



TRANSITION TO THE NEW DEMOGRAPHY OF DEATH: THE CASE OF SRI LANKA

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ABSTRACT

Sri Lanka has observed a transformation of the classic population pyramid as the decline in fertility which affected early life of the new generations while detecting growth of the elderly population because of declining mortality through the middle ages up to the young-old population. Sri Lanka is yet to experience high level later life mortality which will further shape the age pyramid. It is quite certain with the increase of survival chances of the Sri Lankan population, Sri Lankan society will experience a highly mature population in future with a multitude of challenges which we did not encounter during the 20th century. However, it is quite probable to argue that the society will also change and adjust to this maturing demography. However, our experience so far with the ageing population is that we often equate it with an increasing number of proportion of frail who are dependent and burden on society and family. The numbers themselves are a warning that the society needs to change with the changing demography. One of the most important consequences will be the transition to new demography of death. This phenomenon was first discussed by Leeson (2014) with an example drawn from England and Wales. The present paper adds more dimension with some more data drawn from Sri Lanka in order to qualify that Sri Lanka is also moving towards a transition to a new demography of death.

Key words: Population Ageing, Mortality Compression, Sri Lanka, Survival Curve, Extreme Longevity

INTRODUCTION

Mortality in Sri Lanka has declined substantially over the latter half of the twentieth century and then well into the new millennium. Life expectancy at birth for males and females were 32.7 and 30.7 years, respectively for the 1920-22 periods. By 2000-02, those figures have risen to 68.8 years for males and 77.2 years for females. The projected figures show that male life expectancy is expected to reach 72.3 years while female life expectancy will be 82.5 years by 2026 (Gunasekera, 2008). The decline of mortality during the past one hundred years has occurred at all ages and for both sexes. However, the extent and the timing of improvement have varied. Percentage decreases in rates of mortality have been highest for infants and children. Rapidity of improvement has been greater for females especially after 1960s (Dissanayake, 1987).

The population ageing taking place in Sri Lanka is a common feature of many developed and developing countries in the world today. This phenomenon is occurring mainly due to the decline in fertility and mortality and the resultant increase in life expectancy, which is accompanied by the socio-economic developments of the country. Sri Lanka has observed transformation of the classic population pyramid as the decline in fertility which affected early

life of the new generations while detecting growth of the elderly population because of declining mortality through the middle ages up to the young-old population. Sri Lanka is yet to experience high level later life mortality which will further shape the age pyramid. What do these population dynamics tell us? Are we moving into a different era of demographics? As demographers we all should be interested in exploring these new types of demographic dynamics. This paper is built around one aspect of such dynamics.

