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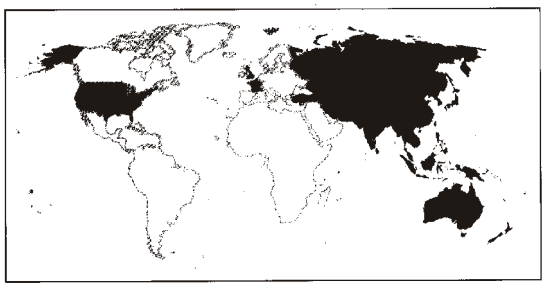

The shaded areas of the map indicate ESCAP members and associate members.

COVER PHOTOGRAPH

Two underprivileged children gazing at travellers in a remote village in central India (photograph by Wanphen L. Sreshthaputra).

The impact of economic inequality on infectious childhood diseases is the subject of one of the articles published in this issue of the *Asia-Pacific Population Journal*. The article examines how the economic condition of households determines the prevalence of those childhood diseases in India.

Changes in fertility behaviour in the sociocultural context of Pakistan are dealt with in the first article, which reveals that the fertility transition has been slow-paced, mostly owing to a large unmet need for family planning in all population strata.

The fate of Bangladeshi migrant workers in Singapore is examined in the third article, while the fourth looks into the health condition of schoolteachers and civil servants in India.

Cover design by Bryan Joseph Granados Sabroso

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Viewpoint

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Editorial

A brand new *Asia-Pacific Population Journal*

On the eve of its twentieth anniversary, to be marked in 2006, the *Asia-Pacific Population Journal*, in print since March 1986, comes to you with a fresh look and a changed periodicity.

Starting from this issue, the *Journal* will appear three times a year instead of four. This and future issues will also include a new column entitled "Viewpoint", which was introduced in the December 2004 issue.

Expected to stir increasing interest and debate among readers, "Viewpoint" will consist of contributions from outspoken population experts on widely debated issues in the field of population and development. "Viewpoint" is open to a variety of defendable, although perhaps unconventional, points of view and, in this regard, you are most welcome to provide us with your reactions and feedback. It is possible that some of your responses will be published in the *Journal*.

Preserving some similarities to its former look, the revised cover design of the *Journal* is in line with the new corporate design of ESCAP being introduced in 2005. It is hoped that you will appreciate this new design and find it attractive. You may want to send us your comments and reactions in this regard also.

All these changes reflect the renewed commitment of ESCAP to implementing the UNFPA-supported project "Population, development and poverty: emerging challenges (2004-2007)", of which the *Journal* forms a part. As one of the important components of the knowledge-sharing and information dissemination portion of the project, the *Asia-Pacific Population Journal* remains a highly respected publication in which leading population experts from the Asian and Pacific region share their opinions and action-oriented research findings. Carrying research articles of a high standard, the *Journal* is also a recognized tool for advocacy, contributing to strengthening the knowledge and skills of policy and decision makers in support of the Programme of Action of the International Conference on Population and Development and other internationally agreed development goals.

I take this opportunity to thank all of you who took the time to respond to our recent readership survey. While the high response rate (over 41 per cent) testifies

to the value of the *Journal* to its readers, we were also pleased to note your high rating of the *Journal*'s presentation, readability, overall quality, usefulness, etc. We come out of this experience with increased confidence and renewed determination to bring out the very best of research articles on population and development issues relevant to the region.

Twenty years into the publication of the *Journal*, we remain committed to the vision of the early supporters of the *Journal*, among them the late S.A.M.S. Kibria, then Executive Secretary of ESCAP, who hoped that the Journal would "not only provide a continuous flow of useful information but also set the standard for technical reporting on population issues in the region…"

Throughout these years, we remain grateful to the United Nations Population Fund (UNFPA) for its continued support. We also thank the members of the newly established Editorial Advisory Board for their valuable suggestions and enlightened guidance.

Thelma Kay
Chief
Emerging Social Issues Division

Introducing Viewpoint

In consultation with the *Asia-Pacific Population Journal* Editorial Advisory Board, the Asia and the Pacific Division of the United Nations Population Fund (UNFPA) and UNFPA Country Services Technical Teams (CST) for East and South East Asia, the Editor of the *Journal* has decided to launch a new column entitled "ViewPoint".

This column publishes contributions from prominent and outspoken population experts on various issues of importance in the region. "Viewpoint" touches on issues widely debated in the field of population and development and is open to a variety of defendable, although perhaps upstream, points of view on a given topic.

"Viewpoint" welcomes contributions/ reactions to published articles from population specialists on the understanding that the article is subject to reviewers' approval and editorial revision.

For further information, please contact: e-mail: escap-population@un.org.

Why are Population and Development Issues not Given Priority?

The notion that population is no longer an issue in the Asian and Pacific region ignores key points.

By Gavin W. Jones*

From the time of Adam Smith onward, economists have recognized important linkages between population trends and economic development. Yet, the attention given to these linkages in international conferences and other venues where policy is debated has varied enormously over time, and also according to the issues being discussed: women, environment, poverty and sustainable development, for example. Looking back over recent decades, it is hard to escape two conclusions: (a) politics sometimes plays a more important role than dispassionate academic discourse at such meetings, and this greatly influences the attention given to population matters; and (b) fads are almost as ubiquitous in international thinking on development issues as they are in matters of dress, eating habits and youth culture.

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The role of politics in influencing debate on population is nowhere better seen than at the series of United Nations-sponsored population conferences held at Bucharest (1974), Mexico City (1984) and Cairo (1994). Each of these conferences was diverted from its original concerns and objectives by unexpected political developments. (I use the term "political" here to cover both broader international politics and narrower conference politics). At Bucharest, there was an ideological confrontation over the structure of the international economic order, which resulted in such curious outcomes as the near-denial by China and India, both of which had strong domestic programmes to control population growth, that such programmes were needed. The point was that the United States of America was seen as the key proponent of population programmes and the key opponent of a new international economic order, and most developing countries were loath to be seen as lining up on its side. Ten years later came the Mexico City conference, which witnessed an about-face in the American position, unexpected even by many officials in the United States Government having population responsibilities. The United States administration appointed a delegation led by a leading "right to life" spokesman, which – to the bemusement of those who had followed the strong championing by the United States of the need for fertility reduction through government-sponsored family planning programmes at the Bucharest conference – promoted a line that the relationship between population growth and economic development is not necessarily a negative one and that what is needed is economic reform consistent with a market economy.

Finally, at Cairo, the remarkable networking skills of feminist groups managed to upstage the orchestrated efforts of the United Nations, through prior regional population conferences and expert group meetings, and to deliver an outcome that differed widely from original expectations. The reproductive health and reproductive rights emphasis was viewed with considerable suspicion by many of the delegations – including those from Asia – that finally agreed to the text of the document.

These unexpected political intrusions into three conferences where a consensus document was supposed to emerge from a carefully planned series of preparatory meetings and conferences served to reduce attention at the respective conferences to many important items that deserved more debate. On the other hand, they did not prevent (and in some respects contributed to) the emergence of valuable consensus documents, which helped to guide population policy and programmes over the decade that followed each of them. Indeed, the degree to which Asian countries had come on side in supporting the Cairo approach to population issues was clearly demonstrated at the Fifth Asian and Pacific

Population Conference in Bangkok in 2002, when vigorous tactics adopted by one delegation – in what looked like an effort to overturn the Cairo consensus – failed to shake the unity of the diverse group of Asian and Pacific delegations.

Turning to fads, we have witnessed a succession of emphases in the development field that have demanded priority attention from any agency wanting to be taken seriously. Environment, sustainable development, gender equity, refugees, human trafficking, HIV/AIDS, poverty reduction – all of them enormously important in their own right, but somehow turning into "the issue of the moment" in the hands of the restless seekers of relevance in the hallways of international conferences and the meeting rooms of international agencies and foundations.

In the realm of language, fads also abound, with development reports increasingly colonized by pro-active stakeholders utilizing their social capital. There is a danger of the much-publicized "demographic bonus" turning into another fad. Instead of being seen as another way of expressing one of the important truths propounded long ago by Ansley Coale and Edgar Hoover in their work entitled *Population Growth and Economic Development in Low-income Countries*, it is sometimes portrayed as a stunning new argument to show that reduced fertility has developmental benefits.

For recent evidence of myopia about population in the development debate, we might note that population was effectively ignored at the World Summit on Sustainable Development, held at Johannesburg in 2002, despite evidence of important linkages between population and environmental issues. Just at the time that in countries such as Indonesia, Thailand and the Philippines devastating flooding and landslides have been blamed on massive deforestation, we need a nuanced discussion of the causes – illegal logging, expansion of plantations, but also population pressures on vegetation cover through expansion of smallholder settlements and changing patterns of shifting cultivation. The sustainability of the world's megacities also needs careful study. Conclusions reached by some analysts – that the rapid growth of these megacities has ended – are the result of their ignoring the growth taking place outside official metropolitan boundaries.

Strangely enough, this neglect of the population factor in sustainable development comes at a time when the consensus on the negative impacts of high fertility are widely (and renewedly) recognized among academic economists, and new studies of population "waves" (the age structural effects of discontinuities in the underlying demographic variables) on development are yielding some interesting findings. What can explain this neglect of population issues in the broader development community?

Perhaps one problem is that much of what we might call the population establishment – the academic and policy community that operates on the premise that demography is reasonably central to understanding development issues and their solution – has had a rather narrow base of demographic training or administration of population programmes without much exposure to debates on the nature of development, or administration of broader development programmes. This group finds it hard to carry much weight in the general development community, now that the specter of the population explosion that drove so much policy formulation in the 1960s and 1970s has receded. The United Nations projections show a comforting leveling off of world population size by the middle of this century, so for many in the international development community and the foundations, the time has come to move on from population to more serious issues. The fact that global population size could well grow by another 40 to 50 per cent before levelling off no longer seems to cause much concern, now that the trajectory of growth is clearly a decelerating one.

The notion that population is no longer an issue in the Asian and Pacific region ignores two key points: (a) population is an important factor in development, not only when it is growing seemingly out of control, but also when it is stabilizing and (as is increasingly happening in parts of Asia) promising to implode because of very low fertility; and (b) there is an extremely wide range in population circumstances throughout Asia. Planners in Japan, the Republic of Korea and Singapore are now preoccupied with how to deal with declining labour forces and rapidly ageing populations. In countries such as these, the issues facing Pakistan and the Philippines may seem "old hat". However, this does not negate the continuing and high degree of relevance of the issues for Pakistan, where fertility is now falling from high to moderate levels, and the Philippines, where fertility remains at moderate levels and is declining only very slowly. These trends portend further massive increases in population, which these two countries appear ill-equipped to deal with. Their populations could well double before population growth ceases. The internal forces that have blocked effective family planning efforts in these two countries can always argue that it is not rapid population growth but rather weak government, corruption and social injustices that are preventing economic and social development. The counter argument is that rapid population growth exacerbates problems of weak government, corruption and social injustice.

It is the interplay of the three determinants of overall population trends – fertility, mortality and migration – that is so crucial in affecting not only economic and social development but also matters such as social cohesion. The migration

factor is uppermost in the minds of politicians in Europe, not to mention Japan, the Republic of Korea and Singapore etc., as they contemplate the population futures facing them.

To summarize, there seem to be three reasons why population issues have fallen from the priority list of concerns:

(a) Political reasons: United Nations agencies, the World Bank, non-governmental organizations, foundations and donors want to be seen to be at the "cutting edge" and not left to deal with yesterday's issues.

(b) The perceived recession of "the" population issue. In some ways, the population establishment has only itself to blame for "overselling" the population crisis and failing to build a broader consensus on the need for good training, good institutions and good policies that would integrate population factors into all aspects of development planning.

(c) Perhaps those of us who have both the conviction that population dynamics matter in development and the training to demonstrate that this is so are not engaging in enough dialogue with those who are preoccupied with particular concerns – globalization, poverty, injustice and environmental issues.

Abstracts

Page

This article examines changes in fertility behaviour in the sociocultural context of Pakistan's population. The analysis reveals that the fertility transition has been slow-paced and resistant to change, reflecting a large unmet need for family planning in all population strata. The serious constraints to effecting changes in reproductive behaviour appear to be gender inequities in the social system, reflected by women's low autonomy, lack of educational attainment, limited participation in family decision-making, a preference for male children and fatalistic attitudes towards the use of family planning. The answer to these constraints lies in policy actions and social development programmes as well as information, education and communication campaigns that could be effective in bringing about ideational and attitudinal changes and in reaching out to families and couples in need of family planning services.

Infectious diseases are widely recognized as the major cause of child morbidity and mortality in many developing countries in Asia, particularly in India. It is well established that exposure to pathogens such as bacteria and viruses are largely determined by ecological settings, including the climatic conditions of a particular region. However, although necessary, ecological or climatic factors

alone are not sufficient to cause infectious diseases. The availability and accessibility of a good environment are not only ecological or climatic factors but they are also conditioned by the socio-economic well-being of the population. This paper examines how the economic condition of households determines the prevalence of infectious childhood diseases in India by using data from India's National Family and Health Survey, 1998-1999. The results of logistic regressions show that the economic condition of households is a very significant predictor in determining the prevalence of infectious childhood diseases, especially after early infancy. In addition, region of residence, maternal anaemia during pregnancy, education and the work status of the mother and child immunization also have very significant effects on the prevalence of infectious childhood diseases in India.

This study focuses on the circumstances in which foreign workers work and live, by investigating the socio-economic experiences of Bangladeshi migrant workers in Singapore. Findings suggest that migration is a precarious and costly venture, but it is seen as one route to life improvement: strategies such as marriage, education and house-building and renovation are part of a wider undertaking in which individuals and families strive to improve their social and economic status. The primary data come from interviews with Bangladeshi migrants in Singapore. The study concludes with a set of recommendations for policy.

This article is an attempt to observe the health condition of two groups of pensioners, namely, schoolteachers and civil servants, who belonged to two different socio-economic strata with different exposures to stress and responsibility in their pre-retirement occupation. While explaining the occupational differential in hazard rates of dying, Saxena and Kumar (1997) conducted the only study of occupational differentials in mortality of retired persons in India and found that those who had been engaged in the civil service,

died faster than others. The self-regulating feedback mechanism of every human being decreases with age at a constant rate. However, this mechanism is interrupted easily by stress resulting from changes in the physical and social-economic environment. Based on the above results, we assumed that the deterioration of health would be faster among retired civil servants than retired schoolteachers. To check this hypothesis we applied life-table techniques initially to see how the health expectancies varied with age and pre-retirement occupation and then we carried out trend analysis to verify whether the rate of disease prevalence markedly differed in the pre- and post-retirement period, assuming that age (biological factors) is having the same effect on both occupational subgroups of the study population prior to and after retirement. If the impact of age on the progression of disease prevalence rate is assumed to be constant, then our result proves that it is the advent of retirement that significantly increases the rate of suffering from chronic ailments among schoolteachers.

