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## DECOMPOSITION OF NATURAL POPULATION GROWTH RATE IN SRI LANKA, 1946-2012

Lakshman Dissanayake\* and Manori K. Weeratunga\*\*

*Abstract:* This paper decomposes natural population growth into the growth attributed to the changes in fertility and mortality (intrinsic growth), and the growth attributed to the change in population composition (momentum growth) in Sri Lanka. The study uses population and selected demographic indicators for Sri Lanka obtained from various sources available at the Department of Census and Statistics and the Department of Registrar General in Sri Lanka. It was observed that the change in natural population growth rate has been negative throughout the 1946 to 2012 period mainly owing to the fact that the change in birth rate ( $\Delta b$ ) in subsequent time periods, which has been greater than the change in the death rate ( $\Delta d$ ). It means changes in fertility effects were greater than mortality effects to the total change in natural population growth. When change in the natural population growth was further decomposed into the change in intrinsic growth and change in population composition (momentum growth), we found that both components have attributed significantly to the change in the rate of growth although the intrinsic growth made a higher contribution. It is quite important to note that age compositional effects will continue into the future until the youth cohort already produced by the high fertility prevailed in the past and also recent fertility increase observed during the 200-12 period, which will in turn make significant impact of fertility on the population growth in Sri Lanka although the rate of growth of the population has been declining.

**Keywords:** Natural Population Growth, Age Independent Birth Rate, Intrinsic Rate of Growth, Decomposition of Population Change

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### Introduction

This paper decomposes natural population growth into the growth attributed to the changes in fertility and mortality (intrinsic growth), and the growth attributed to the change in population composition (momentum growth). Population trajectories depend on assumptions about trends in fertility, mortality and migration. Furthermore, the population age structure impacts growth by essentially disturbing the overall number of births, deaths and migrations that are implied by fertility, mortality and migration rates. All three demographic components can have a noteworthy bearing, positive or negative, on population growth.

Fertility offers a positive contribution to population growth if fertility is above replacement<sup>3</sup> and a negative contribution to population growth if fertility is below

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replacement<sup>1</sup>. In demography, it is understood that the concept of replacement level of fertility is important for maintaining fertility at replacement level in the long run that ends up with a stationary population and stabilization of population growth (Preston et. al., 2001). If fertility is above replacement level with constant mortality and zero migration, population will grow indefinitely. Similarly, if fertility stays below replacement, population will eventually decline to zero. It is necessary to realize that to attain replacement level fertility, women, on average, need to have one surviving daughter.

Usually, life expectancy at birth over time is likely to continue to increase as well as death rates are expected to decline over all age groups. In this context, the contribution of mortality to population growth will be positive. However, in more complex cases, death rates may not decline consistently over all ages but tend to increase for some ages and decline for others, like in countries that have been severely affected by HIV/AIDS epidemics or any other epidemic situations. In these intricate cases, the contribution of mortality to population growth is not very clear. The contribution of mortality may also be linked to the interaction between age specific mortality rates and population age structure.

The contribution of migration to population growth is determined by net migration (difference between immigration and emigration). Positive net migration contributes to population increase and negative net migration will diminish population. The population age structure at the starting point of making a population projection influences the growth trajectory.

Although fertility reaches replacement level and remain constant together with unchanging mortality and absence of migration, the total population may still not remain constant. Total population could either increase or decrease before reaching a stationary population size. This occurrence is called momentum of population growth and its value is defined by the ratio of ultimate population size to current population size (Keyfitz, 1971). For example, the countries which are still experiencing the demographic transition with young age structures, the total population will continue to grow because births produced by a large number of females of reproductive age will exceed deaths, even if total fertility is at replacement level. In this situation, population momentum has a positive effect on population growth. The countries which have already completed the demographic transition with comparatively old age structures, the total population will show a decline before reaching ultimate population size. In this case, population momentum has a negative effect on population growth. Therefore, it is important to note that the population growth brought about by the population momentum can be attributed exclusively to the initial age structure of the population.

### Methodology

The famous *balancing equation* in demography provides us with the following relationship in terms of births, deaths and migration in relation to change in population

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<sup>1</sup> The average number of children born per woman—at which a population exactly replaces itself from one generation to the next, without migration. This rate is roughly 2.1 children per woman for most countries, although it may modestly vary with mortality rates.



size. If  $P(0)$  denotes the population at time 0;  $B(0,t)$  denotes the number of live births during the time interval  $(0,t)$ ;  $D(0,t)$  denotes the number of deaths;  $I(0,t)$  denotes the number of in-migrants; and  $O(0,t)$  denotes the number of out-migrants, then the population at time  $t$ ,  $P(t)$  can be obtained using the following relationship:

$$P(t) = P(0) + B(0,t) - D(0,t) + I(0,t) - O(0,t) \text{-----(1)}$$

If inward and outward movement of individuals is disregarded, then the change in the size of the population during a given period rest upon the number of births and deaths during that period so that

$$P(t) - P(0) = B(0,t) - D(0,t) \text{-----(2)}$$

Dividing both sides of equation (2) by the person-years lived during the interval  $(0,t)$ ,  $PY(0,t)$ , we obtain,

$$r = b - d \text{-----(3)}$$

where  $r$  is the (crude) rate of natural increase or the natural population growth rate,  $b$  is the (crude) birth rate and  $d$  is the (crude) death rate.

Basically, there are four factors in the absence of migration that determine the change in the population size: 1) initial population size; 2) birth rate; 3) death rate; and 4) the period during which given birth and death rates apply (Vallin, 2006). It is understandable that when  $r=0$ , size of the population remains unchanged; when  $r>0$ , population size increases; and when  $r<0$ , population size decreases. The bigger the magnitude of  $r$ , the larger the change in the population size. Therefore,  $r$  serves as a valuable indicator of population change. Classical Demographic Transition Theory (Notestein, 1945) suggests that the pre-transition phase is characterized by a high birth rate and a high death rate and the post-transition phase characterized by a low birth rate and a low death rate. Accordingly, as the population moves from high stationary stage to low stationary stage, the size of the population tend to increase initially and then gradually it starts declining with a changing age structure. In this context,  $r$  first increases and then decreases mainly due to higher natural increase at the initial phase. It is also important to mention that birth rate can be decomposed into two components: first, the age independent component and the second, which is influenced by population age composition. If  $f$  denotes the birth rate independent of age, then we can state that

$$b = f \times (b/f) = f \times ab \text{-----(4)}$$

where  $ab = b/f$  is a multiplier which reflects the effect of age composition on the birth rate. Likewise, the death rate also has two components. If  $l$  denotes the age independent death rate, then, we can state that

$$d = l \times (d/l) = l \times ad \text{-----(5)}$$

Equation (3) can be written as

$$r = f \times ab - l \times ad$$

Using Kitagawa's (1955) double decomposition,  $r$  can be decomposed into two components as follows:

$$r = (f - l) \times (ab + ad)/2 + ((f + l) \times (ab - ad))/2 = i + a \text{-----(6)}$$

