year	Child Dependency		Old Age Dependency		Overall Dependency	
	De Silva (2007)	De Silva & de Silva (2015)	De Silva (2007)	De Silva & de Silva (2015)	De Silva (2007)	De Silva & de Silva (2015)
2012	34.9	40.4*	20.0	19.8*	54.9	60.2*
2017	32.7	40.9	23.3	23.3	56.0	64.2
2022	29.9	39.9	26.9	27.3	56.7	67.1
2027	27.2	38.8	30.3	30.9	57.5	69.8
2032	25.3	36.6	33.4	34.0	58.8	70.6
2037	24.9	35.2	37.0	36.6	61.9	71.8
2042	25.5	34.5	42.4	40.3	67.9	74.8
2047	26.3	33.3	47.9	42.1	74.1	75.4
2052	26.5	31.8	51.9	42.7	78.4	74.5
2057	26.5	30.5	55.3	43.8	81.7	74.3
2062	26.7	29.6	58.2	45.0	84.9	74.5

Source: Interpolated values from De Silva (2007), De Silva and de Silva (2015).
*Note: * Figures are calculated from the 2012 census data. It should be noted that child dependency figures reported by De Silva and de Silva (2015) for the year 2012 (40.4 children per 100 working age population) is based on the enumerated census data. While the figure of 34.9 children per 100 working age population reported by De Silva (2007) is a projected value.*

Child dependency ratios obtained from the 2015 projection are always higher than the corresponding figures of 2007 projection for the period of 2012-2062. The main reason for this pattern would be a higher number of child population expected in the future due to the relatively high TFR values assumed in respect of the 2015 projection compared to the 2007 projection.

As a result of the fertility increase during the past 10-15 years, the enumerated child dependency (40.4) of 2012 census is significantly higher than the projected figure (34.9) in 2007 projection. Interestingly,

child dependency ratios presented by De Silva (2015) for the subsequent periods, except 2017, is declining (Table 8), however each figure is higher than the corresponding child dependency ratios reported by De Silva (2007). According to the latest projection (2015) child dependancy will remain more-or-lessat the same level during 2012 to 202, however beyond 2027 a sizable decline could be observed.

Old age dependency ratios projected by De Silva (2007) and De Silva and de Silva (2015) do not vary significantly until the year 2037, however beyond that the projected ratios of the latest projection are lower compared to the corresponding ratios of the 2007 projection.

Although the overall dependency ratio derived from the 2012 census data stand as high as at 60.2 dependents per 100 working age population, the projected corresponding figure by De Silva (2007) is 54.9 only (Table 8). As per the latest projection, the overall dependency ratios during 2017 to 2047 are significantly higher than the corresponding ratios of 2007 projection. The increase in fertility over the past 10-15 years and assumed slow decline in fertility for coming years has contributed to the increase in overall dependency of the Sri Lankan population.

5.4 Demographic dividend

The demographic dividend is the potential accruable gain by the society during the period of demographic transition in which there is a high ratio of individuals in the working age, in relation to the old and children in the dependent age categories (children below age 15 and elders above 60 or 65 years). This phenomenon (age structure transition) is defined as the first demographic dividend. Physical capital accumulation could generate sustainable economic growth, which is defined as the second demographic dividend (Mason, 2005).

As of the latest projection (De Silva and de Silva, 2015) the age structure transition, covering the period of 1991 to 2034, has produced a demographic dividend, which is conducive for an economic take-off. (first diagram of Figure 4). During the period of demographic dividend, the proportion of the people in the working ages (aged 15-64) is noted to be significantly larger than the proportion in the dependent age categories

(aged less than 15 and 65 and above). Nevertheless if the working age is defined as 15-59 years, the dividend would fade away by 2019.