Assessment of Fertility Behaviour Change in the Sociocultural Context of Pakistan: Implications for the Population Programme

One of the major challenges of the Government is to sustain and accelerate the pace of fertility decline.

By Naushin Mahmood*

The process of change in fertility behaviour has been explained by social scientists in a variety of contexts. They give diverse interpretations of the reasons underlying these changes. A number of theories and arguments put forward on the subject contend that the level of socio-economic development on one hand and the quality of family planning services on the other are primarily responsible for reducing fertility levels in a society. The available literature however suggests that social values and cultural precepts play an important role in shaping the reproductive attitudes of couples and that this factor ultimately affects fertility outcomes. Hence, it is important that, in developing programme strategies, the

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local social and cultural context of the setting being studied be taken into account (Coale, 1973; Pollak and Watkins, 1993; Sultan, Cleland and Ali, 2002 and Stephenson and Hennink, 2004).

Pakistan presents a unique example in Asia of a country where the fertility behaviour of couples has been slow to change despite the operational functioning of a national family planning programme since the 1960s (Government of Pakistan, 1965). For more than two decades, Pakistan's fertility levels remained persistently high, indicating little impact of the programme on changing reproductive attitudes and behaviour. An assessment of programme performance indicates that the supply strategies adopted by Pakistan have not crystallized demand into effective innovative behaviour owing to weak management, low access to services and poor quality of care, among other factors (Rukanuddin and Hardee-Cleaveland, 1992; Rosen and Conly, 1996). Moreover, sociocultural values that foster high fertility and the country's religious milieu, which have consistently hindered the moral acceptability of practising family planning, have remained an additional challenge in the achievement of the programme's objectives.

In the last decade of the 1990s, however, a gentle decline in fertility was observed that has marked the beginning of the fertility transition in Pakistan (Sathar and Casterline, 1998; Feeney and Alam, 2003). Contraceptive use has more than doubled from 12 per cent in 1990-1991 to about 28 per cent in 2000-2001 (National Institute of Population Studies, 1992; 2001).

In view of the changing demographic situation in Pakistan, one of the major challenges of the Government is to sustain and accelerate the pace of fertility decline through increased access to family planning services as well as through motivating couples to modify their reproductive behaviour by adopting the small family norm, particularly in rural areas. Large-scale social and economic changes that motivate couples to change their reproductive behaviour are relatively easy to quantify, whereas sociocultural characteristics as reflected by attitudes, social beliefs, customs and orientations are difficult to gauge from typical cross-sectional demographic and fertility surveys. As sociocultural practices are closely linked with changing social and economic conditions, it may be argued that fertility is affected by the economic and social transformation of society where the change in sociocultural practices and norms seem to be critical in bringing about change in fertility behaviour.

This study is an attempt to obtain a broader understanding of the sociocultural factors which affect and explain fertility behaviour in Pakistan, and see how this knowledge can be used to influence policy and to improve the

utilization of services for effective implementation of the population programme. In this context, the role of selected factors that reflect sociocultural affiliation with reproductive behaviour is analysed to assess their potential impact on the programme. These include education, age at marriage, preference for sons, religious beliefs, family structure, women's decision-making and autonomy, among other factors.

With reference to the theoretical arguments in the literature and with empirical evidence from various demographic and fertility surveys and research studies undertaken in Pakistan, the association of these sociocultural factors with fertility behaviour is reviewed and discussed to draw lessons for future policy and programmatic actions, and to speculate about the prospects for further changes in reproductive behaviour. Such an assessment is based on information drawn from five major national-level surveys Within a cross-section. hat capture fertility trends in relation to selected sociodemographic and cultural characteristics. These include the Pakistan Fertility Survey, 1974-1975; Pakistan Contraceptive Prevalence Survey, 1984-1985; Pakistan Demographic and Health Survey, 1990-1991; Pakistan Fertility and Family Planning Survey, 1996-1997; and Pakistan Reproductive Health and Family Planning Survey, 2000-2001.[1] All these demographic surveys point to a decline in fertility in the 1990s, resulting in the reduction of the population growth rate from about 2.6 per cent in 1990-1991 to nearly 2.0 per cent in the year 2003. However, a relatively high momentum of growth means that Pakistan's population will keep growing for the next few decades, which presents challenges for implementing development programmes and attaining poverty reduction goals.

In this article, we begin with a review of the evidence of changing fertility levels and then examine the possible effects of selected factors that may constrain further changes in reproductive behaviour of couples in view of the sociocultural context of Pakistan. The evidence is then used to draw lessons and implications for future programmatic action.

Changes in fertility

Various data sources and independent studies carried out in Pakistan indicate that the total fertility rate (TFR) remained between 6 and 7 births per woman during the 1970s and 1980s. A decline in fertility occurred in the decade of the 1990s when TFR fell to 4.8 births per woman in the period 1997-2001 and then further to 4.1 in 2003-2004[2] from the previous level of 5.4 during the 1980s and 6.3 in the period 1970-1974 (National Institute of Population Studies, 1998; Sathar and Casterline, 1998; Feeney and Alam, 2003). The resistance to fertility change prior

to the 1990s is attributed to a number of factors that can be interpreted in terms of social and cultural constraints which inhibited many couples from adopting family planning (Mahmood and Reingheim, 1996: Casterline, Sathar and Haque, 2001). However, the recent decline in fertility is explained largely in terms of the rising levels of its two major proximate determinants, namely, age at marriage and contraceptive use, which in turn are determined by a set of cultural, social and economic factors. Evidence shows that there has been an increase in ever use of contraception from 20.7 per cent to about 40 per cent and in current use from 11.8 per cent to about 28 per cent during the period from 1990-2001, and this is reported to have further increased to 32 per cent according to the recent estimate of 2003-2004.[3] This is reflective of the change in people's attitudes towards theadoption of contraception. Similarly, a rise in the age at marriage of females, from 19.8 years to 22.7 years and for males and from 25 years to 27 years between the periods 1972-1975 and 2000-2001, reflects a significant shift from an early to a delayed marriage pattern in Pakistan's social setting (table 1).

Table 1. Changes in total fertility rate, contraceptive use and age at marriage, Pakistan: 1974-1975 to 2000-2001

Year of survey	Total fertility rate	Contraceptive use (%)		Singulate mean age at marriage (SMAM)	
		Ever use	Current use	Male	Female
1974-1975	6.3	10.5	5.2	24.9	19.8[a]
1984-1985	6.0	11.8	9.1	25.0	20.7[b]
1990-1991	5.4	20.7	11.8	25.6	21.4
1996-1997	5.3	36.4	23.9	26.0	21.7[c]
2000-2001	4.8	40.2	27.8	27.1	22.7

Source: 1974-1975 Pakistan Fertility Survey; 1984-1985 Pakistan Contraceptive Prevalence Survey; 1990-1991 Pakistan Demographic and Health Survey; 1996-1997 Pakistan Fertility and Family Planning Survey; and 2000-2001 Pakistan Reproductive Health and Family Planning Survey.

[a] 1972 census.

[b] 1981 census.

[c] 1998 census.

A further insight into the nature and pace of the changing fertility behaviour in Pakistan is revealed through the urban-rural differentials in the total fertility rate and contraceptive use. Evidence from various fertility surveys shows that urban women have taken the lead in lowering their fertility and using contraceptives, whereas rural women's resistence to the adoption of contraception has persisted

over the years, with the result that TFR is about 1-1.5 children less in urban areas than in rural areas. A corresponding difference in contraceptive prevalence is also evident, i.e., 39.7 per cent in urban areas and 21.7 per cent in rural areas in the year 2000-2001 (table 2). This pattern reveals that fertility and contraceptive use behaviour have begun to change, first among the urban social strata, while rural residents are still on the lower end of the scale which form the majority of the population in Pakistan.

Table 2. Urban-rural differentials in total fertility rate and contraceptive prevalence rate, 1974-1975 to 2000-2001

Year of survey	Total fertility rate		Contraceptive prevalence rate (%)	
	Urban	Rural	Urban	Rural
1974-1975	6.2	6.4	12.4	2.7
1984-1985	5.5	6.2	18.1	5.4
1990-1991	4.7	5.6	25.7	5.8
1996-1997	4.2	5.7	36.5	18.6
2000-2001	3.6	4.8	39.7	21.7

Source: 1974-1975 Pakistan Fertility Survey; 1984-1985 Pakistan Contraceptive Prevalence Survey; 1990-1991 Pakistan Demographic and Health Survey; 1996-1997 Pakistan Fertility and Family Planning Survey; and 2000-2001 Pakistan Reproductive Health and Family Planning Survey.

Changes in fertility outcomes are closely related to changes in the demand for children, which is most commonly measured in terms of desired and ideal number of children and in women's or men's preferences for wanting more or no more children. The available evidence indicates that ideal family size in Pakistan has declined slightly from 4.9 children in 1984-1985 to about 4.0 children in 2000-2001, with about 44 per cent of women expressing the desire for no future births (table 3). A downward shift in desired fertility is most probably a response to the large-scale economic and social changes that have been occurring in the society during recent decades. These changes relate to increased urbanization, rising levels of literacy and school enrolment, enhanced exposure to mass media and reduced infant and child mortality. However, an apparent decline in desired fertility and increased proportion of women wanting no more children has not been matched by a corresponding substantial increase in contraceptive use, thereby resulting in a large unmet need for family planning. Evidence from various surveys shows that

unmet demand for family planning has increased from 28 per cent in 1990-1991 to 33 per cent in 2000-2001 (table 3).

Table 3. Measures of demand for children and unmet need for family planning in Pakistan, 1974-1975 to 2000-2001

Year of survey	Mean ideal family size	Want no more children (%)	Unmet need for family planning (%)
1974-1975	-	40.4	-
1984-1985	4.9	43.3	-
1990-1991	4.1	36.4	28.0
1996-1997	4.3	39.8	32.0
2000-2001	3.9	44.0	33.0

Source: 1974-1975 Pakistan Fertility Survey; 1984-1985 Pakistan Contraceptive Prevalence Survey; 1990-1991 Pakistan Demographic and Health Survey; 1996-1997 Pakistan Fertility and Family Planning Survey; and 2000-2001 Pakistan Reproductive Health and Family Planning Survey.

The large unmet demand is explained largely in terms of sociocultural barriers that constrain many women to protect themselves against unwanted pregnancies. Recent evidence shows that a substantial proportion of married women are experiencing unwanted pregnancies and resort to induced abortion as a means to avoid a future birth; as many as one in six pregnancies are terminated by abortion in Pakistan (Population Council, 2004). Thus, induced abortion appears to be a strategy adopted by many women for materializing their unmet need and limiting fertility that falls outside the purview of the family planning programme. Studies on the reasons for high unmet need and high incidence of unwanted pregnancy suggest that lack of education, son preference, poverty, low female autonomy, limited access to services and a woman's perception that her husband disapproves of family planning largely account for this gap and make many women feel that the decision to use contraception is against religious values and unacceptable on sociocultural grounds (Population Council, 1997; 2004).

Sociocultural factors and fertility behaviour

The key question examined in this article is how the reproductive behaviour of women, particularly fertility and use of contraception, is explained by social and cultural factors in relation to other socio-economic changes occurring in society. Although the accumulating evidence shows that the demographic scenario in

Pakistan has changed in recent years, the concern about the need to sustain and accelerate this change still prevails, especially when assessed in terms of the sociocultural constraints on the acceptability and practice of family planning. While the improved quality of supplies and access to appropriate services are clearly necessary for enhancing contraceptive use, it is equally important to analyse the underlying sociocultural perceptions and practices which influence the reproductive attitudes and behaviour of couples and contribute to the slowing of the pace of fertility decline in Pakistan.

The sociocultural context

The social setup and the developing nature of Pakistan's economy, together with high desired family size, provide the traditional scenario in which it becomes difficult to motivate couples to adopt innovative reproductive behaviour. The majority of the population resides in rural areas characterized by inadequate basic infrastructure and social services, and very low levels of literacy and educational attainment, especially for women in rural areas. Marriage is universal and mostly arranged by parents or elders in the family. Religious values are ingrained in the way of life, especially with regard to marriage, customs, education and the celebration of festivals and other occasions. The religious milieu in many respects constrains the moral acceptability of the practice of family planning by many people. Gender inequality is perpetuated in the system through various forms of discrimination against girls. Hence, the status of women measured through conventional and non-conventional indicators remains low and does not compare well with other settings in the ESCAP region (UNDP, 2004). The relatively less favourable position of women in the economic and decision-making spheres in conjunction with their restricted mobility to access services inhibit them from making choices about family size and the practice of family planning (Khan, 1999; Hakim and Aziz, 1998; Mahmood and Ringheim, 1996).

Additionally, Pakistani society, in common with most societies in South Asia, exhibits a strong son preference, which accounts for the desire to have a large-size family, as many couples with three or more living children want to have more births in the hope of having a son (Arnold, 1996; Mahmood, 1992). These type of preferences are associated with Pakistan's predominantly agricultural and patriarchal setting where children, especially sons, are highly valued for their contributions to farm work and as sources of economic security and social prestige for parents.

Given these sociocultural patterns and assuming that gender roles and women's status are important in influencing reproductive behaviour, the effects of

some selected factors on fertility and the practice of family planning are examined and discussed below, with empirical evidence derived from various sources. These factors include education, age at marriage, son preference, family structure, religious values, women's status and autonomy, all of which have relevance in the sociocultural context and play a role in affecting reproductive behaviour.

Education

There are indeed different pathways through which education, especially of women, can affect fertility behaviour. Many individual-level studies indicate that education increases an individual's knowledge, awareness, social and economic aspirations and ability to make independent choices and decisions which are likely to have a negative impact on fertility (Cochrane, 1983; Sathar and Mason, 1993; Mahmood and Ringheim, 1997). The fertility of better-educated women is lower because of their enhanced information, their greater say in household decisions and the lower expectation of economic help from their children. In the sociocultural context, schooling and mass education disrupt the traditional family structure by weakening the authority of older persons over younger ones and males over females, and investment in children's education promotes intergenerational wealth flows from parents to children, thereby encouraging couples to opt for small families (Caldwell, 1980; 1982). Education also increases the use of contraception and the desire to space births; these relationships are stronger for women with secondary and higher education in urban Pakistan after controlling for demographic and related economic characteristics (Sathar and Mason, 1993; Hakim, 1994; Mahmood and Ringheim, 1996).

