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Demographic transition in Southern Asia: challenges and opportunities 3

Bhakta B. Gubhaju

This paper examines fertility and mortality trends in Southern Asia and their consequences for changes in age structure, dependency ratio, population ageing and feminization of the elderly population. It highlights challenges and opportunities brought about by the demographic transition. In particular the paper suggests ways in which countries in Southern Asia can reap the benefits of the “demographic dividend”, which is a one-time “window of opportunity” that countries in the region should fully exploit. This is particularly evident when looking towards future demographic trends in the region in which a number of countries in Southern Asia will need to deal with problems associated with ageing. In preparing for such a future, there is a need to start formulating policies for the elderly today.

Do slum dwellers have lower contraceptive prevalence rates? An analysis of current use patterns in Calcutta, India 29

Mousumi Dutta and Zakir Husain

This paper examines whether there are significant variations in contraceptive prevalence rates between women who live or do not live in slums of Calcutta, India. A Disparity Index is calculated, using unit level data from the 2006 Demographic Health Survey. The Index reveals that variations in overall and modern contraceptive prevalence rates between currently married slum and non-slum respondents are low. Statistical tests (both parametric and non-parametric) reveal that though differences in overall contraceptive prevalence rates are significantly lower in slums, differences in usage of modern methods between slum and non-slum areas is marginal. This is also confirmed by econometric methods using an ordered logit model. This model indicates that slum respondents are reluctant to adopt contraceptives. However, once their initial resistance is overcome, they prefer modern – particularly terminal – methods. Analysis reveals that cultural forces – socio-religious identity, language and preference for more children (particularly sons) – are responsible for creating barriers to adopting family planning methods.

Mobility as Development Strategy: The case of the Pacific Islands

57

Donovan Storey and Vanessa Steinmayer

Migration is often portrayed in terms of net gain or loss in which remittances provide the compensation for those States or territories which are seen as disadvantaged in the competition for especially skilled workers. In the Pacific region this dichotomy is illustrated through the loss for countries of origin (Pacific island countries and territories) of their "best and brightest" to the region's larger and more prosperous States. This has occurred to such an extent that many see the limited development gains made by small island States and territories in the post World War Two period as being largely explained by the failure to counter the resulting inequalities in both "brain drain" and "brain gain". This article argues that such a dichotomy misses those shared development gains reaped through increased labour mobility. Indeed, migration can underpin a "development dividend" for the region through the enhancement of increased mobility, including for low-skilled workers. Recent schemes have sought to balance both migration opportunities and development needs. While these are promising, much more could be done to support the conditions in which Pacific Islanders of all socio-economic status can circulate.

Demographic transition in Southern Asia: challenges and opportunities

This paper examines fertility and mortality trends in Southern Asia and their consequences for changes in age structure, dependency ratio, population ageing and feminization of the elderly population. It highlights challenges and opportunities brought about by the demographic transition. In particular the paper suggests ways in which countries in Southern Asia can reap the benefits of the "demographic dividend", which is a one-time "window of opportunity" that countries in the region should fully exploit. This is particularly evident when looking towards future demographic trends in the region in which a number of countries in Southern Asia will need to deal with the challenges faced by ageing populations. In preparing for such a future, there is a need to start formulating policies for the elderly today.

By Bhakta B. Gubhaju*

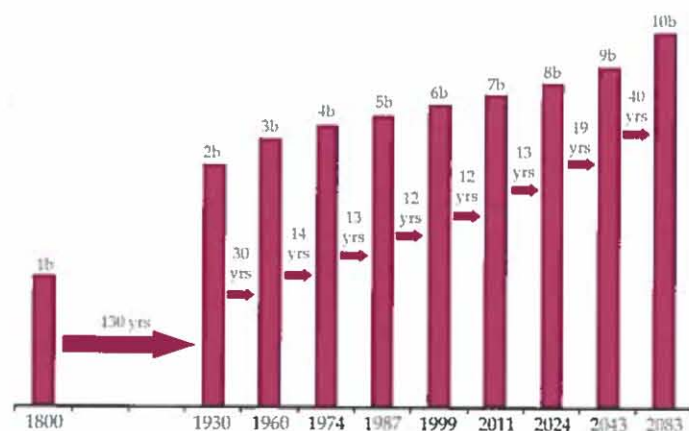
Introduction

The history of human population shows that the rate of growth of the world's population has been extremely slow, taking more than a century to double from one billion in 1800 to two billion in 1930. Growth then accelerated and another one billion people were added in just 30 years, reaching three billion in 1960 (Population Reference Bureau, 2010). Between 1960 and 2012 population increased significantly with one billion people added every 12 to 14 years. The milestone of seven billion people was reached in October 2011 according to United Nations medium variant projections (United Nations, 2011). United Nations

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projections reveal that the global population is expected to reach nine billion in 2043 and ten billion in 2083 (figure 1).

Figure 1. Milestones of the world population to reach the next billion

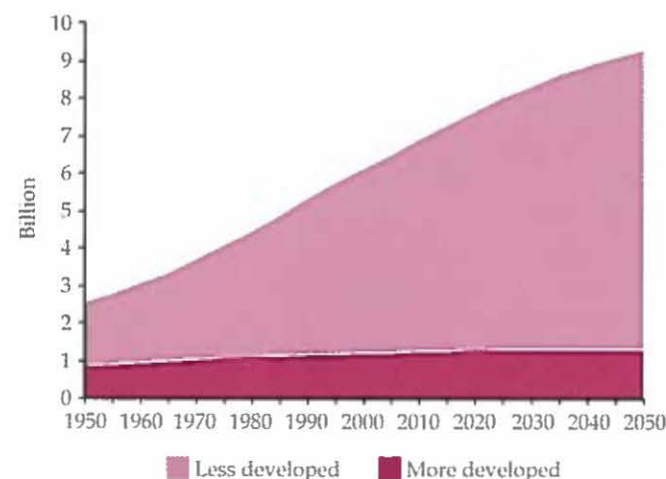


Source: Population Reference Bureau (2010) and United Nations (2011).

The most dramatic growth in world population since 1950 has been in the less developed regions and future growth will also be concentrated in these regions, as the more developed countries are growing more slowly (figure 2). In 2010, 82 per cent of the world's population lived in less developed countries. This proportion will rise to almost 86 per cent by 2050, primarily due to the fact that the first demographic transition began in the developed regions of the world around the latter part of the nineteenth century. Life expectancy at birth which was about 40 years at the start of the transition has now almost doubled and fertility has declined from a high level of about five children per woman to two during the same period (Murphy, 2011). More developed countries have already completed their demographic transitions, with low levels of fertility and mortality and natural increase adding very little to population growth. Many low fertility countries in the world have now reached the "second demographic transition", in which fertility has plummeted to below replacement level (Population Reference Bureau, 2004).

Demographic transition in developing countries started in the middle of the twentieth century with many of these countries at the intermediate stage, in which mortality and fertility are declining at various rates. Although the demographic transition in developing countries started comparatively late, the speed at which mortality and fertility have dropped in some developing countries is remarkable. As stated by

Figure 2. Population growth in more developed and less developed countries, 1950 to 2050



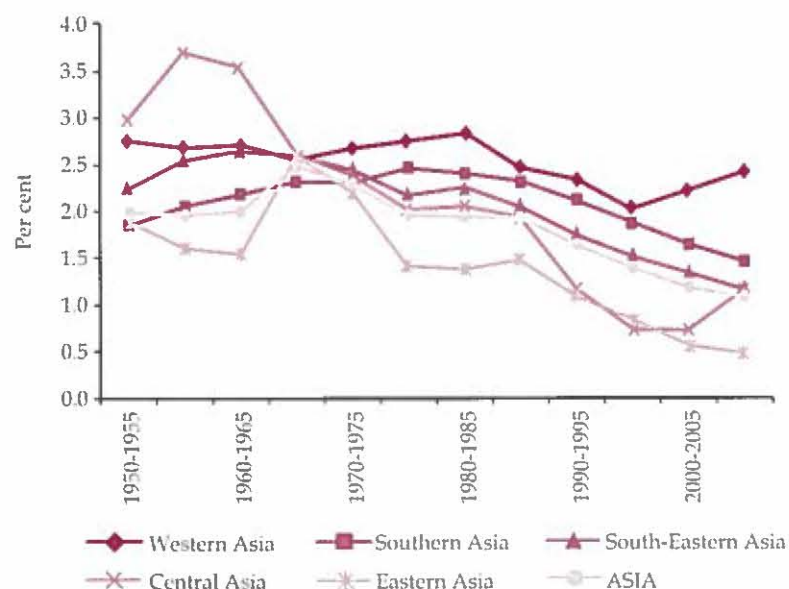
Source: United Nations (2011).

O'Neill and Balk: "in Europe, North America and Japan, mortality fell slowly for two centuries as food supply stabilized, and housing, sanitation, and health care improved. In contrast, mortality in the majority of less developed countries fell over the course of just a few decades after World War II as Western medical and public health technology and practice spread to these regions" (O'Neill and Balk, 2001: 11-12).

This paper aims to focus on the Asian demographic transition, giving particular reference to Southern Asia. Of the world's population in 2010, a dominant share of 4.2 billion (60.4 per cent) lived in Asia. This number will continue to grow and by 2050, Asia will be home to 5.1 billion people (55 per cent). This paper uses data from the *World Population Prospects: 2010 Revision*, which provides comprehensive data on the sex-age distribution of the population and on demographic indicators for all countries of the world from 1950 to 2100 (United Nations, 2011). The data is critical in highlighting trends in fertility and mortality and their implications for changes in age structure of the population, including population ageing.

The demographic transition in Asia started during the second half of the twentieth century, with steady improvement in mortality but with fertility remaining more or less constant for another two decades. This resulted in an increase in the annual population growth rate until such time that fertility began to drop as a response to a decline in mortality. As is evident from figure 3, the rate of population growth in Asia as a whole was 2 per cent per annum during the period 1950-1955. There were, however, large disparities in the rate of population growth by

Figure 3. Average annual growth rate by subregions of Asia, 1950-2010



Source: United Nations (2011).

subregions, with Central, Western and South-Eastern Asia growing faster than Eastern and Southern Asia. In 1965-1970, the growth rate of populations in all the subregions of Asia converged at around 2.5 per cent per annum. With this fertility decline, the Asian region in general witnessed a deceleration in the population growth rate from 1970-1975 onwards. While disparity in the growth rate by subregions of Asia continued to widen, the overall growth rate in Asia as a whole has been reduced to 1 per cent per annum at present.

In Southern Asia¹, the population growth rate which was less than 2 per cent per annum in 1950-1955 continued to rise. After reaching its peak at 2.5 per cent per annum in 1975-1980, the growth rate began to decline sharply, approaching the current per annum figure of less than 1.5 per cent.

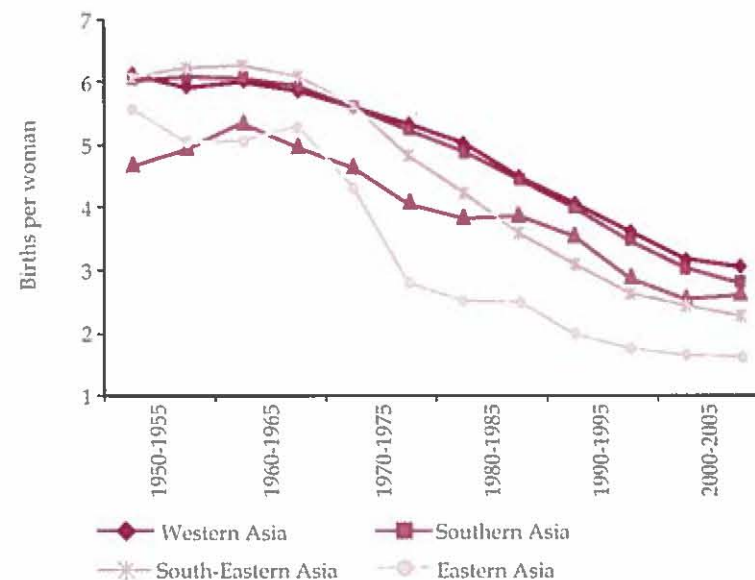
In the sections that follow, this paper will first present fertility and mortality trends in Southern Asia. It will then examine the consequences that are due to changes in age structure, dependency ratio, population ageing and feminization of the elderly population. The paper will highlight challenges and opportunities brought about by the demographic transition. It will also provide policy recommendations to deal with ageing problems and suggest ways to reap the benefits of the current "demographic dividend" for future generations.

Fertility

During the second half of the twentieth century, there was a remarkable decline in fertility in the Asian region. The region as a whole experienced a drop in the total fertility rate (TFR) from 5.8 births per woman during the period 1950-1955 to 4.0 in 1975-1980, with a further decline to 2.7 in 1995-2000. The TFR of the region is estimated at 2.3 for 2005-2010. However, this regional average masks considerable disparities in the TFR among subregions.

Figure 4 shows that the TFR fell to below the replacement level (2.0) in Eastern Asia from 1990-1995 and it continued to fall to 1.6 from 2005-2010. While South-Eastern Asia witnessed a remarkable drop in fertility, approaching close to the replacement level at 2.3, in Western, Southern and Central Asia, the TFR was 3.0, 2.8 and 2.6 children per woman, respectively in 2005-2010.

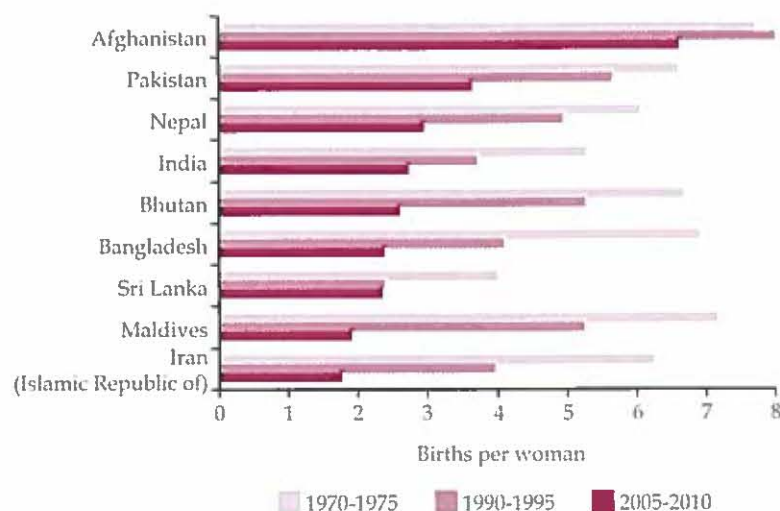
Figure 4. Total fertility rate by subregions of Asia, 1950-2010



Source: United Nations (2011).