The first component on the right of equation (6) is the intrinsic component which is determined by the prevailing regimes of fertility and mortality as measured by the age independent birth rate,  $f$ , and the age independent death rate,  $l$ , and may be labelled as the intrinsic rate of population growth (Espenshade, 1975). The second component is the age component,  $a$ , which exhibits the age composition effects on the birth rate,  $ab$ , and the age composition effects on the death rate,  $ad$ , and hence on  $r$ . It is clear from equation (6) that  $r$  will not be zero, even if  $f=l$  or when  $i=0$ . The change (increase or decrease) in the population size therefore depends not only on the change in fertility and mortality, but also on the change in population age composition. The age component of the natural population growth rate is closely related to the concept of population momentum (Keyfitz, 1971; Schoen & Kim, 1991). Population momentum measures the cumulative contribution of age composition to population change in all future years after fertility has been set at the replacement level. It is usually measured in relative terms as the ratio of the size of the long run stationary population to that of the observed population when replacement fertility is first attained (Espenshade & Tannen, 2015) and can be both greater than or less than the limiting value of 1. When the age composition of the population is younger than the age composition of the stationary population, the momentum factor exceeds 1. In this case, population continues to increase even after the replacement fertility is reached. If the age composition of the population is older than that of the stationary population, the momentum factor is less than 1. In this case, population decreases after the replacement fertility is reached. When the population age composition is the same as that of the stationary population, the momentum factor is 1. In this case, the natural population growth rate is determined solely by the intrinsic population growth rate (Preston & Guillot, 1997). It is however clear from equation (6) that the concept of momentum is not confined only to reaching the replacement fertility. It applies to any change in the population size. When the population is closed with respect to migration, the change in the population size depends upon the change in fertility and mortality and change in the population age composition, which is the legacy of past fertility and mortality dynamics (Preston et al., 2001, p. 136). When the population is open for migration, both the size and the age composition of net migrant population also contributes to momentum growth (Espenshade & Tannen, 2015). Equation (6) suggests that the change in the natural population growth rate,  $r$ , should be analyzed in terms of the change in the age independent birth rate,  $f$ , age independent death rate,  $l$ , age composition effects on the birth rate,  $ab$ , and age composition effects on the death rate,  $ad$ . Now

$$\Delta r = r_2 - r_1 = (b_2 - d_2) - (b_1 - d_1) = (b_2 - b_1) + (d_2 - d_1) = \Delta b - \Delta d \text{-----(7)}$$

and

$$\begin{aligned} \Delta b &= (b_2 - b_1) = f_2 \times ab_2 - f_1 \times ab_1 \\ &= [(f_2 - f_1) \times (ab_1 + ab_2)/2] + [(ab_2 - ab_1) \times (f_1 + f_2)/2] \\ &= \partial f + \partial ab \text{-----(8)} \end{aligned}$$



Similarly,

$$\begin{aligned} \Delta d &= (d_2 - d_1) = l_2 \times ad_2 - l_1 \times ad_1 \\ &= [(l_2 - l_1) \times (ad_1 + ad_2)/2] + [(ad_2 - ad_1) \times (l_1 + l_2)/2] \\ &= \partial l + \partial ad \end{aligned} \quad \text{-----(9)}$$

Substituting from (8) and (9) in (7), we get

$$\begin{aligned} \Delta r &= (\partial f + \partial ab) - (\partial l + \partial ad) \\ &= (\partial f - \partial l) + (\partial ab - \partial ad) \\ &= \Delta i + \Delta a \end{aligned} \quad \text{-----(10)}$$

The first term on the right of equation (10) is determined by the change in the age independent birth rate,  $f$ , and the age independent death rate,  $l$ , or the change in the intrinsic rate of population growth, while the second term is determined by the change in the age composition of the population as it affects the birth rate and the death rate. It also follows from equation (10) that  $\Delta r$  will not be zero but will be equal to  $\Delta a$  even when there is no change in fertility and mortality so that  $\Delta i = 0$ . Equation (10) takes into account both the change in the intrinsic rate of population growth and the change in the population age composition in explaining the change in the population stock. It addresses the controversial issue of which demographic indicators are more efficient in analyzing population change. In the absence of migration, the logical choice of the indicator reflecting population transition is the natural population growth rate, i.e. the difference between the birth rate and the death rate. However, both birth rate and death rate are crude measures, respectively of fertility and mortality. They are most often affected by the level of fertility and mortality as well as by the population age and sex composition. Using only crude rates to measure population change, therefore, may obscure the change in fertility and mortality. Birth and death rates may stay at a relatively high level despite low levels of fertility and mortality because population age composition contributes to keeping them high. Analysis of population change requires that changes in both fertility and mortality and changes in population age composition are taken into account. Equation (10) provides this analytical framework. It essentially weighs the differences in the levels of fertility and mortality by the average levels of the age structure effects on birth and death rates while the difference in the age structure effects on birth and death rates is weighed by average levels of fertility and mortality. Decomposing the change in the natural population growth rate,  $r$ , into its components also has policy relevance. If the change in the age component accounts for, for example, 80 per cent of the change in the natural population growth rate, then there is little relevance of policies and programmes directed towards reducing fertility and mortality in the context of population change. In such a scenario, population policies and programmes should be directed towards addressing the age component of the natural population growth rate, which is the result of past fertility and mortality dynamics (Bongaarts, 1994). The application of equation (10) requires measurement of the age independent birth rate,  $f$ , and the age independent death rate,  $l$ . A measure of  $f$  can be derived from the total fertility rate (TFR) which is actually the sum of the age-specific birth rates of reproductive-age (15-49 years) women. Dividing the total fertility rate (TFR) by 35 – the length of the reproductive period, gives the age independent birth rate per woman of reproductive age. Finally, multiplying the age independent birth rate per woman of reproductive age by the proportion of reproductive age women ( $w$ ) in the population gives an estimate of the

age independent birth rate,  $f$ . Thus, the age independent birth rate,  $f$ , may be calculated from the total fertility rate as

$$f = w \times (\text{TFR}/35) \text{-----} (11)$$

Horiuchi (1991) has shown that the ratio of the birth rate to TFR is a measure of the age structure effects on the birth rate. In this context, the ratio  $b/f$ , can also be regarded as a measure of the age structure effects on the birth rate. Likewise, the expectation of life at birth ( $e_0$ ) is a measure of mortality which depends on age-specific probabilities of death and hence is not influenced by the age composition of the population. The reciprocal of  $e_0$ , the life table death rate, may therefore be taken as a measure of the age independent death rate,  $l$  and the ratio  $d/l$  can be regarded as a measure of the age composition effects on the death rate in the same manner as the ratio  $b/f$  is a measure of the age composition effects on the birth rate.

