

## South Asia Human Development Sector

Determinants of Fertility,  
Women's Health and Employment Behavior in Sri Lanka  
October 2012



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**Determinants of Fertility,  
Women's Health and Employment Behaviour in Sri Lanka**

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## **List of Acronyms**

BMI	Body Mass Index
CEB	Children Ever Born
DHS	Demographic and Health Survey
NCDs	Non-Communicable Diseases
TFR	Total Fertility Rate

## Introduction

There is now a consensus view that challenges in social protection are deeply rooted in demographic dynamics, particularly population ageing and family formation and dissolution, while social vulnerabilities are strongly connected to the combined effects of age, gender and family composition.<sup>1</sup> Changes in partnership, fertility, mortality, and ageing have important implications for social protection in both its scope (e.g., coverage) and commitment to specific aspects. The number of single person households and one-parent families, mean age at first birth and average age of childbearing, fertility levels, changing gender roles regarding the family, the parenthood-work nexus, life expectancy at birth, and ageing are only some of the demographic issues to be accounted for in policy making. Some of these are chances and choices of individuals, which many times find themselves being faced with overlapping problems. It is therefore essential to use demographic profiling as an early warning system in order to identify households and individuals who will be at risk of social exclusion, and further identify the best policies to address them.

Since the Government acknowledged that easily accessible adequate health services is a small price to pay for having a healthy and economically active nation and started implementing health reforms in the 1930s, overall mortality and infant mortality rates fell and life expectancy has continuously risen in Sri Lanka. Population grew rapidly until 1970s, after which fertility rates began to drop, the total fertility rate (TFR) falling by 2000 at 1.9 children per woman of reproductive age, below the replacement level. Since then though, the TFR has increased again to an above replacement-level of 2.3 children per woman as of 2006/2007.

As a result of low fertility rates and high life expectancy, the current demographic challenges faced by Sri Lanka are its declining share of children and increasing share of elderly, and an increasing working age population. While the country continues to take advantage of the high share of working age population to stimulate economic growth in the short term, the other two emerging population issues spur questions on their own.

An accompanying paper, De Silva (2011)<sup>2</sup> analyzes the drivers of population growth in Sri Lanka focusing on changes that occur in fertility, mortality and international migration levels. Of these, the present note will focus in depth only on the fertility and fertility-related challenges. First, the fertility trends will be reviewed. Further, following the framework developed by Bongaarts (1978),<sup>3</sup> some direct determinants of fertility are presented. Third, a few specific socioeconomic and cultural factors influencing the fertility in Sri Lanka are analyzed, including child mortality and nutrition, information on health and barriers to treatment, women's empowerment and decision making, and women's labor and decisions about earnings.

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<sup>1</sup> Dragana Avramov – “*People, demography and social exclusion*,” Council of Europe, Strasbourg, 2001.

<sup>2</sup> De Silva, W. Indralal – “*Sri Lankan Population Change and Demographic Bonus – Challenges and Opportunities in the New Millennium*,” background paper for the “Sri Lanka: Managing the Demographic Transition” study, 2011.

<sup>3</sup> Bongaarts, J – “*A Framework for Analyzing the Proximate Determinants of Fertility*,” Population and Development Review, Vol.4 No.1, 1978.



## Characteristics of the data used

This analysis relies primarily on the 2006-07 Demographic and Health Survey (DHS), supplemented by the 2000 DHS to highlight selected time trends. The DHS collects information on household characteristics as well as on the characteristics of the women and children, and their nutritional status and reproductive behavior (in the case of women). A note of caution in comparing the findings of the two surveys is that the later DHS includes the Eastern Province, although both exclude the Northern Province from enumeration. Only ever-married female 15-49 year olds are eligible for being interviewed for the female questionnaire. Thus the non-eligible sample of (single) women 15-49 year olds is strongly skewed towards the left: in 2006-07, the distribution of eligible females by 10-yr age-groups is 11.9, 34.5, 36.6 and 17 percent respectively among the eligible females, while the same distribution is 74.8, 17.4, 5.5, and 2.3 percent respectively for the non-eligible females. Due to the age bias, the two groups have different characteristics: the non-eligible, single women of 15-49 years of age are more educated, wealthier, and tend to live more in urban areas compared to their eligible, ever-married, counterparts.

**Table 1: Characteristics of women of reproductive age, 2006-07**

	Female, 15-49 y.o., not eligible					Female, 15-49 y.o., eligible					TOTAL	
	15-24 y.o.	25-34 y.o.	35-44 y.o.	45-49 y.o.	Total	15-24 y.o.	25-34 y.o.	35-44 y.o.	45-49 y.o.	Total		
<b>Age groups</b>												
15-24 y.o.					74.8					11.9	31.3	
25-34 y.o.					17.4					34.5	29.2	
35-44 y.o.					5.5					36.6	27.0	
45-49 y.o.					2.3					17.0	12.4	
<b>Education levels</b>												
No formal education	1.0	2.9	12.2	9.6	2.1	1.4	2.3	5.2	7.1	4.1	9.1	
Primary	1.8	4.0	9.1	15.1	2.9	5.5	8.5	20.0	23.1	14.8	22.9	
Secondary	52.1	31.1	34.2	36.2	47.1	63.1	53.5	42.3	42.8	48.7	42.1	
Passed GCE O/L	27.0	18.0	20.0	18.9	24.9	18.8	17.0	16.2	16.5	16.8	14.2	
Higher	18.2	44.0	24.4	20.2	23.0	11.3	18.7	16.4	10.5	15.6	11.7	
<b>Wealth quintiles</b>												
Poorest	18.5	8.4	15.3	10.5	16.4	25.6	19.1	19.0	18.2	19.7	19.7	
2nd	19.7	14.1	15.6	24.1	18.6	25.5	20.1	19.3	19.0	20.3	19.9	
3rd	21.4	23.1	20.6	17.9	21.6	19.5	20.0	19.4	21.0	19.9	20.0	
4th	20.7	29.5	24.8	19.6	22.4	17.6	20.3	20.3	21.4	20.2	20.3	
Wealthiest	19.8	24.8	23.8	27.9	21.0	11.8	20.5	22.0	20.4	20.0	20.1	
<b>Location</b>												
Urban	14.7	17.4	19.6	21.4	15.6	12.1	12.7	13.1	13.8	12.9	13.6	
Rural	79.5	77.5	76.2	75.1	78.9	81.6	81.8	82.1	79.8	81.6	80.6	
Estates	5.8	5.1	4.1	3.5	5.5	6.4	5.5	4.9	6.3	5.5	5.8	
<b>Province</b>												
Western	28.8	37.5	37.7	36.7	31.0	24.3	29.1	29.2	30.8	28.9	29.0	
Southern	13.2	13.9	13.9	8.1	13.3	13.2	11.8	12.4	11.9	12.2	12.7	
Sabaragamuwa	8.6	8.8	8.6	11.9	8.7	7.6	8.4	8.1	8.5	8.2	8.7	
Uva	8.2	6.2	6.6	8.0	7.8	9.4	9.1	8.9	8.6	9.0	8.8	
Central	14.9	11.5	14.5	14.6	14.3	14.6	14.0	14.5	15.5	14.5	14.8	

<i>Eastern</i>	9.7	9.3	4.7	4.2	9.2	11.1	9.3	10.2	8.3	9.7	9.2
<i>North-Central</i>	6.4	4.1	5.9	6.4	5.9	8.5	8.3	6.4	6.5	7.3	6.7
<i>North-Western</i>	10.2	8.8	8.1	10.0	9.8	11.3	10.1	10.3	10.0	10.3	10.1
<b>Religion</b>											
<i>Buddhism</i>						69.8	73.8	72.7	73.0	72.8	
<i>Hindu</i>						10.3	8.8	8.7	10.1	9.1	
<i>Islamic</i>						12.7	10.4	11.2	9.1	10.7	
<i>Romano-Catholic</i>						5.6	5.9	6.1	6.7	6.1	
<i>Other</i>						1.6	1.2	1.3	1.1	1.3	
<b>Ethnicity</b>											
<i>Sinhalese</i>						74.8	78.6	77.9	78.6	77.9	
<i>Sri Lanka Tamil</i>						6.6	6.6	6.6	7.2	6.7	
<i>Indian Tamil</i>						5.3	4.3	4.2	4.8	4.5	
<i>Sri Lanka Moor</i>						12.4	10.0	10.8	8.5	10.3	
<i>Other</i>						0.9	0.5	0.6	0.8	0.6	
<i>drugs_heart</i>	0.2	0.3	1.3	2.8	0.3	0.5	0.6	1.2	1.6	1.0	1.4
<i>drugs_hyper</i>	0.1	0.0	1.5	3.4	0.2	0.2	1.0	3.6	8.0	3.1	5.6
<i>drugs_astma</i>	1.5	1.6	3.2	6.5	1.7	1.9	2.8	5.3	5.3	4.0	4.1
<i>drugs_strike</i>	0.0	0.2	0.6	0.0	0.1	0.1	0.0	0.1	0.2	0.1	0.3
<i>drugs_diabt</i>	0.0	0.1	0.8	3.5	0.2	0.0	0.7	2.1	4.4	1.8	3.0
<i>drugs_cncer</i>	0.0	0.0	0.0	1.5	0.1	0.0	0.1	0.3	0.6	0.2	0.3

Source: DHS 2006/07. World Bank staff calculations.

The sample of eligible women in 2006/07 changed only slightly compared with 2000. It includes a higher proportion of women with secondary (48.7 percent versus 45.1 percent in 2000) and higher education (15.6 versus 12.6 percent), a larger proportion of women from rural areas (81.6 versus 73.5 percent), but a lower percentage of women practicing Buddhism (72.8 versus 77.4 percent) and of Sinhalese ethnicity (77.9 versus 84.2 percent).

The intended sample size for the 2000 DHS was 8,765 households, out of which 8,169 households (or 96.3 percent) were interviewed. There were 6,601 eligible women in the interviewed households, out of which only 6,385 (or 96.6 percent) were fully interviewed. The intended sample size for the 2006/2007 DHS was much bigger, 21,600 households, and the response rate slightly higher at 97.8 percent, or 19,862 households. For the eligible women, these numbers are 15,068 females identified as eligible, and a 97.5 percent response rate (or 14,692 interviewed eligible women).

## Fertility trends

Historically, Sri Lanka has had the lowest total fertility rate (TFR) in the South Asia region. Still, while the fertility rates decreased over the years for all the countries in the region, Sri Lanka's fertility decreased until 2000 (when it reached the under-replacement level of 1.9 children born to a women of reproductive age), but started increasing again during the 2000-2006/07 period. During this period, fertility increased from 1.9 to 2.3 children per women,<sup>4</sup> higher on estates (2.5) than in urban areas (2.2), higher for women with lower than with higher education (except those w/ no formal education); it has a U-shaped form by wealth (2.4-2.2-2.4). Contraceptive usage faced a small decrease (from 70 to 68 percent), the modern contraceptive usage increasing from 49.5 to 52.8 percent. In terms of fertility preferences, the percentage of women being unable or not willing to have more children stayed approximately the same (about 62 percent). However, while the percentage of females sterilized or declared infecund was around 23 percent and the percentage declaring they want no more children was 38.7 percent in 2000, these percentages were 20 and 43 respectively in 2006/07.