Progress in education has been slow in Pakistan, especially for women in rural and poor households. The estimates from various surveys show that the majority of married women are not exposed to formal schooling. For example, the percentage of ever-married women (15-49 years old) with some schooling was only 10.7 per cent in a 1974-1975 survey; it increased to 25.2 per cent in 1996-1997 and to 28.5 per cent in 2000-2001 compared with the corresponding percentages of 41 and 64 for husbands respectively in 1996-1997 and 2000-2001. Parents are less motivated to invest in girls' education because females are expected to live with their husband's family after marriage and are not expected to bring income to the family. However, the negative effect of educational attainment on fertility and contraceptive use is well-established in Pakistan's social context. Based on various survey estimates, women with at least secondary schooling have nearly two births fewer than women with no schooling. Similarly, contraceptive

use is about 22 per cent for women with no schooling compared with 47 per cent for women with at least a secondary education, according to the 2000-2001 survey estimates (table 4).

Table 4. Total fertility rate (TFR) and contraceptive prevalence rate (CPR), by women's education level, 1990-1991 to 2000-2001

Educational level	1990-1991 (PDHS)		1996-1997 (PFFPS)		2000-2001 (PRHFPS)	
	TFR	CPR	TFR	CPR	TFR	CPR
None	5.7	7.8	6.0	18.9	5.1	22.2
Primary	4.9	14.0	4.9	-	4.2	35.7
Middle	4.5	21.7	4.4	35.4[a]	3.2	43.9
Secondary+	3.6	25.9	3.1	40.1	3.6	46.9
All women	**5.4**	**11.8**	**5.3**	**23.9**	**4.8**	**27.8**

Source: 1990-1991 Pakistan Demographic and Health Survey (PDHS); 1996-1997 Pakistan Fertility and Family Planning Survey (PFFPS); and 2000-2001 Pakistan Reproductive Health and Family Planning Survey (PRHFPS).

[a] For combined primary and middle levels of education.

Female education also contributes to changing the cultural norms and practices that operate through delaying age at marriage, promoting knowledge and husband-wife communication on family planning matters, and inculcating favourable attitudes towards fertility limitation – factors that are all conducive to the adoption of the small family norm and fertility reduction. In a multivariate analysis of selected social, attitudinal and supply-related factors, the findings from a study confirm the argument that women's education, especially at the secondary and higher levels, significantly affects desired fertility and contraceptive use behaviour, and most of the effect of husband's education is eliminated when wife's education is controlled for (Mahmood and Ringheim, 1996; 1997). Thus, promoting women's education appears to be an effective policy instrument for accelerating fertility decline and bridging the gap in unmet need for family planning. The efforts therefore should focus on creating the social environment that would raise the demand for the education of girls and mitigate the effect of sociocultural barriers that prevent many girls from either entering school or continuing schooling beyond the primary level. In this regard, girls from rural and poor households need to be the target group as they generally have abysmally low educational attainment levels.

Age at marriage

Age at marriage marks the beginning of exposure to childbearing, particularly in Pakistani society, where contraception is not widely practised and fertility is confined to marriage. A substantial number of females are already married before reaching age 20 and get exposed to all the risks of early childbearing and reproductive health problems as teenage mothers. There is ample evidence on the inverse relationship between age at marriage and fertility in Pakistan. Based on Pakistan Demographic and Health Survey data, currently married women aged 40-49 years indicate the mean number of children everborn as 6.9 for those married between 17 and 18 years of age, and 5.4 for those married at age 21 or older. Such differentials are equally apparent for women aged 30-39 years, who had 5.5 children ever born on average, if married at 17-18 years of age, compared with 3.6 children for those married at age 21 or older (Karim and Ramesh, 1996).

Table 5. Proportion of currently married males and females and the singulate mean age at marriage (SMAM) in Pakistan, 1972-2001

Age group	Males				Females			
	1972	1981	1998	2001[a]	1972	1981	1998	2001[a]
15-19	7.2	7.4	6.0	2.6	34.1	29.1	20.7	15.0
20-24	31.6	34.7	29.4	20.8	77.7	73.5	60.5	51.0
25-29	62.5	67.7	60.7	55.0	91.1	82.7	83.7	81.0
30-34	80.2	84.5	81.7	81.0	93.6	93.4	90.3	92.0
35-39	87.8	91.7	89.9	90.5	93.7	94.7	91.6	93.0
40-44	89.1	89.9	92.0	94.8	90.0	92.1	89.9	91.0
45-49	90.2	92.0	92.5	94.3	87.4	89.9	87.2	89.0
SMAM	**24.9**	**92.5**	**26.0**	**27.1**	**19.8**	**20.7**	**21.7**	**22.7**

Source: Population Census Organization: 1972, 1981 and 1998.

[a] Pakistan Reproductive Health and Family Planning Survey, 2000-2001.

Recent evidence, however, shows that age at marriage of Pakistani males and females has been consistently rising over the years. For example, the singulate mean age at marriage for females increased from 19.8 years to 22.7 years, and for males from 24.9 years to 27 years during the period 1972-1998, with supporting evidence of a declining proportion of currently married males and females in younger age groups (Population Census Organization, 2000). Table 5 shows that

the proportion of married females aged 15-19 years has declined from 34 per cent to 15 per cent and of females aged 20-24 years from 77.7 per cent to 51.0 per cent during the period 1972-2001. This reflects that the sociocultural norm of early marriage has begun to erode, especially among women with exposure to urban living and higher educational attainment. As the proportion married are taken as a proximate determinant of fertility, the evidence shows that the changing marriage patterns have significantly contributed to explaining the fertility transition in Pakistan (Soomro, 2000, 2003; Hakim, 1994).

High age at marriage is also found to be directly linked to female autonomy and lower fertility as it reduces the chances to control younger women's sexuality and independence (Sathar and others, 1988; Mason, 1993; Abadian, 1996). Such changes are apparent only among the small proportion of women who are educated, exposed to urban living and involved in paid employment, whereas the majority of women living in rural areas with low educational attainment and limited autonomy and decision-making still exhibit the traditional norm of early marriage and early childbearing. These women need to be reached and motivated through information, education and communication (IEC) campaigns either to space or to delay their first birth in order to achieve further declines in fertility.

Son preference and child mortality

The effects that the number of living sons and the mortality of children have on fertility and the desire for children are significant in traditional cultures such as Pakistan, which is characterized by a patriarchal structure and strong gender biases. In such a setting, where women in most cases are economically dependent on their husbands and live without the economic and social support of their natal kins, the effects on fertility operate through the preference for male children. Sons are highly valued primarily for providing economic help on the farm or in the family business, for security in old age, for carrying on the family line and for strengthening the social position of women in the household (Cain, 1993; Dyson and Moore, 1983; Arnold, 1996).

Various studies documenting the pervasiveness of son preference and various discriminatory practices against daughters exist for Pakistan as in other South Asian countries (Ali, 1989; Mahmood, 1992; Nag, 1991; Nayab, 1998). Research evidence shows that many women with three or more surviving children continue having more children in the hope of having another son. For example, among women with three living children and only one son, 83 per cent want their next child to be a boy. Similarly, of women with four living children three of whom are sons, 38 per cent still prefer to have a boy as their next child compared with only

10 per cent who want a girl child, indicating a strong preference for male children (table 6). Moreover, husbands appear to have a mildly stronger preference for sons than do their wives. Having at least one son is important in its effects on the fertility desires and contraceptive use behaviour of couples in Pakistan (Mahmood and Ringeim, 1996).

Table 6. Preference for the sex of the next child, by number of living children (currently married women wanting another child)

Living children	Number of sons	Preferred sex of next child		
		Male	Female	Does not matter
One	No son	66.8	0.1	33.1
	One son	25.5	17.6	56.9
	Total	45.5	9.1	45.5
Two	No son	94.4	0.0	5.6
	One son	56.9	1.3	41.8
	Two sons	19.0	49.4	31.6
	Total	57.2	13.5	29.3
Three	No son	94.6	0.0	5.4
	One son	83.5	0.2	16.3
	Two sons	34.0	19.6	46.4
	Three sons	8.3	78.8	13.0
	Total	60.1	16.5	23.4
Four	No son	100.0	0.0	0.0
	One son	86.1	0.0	13.9
	Two sons	53.8	0.0	46.2
	Three sons	38.5	10.7	51.3
	Four sons	0.0	91.3	8.7
	Total	63.3	8.9	27.7
All		**47.9**	**8.8**	**43.3**

Source: 1996-1997 Pakistan Fertility and Family Planning Survey.

Further evidence of the strong relationship between son preference and reproductive behaviour is seen when, in the absence of gender preference, the percentage of women wanting another child would decrease by 16.8 per cent and the contraceptive prevalence rate would increase by 17.3 per cent in Pakistan

(Arnold, 1996). Moreover, couples who experience the death of a male child in the family have a stronger tendency to replace and compensate for his loss than those who experience the death of a female child (Rukanuddin, 1982). Thus, the impact of son preference on fertility behaviour appears to be strong and this prevents many couples from altering their reproductive preferences and practising contraception. It appears that the attitudes that favour having sons are deeply rooted in cultural traditions; these are unlikely to change in the short run and their effects on fertility behaviour are likely to continue for some years to come.

Family structure

The extended family is the basic social unit in Pakistani society. It is considered a source of security for many people; the eldest male of the household has the superior position and decision-making authority. The theoretical argument that women living in nuclear households are more likely to want fewer children and adopt fertility-limiting behaviour than those in extended households is based on the reasoning that living in a nuclear family is more egalitarian and conjugally oriented, where women feel fewer constraints and less opposition from older members of the family about birth planning, and also enjoy greater freedom to make their own choices and decision about reproductive behaviour (Mahmood, 1992). The evidence further shows that women living in nuclear households have a higher age at marriage, greater desire for no more children and higher contraceptive use than those living in extended households, factors that are all associated with lower fertility outcomes (Sathar and Kazi, 1997).

Although the extended family system is an acceptable and even the preferred way of living on sociocultural grounds in Pakistan, it has been observed that the tendency towards setting up nuclear families is on the rise and this has eroded somewhat the decision-making power of older persons and other extended kin in the household. The evidence shows that the nuclear family structure is likely to enhance female autonomy, the woman's role in family decision-making and communication with her spouse. It also shows that more of women in such families demonstrate characteristics and behaviour that are consistently related to lower fertility (table 7). As the table shows, contraceptive use and the desire for no more children are higher among women from nuclear families than extended households. Moreover, a larger proportion of women living in a nuclear type of family have greater autonomy and say in household matters than those in the extended family system. Based on the limited evidence that we have on the relationship between family structure and fertility behaviour, it appears that women living in an extended family household need to be targeted for programme

interventions. IEC campaigns should also focus on mitigating the influence of mothers-in-law and other older persons in the family to enable younger women to make independent choices in birth planning.

Table 7. Selected sociodemographic indicators of women's position in nuclear and extended households: rural Punjab, 1996

Indicators	Nuclear	Extended
Demographic characteristics		
Age at marriage (years)	17.7	18.3
Current use of contraception (%)	31.5	17.2
Ever use of contraception (%)	43.0	28.2
Want no more children (%)	60.9	33.3
Decision-making and autonomy (%)		
Talk about family planning	43.6	34.8
Have a say in household expenditures	71.9	49.5
Make major household purchases	22.3	12.2
Can go alone to fields	53.4	35.7
Can go alone to health centre	39.8	18.9

Source: Z. Sathar and S. Kazi (1997). *Women's Autonomy, Livelihood and Fertility: A Study of Rural Punjab* (Islamabad, Pakistan Institute of Development Economics).

Note: Age at marriage does not appear to differ much in this sample of rural women, although the expectation is that women from nuclear households would have a somewhat lower age at marriage than those from extended households.

Religious beliefs and values

The religious milieu in Pakistan has consistently maintained doubts about the moral acceptability of practising family planning and this situation contributes to a lack of self-efficacy in limiting family size. Various demographic surveys indicate that a significant proportion of both wives and husbands give responses such as it is "up to God" regarding questions concerning the ideal number of children and cite religion as a reason for not using family planning (Mahmood and Ringheim, 1996). Evidence from a recent fertility survey shows that 32.3 per cent of currently married women say that they have read something against family planning in the Koran and 46.6 per cent report that they have heard messages against family planning from religious authorities (NIPS, 1998). These data show that a

substantial proportion of the population still believes that fertility is controlled by fate, and religious beliefs are significant in keeping the demand for children high and the use of contraception low, especially among rural and illiterate subgroups of the population. Thus, the questions on desired family size or fertility preferences and the approval and use of family planning asked in various demographic surveys may be meaningless for such women and men. This suggests that the population programme should strive to clarify the religious misperceptions about family planning by enhancing educational and motivational campaigns as well as seeking the cooperation and support of religious and community leaders in efforts to make birth planning more acceptable to people as has happened in the case of the Muslim populations in Indonesia and the Islamic Republic of Iran (Jones and Karim, 2004).

Women's status and autonomy

Numerous studies in the demographic literature suggest that women's status has an important role to play in determining the course of demographic change (Mason, 1984; 1993; Dyson and Moore, 1983; Oppong, 1983). It is argued that the conventional indicators of women's status such as education, work participation and age at marriage do not give a clear and accurate picture of the social and cultural dimensions thought to be important in affecting fertility behaviour in Pakistan. Other indicators linked to the sociocultural process that have proved to be relevant in explaining changes in reproductive behaviour include women's autonomy in decisions related to reproduction, their control over resources compared with that of men and women's position arising from social institutions and cultural conditions. In patriarchal settings such as Pakistan, improvements in women's status can have negative effects on fertility that are typically described as operating through women's autonomy in reproductive decision-making and sex preference for children (Mason, 1993; Cain, 1993). The lack of female autonomy slows the fertility transition by restricting women in expressing their desire for fewer children and making independent choices about contraceptive use (Jejeebhoy, 1995).