However, figure 5 shows that the total fertility rates in Southern Asia vary to a large extent by country. With the exception of Sri Lanka, high fertility of above five children per woman prevailed in much of Southern Asia during the period 1970-1975. Fertility transition began to take

Figure 5. Total fertility rate in Southern Asia, 1970-2010



Source: United Nations (2011).

place in most of the countries during the past 30 years and many of them experienced substantial declines in fertility between the periods 1970-1975 and 1990-1995. The notable exception is Sri Lanka which initiated fertility transition as early as 1955-1960. Sri Lanka experienced a spectacular decline in fertility from 5.8 in 1955-1960 to 4.0 in 1970-1975. It continued to drop further to 2.4 in 1990-1995 and fell close to replacement level in 1995-2000. However, Sri Lanka has witnessed a recent reversal in its fertility decline (De Silva, et. al 2010).

Closely following Sri Lanka is India which began fertility transition in 1965-1970. The TFR dropped significantly from 5.7 in 1965-1970 to 3.7 in 1990-1995. It continued to decline further, but at a slower pace, approaching 2.7 in 2005-2010. The remaining countries in the subregion did not begin fertility transition until much later. Bangladesh, the Islamic Republic of Iran and Nepal initiated fertility transition in 1980-1985, while Bhutan, Maldives and Pakistan did so in 1985-1990. What is so striking about the fertility transition in Southern Asia is the speed at which countries experienced change. Bangladesh witnessed a dramatic fall in fertility from 6.9 in 1970-1975 to 4.1 in 1990-1995, a reduction of almost three children per woman in a span of two decades. There has, however, been a slow-down in this decline in recent years.

Most of the countries in the subregion currently fall in the category of intermediate fertility, ranging from 2.4 children per woman in Sri Lanka to 3.6 in Pakistan. Below replacement fertility was reached in

the Islamic Republic of Iran in 2000-2005, followed by the Maldives in 2005-2010. The total fertility rate in Bhutan, Bangladesh, India, Nepal and Sri Lanka is close to replacement level.

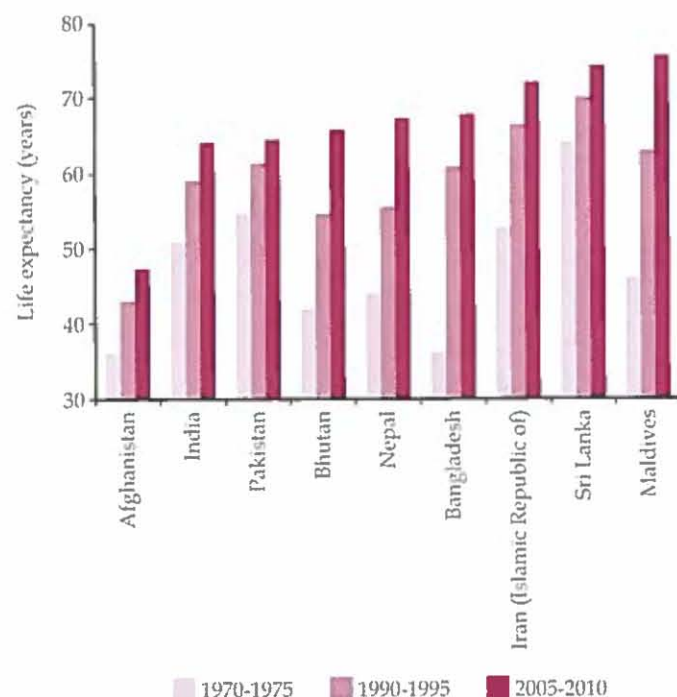
Mortality

As with fertility, there has been a remarkable improvement in life expectancy at birth. In Asia as a whole, a child born today can expect to live on average for 70 years. This figure is up from an average life span of 45 years five decades ago. There is, however, a considerable difference in life expectancy in the subregions of Asia. Eastern Asia has a life expectancy at birth of 74 years, followed by 72 years in Western Asia and 69 years in South-Eastern Asia. At the other end of the spectrum are Central Asia and Southern Asia where the life expectancy at birth is 66 years and 64 years respectively.

In so far as Southern Asia is concerned, life expectancy at birth was relatively low in 1970-1975. It is evident from figure 6 that Sri Lanka is the only country in the subregion where the life expectancy at birth exceeded 60 years in 1970-1975. While India, the Islamic Republic of Iran and Pakistan had life expectancies at birth of over 50 years, in Afghanistan, Bhutan, Nepal, Bangladesh and the Maldives, this indicator was below 50 years during the same period. However, there has been a steady improvement in mortality in the subregion during the past 40 years. Countries which achieved a life span of more than 70 years in 2005-2010 include the Islamic Republic of Iran, the Maldives and Sri Lanka. At the other end of the spectrum are Afghanistan, India and Pakistan with lower than 65 years of life expectancy at birth. Rapid improvement in mortality was experienced by Bhutan, Nepal and Bangladesh over the past 40 years. In Bangladesh, there has been a dramatic increase in life expectancy at birth, rising from 36 years in 1970-1975 to 61 years in 1990-1995, with a further increase to 68 years in 2005-2010.

With the advancement in longevity, a wide gender disparity in life span has emerged in many low fertility countries. In developed regions of the world, females outlive males by about seven years on average (United Nations, 2010). By contrast, in Asia the gender disparity in the expected number of years lived is not as wide as in developed countries. However, the subregions of Asia present great variations in life expectancy at birth between males and females. In Central Asia, the female to male difference in life expectancy at birth is eight years while this difference in Southern Asia is only three years. In other subregions of Asia, the gender disparity in life expectancy at birth is between four and five years.

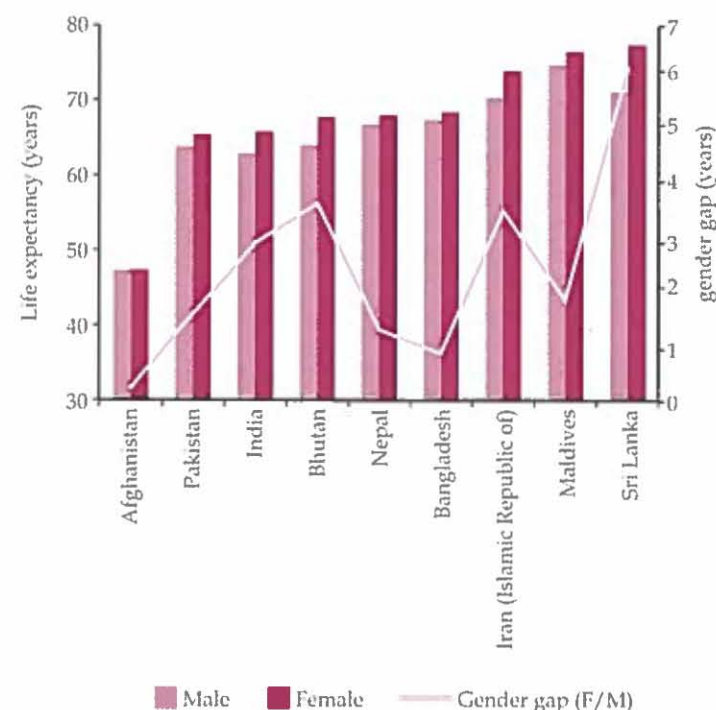
Figure 6. Life expectancy at birth in Southern Asia, 1970-2010



Source: United Nations (2011).

Although the gender disparity is not as wide in Southern Asia, it does reveal a widening gap of life expectancy between women and men at birth (figure 7). For example, the female advantage in life expectancy at birth is six years in Sri Lanka and about four years in Bhutan and the Islamic Republic of Iran. By contrast, the gender gap in life expectancy at birth is less than three years in Bangladesh, India, Maldives, Nepal and Pakistan. There is virtually no gender gap in life expectancy at birth in Afghanistan, where it is low for men and women. This is attributed to the fact that the mortality decline is substantially higher among females than males in practically all age groups (United Nations, 2010). A lower than expected gender gap in life expectancy at birth in Bangladesh, Maldives, Nepal and Pakistan is due to low life expectancy at birth of females associated with relatively low status of women and high maternal mortality.

Figure 7. Gender gap in life expectancy at birth in Southern Asia, 2005-2010



Source: United Nations (2011).

Consequences

Changes in age structure

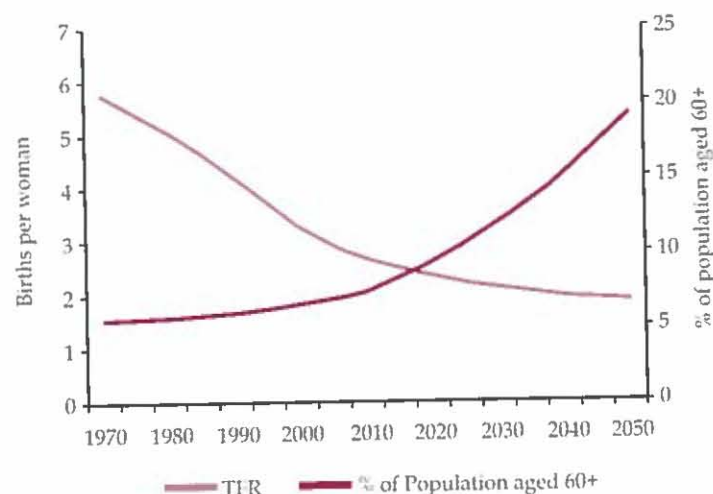
Declining fertility, increasing longevity and the widening disparity in life expectancy at birth between females and males have brought remarkable shifts in the age and sex structure of the population. As a result of low fertility, fewer children are born and progressively larger numbers of adults move into the older age groups. Changes in age structure of the population and population ageing are inevitable consequences of low fertility.

While the transition from a young-age population to an ageing population occurred over a much longer period in the West, the speed of ageing was much faster in the low fertility countries of Asia (Kinsella and Phillips, 2005). For instance, it took 115 years for France and 85 years for Sweden to raise the percentage of the population aged 65 years and

older from 7 per cent to 14 per cent. By stark contrast, Japan took only a quarter of a century to complete such a transition. Similarly, other low fertility countries in Asia, such as China, the Republic of Korea, Singapore and Thailand, are projected to follow the trend set by Japan. This rapid ageing process has been driven largely by sharp declines in fertility in recent decades. This has now emerged as a new issue challenging many low fertility countries in the region. The implications are profound as it implies a shrinking labour force, an increase in elderly dependency ratios and a feminization of the elderly population. There are other contentious issues related to health care cost, social support and financial security that are likely to be faced by an ageing society (National Research Council, 2001).

It can be seen from figure 8 that declining fertility has had a significant impact on the rising percentage of populations over age 60. It is also evident that the impact of a fertility decline on population ageing is much more revealing in the later stage as the high fertility cohort begins to reach the older age groups. In addition, improvement in mortality not only increases life expectancy at birth but also increases the number of additional years expected to be lived by older persons aged 60 and 80 years (United Nations, 2010). These improvements in old-age mortality have contributed to the ageing of the elderly themselves. In the long run, population ageing will inevitably result in a higher rate of growth of the elderly population. This will eventually lead to a decline in the overall growth of the population in general and the working-age popu-

Figure 8. Total fertility rate and % of population aged 60 years and over in Southern Asia, 1970-2050



Source: United Nations (2011).

lation in particular, as an older age structure provides the momentum for a decline in population, just as young-age population provides the momentum for an accelerated growth of population (McDonald, 2000).

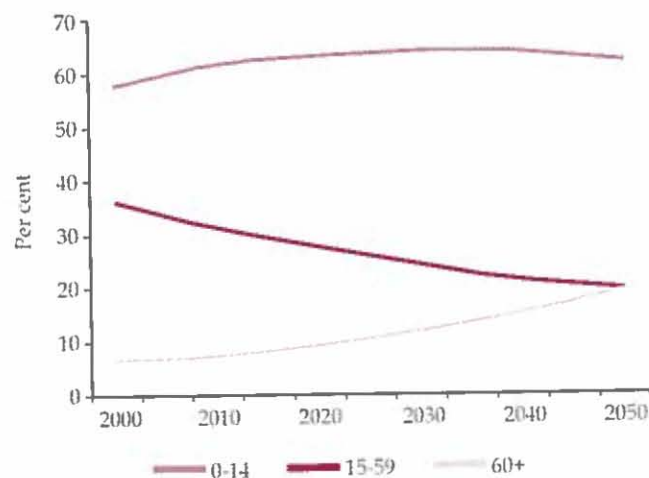
There is a strong relationship between the total fertility rate and the percentage of a population aged 60 years and older. Countries which have reached below replacement fertility have a markedly higher percentage of older persons. Long-term decline in fertility gives rise to a higher percentage of older persons. The rapidity of the ageing process is determined by the speed of fertility decline. For example, Japan – the first country in Asia to have completed the fertility transition from high to low fertility by the early 1960s – had the largest percentage of older persons in 2010 (30.4 per cent), and is predicted to rise further to 36 per cent in 2025 and 44 per cent in 2050. Similarly, a long-term decline in fertility in China, the Republic of Korea, Singapore and Thailand has resulted in a high percentage of older persons (12 to 16 per cent) in 2010. These countries will further exhibit a sharp increase in older persons. By 2050, the share of older persons to total population is expected to exceed 40 per cent in the Republic of Korea and Singapore, while in China and Thailand older persons will represent respectively 31 and 26 per cent of the total population.

Southern Asia will also exhibit a gradual shift in the proportion of the young-age population and old-age population. While the proportion of the population under age 15 will decrease, the proportion of the population aged 60 years and older will increase. However, unlike in Eastern Asia, where young-age and old-age populations will converge around 2015, this situation will occur around 2050 in Southern Asia. Furthermore, while Eastern Asia will experience a rapid fall in working-age population, Southern Asia will continue to have an abundant supply of labour, with working-age populations representing over 60 per cent of the total population for another four decades (figures 9 and 10).

Nonetheless, Southern Asia has experienced more than a four-fold increase in the number of old-age populations (60 plus) over the past six decades, from 28 million in 1950 to 125 million in 2010 (figure 11). The size of older populations will rise to 215 million in 2025, which will further increase by more than two-fold to 458 million in 2050. In terms of percentage, older populations in Southern Asia, which represented 7.3 per cent in 2010 will increase to 10.5 per cent in 2025 and 19.1 per cent in 2050. This represents nearly a three-fold increase over four decades and an addition of 333 million people aged 60 years and over.