Figure 4: Age structure transition and prevalence of demographic dividend
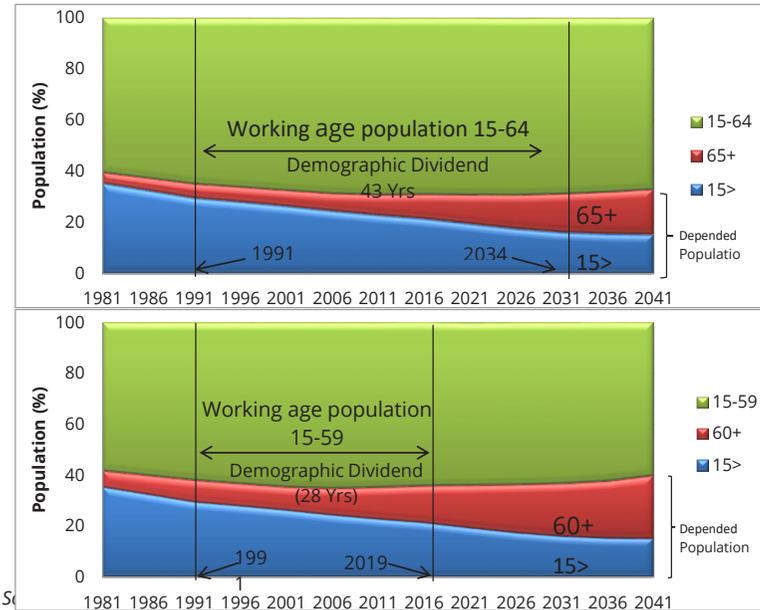
It is important to note that in either 15-59 or 15-64 years of the population considered as the working age category, the least dependency ratio is noticeable around the year 2001 (De Silva, 2015). In fact, beyond 2001 the ratio has been increasing significantly. Apart from the rapid ageing process the increase of the child population, due to fertility up turn, has contributed for this demographic environment. This highlights the fact that Sri Lanka has already missed the best era of the demographic dividend. In other words, although according to the UN definition the dividend would be available for another 13 years (2021-2034), the remaining period is relatively not attractive to the period that the country has already consumed, which is 30 (2021-1991) years (Figure 5).

Figure 5: Onset and cessation of demographic dividend as of 2007 and 2015 projections
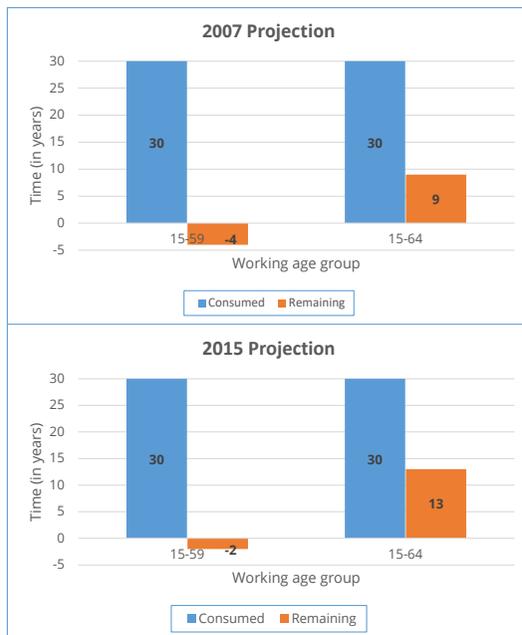
Note: a – Time remaining as of 2021.
Source: Calculated by using data from De Silva (2007); De Silva and de Silva (2015)

What is the impact of fertility upturn on demographic dividend in Sri Lanka? As of the standard definition of demographic dividend this window of opportunity will be available for another 13 years (De Silva and de Silva 2015). However, as of the earlier projection (De Silva 2007), which did not capture the fertility upturn, reported only another 09 years as the remaining time period of dividend (Table 8).

The same assessment is made with the alternative definition (15-59 years as working age population), the window of opportunity would not be available after the year 2019. The earlier projection (De Silva, 2007) results highlight the cessation of dividend by the year 2017 – already missed the window of opportunity (Figure 5).

However, the mere existence of a favourable demographic dividend would not be effective without a proper environment for economic

acceleration. Nevertheless in a congenial environment of political stability, adequate savings, investment potential including the ability to draw FDI, development of human capital, productivity, and knowledge-based economy, the optimum utilization of the demographic dividend to gain economic acceleration would materialize (Bloom et al., 2003).

In a situation where the expected improvements in the socio-economic environment are not introduced, the existence of a window of opportunity alone will not be productive. In fact, along with a rapid aging process, Sri Lanka will enter into a period of demographic turbulence. With the onset of demographic turbulence, population and labour supply will begin to decline and the dependency burden will increase significantly along with population ageing.

Demographic dividend in South Korea and India
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 the respective 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 in the working ages (Bloom et al., 2003). The demographic dividend of South Korea spread-out from 1970-1995 and experienced significant economic growth.