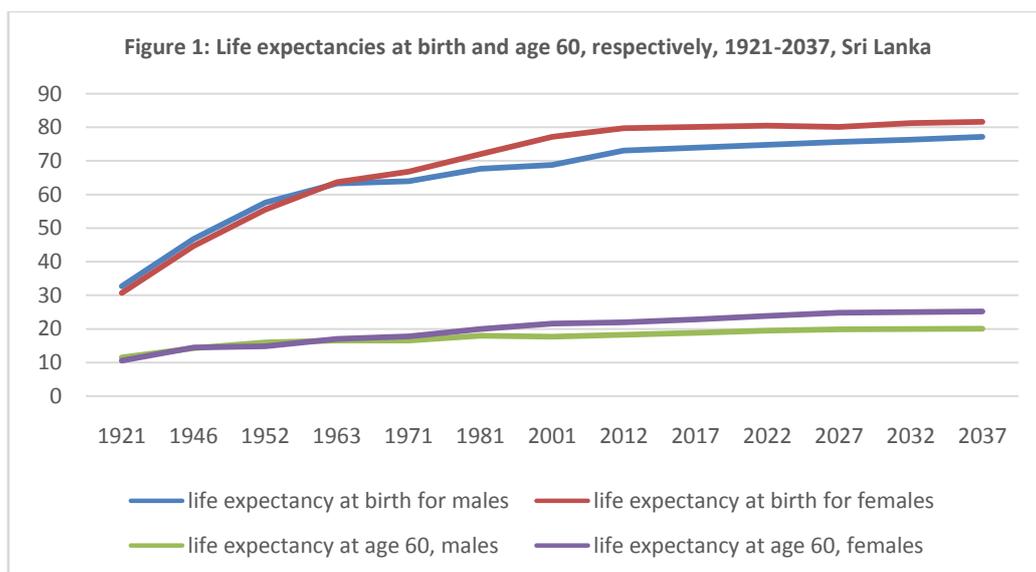
The New Demography of Death

Life expectancy in the 21st Century Sri Lanka

It is quite certain with the increase of survival chances of the Sri Lankan population, Sri Lankan society will experience a highly mature population in future with a multitude of challenges which we did not encounter during the 20th century. However, it is quite probable to argue that the society will also change and adjust to this maturing demography. However, our experience so far with the ageing population is that we often equate it with an increasing number of proportion of frail who are dependent and burden on society and family. The numbers themselves are a warning that the society needs to change with the changing demography. One of the most important consequences will be the transition to new demography of death. This phenomenon was first discussed by Leeson (2014) with an example drawn from England and Wales. The present paper adds more dimension with some more data drawn from Sri Lanka in order to qualify that Sri Lanka is also moving towards a transition to a new demography of death.

Mortality at advanced ages is being already delayed and this will be delayed further towards the middle of this century. It is also quite possible to reasonably assume that lives will continue to be extended in the future as there is significant evidence all around the world to support this hypothesis.

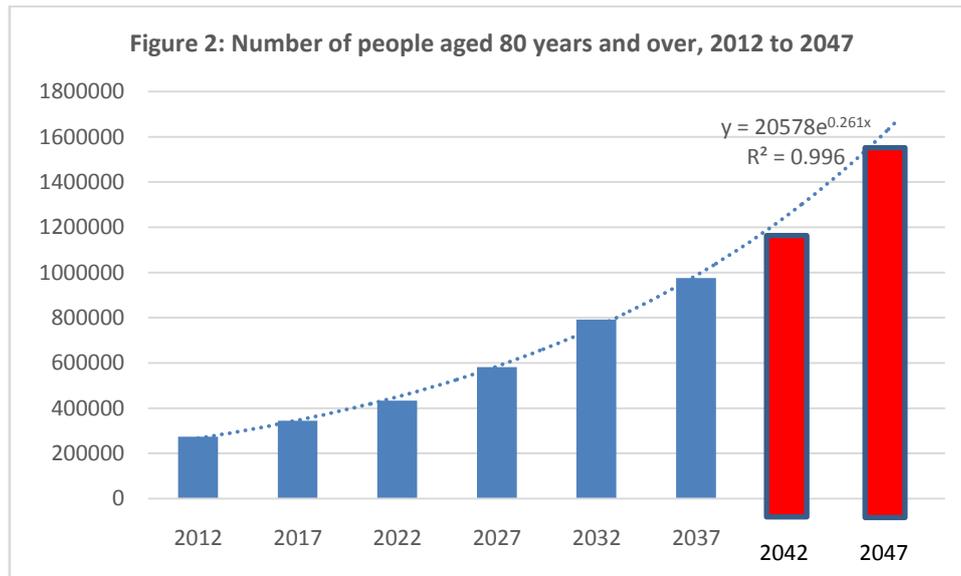
In Sri Lanka, life expectancy at birth for men has increased from 32.7 years in 1920-22 to 74.0 years in 2017 and is expected to rise to 77.2 years by the year 2037 (Dissanayake, 2016). Life expectancy at birth for women was 30.7 years in 1920-22 period and then augmented to 80.2 years in 2017 and is likely to rise to 81.7 years in 2037. Life expectancy at the age 60 years for men and women were 11.5 and 10.6 years in 1921, respectively. Dissanayake’s prediction (Dissanayake, 2016) shows they will increase to 20.1 for men and 25.2 years for women by 2037.