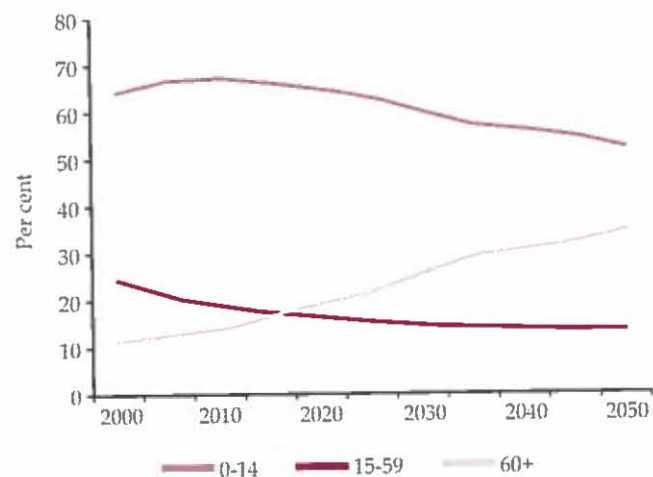
However, there is a noticeable difference in the percentage of older population by countries in Southern Asia (figure 12). In 2010, only four countries in this subregion; Bhutan, the Islamic Republic of Iran, India and Sri Lanka were considered to have an aging population, which is

Figure 9. Distribution of population by broad age groups in Southern Asia, 2000-2050



Source: United Nations (2011).

Figure 10. Distribution of population by broad age groups in Eastern Asia, 2000-2050



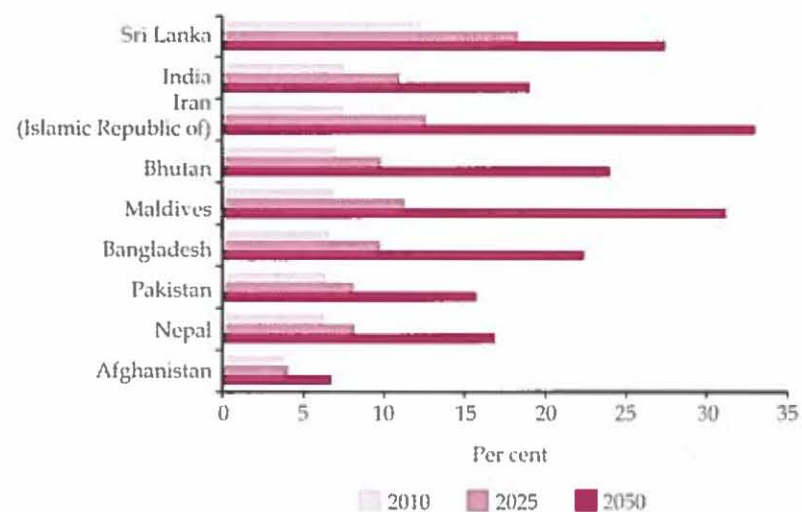
Source: United Nations (2011).

Figure 11. Population 60 years and over in Southern Asia, 1950-2050



Source: United Nations (2011).

Figure 12. Percentage of population 60 years or over in Southern Asia, 2010-2050



Source: United Nations (2011).

defined as having 7 per cent of the total population aged 60 years and older. By 2025, all countries, except Afghanistan, will have an ageing population.

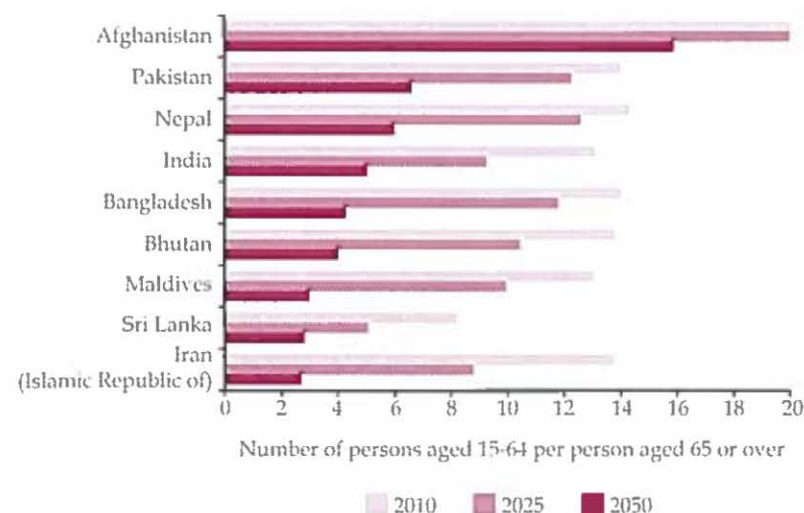
As previously discussed, Sri Lanka was the notable exception in Southern Asia where the fertility transition started much earlier. As a consequence of a steady decline in fertility, Sri Lanka has witnessed a gradual increase in its older population, which reached 12 per cent of the total population in 2010, and will increase to 18 per cent in 2025. This number will further rise to 27 per cent in 2050, which would mean that more than one out of four Sri Lankans will be aged 60 years or over. Similarly, low fertility countries, such as the Islamic Republic of Iran and the Maldives, will experience a sharp increase in their older populations. Although fertility transition in the Islamic Republic of Iran and the Maldives began in the 1980s, they completed the transition in less than three decades. As a result of this spectacular decline in fertility, the ageing process in both countries will be exceptionally rapid. For instance, the Islamic Republic of Iran will witness the fastest subregional growth in percentage of older population, rising from 7.5 per cent in 2010 to 12.7 per cent in 2025, which will further increase to 33 per cent in 2050. Likewise, in the Maldives this proportion will increase from close to 7 per cent in 2010 to 11 per cent in 2025 and to 31 per cent in 2050.

Potential support ratio

As a consequence of age structure changes in population, Southern Asia will exhibit a significant shift in dependency ratios: while dependency burdens of the young will fall, those of the old will continue to rise. This will have major implications on the number of potential workers available to support older populations. This can be measured by using a simple indicator referred to as the potential support ratio, which is the inverse of the old-age dependency ratio, defined as the number of persons aged 15 to 64 for every person aged 65 or over (United Nations, 2010).

It is apparent from figure 13 that as the population ages, the potential support ratio tends to fall. The low fertility countries, such as the Islamic Republic of Iran, the Maldives and Sri Lanka will experience a remarkable drop in the potential support ratio in the next 40 years. Currently, Sri Lanka has eight persons of working age available to support one older person, but this ratio will drop to 5:1 in 2025 and by 2050, less than three working-age persons will be available to support one older person. In the Islamic Republic of Iran and the Maldives, the potential support ratio will also drop to three or less in 2050, but the decline has been remarkably fast due to a rapid decline in fertility in a short time. Other countries, such as Bangladesh and Bhutan, will also witness a sharp drop in the potential support ratio between 2025 and 2050.

Figure 13. Potential support ratio in Southern Asia, 2010-2050

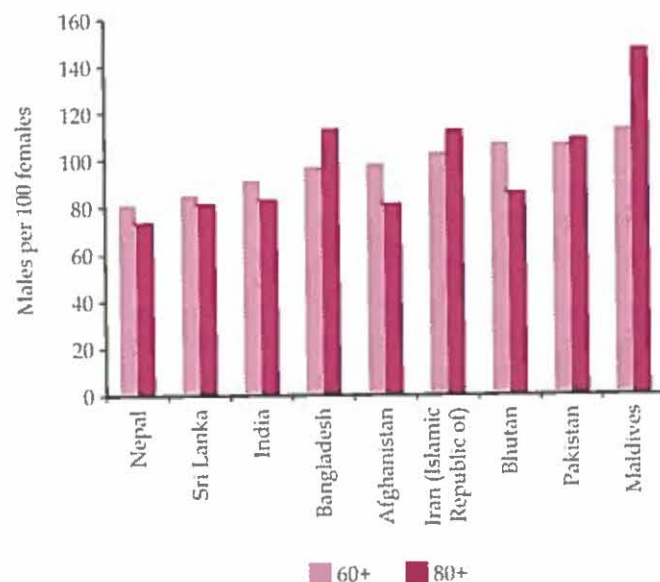


Source: United Nations (2011).

Feminization of the elderly population

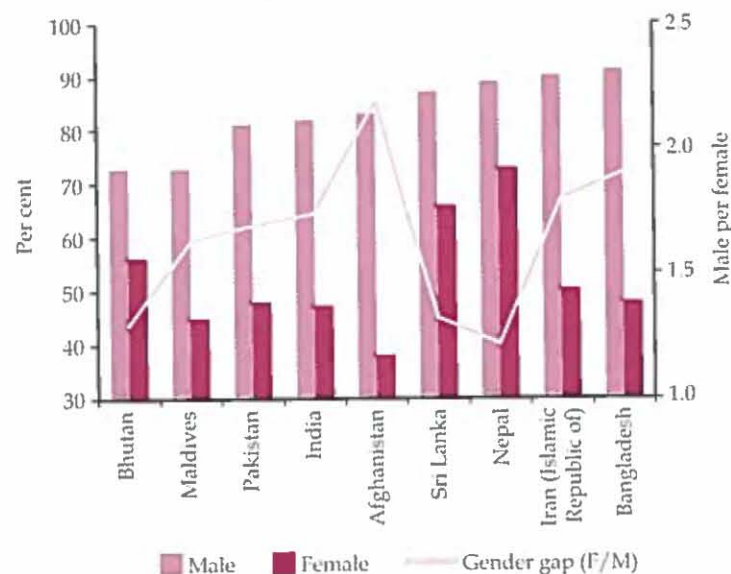
Lower potential support ratios will have a significant impact on older women as their numbers will continue to grow proportionately faster than those of men. This is because of the large gender disparity in the life expectancy at birth, with females having a longer life span than males. As a result, women will outnumber men in the older age groups in every country in Southern Asia. The feminization of the elderly population (more female elderly than male elderly) is already seen in many countries in Southern Asia, with the sex ratio (males per 100 females) below 100 (figure 14). This is particularly pronounced among women aged 80 years and older. The greater number of women in the older age group is typically viewed as problematic, because they reflect high levels of widowhood and the various difficulties associated with it (Mujahid, 2006a). A higher proportion of women are likely to be widowed owing to the differences in the age of the spouse at the time of marriage (women tend to be younger than their spouse) and a higher life expectancy at birth for women compared to men. The percentage of women widowed increases with age as they tend to re-marry less frequently upon divorce or the death of a spouse. This trend is clearly visible in the data presented in figures 15 and 16, which show a great disparity in marital status and living arrangements of men and women of older ages. Among those 60 years or over, while more males are currently married than their female counterparts, more females are living alone.

Figure 14. Feminization of elderly population 60+ and 80+ in Southern Asia, 2010



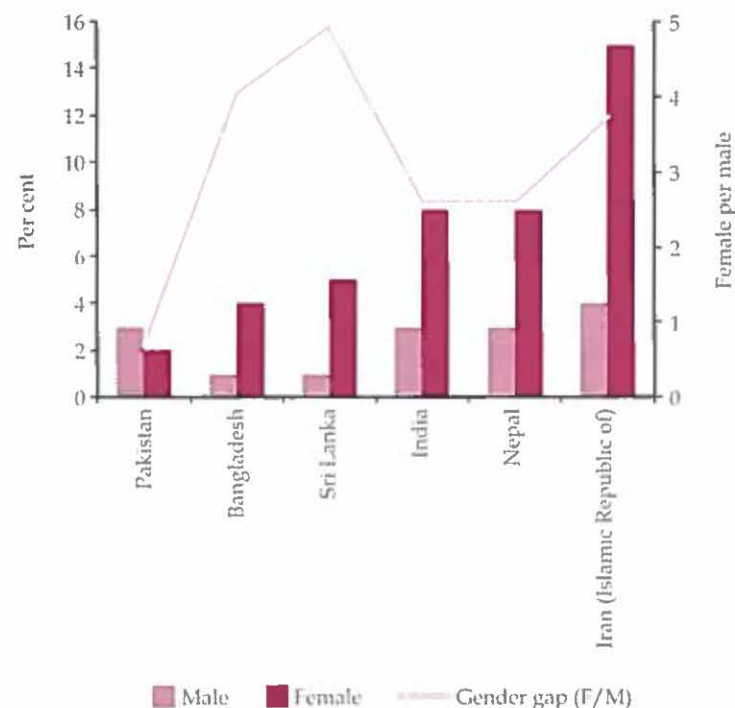
Source: United Nations (2011).

Figure 15. Percentage of elderly population 60 years or over currently married in Southern Asia



Source: United Nations (2009).

Figure 16. Percentage of elderly population 60 years or over living alone in Southern Asia



Source: United Nations (2009).

Challenges and opportunities

Challenges

It has been shown that declining fertility and mortality resulting in population ageing has emerged as an issue facing several countries in Asia, including some countries in Southern Asia. The implications of such population ageing and associated growth in the size of elderly populations are of particular concern. A higher proportion of older persons is often perceived as posing a serious burden on economic and social support and health care systems. The rising number of elderly on one hand, and the declining number of the younger population on the other, will also mean that there will be a shortage of caregivers for the elderly population. As women will regularly outnumber men in the older age groups, the social and financial security as well as the health conditions of elderly women will be one of the biggest problems faced by ageing societies.

The rising number of older persons has important policy implications in the provision of health and social services (Gubhaju and Moriki-Durand, 2003 and Mujahid, 2006b). In many Asian countries, particularly those in Southern Asia, the healthcare infrastructure is already weak with most of its resources utilized to address the needs for mother and child health services and to provide reproductive health services, including family planning. Therefore, the medical, public health, social services and other facilities required to address the needs of older persons are likely to put severe strain on the healthcare system and economy (Knodel, Ofstedal and Hermalin, 2002). Furthermore, as age is a major risk factor for non-communicable diseases such as cardiovascular disease, cancer and diabetes, population ageing raises sharp concerns over the need for long-term healthcare systems. To counterbalance the high costs for treatment and care associated with non-communicable diseases, which account for nearly three-fifths of all deaths, there is a need for greater emphasis on disease prevention and screening for early detection (Bloom, 2011).

With an increasing number of younger women entering the labour force, often away from home, the availability of caregivers for older persons is decreasing. With rapid urbanization, globalization and migration experienced by many Asian countries, the situation is further exacerbated, leading many older persons in rural areas without caregivers (Hermalin and Myers, 2002 and Nizamuddin, 2003).

It has been found that more elderly males are currently married than their female counterparts, but more elderly females are living alone than elderly males. It should, however, be noted that the percentage of elderly males and females living alone is rather small, as in many Asian societies the family continues to provide them with care and support and the tradition of older persons residing with family members is generally the norm (Knodel and others, 1999). However, as traditional means of support are steadily eroding in most societies, there is an urgent need for alternative means of support for older persons, especially to those poor women living alone.

In many Asian countries, women are disadvantaged as they have less education, work experience, income and access to assets than men, as well as diminished authority within the family. Hence, women are more likely to be dependent upon family members and public programmes, especially at advanced age and under conditions of illness and disability (Mujahid, 2006b). These needs put extra pressure on family members for care giving (Knodel, Ofstedal and Hermalin, 2002). More importantly, a majority of countries in Asia do not have social security systems in place. Even countries that have social security systems face problems in caring for older persons. Day-to-day care requires a great deal of resources, which include assistance from family members. Caregivers are usually women who are then caught up with the multiple responsibilities of raising children, caring for elderly

parents and engaging in economic activities – forming what is called the sandwich generation. For this group of caregivers, more intensive and practical government support should be provided to ensure support towards older persons.