The status of women in Pakistan, as measured by educational level and work participation, is unarguably low. The widespread illiteracy of women and their economic dependence on men greatly constrains them from implementing their fertility desires. The empirical evidence suggests that, among the conventional indicators of women's status, education has apparently the strongest effect because it influences fertility in three different ways: by raising the age at marriage, by raising the knowledge and use of contraception and by reducing the desired family size (Syed, 1978; Shah, 1986; Sathar and others, 1988; Hakim and

Aziz, 1998; Mahmood, 1998). However, in view of the patriarchal and patrilocal social structure, women's position in the household is regulated by the sociocultural values and practices in the family, which are closely related to demographic behaviour. Marriages are contracted mostly between relatives (cross cousins); women in general have less autonomy in extended households than in nuclear families with restricted and unequal power relations in many spheres of life (Dyson and Moore, 1983; Sathar and Kazi, 1997). Evidence from the demographic surveys indicates that contraceptive use is much higher among women who stated that they could go outside the home or to the hospital alone than those who could not go alone (NIPS, 1992; 1998). Limited autonomy and restricted mobility of women in Pakistan is largely explained in terms of their younger age, lack of education, less participation in paid employment and joint family structure, all of which inhibit them from gaining access to reproductive health services and adopting family-limitation behaviour (Khan, 1999). The evidence suggests that greater gender inequality and the limited decision-making power of women are significant in affecting reproductive behaviour in Pakistan and that inter-spousal communication and family structure are the strongest predictors of contraceptive use, while women's mobility and economic autonomy are moderately related to fertility-limiting behaviour (Sathar and Kazi, 1997; Mahmood, 2002). It appears that an improvement in these aspects of women's life would not only change the reproductive behaviour of couples in Pakistan, but the benefits would also extend to reducing gender inequality, which appears to be critical for achieving population and development policy goals.

Policy implications

The foregoing analysis and review have several implications for both policy and research. The new population policy of Pakistan announced in 2002 gives a renewed commitment to provide universal access to safe family planning services by 2010, and to achieve replacement-level fertility by 2020. Research evidence shows that limited access to and the poor quality of services contribute to keeping the utilization rates low, particularly among rural and poor women. The discussion in the article has shown that women's access to services is limited by social and cultural factors that constitute a stumbling block in changing the fertility behaviour of couples. We now turn to a related question of how these research findings and information can be used for improving and altering the sociocultural conditions in order to make them more conducive to better utilization of services and implementation of the population planning programme.

Pakistan's population programme stands at a threshold, along with other programmes in the social sectors, where focused and sustained efforts are needed

to improve its outreach and effectiveness. With almost universal knowledge about family planning, only 32 per cent of couples are reported to be using contraceptives, leaving ample scope for increasing the contraceptive prevalence rate and further lowering fertility, in view of the fact that a large fraction of women want to have no more children. The findings show that it is the rural population that has a low contraceptive use rate. They also show that the social barriers that restrict women's mobility to access services along with their low levels of education present major challenges for achieving rapid fertility decline.

Among various measures to deal with the access issue, the provision of doorstep services through community-based female workers appears to be appropriate, and a practical model of expanding outreach to rural women. Findings from a recent study provide strong evidence that the Lady Health Workers Programme of the Government, initiated under the Ministry of Health in the early 1990s, has succeeded in significantly increasing the use of contraceptives through integration of family planning with preventive health-care services at the doorstep, and these workers can act as important agents of change in rural areas (Douthwaite and Ward, 2005). Hence, the current service delivery mechanisms need to be strengthened and enhanced in terms of the doorstep approach in order to fulfil the unmet need of a significant proportion of rural women.

In the past, the population programme strategy that focused on a supply-oriented fixed-site delivery system did not prove to be effective because the quality of care aspects and the sociocultural factors hindered many couples from utilizing those services. The IEC strategies and delivery services were almost exclusively addressed towards women, ignoring the fact that most women generally have little or no decision-making power to control their family's resources, have limited mobility to be able to travel to distant places for seeking family planning services and have misgivings about their husband's opposition to limiting fertility and practising contraception.

In the context of the sociocultural constraints that prevent many couples from accessing services, the implications for policy formulation and programme development clearly emerge in areas such as improving opportunities for schooling girls, enhancing the empowerment of women, changing the culture-specific gender biases prevalent within the framework of the community, developing spousal communication about reproductive health, changing men's attitudes about the desirability of having large families, with their preference to have more sons, and most importantly, upgrading the quality of services to increase their effectiveness and continuity of use. To address these issues at the policy level, a modified IEC approach is required with a particular focus on enhancing

collaborative activities among the Ministries of Population Welfare, Health, Women and Development, Education and Youth for mainstreaming population issues and activities in their programmes. Moreover, service provision at the community level could be enhanced through public-private partnership initiatives and the involvement of civil society.

The analysis further suggests that influencing women's and men's attitudes about the legitimacy of using contraception requires focused IEC campaigns through mass media and community-level efforts to educate couples, especially men, about the risks associated with the poor reproductive health of mothers and the socio-economic and health benefits of having small families. This transition can be facilitated partially through community-based workers' communication, which can provide clients with more appropriate knowledge and information that will address their family constraints and social situations.

Although the IEC component of the Population Welfare Programme has gained some momentum since the 1990s, imparting family planning messages through radio, television and printed materials and through community-based workers with greater emphasis on interpersonal communication strategies, the concern about the acceptability of contraception on cultural and religious grounds still remains a challenge for programme implementation. The IEC strategies and service delivery system have not been adequate in bringing about a significant attitudinal and behavioural change among the majority of the population and in bridging the gap between the knowledge and practice of family planning. Some of the identified shortcomings of these programmes are lack of male involvement as equal partners, lack of focus on adolescents and youth, weaknesses in the provision of appropriate counselling and information to couples, limitations in promoting spousal communication on family planning matters, and inapplicability of some strategies to sociocultural conditions among various population strata in Pakistan (UNFPA, 1999).

In this context, policy initiatives require an IEC strategy and media campaigns, which will ensure that local-level interpersonal efforts provide regular feedback to the programme at the national level about the realities on the ground and the sociocultural conditions that are hindering the delivery of services. The interpersonal communication strategies should take into consideration the influence of spouses, in-laws, relatives and friends in affecting reproductive choices and decisions at the household level. In this regard, qualitative research on interpersonal communication should be undertaken to improve understanding of the process of family decision-making, the attitudes and concerns of people in different social situations and their effects on fertility behaviour.

Conclusion

Some changes in the demographic behaviour of Pakistan's population are under way. The cumulative evidence from multiple data sources and independent studies indicates an improvement in infant and child mortality levels and a decline in fertility in recent years. However, the fertility transition has been slow-paced and resistant to change, demonstrating a large unmet need for family planning in all population strata.

In assessing the obstacles to further changes in reproductive behaviour, the role of sociocultural factors, among other things, appears important. The analysis suggests that a large fraction of the population, particularly women, who have had no exposure to schooling, are married at an early age, have a strong son preference and have fatalistic attitudes towards the use of family planning, face constraints in changing their reproductive behaviour. In this context, the most serious constraint appears to be gender inequities in the social system, which are well reflected in women's low status and autonomy, their limited mobility and lack of participation in family decision-making. All these factors, deeply embedded in the sociocultural and religious milieu of Pakistan, are intertwined and mutually reinforcing in slowing the pace of fertility change.

Taking this assessment of sociocultural constraints as a starting point to bring about further changes in demographic behaviour, some focused programme interventions are needed both on the supply and demand sides. On the policy level, the role of IEC strategies appears to be important in bringing about attitudinal and behavioural change in a large fraction of the population. The evidence shows that mass media campaigns and expansion in the coverage and accessibility of programme services have significantly increased the knowledge, acceptability and use of contraception in the 1990s. However, these strategies and programmes have been deficient in providing appropriate family planning counselling and good quality of care in accordance with their clients' values, attitudes and family realities, thereby leaving a significant proportion of women in need of family planning services. Furthermore, the lack of policy initiatives to involve men as an equal target group of the programme in the patriarchal setting of Pakistan has hampered programme efforts, especially where the influence of husbands in family decision-making is strong.

The overall situation, therefore, raises a basic demographic question: will women, unable to achieve their reproductive goals and prevent unwanted births for either lack of access to services or limited autonomy and education, end up having larger families and more children than desired? The answer will depend on the approach adopted to reach out to those families and couples who are in need of

family planning and are experiencing unwanted pregnancies and births, especially in rural areas where traditional cultural conditions in conjunction with widespread illiteracy and limited mobility of women act as barriers to the adoption and use of contraception. It appears that a substantial decline in fertility could occur if the constraining sociocultural barriers to demographic change are removed and good quality services are provided to a large fraction of women with an unmet need for family planning. For this purpose, some qualitative research is needed to get a better assessment of the sociocultural aspects relevant to the fertility transition and that can further be utilized for formulating better policy options. However, one clear option emerging from the analysis is that promoting increased male responsibility for their family's health concerns, instilling the value of child quality over quantity and educational campaigns to counteract son preference may be effective in bringing about ideational and attitudinal change and in helping Pakistani couples to alter their reproductive choices and behaviour.

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Endnotes

1. A series of Pakistan Demographic Surveys (PDS) available for the years 1984-2003 also provide information on fertility and mortality estimates. However they are not reported here owing to the lack of data on contraceptive prevalence and related sociocultural characteristics of population.

2. The preliminary results of the recent survey undertaken by the National Institute of Population Studies in the year 2003-2004 indicate that TFR is 4.06 births per woman at the national level.

3. Despite a marked increase in contraceptive use, Pakistan's total fertility rate at more than 4 children per woman remains one of the highest in Asia.

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Does Economic Inequality Matter in Cases of Infectious Childhood Diseases? An Analysis for India

Relative poverty within a population is one of the fundamental reasons for the high prevalence of infectious childhood diseases in a developing country such as India.

By Saswata Ghosh*

Although remarkable declines in infant and child mortality have been observed in developing countries during the last quarter of the twentieth century, the incidence and the prevalence of infectious diseases among children under five years of age still persist at an alarmingly high level, especially in sub-Saharan

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Africa and South Asian countries in the ESCAP region. Over two thirds of the estimated 3.7 million deaths of children in South Asia in the year 2000 were attributable to infections such as pneumonia (acute respiratory infections), diarrhoea and measles (UNICEF, 2004; Black, Morris and Bryce, 2003). In India, diarrhoea, acute respiratory infections, tuberculosis and chronic hepatitis continue to threaten the lives of millions of children.

It is well established that the health profile of a population depends on many factors: a combination of existing environmental risks (physical, biological and social), the proportion of the population facing these different risks and the sociocultural-demographic profile of a particular region or country. While pathogens such as viruses and bacteria have been identified as causes of disease, exposure to them, while necessary in the contraction of disease, is not sufficient to cause disease. Relative poverty within a population, which results in inadequate access to and utilization of basic services, amenities and opportunities including preventive and curative health care, is one of the fundamental reasons for the high prevalence of infectious childhood diseases in a developing country such as India.

There are various approaches to study infectious childhood diseases and their relationship to illness and mortality. Medical research focuses on biological processes of infectious diseases of childhood, while social science research primarily focuses on socio-economic differentials of child mortality and largely ignores specific causes of death. Mosley and Chen's (1984) "proximate determinants of health dynamics" model, which incorporates both social and biological variables, has been adopted by a number of researchers such as Pandey and others (1998) to identify determinants of child mortality in developing countries. Their premise is that all social and economic determinants of child mortality necessarily operate through a common set of biological mechanisms or proximate determinants. These include maternal and environmental factors, nutritional deficiency, injury and personal illness control in affecting mortality (Mosley and Chen, 1984). However, these studies dealt primarily with mortality and not with morbidity per se. It seems, therefore, that the relationship between morbidity and death is held as obvious, needing no analysis on its own, while sickness leading to death is considered as a one-time event. However, Mosley and Chen (1984) have argued that death among children should be studied as a chronic disease process with multifactoral origins rather than as an acute single-case phenomenon. Thus, relatively few studies are available in this regard in developing countries. Some studies have demonstrated that unlike adults children face a greater threat to their health and well-being from exposure to parasitic and infectious diseases including diarrhoea, malaria, acute respiratory infections,

tetanus and measles owing to the vulnerability of their young bodies. They have also shown that exposure is conditioned by household environmental conditions, as well as social, economic and ecological factors (Ryland and Raggers, 1998; Costello and others, 1996; Omariba, 2001). A comparative study of urban areas of Ghana, Egypt, Brazil and Thailand clearly indicates that children's health is affected by the economic status of the households and is attributable to the differences in child-care practices, for instance, the preparation of weaning foods and personal hygiene (Timaeus and Lush, 1995). Studies in India have shown that the household economy is a significant predictor in cases of infant and child mortality (Mahadevan and others, 1986; Pandey and others, 1998; Ghosh, 2003). Ghosh and Mondal (2003) have shown that the household standard of living is a significant predictor of under-five mortality but not of morbidity in rural and urban areas and urban slums in the Maharashtra State.

Along with the economic condition of the household, other spatial, demographic and socio-economic factors affect the susceptibility of children to infectious diseases in developing countries. The incidence of diarrhoea has been found to be higher in the second half of an infant's life (Yohannes, Streatfield and Bost, 1992). Babies born to young mothers are more likely to be premature, have low birth weights, suffer from complications at the time of delivery and be more prone to mortality than those born to older women (Hobcraft, McDonald and Rutstein, 1984; Pandey and others, 1998; Ghosh, 2003). Excess female mortality in the post-neonatal and childhood periods has generally been observed in India and other South Asian countries. Some studies have argued that this phenomenon is attributed to "son-preference", which leads to differential treatment of sons and daughters in terms of the allocation of food, the provision of health care and the treatment of illness (Gupta, 1986; Visaria, 1987; Arnold, Choe and Roy, 1998; Pandey and others, 1998). However, these studies did not focus on whether the sex differentials exist in cases of infectious childhood diseases. Caldwell (1979) argued that maternal education plays an important role in determining child survival, even after controlling a number of socio-economic factors. Several other studies also established the influence of maternal education on child health and survival (Cochrane, O'Hara and Leslie, 1980; United Nations, 1985; Da Vanzo and Habicht, 1986; Cleland and van Ginneken, 1989; Bicego and Boerma, 1993). Tagoe (1995) found that the prevalence of diarrhoea is negatively related to the education of mothers in Ghana, but in India's Maharashtra State, no such relationship has been observed (Ghosh and Mondal, 2003). However, Ghosh and Mondal (2003) have observed that religious and caste differentials do exist in childhood morbidity in Maharashra. Studies in India and other developing countries have suggested a negative relationship between maternal work and child

health and survival (Hobcraft, McDonald and Rutstein, 1984; United Nations, 1985; Zachariah and others, 1994; Basu and Basu, 1991; Sivakami, 1997; Pandey and others, 1998; Kishor and Parasuraman, 1998). Various studies have proved that there is a very strong negative relationship between childhood immunization and the incidence of infectious childhood diseases (Ghosh and Mondal, 2003; International Institute for Population Studies (IIPS) and ORC Macro, 2000). Maternal anaemia may have detrimental effects on the health of children and may become an underlying cause of perinatal morbidity and mortality (Seshadri, 1997 and 1998; IIPS and ORC Macro, 2000).