India in South Asia, which will be the most populous country in the world in a few years has experienced the onset of the demographic dividend in 2015 (Wlliam et al., 2018). The dividend of India would continue up to the middle of the present century, depending on how India's demographic dynamics would change during the following few decades. Due to the diversity of India, the overall dividend is expected to spread thinly over a long period of time.

India would face a significant challenge in providing suitable employment opportunities to its enormously expanding working age population. Despite that due to COVID-19 pandemic situation in India, which is becoming as a world epi-centre, the benefits of demographic dividend will not be realized in the coming few years in India. The dividend would

not be realized without a massive effort to create new jobs, especially those that could put illiterate and semi-skilled labour force to work. It will be extremely difficult to generate a large volume of employment opportunities in a short period of time and significant numbers will search for suitable employment opportunities in foreign countries including Sri Lanka. If this proposition is realised in subsequent years, then Sri Lankans would face a serious challenge in local and foreign labour markets to secure suitable employment opportunities for locals.

6. Conclusion and policy implications

Demonstrating the continuation of the fertility decline, the DHS 2000, reported a TFR of 1.9 births for the period 1995-2000. Nevertheless, unexpectedly during the past 10-15 years, Sri Lankan fertility has increased from below replacement to well above replacement - Simply a reversed trend has occurred. Consequent to this new trend, Sri Lanka's fertility is closely on par with or even higher than the fertility levels of many South Asian countries. However, the matter of concern is that in all other South Asian countries fertility had been gradually declining during the new millennium, whereas Sri Lanka is the only country that indicated an increasing trend.

Key factors that contributed to the fertility upturn include a decline in age at marriage, contraceptive use, and induced abortion. Fertility demonstrated a substantial upturn after the mortality crises due to 2004 Tsunami and intensified civil strife in the first decade of the new millennium. Along with the civil war crises, all the ethnic groups were concerned about their share in the population and pronatalistic sentiments were significantly promoted by various segments in each ethnic group. Primarily due to these issues a sizable proportion of couples in the country have seriously considered the value of having children in their old age (insurance effect) and evaluated the survival prospects of children in subsequent such disaster events.

Presumably, the increase in fertility observed during the early part of the new millennium in Sri Lanka will be short-lived. There may be a time in the near future when fertility would start declining again towards the replacement level. That particular point may be determined primarily

by the degree to which pronatalist views and practices are once again reversed by the State and the Sri Lankan community. Although fertility would reach replacement level by mid 2020s population momentum would operate – expansion of the volume of population.

Sri Lankan population has increased by 18 million (by nine-fold) within the past 141 years - 2.4 million in 1871 to 20.4 million in 2012. The population projection made in 2007, which was unable to capture the fertility upturn, indicated the country's reaching population stability by the early 2030s with a population slightly below 22 million. However, as per the most recent population projection of Sri Lanka in 2015, which captured fertility upturn, the size of the population of the country would increase significantly in coming decades – 25 million by 2042 and even beyond 26 million by 2060s. The volume of the country's population in coming years could even be higher than the latest projection results, if a large volume of the Chinese population settle in the Colombo Port City, South Asian labour enter into local labour markets and departures of Sri Lankan labour migrants dropped further.

Such a significant growth of the population would create serious implications, including demand for housing, health, food production, education, energy, water, transportation, and infrastructure facilities in the near future. Problems related to environmental degradation particularly, deforestation, landslides, soil erosion, water and air pollution, garbage disposal, etc. would also likely to emerge at serious levels in coming decades. All these issues are expected to impact implicitly and explicitly on the socio- economic progress of the nation.

Apart from the increase in total population, due to fertility upturn and changes in other demographic components (life expectancy and migration), population dynamics such as age structure, dependency burden and demographic dividend would be expected to change in coming years.

Consequently to fertility increase, by 2020s child population, and 2030s youth population would increase significantly compared to 2012 figures. On the other hand although the elderly was only 12.4 percent in 2012,

by 2022 and 2032 it would increase to 16 and 20 percent respectively. Compared with only 2.5 million elderly in 2012, by 2032, that is by another 11 years' time, their volume would get doubled. This rapid aging process is consistently captured in both the projections. Thus, both ends in age structure of Sri Lankan population (children and elderly) demonstrate a significant change in the coming year.