**Table 2: Fertility rates, South Asian countries**

		Urban	Rural	Estate	Total
<b>Bangladesh</b>	<b>2007</b>	2.4	2.8		2.7
	<b>2004</b>	2.5	3.2		3.0
	<b>1999-00</b>	2.5	3.5		3.3
	<b>1993-94</b>	2.1	3.4		3.3
<b>India</b>	<b>2005-06</b>	2.7	3.5		3.4
	<b>1998-99</b>	2.1	3.0		2.7
	<b>1992-93</b>	2.3	3.1		2.8
<b>Nepal</b>	<b>2006</b>	2.7	3.7		3.4
	<b>2001</b>	2.1	4.4		4.1
	<b>1996</b>	2.9	4.8		4.6
<b>Pakistan</b>	<b>2006-07</b>	3.3	4.5		4.1
	<b>1990-91</b>	4.5	5.1		4.9
<b>Sri Lanka</b>	<b>2006-07</b>	2.2	2.3	2.5	2.3
	<b>2000</b>	2.0	1.8	2.4	1.9
	<b>1993</b>	2.2	2.3	2.6	2.3
	<b>1987</b>	2.3	2.9	3.4	2.8

*Source: DHS Macro International for all countries but Sri Lanka. DHS final reports for Sri Lanka.*

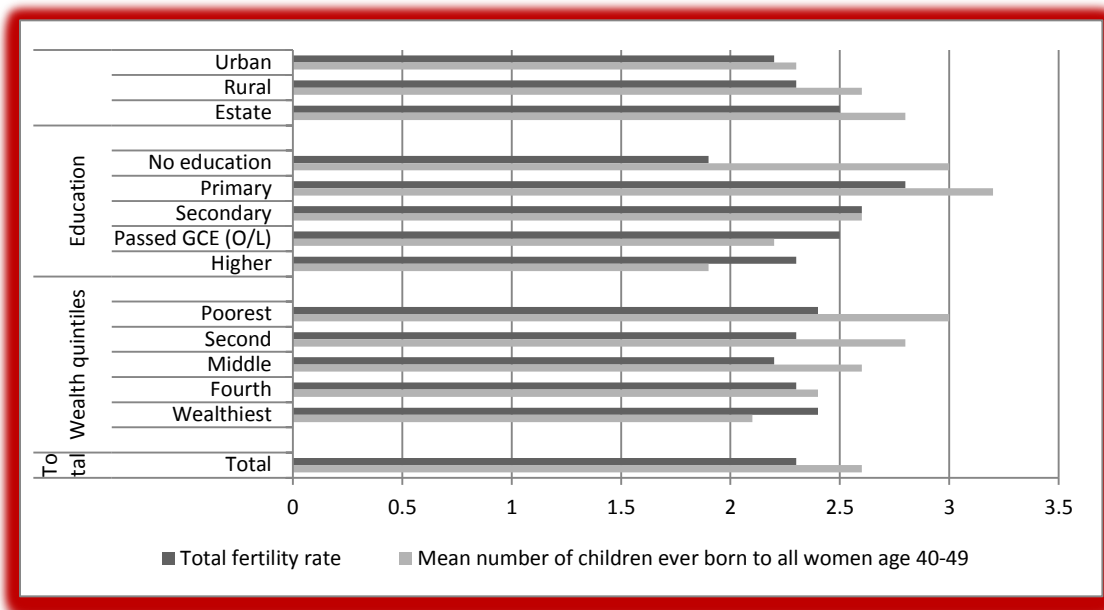
In an attempt to roughly link fertility in the past several decades with current fertility rates, Figure 1 below presents the TFR for the three years preceding the survey in conjunction with the average number of children ever born (CEB) to women age 40-49 at the time of the survey. The mean number of children ever born is an indicator of cumulative fertility; hence, it represents

<sup>4</sup> Care should be paid to the fact that the TFR is computed based on number of births in the five years preceding the survey in 2000, and for a period of three years preceding the survey in 2006/07.

completed fertility for women aged 40-49 (assuming that women in this age group would hardly have newborns).

The average number of children ever born to women between ages 40 and 49, who are at the end of their childbearing years, is 2.6 (see Figure 1). The decline in fertility over time therefore is not very large, evident from the difference of 0.3 children between the average number of children for women who are currently in their forties, and the number of children women would have in their lifetime if they were subject to the current age-specific fertility rates (2.6 versus 2.3 children). The pattern of differences in the average number of children ever-born parallels the pattern of differentials in the TFR only for the place of residence. The differentials by education and wealth are (partial) exceptions to the rule. For example, uneducated women have one of the highest number of children at ages 40-49 but the lowest TFR (1.9). At the same time, “past fertility” is clearly declining with wealth (from 3 to 2.1 children), but TFR has a relatively tight U-shaped relation by wealth status. In addition, current fertility is higher in 2006/07 for women with above secondary education and lower for those with at most primary education.

**Figure 1: Total fertility rate and average number of children ever born to all women 40-49 year olds**



Source: Demographic and Health Survey 2006/07 Preliminary Report, Department of Census and Statistics (DCS), May 2008.  
 Note: The wealth index used by DCS is not necessarily comparable with the index used by the World Bank staff, as the later was constructed in a way comparable with the 2000 DHS.

## **Proximate determinants of fertility in Sri Lanka**

The relationship between socioeconomic factors and fertility is often studied in order to find specific mechanisms and vulnerable groups, which could be influenced by public policy. Still, it is acknowledged that these are only indirect determinants of fertility, which are in turn influencing other factors known as the direct determinants of fertility or intermediate fertility variables. Of these, we will focus our attention on marriage, contraception, lactational infecundability, and duration of the fertile period. Other factors found as important intermediate variables in other countries, such as induced abortion, or deemed as not very influential, such as frequency of intercourse, sterility and spontaneous intrauterine mortality are not addressed in this study due to lack of data.

### **Marriage and fertility preferences**

The traditionalism of the Sri Lankan society, where intercourse and childbearing are acceptable mostly in formal marriages, situates marriage as one of the main determinants of fertility. The actual reproductive years will be determined by the proportion of women married, and influenced by age at marriage and age at first birth, number of children ever born and birth intervals among other factors. Before further studying each of these factors, the paper focuses on the definition of total marital fertility rate (TM), defined as the number of births to a women of reproductive age if she was to bear children at existing age-specific marital fertility rates and to remain married during the entire reproductive period.

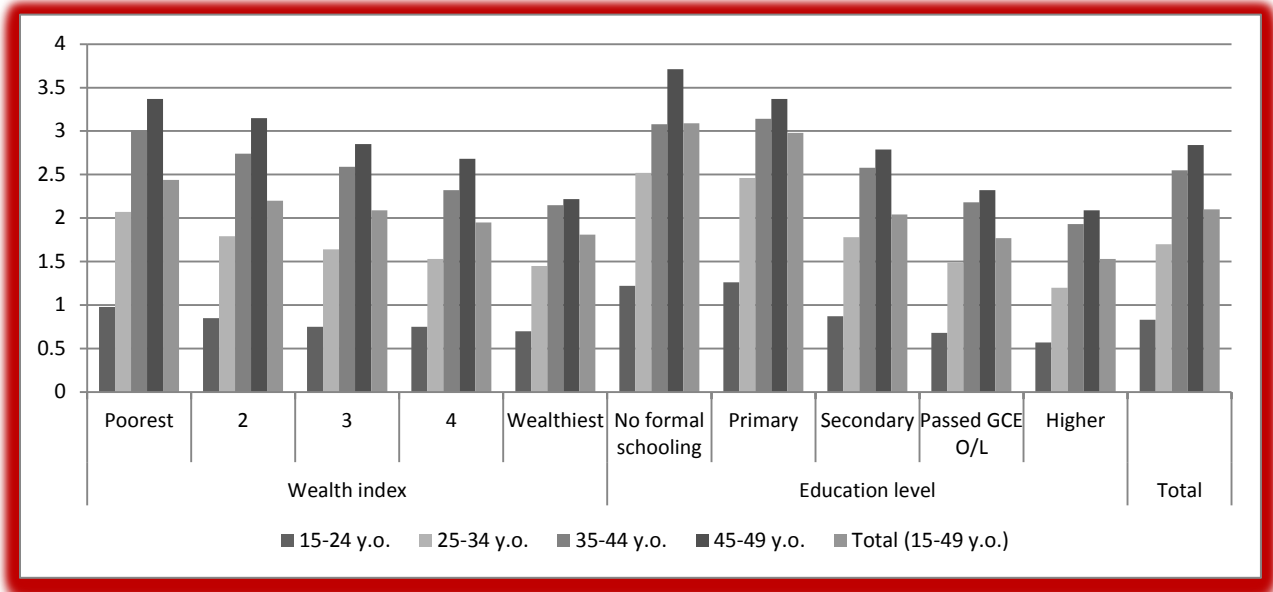
### **Number of children ever-born<sup>5</sup>**

As mentioned above, the number of children a woman has ever borne is a cohort measure of fertility. It reflects fertility in the past, and it thus provides a somewhat different picture of fertility than do period measures of fertility such as TFR. The number of children ever-born to women of reproductive age has been continuously decreasing since 1987: it was 3 in 1987, 2.6 in 1993, 2.2 in 2000, and 2.1 in 2006/07. This number increases with women's age regardless of the category under study: overall, it is 0.8 for the youngest cohort (15-24 year olds) and reaches 2.8 for the older cohort (45-49 year olds), decreasing from 0.9 and 3.1 respectively in 2000.

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<sup>5</sup> The "number of children ever-born and alive" closely mimics both the figures and the general trend for "number of children ever-born," the total figures being 2.8, 2.5, 2.1 and 2 in the respective years. We will therefore not discuss that indicator in the text.

**Figure 2: Number of children ever-born, 2006/07**



Source: DHS 2006/07. World Bank staff calculations.

The wealthier and more educated females tend to ever-borne fewer children for all the age groups; on average, women belonging to the wealthiest quintile gave birth to 1.8 living children versus those in the poorest quintile who procreate 2.4 children. This gap has reduced over time due to the decline in the number of births for women in the poorest quintile (2.6 in 2000). A large gap exists also by education - women with no formal education have about 3.1 children alive as opposed to women with higher education who have only 1.5; this gap slightly increased over time: in 2000, these numbers were 2.9 and 1.5 respectively. At the same time, the number of children is higher for women on estates (2.4, whereas it is 2.1 and 2 for rural and urban areas respectively), and for those of Islamic religion (2.6). Buddhist and Catholic women among religions (2 children respectively), and Sinhalese women among ethnicities (2) have the smallest number of children.

Everything else taken into account, the probability of ever giving birth decreases with wealth and education (see Table 3 below) – a 0.1 point increase in the standardized wealth index would determine a 0.013 points decrease in the probability and, compared to having no formal education, having higher education decreases the probability by 0.069 percentage points. The probability increases with the age of the women (a one year increase in the age increases the probability of ever having children by 0.039, while a one unit increase in log (household size) increases the probability with 0.103. These effects are much larger for the youngest cohort (15-24 year olds), and they decrease with age of the cohort. At the same time, being on estates or in urban areas seems to have no significant effect on the probability of giving birth.