Considering the experience of low fertility countries in Eastern and South-Eastern Asia, countries in Southern Asia should consider the consequences of declining fertility rates. It is crucial that governments plan ahead for their ageing societies before fertility drops well below the replacement level. In this regard, governments are increasingly being urged to start preparing policy measures to deal with ageing problems as soon as possible including the establishment of universal pension systems (Mason, Lee and Russo, 2002 and Ogawa, 2003).

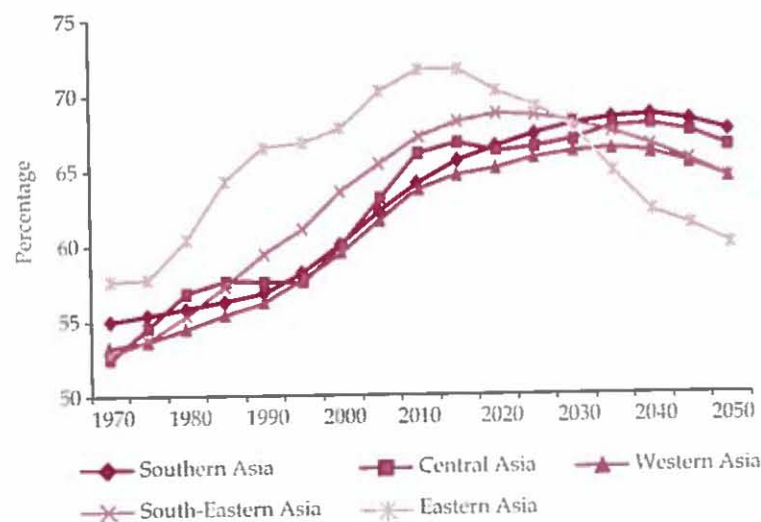
Opportunities – Reaping the demographic dividend

As stated earlier, the Asian region has presented highly diverse trends in fertility over the past six decades. In general, the region had a very high fertility in the early 1950s, with the fertility transition first occurring in Eastern Asia in the late 1950s. Fertility transition began to take place in most countries in Southern Asia over the past 30 years and many of them experienced substantial declines in fertility between the periods 1970-1975 and 1990-1995.

Owing to recent declines in fertility, countries in Southern Asia have a relatively large and rising working-age population. This growth in working-age population with fewer dependent children and elderly to support provides a “window of opportunity” to build human capital. Studies have revealed that the benefit afforded by the changing age structure, referred to as the “demographic dividend”, will last for a few decades, typically between four and seven, in most countries (Seetharam, 2006). The “window of opportunity” is relatively short and temporary, closing as the population ages and dependency ratios increase.

It can be seen from figure 17 that all subregions in Asia, while at various stages of the demographic transition, have experienced significant increases in the proportion of working-age populations since the 1970s. They have either entered the peaks of the demographic bulge or are reaching it – and in both cases are well placed to reap the “demographic dividend” before their populations start ageing. The demographic transition has been fastest and most pronounced in Eastern Asia, where the working-age population, about 57 per cent in 1970, peaked at 72 per cent in 2010, before declining rapidly. South-East Asia is also at advanced stages of the demographic transition, where the working-age population will peak in 2025. While in the case of Southern, Central and Western Asia, swelling numbers of working-age populations will peak around 2040 and then begin to decline.

Figure 17. Demographic dividend in Asia: percentage of population aged 15-64

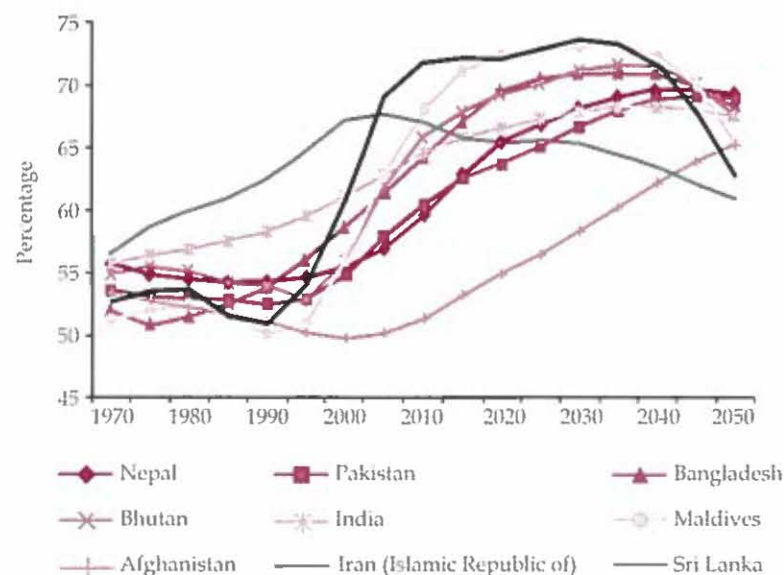


Source: United Nations (2011).

In so far as Southern Asia is concerned, it has lagged behind Eastern and South-Eastern Asia in the demographic dividend. South-East Asia has recently begun to reap the benefit from the demographic dividend, but is likely to see this benefit reduced over the next two decades, as the population ages. On the other hand, demographic transition in Southern Asia is still continuing, suggesting the potential for economic growth. It is clearly visible from figure 18 that with the exception of Sri Lanka, the share of working-age populations will continue to grow in all the countries of Southern Asia, which is expected to last for another two or three decades. However, to fully capitalize on the benefits of demographic dividend, Southern Asia would need to put in place similar types of investments and policy initiatives employed by Eastern Asia. These include, for example, massive investments in education and human resource development. Such investments are possible because of savings from low dependency ratios resulting from the demographic transition. These savings should be properly utilized to increase the capacity of the current and future labour force to participate fully in a skill-based economy.

The opening of a "demographic window" has been effectively utilized by several East Asian countries/areas (Japan, the Republic of Korea and Taiwan Province of China) between the 1960s and 1990s (Bloom, Canning and Sevilla, 2003). The East Asian experience provides compelling evidence of the impact of the "demographic dividend" in the region's

Figure 18. Demographic dividend in Southern Asia: Percentage of population aged 15-64



Source: United Nations (2011).

spectacular economic growth. Studies suggest that the demographic dividend accounts for between one-fourth and two-fifths of East Asia's "economic miracle". The phenomenal growth of per capita income, rising by more than 6 per cent annually between 1965 and 1990, was credited to the size of working-age population growing nearly four times faster (an average of 2.4 per cent a year) than the dependent population. With the benefits of good education and a liberalized trade environment, this huge workforce was absorbed into the job market, thereby increasing the region's capacity for economic production (Bloom, Canning and Sevilla, 2003).

China's experience in effectively capitalizing on the demographic dividend is similar to other East Asian countries. China's rapid fertility decline in the 1970s has brought a significant demographic dividend, which coincided with the economic boom. An abundant labour supply, combined with a relatively low dependency ratio (young and old), made a significant contribution to increasing per capita output and, thus, the standard of living. Hence, China has been able to reap the benefit of favourable population structure, which contributed to 15 per cent of China's economic growth between 1982 and 2000 (Wang and Mason, 2005).

In conclusion, while the importance of policy to reap the benefits of demographic dividend was demonstrated in Eastern Asia, Southern Asia is yet to put into place appropriate social and economic policies to reap the benefit from demographic dividend to spur economic growth and invest in the future. David Bloom has cautioned that "reaping the demographic dividend is not automatic—it depends on a policy environment that emphasises population and family planning, good public health, good education, open labour market, free and fair trade, and good governance and economic management" (Bloom, 2002). Effective policies in those key areas allow maximum returns from a concentration of the population in the working age cohort. Transforming a youthful population into a productive workforce requires investment in education at all levels, while a larger, better-educated workforce will yield benefits only if they can find jobs. In many countries, necessary steps to reaping the benefits of the demographic dividend include strengthening the rule of law, improving the efficiency of government and reducing corruption (Bloom, Canning and Sevilla, 2003).

It is, therefore, important to create awareness among planners and policymakers of the relevance of demographic dividend for investment planning and human resources development in policy formulation. The demographic dividend is a one-time window of opportunity from which the Asian countries, including Southern Asia, should not fail to fully benefit (United Nations, 2007: 32). It is also essential that the region prepares for the irreversible demographic transition to follow, where a much greater proportion of its population will be older and require greater support.

Endnotes

- i Southern Asia consists of 9 countries, namely Afghanistan, Bangladesh, Bhutan, India, Islamic Republic of Iran, Maldives, Nepal, Pakistan and Sri Lanka. During the past 6 decades, Southern Asia saw an unprecedented growth in population, rising from 490 million in 1950 to 835 million in 1975 and to 1.5 billion in 2000. In 2010, the population of Southern Asia reached 1.7 billion, which is expected to increase to 2.4 billion in 2050.

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Do slum dwellers have lower contraceptive prevalence rates?

An analysis of current use patterns in Calcutta, India

This paper examines whether there are significant variations in contraceptive prevalence rates between women who live or do not live in slums of Calcutta, India. A Disparity Index is calculated, using unit level data from the Demographic Health Survey (2004–2005). The Index reveals that variations in overall and modern contraceptive prevalence rates between currently married slum and non-slum respondents are low. Statistical tests (both parametric and non-parametric) reveal that though differences in overall contraceptive prevalence rates are significantly lower in slums, differences in usage of modern methods between slum and non-slum areas is marginal. This is also confirmed by econometric methods using an ordered logit model. This model indicates that slum respondents are reluctant to adopt contraceptives, but once their initial resistance is overcome, they prefer modern – particularly terminal – methods. Analysis reveals that cultural forces – socio-religious identity, language and preference for more children (particularly sons) – are responsible for creating the barriers to adopting family planning methods.

By Mousumi Dutta and Zakir Husain*

1. Introduction

Although the Government of India was among the first in the world to formulate a national family planning programme in the early 1950s, the

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focus of policymakers subsequently shifted, particularly since the Eighth Five Year Plan (1992-1997), to other aspects of human development. The National Population Policy, 2002, for instance, sets a target for reducing the total fertility rate to 2.1 by 2010 but ignores issues related to family planning and does not set any targets for contraceptive prevalence rates. This neglect may be attributed to the steady decline in the population growth rate since 1991¹ (Agarwal and Bharti, 2006). However, India's population, at 1.21 billion in 2011, according to provisional estimates by Census authorities, comprises about one fifth of the world's population and is growing. Further, one third of the population in 2001 was under 15 years of age, while half was of reproductive age. This creates a substantial momentum for an increase in absolute population size in the future, particularly since contraceptive prevalence rates are low in India² (Alagarajan and Kulkarni, 2008).

The absence of access to a wide range of contraceptives, leading to unplanned fertility³ (Badar and others, 2007) is another issue requiring the attention of policymakers. This leads to a high incidence of unintended pregnancies which in turn increases unsafe abortions, sex-selection practices, greater vulnerability to maternal mortality, infant mortality, proportion of under-weight infants and so on. Unprotected sex also increases the risk of contracting HIV/AIDS and STDs. In addition, birth spacing, planned conception and number of births are wider issues related to the empowerment of women. Consequently, family planning still remains an important concern of Indian society, particularly among those sections of the population who are less aware of the benefits and methods of family planning. One such group is the population in urban slums (Sclar and others, 2005).

There are different definitions of slums,⁴ a review of which is provided in the Ministry of Housing and Urban Poverty Alleviation report on urban slums (GOI, 2010: 2-7). The Demographic Health Survey (DHS) uses the definition adopted by the Census authorities of India. This defines a slum as "A compact area of at least 300 population or about 60-70 households of poorly built congested tenements, in an unhygienic environment usually with inadequate infrastructure and lacking in proper sanitary and drinking water facilities" (Office of Registrar General and Census Commissioner of India, 2005). In 2001, slum dwellers comprised 23 per cent of the population in cities with a population of more than a million. A recent study estimated that slum dwellers comprised 26.7 per cent of the urban population in India, and 35.9 per cent in West Bengal (Government of India (GOI), 2010). Studies have noted the rapid growth of population in slums, attributable to both natural growth and migration (United Nations Human Settlements Program, 2007). Further, despite the availability of healthcare services in urban areas, slums often do not have adequate access to such facilities so that healthcare indicators may fall to levels prevailing in rural areas

(Poel and others, 2007; Lalou and Grand, 1997; United Nations Human Settlements Program, 2003).

In this paper we shall examine whether this dualism spills over to family planning practices. In particular, we shall examine variations in contraceptive prevalence rates and choice of methods between slum and non-slum areas. We shall also try to identify the socio-economic determinants of contraceptive adoption. The geographical area of the study is Calcutta, one of the major metropolitan centres in India. The paper is based on unit level data from the DHS 3rd wave (2004-2005).

2. Literature survey

There have been several studies on family planning methods in the slums of India, not all of which have reached the same conclusions. Bhatnagar (1994) reported that contraceptive prevalence rates (CPR) were marginally lower among slum dwellers in South Delhi, with condoms being the commonly used method of modern birth control. This conflicts with the findings of Agrawal and Bharti (2006) that sterilization is the commonly used family planning method in slums.

Kotwal and others (2008), based on a survey of working women in the slums of the city of Jammu, discovered a wide lack of knowledge with regard to desirable reproductive health practices and the prevalence of myths regarding reproductive health care. The researchers also found that women living in slums often have scant information about reproductive health care and consider this aspect to be a matter of shame, one to be kept hidden from others. Kotwal and others (2009) noted that the main sources of contraceptives typically were Government health units and local chemists.

Other studies have highlighted the lack of awareness regarding birth spacing and low use of contraceptives (Agrawal and Bharti, 2006, Das and Shah, 2001). Based on a survey of the Govind Puri slum area in Delhi, Bhattacharya (2009) observed that women were unable to make independent reproductive decisions, such as determining the number, timing and spacing of children.

On the other hand, Das and Shah (2001) observed that 61 per cent of married slum dwellers in Baroda used some birth control method. The study found that 56 per cent of married women used modern contraceptive methods, with female sterilization being the most popular. Bhasin and others (2005) also found a high contraceptive prevalence rate among slum dwellers of Delhi, with condoms and tubectomies being the commonly used methods.

In a study of the Calcutta slums, Sen (2001) found that there were distinctive differences between the middle class and the poor regarding reproductive and contraceptive behaviour and social acceptance of family planning. Surprisingly, a higher contraceptive prevalence rate was reported by slum dwellers⁵ (Basu, 2005), with a preference for modern and irreversible methods (such as sterilization). The preference for terminal methods has also been noted by Chattopadhyay and others (2004) and Dutta and Husain (2011), though condoms were almost equally popular.