The present study attempts first to determine the level and pattern of infectious childhood diseases among children living under different economic conditions by their background characteristics. It seeks second to examine the influence of household economic conditions on the incidence of infectious childhood diseases after controlling a number of plausible spatial, demographic and sociocultural variables that may affect the incidence of infectious childhood diseases. The hypothesis here is that economic inequality is one of the most important determinants in explaining the high prevalence of infectious childhood diseases in India.

Materials and methods

Data

Data for this study were drawn from India's second National Family Health Survey (NFHS-2), a large scale survey carried out between 1998 and 1999 by ORC Macro International, the International Institute for Population Sciences and the East-West Center. The data on fertility, mortality, morbidity, family planning and important aspects of reproductive health, nutrition and childcare were collected from a nationally representative sample of 90,303 ever-married women in the age group 15-49 years, residing in 92,486 households. In addition, the survey collected information on the incidence of disease among 30,984 children born during the three years preceding the survey and alive on the survey date. The children's mothers provided information on the childhood diseases, which included diarrhoea, acute respiratory infection, asthma, tuberculosis, malaria and jaundice (it should be mentioned that, although not a disease in itself, jaundice, or yellowing of the skin and whites of the eyes, is caused by a buildup of bilirubin levels, which may be a manifestation of liver disease or other serious conditions such as gallbladder and intestinal disorders, and infection). It should also be noted that data on the occurrence of asthma, tuberculosis, malaria and jaundice were collected for every member of the households surveyed. As the present study

deals only with infectious diseases among children, it was necessary to consider the cases of diarrhoea, acute respiratory infection, tuberculosis, malaria and jaundice, which have an infectious aetiology. Asthma, which is a non-communicable disease, has been excluded from the analysis.

In order to meet the objectives of the present study, the response variable has been classified into two categories: occurrence of any of the five aforementioned infectious diseases and non-occurrence of any infectious disease.

Explanatory and control variables

NFHS also collected information on the background characteristics of mothers, children and households. The main predictor variable in this analysis was "household's economic status". As information on household income or expenditure is not directly available, the standard of living index (calculated by NFHS-2) has been taken as the proxy for household economic status. The standard of living index consists of the following household and economic characteristics: type of house, toilet facility, source of lightning, main fuel for cooking, source of drinking water, use of separate room for cooking, ownership of house, ownership of agricultural land, ownership of irrigated land, ownership of livestock and ownership of durable goods. On the basis of the composite score related to these characteristics, the household standard of living has been divided into low, medium and high levels.[1]

Because the effect of the household standard of living on the incidence of infectious diseases is likely to be confounded with the effects of some of these other variables, the selected spatial, demographic and socio-economic characteristics were controlled statistically. The variables included as controls in this analysis are as follows: place of residence (rural and urban), geographic region[2] (south, east, central, north, west and north-east); mother's age (younger than 20, 20-29 and 30 or more years); sex of the child (male, female); birth order (1, 2-3 and 4+); size of the child at birth[3] (less than average, average and greater than average); immunization status of the child (no immunization, partial immunization and complete immunization); work status of the mother (working and not-working); maternal anaemia at the time of pregnancy (no, yes); exposure to mass media[4] (no, yes); religion and caste; and crowding in the household. Religion and caste have been pooled to form a single variable categorized as "forward caste Hindu", "scheduled caste/scheduled tribe Hindu" and "other than Hindu".[5] Here "crowding" is measured as the number of persons per room; it has been grouped into two categories: "less than or equal to three persons per room" and "more than three persons per room".

Each control variable has a rationale for inclusion. The place of residence has been controlled here as it is directly correlated with a household's economic condition as well as the incidence of infectious childhood diseases. Geographic region has been controlled because it could provide some indication of the differential levels of development among the regions and differences in certain ecological and climatic conditions associated with the aetiology of diseases that may exist in the regions. Age of the mother has been controlled because young mothers are less likely to be educated and aware of childcare practices to protect their children from infectious diseases. They may also be unaware of the utilization of health-care services such as childhood immunization as their older counterparts. Sex of the child has been included as a control since it has been often argued that, in India's patriarchal society, boys are likely to receive more care than girls and therefore be less prone to infectious diseases. Birth order has been controlled in the analysis because higher birth order children are more susceptible to infectious diseases than first birth order children; higher birth order children are more likely to be neglected than lower order ones by virtue of being born into a large family. Children who are perceived by their mothers to be smaller than average, that is, underweight, at the time of birth have a presumably higher risk of infection than children perceived to be of average or larger size and thus controlled. The vaccination of children has been controlled as it is widely accepted that immunization with all the recommended vaccines remarkably reduces the incidence of infectious childhood diseases.[6]

Religion and caste are cultural variables that are controlled for cultural variations in child care. Maternal education has been controlled here as it is an important factor possibly influencing the incidence of infectious childhood diseases since more highly educated mothers, owing to their exposure to the outside world, are more aware of their own personal hygiene as well as that of their children and have greater awareness about issues of preventive, promotive and curative health care than less educated mothers. Women's participation in paid work may also have a bearing on any illness of their children caused by infectious diseases because of conflicts in time allocation between her work schedule and the time needed for child care, including breastfeeding; such participation is correlated with the household economy. Thus, women's work status has been controlled in this analysis. Further, "maternal anaemia" has been controlled here as a proxy for maternal nutritional status, which is an important factor because it is directly related to the household's economic conditions as well as the incidence of infectious childhood diseases. Undernourished mothers are more likely to give birth to premature babies, who because of their low inborn immunity presumably are more prone to infectious diseases than full-term babies. It is widely believed

that exposure to mass media can play an important role in educating women about how to combat infectious childhood diseases and this factor is directly correlated with a household's economic conditions and hence controlled. On the contrary, it is likely that the reporting of disease would be higher among those women who are exposed to any sort of mass media as they are more aware of the signs and symptoms of infectious disease than mothers who are not exposed to mass media; therefore, statistically the role of mass media exposure could be negative with regard to the incidence of infectious childhood diseases.

Breastfeeding is nearly universal in India. According to the first National Family Health Survey (NFHS-1), 1992-1993, 95 per cent of all children born during the four years before the survey had been breastfed. Breastfeeding generally continues beyond infancy; the median duration of breastfeeding is slightly more than two years (IIPS, 1995). According to NFHS-2, 97.5 per cent of all children born during the three-year period prior to the survey had been breastfed. Thus, in spite of the immense importance of breastfeeding on child health, the effect of this factor cannot be studied since there is hardly any variation in this practice in India. Another important variable, "child nutritional status", would influence the risk of morbidity and hence ought to be used as an explanatory factor. However, the possibility of a reciprocal effect, that is, illness adversely affecting weight and height, commonly used in anthropometric measurements of nutritional status such as weight-for-age, height-for-age and weight-for-height, must be recognized. This makes it difficult to interpret the influence of nutritional status on illness, especially in regression analysis of survey data. In addition, for many children anthropometric measurements were not obtained in the survey; hence, inclusion of nutritional status variables would substantially reduce the sample size. Although nutritional status has not been included in the initial analysis, an alternate scheme of analysis has been adopted in which this variable has been included as an additional variable, and the results are presented in a subsequent section.

Some other limitations of the survey data also need to be discussed. First, morbidity always shows seasonal variations; it is generally found to be relatively high just after the monsoon (rainy) season and relatively low just after winter. Thus, the prevalence of morbidity, as seen in the NFHS, may not represent the actual scenario prevalent in India, as the period of the survey varies among states. Second, during the survey, the children were not examined and the mothers were not given a precise definition of what constituted an episode of an infectious disease considered here. The questions which were asked in the survey measure the mother's perception of her child's health rather than assess a disease according to a clinical profile. This may create variations among different socio-economic groups

because perceptions of illness are not the same across different social groups. Third, loss of memory of events as well as misinterpretation of the reference period can also contribute to the problems associated with the prevalence of diseases considered here (Bateman and Smith, 1991; Gaminiratne, 1991). This could, to some extent, affect the estimates of influence of various variables obtained here. Nevertheless, the NFHS dataset provides the individual data on a large number of children along with background information, thus permitting detailed analysis.

Methods

The analysis focuses on how the household standard of living affects the incidence of infectious childhood diseases, after controlling for all these potentially confounding variables. Again, since the incidence and the cause of infectious childhood diseases vary widely by children's age, separate analysis is needed for the children of different age groups, namely, those less than 6 months of age, 6-11 months of age and 11 or more months of age. Since two categories exist for the response variable (whether the child is affected by any of the five infectious diseases or not), three sets of logistic regressions have been employed for the children in the three different age groups. The generalized logistic regression equation can be written in the following form:

$$\text{logit } q = \beta_0 + \sum \beta_i X_i \quad (i = 1, 2, \ldots, 14)$$

where q is the probability that a child is affected by an infectious disease;

$\text{logit } q = \ln [q/(1-q)]$ and $\{X_i\}$ $(i = 1, 2...., 14)$ are the predictor variables, β_0 is the intercept and β_i $(i = 1, 2,..... 14)$ the regression coefficient(s). The results of the logistic regressions of the above equations are transformed into simple cross-tabulations of probability of any infectious disease using multiple classification analysis (Retherford and Choe, 1993). This involves calculating adjusted values of the response variable for each category of predictor variable.

Results and discussion

Prevalence of infectious childhood diseases

Prevalence of infectious childhood diseases by place of residence is shown in table 1. It has been revealed that, among all the listed types of infectious diseases, the prevalence of diarrhoea is highest (19.7 per cent) at the all-India level. The prevalence rates of acute respiratory infections and malaria are comparatively higher in rural areas (20.3 per cent and 4.4 per cent respectively) than in urban areas. The prevalence of other diseases does not vary significantly according to the

place of residence. For the country as a whole, the prevalence of any infectious disease is more than 35 per cent, with little variation between rural and urban areas (about 36 per cent in rural areas and more than 32 per cent in urban areas).

Table 1. Prevalence of infectious diseases among children, by place of residence, India, NFHS-2, 1998-1999

Nature of infectious diseases	Percentage of children ill with the disease during the specified reference period		
	Rural	Urban	Total
Diarrhoea[a]	19.8	19.3	19.7
Acute respiratory infection[a]	20.3	15.9	19.2
Tuberculosis[b]	0.6	0.6	0.6
Malaria[c]	4.4	2.1	3.8
Jaundice[d]	1.6	1.1	1.4
Any infectious disease	**36.7**	**32.4**	**35.6**
Total number of children	**22,839**	**8,145**	**30,984**

[a] Reference period was 15 days preceding the survey date.

[b] Reference period was at the time of the survey (point prevalence).

[c] Reference period for malaria was 3 months preceding the survey date.

[d] Reference period for jaundice was 12 months preceding the survey date.

Prevalence of diseases by economic groups and selected background characteristics

Table 2 presents the prevalence of infectious childhood diseases by selected background characteristics among three different economic groups. It has been observed that the prevalence of diseases varies significantly according to the household's living standard. Among the lower economic group, the prevalence of infectious diseases among children is more than 38 per cent; it declines to 30 per cent for the higher economic group. If spatial characteristics are considered, children in rural areas are more prone to infectious diseases than their urban counterparts irrespective of economic groups, although the difference is not significant. Since NFHS-2 did not specify slum households in its dataset, except for Mumbai metropolis, it is difficult to determine whether the children who live in slum areas of towns and cities also suffer greater vulnerability to illnesses than their rural counterparts. It should be mentioned here that using NFHS-2 data, Ghosh and Mondal (2003) have observed that unadjusted under-five morbidity is higher among children in slum areas of Mumbai than among children in rural and

non-slum urban areas of Maharashtra State. Children in the southern part of India are less prone to infections than any other part of the country irrespective of economic status. Southern India comprises the following states: Andhra Pradesh, Kerala, Karnataka and Tamil Nadu. Children in the central region of the country are highly susceptible to infectious diseases across economic groups. Children of lower and medium economic status in the north-eastern region are significantly more affected by infectious diseases. It has also been observed that, as household economy increases, the prevalence of infectious diseases among children decreases in all regions. It seems that these differences in the prevalence of diseases among regions are possibly due to the variations in certain ecological and climatic conditions associated with the aetiology of specific diseases and also may be due to the differential level of socio-economic development among these regions.

The prevalence of diseases also varies according to demographic characteristics. Although not much variation in the prevalence of diseases has been observed during early infancy among economic groups, variations become pronounced during later infancy and early childhood. Children more than 6 months old are very susceptible to infectious diseases; however, prevalence declines somewhat among children in higher economic strata. Some differences have also been observed in the prevalence of diseases by mother's age and by economic group. The children of older women in higher economic groups have a lower prevalence of infectious diseases than others. Boys are more likely to be affected by diseases than girls, although the prevalence decreases as the living standard of the household increases. It has also been observed that higher order children are more prone to infectious diseases than lower order children irrespective of household economy. The prevalence tends to be low among first order children in higher economic groups. Low birth-weight children are more prone to infectious diseases than others across economic groups. However, the prevalence of such diseases declines significantly as the living standard of the household increases. Among the socio-economic characteristics considered in this study, it can be argued that the children of forward caste Hindus are less prone to diseases than others, and the prevalence is significantly low among the children of forward caste Hindu households of higher economic status. The prevalence of infectious diseases is higher among children in lower economic strata who are members of "other than Hindu" religions. Disease prevalence is significantly higher among those children whose mothers are illiterate and also from poor families. The prevalence declines significantly among the children of relatively affluent families and of more highly educated mothers. Women in the lower economic strata who work outside the home are more likely to have children who are susceptible to illness. Maternal anaemia seems to be a very significant predictor in explaining the prevalence of

infectious childhood diseases. The prevalence of diseases is higher for children whose mothers were anaemic during pregnancy irrespective of the economic condition of the households, although the prevalence declines sharply among affluent families. Prevalence is also low among the children of higher economic groups, if they received the complete immunization package. Since the reporting of illness among children tends to be more prevalent among women who have greater exposure to the mass media, the prevalence of infectious diseases is higher among children whose mothers are exposed to mass media of any sort irrespective of their household's economic status. The prevalence of diseases does not vary significantly according to the degree of crowding in households, except in high-income households. It has also been found that the prevalence of diseases is low among well-nourished children in higher economic groups.