Source: Author’s calculations

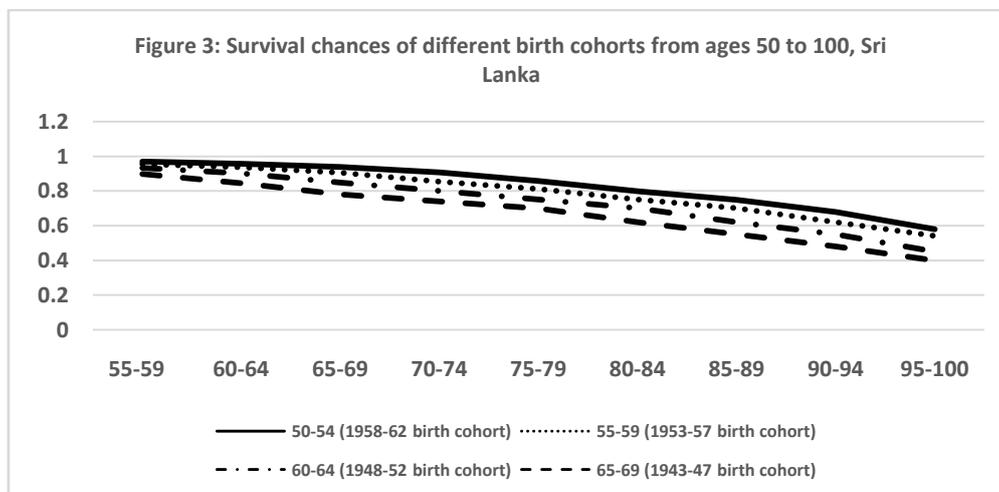
Extreme Longevity of People

It is quite disturbing to look at Sri Lankan data sources as they do not provide data for ages 80 or 85 and above. It is also quite astonishing to note that lack of understanding of demographic phenomena has led both data providers and data users to stick to only one value in the life table, which is life expectancy at birth. When we move into new demography of death, it is quite important for us to examine the extreme longevity of people and how many people will be accruing at those extreme ages. According to data of the standard projection (Dissanayake, 2016) the population age 80 years is expected to grow in an exponential manner in the future decades as depicted by Figure 2.



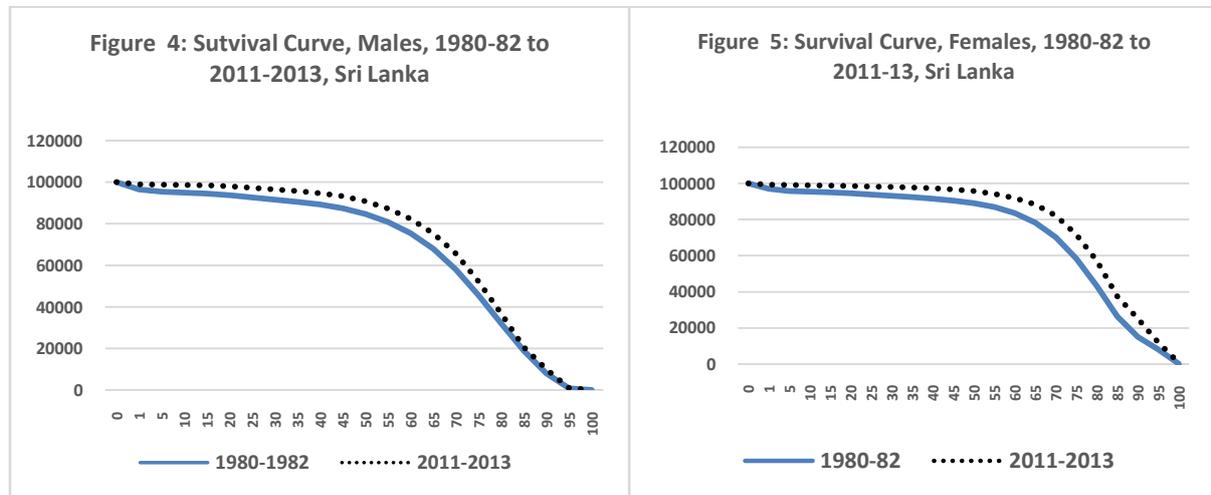
Source: Data obtained from the Department of Census and Statistics, Sri Lanka and author's calculations

It is also quite interesting to see that latter cohorts' survival chances have increased more than the earlier cohorts as shown in Figure 3. This indicates that more and more people survive into the 100 years of age in the second half of this century.