#### Data source

The present analysis uses population and selected demographic indicators for Sri Lanka obtained from various sources available at the Department of Census and Statistics and the Department of Registrar General in Sri Lanka.

#### Decomposition of the change in natural population growth rate

Table 1 provides the necessary data required for the analysis of the decomposition of natural population growth rate in Sri Lanka. The average annual natural population growth rate in Sri Lanka decreased by 57 per cent between 1946-53 and 2001-12 (Table 2). The trend of rate of natural population growth can be seen in Figure 1. It shows that the decline of natural population growth rate was slow until 1971-81 period. This was mainly due to the high level of fertility observed during the pre-transitional fertility regime. However, thereafter it accelerated at a greater pace because of the decline in fertility with the onset of the fertility transition which took place in the period 1960-70 (Dissanayake, 1998). This is further proven in Figure 2 which shows the trends of both crude death rate and crude birth rate from 1963 to 2001. It exhibits that crude birth rate has started declining in a faster speed after 1981. It is however, quite interesting to notice that fertility increase during the 2001-12 period is clearly reflected in intrinsic rate of growth component of the age independent birth rate (Table 1). It was mentioned that the sudden increase of fertility during this period was a result of fertility increase among the older women in the reproductive age span (Dissanayake, 2016; 2017). Dissanayake (2017) further argued that Sri Lanka started observing an unusual fertility upsurge from the late 1990s, although many anticipated that the TFR will reach the replacement level of fertility by the turn of the 20<sup>th</sup> century. It is quite reasonable to accept that when TFR is cruising relatively at low fertility level during post-transitional fertility regime, it does not run along a straight line but oscillates around replacement level fertility. Therefore, recent fertility increase can be regarded as a temporary phenomenon. Therefore, the present study found out that the TFR will possibly reach its replacement level by 2022. Most importantly, this study showed that the increase of Total Fertility Rate observed in the country produces an extra number of births which are of policy concern. Therefore, it is essential to determine what type of policies should be adopted to accommodate needs and aspiration of this particular birth cohort because they basically belong to the new millennium, which can be quite distinct to previous generations.



DECOMPOSITION OF NATURAL POPULATION GROWTH RATE IN SRI LANKA, 1946-2012

**Table 1: Population, Birth rate, Death Rate, Total Fertility Rate and Life Expectancy at Birth, Sri Lanka, 1946-2012**

| Year | Population | Birth Rate | Death Rate | Total Fertility Rate | Expectation of Life at Birth |
|------|------------|------------|------------|----------------------|------------------------------|
| 1946 | 6657339    | 37.4       | 19.8       | 5.70*                | 45.8                         |
| 1953 | 8097895    | 38.8       | 12.0       | 5.32                 | 56.6                         |
| 1963 | 10582064   | 34.1       | 8.5        | 5.01                 | 63.5                         |
| 1971 | 12689897   | 30.4       | 7.7        | 4.30                 | 65.5                         |
| 1981 | 14846750   | 28.2       | 5.9        | 3.40                 | 69.9                         |
| 2001 | 18797257   | 18.9       | 5.9        | 1.95                 | 73.0                         |
| 2012 | 20359439   | 17.5       | 6.0        | 2.40                 | 75.3                         |

Note: \* estimated

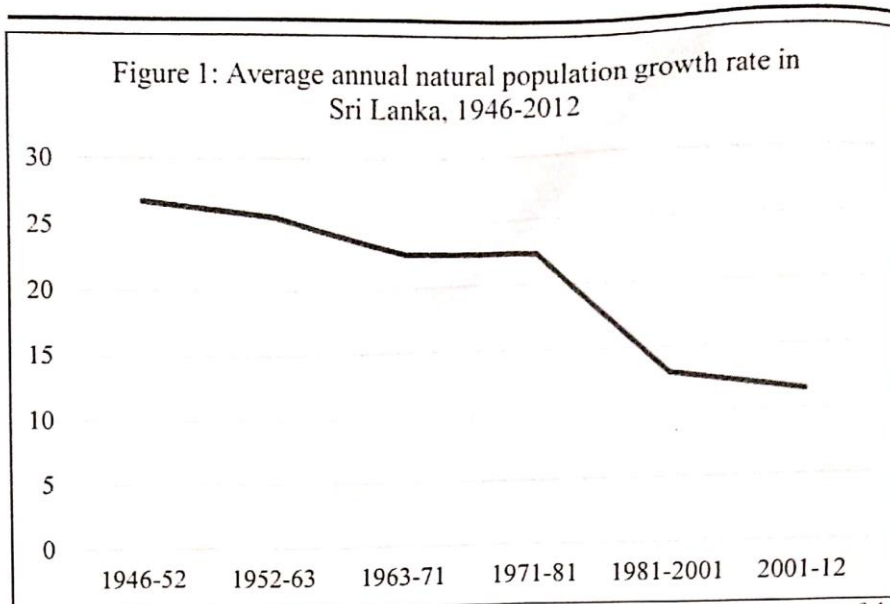
Source: Authors' calculations from data obtained from various sources of the Department of Census and Statistics; Department of Registrar General, Sri Lanka

**Table 2: Natural Population Growth Rate (r); Age Independent Birth Rate (f); Age Independent Death Rate (I); Age Structure Effects on Birth Rate (ab) and Death Rate (ad) in Sri Lanka, 1946-2012**