Table 2. Percentage of children affected by any infectious disease, by standard of living and by selected background characteristics, India, NFHS-2, 1998-1999

Background characteristics	Standard of living index					
	Low		Medium		High	
	Number	Percentage affected	Number	Percentage affected	Number	Percentage affected
All children	**9,823**	**38.3**	**14,931**	**36.0**	**5,829**	**30.0**
Spatial variable						
Place of residence						
Rural	8,693	38.3	11,052	36.7	2,818	31.7
Urban	1,130	37.8	3,879	34.2	3,011	28.5
Geographic region						
South	1,346	27.8	2,109	25.8	778	21.6
East	2,788	39.8	1,958	35.4	514	25.7
Central	2,204	41.5	3,324	41.5	978	38.4
North	1,169	38.1	3,729	35.4	2,354	31.8
West	788	35.4	1,604	33.9	785	27.0
North-east	1,528	41.9	2,207	40.9	420	27.6
Demographic variables						
Child's age (months)						
<6	1,816	32.2	2,667	31.5	975	27.7
6-11	1,569	46.6	2,482	43.1	971	36.3
12+	6,438	37.9	9,782	35.5	3,883	29.1
Mother's age (years)						
<20	2,210	39.3	3,149	38.1	730	35.5
20-29	5,573	37.9	9,217	35.4	4,103	30.2
30+	2,040	38.2	2,565	35.8	996	25.5
Sex						
Male	5,027	38.5	7,777	37.4	3,172	31.5
Female	4,796	37.9	7,154	34.6	2,657	28.4

.../

Table 2. *(Continued)*

Background characteristics	Low		Medium		High	
	Number	Percentage affected	Number	Percentage affected	Number	Percentage affected
Birth order						
1	2,178	38.0	4,381	35.9	2,335	28.8
2-3	3,903	38.6	6,609	34.6	2,821	30.0
4+	3,742	38.1	3,941	38.6	673	34.5
Size of the child at birth						
< Average	2,696	41.4	3,768	40.1	1,126	36.9
Average	5,829	36.2	8,998	34.0	3,799	28.4
> Average	1,292	40.9	2,151	37.6	900	28.6
Socio-economic variables						
Religion/caste						
Forward caste Hindu	3,676	36.4	7,525	34.2	3,688	29.3
SC-ST Hindu[a]	3,780	38.1	3,240	36.1	560	34.3
Other than Hindu	2,367	41.4	4,166	39.2	1,581	30.4
Maternal education						
Illiterate	7,835	37.9	7,791	37.0	936	31.8
Primary-middle completed	1,809	39.8	5,343	36.8	1,871	35.3
Higher educated	177	36.2	1,794	29.8	3,022	26.2
Work status						
Not-working	5,981	37.7	11,051	34.7	4,920	30.2
Working	3,841	39.1	3,877	39.9	909	29.5
Maternal anaemia						
No	7,194	34.1	10,611	31.9	4,218	26.3
Yes	2,622	49.7	4,313	46.3	1,607	39.8
Child immunization[b]						
No	1,504	38.6	1,310	39.3	128	31.3
Partial	2,886	40.6	3,936	38.7	1,233	32.1
Complete	1,699	32.5	4,154	31.3	2,422	27.5
Mass media exposure						
No	7,091	37.0	5,596	35.9	448	33.0
Yes	2,732	41.5	9,335	36.2	5,381	29.8
Crowding						
≤3 persons/room	4,189	39.0	8,948	36.2	4,791	29.2
>3 persons/room	5,615	37.7	5,981	35.9	1,036	34.0
Nutritional status						
Undernourished	4,230	42.2	5,321	39.2	1,248	33.8
Not-undernourished	3,496	36.8	6,777	35.6	3,623	29.7

[a] Scheduled caste and scheduled tribe.

[b] Only the children aged more than 11 months have been included. The total numbers of children in the low, medium and high standard of living indices are 6,089; 9,400 and 3,783, respectively, with the means being 37.9, 35.6 and 29.1 per cent.

Net effect of selected spatial, demographic and socio-economic characteristics

Table 3 depicts the adjusted percentage probability of any infectious diseases by selected spatial, demographic and socio-economic characteristics in three different age groups of children. The results are discussed according to the age groups shown in the table 3.

Table 3. Adjusted probability (in per cent) of any infectious childhood disease, by selected spatial, demographic and socio-economic characteristics, India, NFHS-2, 1998-1999

Background characteristics	Child's age is <6 months		Child's age is 6-11 months		Child's age is >11 months	
	Number	Adjusted probability	Number	Adjusted probability	Number	Adjusted probability
Main predictor						
Standard of living						
Low (ref.)	1,807	31.7	1,564	47.0	6,072	37.2
Medium	2,665	31.2	2,479	42.1**	9,382	35.0*
High	974	29.9	969	37.5**	3,777	31.5**
Spatial variables						
Place of residence						
Rural (ref.)	4,153	31.8	3,654	43.3	14,022	35.1
Urban	1,293	29.0	1,358	41.0	5,209	34.6
Geographic region						
South (ref.)	686	20.4	739	32.8	2,758	24.8
East	975	33.3**	835	43.8**	3,298	37.1**
Central	1,236	34.6**	1,037	48.3**	3,972	39.8**
North	1,318	31.2**	1,146	42.6**	4,506	35.6**
West	514	31.5**	571	44.1**	2,058	32.9**
North-east	717	33.4**	684	43.2**	2,639	37.7**
Demographic variables						
Mother's age						
<20 (ref.)	974	33.9	972	41.9	3,934	38.8
20-29	3,395	30.4	3,105	44.4	11,888	34.7**
30+	1,077	31.0	935	37.9	3,409	31.7**
Sex						
Male (ref.)	2,802	32.5	2,655	43.3	10,042	36.2
Female	2,644	29.6*	2,357	42.0	9,189	33.7**
Birth order						
1 (ref.)	1,531	31.4	1,545	43.3	5,591	34.3
2-3	2,366	29.5	2,161	42.1	8,432	34.9
4+	1,549	33.2	1,306	42.9	5,208	36.0

.../

Table 3. *(Continued)*

Background characteristics	Child's age is <6 months		Child's age is 6-11 months		Child's age is >11 months	
	Number	Adjusted probability	Number	Adjusted probability	Number	Adjusted probability
Size of the child at birth						
< Average (ref.)	1,534	34.3	1,234	44.3	4,557	38.7
Average	3,289	29.7**	3,024	41.3	11,828	33.0**
> Average	623	31.0	754	45.6	2,846	37.6
Other socio-economic variables						
Religion/caste						
Forward caste Hindu (ref.)	2,676	30.7	2,487	42.6	9,276	33.7
SC-ST Hindu[a]	1,357	31.0	1,253	40.8	4,727	35.0
Other than Hindu	1,413	32.0	1,272	44.7	5,228	37.3**
Maternal education						
Illiterate (ref.)	3,046	31.6	2,602	42.7	10,269	35.5
Primary-middle completed	1,569	32.6	1,521	45.5	5,745	36.4
Higher educated	831	26.8*	889	38.0	3,217	31.2**
Work status						
Not-working (ref.)	4,222	30.1	3,688	41.6	13,427	34.0
Working	1,224	34.7**	1,324	45.7*	5,804	37.3**
Maternal anaemia						
No (ref.)	3,841	28.2	3,565	38.0	13,936	31.4
Yes	1,605	38.7**	1,447	54.6**	5,295	45.3**
Immunization status[b]						
No (ref.)	--	--	--	--	2,926	36.1
Partial	--	--	--	--	8,041	37.0
Complete	--	--	--	--	8,264	32.7**
Mass media exposure						
No (ref.)	2,513	28.6	1,997	40.0	8,088	32.8
Yes	2,933	33.4**	3,015	44.5*	11,143	36.6**
Crowding						
≤3 persons/room (ref.)	2,970	31.0	2,983	42.2	11,530	35.3
>3 persons/room	2,476	31.2	2,029	43.4	7,701	34.5
Total children	**5,446**		**5,012**		**19,231**	
intercept	**-1.428**		**-0.906**		**-0.988**	
-2LL	**6,572.71**		**6,611.44**		**24,067.69**	
Pseudo R2	**0.044**		**0.061**		**0.059**	

Note: Adjusted probabilities are estimated by logistic regression. For any given predictor variable, the set of control variables consists of all the other predictor variables in the table. When calculating adjusted percentages for categories of a given predictor variable, other variables are held constant at their mean values (for details, see Retherford and Choe, 1993).

[a] Scheduled caste and scheduled tribe.

[b] Immunization status has been considered only for children more than 11 months of age.

* $p<0.05$, ** $p<0.01$.

Children less than 6 months of age (early infancy)

It has been observed that, during the early infancy period, the household's economic condition does not play a significant role in the prevalence of infectious diseases. This is probably due to the fact that during the early infancy period children primarily depend on breast milk for nourishment. In addition to breast milk, inborn immunity and less exposure to contaminated agents during the early period of life contribute to the lower significance of the household's living standards. This finding is on par with that of earlier studies (e.g., Habtemarium, 1994; Olugbemiro and others, 1994). Region of residence is a very significant predictor in this age group, even after controlling all other variables. Except for children in southern India, the probability of contracting infectious childhood diseases is significantly high in all other regions of the country and it is highest among children in the central region. Regional variations in infectious childhood diseases are possibly due to the differences in certain agro-climatic conditions associated with the aetiology of these ailments. In addition to ecological conditions, differential levels of socio-economic development between the regions could also account for the emerging morbidity status differences.

The central region of India, for instance, is considered less developed in terms of the general level of educational attainment, macro-economic conditions, basic infrastructure such as road networks, and the availability and utilization of basic health-care facilities, whereas the southern part of the country is more developed in terms of the above indicators. These factors could help to explain the emerging morbidity differences among the regions. Boys are significantly more susceptible to be affected by any infectious disease than girls. The size of a child at the time of birth, which is taken as a proxy for birth weight, has been found to be a significant predictor in this case. Children whose size was average at the time of birth are significantly less likely to suffer from any of the infectious diseases. It has been observed that children of more highly educated women are significantly less likely to suffer from illnesses. Women who work outside the home are significantly more likely to have children who are vulnerable to illness, even after controlling all other socio-economic and demographic variables. These findings confirm the earlier studies done in this field, as previously mentioned (Sivakami, 1997; Pandey and others, 1998; Kishor and Parasuraman, 1998). It has been found that maternal anaemia during pregnancy is very significantly and positively related to the prevalence of infectious diseases among children.

Children 6-11 months of age (late infancy)

In general, children 6-11 months of age were found to be more susceptible to infectious diseases than any other age group considered in this study. This

phenomenon is possibly due to the fact that six months after birth a child's inborn immunity becomes weaker and he or she is exposed to different types of food. A household's standard of living is a significant predictor in the prevalence of infectious childhood diseases in this case. The probability of infectious diseases declines sharply as the household's standard of living increases (from 47 per cent for a lower standard of living to about 37.5 per cent for a higher standard of living). In addition to weakening inborn immunity, the higher prevalence of diseases may be attributed to the fact that, in the households of lower economic status, the risk of infections among children is heightened during the weaning period as the child's food is prepared possibly in an unhygienic physical and social environment, as was found in earlier studies in this regard (Yohannes, Streatfield and Bost, 1992; Woldemicael, 1999; Timaeus and Lush, 1995). Other significant predictors for this age group are geographic region, the work status of the mother, maternal anaemia during pregnancy and exposure of the mothers to mass media. The direction of these variables is similar, as is seen among the children younger than six months of age.

Children more than 11 months of age (early childhood)

For children more than 11 months of age, the household standard of living is a very significant predictor of infectious childhood diseases, as previously observed. The probability of infection declines from more than 37 per cent for children in lower economic strata to about 31.5 per cent for those in higher economic strata, for plausible reasons previously mentioned. All other variables which are found to be significant predictors of disease for children in the above-mentioned age groups are also significantly associated with infectious diseases in a similar direction. In addition, the probability of infectious diseases is significantly higher among the children of younger mothers, but it declines sharply with the increasing age of the mother. This is probably because older mothers are more experienced in child care and more knowledgeable about personal hygiene and the preparation of food in a clean environment after the weaning period than the younger mothers. Also, "other than Hindu" children are significantly more susceptible to infection. Because this category comprises various other religions, such as Islam, Christianity, Sikhism and Buddhism, it is difficult to identify the plausible reason behind this variation. A detailed examination of the cultural factors influencing child-care practices is called for, because these factors cannot be addressed with the available data and they are beyond the scope of this study. Childhood immunization, which has been incorporated in the analysis only for children in this age group, has been found to be a very significant predictor in lowering the prevalence of infectious childhood diseases. The probability of infection decreases from 36 per cent for non-immunized children to about 32.7 per cent for children who are completely

immunized. This finding supports that of earlier studies in this field (e.g., Ghosh and Mondal, 2003; IIPS and ORC Macro, 2000).

Result of alternate analysis

In the preceding analysis, the nutritional status of the children was not included as an explanatory factor because of the possibility of reverse causation, as discussed previously. However, it is well established that nutritional status is a major determinant of the health and well-being of children because chronic illnesses are associated with poor nutrition among children. NFHS-2 provides information concerning child nutritional status on three different anthropometric indices: weight-for-age, height-for-age and weight-for-height. In the present study, weight-for-age has been included in the analysis as an additional variable since it is a composite measure that takes into account both chronic and acute undernutrition (categorized as undernourished and not-undernourished). Children who are more than two standard deviations below the international reference median (Dibley and others, 1987a and 1987b) on this index are considered to be underweight. A high non-response rate (more than 19 per cent) has been found in the data on all the anthropometric indices because either the child was not at home at the time of the investigator's visit or the mother refused to allow the child to be weighed and measured. Also excluded from the analysis are children whose month and year of birth were not known and those with grossly improbable height or weight measurements (IIPS and ORC Macro, 2000). As a result, of the 30,984 children in the earlier analysis, 5,995 were dropped and 24, 989 cases were retained.

Logistic regressions by age of the child have been performed on the data in a manner similar to that described previously. The results are given in the appendix. The effect of household economic status, which is the main predictor variable in the analysis, on infectious childhood disease is similar to that seen in the previous analysis. It may be observed that childhood nutritional status does not have any significant effect on infectious childhood disease up to the end of the first year of life, even after controlling all other variables obtained here. However, it has a profound positive impact on child health and survival after infancy. It has been observed that the probability of infectious disease is nearly 4 percentage points higher among undernourished children than those children who are not undernourished. This is possibly due to the fact that nutritional status plays a significant role in child health and survival after the weaning period, when inborn immunity becomes weak and the child more exposed to environmental contamination. The effects of other variables on infectious childhood disease are more or less similar to those from the previous analysis, which have already been discussed.