Thus, there are significant regional variations in findings regarding contraceptive prevalence rates among slum-dwellers. This possibly reflects the influence of local customs and the social environment. One method of dealing with such variations is to concentrate on a specific region. In this paper we focus on Calcutta, India's third largest metropolitan city, after Mumbai and Delhi, with a population of 4.6 million. The Calcutta Metropolitan Corporation has a slum population of 1.49 million persons, comprising 32.5 per cent of the population. Female slum-dwellers number 0.66 million (32 per cent of the female population of KMC). Literacy and employment levels are typically low⁶ (Bawah and others, 1999).

While the sheer magnitude of need calls for attention, there are other justifications for the choice of Calcutta. The political stability of Calcutta forms a sharp contrast to other cities, as West Bengal (the state in which Calcutta is situated) has been ruled by a coalition of communist and socialist parties (forming the Left Front) for over 30 years. Given the political ideology of the Left Front, particularly the emphasis on redistributive justice and the focus on improving quality of life of the poor, an analysis of the situation in Calcutta's slums is instructive for policy-makers and researchers. The cultural diversity of the city, with people from different cultures and regions flocking to the city in search of work, is another reason for choosing this metropolitan city. Such analysis is facilitated by the release of the DHS-3 data, providing, for the first time, a large database on reproductive and child health for both slum and non-slum dwellers of the city.

3. Data and methods

3.1 Database

The paper is based on unit level DHS-3 data. This survey, undertaken in 2005-2006, is the third in a series of national surveys⁷ (Becker, 1977). It was conducted under the stewardship of the Ministry of Health and Family Welfare, Government of India, with the International Institute for Population Sciences in Mumbai serving as the nodal agency. The

DHS is a household survey which provides estimates of indicators of population, health, and nutrition by background characteristics at the national and state levels. Information was collected based on individual interviews conducted with women aged 15-49 years.

Applying city-level filters to the individual file (IAIR51), the data on Calcutta's female population was extracted from the DHS-3 data set. It was found that a total of 1615 out of 2471 respondents were currently married (table 1). The analysis is based on this subsample, which was further subdivided into two groups – slum-dwellers (789 respondents) and non-slum-dwellers (826 respondents). The latter is used as the control group in this study.

Table 1. Current marital status of sampled women in Calcutta, estimated from DHS-3 (2005-2006) unit level data

Marital status	Slum	Non-slum	Total
Never married*	30.4	28.4	29.4
Married	63.4	67.4	65.4
Widowed	4.1	2.7	3.4
Divorced	0.1	0.1	0.1
Not living together	2	1.5	1.7
Total	1 245	1 226	2 471

Note: * Includes married, but Gauna not performed.

3.2 Research issues and methodology

The research questions to be examined in this paper are:

- Is there a significant disparity in contraceptive prevalence rates, particularly for modern contraceptives, between slum and non-slum populations?
- What explains variations in choice of family planning methods between slum and non-slum dwellers?
- What are the lessons for policymakers?

A disparity index, suggested by Sopher (1980) and modified by Kundu and Rao (1986), is used to measure the extent of disparity in contraceptive acceptance levels. This is followed by t-tests and non-parametric tests to examine whether the difference is statistically significant. Such tests, however, do not control for socio-economic characteristics of the samples. Regression models, on the other hand, incorporate the effect of socio-religious identity, culture, age, number of living children, educa-

tion, economic status, participation in the labour force and empowerment to explain variations in the contraceptive prevalence rates between slum and non-slum areas. Further, they enable the identification of factors determining acceptance of contraceptives.

Existing studies (D'Souza, 2003; Kamaal, 2000, 2007; Kamaal and Huda, 2008; Stephenson, 2004; Waiz, 2000) use binary or multinomial logistic models to identify the determinants of contraceptive prevalence rates. The choice variable analyzed is discrete but not binary – possible responses are not using any method, using folkloric methods, using traditional methods or using modern methods⁸ (Bhasin and others, 2005). Given the low incidence of folkloric methods, traditional and folkloric methods can be combined, so that the choice variable can assume three values (no method, traditional or folkloric and modern). In such cases a multinomial model is appropriate. Further, given that the options can be ordered ordinally in terms of reliability, the ordered logit model is appropriate (McCullagh, 1980).

The ordered logit model is based on the proportional odds, or parallel lines, assumption. This implies that regression coefficients are invariant across different choices. As this assumption is strong, Long and Freese (2006) have suggested the use of a Brant test to assess the validity of this structure. If tests indicate that the assumption of proportional odds is incorrect, the question arises whether the coefficients vary for all or only some of the explanatory variables. Gamma parameterization may be undertaken to identify those variables which do not satisfy proportional odds assumption (Peterson & Hassel 1990; Lall and others, 2002), while the Likelihood Ratio test aids in selecting the parsimonious model.

3.3 Sample profile

The socio-economic characteristics of the sample are given in table 2. Some of the important features of slums are indicated below.

1. Based on information on religion and caste, respondents are categorized into four categories – Muslims, Upper Caste Hindus (UCH), Backward Caste Hindus (BCH) and a residual category, All others. UCHs comprise the largest socio-religious group in both samples, while Muslims constitute a third of the slum population.
2. Calcutta attracts migrants from not only other parts of West Bengal, but also from neighbouring states such as Bihar and Uttar Pradesh. This results in high levels of cultural diversity within slums. Language has been used as a proxy to capture this diversity. There are three major linguistic/cultural groups – Bengali speaking (55 per cent), Urdu speaking (10 per cent) and Hindi speaking (31 per cent) – among residents of Calcutta slums. The latter two groups are ex-

Table 2. Socio-economic profile of currently married respondents in Calcutta, estimated from DHS-3 (2005-2006) unit level data

Characteristics	Slum	Non-slum	Total
Socio-religious identity			
Muslim	31.9	12.6	22
Upper Caste Hindu	48.3	69.2	59
Backward Caste Hindu	17.5	16.1	16.8
All others	2.3	2.1	2.2
Language spoken (proxy for culture)			
Hindi or Urdu	41.3	20.5	30.7
Other languages	58.7	79.5	69.4
Educational profile			
Illiterate	33.7	12.6	22.9
Primary	17.5	9.9	13.6
Secondary	41.8	50.4	46.2
Higher	7	27.1	17.3
Partner's educational level			
Illiterate	22.2	7.9	14.9
Incomplete primary	15.3	9.6	12.4
Incomplete secondary	47.3	41.6	44.4
Complete secondary	1.5	1.7	1.6
Higher	13.7	39.2	26.7
Age group			
15-19 years	4.7	2.5	3.6
20-24 years	13.4	11.5	12.4
25-29 years	20.2	17.3	18.7
30-34 years	17.9	18.6	18.3
35-39 years	18.8	17.7	18.2
40-44 years	16.2	17.6	16.9
45-49 years	9	14.8	12
Number of living children			
No child	12.8	11.7	12.3
1 child	23.6	39.5	31.7
2 children	28	32.1	30.1
3 children	18	10.8	14.3
4 children	9	3.8	6.3
5 or more children	8.6	2.2	5.3
Distribution by Wealth Index			
Poorest	1.5	-	0.7
Poorer	3.8	0.6	2.2
Middle	13.4	5.7	9.5
Richer	45.1	28.1	36.4
Richest	36.1	65.6	51.2
Occupational Status			
Non working	74.9	73.6	74.2
Working	25.1	26.4	25.8

pected to be more conservative and so are grouped together. Bengali speaking populations are also grouped together with the residual (comprising four per cent of respondents from slums). In non-slum areas, in contrast to slums, the proportion of Hindi or Urdu speaking respondents is much lower (21 per cent).

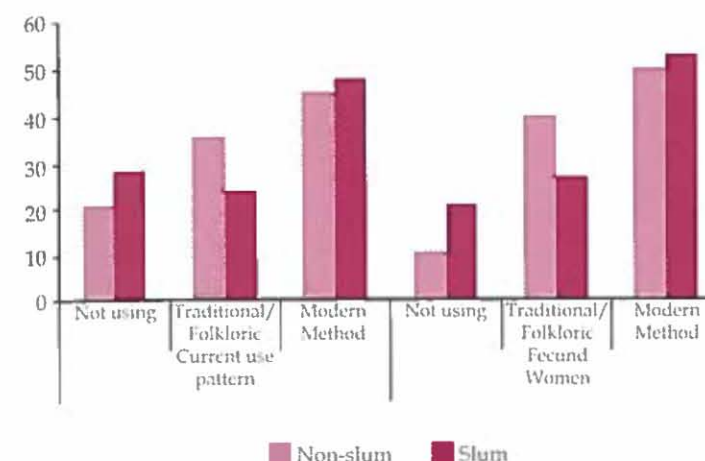
3. The level of education of both slum-dwellers and their partners is much lower than that of the control group. In particular it may be noted that while 34 per cent of respondents from slums are illiterate, this proportion is only 13 per cent in non-slum areas. If partners are considered, the corresponding proportion is 22 per cent and eight per cent, respectively.
4. The majority of respondents are in the age group 25 to 39 years. There are no marked differences between age distribution of slum and non-slum respondents.
5. Household size is marginally higher in slums (5.6), compared to non-slum areas (5.4). The number of living children and the number of sons are also higher in slum areas (2.2 and 1.2), relative to non-slum areas (1.6 and 0.8). While 83 per cent of respondents in non-slum areas have less than three children, this figure is much lower in slums (64 per cent). About a third of the respondents from slum areas have at least three children (36 per cent).
6. Expectedly, the proportion of respondents classified in the wealthiest bracket using the index provided by the DHS survey is lower in slum areas. The average wealth index score of slum dwellers (0.44) is also lower than that of non-slum persons (0.94).
7. About a fourth of respondents are engaged in economic activities in both areas. The proportion of seasonal workers is very low, even in slums. More than 90 per cent of employed respondents work throughout the year.

4. Results

4.1 Contraceptive prevalence rates

An analysis of the data on current contraceptive use reveals that 24.3 per cent of currently married women sampled from Calcutta do not practice any method of contraception, while the prevalence of traditional and modern methods are 29.5 per cent and 46.1 per cent, respectively. A lower proportion of the slum population, relative to the non-slum population, use contraceptives (71.7 per cent in slums, compared to 79.5 per cent in non-slum areas – a gap of 7.8 percentage points, Fig. 1)⁹ (Bhatt and Xavier, 2005).

Figure 1. Levels of contraceptive use in Calcutta, estimated from DHS-3 (2005-06) unit level data



		Non-slum	Slum
Current use pattern	Not using	20.46	28.26
	Traditional/Folkloric methods	34.99	23.95
	Modern methods	44.55	47.78
Fecund women	Not using	10.61	20.62
	Traditional/Folkloric methods	39.32	26.51
	Modern methods	50.07	52.88

However, if we consider the type of method used, we find that a greater proportion of slum dwellers use modern methods of contraception. These prevalence rates are slightly higher among slum-dwellers (47.8 per cent in slums, compared to 44.6 per cent among the non-slum population), while the prevalence of traditional contraceptive methods are at 35 per cent among slum women and 24 per cent among non-slum women. If one considers only contraceptive users, we find that 66 per cent of slum women using contraceptives rely on modern methods, while this proportion is only 56 per cent in non-slum areas. This finding is somewhat surprising as we would expect that women of lower socio-economic status and with less access to information might be more reluctant to use modern methods.

A possible explanation of the result may be the influence of family planning programmes among the poor. As Alaka Basu points out "The bulk of the acceptance of birth control among the poor has been attributed to the family planning programme, both as a source of supplies and services and as a frequently coercive force for motivation and information" (Basu,

2005: 311). An important feature of this programme is its reliance on sterilization. Women having more than two children and delivering in institutional set ups are generally persuaded to get sterilized through incentives – often without explaining the health and fertility implications (Kameswari and Vinjamuri, 2011). This proposition is supported by estimates from DHS data (table 3), revealing a high incidence of sterilization among slum women (41.3 per cent in slums, compared to 27.9 per cent in non-slum areas – a gap of 13.5 percentage points). This makes it interesting to speculate as to whether the greater reliance on modern contraceptive methods by slum dwellers is a matter of conscious choice, or is the result of the thrust toward sterilization by the government.

Table 3. Choice of contraceptive method among slum and non-slum contraceptive using women of Calcutta, estimated from DHS-3 (2005-2006) unit level data

Method	Slum	Non-slum	Total
Pill	11.1	12.3	11.8
IUD	1.4	2.0	1.7
Injections	0.7	0.2	0.4
Condom	11.5	13.4	12.5
Female sterilization	41.3	27.9	34.1
Male sterilization	0.4	0.2	0.2
Periodic abstinence	18.6	18.9	18.7
Withdrawal	14.7	25.1	20.3
Foam or jelly	0.2	0.2	0.2
Folkloric method	0.2		0.1

The extent of disparity between the adoption of any method and the use of modern methods is measured using an index suggested by Sopher (1980). The index measures the disparity between two groups in their possession of a particular property (in this case adoption of a contraceptive) in terms of the logarithm of the odds ratio – that is, the ratio of the odds that any member of one group (non-slum) has the desired property to the odds that any member of the other group (slum) does. Specifically, if p and q are the probabilities of currently married non slum-dwellers and slum-dwellers using contraceptives respectively, then the disparity index (DI) is given as:

$$DI_S = \log \left[\frac{p * (1-q)}{q * (1-p)} \right].$$

Kundu and Rao (1986) have shown that the above index fails to satisfy the additive monotonicity axiom¹⁰ (Bhatnagar and others, 1994). They have, therefore, proposed a modification to this index as follows:

$$DI_{KR} = \log \left[\frac{p * (2-q)}{q * (2-p)} \right].$$

The value of Sopher's index is only 0.0014 (among women currently using *any* method) and 0.0010 (among women currently using modern methods). This is quite low, so that differences in contraceptive prevalence rates between slum and non-slum women appear marginal. However, t -tests and non-parametric tests indicate that although the difference in use rates of specifically modern contraceptives is not statistically significant ($t=1.30$; $\chi^2=1.69$), the differences in *overall* contraceptive prevalence rates between slum and non-slum respondents is statistically significant ($t=3.67$; $\chi^2=13.36$). So, it appears that residence in a slum *does* matter with respect to the probability of adopting contraceptives – though not in the case of adopting modern methods. Therefore, we should examine whether this variation can be explained in terms of the differences in socio-economic and demographic profiles between the slum and non-slum population observed in table 2.

4.2 Socio-economic and demographic correlates of CPR

In table 4 we have shown contraceptive prevalence rates of the slum and non-slum population classified by the control variables. The significant findings are discussed below.