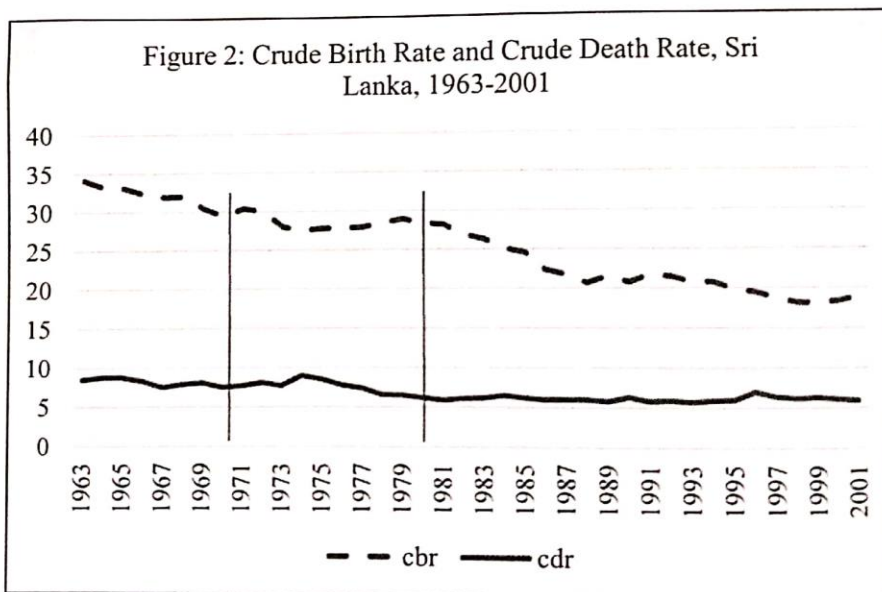
| Year      | Natural Population Growth Rate | Components of Natural Population Growth Rate |            | Age Independent Birth Rate |            | Age Composition Effect on Birth Rate |       |
|-----------|--------------------------------|--|------------|----------------------------|------------|--------------------------------------|-------|
|           |                                | Intrinsic Age Component                      | Death Rate | Birth Rate                 | Death Rate | ab                                   | ad    |
|           | r                              | b  | d          | f                          | I          | ab                                   | ad    |
| 1946-53   | 26.8                           | 12.0   | 14.8       | 29.8                       | 17.7       | 1.302                                | 0.679 |
| 1953-63   | 25.6                           | 8.3  | 17.3       | 24.3                       | 15.7       | 1.403                                | 0.540 |
| 1963-71   | 22.7                           | 10.9   | 11.8       | 29.4                       | 15.3       | 1.034                                | 0.504 |
| 1971-81   | 22.3                           | 12.1   | 10.2       | 29.1                       | 14.3       | 0.837                                | 0.412 |
| 1981-2001 | 13.0                           | 8.2  | 4.8        | 28.7                       | 13.7       | 0.659                                | 0.431 |
| 2001-2012 | 11.5                           | 10.2   | 1.3        | 34.7                       | 13.3       | 0.504                                | 0.452 |

Source: Authors' calculations from data obtained from various sources of the Department of Census and Statistics, Sri Lanka





Source: Authors' calculations from with the use of data obtained from various sources of the Department of Census and Statistics; Department of Registrar General, Sri Lanka



Source: Authors' calculations from with the use of data obtained from various sources of the Department of Census and Statistics; Department of Registrar General, Sri Lanka

Table 3 shows that the contribution of birth rate is greater than that of the death rate to the total change in natural population growth rate and this is much grander during the recent periods. Table 3 also reveals that change in the natural population growth rate during the first phase of the fertility transition was mainly induced by the change in intrinsic rate of growth but the contribution of the age component has been

significant in later years. Table 3 further discloses that age-independent birth rate has been the main cause for the changes observed in fertility during the first and second phases of the fertility transition. Although we observed a sudden increase in fertility during the 2001 to 2012 period, overall, TFR has declined noticeably between 1981 and 2012 from 3.4 to 2.4. This decline can be mainly attributed to the change in age-independent fertility as shown in Table 3. The period considered in this study does not show a greater contribution to the change in natural population growth rate because substantial mortality decline had already occurred during the period 1946-53 (Dissanayake, 1988).

**Table 3: Decomposition of the change in the natural population growth rate (per 1000) in Sri Lanka**

| Period                  | Change in Natural Population Growth Rate | Change in Birth Rate | Change in Death Rate | Change in r attributed to the change in Intrinsic Age Component |            | Change in b attributed to the change in Fertility Age Composition |               | Change in d attributed to the change in Mortality Age Composition |               |
|-------------------------|--|----------------------|----------------------|---|------------|---|---------------|---|---------------|
|                         |  |                      |                      | $\Delta i$  | $\Delta a$ | $\partial f$  | $\partial ab$ | $\partial l$  | $\partial ad$ |
| 1946-53/<br>1953-63     | -1.2                                     | -4.7                 | -3.5                 | -6.3  | 5.1        | -7.4  | 2.7           | -1.2  | -2.3          |
| 1953-63/<br>1963-71     | -2.9                                     | -3.7                 | -0.8                 | 6.5   | -9.4       | 6.2   | -9.9          | -0.3  | -0.5          |
| 1963-71/<br>1971-81     | -0.4                                     | -2.2                 | -1.8                 | 4.5   | -4.9       | 4.0   | -6.2          | -0.4  | -1.4          |
| 1971-81/<br>1981-2001   | -9.3                                     | -9.3                 | -0.0                 | -3.5  | -5.8       | -3.7  | -5.6          | -0.3  | 0.3           |
| 1981-2001/<br>2001-2012 | -1.5                                     | -1.4                 | 0.1                  | 3.7   | -5.2       | 3.5   | -4.9          | -0.2  | 0.3           |

Source: Authors' calculations from data obtained from various sources of the Department of Census and Statistics, Sri Lanka

### Conclusion

This paper attempted to decompose natural population growth into the growth attributed to the changes in fertility and mortality (intrinsic growth), and the growth attributed to the change in population composition (momentum growth). It was observed that the change in natural population growth rate has been negative throughout the 1946 to 2012 period mainly owing to the change in birth rate ( $\Delta b$ ) in subsequent time periods, which has been greater than the change in the death rate ( $\Delta d$ ). It means changes in fertility effects were greater than mortality effects to the total change in natural population growth. When the change in the natural population growth was further decomposed into the change intrinsic growth and change in population composition (momentum growth), we found that both components have attributed significantly to the change in the rate of growth. although the intrinsic growth made a higher contribution. However, it is quite important to note that age compositional effects will continue into the future until the youth cohort already produced by the high fertility that prevailed in the past and also recent fertility increase observed during the 2000-12 period. This will make significant impact of fertility on

the population growth in Sri Lanka in future years, although the rate of growth of the population has been declining.