**Table 3: Probability of ever giving birth (ever-married women 15-49 year olds) – marginal effects from a Probit model**

	All	Age groups				Descriptive statistics
		15-24	25-34	35-44	45-49	
Wealth index, standardized	-0.125 (8.54)***	-0.51 (6.51)***	-0.15 (5.76)***	-0.052 (3.77)***	-0.021 -0.79	0.631 0.19
Age	0.039 (20.25)***	0.323 (3.09)***	0.002 -0.06	0.012 -0.58	-0.065 -0.30	35.213 8.36
Age squared (/100)	-0.046 (16.40)***	-0.613 (2.44)**	0.018 -0.32	-0.013 -0.49	0.066 -0.29	13.099 5.83
1:Married	0.027 (2.57)**	-0.071 -0.88	0.074 (2.35)**	0.003 -0.32	0.011 -0.87	0.934 0.25
Log(hhsize)	0.103 (15.21)***	0.18 (5.59)***	0.145 (10.27)***	0.073 (9.31)***	0.05 (4.25)***	1.510 0.37
edlev==No Formal Education						0.045
edlev==Primary	-0.001 -0.10	-0.035 -0.24	-0.038 -0.89	0.011 -1.30	-0.051 (1.97)**	0.157 0.36
edlev==Secondary	-0.01 -0.74	-0.058 -0.45	-0.034 -0.99	0.006 -0.62	-0.073 (3.20)***	0.482 0.50
edlev==Passed GCE O/L	-0.047 (2.85)***	-0.191 -1.35	-0.094 (2.07)**	-0.003 -0.24	-0.122 (3.42)***	0.163 0.37
edlev==Higher	-0.069 (3.79)***	-0.28 (1.90)*	-0.155 (3.10)***	0.002 -0.17	-0.13 (3.19)***	0.153 0.36
religion==Buddhism						0.680
religion==Hindu	-0.024 (2.37)**	0.034 -0.70	-0.041 (2.00)**	-0.028 (2.79)***	-0.021 -1.20	0.118 0.32
religion==Islam	0.01 -1.47	0.042 -1.11	0.017 -1.21	-0.002 -0.32	0.01 -0.73	0.115 0.32
religion==Romano-Catholic	0.018 (2.29)**	0.109 (2.12)**	0.016 -1.05	0.012 (1.70)*	-0.013 -0.85	0.073 0.26
religion==Other	-0.002 -0.14	-0.067 -0.74	-0.036 -0.89	0.015 -1.24	0.016 -0.69	0.015 0.12
1:Rural						0.707
1:Urban	-0.003 -0.51	0.048 -1.32	0.005 -0.52	-0.016 (2.70)***	-0.004 -0.36	0.205 0.40
1:Estate	-0.012 -1.03	-0.082 -1.38	-0.012 -0.54	0.002 -0.15	-0.007 -0.34	0.087 0.28
Observations	14789	1765	5108	5381	2535	
Variable of interest, means	0.901	0.675	0.890	0.961	0.951	
Variable of interest, st.dev.	0.30	0.47	0.31	0.19	0.22	
Robust z statistics in parentheses						

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

Source: DHS 2006/07. World Bank staff calculations

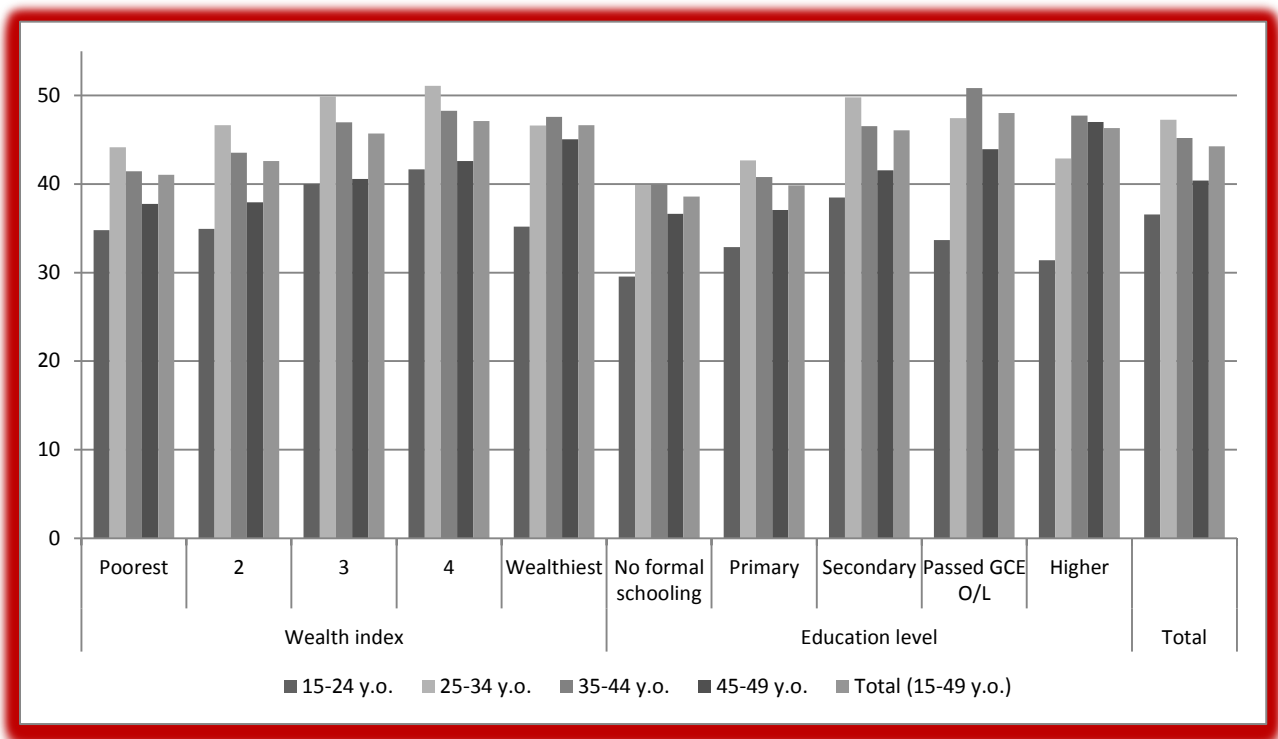
To a different degree, the same effects can be observed in a regression on the number of children ever-born to a woman of current reproductive age. The only difference is that, when controlling for other effects, living on estates or in urban areas significantly decrease the number of children ever-born; this is true in general, as well as for the older (35-44 and 45-49 years old) cohorts.

### Birth intervals (for those women with 2 or more births, in months)<sup>6</sup>

The length of the interval between live births indicates the pace of childbearing and has implications for both fertility and mortality. It is hypothesized that women who have births in rapid successions complete their childbearing years with more children than those who space births farther apart. On the other hand, research shows that the birth interval influences child mortality: short intervals may unfavorably affect both mother's health and the child's chances of survival, with birth intervals lower than two years being generally considered as too short, and hence treated as having the highest risk of mortality.

From this point of view, the spacing of births in Sri Lanka is on the right track, on average, increasing from 39.1 months in 2000 to 44.3 months in 2006/07. The interval tends to be shortest for the 15-24 year olds (36.6 months) and largest for 25-34 year olds (47.3 months); the difference between the age cohorts increased in time (from 32 and 39.4 months respectively for the above-mentioned cohorts in 2000).

**Figure 3: Birth interval for women with 2 or more children, 2006/07 (in months)**



Source: DHS 2006/07. World Bank staff calculations.

<sup>6</sup> In computing the average birth interval, twins are treated as one (1) pregnancy/birth episode instead as considering it as 2 separate episodes with 0 months in between.



The wealthier and more educated women have larger birth intervals, but the trends among the quintiles or education levels are not so clear cut for all the age groups. Even if larger for rural areas, the numbers for rural and urban areas are comparable (45.1 and 44 months), and almost 12 months longer than on estates (34.8 months). The Hindu have the smallest birth interval across the religions (37.4 months), while a similar place is occupied by the Indian Tamil across the ethnicities (34.8 months); the Sinhalese have the largest birth interval (46.2 months) among religions.

Multivariate analysis results in Table 4 below confirm that wealth is an important factor determining the length of the birth interval: a 0.1 unit increase in the standardized wealth index is associated with a 0.8 months increase in the birth interval. Birth order is also significantly increasing the birth intervals, and a one-year increase in the women's age is associated with a 3.1 months increase in the birth interval. In this setting, all other factors being constant, higher education is also associated with larger spacing of births, but having secondary education or having passed GCE O/L have a larger effect than higher education. All the religions have lower birth intervals than women of Buddhist religion. The intervals are approximately 5 months lower for women on estates than those residing in rural areas.

**Table 4: Multivariate analysis of birth intervals – results from an OLS**

	All women (25-49 year olds)		Age groups		Descriptive statistics
	25-34	35-44	45-49		
Wealth index, standardized	7.855	9.684	7.993	6.409	0.598
	(5.69)***	(4.09)***	(3.89)***	(2.13)**	0.20
Birth order: 2nd (comparison)					0.5475
Birth order: 3rd or fourth	3.180	0.330	4.631	3.656	0.387
	(6.47)***	-0.34	(6.53)***	(3.84)***	0.49
Birth order: 5th or above	1.783	-3.435	2.003	3.813	0.066
	(1.68)*	-1.14	-1.35	(2.32)**	0.25
Age	3.086	3.413	7.498	-21.875	39.228
	(9.18)***	-1.09	(1.99)**	-0.83	6.66
Age squared (/100)	-4.54	-4.765	-10.147	22.496	15.832
	(10.06)***	-0.91	(2.14)**	-0.80	5.04
edlev==No Formal Education					0.077
edlev==Primary	-0.619	0.263	-0.777	0.098	0.259
	-0.69	-0.13	-0.56	-0.06	0.44
edlev==Secondary	3.277	3.229	2.635	4.289	0.457
	(3.47)***	-1.57	(1.88)*	(2.49)**	0.50
edlev==Passed GCE O/L	4.313	-1.413	6.386	6.163	0.121
	(3.76)***	-0.60	(3.61)***	(2.85)***	0.33
edlev==Higher	1.727	-7.858	3.025	9.002	0.086
	-1.42	(3.26)***	(1.71)*	(3.33)***	0.28
religion==Buddhism					0.618
religion==Hindu	-4.407	-9.535	-5.778	3.840	0.143
	(5.43)***	(7.19)***	(4.97)***	(1.70)*	0.35
religion==Islam	-5.531	-11.435	-5.995	1.732	0.157
	(7.60)***	(10.18)***	(5.30)***	-1.23	0.36
religion==Romano-Catholic	-2.331	-4.900	-4.468	3.274	0.066
	(2.34)**	(2.82)***	(3.14)***	-1.38	0.25
religion==Other	-4.494	-5.973	-5.504	2.181	0.016
	(2.45)**	-1.61	(2.64)***	-0.49	0.13
1:Rural					0.710
1:Urban	-0.849	-1.994	-0.751	-0.624	0.184
	-1.28	(1.83)*	-0.79	-0.43	0.39
1:Estate	-4.929	-8.626	-2.949	-5.436	0.105
	(5.50)***	(6.00)***	(2.30)**	(2.27)**	0.31
Constant	-11.071	-14.540	-98.411	561.617	
	(1.82)*	-0.31	-1.33	-0.91	
Observations	17,600	4,112	8,480	4,707	
R-squared	0.04	0.08	0.03	0.02	
Variable of interest, means	43.603	46.418	44.554	39.928	
Variable of interest, st.dev.	27.31	24.74	28.34	27.65	
Robust z statistics in parentheses					

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

Source: DHS 2006/07. World Bank staff calculations.

## Contraception - knowledge and ever-utilization

The knowledge of at least one contraceptive method is almost universal among women, with rates larger than 97 percent regardless of the wealth status, education level, location, religion, or ethnicity. Still, while knowledge about the modern contraceptives is almost universal, the knowledge about traditional methods is at about 80 percent overall, with large discrepancies by any of the above groupings. The wealthier and better educated women (89 and 96 percent respectively), rural and urban residents (84 and 77 percent respectively), Sinhalese and Buddhists (89 percent each) tend to have more knowledge about traditional methods, as opposed to less wealthy and less educated (66 and 43 percent respectively), those residing on estates (only 28 percent), Hindu and Indian Tamils (38 and 26 percent respectively).

The same trends apply to the ever-usage of contraceptives: about 85 percent of eligible women ever-used any contraceptive methods, with 75 percent ever-using at least one modern and only 41 percent ever-using at least one traditional method. Again, the poor and less educated seem to have used more the modern methods than the rich and more educated; the reverse is true for the traditional methods. Overall, the rural areas have the highest rates of ever-utilization of either a modern or a traditional method (77 and 44 percent respectively), with the estates lagging behind in the usage of traditional methods (8 percent). This overall low usage of traditional methods on estates hides the decreasing trend among age cohorts: 11 percent for the 15-24 year olds, and 3 percent for 45-49 year olds. At the same time, the ever-usage of modern contraceptives on estates has an opposite trend: it is 57 percent for the 15-24 year olds, reaches 81 percent for the 35-44 year olds, and 75 percent for the 45-49 year olds.