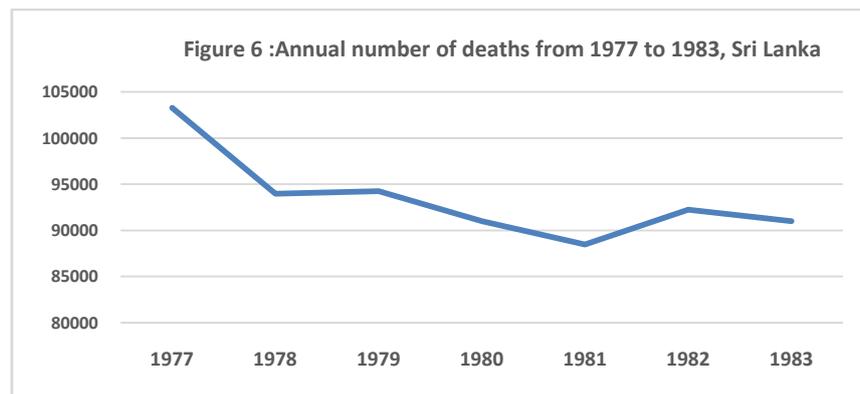
Source: Calculated by the author with the use of data available from Department of Census and Statistics, Sri Lanka

One can also reasonably claim that more people are living longer and the longest lived are living longer too. The survival curve will continue to become more and more rectangular in shape and it may also be stretched along the age axis as a result of extending maximum lifespan (Figures 4 and 5).



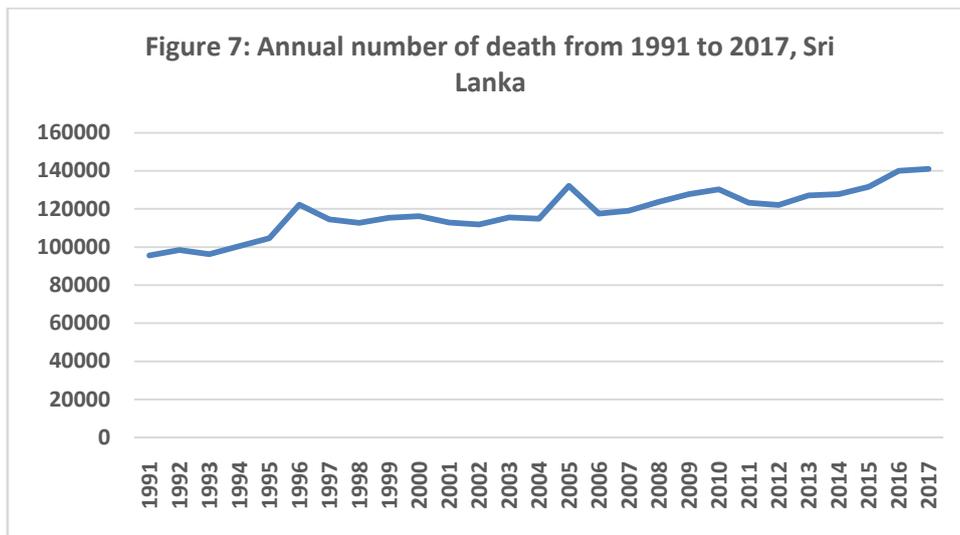
Towards more number of deaths

In 1901, Sri Lanka observed 103,347 deaths and then by the turn of the century the number of death rose to 116,200. The number is not so great because the age structure changes were happening at slower phase to produce any significant change in annual number of deaths. Most importantly, during the late 1970s, Sri Lanka entered into the third stage of its epidemiological transition and there was a shift from disease pattern from communicable to non-communicable diseases (Dissanayake, 2000). It is also important to remember that survival chances of the population kept increasing because of the improvement of health of the population. Therefore, we observed relatively low number of deaths until Sri Lanka reached the 1980 decade (Figure 6).