Contraceptive prevalence rates vary widely across socio-religious communities. In particular, researchers have observed that Muslims have relatively lower CPRs (Iyer, 2002; Bhatt and Xavier, 2005; James and Nair, 2005, Kulkarni and Alagarajan, 2005, Bhattacharya, 2009)¹¹. This is also observed in Calcutta. However, two points are worth noting. Firstly, the gap between CPRs of Muslims and other communities reduces if we consider usage of modern methods – in fact a higher proportion of Muslims use modern methods than do UCH or the non-Muslim minorities. Secondly, it is sometimes argued that low CPRs among Muslims may be attributed to their proportionately lower levels of education and income, rather than any innate reluctance to adopt family planning methods. In the DHS-3 sample, for instance, the majority of Muslims live in slums (71 per cent, as opposed to 43 per cent for other communities). This may lower contraceptive prevalence rates within the Muslim community. Another important finding is that contraceptive prevalence rates of Backward Caste Hindus (BCH) are higher than that of Upper Caste Hindus in both slum and non-slum areas.

Culture also plays an important role in the adoption of family planning methods (Thapan, 1997). As mentioned before, Hindi and Urdu speaking migrants from Uttar Pradesh, Bihar and Jharkhand may be expected to

be conservative and therefore reluctant to adopt family planning methods¹² (Blanc, 2001). On the other hand, a large proportion of the Hindi- and Urdu-speaking community in the non-slum areas of Calcutta are well-off, educated and prefer reliable birth control and spacing methods. This is borne out in table 4.

Table 4. Current contraceptive use pattern of currently married respondents in Calcutta, estimated from DHS-3 (2005-2006) unit level data

Control variables	Slum			Non-slum		
	Never used	Other method	Modern method	Never used	Other method	Modern method
Socio-religious identity						
Muslim	34.9	17.5	47.6	26	26.9	47.1
Upper Caste Hindu	27	27.8	45.1	20.6	37.6	41.8
Backward Caste Hindu	21	23.2	55.8	15	29.3	55.6
All others	16.7	38.9	44.4	23.5	41.2	35.3
Culture (language as proxy)						
Hindi / Urdu speaking	33.4	19	47.6	24.9	23.7	51.5
Others	24.6	27.4	48	19.3	37.9	42.8
Education of respondent						
No education	26.3	19.9	53.8	21.2	15.4	63.5
Primary	31.9	15.2	52.9	17.1	31.7	51.2
Secondary	28.8	28.5	42.7	21.6	38	40.4
Higher	25.5	38.2	36.4	19.2	39.7	41.1
Education level of partner						
No education	30.9	16.6	52.6	26.2	15.4	58.5
Below primary	24.8	23.1	52.1	13.9	25.3	60.8
Below secondary	27.3	26.8	45.8	18.3	38.1	43.6
Secondary	25	33.3	41.7	28.6	21.4	50
Higher secondary	31.5	25.9	42.6	22.8	38.6	38.6
Age of respondent (years)						
15-19	59.5	13.5	27	42.9	14.3	42.9
20-24	39.1	19.1	41.9	20	31.6	48.4
25-29	23.9	23.9	52.2	21	33.6	45.5
30-34	22.7	31.2	46.1	6.5	43.5	50
35-39	16.2	27.7	56.1	6.9	42.5	50.7
40-44	25	25	50	24.8	39.3	35.9
45-49	47.9	12.7	39.4	45.1	18	36.9

(continued)

Table 4. (Continued)

Control variables	Slum			Non-slum		
	Never used	Other method	Modern method	Never used	Other method	Modern method
Number of living children						
No children	42.9	5.9	3.7	53.8	6.9	6
1-2 children	40.8	66.5	47.5	42.3	85.8	68.2
3-4 children	10.9	22.3	37.9	2.6	6.6	23.1
More than 5 children	5.4	5.3	10.9	1.3	0.7	2.7
Wealth Index						
Poorest	50	8.3	41.7	-	-	-
Poorer	46.7	10	43.3	20	-	80
Middle	24.5	17	58.5	21.3	23.4	55.3
Richer	27.8	23.3	48.9	20.7	29.3	50
Richest	27.4	29.5	43.2	20.3	38.7	41
Work status						
Non working	29.9	25.9	44.2	20.9	35.1	44
Working	23.2	18.2	58.6	19.2	34.7	46.1
Whether respondent is allowed to go for health check up alone						
Alone	18.57	35.18	46.25	24.57	23.03	52.4
With someone else	25.12	35.27	39.61	35.88	25.95	38.17
Not at all	60	0	40	16.67	16.67	66.67

While the relationship between education – of the respondent and her partner – on CPR and adoption of modern methods is generally expected to be positive (Gubhaju, 2009; Kamal, 2007; Kamal and Huda, 2008; Oyedokun, 2007; Zellner, 2003), some research suggests that education may not have any impact on contraceptive use (Howard and Powell, 2004; Koc, 2000). This includes in slum areas (Dutta and Husain, 2011). Table 4 does not reveal any clear relation between education (of respondent or her partner) and contraceptive use or adoption of modern methods.

The relationship between age and contraceptive use is non-linear. The proportion of users is low among currently married women in the 15-19 and 20-24 age groups, increases among older women, reaches a peak with women aged 30-39 years, and declines thereafter. Analysis reveals that fecundity related problems, hysterectomy and the attainment of menopause are the main reasons for low CPR in the 40-49 year age group. The relation between usage rates of modern contraceptives and age groups also displays an inverse u-shape.

The relation of number of living children is expected to be positively related with current contraceptive use and is supported by analysis. Another important determinant of contraceptive use is economic status. Respondents with higher values on the wealth index have a higher CPR. However, their usage of modern contraceptives exhibits an inverse u-shaped trend among slum-dwellers, and a negative relation among non-slum dwellers.

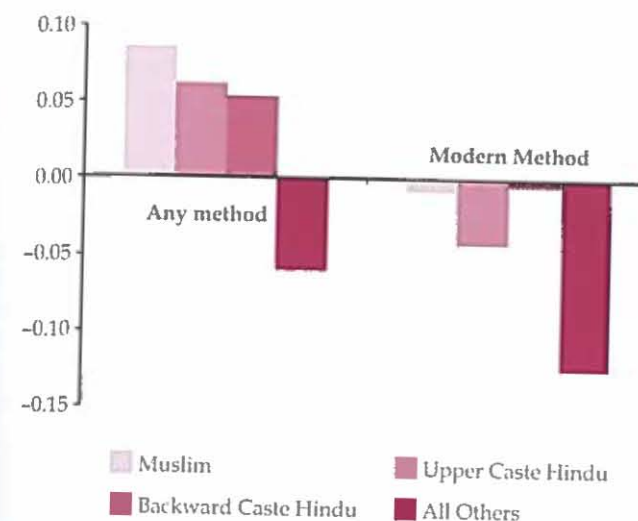
Working women tend to have higher CPR; they also tend to prefer modern methods. This is possibly because of the opportunity cost of withdrawing a pregnant family member from the workforce (Becker, 1965; Willis, 1973). What is interesting is that participation in economic activities has a more perceptible effect on contraceptive use among slum dwellers. This may reflect the fact that withdrawal of a pregnant woman from the workforce has a greater economic impact on the household in slum areas¹³ (Char and others, 2009). In addition, there are also substantial differences in the occupational structure of slum and non-slum populations. A high proportion of the latter are engaged in the formal sector, which provides paid maternity leave or security of employment, is more comparatively responsive to the problems of pregnant workers and is less labour-intensive.

Apart from these socio-economic variables, empowerment has an important effect on fertility-related decisions (Badar and others, 2007). While the DHS-3 survey provides information on a host of empowerment indicators (like mobility, tolerance of domestic violence, participation in household decisions, among other things), we have used only one indicator that is directly related to the research issue – whether the respondent is allowed to go for health check-ups alone¹⁴ (Chattopadhyay and others, 2004). Since more than half of the slum dwellers obtain contraceptives from Government clinics and hospitals, such mobility is an important determinant of contraceptive use. It can be seen that contraceptive prevalence rates are higher among women with greater mobility in this respect.

The analysis in this section can be summed up graphically using the modified Sophor Index employed earlier.

The graphs show that disparity in CPRs between slum and non-slum respondents across different socio-economic and demographic correlates is generally low (less than 0.20). Only among 15-19 year respondents, those with one or two children, respondents from the poorest economic class and those without the freedom to seek health care by themselves, do we find high levels of disparity. In fact, the value of the Index assumes a negative value for All Others, respondents with partner's having secondary level of education, women with 3-4 children and those with five or more children. If we consider adoption of modern methods, a negative value of the index is obtained for:

Figure 2. Disparity in CPR by Socio-religious communities



- all socio-religious communities,
- non Hindi-Urdu speaking respondents,
- respondents with primary and secondary levels of education,
- women with partners having below secondary and higher secondary levels of education,
- those aged 25-29 and aged 35 years and above,
- women with 3 or more children,
- respondents belonging to the middle and richest wealth index category,
- both working and non-working respondents, and
- women with partial freedom to seek health care.

4.3 Econometric analysis of the findings¹⁵

We had seen, in Section 4.1, that differences in CPR between slum and non-slum respondents were statistically significant. The discussion of Section 4.2 indicates that such differences may also be attributed to variations in the correlates of contraceptive use. So, it is necessary to undertake an analysis of differences in CPR by place of residence, and controlling for these correlates using an appropriate econometric method.

As mentioned earlier, the econometric analysis is based on an ordered logit model with the respondent assumed to face three choices – no use, traditional/folkloric methods and modern methods. The result of the Brant test (the χ^2 value, with 12 degrees of freedom, is 171.03, with a probability value < 0.00) indicates that the null hypothesis of proportional odds assumption is rejected. Allowing parameters to vary, enables an examination of the variations in impact of each variable *at different choice levels*. This provides a more sophisticated information set for policymaking. The variable parameters model may have alternate forms. Gamma parameterization helps to identify which of the coefficients violate the proportional odds assumption. Based on this results, both the partial proportional odds model and the generalized ordered logit model¹⁶ (Daniel and others, 2008) are estimated. Now the former imposes constraints on some of the parameters, while the latter increases the complexity of the model and may result in negative probabilities. So we use the Likelihood Ratio (LR) tests to choose the most parsimonious (in the sense of least restrictive) model specification. The value of the LR ratio is 4.82 (with a probability value of 0.1854), so that the null hypothesis (the partial proportional odds model is nested in the variable parameter model) may be accepted. This implies that the former model is the parsimonious model in the present case.

The result of our econometric exercise is presented in table 5. The left panel presents the parameters for the choice set of traditional/folkloric methods versus no use, while the right panel is based on the choice set of modern methods versus all other options (no use and traditional/folkloric methods).

The objective of this paper was to examine whether there were significant differences in CPR between slum and non-slum areas. Though Sophier's Index has shown a low level of disparity in both overall use and adoption of modern contraceptive methods between slum and non-slum respondents, parametric and non-parametric tests have indicated that the difference was significant when overall use is considered. Econometric analysis confirmed the latter result.

Quite a few of the other explanatory variables – apart from place of residence – are significant. Both UCHs and Muslims have a lower probability of using contraceptives than BCHs. However, the odds ratio of Muslims is observed to improve when they are offered a choice of modern methods. Differences between BCHs and All others are marginal. Language (proxy for culture) exerts a significant effect on the decision to use a contraceptive, but not in choice of modern method. Education of the respondent is significant at the ten per cent level only in the left panel. Both age and its square have been incorporated in the regression model to reflect the non-linear relation between contraceptive use and age. Both coefficients are significant in the first choice situation, but not

Table 5. Results of generalized ordered logit model

Choices	No use vs. Traditional/Folkloric method		No use & Traditional/Folkloric method vs. Modern method	
	Odd ratio	z	Odd ratio	z
Resident of non-slum areas (RC)	1		1	
Resident of slum areas	0.61**	-3.32	0.82	-1.53
Backward Caste Hindu (RC)	1		1	
Hindu Upper Caste	0.62**	-2.84		
Muslim	0.31**	-4.89	0.50**	-3.16
All communities	0.63	-1.24		
Hindi / Urdu speaking (RC)	1		1	
Bengali & other languages	1.60**	2.65	0.98	-0.17
Education of partner	0.97	-0.63		
Education of respondent	1.20*	1.83	1.09	1.01
Age	1.64**	7.53	1	0.07
Square of age	0.99**	-8.7	1	-0.98
No. of living sons	2.21**	9.85		
No. of living daughters	1.62**	6.66		
Log of Wealth Index Score	1.01	0.13		
Whether employed	1.11	0.79		
Not allowed to go alone for health checkups (RC)	1		1	
Allowed to go alone for health checkups (RC)	1.43	2.75		
No. of observations	1 327	Pseudo R ²		0.12
Wald Chi ² (20)	286.77	Log likelihood		-
				1 248.1

Note: Coefficients of parameters which do not vary across levels of choice have been stated only in the left panel. Coefficients significant at five per cent are indicated by ** and those at 10 per cent by *. RC denotes the reference category for categorical variables.

when modern methods are considered. Increases in number of living children encourage respondents to adopt contraceptives and modern methods. Comparison of the effects of birth of a boy or girl child reveals that number of living boys has a higher odd ratio, indicating that the birth of a son has a greater impact on adoption of contraceptive than the birth of a girl. This is consistent with the son preference observed in developing countries (Clark, 2000; Dutta and Husain, 2011; Roy and others, 2008; Jayaraman and others, 2009; Saha and Bairagi, 2007). Freedom for women to go for health check-ups on their own also has a significant impact on the adoption of contraceptive methods, including modern methods.

Though the score coefficients of wealth index and partner's education are statistically insignificant, this may be due to the presence of multicollinearity (both variables are highly correlated with respondents' education, with values of 0.65 and 0.55, respectively). The coefficient of participation in the labour market is also not significant. This may be because of the lack of employment opportunities for women residents of Calcutta¹⁷ (Das and Shah, 2001).

5. Discussion and conclusions

The analysis in this paper reveals that, though the prevalence of modern methods in slums in Calcutta is not significantly different from non-slum areas, the overall proportion of non-users is significantly higher in slums. This implies that women living in slums are relatively reluctant to use contraceptives. In this context, it is necessary to appreciate the asymmetrical nature of family planning decisions and their implementation in patriarchal societies – in most cases women are not making the decision themselves, but relying on the husbands' choice¹⁸ (D'Souza, 2003)

However, once their initial resistance to using contraceptives is overcome, slum-dwellers will accept – even prefer – modern methods. Their acceptance rates of modern methods are similar to that of their non-slum counterparts¹⁹ (Dutta and Husain, 2011). The question then arises – how to overcome the initial reluctance of slum women to adopt family planning methods? This calls for an analysis of the magnitudes of coefficients in the regression analysis.