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## HEALTH AND NUTRITIONAL PROBLEMS ENCOUNTERED BY LEFT BEHIND CHILDREN OF SRI LANKAN MIGRANT MOTHERS

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***Abstract:** Migration of mothers and their separation raises many challenges to their families, especially the children left behind, irrespective of the economic benefits they receive. Among them, the impact on health and nutrition of the children left behind by mothers play a crucial role as they affect the growth, education and behaviour of children. Although the consequences of mothers' migration on their children left behind have been studied immensely under different perspectives, health and nutritional problems encountered by the children are inadequately researched. Therefore, this paper discusses the health and nutritional problems of the children left behind by Sri Lankan migrant mothers based on a qualitative study done in 2014 that investigated the adverse effects of parental migration on health, nutrition, education, and behavior of left behind children. Four Focus Group Discussions and eleven Key Informant Interviews were conducted in Colombo, Gampaha, Kandy, and Kurunegala districts to collect information. The person who provide care, and the nature of care provision have a strong impact on health and nutritional conditions of children. Lack of knowledge and inadequate attention of caregivers, especially the grandmothers, on health and nutritional matters, poor hygiene of caregivers and improper food preparation habits have led to health and nutritional problems of the children. Low weight is prevalent among children less than 5 years of age. Children of school going age are vulnerable to nutritional and, physical and mental health problems depending on the nature of care provision and the environment they live in. Nonetheless, there is a lack of programmes addressing the health and nutritional problems encountered by the children left behind by migrant workers. Therefore, there is a need to initiate such programmes in the future to minimize these problems.*

**Keywords:** Left Behind Children, Nutrition, Health, Migrant Mothers

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### Introduction

There has been a transformation in the scale, complexity and diversity of international migration in Asia (Hugo & Young, 2008; International Migration Institute - IMI, 2006). Within this transformation, no change has been as striking as the increasing involvement of mothers leaving their children at home in the care of other family members (United Nations, 2016; Jayaweera & Dias, 2009). There are no accurate estimates of the children left behind by migrant mothers (Yeoh & Lam, 2007; Parrenas, 2005). Moreover, it is difficult to get accurate estimates due to the differences in age limits used to define the child by different countries and scholars (Yeoh & Lam, 2007). However, by examining the estimates of the children left behind in countries such as Bangladesh, China, Thailand, Indonesia, the Philippines, and Sri Lanka, Yeoh and Lam (2007) suggest that millions of children in the world live without seeing their mothers or fathers or both parents for many years. Perera and Ratnayaka (2013) reports that more than one million Sri Lankan children are left behind by their mothers who have migrated for overseas employment. Ukwatta (2012)

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found that almost all women who migrated as domestic workers had at least one child at the time of their migration. These estimates suggest that a considerable number of children are left behind by migrant mothers.

According to the Sri Lanka Foreign Employment Bureau - SLBFE (2016), annual departures for foreign employment have increased significantly since the mid-1980s and had reached 300,703 in 2014. However, the total number of departures has decreased significantly since 2014, reaching 263,443 in 2015 and 242,930 in 2016. This decline could partly be due to several reasons as reported by Central Bank of Sri Lanka - CBSL (2016): the slowdown of the economic activities in the Middle East; the continuous deceleration in the aggregate demand across major oil and other commodity exporting countries; and the discouragement of female migrant workers for low-skilled employment. The decline is significant among female departures in which the percentage decline is reported as 17.9 per cent compared to male departures of 9.2 per cent during the period 2014 and 2015 (SLBFE, 2016). Although there is a decline in annual departures since 2014, a steady growth of remittances has been reported until the year 2016 (SLBFE, 2016).

Increasing numbers of Sri Lankan men and women migrate for overseas employment due to a variety of reasons linked to inadequacy of economic and social opportunities and presumably, superior opportunities in the area of destination (Perera & Ratnayaka, 2013; Ukwatta, 2012; Jayaweera & Dias, 2009). However, main reasons for their migration are: impoverishment and the need to support family; inability to bear the rising cost of living; desire for a better life; lack of viable employment opportunities in the home country; fleeing persecution, poverty, economic and political instability; desire for a better future; and higher remuneration in the destination country (Perera & Ratnayaka, 2013; Jayaweera & Dias, 2009). Females migrate not only because of economic reasons but also due to non-economic reasons such as 'fleeing surveillance by communities, getting out of a bad marriage, or fleeing from domestic violence' although the numbers are not as high as for economic reasons (United Nations Fund for Population Activities-International Organization for Migration - UNFPA-IOM, 2006, p.25). Although migration for foreign employment has become a key element of economic development in Sri Lanka due to the contribution of migrant worker remittances to the country's economy and to the economy of migrant households (Institute of Policy Studies - IPS, 2013; Shaw, 2008a, 2008b; Lasagabaster et al., 2005), it raises many challenges to the children in migrant households (Wickramage et al., 2015, 2012; Perera & Ratnayaka, 2013; Ukwatta, 2010; Save the Children, 2006; Jayaweera & Dias, 2009).

Migration of one or both parents of a family engender changes in household arrangement including child care, family structure, and gender roles (Graham et al., 2015; Parrenas, 2005). Moreover, the separation of mothers from their children for many years raise challenges to their children in different ways and the severity of these challenges depends upon the person/persons who take the responsibilities of providing care for the children. According to the study done by Ukwatta (2012), 'farther' is the primary care giver for more than two thirds of the migrant families. Save the Children (2006) notes that fathers are primary care givers for about a quarter of the women migrant families. Other caregivers are close relatives and among them the majority are grandmothers. Irrespective of the person who takes care of children, in many



situations, children are vulnerable to issues such as neglect, violence and abuse especially in the absence of mothers (Perera & Ratnayaka, 2013; Save the Children, 2006; Jayaweera & Dias, 2009).