The high rate of ever-usage of a modern method is partly due to the ever-usage of women's sterilization: among those who ever used a contraceptive method, 20 percent ever-used female sterilization. It seems though that it is the more disadvantaged groups - poorer, less educated, living on estates - that refer to sterilization. On the estates, as high as 56 percent of the women ever-using a contraceptive method report having used sterilization, and as much as 77 and 85 percent of the women 35-44 year olds and 45-49 year olds respectively report it.

The starting time of contraceptive usage is an indicator of fertility preference. The wealthiest seem to start using contraceptives earlier in their reproductive life than the poorest women: on average, the wealthiest start using them after having one child whereas the poorest - after having 1.6 children. Also, females on the estates start using contraceptives "later" than their urban/rural counterparts (after 2.1 children, versus about 1.2 in urban/rural locations). Similarly, the Hindu (2.1) and Islamic (1.9) women start using contraceptives later than their Buddhist (1.1) counterparts. In terms of ethnicity, it is the Indian and Sri Lankan Tamil (about 2.1) who start using it later, while Sinhalese women start much earlier (1.1).

While the decision on first using contraceptives is made by the couple in proportion of more than 70 percent of the cases for better educated and the wealthiest, this proportion drops to 45-52 percent for the poorest and less educated. Women from these latter categories are likely to have taken the decision either by themselves or yield to their husbands' decision or agree with the midwife's decision (e.g. midwife takes the decision in 21 percent of the cases within the poorest quintile, while only in 8 percent of the cases in the wealthiest quintile). There are interesting trends by:

- Location: while the distribution of the decision takers is similar in rural and urban areas (about 65 percent by couple, and about 10 percent each by respondent, husband, or midwife), this structure changes on estates: about 45 percent by couples, 22 percent by midwives, 10 percent by respondent, and 13 percent by husbands.
- Hindu and Indian Tamil have a similar distributional structure as the estates, while Buddhists/Sinhalese – similar with rural areas.

In terms of current usage of contraceptives, 14 percent of women never used contraceptives, 14 percent use no current methods (1 percent are on menopause), 4 percent are pregnant, 17 percent are sterilized, and 51 percent use methods other than sterilization. As a method of contraception, being sterilized seems to happen more often to poorer (approx 29 percent) than to richer females (12 percent); the bulk of them have either secondary (45 percent) or primary education (31 percent), live mostly in rural areas (76 percent), practice Buddhism (70 percent) or Hinduism (16 percent), and are Sinhalese (75 percent).

The decision on using the current method (for currently married, not pregnant or sterilized women) is more often taken as a couple (70 percent), than as an individual (about 10 percent each of respondent, her husband, or public midwife). There are variations among the age groups – the decision is taken by the couple in 67 percent of the cases, lies at about 8 percent each with the respondent or her husband and 14 percent with the public midwife for the 15-24 year olds. At the same time, for the 45-49 year olds the decision is taken more often by the couple (72 percent) or the husband (16 percent), than by the respondent (7 percent) or public midwife (4 percent).

The decision on using the current method is taken by the couple more often for the wealthier (78 versus 60 percent for the poorest women) and more educated women (about 77 percent for those who passed GCE O/L or higher, while only 46 percent for those with no formal schooling), and less on estates (48 percent versus over 70 percent in other areas) and among Indian Tamil (51 percent versus more than 70 percent for other ethnicities). The percentage of women taking the decision by themselves or leaving the decision to public midwives decreases with wealth and education, and it is lower for women of Islamic religion; it is, however, larger on estates and among Indian Tamils. The work status does not influence the decision of using the current contraceptive method.

## Socioeconomic and cultural factors influencing fertility

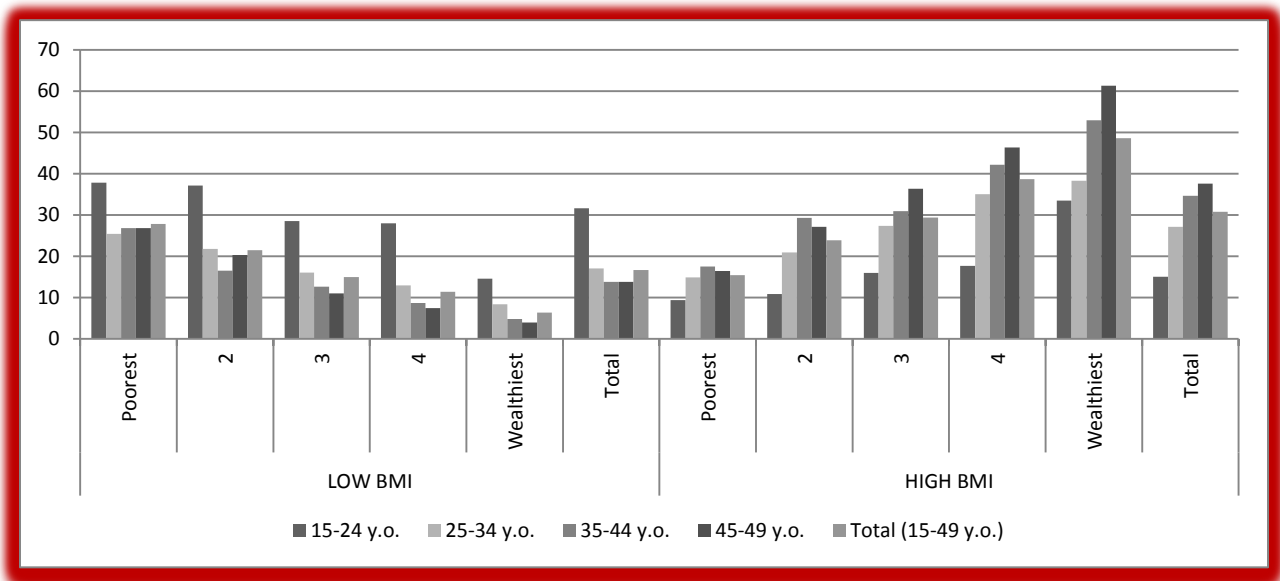
### Females' nutritional status

Recent medical research has identified epigenetic mechanisms as potentially providing a path by which conditions of scarcity in the past can influence the pathogenesis of heart disease in subsequent generations. Therefore, the maternal under-nutrition and its legacy of fetal under-nutrition is now recognized as a major long-term risk factor in the development of adult cardiovascular disease and diabetes.<sup>7</sup> It is therefore important to understand the nutritional status of female of reproductive age, as they are the mothers of the young generations.

A measure of nutritional status for adults is the body mass index (BMI). The BMI is defined as weight in kilograms divided by height in meters squared (kg/m<sup>2</sup>).<sup>8</sup> A cut-off point of 18.5 is used to define thinness or acute under-nutrition (low BMI), and a cut-off point of 25 – to indicate overweight or obesity.

Women's BMI increased over the 2000-2006/07 period from an average of 22.1 to 23, and the overall percentage of women with low BMI decreased from 21.8 to 16.6 percent. At the same time, the percentage of those having a low BMI decreases while the percentage of those experiencing high BMI increases as the cohorts advance in age.

Figure 4: Women's nutritional status, 2006/07



Source: DHS 2006/07. World Bank staff calculations.

<sup>7</sup> See "Clinic and Hospital-based Preventive and Curative Health Services Delivery in Sri Lanka for Non-communicable Diseases (NCDs): Policy Options for the Future," 2010.

<sup>8</sup> This index excludes women pregnant at the time of the survey, and women who gave birth during the last two months preceding the survey.

Multivariate analysis confirms the positive effect of wealth, being married, better education, number of children born and living, and urban location on BMI value; it is only the household size and living on estates that have a negative effect (see Table 5 below for detailed results). The relation between wealth and BMI is strong: a 0.1 point increase in the standardized wealth index triggers a 0.543 increase in BMI. Being married determines a 0.8 increase in BMI, while living in urban areas increases the BMI of women by 0.8 when compared to their rural counterparts. Still, the estates' women BMI is 1.59 lower than that of the rural counterparts.

In terms of education, the effect of higher education is strong. However, while the effect increases with the education level until "Passed GCE O/L," it decreases for those with higher education. This might illustrate that the higher educated women take more control in managing their BMI than their less educated counterparts. A question arises though as to the quality of the food used and the health behavior of these women: Is the food more nutritious or just empty calories, which would in the future cause obesity? (See the increase in percentage of overweight, from 24 to 30.5.) Are women provided with time/knowledge for physical activity?

Table 5: Multivariate analysis of women's BMI – results from an OLS

	All women (15-49 y.o.)	Age groups				Descriptive statistics
	15-24	25-34	35-44	45-49		
Wealth index, standardized	5.427 (21.02)***	4.111 (6.18)***	4.446 (10.34)***	5.781 (13.87)***	7.107 (11.83)***	0.626 0.19
Age	0.324 (7.17)***	0.063 -0.07	0.862 -1.50	0.536 -0.79	-3.454 -0.65	35.912 8.21
Age squared (/100)	-0.338 (5.18)***	0.216 -0.10	-1.288 -1.33	-0.633 -0.73	3.644 -0.64	13.570 5.78
1:Married	0.802 (4.75)***	0.376 -0.65	1.235 (3.36)***	0.606 (2.18)**	0.771 (2.81)***	0.929 0.26
Ever given birth	0.800 (5.04)***	-0.107 -0.25	0.714 (2.57)**	0.758 (2.18)**	0.939 (2.07)**	0.922 0.27
Nr. own children 0-14 in the hhld	0.049 -0.91	0.639 (1.98)**	0.125 -1.20	-0.061 -0.75	-0.218 -1.63	1.316 1.06
Nr. not own children 0-14 in the hhld	0.164 (1.90)*	0.246 -1.42	0.223 -1.57	-0.108 -0.64	0.352 (1.88)*	0.195 0.60
Number of elderly (60+ y.o.)	0.005 -0.07	0.011 -0.05	0.163 -1.33	-0.162 -1.23	-0.119 -0.55	0.317 0.60
Log(hhsize)	-0.374 (2.42)**	-0.707 (1.94)*	-0.653 (2.30)**	0.260 -0.90	-0.436 -1.35	1.506 0.37
edlev==No Formal Education						0.049
edlev==Primary	0.624 (3.28)***	0.943 -1.03	0.448 -1.03	0.660 (2.33)**	0.477 -1.40	0.169 0.37
edlev==Secondary	0.685 (3.70)***	0.685 -0.79	0.206 -0.52	0.781 (2.67)***	0.465 -1.33	0.477 0.50
edlev==Passed GCE O/L	0.749 (3.51)***	0.661 -0.73	0.106 -0.25	1.020 (3.07)***	0.760 (1.82)*	0.158 0.36
edlev==Higher	0.498 (2.26)**	0.266 -0.28	-0.130 -0.29	0.794 (2.27)**	0.703 -1.49	0.147 0.35
religion==Buddhism						0.677
religion==Hindu	0.420 (2.23)**	0.226 -0.55	0.146 -0.49	0.642 (2.22)**	0.458 -1.20	0.120 0.33
religion==Islam	1.876 (10.49)***	1.051 (2.26)**	1.688 (5.78)***	2.064 (7.24)***	2.401 (5.77)***	0.114 0.32
religion==Romano-Catholic	0.950 (5.40)***	1.054 (1.96)**	0.859 (2.87)***	1.049 (3.50)***	0.840 (2.26)**	0.075 0.26
religion==Other	0.984 (2.47)**	-0.126 -0.16	0.814 -1.30	1.386 (2.12)**	1.008 -1.49	0.014 0.12
1:Rural						0.707
1:Urban	0.799 (5.81)***	0.750 (1.92)*	0.687 (3.16)***	0.766 (3.57)***	1.029 (3.49)***	0.205 0.40
1:Estade	-1.590 (7.77)***	-0.836 (1.93)*	-1.349 (4.07)***	-1.705 (5.17)***	-2.176 (5.54)***	0.089 0.28
Constant	10.602 (13.26)***	15.344 -1.64	4.244 -0.49	5.879 -0.44	99.336 -0.79	
Observations	12,867	1,285	4,225	4,948	2,409	
R-squared	0.14	0.09	0.08	0.13	0.18	
Variable of interest, means	23.036	20.991	22.715	23.477	23.785	

<i>Variable of interest, st.dev.</i>	4.63	3.99	4.46	4.65	4.84	
Robust z statistics in parentheses						
* significant at 10%; ** significant at 5%; *** significant at 1%						

Source: DHS 2006/07. World Bank staff calculations.