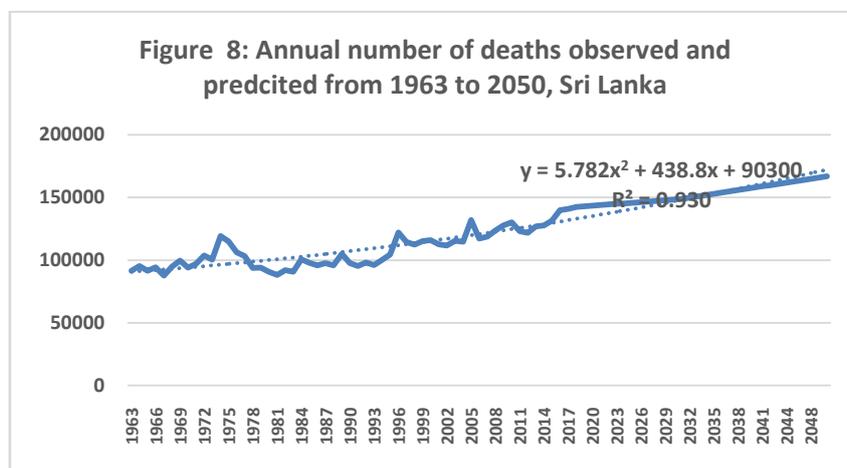


Source: Drawn from various reports of Registrar General’s Department

After 1990s, annual number of deaths showed an increasing trend as depicted in Figure 7. This was mainly because of the different momentum generated by the ageing of the Sri Lankan population. Figure 8 shows that this trend will continue into the middle of this century especially after mid 2030s at a greater speed with elderly Sri Lanka. The combination of the improved survival chances together with the increased death due to large number accrued at the later ages of life because of ageing process population created a different type of transition towards a new demography of death.

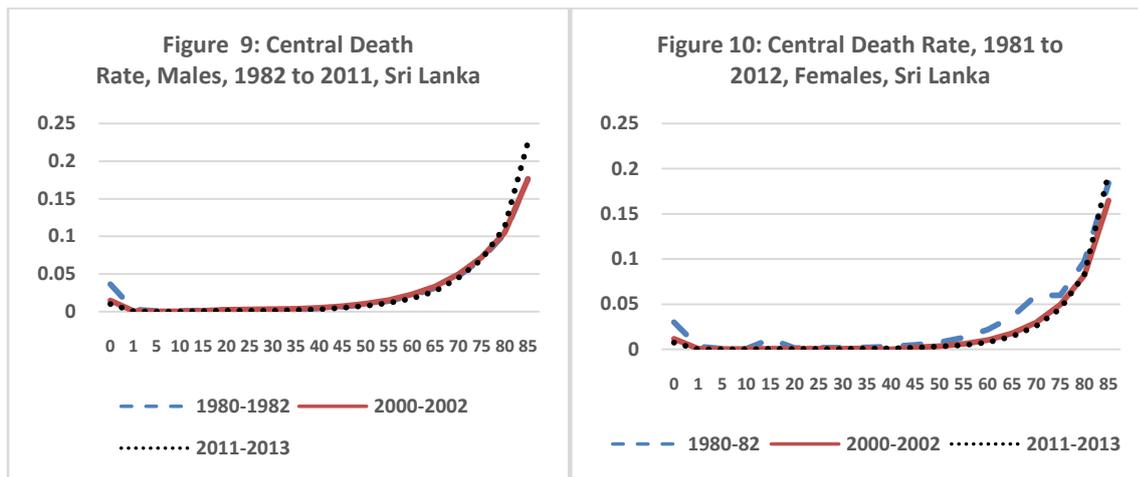


Source: Drawn from various reports of Registrar General’s Department



Source: Drawn from various reports of Registrar General’s Department and prediction was done by the author

This phenomenon was further investigated by looking at the central death rates of the life tables derived from Sri Lanka from 1980s and found that later life death rate has increased in the latest life tables for both men and women as shown in Figures 9 and 10. This further suggests that there is a high tendency to observe higher number of annual deaths to occur in the future deviating from its historical pattern to produce new maxima. This analysis reveals that death has been dominated by deaths of people aged 60 years and over and this domination has increased after 1990s and will continue to increase into the middle of this century. All of this reflects the continuing rectangularization of the survival curve as shown in Figures 4 and 5. In other words, people will survive up to age 80 and above in greater numbers and then mortality compression at the highest ages will produce a rectangular shape survival curve.