Problems encountered by the children left behind, especially the children of migrant women, is a repeatedly discussed issue, irrespective of the economic benefits the migrants bring to the country as well as to the migrant households (Perera & Ratnayaka, 2013; Ukwatta, 2012; Fernando, 1989; Gamburd, 2005, 2000; Eelens, 1995). Disregarding the negative consequences, mothers are migrating overseas dreaming a better future and will continue to do so in the future. Even though the problems encountered by the children of migrant mothers has been intensively studied from a number of perspectives, it still remains under-researched in relation to health and nutritional problems. Among the limited studies conducted, Wickramage et al. (2015) examined whether migrant children in Sri Lanka face an increased risk for adverse mental health and nutritional outcomes than non-migrant children using standardized health instruments such as Strengths and Difficulties Questionnaire (SDQ) and Child Health Development Record (CHDR). Mental health and physical well-being of the children left behind were investigated by Wickramage et al. (2012). While Jayatissa and Wickramage (2016) examined the nutritional status of children left behind and care practices, Senaratne et al. (2011) examined the health status of children left behind by migrants and the children of non-migrant families. This paper is based on the findings of a qualitative research conducted to examine the health, nutritional, educational, behavioural changes and other challenges faced by children left behind when one or both parents leave the country to work abroad. It reports the health and nutritional problems of the children less than 5 years of age and the children of school going age discussed by the key informants and the participants of Focus Group Discussions (FGDs) which assessed through subjective responses to specific questions.

### **Methodology**

This paper is based on the findings of a study done in 2014 which collected qualitative data using four FGDs and eleven Key Informant Interviews (KIIs) in selected Divisional Secretariat (DS) Divisions. In the first stage, four districts, namely Colombo, Gampaha, Kandy, and Kurunegala were selected on the basis of the number of annual departures reported at the SLBFE. In the second stage, four Divisional Secretariat (DS) Divisions, the next lower administrative division to the district, from four districts were selected. The highest number of departures recorded was also taken into account in selecting these DS Divisions irrespective of the country of destination of migrants. Colombo, Gampaha, Kandy Four Gravets, and Kurunegala are the four DS Divisions that recorded the highest number of labour migrants during the period 2007-2012. Instead of selecting Kandy Four Gravets from the district of Kandy, Udapalatha/Gampola DS Division was selected to represent the views of participants in relation to rural migrant community. Thus, the information gathered at the FGDs represents the views of both urban and rural communities. In the FGDs, information was gathered from small groups of people representing health, education, social service, law enforcement and other related fields. KIIs were conducted to obtain detailed information on health, education, social status and other relevant issues.



Participants of the FGDs are teachers and principals in government schools, religious leaders, Medical Officers in Health (MOOH), Public Health Midwives (PHMM), Grama Niladharies (GNN), Development Officers (Officers work in the DS Divisions appointed by the SLBFE), Counsellors, Police Officers, Development Officers (Economic), Social Services Officers, Human Right Promotion Officers, Early Childhood Development Officers, and Women Development Officers. Detailed information was obtained from the KIIs according to a pre-determined guideline. Information collected at the FGDs and information provided by the key informants was recorded with their consent while the notes were taken by the note takers. Notes and recorded information were transcribed immediately after each FGD and KII and then translated into English language. Once the transcript in English language was organized, 'cut and paste' technique was used to include the information collected under various themes.

### Results and Discussion

Existing studies reveal that the children left behind by migrant mothers are highly vulnerable to diverse problems (Perera & Ratnayaka, 2013; Ukwatta, 2012; Yeoh & Lam, 2007; Gamburd, 2005; Eelens, 1995; Fenando, 1989). The magnitude of their vulnerability depends on the person who migrates: some children are left behind by mothers, some by fathers and some others by both parents. In addition, persons responsible for the provision of care for these children also affect the magnitude of the vulnerability. When fathers migrate, the tasks performed by mothers do not change significantly. According to the traditional norms of the society, women take the responsibility in providing care for their children alone or with the support of other family members. As reported by Jayaweera and Dias (2009, p.90), "women are largely or even exclusively responsible for household activities and childcare related activities". However, the situation is different when mothers migrate because the fathers have to undertake all the activities that were performed by their spouses in addition to their breadwinning role. While fathers take the whole responsibility in some families, extended family members, especially the grandmothers take the responsibility for providing care for their grandchildren in other families. The situation is distressing when both parents are not at home. All these circumstances affect health and nutrition of the children left behind in different ways.

There appears to be a universal agreement among participants of the FGDs and Medical Officers of Health (MOOH), Public Health Midwives (PHMM), principals/teachers, religious leaders, police officers, Social Services and Development Officers, SLBFE Officers, Child Right Promotion Officers, Counselors, Grama Niladharies, and Women Development Officers interviewed that the children of migrant parents face more nutritional and health problems compared to the children of non-migrant parents in the study area. Moreover, the problems faced by the children of absent mothers are severe than those faced by the children of absent fathers. However, some key informants (for example, Social Officers and religious leaders) had an opinion that there is no significant difference of nutritional and health issues between the children of migrant and non-migrant families as there are families in which the fathers provide better care for their children in the absence of mothers.

### **Nutritional Problems**

The common nutritional problem faced by the children less than five years of age in the absence of their mothers is under weight as reported by the MOOH and PHMM in this study. Wickramage et al. (2015) also reported that over a quarter of children left behind by migrant parents were underweight or severely underweight. According to them, this percentage is higher than the percentage of underweight children of non-migrant parents. Low weight observed in the children of migrant mothers in this study is due to the lack of attention on the growth of the children left behind by their caregivers. In many instances, childcare responsibilities are handed over to the grandmothers in the absence of mothers and in most families, the principal caregiver is the grandmother. Although free health facilities are provided to all children below 5 years of age through the FHCs, children are not taken to these clinics by the caregivers on the given dates due to the lack of attention and awareness on health matters. Although PHMM in the area make every effort to encourage the care providers to take their children to the FHCs, their attendance is infrequent as irregular visits to the clinics were recorded in the CHDRs. Moreover, due to physical weaknesses, grandmothers are unable to take the responsibility of taking these children to the FHCs, especially on the given dates.

Remittances earned by the migrants affect child nutrition in two ways as stated by Wickramage et al. (2015). On one hand, purchasing power for children's nutritional needs may be enhanced with the increasing household income. On the other hand, the absence of mothers may reduce the time available to prepare nutritional food for children. Although the household income has increased due to mothers' migration, most of the caregivers had not considered improving the nutritional status of children as found in this study. In the opinion of the participants of the FGDs, grandmothers prepare food that are easy for them to make instead of preparing nutritional food that the children are required for their growth or food that they like to eat. Most of the grandmothers are physically weak because of their age; therefore, they cannot cook three times a day and prepare all three meals in the morning. The PHMM visiting these households have noticed that the food offered to some of these children either lack in nutrients or not preferred by the children. Moreover, the physical hygiene of most of these grandmothers is also poor. These findings were also supported by Wickramage et al. (2015) who also reported that the children left behind are not provided with nutritional food and better health care due to the physical weaknesses of grandmothers and their poor hygiene.