Although of the 2012 census 62.4 percent identify as working age population (15-59 years), as of latest projection their proportion would decline to 59.8 and 58.6 percent respectively by 2022 and 2032. However, what is important to note is that compared to 12.7 million working age population in 2012 by 2022 and 2032 their size would increase to almost 14 million. This confirms the fact that at least during the coming 10-12 years Sri Lanka would have a significantly large working age population, which will have a significant impact on the country's labour force the growth of the labour force would be a positive one.

With the recent increase in fertility observed in Sri Lanka, the child dependency ratio is likely to increase in the near future together with the ageing of the population. A future demographic scenario for Sri Lanka indicates a difficult outlook at both ends of the population pyramid. In other words, a contradictory situation is emerging in which the ageing of the population would continue along with an increase in child dependency, thus increasing the dependency burden for the working population at both ends of the population pyramid.

As of the latest projection of 2015, by taking 15-64 years as working age population, the age structure transition, covering the period of 1991 to 2034, has produced a demographic dividend, which is conducive for an economic take-off. Although the dividend would be available for another 13 years (2021-2034), the remaining period is relatively not attractive to the period that the country have already consumed, which is 30 years. However when assessment is made with the alternative definition (15-59 years as working age) the dividend would be available only up to year 2019.

The fertility increase has been able to further increase the demographic

dividend–a longer period of window of a opportunity for economic progress. As of the standard definition (15-64 years) and alternative definition (15-59 years), the dividend has increased by further 4 years and 2 years respectively.

Demographic dividend, which emerges due to age structure transition, does not provide automatic benefits. However, in a congenial environment of political stability, adequate savings, investment potential (FDIs), human capital including enhanced female labour force participation, productivity, and the knowledge economy, the optimum utilization of the dividend to gain economic acceleration would materialize. Failure to utilize the dividend successfully in the reaming short period with the required adjustments in the socio-economic arena would push the country into demographic turbulence.

References

Abeykoon, A. T. P. L. (1998). *Demographic projections for Sri Lanka*. Research Paper Series No. 9. Colombo: Population Division, Ministry of Health and Indigenous Medicine.

Ban, D. J., Kim, J., & De Silva, W.I. (2002). Induced abortion in Sri Lanka: Who goes to providers for pregnancy termination? *Journal of Biosocial Science*, *34*s, 303-315.

Bloom, D.E., Canning, D., & Sevilla, J. (2003). *The demographic dividend: A new perspective on the economic consequences of population change.* California: RAND.

Caldwell, J.C., K.H.W. Gaminiratne, P. Caldwell, S. De Silva, B. Caldwell, N. Weeraratne & P. Silva (1987). "The role of traditional fertility regulation in Sri Lanka," *Studies in Family Planning, 18*(1), 10-21.

Chong-Bum (2006). Demographic changes and economic growth in Korea, Paper presented at the APEA Conference 2006, (www.apeaweb.org/center/sea06/papers/an-jean.pdf).

De Silva, W. I. (1994). Ahead of target: Achievement of replacement level fertility in Sri Lanka before the year 2000. *Asia-Pacific Population*

Journal, *9*(4), 3-22.

De Silva W. I. (1997a). *Population projection for Sri Lanka: 1991-2041*. Colombo: Institute of Policy Studies.

De Silva, W. I. (1997b). "Ireland of Asia: Trends in marriage timing in Sri Lanka," *Asia-Pacific Population Journal, 12*(2), 3-24.

De Silva, W. I. (2003). Demographic and social trends affecting families in the South and Central Asian region. In *Major trends affecting families* (pp. 45-47). New York: United Nations.

De Silva W. I. (2005). Family transition in South Asia: Provision of social services and social protection. *Asia-Pacific Population Journal*, *20*(2), 13-46.

De Silva, W. I. (2007). *A population projection of Sri Lanka for the new millennium, 2001-2101: Trends and implications.* Colombo: Institute for Health Policy.

De Silva, W. I. (2008). Construction and analysis of national and district life tables of Sri Lanka 2000-2002 Ministry of Healthcare and Nutrition, Colombo.

De Silva, W. I. (2014). Still the "Ireland of Asia"? Declining female age at marriage in Sri Lanka. *Journal of Family Studies*, *35*(12), 1605-1623.