Conclusion and policy recommendations

Three major findings emerge from this study. First, the prevalence of infectious childhood diseases in India is quite high in rural and urban areas. Second, the economic condition of the household is one of the significant predictors of infectious childhood diseases that may occur after early infancy. Third, apart from household economic conditions, the covariates most subject to intervention are geographic region (i.e., region of residence), maternal education, work status of the mother, incidence of maternal anaemia during pregnancy and immunization of children.

What are the policy implications of these findings? First of all, effective policies and programmes are urgently required to reduce the occurrence of these potentially fatal childhood illnesses; episodes of these diseases early in life can have adverse effects over the entire life cycle. Poor health directly reduces cognitive potential and indirectly undermines schooling through absenteeism, insufficient attention to lessons and early dropping out of school. Since infectious childhood diseases are invariably linked with the immediate household environment, policies and programmes should address the issue of access to clean water and sanitation, and safe and adequate housing. According to the 2001 Indian census data, only 36 per cent of households have access to a toilet facility, about 77 per cent of households have access to safe drinking water and about 52 per cent of households are built of permanent materials (Office of the Registrar General, 2003). The Government should provide basic health care, including insurance, especially for rural communities. Information, education and counselling activities concerning disease symptoms and preventive behaviour need to be strengthened. To reduce the burden of infectious diseases, the nutritional status of children should be enhanced. A study by Dreze and Goyal (2003) revealed that the mid-day meal scheme of the Indian Government, which was introduced in mid-1995, helped to enhance child nutrition, school attendance and social equity.

Though the role of income-related factors in child health and survival is complex owing mainly to the multifaceted nature of income itself, our findings clearly indicate that household income (or, to be precise, standard of living, as employed in the analysis) plays a very positive and significant role in combating infectious diseases during childhood. A higher living standard is associated with better rearing of children in terms of nutrition and health care during the period of later infancy and early childhood and significantly reduces the risk of infectious diseases. It is worth mentioning that great income disparity among various segments of the population in India still persists. Using 1999-2000 data from the National Sample Survey Organization, Sen and Himanshu (2004) found that in

rural areas per capita consumption expenditure among the richest 20 per cent of the Indian population is nearly three times higher than that of the poorest 40 per cent of the population. In urban areas this difference is more than four times higher. Therefore, the public distribution system for providing foodgrains to the poor and the food-for-work programme must be strengthened in order to reduce this inequality. Public health and nutrition programmes must make greater efforts to meet the needs of the poor in both rural and urban areas. This is particularly important now because government expenditure on health care has substantially declined over the years owing to implementation of structural adjustment programmes.

In this analysis, pronounced regional differences in the prevalence of infectious diseases among children have been observed. Children of the central, eastern and north-eastern regions of India are most subject to intervention. As discussed previously, these regions of the country are relatively more underdeveloped than other regions in terms of basic amenities, infrastructure, health care and other macro-economic indicators. Special policies and programmes are urgently needed for children in these regions. These may include educating mothers about child care and feeding practices during weaning time, promoting hand-washing before feeding the child, ensuring the cleanliness of water and the household environment, and using mosquito nets, among others. Policies and programmes should also address the issue of overall development in these regions of the country.

The importance of maternal education has been well established and widely accepted. Maternal education influences child health and survival through various pathways: raising the age at marriage, enhancing socio-economic status, providing greater health choice for children, including interaction with medical personnel, cleanliness and emphasis on child quality (Caldwell, 1979; Ware, 1984; Pandey and others, 1998; Ghosh, 2003). Our study is in agreement with earlier findings that higher maternal education is one of the important determinants of child health and survival even after controlling a number of demographic, socio-economic and spatial variables. Thus, policy measures should focus on enhancing maternal education as early as possible.

Participation in the labour force, as indicated by women's work status, is a key institutional change associated with socio-economic development. The results of this analysis show that women who work outside the home are significantly more likely to have children who are vulnerable to suffering from illness, even after controlling all other socio-economic and demographic variables. However, this does not in any way imply that the employment of mothers should be

discouraged. The morbidity status of children may also vary according to the nature of the mother's occupation, which is beyond the scope of this analysis. Occupation depends on one's level of education and to some extent the results mirror the education-morbidity relationship previously observed. Working mothers, particularly those working in the informal sector, resume their duties soon after childbirth owing to a lack of social security. As a result they spend less time in child care and feeding. Therefore, it is important to think over the matter as a point of social security.

Maternal anaemia, which has been included in the analysis as a proxy for the maternal nutritional level, was found to be one of the significant predictors in determining the prevalence of infectious childhood diseases for all age groups of children. Therefore, special programmes on antenatal care should be vigorously implemented, which may include free distribution of iron and folic acid tablets to all expectant mothers and ensuring the consumption of these to avoid the incidence of maternal anaemia. Because it has been observed that complete immunization of children is a significant predictor in lowering the incidence of infectious diseases, the Universal Immunization Programme should be strengthened throughout the country. Not a single child should be missed in attempting to provide complete immunization.

The factors identified as significant in predicting the prevalence of infectious childhood diseases suggest the direction that the national health policies and programmes could take. Some of these are easily amenable to interventions, as discussed above. These interventions may have a fundamental impact on basic personal and domestic hygiene, particularly in the preparation of children's food, feeding practices (e.g., breastfeeding) and the importance of conveying these ideas to mothers and in turn reducing the incidence of infectious childhood diseases.

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Endnotes

1. The scale of standard of living ranges from 0 to 67 (0-14 for low, 15-24 for medium and 25-67 for high).

2. The geographic region variable is as defined in the NFHS national report (IIPS and ORC Macro, 2000): "south" includes Andhra Pradesh, Karnataka, Kerala and Tamil Nadu; "east" includes Bihar, Orissa and West Bengal; "central" includes Madhya Pradesh and Uttar Pradesh; "north" includes Delhi, Haryana, Himachal Pradesh, Jammu and Kashmir, Punjab and Rajasthan; "west" includes Goa, Gujarat and Maharashtra; and "north-east" includes Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland and Tripura.

3. Most babies in India are not weighed at the time of birth. Thus, in addition to birth weight, mothers were asked whether the babies were "large, average, small or very small" at the time of birth. The "size of the child at birth" has been incorporated in the analysis as a proxy for birth weight and categorized as "less than average, average and greater than average".

4. Here "exposure to mass media" has been created from three separate variables, namely, "read newspaper or magazine at least once a week", "watch television at least once a week" and "listen to radio at least once a week". These three variables are found to be strongly associated with each other and so a composite variable has been obtained from the three: "exposure to mass media of any sort". If a woman was exposed to any of these three, then she is regarded as having been exposed to any sort of mass media.

5. Scheduled castes and scheduled tribes are castes and tribes identified by the Government of India as socially and economically backward and in need of special protection from social injustice and exploitation.

6. According to the relevant WHO guideline, the immunization package should be completed within the first year of life, so the variable "child immunization" has been controlled for children more than 11 months of age.

APPENDIX

Adjusted probability (in per cent) of any infectious childhood disease after inclusion of child's nutritional status as an additional control variable, by selected spatial, demographic and socio-economic characteristics, India, NFHS-2, 1998-1999

Background characteristics	Child's age <6 months		Child's age 6-11 months		Child's age >11 months	
	Number	Adjusted probability	Number	Adjusted probability	Number	Adjusted probability
Main predictor						
Standard of living						
Low (ref.)	1,318	33.9	1,283	47.7	4,833	38.0
Medium	2,022	33.5	2,062	43.1*	7,710	35.8*
High	766	31.6	839	38.3**	3,184	32.6**
Spatial variables						
Place of residence						
Rural (ref.)	3,093	33.6	3,025	44.1	11,347	35.8
Urban	1,013	32.3	1,159	42.0	4,380	35.7
Geographic region						
South (ref.)	581	21.1	658	33.8	2,420	25.7
East	761	34.7**	723	44.2**	2,779	37.1**
Central	781	39.2**	749	49.3**	2,806	41.7**
North	1,040	34.1**	993	44.2**	3,804	36.5**
West	418	33.8**	516	45.0**	1,800	34.0**
North-east	525	36.2**	545	44.3**	2,118	39.4**
Demographic variables						
Mother's age (years)						
<20 (ref.)	729	35.8	787	44.0	3,177	39.8
20-29	2,569	32.5	2,643	44.6	9,792	35.4**
30+	808	33.6	754	39.1	2,758	32.7**
Sex						
Male (ref.)	2,131	35.1	2,215	43.9	8,225	36.9
Female	1,975	31.4*	1,969	43.0	7,502	34.6**
Birth order						
1 (ref.)	1,162	34.8	1,305	43.8	4,629	35.5
2-3	1,803	30.8*	1,815	43.1	7,008	35.5
4+	1,141	35.8	1,064	43.8	4,090	36.6
Size of the child at birth						
< Average (ref.)	1,139	36.4	1,036	45.0	3,751	39.4
Average	2,449	31.8**	2,504	41.9	9,588	33.8**
> Average	518	33.6	644	47.2	2,388	38.5

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APPENDIX *(Continued)*

Background characteristics	Child's age <6 months		Child's age 6-11 months		Child's age >11 months	
	Number	Adjusted probability	Number	Adjusted probability	Number	Adjusted probability
Other socio-economic variables						
Religion/caste						
Forward caste Hindu (ref.)	2,035	33.0	2,105	43.6	7,721	34.7
SC-ST Hindu[a]	1,027	34.5	1,041	42.3	3,853	35.9
Other than Hindu	1,044	32.8	1,038	44.4	4,153	37.8**
Maternal education						
Illiterate (ref.)	2,225	33.8	2,094	43.9	8,092	36.2
Primary-middle completed	1,221	35.3	1,319	45.8	4,915	37.3
Higher educated	660	28.1*	771	38.4*	2,720	32.1**
Work status						
Not-working (ref.)	3,181	32.3	3,079	42.1	10,954	34.9
Working	925	36.9*	1,105	47.3**	4,773	37.8**
Maternal anaemia						
No (ref.)	2,886	30.3	2,966	38.9	11,327	32.3
Yes	1,220	40.8**	1,218	54.9**	4,400	45.5**
Immunization status[b]						
No (ref.)	--	--	--	--	2,058	38.2
Partial	--	--	--	--	6,463	37.8
Complete	--	--	--	--	7,206	33.4**
Mass media exposure						
No (ref.)	1,794	30.8	1,572	41.1	6,285	33.5
Yes	2,312	35.3*	2,612	44.9	9,442	37.4**
Crowding						
≤3 persons/room (ref.)	2,253	33.6	2,523	43.0	9,553	36.3
>3 persons/room	1,853	33.0	1,661	44.2	6,174	35.1
Nutritional status						
Undernourished	452	33.8	1,432	43.9	8,401	37.7**
Not undernourished (ref.)	3,654	33.2	2,752	43.3	7,326	33.6
Total children	**4,106**		**4,184**		**15,727**	
Intercept	**-1.184**		**-0.721**		**-0.937**	
-2LL	**5,063.37**		**5,533.32**		**19,769.77**	
Pseudo R^2	**0.053**		**0.062**		**0.063**	

Note: Adjusted probabilities are estimated by logistic regression. For any given predictor variable, the set of control variables consists of all the other predictor variables in the table. When calculating adjusted percentages for categories of a given predictor variable, other variables are held constant at their mean values (for details, see Retherford and Choe, 1993).

[a] Scheduled caste and scheduled tribe.

[b] Immunization status is considered only for children more than 11 months of age.

* $p<0.05$, ** $p<0.01$.

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Bangladeshi Migrant Workers in Singapore: The View from Inside

Singapore is a major receiving country for Bangladeshi migrant workers.

By Md. Mizanur Rahman and Lian Kwen Fee*

Since the end of the Second World War, the international migration of labour has grown in volume and changed in character (Castles and Miller, 1998). It has also been observed that there are two main phases in post-Second World War migration (Castles and Miller, 1998, p.67). In the first phase, from 1945 to the early 1970s, large numbers of migrant workers were drawn from less developed countries into the fast-expanding industrial areas of Western Europe and North America. However, the organized recruitment of migrant workers by industrialized countries ended in the early 1970s owing mainly to the fundamental restructuring of the global economy and the politicization of migration (Castles, 2001). The second phase began in Asia in the mid-1970s. The phenomenal rise in oil prices since the end of 1973 generated a huge demand for temporary migrants in Middle Eastern countries. This massive demand for temporary migrants resulted in an

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enormous flow of labour to oil-rich Arab countries. In addition, since the mid-1980s the demand for temporary migrants grew in the prosperous countries of East and South-East Asia and a large number of migrants migrated to these countries for temporary employment. Bangladeshi migrants are found in both destinations.

Since the mid-1970s the Middle East has been the most popular destination for Bangladeshi migrant workers. As the attractiveness of that region for unskilled labour declined in the late 1980s, coupled with the social and economic uncertainties caused by the Persian Gulf War of 1990-1991, labour migration from Bangladesh diversified in the 1990s to include the much vaunted "dragon economies" of East and South-East Asia. Among the new destination countries of this part of Asia, Singapore is a major receiving country for Bangladeshi migrant workers. It is estimated that there are about 50,000[1] Bangladeshi migrants in Singapore. According to one estimate, foreigners constituted 30 per cent of the total workforce in 1999 (Yeoh, Huang and Gonzalez, 1999). Lum (1995), based on a 7 per cent annual growth rate, calculated that in the most favourable scenario, the number of foreign workers required by Singapore was about 17 per cent of the total labour force in 1995, increasing to about 27 per cent in 2000. Those figures were projected to increase to 44 per cent in 2010 and 61 per cent in 2020. Therefore, it is expected that Singapore's heavy dependence on foreign human resources will continue over the next few decades.

The literature on labour migration is replete with explanations of the causes, consequences and, most recently, factors contributing to the perpetuation of labour migration (Abella, 2000; Skeldon, 1997; Battistella and Asis, 2003; Debrah, 2002; Athukorala and Manning, 1999; Iredale, Hawksley and Castles, 2003). However, a field of inquiry that has not been overly researched by migration scholars is that of the circumstances in which foreign migrant workers work and live. Maltreatment and unsatisfactory working and living conditions are major factors that induce migrants to return home prematurely and this is generally a costly move for migrants and their families at home. This paper explores various aspects of the social life of Bangladeshi migrant workers in Singapore. For reasons of clarity the presentation of the materials is divided into four sections: the first deals briefly with the work permit procedures for foreigners in Singapore; the second, with sociodemographic profiles of Bangladeshi migrants; the third, with their socio-economic experiences; and the fourth offers conclusions and recommendations for policy purposes.