Several nutrition/health programmes are being implemented in selected government schools according to principals and teachers participated in the discussion in this study. Under these programmes, nutritional food are provided to children while making them aware on the importance of such food. Children in disrupted families and migrant families tend to eat instant food during the school hours and the rest of the day due to two reasons. One is the inadequate attention given in the preparation of food to be taken to school by the children and the other is the preference of children in having instant food over homemade food. A Buddhist Monk, a principal of a school in Colombo City area also stated that the majority of children living in this area mainly depend on instant food items that do not contain nutrients. Although most of the migrant women send their hard earned money to their mothers for daily expenses of



the household, especially for the health and education of children, they do not spend them on nutritional requirements of the children. These children are provided with instant food and food bought from nearby boutiques that do not contain nutrients. In such situations, the money sent by the migrant women are not spent by the caregivers according to their expectations. Moreover, in the absence of mothers, children become stubborn and they grab money from grandparents and spend on buying instant food. Although Wickramage et al. (2015) suggest that the increase in household income due to migration lessen the child nutritional problems, the situation differs depending on the person who migrates (mother, father or both parents) and primary caregiver of the family as found in this study.

A high prevalence of nutritional problems among the children of migrant families was also observed by the Social Services Officers, Development Officers, SLBFE Officers, Child right Promotion Officers and Women Development Officers in this study. According to their views, in women migrant families where the eldest daughter or the father take the responsibility of childcare, only curries like dhal or soya meat are always being prepared as they are easy to cook. In the absence of mothers eldest daughters are obliged to do all household chores that are not age appropriate. In addition to the household work, they have to take care of their younger siblings. Very young children are also compelled do household activities. Since these girls are most often young and lack experience, they do not have sufficient knowledge regarding their hygiene and nutrition. As such, the whole family faces health and nutritional problems and basic health needs of children are grossly neglected. Families that do not have an eldest daughter most often rely on meals bought from nearby boutiques that do not provide quality food. Consequently, children in such families are easily vulnerable to various illnesses. However, as mentioned earlier, there are fathers who take the responsibility of looking after their children in the absence of the mothers and provide proper care for their children. This depends on the education of fathers and the environment they live in. In some families children of migrant mothers are taken care of by their aunts who have their own children. In such families, children of migrant mothers are not given proper attention. Sometimes, money sent by migrant women is spent by the aunts for the requirements of their children.

### **Health Problems**

Poor physical hygiene of the children and caregivers, improper food preparation habits, and inadequate attention on the nutritional value of food given by the caregivers negatively affect the nutrition condition of children. These improper conditions may have a strong impact on the prevalence of diseases. In some areas of this study, a difference of hygienic conditions was not observed among the children of migrant and non-migrant families. According to the Buddhist Monk, persons with lower level of socio-economic conditions in Colombo urban shanty area households live under poor hygienic conditions. With these poor hygienic conditions, children in these areas, irrespective of the presence of parents at home, are exposed to diseases. Fernando (1989) also found that there is no difference of the diseases between the children of migrant and non-migrant families. However, the children of migrant mothers have more frequent relapses and erratic long-term recovery.

Migration of mothers may definitely have an impact on the physical hygiene of children since mothers are mainly responsible for providing better health care for their

children than the other members in the family. In the absence of mothers, children are not properly taken care of by their grandmothers since they do not have adequate knowledge in maintaining good health of the children as mentioned earlier. For example, if a child gets injured, medical attention is sought by grandmothers only when wound infection occurs. According to school teachers and Social Officers in the study area, physical hygiene of the children left behind is poor with respect to their hair, teeth and clothes due to lack of attention given by the caregivers on hygienic matters. Athauda et al. (2000) reported that pre-school children of migrant mothers have the highest mean number of illness episodes. The children of migrant families in Colombo shanty areas suffer from rashes and communicable diseases. In Colombo urban areas, most of the migrant families live in shanties. If a child in this area suffers from a communicable disease, there is high possibility of spreading the disease due to the congestion of houses.

The children of migrant mothers can easily be recognized by their appearance. Their tidiness and cleanliness of school uniforms and hair are different from other children. This difference is very clear when observing the uniforms and hair. Their nails are not properly cut. Many of the children are infested with head lice. Their personal hygiene is poor compared to that of the children of non-migrant families. Teachers find it difficult to discuss the health issues of children due to the poor attendance of the guardians at parent-teacher meetings. Therefore, teachers find it difficult to make these children aware of good health and hygienic practices without the support their guardians.

In addition to the health facilities provided to children through Family Health Clinics (FHCs), many of the government schools also provide some health facilities to their students. Schools have clinics to which children of migrant and non-migrant families can attend. However, caregivers do not use this opportunity to take their children to these clinics. In addition, these children are provided with some vaccinations and medicines in classrooms. Facilities are also available for eye, ear and dental check-ups at the office of Public Health Inspectors (PHI). According to a Principal in a school, it is not possible for them to devote more time to discuss health matters of children during school hours because of their busy time schedules. This has become more difficult due to the poor attendance of the guardians of the children left behind by migrant parents at parent-teacher meetings.

When the role of the caregiver is transferred to a family member at home in the absence of migrant women, there is a significant decrease in attention paid towards the health of the children. For instance, when the children suffer from illnesses, seeking medical attention for them is delayed by caregivers until severity increases or complications arise. As a result, poor attendance and dropping out from schools can be seen among children of migrant mothers. Also due to poor attendance in school, these children do not get the health facilities provided in schools.

In the opinion of Grama Niladharies, children of migrant families face many health problems compared to the children of non-migrant families. It is evident that with the migration of the father or the mother, health condition of the children deteriorates. Children of migrant mothers face more problems than that of the children of migrant



fathers. In the environment of Colombo urban area where shanties are located, children of non-migrant families also face health problems due to the low level of education of parents, mental issues of parents, economic hardships, lack of knowledge on health matters, living style and food consumption pattern. Mothers migrate mainly due to economic problems and in many mother migrant families, the fathers are also employed. Thus, the time the father can spend with their children is minimal. In many families, the fathers do not pay attention on children's nutrition since they believe that they are assigned only the breadwinning role of the family and their spouses are assigned the role of housewife. This does not mean that fathers do not love their children, but, they are not willing to take the responsibility of the children's nutrition and health.