Econometric analysis of contraceptive use reveals that the education of the respondent and her freedom to seek medical advice have substantial effects on the probability of using contraceptives. The odd-ratio of mobility, in particular, is very high (1.43, at both levels). Education has a high odd ratio of 1.19 at the first level. This implies that education is important in lowering initial resistance to contraceptives. In this context, it should also be noted that 43 per cent of the current pregnancies among the slum population are unplanned (as opposed to 33 per cent among the non-slum population). This may indicate a lack of awareness about contraceptive choices (Orbeta, 2005) that should also be addressed in such communication programs – or even lack of empowerment with regard to fertility decisions. Another possible indirect effect of education is through an increase in empowerment. In this context it should be noted that freedom of the respondent to choose with respect to health check-ups has a positive effect on contraceptive use.

Other determinants of contraceptive use are culture-related. Non-Bengali migrants and Muslims are reluctant to adopt contraceptives.

The Government should therefore consider targeting these communities. Given the suspicion of the motivations guiding Government policy currently prevailing among migrants and, particularly, Muslim communities, such efforts should be based on culturally appropriate, community-based communication programs targeting youth and decision-makers (Daniel and others, 2008), rather than be imposed from outside. This would reduce the controversy emerging over issues, such as whether contraceptives are permissible.

It is, however, fertility preference which creates the greatest obstacle to the adoption of family planning methods. Preference for more children, particularly boys, reduces the demand for contraceptives. Whereas the birth of an additional female child would increase the probability of using (modern) contraceptives by 62 per cent, with a male child, the effect is almost doubled (121 per cent). Fertility preference remains the dominating variable if we run regressions for slum and non-slum women, separately. Values of the odd ratio for non-use versus use in the case of number of living sons are 2.31 and 2.25, respectively. Further, the difference in the coefficients is insignificant (as *t*-ratio is 0.17)²⁰ (Government of India, 2009). Thus, the impact of preference toward male children cuts across the slum and non-slum samples. This implies the persistence of patriarchal attitudes even within the modern metropolitan city of Calcutta. Economic forces may also be responsible. Males constitute the majority of workers in slum and non-slum areas. Within the Calcutta Municipal Corporation, males comprise 84.5 per cent of total workers and 85.5 per cent of main workers. Further, income earned by a girl will go to her matrimonial home. Therefore, the microeconomics of fertility decisions creates a strong son preference that acts as a barrier to contraceptive use. A comparison of odd ratios (table 5) implies that this factor is even more important than the residence of respondent, viz. whether she is a slum dweller or resides in non-slum areas.

Thus, geographical targeting of slum dwellers in family planning programmes is important, but not sufficient to increase contraceptive prevalence rates. Policies should attempt to tackle the son preference that is prevalent in all segments of society. This issue can be addressed in two ways – by changing attitudes and by reducing differential returns between having a boy and a girl child. Attitudes may change through disseminating information about the advantages of a small family, the dangers of repeated pregnancies and the destructive impact of the dowry system – particularly among male members, who are generally the decision-makers within the family (Char et al., 2009). Simultaneously, the role of schemes such as Swarna Jayanti Sahari Swarojgar Yojana, Pradhan Mantri Rojgar Yojana, as well as others that encourage the involvement of women in economic activities, are also important in increasing opportunity costs of pregnancies and, therefore, in encouraging contraceptive use.

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END NOTES

- 1 Census data shows that the decadal growth rates for 1981-1991, 1991-2001 and 2001-2011 are 23.8 per cent, 21.6 per cent and 17.64 per cent, respectively.
- 2 According to results of the latest Demographic Health Survey (DHS) survey (2005-2006) the contraceptive prevalence rate in India is 56 per cent among currently married women, as opposed to the global average of 63 per cent.
- 3 Unwanted/unplanned fertility or births refer to pregnancies or births that were not wanted or planned at the time of conception (Hayford and Guzzo, 2010: 366). DHS-3 data reveals that 57 per cent of women with more than three children state their ideal family size is less than three. This may be taken to be an indication of unwanted fertility. More specifically, 21 per cent of live births were unplanned.
- 4 For instance, UN-HABITAT states that "A slum is a continuous settlement where the inhabitants are characterized as having inadequate housing and basic services. A slum is often not recognized and addressed by public authorities as an integral or equal part of the city." (cited in GOI, 2010: 3).
- 5 A recent study (Dutta and Husain, 2011) found contraceptive prevalence levels in Calcutta's slums to be higher than in other metropolitan cities of India.
- 6 Literacy levels are 66 and 60 per cent among total and female population, respectively. According to Census 2001 reports, 37 per cent of the total population (and 12 per cent of female population) is employed; most of the workers are marginal workers (91 per cent of total workers and 92 per cent of female workers).
- 7 Earlier DHS surveys were carried out in 1992-1993 (National Family Health Survey-1) and 1998-1999 (National Family Health Survey-2).
- 8 *Folkloric methods* consist of locally described or spiritual methods believed popularly to reduce fertility, but of unproven effectiveness. Such methods consist of herbs, amulets, gris-gris, etc. *Traditional methods* consist of fertility preventing methods of proven effectiveness, like rhythm (or calendar) and withdrawal (*coitus interruptus*) methods. *Modern contraceptive methods* include all hormonal methods (i.e., the pill, injectibles and implants), IUDs, male and female sterilization, condoms and modern vaginal methods (e.g., the diaphragm and spermicides).
- 9 About 10 per cent of slum-dwellers do not use contraceptives because they do not undertake intercourse at all or do infrequently. These are also common reasons for not using family planning methods by non-slum-dwellers; further, the incidence of hysterectomy or menopause is higher among this group. Interestingly, culture or religion is not important in explaining non-use by Calcutta slum-dwellers. Only one out of every hundred non-users face opposition by husbands; a similar proportion are reluctant to use contraceptives due to religious prohibitions.
- 10 The additive monotonicity axiom specifies that if a constant is added to all observations in a non-negative series, *ceteris paribus*, the inequality index must report a decline.
- 11 Adoption rates, however, have been faster within Muslims than among other communities (Alagarajan and Kulkarni, 2008).

- 12 On the other hand, the Hindi and Urdu speaking community are mostly migrants, residing away from their extended families and therefore more likely to be free of the family pressure to have more children. This effect may be significant if a large proportion of the Hindi and Urdu speaking community are first generation migrants, residing away from their extended families. However, the DHS dataset reveals that 48 per cent of the Hindi and Urdu speaking community are permanent residents of the city, while 69 per cent are residing here for over 15 years (so that a extended family may have grown up). Hence it is unlikely that this effect plays an important role in shaping contraceptive decisions of the Hindi and Urdu speaking community.
- 13 This may be attributed to two reasons - low family income and low savings to compensate for the temporary withdrawal.
- 14 Data reveals that while 66 per cent of slum-dwellers are allowed to go for health check-ups alone, this proportion is 74 per cent among the non-slum population.
- 15 The analysis uses modules developed by Long and Freese (www.indiana.edu/~jslsoc/stata/) and Williams (http://fmwww.bc.edu/repec/bocode/g/gologit2_p ado).
- 16 This may be interpreted as a set of logistic equations (Williams, 2005).
- 17 Census figures reported that only 12 per cent of the female population in Calcutta slums are in work. DHS data shows that only 23 per cent of slum-dwellers work throughout the year; this figure is 24 per cent for the non-slum group.
- 18 As researchers point out, though it is the women who implement decisions relating to adoption of contraceptives, opposition from the male partner can thwart aspirations of the female (Speizer et al., 2005). Such opposition may arise because of the apprehension that allowing women freedom to make reproductive decisions will: [a] erode the authority of the male partner within the family, [b] encourage the wife to be unfaithful, or [c] lose face within the community (Bawah et al., 1999; Watkins et al., 1997). It is also pointed out that even if contraceptive use is approved in theory, it may be disapproved in practice (Blanc, 2001) - reflected in the refusal to use male condoms. In some instances, women have been documented to have made covert use of contraceptives; this exposes women to violence if found out by their male partners.
- 19 Further, analysis of the specific modern methods of family planning used reveals a surprisingly high incidence of female sterilization among slum-dwellers (62 per cent), followed by use of condoms and pills (incidence of both are 17 per cent). While non-slum-dwellers also exhibit a similar pattern (50, 24 and 22 per cent, respectively), the incidence of sterilization is about 12 percentage points below that of slum-dwellers. This calls for research into the reasons for sterilization, particularly among slum-dwellers, as this method is terminal and is less preferable to reversible methods like condoms and pills, allowing freedom in birth spacing.
- 20 In the case of number of living daughters, odd ratios are 1.31 and 1.90 for the two groups, respectively. The difference, in this case, is statistically significant (t-ratio of 2.79).

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Mobility as Development Strategy: the case of the Pacific Islands

Migration is often portrayed in terms of net gain or loss in which remittances provide compensation for those States or territories which are seen as disadvantaged in the competition for especially skilled workers. In the Pacific region, this dichotomy is illustrated through the loss for countries of origin (Pacific Island countries and territories) of their "best and brightest" to the region's larger and more prosperous States. This has occurred to such an extent that many see the limited development gains made by small island States and territories in the post World War Two period as being, for the most part, explained by the failure to counter the resulting inequalities in both "brain drain" and "brain gain". This article argues, though, that such a dichotomy misses those shared development gains reaped through increased labour mobility. Indeed, migration can underpin a "development dividend" for the region through the enhancement of increased mobility, including for low-skilled workers. Recent schemes have sought to balance both migration opportunities and development needs. While these are promising, much more could be done to support the conditions in which Pacific Islanders of all socio-economic status can circulate.

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Introduction

In the post-war period, migration has been an increasingly important part of individual, family and national livelihood decisions and devel-

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opment strategies. Whether for education, employment, or other opportunities, the movement of people has been a means by which relatively poorer populations have accessed resources for survival and advancement. Though international migrants remain constant as a percentage of world population, their numbers increased from 150 million in 2000 to 214 million persons in 2010 (UN-DESA, 2011; IOM, 2010). This has been matched by a substantial increase in remittances, estimated to have been \$440 billion in 2010 (of which over 70% is remitted to developing countries) but significantly undercounted, reflecting the perseverance of informal channels of transaction (World Bank, 2011). To put this into perspective, annual global remittances now represent greater and more stable transfers than either international development aid or, for many countries, foreign direct investment (FDI) (de Haas, 2005; Sharma et. al, 2011).

The focus on migration has alternated between the endorsement of regional and global flows of people, information and resources, and apprehension about its impacts resulting in restrictive policies to curb movement. For countries of destination, concern has often focused on the implications of unregulated labour inflow for domestic citizens' employment opportunities as well as the social impact of large numbers of foreign nationals (Storey et. al, 2010). This is balanced by the desire for a greater number of especially skilled workers in light of falling domestic birth rates, diminishing working-age skilled labour and high wage rates relative to profit.

Countries of origin, on the other hand, have also attempted to balance the pros and cons of emigration, though they have exerted less influence on the process overall. On one hand, emigration may offer a safety valve of sorts, providing employment opportunities abroad. On the other hand, the loss of labour, both skilled and un-skilled, presents problems in terms of the loss of human capital, especially young and working-age citizens who would otherwise contribute to the strengthening of national development (OECD, 2002; United Nations, 2006). Paradoxically, this tends to reinforce many of the reasons why many people migrate in the first place, such as in response to relative inequalities in opportunity (especially income) and in an effort to seek access to higher quality education and health services (Connell, 2010: 120). Migration though is more often than not a middle-class phenomenon. Indeed, the cost of migration often precludes the poorest of the poor. Surveys from several countries have shown that the majority of migrants actually had a job before migrating, and through migration were looking for a better paid job opportunity rather than employment in and of itself.

For some, the loss of population and human resources is offset through remittances, which make an important contribution to economies as large as the Philippines to micro-States such as Tuvalu. However, balancing the losses against the gains is an imprecise calculation and

subject to much debate (Nyberg-Sorensen et.al, 2002; de Haas, 2005). For several countries in Asia and the Pacific, remittances have become the most important and most stable source of foreign income, exceeding foreign direct investment (FDI), official development assistance (ODA), and, in some cases, even export revenues. Migration is especially important for least developed countries (LDCs) and landlocked developing countries (LLDCs) as well as small island developing States (SIDS), because of their limited productive capacities and inadequate income opportunities. For Pacific Island countries, which face multiple vulnerabilities due to their small size and remoteness, which limit the creation of productive capacities, migration can be a viable development option (Christensen and Mertz, 2010; IOM, 2005).

The competition among States for skilled and even unskilled labour appears to be increasing, a situation which is likely to be exacerbated as more developed countries experience a demographic transition to older populations. Countries of destination are therefore likely to be less concerned with the impacts of human resource loss in countries of origin as competition for "knowledge" workers intensifies (Iredale et. al, 2003: 181). Yet there are opportunities for what Ramasamy and others (2008) have referred to as a "triple win" scenario – for migrants, countries of destination, and countries of origin. This article explores the opportunities for such outcomes in the context of Pacific Island migrants and recent efforts to create new and viable channels for migration that are both "pro-poor" and "pro-development".

Migration, remittances and development in the Pacific

Debates about the relationship between migration, remittances, human capital and development are especially critical for Pacific Island countries (PICs) because of their limited human capital, high rates of emigration and tenuous economic base (World Bank, 2006). Migration is central to many Pacific Island economies and societies – and has been for a number of centuries. For some States and territories, migration and remittances have been critical to island survival and around which development patterns and processes have depended. The principal destinations for migrants from PICs are Australia, New Zealand and the United States of America, but there are also notable migration flows within Pacific Island countries (Hayes 2010). Indeed, Barcham and others (2009) have referred to Polynesian migration as both "multidimensional and multidirectional" and always subject to adjustment and a recalculation of costs and benefits. Bertram and Watters (1985) have even argued that Pacific migration patterns represent the creation of "transnational corporations of kin", reflecting both the global nature of Pacific Island movements but also the continued affinity with "home".

In the case of Polynesia, especially, a "culture of migration" has been established and emigration is seen as normal, expected and anticipated and in which islands and some States have become "deterritorialized" (Borovnik, 2003; Connell, 2003:43; Connell, 2010: 116).

The legacy of migration has been uneven for the Pacific Island States. Migration has created clear human resource deficits – especially among professionals in education and health (Voigt-Graf et. al, 2007; Connell, 2009). But, it is equally seen as a solution – in terms of acting as a population valve for Samoa and Tonga from the 1960s and offering opportunities for those with little chance of finding formal sector jobs. In the mid-1980s more than 1,900 Tongans were leaving Tonga each year, cutting the annual population growth from 2.3 per cent to 0.3 per cent and creating substantial expatriate populations in Pacific-rim countries (Small and Dixon, 2004:1) (see Table 1). Migration also provides greater potential employment opportunities for many Pacific Islanders, in a region where thousands of school leavers annually contest for a limited number of jobs. Recent literature has also sought to link migration opportunities with decreasing conflict in the region (Ware, 2007).