Note: Currently pregnant women and women who gave birth in the last 2 months preceding the survey are excluded from this analysis

## Information on health and barriers to treatment

A recent World Bank report<sup>9</sup> finds that the epidemiological and demographic transition shifted the health burden towards aging and non-communicable diseases (NCDs).<sup>10</sup> This is more similar to the health burden of developed countries, but the NCD risk factors for Sri Lanka range from being comparatively low (e.g. for hypertension and physical inactivity), to similar (e.g. obesity and tobacco), to high (e.g. dyslipidemias). Still, the absolute risk of dying from NCDs is found to be higher in Sri Lanka than in developed countries, with disparities most substantial for cardiovascular diseases (represented mostly through ischemic heart disease) and asthma. However, the report highlights that the “high mortality rates from NCDs appear to be the result not of high levels of risk factors, but the systematic under-treatment of most major NCDs,” which becomes most obvious in the case of asthma (where the Sri Lankan mortality rate is one of the highest in the world).

With this background, this paper highlights few trends on the health information and treatment for women of reproductive age, which may inform policies designed to increase awareness of the changing nature of illnesses in Sri Lanka.

Overall, the (western) doctors among the health personnel, government hospitals/clinics among the health places and TV among media sources are the most preferred source of health information for the women of reproductive age in Sri Lanka. Knowledge of AIDS/TB/women’s cancers is widespread, more than 90 percent of women ever hearing of them. Still, while most women know about breast cancer and 73 percent – about womb cancer, the percentage decreases to about 30 percent for cervical or oral cancer. There is the obvious trend of a lower percentage of the poorer having heard of different forms of cancer than the richer, but the percentage is reversed in the case of oral cancer; the same trend is valid by education status or location.

The Hindu females tend to have less knowledge about TB/AIDS/cancers in general, but a higher percentage knows about oral cancers (48 percent versus 25-37 percent for the other religions). Being currently employed does not necessarily translate to having better knowledge in terms of HIV/AIDS, cancers, or TB, as usually a lower percentage of currently working females has that specific knowledge (about 88 percent for each of the above, while the percentages are 91, 89 and 93 for those not working).

When asked which would be major issues in preventing them to get medical advice/treatment for themselves, only 3 percent list getting permission as a major factor, while 21-23 percent each list getting money needed for treatment (for drugs, presumably), lack of nearby facilities, having to

<sup>9</sup> “Clinic and Hospital-based Preventive and Curative Health Services Delivery in Sri Lanka for Non-communicable Diseases (NCDs): Policy Options for the Future,” 2010.

<sup>10</sup> However, reliable morbidity data are not available or routinely collected. The above-mentioned report uses data from the Registrar General ‘s Department in order to compile mortality statistics. Still, the quality of coding is still low, with more than 20 percent of deaths being coded to invalid or indeterminate causes.



take transportation and unwillingness to go alone as a major issue. Less important factors are the non-existence of a female health provider, of a health provider in general, or of drugs – about 10 percent of the women list each of these as being major impediments in their getting health treatment.

Getting money needed for treatment seems to be more of an issue for the older cohorts (26 percent of the women 45-49 year olds) than for the younger ones (19 percent for the 15-24 year olds).

As expected, all of these reasons become much less of an impediment as wealth or education status increase or as women live in urban areas. The percentage of women listing “getting permission to go” as a big deterrent in their getting medical advice/treatment declines from 8 percent within the poorest quintile to 2 percent in the wealthiest quintile. This difference is more noticeable when “getting money,” “distance” or “taking transportation” are the problem: it declines from about 40-45 percent in the poorest to 6-7 percent in the wealthiest quintile. The difference is smaller when availability of (female) providers or drugs is considered a big issue, declining from 11-16 percent to around 6 percent. The gradient is not as high when the reason is the non-willingness to go alone (only 4 percentage points difference, from 26 to 22 percent).

## **Health insurance**

The major policy features of health care in Sri Lanka are an emphasis on universal access, no user fees, and continuing public sector predominance in delivery. Health spending reflects the structure of a public hospital-dominated health care system, with most of the private spending going for outpatient care and for purchasing medicines (and more recently increased share of spending for private hospitals). This is partly because of expanded delivery of outpatient services by private hospitals and partly because of the increased availability of private insurance.

There is no social insurance available, the public sector health spending being financed solely through tax revenues. The private sector health services are financed mainly from out-of-pocket expenditures, with only a fifth of private funding coming from employer spending (on medical benefits schemes and on group medical insurance schemes) and a smaller amount from individually purchased medical insurance.<sup>11</sup>

A low 15 percent of the Sri Lankan women of reproductive age have health insurance, and this is highly dependent on work (22 versus 11 percent), wealth status (31 versus 6 percent), education (4 for no formal education to 40 percent for higher education), location (3 percent on estates versus 18 percent in urban areas), religion (lowest at around 5 percent for Hindu and Islamic women, and high at about 18 percent for Buddhists and Romano-Catholic).

The health insurance is provided by employers for 56 percent of the women working and only 38 percent to those not working. We do not have information on whether this is possible through old employment places (especially in the case of Government/public sector employment) or through benefits via husbands’ employment place. These percentages are reversed in the case of

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<sup>11</sup> See Rannan-Eliya, Ravi P. and Sikurajapathy, Lankani - “Sri Lanka: “Good Practice” in Expanding Health Care Coverage,” Research Studies Series, Number 3, Colombo, Institute for Health Policy, 2009.

insurance from personal means: 53 percent of the non-working women while only 35 percent of the working women have this type of insurance.

Those working in Government/private sector have the highest coverage – 36 percent, and their health insurance is employer-provided in 71 percent of the cases. Corroborating this information with the increase in the NCDs burden and the finding that most individuals 40 years old and older are working in the public sector, the fiscal implications for investments in health could be quite important.

The differences in coverage are visible among cohorts, as it increases from 9 percent for the young (15-24 year olds) to 18 percent for 35-44 year olds. But these differences become even more striking when work is taken into account: for those not working, the overall coverage varies between 8 and 12 percent across the cohorts, while for those working the range is from 10 (for the youngest) to 24 percent (for 35-44 year olds). Furthermore, while 95 percent of the working youth are covered through personal or employers insurance, only 85 percent of the working 45-49 year olds enjoy the same coverage.

### **Women’s empowerment and decision making**

Since women are the ones that bear children and are typically the primary caregivers in households, they are often the primary targets of programs that aim at improving maternal and child health and achieving other desired demographic goals. The ability of women to make decisions that affect the circumstances of their own lives is an essential aspect of empowerment. For example, a woman’s ability to control her fertility and the contraceptive method she chooses are likely to be affected by her status, self-image, and sense of empowerment. Women unable to control other aspects of their lives may be less likely to feel they can make and carry out decisions about their fertility. Women may also feel the need to choose methods that are less likely to be evident or which do not depend on their husband’s cooperation.

In order to assess women’s decision-making autonomy, the DHS collected information from currently married women about their participation in four different types of decisions: their own health care, making large household purchases, making household purchases for daily household needs, and visiting their family or relatives.

It is usually the couple who takes decisions on visits to respondent’s family, major household purchases, and respondent’s health, while it is the respondent when minor household purchases are involved. Still, there is a lot of variation among the age cohorts, with the percentage of women taking decisions as a couple decreasing and the percentage of women taking decisions by themselves increasing as the cohorts become older.

<b>FINAL SAY ON ...</b>	<b>Respondent</b>	<b>Husband</b>	<b>Couple</b>	<b>Other</b>
...respondent’s health	33.0	21.8	43.8	1.4
...major household purchases	25.1	15.2	57.3	2.5
...minor household purchases	42.5	16.7	36.8	4.0
...visits to respondent’s family/relatives	21.9	12.1	64.8	1.2

When wealth and/or education are involved, usually the percentage of those taking decision as a couple increases while the percentage of those where the husbands decide decreases with wealth and education levels. Across locations, the estates are the place where the percentage of those making decisions as couple or by themselves is smallest, and the percentage of those where husbands take decisions is highest.

FINAL SAY ON ...		Wealth status		Education level		
		Poorest	Wealthiest	No formal schooling	Primary	Higher
Respondent's health	Respondent	32.5	35.6	33.4	32.0	33.1
	Husband	28.1	19.7	33.4	28.5	16.9
	Couple	37.4	43.7	30.7	37.7	49.3
	Other	2.0	1.0	2.5	1.8	0.8
major household purchases	Respondent	26.5	23.7	29.0	26.0	20.7
	Husband	19.6	13.8	26.1	21.0	10.2
	Couple	51.6	60.3	40.7	50.2	66.4
	Other	2.4	2.2	4.3	2.9	2.8
minor household purchases	Respondent	41.6	41.3	38.8	41.4	39.1
	Husband	21.5	14.7	25.5	20.6	13.5
	Couple	34.1	39.8	31.8	35.9	41.6
	Other	2.8	4.3	3.9	2.1	5.7
visits to respondent's family/relatives	Respondent	21.9	21.8	26.1	23.9	16.4
	Husband	15.8	9.6	20.9	15.8	8.2
	Couple	61.1	67.5	50.6	58.8	74.4
	Other	1.3	1.1	2.4	1.5	1.0

Furthermore, the percentage of those taking decisions by themselves slightly increases at the detriment of the percentage of those submitting to their husbands' decisions for those currently working. However, this is not the case when decisions involving respondents' health are involved: the percentages for both taking decisions by themselves and by husbands are increasing with about 2 percentage points as the percentage of those taking decisions as a couple decreases by about 4 percentage points for those working. This poses a question about the characteristics of the working women of reproductive age.