Source: Drawn from various life tables obtained from Department of Census and Statistics, Sri Lanka

CONCLUDING REMARKS

This paper drew attention on the new demography of death that the 21st century is predicted to bring, with examples from Sri Lanka, which is seen to be a result of a greater life extension that leads to a dramatic witness to this new demography. The paper has outlined the transition using data from Sri Lanka from a demography of young death in the first half of the 20th century to a demography of survival in the late 20th century and on to the new demography of old death in the 21st century.

The paper showed that it is likely that ages at death will continue to increase, with more and more people reaching extreme old age. Simultaneously, it is probable that life expectancies at birth will endure to upsurge in the 21st century.

It was shown that the new 21st century demography of death will lead to annual numbers of deaths far in excess of earlier maxima. This trend is supposed to continue until the large number people produced due to high fertility prevailed during the first and second stages of the fertility transition disappear from the population age structure. This can happen towards the end of the 21st century as this process will be delayed because of the sudden surge of fertility observed during the last two decades (Dissanayake, 2017). This new demography death essentially includes improved survival chances of the population to their later stages of the life and mortality compression at the final few years of life to produce larger number of deaths. All these developments will pose a very important question for us to find answers: Are we prepared for this new demography death, its scale and structure, as individuals, families, communities, and societies? When Omran (1971) discussed the epidemiological transition, he never expected a cardio-vascular revolution to take place in the mid-1970s. This is why Omran set the ceiling of the life expectancy at birth at the age of 75 years. However improved technology forced us to replace the maximum of the life expectancy at the age of 85 years but now we observe an increasing trend of longevity and as a result we have pushed our old age maxima into the 80s. It is quite likely that lives of more and more people will continue to be extended and centenarians (who reached 100 years of age) and super-centenarians (who reached 110 years of age) would comprise an increasing number and proportion of our population. Therefore, we cannot ignore the evidence of the new demography of death.

How can we begin to prepare ourselves for this new demography of death? At the individual level, it presents a challenge to our life course planning because people are going to lie a very

long period of time, for example 100 years so how we are going to adjust our life course situations (Leeson, 2014). It is also a challenge to our concepts of old age and retirement. If the age at retirement is 60 years, what are these people going to do for another 40 years of life? Are they going to be dependent on the family or state and becoming a burden to them? Family dynamics will also be defied by the survival of extreme aged generations delaying intergenerational succession as well as lack of dependence on smaller families for support in frail and dependent old-age. In this respect, intergenerational wealth transfer will be delayed and adult children generations will not benefit from their parental wealth which can produce an additional burden on the younger generations. Smaller families produced with the low fertility situation will not be able to support their parents for a longer period of time especially when healthcare of the elderly will be costly at extreme old ages (Dissanayake and Weeratunga, 2017).

It is quite probable Sri Lankan population will take a turn towards a declining population size reaching towards the end of this century. It is also quite important to note that the prospect of declining population size as well as this new demography of death raises even more and different issues for the workforce contracts. In this context, we will have to redefine our labour force ages and also to relax labour migration laws in order to compensate for the declining local workforce.

Currently, the world is moving towards creating and use of artificial intelligence to improve different aspect of the lives of the population. This applies to the elderly population as well. With a growing market of elderly people every year and a shortage of skilled labor, governments across the world might be looking to employ elderly care robots to bridge the gap. Though the adoption levels of elderly care robots is still low compared to other service robot market segments, there have been inroads in the industry in terms of elderly care robots equipped with artificial intelligence (AI)¹²³. The new demography of death with its extended longevity through improved survival chances will produce large number of centenarians and super-centenarians and thus, it is quite probable to hypothesize that elderly care will be taken care of by the robots equipped with artificial intelligence by replacing family who care for the elderly or elderly care workers. Whether we like it or not that would be our future. Is Sri Lanka prepared to address and tackle all these challenges successfully?

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