De Silva, W. I. (2015). *Sri Lanka: Paradigm shifts in population*. Colombo: National Centre for Advanced Studies in Humanities and Social Sciences.

De Silva W. I., Dayananda, R. A., & Perera, N. W. P. D. B. N. (2006). Contraceptive behaviour of abortion seekers in Sri Lanka. *Asian Population Studies*, *2*(1), 3-18.

De Silva, W. I., Perera, B. N., & Anuranga, K. C. (2010). Below replacement to above replacement: Dramatic increase of fertility and its determinants in Sri Lanka. *Asia-Pacific Population Journal*, *25*(2), 27-52.

De Silva, W.I. & de Silva, R. (2015). *Sri Lanka: 25 million people and implications - population and housing projections, 2012-2062*,

UNFPA, Colombo.

De Silva, W.I. & Senarath (2009). "Longer longevity and early retirement: Justification for Increasing the retirement age in Sri Lanka," *Sri Lanka Economic Journal, 10(1), 1-17.*

Department of Census and Statistics (2009), *Sri Lanka Demographic and Health Survey, 2006-07, Colombo.*

Department of Census and Statistics (2014). *Census of population and housing 2012: Key findings*. Colombo: Department of Census and Statistics.

Department of Census and Statistics (2017). *Sri Lanka demographic and health survey – 2016*. Colombo: Department of Census and Statistics. www.statistics.gov.lk/dhs.

Department of Census and Statistics (undated*). Life tables for Sri Lanka 2011-2013 by district and sex,* Colombo: Department of Census and Statistics.

Deshpande, R., J.U. Farley & D. Bowman (2004), "Tigers, dragons and others: profiling high performance in Asian firms," *Journal of International Marketing, 12*(3), 5-29.

ESCAP (2013): ESCAP data sheet, Bangkok.

Goujon, A., & Al Zalak, Z. (2018). Why has fertility been increasing in Egypt? *Population & Society*. No. 551.

Gubhaju, B. (2008), "Fertility transition and population ageing in the Asian and Pacific Region," *Asia-Pacific Population Journal,* 23:55-80.

Karunaratne, H. D (2009). *Internationalization of Sri Lankan entrepreneurship: A study of Sri Lankan immigrant entrepreneurs in Japan*, Department of Business Economics, Faculty of Management and Finance, University of Colombo, Colombo 03.

Karunaratne, H. D (2012). International Labour Migration, Remittances and Income Inequality in a Developing Country: The Case of Sri Lanka, (http://archive.cmb.ac.lk:8080/research/handle/70130/2233)

Jones, G.W. (2007). Fertility decline in Asia: The role of marriage change, *Asia- Pacific Population Journal*, *22*(2),13-32.

KIHASA. (1992). *Report on fertility and family health survey-1991.* Seoul: Institute for Health and Social Affairs.

Lee, S. & Kim, D.S. (2013). *Korean population at 22 glances*, Seoul: Statistics Korea.

Nanboordiri, K. (1996). *A primer of population dynamics*, New York: Plenum Press.

Mason, A. (2005). Demographic transition and demographic dividend in developed and developing countries, paper presented at the United Nations expert group meeting on social and economic implications of changing population age structures, 31 August to 2 September 2005, Mexico City.

Ouadah-Bedidi, Z., Vallin, J., & Bouchoucha, I. (2012). Unexpected developments in Maghrebian fertility. *Population & Society*. No. 486.

Perera, E.L.S.J. (2017). Fertility transition in Sri Lanka: is it a temporary phenomenon? *Journal of Biosocial Science, 49*(S1), S116-S130. doi:10.1017/S0021932017000384

Romanic, A. (1990), "Population projection as prediction, simulation, and prospective analysis", *Population Bulletin*, No. 29, New York: United Nations.

Spoorenberg, T. (2013). Fertility changes in Central Asia since 1980. *Asian Population Studies*, *9*(1), 50-77.

Ukwatta, S. (2010). *Economic and social impacts of the migration of Sri Lankan transnational domestic workers on family and children left behind*. [Online] Available at: http://digital.library.addelaide.edu. au/dspace/bitsteam/2440/63080/1_front.pdf.

William, J., A. Kumar & S. Rajpal (2018). Swimming against the tide: economic growth and demographic dividend in India, *Asian Population Journal*, *14*(2), 211-227.

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