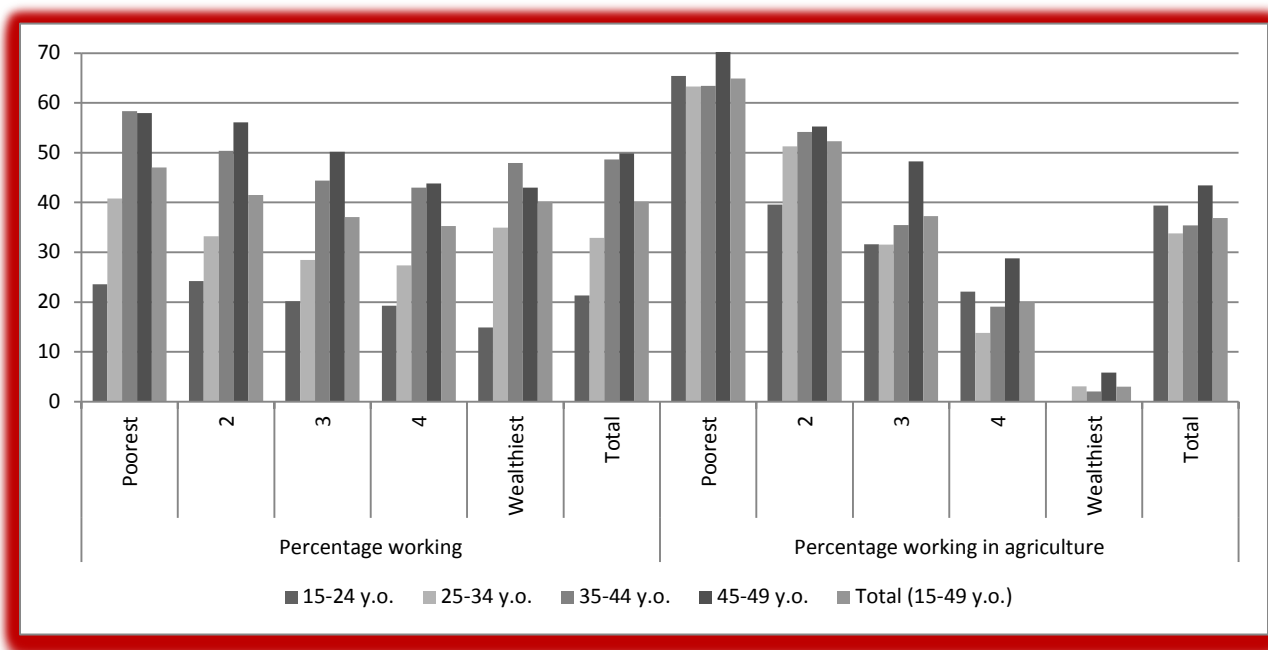
## Work

Employment is not only a source of income or an aspect of the country's level of development. Paid employment of women, in particular, is important also for promoting their economic and social autonomy. However, the empowering effects of employment for women in particular are likely to depend on their occupation, the continuity of their workforce participation, and whether they earn income.

Overall, only 40 percent of women work, 75 percent of which work throughout the year, 37 percent work in agriculture, and 80 percent get paid (in cash, in kind and in cash, or in kind only). As seen in the figure below, there are large differences by wealth across the age cohorts,

but overall a higher percentage of poorer women work (necessity) and when working about 65 percent do so in agriculture (compared to 4 percent for the wealthiest). The wealthiest, however, are more likely to work throughout the year (93 percent, versus 62 percent for the poorest) and get paid (90 versus 80 percent for the poorest).

**Figure 5: Working status of ever-married women 15-49 year olds, 2006/07**



Source: DHS 2006/07. World Bank staff calculations.

In terms of education, those with formal schooling and those with higher education are most likely to work (about 55 percent of each), but the percentage of those working throughout the year increases with education (from 73 to 92 percent), while the percentage of those working in agriculture decreases (from 72 to 5 percent).

The women on the estates have higher percentages of those working (71 percent versus 32 percent in urban areas, reflecting a combination of factors such as choice, availability and necessity), 92 percent of them work throughout the year, in agriculture, and 98 percent of them are paid. The percentages of those working throughout the year and of those getting paid are lowest for rural areas, possibly reflecting the fact that work in the rural areas is mostly seasonal and females are most likely to work as unpaid family workers in these areas (e.g. on family farms).

The Hindu across religions and the Indian Tamil across ethnicities are the most likely to work (49 and 69 percent respectively) currently, throughout the year (91 and 93 percent respectively), in agriculture (72 and 85 percent respectively), and get paid (99 percent each). The Islamic women have the lowest percentage of those working (16 percent), throughout the year (73 percent), and in agriculture (12 percent).

Results from multivariate analysis show that ever giving birth and number of children 0-14 year olds (both own children and others), wealth index, marriage and urban location influence negatively the decision to work, while age, household size, higher education and estates location influence it positively. An increase of one unit (maximum possible) in the standardized wealth index decreases the probability of working by 0.17 percentage points, being married – by 0.16, and urban location – by 0.03 percentage points (when compared to rural). When compared to having no formal education, women with either secondary or passed GCE O/L education have a lower probability of working (by 0.08 and 0.1 percentage points respectively); it is only those with higher education who have a higher probability of working (by 0.14 percentage points). Being of any other religion than Buddhism ensures a lower probability of working: by 0.15 for Hindu, by 0.26 for Islamic, and by 0.08 percentage points for Romano-Catholic women.

**Table 6: Probability of working (ever-married women 15-49 year olds) – marginal effects from a Probit model**

	All women (15-49 y.o.)	Age groups				Descriptive statistics
		15-24	25-34	35-44	45-49	
Wealth index, standardized	-0.163 (5.08)***	-0.014 -0.18	-0.167 (3.26)***	-0.174 (3.20)***	-0.18 (2.40)**	0.626 0.19
BMI	-0.002 (1.92)*	-0.005 -1.41	0.002 -0.88	-0.003 -1.62	-0.006 (2.24)**	23.035 4.63
Ever given birth	-0.074 (3.44)***	-0.079 (1.65)*	-0.151 (4.33)***	0.058 -1.33	0.024 -0.45	0.922 0.27
Nr. own children 0-14 in the hhld	-0.027 (4.31)***	-0.03 -0.9	-0.013 -0.99	-0.058 (6.08)***	0.018 -1.07	1.316 1.06
Nr. other children 0-14 in the hhld	-0.041 (3.88)***	-0.023 -1.13	-0.022 -1.16	-0.071 (3.59)***	-0.021 -1	0.195 0.60
Number of elderly (60+ y.o.)	-0.003 -0.29	0.009 -0.39	0.005 -0.37	-0.016 -1.04	0.021 -0.88	0.317 0.60
Log(hhsize)	0.019 -0.98	-0.02 -0.47	0.007 -0.21	0.041 -1.2	-0.013 -0.34	1.506 0.37
Age	0.057 (9.26)***	0.235 (1.95)*	0.057 -0.89	0.069 -0.8	0.454 -0.73	35.911 8.21
Age squared (/100)	-0.064 (7.40)***	-0.523 (1.82)*	-0.061 -0.56	-0.078 -0.72	-0.481 -0.72	13.570 5.78
1:Married	-0.157 (7.69)***	-0.222 (2.69)***	-0.207 (4.41)***	-0.191 (5.89)***	-0.098 (2.88)***	0.929 0.26
edlev==No Formal Education						0.049
edlev==Primary	-0.002 -0.06	-0.143 (1.94)*	-0.013 -0.24	0.033 -0.88	-0.02 -0.44	0.169 0.37
edlev==Secondary	-0.078 (3.15)***	-0.293 (3.09)***	-0.136 (2.76)***	-0.039 -1.01	-0.066 -1.4	0.477 0.50
edlev==Passed GCE O/L	-0.098 (3.76)***	-0.239 (3.55)***	-0.151 (3.11)***	-0.061 -1.45	-0.043 -0.8	0.158 0.36
edlev==Higher	0.135 (4.75)***	-0.19 (2.67)***	0.049 -0.89	0.232 (5.26)***	0.156 (2.64)***	0.147 0.35
religion==Buddhism						0.677
religion==Hindu	-0.159 (6.17)***	-0.08 -1.61	-0.07 (2.02)**	-0.173 (4.71)***	-0.315 (6.61)***	0.120 0.33
religion==Islam	-0.258 (14.93)***	-0.102 (2.63)***	-0.224 (8.58)***	-0.269 (9.85)***	-0.377 (9.84)***	0.114 0.32
religion==Romano-Catholic	-0.075 (3.45)***	-0.019 -0.35	-0.025 -0.79	-0.133 (3.84)***	-0.07 (1.65)*	0.075 0.26
religion==Other	-0.024 -0.52	-0.01 -0.11	-0.017 -0.22	-0.02 -0.27	-0.084 -0.92	0.014 0.12
1:Rural						0.707
1:Urban	-0.028 (1.79)*	0.027 -0.68	-0.027 -1.18	-0.04 (1.70)*	-0.021 -0.66	0.205 0.40
1:Estate	0.405 (13.79)***	0.381 (5.46)***	0.406 (9.20)***	0.394 (9.65)***	0.382 (7.11)***	0.089 0.28
Observations	12,865	1,285	4,224	4,948	2,408	
Variable of interest, means	0.423	0.234	0.352	0.494	0.501	

<i>Variable of interest, st.dev.</i>	0.49	0.42	0.48	0.50	0.50	
Robust z statistics in parentheses						
* significant at 10%; ** significant at 5%; *** significant at 1%						

Source: DHS 2006/07. World Bank staff calculations+

Note: Currently pregnant women and women who gave birth in the last 2 months preceding the survey are excluded from this analysis.

## Decisions about earnings

When it comes to spending the money earned, about 47 percent of married women report that the decision is taken by the couple, 44 percent decide themselves, and in 8 percent of the cases the decision lies with the husband. As far as the latest category is concerned, most of the women are in the 35-44 (39 percent) or 25-34 (35 percent) age groups, 55 percent are coming from the poorest 40 percent of population, 60 percent have primary or secondary schooling at most, 90 percent are from rural areas or estates, more than 80 percent have Buddhist or Hindu as religion and Sinhalese and Indian Tamil as ethnicity.

Since 70 percent of the married women are not employed and do not earn cash, their empowerment and autonomy will depend partly on having a say in how the earnings of their husbands are used. This is also important as research suggests that a larger amount of household income spent by women is associated with increased child welfare. Regarding the husband's earnings, the decision is made as a couple in 59 percent of all the cases, by the respondent – in 23 percent, and by the husband – in 16 percent of the cases.

The decision taker varies considerably with education, but not so much with wealth. About 13 percent more of the wives with higher education are taking decision as a couple than the wives with no education, whereas 7-8 percent less take decisions by themselves or at all. When wealth is considered, 4 percent less wives from wealthier households take decisions by themselves than the wives from poorest households; at the same time, about 4 percentage points more wives from wealthiest households participate in a couple decision, and 2 percentage points more wives do not have a say in their husbands' spending.

## Nutritional status of children

In order to have a sense of the key health trends that might influence the next generation, this note will study the children's nutritional status, as malnutrition is known not only to place children at increased risk of morbidity/mortality, but also to affect the mental development and to have negative effects on school participation and consequently on future earnings.

The 0-5 year olds, to which we will turn our attention in this section, will clearly not be actively involved in the next few years during which the country should reap the benefits of the demographic transition. But on one hand, they are the generation who will have to continue on the path of economic development that is set up now, and adequate nutrition is critical to child development. On the other hand, the nutritional status and survival of children will influence, to a certain extent, the future decision of a couple to have more children or not, and through this – the fertility levels. It is therefore important to understand children's nutritional status, as malnutrition is known not only to place children at increased risk of morbidity/mortality but also to affect their mental development and to influence negatively the school participation and consequently the future earnings. The period from birth to two years of age is important for

optimal growth, health, and development. At this age, children are particularly vulnerable to growth retardation, micronutrient deficiencies, and common childhood illnesses.

In the six years since the last DHS, stunting (which offers a measure of long-term malnutrition) increased by 3 percent, wasting (which illustrates short-term, acute food shortfalls) decreased by about 0.6 percent, and underweight (a combination of the above) decreased by roughly 8 percent.<sup>12</sup>

**Table 7: Nutritional status of children under 5 years old - what happened since 2000?**

		All	Urban	Rural	Estate	Poorest q	Wealthiest q
<b>Stunted</b>	2000	14.5	8.5	13.7	36.3	29.1	4.0
	2006/07 (comp)	17.5	12.8	15.9	42.6	28.4	7.8
	2006/07	18.0	13.7	16.7	41.6	28.1	8.6
<b>Wasted</b>	2000	14.9	9.0	16.9	12.8	20.7	9.1
	2006/07 (comp)	14.3	13.6	14.6	12.1	16.4	11.3
	2006/07	15.3	15.0	15.5	12.7	17.4	12.0
<b>Underweight</b>	2000	29.9	19.3	31.2	44.4	47.6	11.1
	2006/07 (comp)	21.8	17.2	21.7	30.1	29.8	13.4
	2006/07	22.1	17.4	22.1	30.3	30.3	12.7

**Note:** The 2006/07 (comp) figures are comparable with the ones from 2000, computed for children 3-59 months olds whose mothers were eligible for the women's questionnaire, Eastern province excluded.  
The 2006/07 figures are computed for all children 0-59 months old in the household, regardless of their mother's age or marital status.