Table 1. Pacific Island ethnicities in New Zealand and populations of respective countries at home: 1991, 1996, 2001, 2006

Pacific ethnicity	Total number resident in New Zealand - census year				Country population (2011)
	1991	1996	2001	2006	
Samoan	85 743	101 754	115 017	131 103	184 000
Cook Islands Maori	37 857	47 016	52 569	58 011	20 000
Tongan	23 175	31 392	40 716	50 478	105 000
Niuean	14 427	18 474	20 148	22 476	1 000
Fijian	5 097	7 698	7 041	9 864	852 000
Tokelauan	4 146	4 917	6 204	6 819	1 205
Tuvaluan	432	879	1 965	2 628	11 000
Other Pacific peoples	2 190	4 440	5 424	6 378	
Total Pacific peoples	167 070	202 233	231 798	265 974	

Source: Statistics New Zealand (2011a), <http://www.stats.govt.nz/Census/2006Census/HomePage/QuickStats/quickstats-about-a-subject/pacific-peoples.aspx>; ESCAP Population Datasheet; for Tokelau: Statistics New Zealand New Zealand 2011b.

Pacific Islanders choose to migrate for a number of reasons. "Migration in the Pacific is primarily a response to real and perceived inequalities in socio-economic opportunities that have resulted from uneven development. Social influences on migration are important especially in terms

of access to education and health services but also as one element of the transition to adulthood; such social influences are in turn often a function of economic issues" (Connell and Brown, 2005:viii). In large part, migration is seen as the most likely path to socio-economic advancement, particularly for youth (Morton Lee, 2003; Ware, 2007). But migration is also seen as more lucrative and preferential than alternative prospects at home, notably in agriculture. Though primarily understood in these economic terms, Pacific migration also includes other important flows – of goods, ideas, skills and culture – which both adapts and responds to opportunities and change (Barcham et. al, 2009: 99).

It is remittances which are often seen as the primary "return" for the loss of domestic populations. For Micronesia and Polynesia especially, it is migration and remittances which keep many economies afloat. In the case of Samoa and Tonga, the most emigration/remittance dependent economies in the Pacific subregion, remittances amounted to 25 per cent and 24 per cent respectively of GDP in 2010 (World Bank 2011). According to a study undertaken in Tonga, about 75 per cent of all households received remittances in cash and/or material goods (Small and Dixon, 2004:2). In some villages in Samoa 80-90 per cent of villagers receive remittances (Connell and Brown, 2005:10). Connell and Brown (2005:21) have estimated that the average Tongan migrant in 1994 remitted US\$2,043 per annum, and the average Samoan migrant remitted US\$789. This not only represented between 5.3-13.1 per cent of income but constituted a significant source of wealth for countries with a per capita income of around US\$2,000.

Even these figures may seriously undervalue the sum and flow of remittances. Brown (1995) has estimated that *unrecorded* remittances from Australia amounted to as much as 34-41 per cent of the total for Tonga and 42-60 per cent for Samoa. Only rough estimates can be made with regard to remittances in kind, in the form of food, second-hand clothes, blankets, sheets, utensils and even cars. These goods have contributed to the development of markets for second hand goods, the most significant of which thrives in Nuku'alofa (Connell and Brown, 2005:15). Indeed, Lee (2004) has found that second and third generation Tongan migrants may be more likely to remit gifts than money, again indicating the complexity and richness of transnational relationships over time and space.

It has been argued, on one hand, that remittance dependence at the household level contributes to: a lack of productive activities, small business failure and lagging growth rates creating a "free-rider" effect; lessening motivations to work, especially in physically demanding occupations such as agriculture; and leading to a consumption-based society and economy (World Bank, 1990). On the other hand, authors

such as Ellis (2003) and Brown (2008) have argued that such positions tend to be overly negative and fail to recognise the positive links between migration, remittances and development. The counter-argument on remittances would include a positive link between remittances, education and multiplier effects through the economy (particularly in construction and services); a positive relationship between emigration and trading links between communities in different countries; and that remittances are increasingly seen as a key part of poverty alleviation and increased livelihood options as well as reducing vulnerability.

Indeed, despite high levels of remittances Tongan farmers responded rapidly to the opportunities generated by the "squash boom" of the 1990s (Storey and Murray, 2001). Fijians and Ni-Vanautu responded strongly to opportunities through higher-priced kava exports in the 1990s; Samoans to eco-tourism; Papua New Guineans to coffee; and Fijian entrepreneurs to the garment industry, which evolved through bilateral trade agreements with Australasia (Storey, 2006). These examples demonstrate that when private sector-led development opportunities arise in the region they are grasped upon. These effects have also been shown for other countries in the Asia-Pacific region, such as Bangladesh, India and Pakistan (Rajan and Zachariah 2007, IOM 2009, Arif 2010).

Literature has extensively discussed why migrants remit. Remittance motives range from pure altruism to strategic motives whereby migrants remit to maintain family ties for their return. Indeed, remittances may be described as a form of "impure altruism" (Brown and Poirine, 2005). At least in initial years they represent a repayment for past investment in their human capital development through education. This has been referred to by Poirine as an "implicit family loan agreement" (Poirine, 1997). While some see the "culture of remittances" as relatively changeless there is evidence of a much more dynamic approach to, and use of remittances. In particular it is clear that the use of remittances changes according to opportunities once basic needs are met. "Where there are opportunities and where consumption goals have been satisfied, remittances are used for investment, to stimulate entrepreneurial and trading activity, to increase formal sector employment, and to produce multiplier effects" (Connell and Brown, 2005:34). Remittances can thus be used as an investment, for example when they are used to build a house or to start a business (Rapoport and Docquier 2005). This is evident in the growth of cafes in many Pacific Island cities and towns which are clearly modelled upon businesses that are more "at home" in Sydney, Wellington or Los Angeles.

Goods also flow the other way through large expatriate populations abroad. In what has been termed "the economy of affection" *koloa* (traditional wealth), in the form of weaved mats and handicrafts, has developed into a serious and significant industry in several Pacific

island countries (APMRN, 2001). Particularly for women, it has become a form of enterprise and income (James, 1997). The evolution of a flower market and associated skills in Samoa has also been attributed to connections to overseas markets, tourism from returning migrants (Scheyvens, 2007), and returning migrant's expertise and capital (Underhill-Sem 2001). Through migration, and the spread of Pacific island diasporas, markets are also being created for island produce, such as kava and taro. Such activities represent at times significant forms of local development and entrepreneurship.

Looking more closely: a Pacific Island "brain drain" or a "brain dividend"?

An often raised concern is that emigration will lead to long-term losses of skilled workers, the so-called brain drain, or in some cases even depopulation. While this has been the case particularly in health and education (Naidu, 1997; Brown and Connell, 2004, Connell, 2007), and often a reflection of the targetting of skilled migrants by developed countries in the region and beyond, Pacific Island countries still have high fertility rates and relatively high ratios of population either in or entering working age (UN-DESA, 2011). Many Pacific island countries do face difficulties in terms of limited productive capacities, few opportunities to harness economies of scale and restricted access to markets due to extreme remoteness. Employment creation then is a significant challenge, and will remain so for the foreseeable future.

Migration is one way for Pacific Island countries to harness their "demographic dividend", that is the period in which fertility and youth dependency rates fall resulting in a greater number of the population in the workforce. However, given that opportunities for employment are restricted in much of the Pacific, such a window of opportunity may not realise the levels of income required to invest in productive capacity and activity. Migration and remittances provide the capacity to fill these voids creating a diaspora-based demographic dividend. Indeed, several authors have noted the high level of human development in some parts of the region relative to income – in no small part this can be attributed to the opportunity to migrate.

Even when jobs are secured "at home", for a comparative position overseas, workers can earn several times the salary (Small and Dixon, 2004:3). In many sectors, the greater the skill level the less likely the chance of domestic employment, thus creating a potential disincentive for families to invest in education. The Australian Agency for International Development AUSAID (1995) has thus suggested that the problem is not just a "brain drain" but a "brain overflow". Consequently, policies or attitudes, which merely try to keep people at home, or "lock

up" labour (even if it were possible) may actually be counter-productive to national development. There may be a high opportunity-cost, at both a personal and national level, of "staying-put" (Kothari, 2003).

On a similar note Poirine (1998:77) has noted that, despite the economic side effects of emigration, it remains a perfectly rational choice for many given the relative returns on their educational investment. Consequently he questions whether the crowding-out effects of remittances and aid on "traditional" productive activity is a distortion in resource allocation, instead concluding that:

What would really be a "bad" allocation of resources, a "waste" of human resources, would be to force bright young Tongans and Samoans to work at home with their parents growing taro or gathering copra, rather than getting a good education and migrating to Australia, New Zealand, or Hawai'i and sending remittances to their parents.

The limits of "bringing people back home"

Given the factors discussed above, it is no surprise that efforts to encourage migrants to permanently return "home" have proved relatively unsuccessful. Hopes of a substantial return of human and financial capital to home islands might then be unfounded. Skilled migrants are often reluctant to return home because of the loss of professional contacts and a feeling of isolation from their profession. In surveys, Tongan migrants have cited allowing dual citizenship as well as improving career opportunities and merit-based employment as initiative which would encourage them to return (Gibson and McKenzie, 2011a: 28). Those who have returned feel "hampered by overly bureaucratic environments, poor equipment and working conditions" and "a level of frustration that may in the future lead to re-migration" (Iredale, *et. al.*, 2003:185). A study by Ahlburg and Brown (1998) of Tongans and Samoans, also showed that very few intended to return home and that those more likely to return were not those with significant levels of education, experience and skills.

Rather than seeing migration as a permanent and negative loss, or the solution being a lasting return, greater attention is being paid to the creation of conditions whereby skilled and un-skilled migrants can more freely circulate. Iredale and others (2003) have referred to this as reaching a third sustainable stage of inflow/outflow with the earlier stages being characterised by a net loss and the feared "brain drain".

Indeed, such a position borrows from the perspectives of Pacific Islanders themselves. Asinate Liki (2001) has suggested that the linear "brain drain" thesis is essentially a Eurocentric concept of migration, and the

Samoan concept of "*aiga*" (extended family) is better suited to complex flows, which are not well captured by official data. Arguably, this would encourage what many Pacific Islanders see as a natural movement around the region, and increasingly the globe, reflecting also what Hooper (2000) has referred to as the extension of the social boundaries of the modern village across space. Return migration, or greater circularity, is also seen as benefiting developed countries in terms of buttressing declining workforce populations and mitigating the impacts of demographic transition.

Temporary migration programs are increasingly seen in the region as an effective strategy for spreading benefits and reflecting the above positions. While they are not necessarily new – the "Fijian scheme" of unskilled workers spending limited time in New Zealand and subsequently returning to their villages with capital to aid in village development lasted from the 1950s to 1987 (Levik and Bedford, 1988) – there have, in recent years, been two notable policy innovations in promoting short-term work schemes for unskilled Pacific Islanders. Though innovations remain at a small scale (in Australia the scheme is still at a "pilot" stage) they are worthy of greater policy attention.

New Zealand initiated the Recognized Employer Scheme (RSE) in 2007, with an annual quota of between 5,000-8,000 workers (New Zealand Department of Labour, 2011). Of note, to date the majority of workers have originated from Vanuatu, which has not shared a migration history with New Zealand. The initial impacts of the scheme have been significant. Gibson and McKenzie (2011b: 368) have estimated that the scheme generated a net financial benefit for both Vanuatu and Tonga of around 50 per cent of total bilateral annual New Zealand aid to those countries in the first two years of the RSE. Vanuatu's net benefit of A\$8 million was equivalent to 20 per cent of the country's total annual export earnings. Though it was not the poorest households who generally applied to enter the scheme (Gibson and MacKenzie, 2011b), the RSE has provided a clear counterbalance to previous biases towards skilled and professional migrants.

The Australian scheme – the Pacific Seasonal Worker Pilot Scheme (PSWPS) – is more recent (it was initiated in 2008) and to date more modest in scale (MacDermott and Opeskin, 2010). It has a total quota of 2,500 workers over four years. As with New Zealand's RSE, the PSWPS was instigated to both serve the needs of rural employers struggling to attract sufficient seasonal labour, and "to contribute to economic development in Pacific countries" (Department of Immigration and Citizenship, 2011). To date, only 731 workers have entered the scheme (as of October 2011), and the vast majority have been from Tonga – a country with a long tradition of migration. National impact has been quite limited as a result, yet Gibson and McKenzie (2011b: 368) have estimated a

contribution of A\$343,000 to the Tongan economy – a likely significant impact at the household and village level. With a relaxation of the requirements for participating in the scheme – for both employers and migrants – the future impact may be much greater.

Towards mobility as a development strategy: implications for policy

Migration continues to be an important part of the globalization of Pacific Island populations. While emigration is often viewed as a loss of productive labour, it also has to be questioned whether countries of origin, such as small island developing states, are able to create enough jobs to make productive use of the labour force in the short to medium term. Migration may be a way to harness a 'demographic dividend' into a "development dividend".

Migration and remittances have played an important role for most Pacific Island countries for a number of years and will continue to do so. While remittance-based economies received significant criticism in the early 1990s, recent research is indicating the importance of people and capital flows in alleviating poverty, broadening livelihoods and contributing to development. One World Bank study (2004) found that a ten per cent increase in labour mobility from a developing country will produce nearly a two per cent decline in the number of people living on less than a dollar a day. Indeed, those individuals and communities that are "left behind" and depend upon state-based initiatives appear disadvantaged in comparison to families and communities with access to migration/remittance channels.

Significant attention is now coalescing around ways to benefit from return migration, either permanent or temporary. Yet migration is not a "development panacea" and a judicious combination of policies is needed to effectively maximise the "migration-development nexus" (Datta, 2009; Hugo, 2009; Woolford, 2009). This must be based upon a reciprocal relationship and set of benefits for both countries of origin and destination. Indeed, as de Hass (2005: 1281) has summarized "a more fruitful approach would be to create an attractive social, economic and political environment that will encourage migrants to remain involved in their home countries, to return and circulate, and to make social and economic investments".

Remittances remain more financially significant than development assistance in the region. Remittances have played an important part in alleviating poverty, broadening livelihoods and attaining generally high levels of education in some parts of the region (even if this is to create "mobile human capital" for further emigration). Relatively high

human development indices in the region can be related to resources attained through family members emigrating and sending home remittances. Remittances continue to act as a crucial safety net throughout the region and play an important role in income redistribution.

While hope is placed on the return of skilled migrants and reintegration into home countries, the actual number of permanently returning migrants is limited. They face considerable challenges in social and economic reintegration and few policies exist to assist this group to maximize experiences and skills. To realise the benefits of migration, it is not only important to move away from a "stay" or "go" dichotomy but also to increase the opportunities for low-skilled and poorer workers to migrate, and circulate. Recent schemes in the region have sought to balance both migration opportunities and development needs to create a "win-win" outcome for countries of origin, destination and migrants themselves. While these schemes are promising, much more can be done to support the conditions in which Pacific islanders can "circulate" – as they have successfully done for centuries.

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