Migration of mothers can also have an impact on the health and nutrition of children of age 5 years and over. While school going age children face a lot of health problems due to their mothers' migration, the problems are prominent among girls. When the girls face problems, they are reluctant to tell them to their fathers. Moreover, they never discuss their sexual problems with their fathers. If they do not have a close relationship with their grandmothers, they never discuss health issues with them. A better relationship could be maintained if the mother and the children live together since the mothers pay much attention on their children. In the presence of mothers, children get health, nutritional and emotional benefits and these benefits affect the personality development of the children. .

Although caregivers play an important role in caring for the children left behind, mental problems of some caregivers have a great impact on childcare. As Wickramage et al. (2012) found, caregivers suffering from somatoform disorders creates an increasing burden on the health care system. Findings of this study indicates that most of the grandmothers who are responsible for the care of children left behind suffer from mental problems such as stress and tension due to the heavy household chores and responsibility of child care. Existing literature also shows that children of migrant families experience greater emotional problems, hyperactivity disorders and conduct problems due to parent-child separation than the children of non-migrant families (Wickramage, et al. 2015, 2012; Ukwatta, 2012; Senaratne et al., 2011) One MOH has found a girl in a school who had several patches on her body like mosquito bites. When the doctor inquired about the reason for the patches, she has started crying. According to the doctor, the girl's response is as follows:

'My mother works abroad. Father takes alcohol in the night and tries to abuse me. Therefore, I sleep in the toilet at night and it is full of mosquitoes'.  
The MOH further stated that two of her friends (husband and wife) went abroad for higher education leaving the child with caregivers. Once they returned to Sri Lanka, the child refused to sleep with the parents. Instead, the child continued to sleep with the servant as the child had developed a close relationship with the caregiver than that with the parents. This indicates the fact that lack of intimacy affects the mental development of children and it is common not only among the children of migrant parents with low socio-economic levels but also among the children of educated parents.

According to the views of MOOH, PHMM and counselors, most of the children left behind suffer from mental problems due to the separation from their parents during the period that they need love, affection, care and nutrition for their physical and mental development. The most common problems observed among the children of migrant families and disrupted families are sleeping disorders, nocturnal enuresis, headaches, body pain, aggression and personality disorders. Personality development of children depends on the personality of their parents. In the absence of love, affection, attention, guidance and protection of parents, these children live a discontented life, which can lead to a disruptive and unacceptable behaviour. Cruelty, aggression, disobedience, stubbornness, and hyperactivity are the most common behavioural problems of these children. Other behavioural problems are sulking, staring blankly, living alone, helplessness, and poor communication with others. A daughter of a migrant mother had lived with her father. They had enough money for their living. This child had told her father that 'I do not want money. I feel lonely. I want my mother to stay with me. Please ask her to find a job in Sri Lanka and stay with me to overcome my loneliness'. Not only the children of migrant families, children of disrupted families and the children of families whose parents are dead also suffer from such mental problems.

Children living in the care of grandparents are more prone to quarreling and hurting others. These behaviours ultimately lead to mental illnesses such as stress, anxiety, and depression. These children are easily vulnerable to drug addiction since they do not have proper guidance, care, love and attention. They have easy access to drugs since varieties of drugs are freely available in the local market. They use syrups, babul, and jelly packets as drugs. Recently, some boys in a school have used tobacco, sugar and water to make a drug and used it. An environment has been created in the community which enables children to access drugs and alcohol easily. Although children left behind by migrant parents face a lot of mental problems, no one takes them for counseling. Majority of the children have problems that cannot be diagnosed through medical checkups. When children suffer from depression for a long time and are not given proper treatment, the disease will develop into a stage in which they commit suicide or attempt to commit suicide.

Loss of love, affection and care during the early days of life affect the mental status of children when they grow up. When a girl becomes a mother she may face mental problems if she was not loved by their parents in her early days of life. Children suffer from mental problems since they live with fear all the time. Usually they suffer from phobias. They are scared of even small insects and darkness. When children cry, grandmothers scare them by saying 'I will put you into a room and close the door'. This kind of statements can have an impact on the mental status of children when they live without their mothers. The society's reactions towards the children left behind by migrant mothers also influences the mental status of the children. A statement like 'You are stubborn like your mother. That is why she went abroad' influences the children to be more suborn. Although the girls always try to lessen their sadness by crying the boys involve in activities that are not acceptable by the society.

As mentioned earlier, children of migrant families face more problems than the other children of non-migrant families. These children are vulnerable to mental and,



physical abuse and violence by their close relatives who provide care for them. Hence, these children suffer from severe stress. Children of non-migrant families are protected by parents. In most circumstances, children who live with their grandmothers in migrant families are often abused by their uncles living with them. There is no assurance for the care of children in the absence of their mothers.

However, some children do not have an objection regarding parents' migration according to the opinion of the participants of the FGDs. They feel that living with their parents is a pressure for them. There are some children who are happy with their parents' migration. However, the happiness of the children depends on the persons who take care of them. If the relationship between children and parents are strong, children do not like their parents' migration.

### Conclusion

Health and nutrition of children left behind are negatively influenced by the migration of mothers although it is expected to improve with the increasing income of the households. A variety of factors that extend beyond the effects of enhancing purchasing power influence the health and nutrition of children. The person who provides care in the absence of the mother is the major factor influencing child's nutrition and health. The other factors associated with it are hygienic condition of the children and care providers, knowledge and awareness of care providers on health matters, and the quality of food given to the children. Among the consequences of mothers' migration on children, health and nutrition are crucial since education and behavior of children depends on them. Although this study highlights views of the participants of the FGDs and key persons interviewed, health and nutrition of the children left behind by migrant mothers have to be further investigated. Actions taken by the Sri Lankan government to initiate programmes targeting the children left behind by migrants, especially the children of migrant mothers are inadequate. Special clinical health facilities are not available for them. Therefore, there is a need for targeted health and nutritional programmes addressing the health issues of the children left behind by migrant women with special attention towards low birth weight children. In addition, health awareness programmes for potential migrant mothers, return migrants and care providers are required.

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