Source: DHS 2000 and 2006/07. World Bank staff calculations

While over time stunting remains much more prevalent in estate locations and among the poorest, it does not “remain” a poor’s phenomenon as the percentages among urban children and the wealthiest quintile increases. In 2006/07, the incidence is higher for older children, in estate locations, for children whose mothers have primary or no education, for the poor, and for those living in larger households. These trends are confirmed by the multivariate analysis. In addition, having older brothers/sisters is also associated with increased probability of being stunted, the effect being stronger for the 36-59 month olds.

Wasting remains relatively constant over time, decreasing in rural areas but increasing in urban areas. A series of factors could explain this trend, among which less income, less nutritious food consumed, or changes in nutrition behavior. Unfortunately, it is not possible to differentiate among these factors using this dataset. In 2006/07, wasting is more likely to be encountered among boys, among children with malnourished mothers (low BMI) or low educated mothers. Multivariate analysis shows that only wealth, being a girl and living on estates have a significant association with the likelihood of being wasted (the probability decreases by 0.10, 0.03 and 0.04 respectively).

For the underweight, the largest plunge in the six-year period is on estates and among the poorest (Table 7). In 2006/07, the incidence is higher among older children, on estates, among mothers

<sup>12</sup> The validity of these indices is determined, among others, by the coverage of the population of children and the accuracy of anthropometric measurements. Due to these, stunting cannot be reliably computed in 8.7 percent of the cases, wasting – in 9 percent, and underweight – in 4.6 percent of the cases.



with low education, and in poorest quintile. Multivariate analysis confirms that wealth and mothers' having higher education decrease the likelihood of being underweight, while the age of the child increases it. Location does not significantly influences the probability of being underweight, except that the very young children (0-11 months) from estates are more likely to be underweight than their rural counterparts.

As mentioned earlier, maternal under-nutrition and its legacy of fetal under-nutrition is now recognized as a major long-term risk factor in the development of adult cardiovascular disease and diabetes. Table 8 below confirms this hypothesis: especially for the children 24-35 and 36-59 months old, those whose mothers have a low BMI show much worse nutritional status. Multivariate analysis using the same model as before and adding mother's BMI as an explanatory variable (either as a continuous variable or as dummies as presented below) confirms these findings – the coefficients might be sometimes small, but generally higher BMI of the mother is associated with a decline in the probability of the kid being nutritionally deficient.

**Table 8: Nutritional status of children under 5 years old, by age groups and their mothers' nutritional status (2006/07)**

		Mother's nutritional status			Total
		Low BMI (<18.5)	Normal	High BMI (>=25)	
0-11 m.o.	<i>Stunted</i>	17.8	8.8	13.1	11.7
	<i>Wasted</i>	19.7	11.3	11.5	13.0
	<i>Underweight</i>	24.0	12.9	9.7	14.3
12-23 m.o.	<i>Stunted</i>	25.9	18.4	20.0	20.3
	<i>Wasted</i>	20.4	15.4	8.9	15.0
	<i>Underweight</i>	28.3	19.5	17.4	21.0
24-35 m.o.	<i>Stunted</i>	31.7	22.3	16.2	22.3
	<i>Wasted</i>	25.2	14.0	10.4	15.0
	<i>Underweight</i>	34.9	25.6	17.7	25.0
36-59 m.o.	<i>Stunted</i>	24.4	19.3	12.9	18.3
	<i>Wasted</i>	25.9	18.7	10.2	17.4
	<i>Underweight</i>	39.8	28.1	14.6	26.2
Total	<i>Stunted</i>	24.9	17.8	14.9	18.3
	<i>Wasted</i>	23.2	15.6	10.2	15.6
	<i>Underweight</i>	32.7	22.9	14.9	22.6

Source: DHS 2006/07. World Bank staff calculations

Note: Currently pregnant women and women who gave birth in the last 2 months preceding the survey are excluded from this analysis.

**Table 9: Nutritional status of children – marginal effects from a Probit model results (0-59 months old)**

	Stunted					Wasted					Underweight				Descriptive statistics	
	all	0-11 m.o.	12-23 m.o.	24-35 m.o.	36-59 m.o.	all	0-11 m.o.	12-23 m.o.	24-35 m.o.	36-59 m.o.	all	0-11 m.o.	12-23 m.o.	24-35 m.o.		36-59 m.o.
Wealth index, standardized	-0.223 (7.43)***	-0.128 (2.38)**	-0.213 (3.27)***	-0.274 (3.74)***	-0.251 (5.39)***	-0.104 (3.48)***	-0.043 -0.68	-0.161 (2.63)***	-0.100 -1.58	-0.097 (2.06)**	-0.222 (6.74)***	-0.215 (3.50)***	-0.140 (1.95)*	-0.297 (3.79)***	-0.224 (4.12)***	0.626 0.20
Child's age in months (/100)	0.931 (7.62)***	-1.765 (1.69)*	5.957 -1.53	6.184 -0.91	0.573 -0.35	-0.090 -0.79	-2.704 (2.51)**	0.699 -0.20	3.910 -0.68	-1.219 -0.71	0.730 (5.53)***	-0.242 -0.22	2.721 -0.69	8.966 -1.30	-0.196 -0.10	0.292 0.17
Child's age in months squared (/1000)	-0.149 (7.62)***	1.832 (2.13)**	-1.479 -1.33	-1.049 -0.91	-0.093 -0.54	0.023 -1.24	1.861 (2.00)**	-0.181 -0.18	-0.734 -0.75	0.138 -0.77	-0.084 (3.99)***	0.444 -0.48	-0.591 -0.52	-1.430 -1.22	0.024 -0.11	1.148 1.04
1:Female	-0.015 -1.49	-0.040 (2.25)**	-0.038 -1.64	-0.009 -0.37	0.004 -0.29	-0.028 (2.91)***	-0.021 -1.08	-0.038 (1.81)*	-0.026 -1.27	-0.027 (1.78)*	-0.015 -1.35	-0.028 -1.43	-0.049 (2.09)**	0.019 -0.79	-0.006 -0.35	0.489 0.50
1:Child has older brothers/sisters alive	0.023 (2.05)**	-0.002 -0.11	-0.008 -0.28	0.037 -1.30	0.045 (2.64)***	-0.017 -1.56	-0.057 (2.72)***	0.009 -0.36	-0.031 -1.25	-0.007 -0.40	0.015 -1.15	-0.058 (2.51)**	0.020 -0.66	0.065 (2.24)**	0.026 -1.20	0.583 0.49
1:Father living in the hh	-0.010 -0.69	0.018 -0.73	-0.06 (1.73)*	-0.029 -0.84	0.014 -0.59	-0.016 -1.12	-0.035 -1.27	-0.004 -0.12	-0.007 -0.24	-0.015 -0.65	-0.012 -0.75	-0.028 -1.02	0.013 -0.38	-0.033 -0.89	-0.005 -0.19	0.849 0.36
Age of mother (/100)	-0.069 -0.68	0.147 -0.77	0.274 -1.14	-0.099 -0.44	-0.307 (2.02)**	0.127 -1.32	0.359 (1.99)**	0.137 -0.68	-0.025 -0.12	0.086 -0.55	0.065 -0.59	0.572 (3.06)***	0.114 -0.47	0.035 -0.14	-0.196 -1.06	0.30 0.06
edlev_mo==No formal education																0.027
edlev_mo==Primary	-0.045 -1.61	-0.091 (2.28)**	0.057 -0.59	0.04 -0.53	-0.069 (1.93)*	0.051 -1.54	0.951 (7.51)***	0.171 -1.52	-0.074 -1.45	0.042 -0.89	0.035 -1.04	0.013 -0.20	0.095 -0.98	0.028 -0.35	0.034 -0.68	0.110 0.31
edlev_mo==Secondary	-0.087 (2.93)***	-0.092 (1.69)*	-0.041 -0.45	-0.035 -0.51	-0.102 (2.53)**	0.020 -0.72	0.876 (7.37)***	0.103 -1.19	-0.125 (2.16)**	0.037 -0.88	-0.026 -0.83	0.034 -0.57	0.029 -0.34	-0.065 -0.87	-0.047 -0.96	0.521 0.50
edlev_mo==Passed GCE O/L	-0.101 (3.67)***	-0.089 (1.96)**	-0.058 -0.65	-0.091 -1.33	-0.103 (2.78)***	0.007 -0.23	0.981 (7.08)***	0.104 -0.98	-0.116 (2.33)**	0.032 -0.67	-0.053 -1.60	-0.001 -0.01	-0.014 -0.15	-0.100 -1.34	-0.055 -1.07	0.164 0.37
edlev_mo==Higher	-0.110 (3.94)***	-0.065 -1.29	-0.037 -0.40	-0.141 (2.12)**	-0.136 (3.67)***	-0.007 -0.23	0.983 (6.97)***	0.149 -1.38	-0.108 (2.07)**	-0.052 -1.16	-0.077 (2.38)**	0.040 -0.58	-0.004 -0.04	-0.118 -1.58	-0.138 (2.80)***	0.179 0.38
1:Mother currently married	-0.060 -1.59	-0.146 -1.56	0.062 -0.67	0.002 -0.03	-0.134 (2.40)**	0.018 -0.53	0.054 -0.63	0.062 -0.81	0.037 -0.49	-0.018 -0.36	0.027 -0.75	0.031 -0.41	-0.044 -0.44	0.047 -0.52	0.033 -0.56	0.980 0.14
Log(hhsize)	0.044 (2.91)***	0.006 -0.22	0.064 (1.72)*	0.057 -1.52	0.042 (1.84)*	-0.007 -0.52	-0.011 -0.38	-0.004 -0.12	-0.016 -0.53	-0.001 -0.04	0.012 -0.70	0.031 -1.02	0.018 -0.46	-0.002 -0.04	0.008 -0.30	1.615 0.338
1:Rural																0.700
1:Urban	0.005 -0.35	0.018 -0.67	-0.010 -0.32	-0.032 -1.05	0.011 -0.53	0.012 -0.92	0.038 -1.39	0.025 -0.88	-0.006 -0.21	-0.002 -0.11	-0.013 -0.86	0.022 -0.79	-0.015 -0.49	-0.022 -0.66	-0.031 -1.27	0.202 0.401
1:Estate	0.153 (7.50)***	0.113 (2.91)***	0.188 (4.12)***	0.241 (4.93)***	0.127 (4.13)***	-0.044 (2.83)***	0.031 -0.94	-0.051 -1.52	-0.057 (1.69)*	-0.065 (2.62)***	0.007 -0.37	0.082 (2.26)**	0.010 -0.26	-0.010 -0.23	-0.014 -0.41	0.098 0.298
Observations	6497	1306	1343	1294	2554	6497	1306	1343	1294	2554	6497	1306	1343	1294	2554	
Log likelihood	-2825	-441.9	-651.2	-608.5	-1081	-2741	-499	-553.4	-531.6	-1125	-3250	-492.8	-671.5	-670.3	-1385	
Variable of interest, means	0.183	0.117	0.214	0.219	0.184	0.154	0.143	0.147	0.148	0.166	0.217	0.139	0.211	0.234	0.253	
Variable of interest, st.dev.	0.39	0.32	0.41	0.41	0.39	0.36	0.35	0.35	0.36	0.37	0.41	0.35	0.41	0.42	0.43	
Robust z statistics in parentheses																
* significant at 10%; ** significant at 5%; *** significant at 1%																
Source: DHS 2006/07. World Bank staff calculations.																

## Key Findings

In 2000, the fertility fell below the replacement level in Sri Lanka. As a result of low fertility rates and high life expectancy, it was estimated that Sri Lanka was thought to have a sizeable window during which to reap the demographic dividend from having a working age population larger than the total of children and elders. Still, the 2006/07 estimates of fertility, higher than the replacement level, reduced this estimate – it is now assessed that the above-mentioned window of opportunity would end in 2017,<sup>13</sup> followed by a gradual decline of the share of working age population. Fertility levels, preferences, and its determinants are therefore important to understand the next generation and its challenges, and to make sure the proper policies are in place to offset some of the disadvantages faced by different groups.

Fertility increased from 1.9 to 2.4 during the 2000-2006/07 period, higher on estates (2.6) than in urban areas (2.2), higher for women with lower than with higher education (except those with no formal education); it has a U-shaped form by wealth (2.4-2.2-2.4). In a multivariate setting, the probability of ever-giving birth is increasing for poorer and less educated women, for those on estates, and for women practicing Islam. These findings are much stronger for younger cohorts, and are paralleled for the number of children ever-born (or alive) to a women of current reproductive age.

In an attempt to roughly link fertility in the past several decades with current fertility rates, the paper further compares the TFR for the three years preceding the survey, in conjunction with the average number of children ever born (CEB), to women age 40-49 at the time of the survey (assumed to represent the completed fertility for those women. The pattern of differentials in the average CEB parallels the pattern of differentials in the TFR only for the place of residence. Uneducated women have one of the highest number of children at age 40-49 but the lowest TFR (1.9); whereas “past fertility” is clearly declining with wealth (from 3 to 2.1 children), but TFR has a relatively tight U-shaped relation by wealth status.

The birth intervals are larger for the wealthier and better educated. The youngest cohort (15-24 year olds) faces the smallest birth intervals, while female in their prime adult life (25-34 year olds) face the largest interval and the largest increase over time. This fact, corroborated with the finding that the likelihood of work is negatively influenced by the woman’s ever-giving birth and the number of children in the household, raises questions on the nexus between work and fertility preferences. Do younger cohorts start having increasingly longer intervals between births simply because of their health benefits, or is this decision also combined with a desire to participate in the labor market?

Contraceptive knowledge is almost universal, but driven by knowledge of modern methods rather than of traditional methods. Contraceptive usage starts earlier in the reproductive life of women coming from wealthier households and having higher education attainment. For these women, the decision of first using contraceptives is more often taken as a couple (more than 70 percent) rather than by an individual (be it respondent, husband, or public midwife). In poorer

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<sup>13</sup> De Silva, W. Indralal – “Sri Lankan Population Change and Demographic Bonus – Challenges and Opportunities in the New Millennium,” background paper for the “Sri Lanka: Managing the Demographic Transition” study, 2011.

households, this decision has been taken by different individuals (as high as 21 percent for the public midwife in the poorest quintile) in 50 percent of the cases.

Contraceptive usage decreased from 70 to 68 percent between 2000 and 2006/2007; the use of modern contraceptives increased from 49.5 to 52.8 percent during the same period. In terms of fertility preferences, the percentage of women being unable or not willing to have more children stayed approximately the same (about 62 percent), but the composition slightly changed. In 2000, the percentage of female sterilized or declared infecund was around 23 percent, and the percentage declaring they wanted no more children 38.7; in 2006/07 these percentages were 20 and 43 respectively.

Maternal under-nutrition and its legacy of fetal under-nutrition is now recognized as a major long-term risk factor in the development of adult cardiovascular disease and diabetes. The nutritional status of women of reproductive age improved when compared to 2000, but the percentage of women with low BMI decreased to the detriment of the percentage of women with high BMI (overweight), which increased. The BMI increases with wealth and better education, and decreases for women on estates; these effects are stronger for older cohorts. The rise in obesity poses a question about the food consumed and the health behavior of these women (e.g. knowledge and time for physical activity, quality and quantity of food).

The most preferred sources of health information for the women of reproductive age in Sri Lanka are the (western) doctors among the health personnel, government hospitals/clinics among the health places and TV among media sources. Knowledge of AIDS/TB/women's cancers is widespread, more than 90 percent of women ever hearing of them. This knowledge (especially of various forms of cancer) usually decreases with wealth, except in the case of oral cancer; the same trend is valid by education status or location.

About one quarter of the women of reproductive age list getting money needed for treatment, lack of nearby facilities, having to take transportation and non-willingness to go alone as a major issue preventing them from getting medical advice/treatment for themselves. Money is more of an issue for the older cohorts. About one-tenth of women list the non-existence of a female health provider, of a health provider in general, or of drugs as being major impediments, while only 3 percent list getting permission as a major factor. As expected, all of these reasons become much less of an impediment as wealth or education status increase or as women live in urban areas.

As health coverage and access is generally free, with out-of-pocket spending paying mostly for private care and medication and recently on private insurance, it is not unusual for only 15 percent of the Sri Lankan women of reproductive age to have health insurance. The insurance status is highly dependent on work (22 versus 11 percent for those not working), wealth status (31 versus 6 percent in the wealthiest/poorest quintiles), education (4 percent for no formal education to 40 percent for higher education), location (3 percent on estates vs. 18 percent in urban areas), religion (lowest at around 5 percent for Hindu and Islamic women, and high at about 18 percent for Buddhists and Romano-Catholic).

The ability of women to make decisions that affect the circumstances of their own lives is an essential aspect of empowerment. In assessing the women's decision-making autonomy, the paper further focuses on four types of decisions: their own health care, making large household purchases, making small household purchases (for daily purposes), and visiting friends and relatives. Poor, less-educated women and those who live in rural areas and on estates face more challenges in exercising their say in these domains.

The discussion of paid employment for currently married women and women's financial status and autonomy through equality in earnings and participation in decisions about their own and husband's earnings, underscores the importance of married women's employment to the household economy and possible disadvantages faced by women. While only 2 in 5 women of reproductive age work, three-fourths of them get paid for their work in cash (with another 5 percent getting paid in kind, or both in cash and in kind). This leaves one in four working women unable to convert their employment into financial autonomy because they do not earn cash for their work. There are large differences by wealth and education, and age cohorts. A higher percentage of poorer women work and they do so in agriculture; the wealthiest, however, are more likely to work throughout the year and are paid. Among education levels, it is only higher education which significantly increases the probability of working.

Furthermore, the decisions on how to spend one's own earnings are taken either by the couple (in 47 percent of the cases) or by respondent (in 44 percent of the cases). This leaves about one in ten women earning money but having no say in how to spend it – this happens more often for the poorer and uneducated segments. Regarding the decision on how the husband's earnings are used, the decisions are taken by the couple in 59 percent of the cases, and by the women in 23 percent of the cases. Whether the decisions are taken by the respondent or by the couple is highly dependent on wealth and education, with wealthier and more educated being more likely to take the decision as a couple.

In terms of children's nutritional status, in 2006/07, 18 percent of the children 0-59 months old were stunted (which offers a measure of long-term malnutrition), 15.3 percent were wasted (which illustrates short-term, acute food shortfalls), and 22.1 percent were underweight (a combination of the two above). Between 2000 and 2006/07, stunting increased by 3 percent, wasting faced a small decrease, by 0.6 percent, and underweight decreased by roughly 8 percent. The trend in stunting is particularly alarming: while the children on estates or among the poorest remained the most affected, the incidence of stunting increased over time in urban areas and among the wealthier households.

The above findings emphasize that, of the proximate determinants of fertility, the age at first marriage and at first intercourse increase, number of children ever-born declined, proportion of women practicing contraception slightly increased, and birth intervals seem to have increased as well. It is therefore the increase in the percentage of marriages, or consequently having more women giving birth to fewer children, that influences most the latest increase in TFR.

At the same time, while Sri Lanka is an achiever in curbing the infant and under-five mortality rates, maintaining a low total fertility rate and in the context of non-communicable, preventable, illnesses taking over from non-preventable diseases, there are still less desirable aspects which

deepen the vulnerability of certain groups of the population. Maternal and child nutrition is one of these aspects: the body-mass index of women increases in time, but this hides a decrease in their malnutrition prevalence and a large increase in the prevalence of overweight. Among children, stunting – the measure of chronic malnutrition – is becoming more prevalent overall, and it increases within groups thought of as less vulnerable (in urban locations, in wealthier households).

While certain phenomena are encountered across cohorts and different socioeconomic statuses, it is usually the poorer and less educated, and estate-living segments of population which suffer most, have less participation, or are less empowered (see Table 10 below for a review of the main wealth differentials found in this paper). The frequent juxtaposition of factors influencing the social disadvantage of those at risk of poverty and/or social exclusion and of those who are already in need but not yet supported by standard social protection programs requires a constant adaptation of policies and services in order to reduce these disadvantages.

**Table 10: Review of wealth differentials for various indicators**

Indicator	Poorest	Gradient (Wealthiest-Poorest quintile)
% of women ever-giving birth	92.7	-4.7
Total fertility rate	2.4	0
Number of children ever born for women 40-49 year olds	3	-0.9
Number of children ever born	2.4	-0.6
Birth intervals (months)	41.1	5.5
Age at first marriage (years)	20.6	3.2
Age at first birth (years)	22.1	3.0
Average number of children at first usage of contraceptives	1.5	-0.6
% taking the decision to first use contraceptives as a couple	52.9	19.9
% for which public midwife took the decision of first using contraceptives	20.7	-12.9
% currently using a contraceptive method	71.5	-62.4
% currently using sterilization	25.1	-15.2
% currently using other modern method	37.6	-8.0
% currently using a traditional method	8.8	14.1
Average body mass index (BMI)	21.2	3.8
% of women with low BMI	27.8	-21.4
% of women with high BMI	15.4	-33.2
% of women knowing of AIDS	77.9	20.2
% of women knowing of TB	76.2	21.0
% of women knowing of various women's cancers	77.2	19.0
% of women knowing of breast cancer	88.1	9.2
% of women knowing of cervical cancer	24.0	12.4
% of women knowing of womb cancer	64.7	14.8
% of women knowing of oral cancer	35.6	-6.1
% of women listing [...] as a major problem in getting health advice/treatment:		
... permission to go	7.6	-5.7
... getting money	45.3	-38.4
... distance	40.9	-34.2
... taking transportation	39.7	-33.8
... go alone	25.6	-3.8
... no female provider	11.1	-5.0
... no health provider	13.6	-7.4
... no drugs	16.0	-9.6
% of women with health insurance	6.2	24.1
% of married women making decisions on own health care		
... as a couple	37.4	6.3
... themselves	32.5	3.1
% of married women making decisions on major household purchases		
... as a couple	51.6	8.7
... themselves	26.5	-2.8
% of married women making decisions on minor household purchases		
... as a couple	34.1	5.7
... themselves	41.6	-0.3
% of married women making decisions on visiting family/friends		
... as a couple	61.1	6.4
... themselves	21.9	-0.1
% of women working, of which	47.0	-6.8
% of women working in agriculture	64.9	-61.9
% of women working throughout the year	63.1	29.6
% of women getting paid	80.2	9.8
% of married, paid working women taking decisions about own earnings		
... as a couple	42.9	9.2
... themselves	44.1	-1.6
% of married women taking decisions about husband's earnings		
... as a couple	56.6	4.1
... themselves	24.4	-4.6
% of children 0-59 months old who are ...		
... stunted	28.1	-19.5
... wasted	17.4	-5.4
... underweight	30.3	-17.6

Source: DHS 2000 and 2006/07. World Bank staff calculations.