The primary data come from interviews with Bangladeshi migrants in Singapore. Interviews were conducted in face-to-face encounters over several

months in 2000. After a pilot study in Singapore, a questionnaire with both structured and unstructured questions was constructed for the interviews. A non-probability sampling technique was used for the purpose of data collection owing mainly to the lack of accurate information on the universe. Because the residences of migrants are scattered all over Singapore and they are very temporary in nature, probability sampling was virtually impossible. Although non-probability sampling was pursued, we attempted to make the findings as reliable as possible by combining two major types of non-probability sampling technique, namely, quota and purposive sampling. The sample size was 126; in view of the nature of the information sought, we believe that, if the sample size were larger, it would not have produced a significant difference from the findings in the present study. Detailed interviews with intermediaries, money traders and Bangladeshi shop owners in Singapore were also collected in order to understand the involvement of various agents in the migration process.

Classes of foreign human resources in Singapore

Historically, Singapore has relied on foreign human resources for its economic development. Singapore has a host of policies and programmes to attract foreign human resources to supplement the local workforce. For the effective management of foreign human resources, Singapore introduced a new recruitment system for foreigners in 1998. This work pass system provides three classes of foreign human resources: Class P, Class Q and Class R. These three major categories are each divided into two subcategories, for a total of six classification levels. P-Passes (P1 and P2) are for foreigners who hold administrative, professional and managerial jobs, entrepreneurs and investors, as well as specialist talent such as world-class artistes and musicians. The P1 Pass is issued if the applicant's basic monthly salary is more than S$ 7,000 (US$ 1 = S$ 1.63) and the P2 Pass is issued if the applicant's basic monthly salary is more than S$ 3,500 but less than S$ 7,000.

Q-Passes (Q1 and Q2) are for skilled workers and technicians. With effect from 1 July 2004, a new category of work pass, i.e., the S-Pass, replaced the Q2 Pass. It is intended to meet the needs of industry for middle-level skilled labour (especially specialized workers and technicians), for which there is a gap in the current work pass framework.[2] The Q1 Pass is issued if the applicant's basic monthly salary is more than S$ 2,500 and he or she possesses acceptable degrees, professional qualifications or specialist skills. The S Pass is issued if the applicant's basic monthly salary is at least S$ 1,800. Applicants for the S Pass are assessed on a points system, taking into account multiple criteria including salary, educational qualifications, skills, job types and work experience.

The R-Pass (R1 and R2) is issued to semi-skilled and unskilled foreign workers. Within this category, there are two subgroups: R1 Pass and R2 Pass. The R1 Pass is issued to semi-skilled foreign workers who hold a National Technical Certificate Grade 3 (Practical) or other suitable qualifications. The R2 Pass is issued to unskilled foreign workers. Their employers are subject to full levy rates. R Pass holders are not allowed to bring their immediate family members into the country. They are also subject to a security bond and medical examination requirements. If an employer fails to pay the required levy, the work permits are cancelled and the workers are required to leave Singapore within one week.[3] In addition, the employers must post a S$ 5,000 security bond with the Government to guarantee the good behaviour and eventual repatriation of each foreign manual worker. By far, the majority of the foreigners who are employed in Singapore fall into the category of manual workers (especially construction workers) or domestic workers. The total number of foreign workers in this category was reported to be more than 450,000 in 1999[4] and 490,000 in 2002 (Hui, 2002).

Most migrant workers from Bangladesh are employed in the construction sector while a few find jobs in other sectors, for example, town council conservancy services, grass-cutting services and the marine sector. The concentration of Bangladeshi labour in the construction sector is perhaps the result of sectoral restrictions on the employment of foreign workers in Singapore. Foreign workers from non-traditional sources, namely, India, Sri Lanka, Thailand, Bangladesh, Myanmar, the Philippines and Pakistan, can be employed in the construction sector. However, foreign workers from non-traditional sources are usually not allowed to work in the service and manufacturing sectors. Foreign workers from Malaysia and northern Asian sources, namely, Hong Kong, China; Macao, China; Taiwan Province of China and the Republic of Korea, are usually employed in these two sectors. This article looks broadly into the Bangladeshi holders of the R-Pass, regardless of their sectoral engagement.

Bangladeshi migrants: sociodemographic profiles

The age composition of the migrants in this study was generally young. Seventy-six per cent of the migrants were below 30 years of age (table 1). However, this is not surprising because migrant workers everywhere tend to be young and several studies have found that young persons are more prone to migrate for overseas employment (Karim, Abdullah and Bakar, 1999; Rudinick, 1996; Lie, 1994; Rahman, 2000). They also tended to be educated; only 2 per cent were illiterate, while 77 per cent had more than six years of certified schooling (table 1). Seven per cent of the migrants had between 14 and 16 years of certified schooling. The estimated literacy rate in Bangladesh in 2000 was 56 per cent for the total

population: 63 per cent for males and 49 per cent for females.[5] Thus, the educational qualifications of the migrants suggest that a higher proportion of the population that is migrating for overseas employment is more educated than the national aggregate. Bangladesh is predominantly a Muslim country: in 1998, 83 per cent were Muslim and 16 per cent Hindu.[6] Muslims and Hindus comprise 87 and 14 per cent respectively of the migrants (table 1).

Emigration opportunities have remained open to all in Bangladesh regardless of religious affiliation. Hindu and Muslim migrants in Singapore work together, live together and even eat together. It would be difficult to discern their religious affiliation through mere observation. The bulk (69 per cent) of the migrants are unmarried. The extended family pattern is predominant in rural Bangladesh. Most (90 per cent) of the migrants in this study were from extended families. The dominance of migration from extended families is not surprising, if the huge financial cost associated with labour migration is considered along with the positive role that kinship ties can play in financing this cost through the extensive use of social capital (Rahman, 2004). The extended family influences the propensity to migrate in several ways. For instance, an extended family has a greater capacity than a nuclear family to finance the huge financial cost of migration and to take care of the migrant's family in his absence. Most of the migrants' families are large.[7] Seventy per cent of the migrants' families had five or more than five members at the time of interviews (the 1991 census[8] calculates the average to be 5.6 nationally).

The authors looked into the position of male migrant members in the age structure of the family; 34 and 25 per cent of the migrants were first and second sons, respectively. The reason for the higher incidence of migration among first sons is most probably due to the development of chain migration in some districts of Bangladesh. As it is culturally unacceptable for elder brothers to receive financial and information assistance from younger brothers, the elder brothers prefer to migrate first. Bangladesh is predominantly a rural country; about 80 per cent of the population live in villages. The bulk of the migrant workers are also of rural origin (85 per cent). Thus, it may be said that labour migration to Singapore is predominantly a rural phenomenon. There are 64 districts in Bangladesh, but only a few districts have contributed the bulk of the migrants to Singapore (see table 1). With regard to occupational pursuits, the findings show that the migrants were largely unemployed or self-employed prior to migrating. Thirty-four per cent of the migrant households had no economically productive members back home in Bangladesh. These migrant households were completely dependent on remittances for their survival.

Table 1. Sociodemographic profile of Bangladeshi migrants in Singapore

Age structure (years)	**Percentage**
Below 20	2.38
21 to 25	33.33
26 to 30	39.68
31 to 35	13.49
36 to 40	7.14
41 and older	3.97
Marital status	
Married	30.95
Unmarried	69.05
Education (years of schooling)	
1 to 5	21.43
6 to 10	38.09
Secondary school	21.43
High school (10 to 12 yrs)	10.32
Graduate (13 to 16 yrs)	7.0
Illiterate	1.59
Religion	
Muslim	86.50
Hindu	13.50
Family patterns	
Nuclear	10.32
Extended	89.68
Total members of families (N=118)	
2 to 4	30.50
5 to 7	38.13
8 to 10	17.79
11 or more	13.55
Migrant's position in family	
Male members' age structure (N=115)	
First son	33.91
Second son	24.34
Third son	20.86
Fourth son	14.78
Others	6.06
Flood-affected	
Yes	74.60
No	25.40
Background in Bangladesh	
Rural	84.13
Urban	15.87

Occupation of migrants prior to migration	**Percentage**
Self-employed	41.27
Farming on own land	18.25
Farming on shared land	0
Informal economy	23.01
Wage employment	0
Farming	0
Formal economy	4.76
Informal economy	8.73
Unemployed	32.54
Overseas work	6.35
Student	6.35
Occupation of others in families	
Self-employed	42.06
Wage-employment	11.90
Mixed	12.70
No earning members	33.33
Earning members in families	
One member	
Two members	17.46
Three members	3.97
Four members	2.38
Others	0.97
No earning members	33.33
Migrant's district of origin (N =126)	
Munshiganj	12.70
Tangail	14.28
Comilla	7.94
Narayanganj	9.52
Narsingdi	3.17
Mymensingh	3.97
Shariatpur	5.55
Dhaka	22.22
Others	20.62
Number of migrants in migrant's family	
Single (interviewee only)	49.21
Two	28.57
Three	14.28
Four	6.37
Five	1.59

A question was asked about the number of migrants from each family. Twenty-eight per cent of the migrant families had two international migrant members and 15 per cent had three members (table 1). The rate of repeat migration or remigration was 7 per cent. All the migrants in the sample did not migrate to Singapore in the same year. The migrants started to arrive in Singapore in 1993; approximately 36 per cent of them came to Singapore between 1993 and 1997. Because Bangladesh is a flood-prone country, we investigated whether the migrants were from flood-affected areas or not. Seventy-five per cent of migrants' families were directly affected by the devastating flood in 1988, which inundated almost two thirds of the country. However, there is no evidence for us to regard international migration as a flood-induced phenomenon. Further, migration to Singapore entails a huge cost, which is virtually beyond the means of most rural households in Bangladesh and the districts supplying most migrants are not necessarily the districts affected by recurring floods.

Bearing the cost of migration

The role of recruiting agents and brokers is vital to labour migration from Bangladesh: without them, few migrants would have the information or contacts needed for migrating successfully. Recruiting agents and brokers, who play a complementary role in the recruitment of prospective migrants, employ people who act as brokers in villages in Bangladesh to convince prospective migrants of the benefits from migrating. These local brokers collect fees on behalf of the national recruiting agents or migrant brokers, who in turn initiate the recruitment process. Local brokers get a fixed commission for their work, which usually ranges from 5 to 10 per cent of the total cost of migration. Generally, local agents collect fees from as many prospective migrants as they can for the initiation of the migration process. As a result, the demand for "in-principle approval (for work)", which is issued in Singapore, usually exceeds supply. This leads to a situation in which some of the prospective migrants are successful while others are not. Prospective migrants who fail in the first round wait for the second round. However, such a system exposes them to victimization inside Bangladesh.

After payment to the local brokers, prospective migrants have to wait a considerable amount of time before migrating to Singapore. Fifteen per cent of the migrants waited between 3 and 6 months, while 10 per cent waited for more than 12 months (table 2). With regard to the financial cost of migration, the findings reveal that 45 per cent of the migrants spent between Taka 190,000 and 220,000 for migration (US$ 1 = Taka 50 in 2002) (table 2). This is a vast amount of cash in the context of Bangladesh, not easily affordable for rural families, most of whom live

at the subsistence level. The financial burden often involves the loss or mortgage of valuable property of household — the "hidden cost of migration". A detailed inquiry of the source of funds raised for migration revealed that 53 per cent of the migrants relied on family or personal savings and 43 per cent on remittances (from relatives abroad). However, if the percentages that different sources contributed to the total cost of migration are examined, a better picture will emerge. Remittances and family or personal savings contributed 32 and 30 per cent respectively to the total financial cost of migration (table 2). It is obvious that remittances (in the form of borrowing from relatives abroad) plays a vital role in meeting the cost of migration. It is noteworthy that 51 per cent of migrant households had more than one member overseas (see table 1).

Kinship acts as "social insurance" in Bangladeshi society (Kuhn, 2003). As a result, it is not surprising that close relatives who are overseas play a vital role in meeting the cost of passage for new migrants. There is abundant evidence that current emigrants' cost of passage was financed by previous emigrants (see Appleyard, 1998; Mahmood, 1991 and 1992; Rudinick, 1996). Such evidence clearly indicates that past emigration encourages current emigration; this is sometimes called "path dependence" (Hatton and Williamson, 1998, p.14).

Table 2. Economic cost of migration from Bangladesh to Singapore

Number of months waited	**Percentage**	**Financial cost of migration**	**Percentage**
Less than 3 months	50.00	Less than Taka 160,000	20.63
3 to 6 months	15.07	160,001 to 190,000	18.25
7 to 9 months	7.93	190,001 to 220,000	45.23
10 to 12 months	1.58	220,001 to 250,000	10.31
More than 12 months	10.31	250,001 to 280,000	4.76
Not applicable	15.07	Missing data	0.79
Sources of raising funds for migration	**Frequency**	**Percentage of funds coming from different sources**	
Family or personal savings	53.17	Family or personal savings	30.07
Selling or mortgaging of land	16.66	Selling or mortgaging land	7.33
Loan from moneylenders	15.87	Loan from money lenders	8.00
Borrowing from relatives	36.50	Borrowing from relatives	19.20
Foreign remittances	42.85	Foreign remittances	32.30
Miscellaneous	3.96	Miscellaneous	1.60

Living and working environment

Migrant workers live in dormitories as well as at worksites (mainly construction worksites). Most of the dormitories are old buildings and sometimes are not equipped with basic amenities. However, an increasing effort to improve the living conditions of migrant workers has been observed in Singapore. In recent years Singapore has been implementing a housing project for foreign workers. The recent opening of a new 3,000-bed dormitory built by the Singapore Contractors Association Limited (SCAL) is an example of the commitment of Singapore to provide proper housing for foreign workers. The SCAL dormitory is equipped with a medical centre and barber's shop, as well as laundry and sports facilities. The Government has also released tenders to purchase more plots of land for the building of off-site dormitories for foreign workers. This will add another 9,000 rooms to the current 13,500.[9]

Migrants who live in dormitories generally get up early in the morning for work (around 6 to 6.30 a.m.). They usually go to work in transport arranged by their employer, normally a lorry. The normal working time is from 8 a.m. to 5 p.m., with a one-hour lunch break and one or two tea breaks of 20 minutes each. Migrants who live at their worksites do not need to wake up so early in the morning as they do not need to commute. Migrants usually cook once a day after coming from work in the evening. They use the leftovers for the next day's midday meal.

Table 3. Patterns of use of time for work in a day

A weekly working day	Percentage	A weekly holiday	Percentage
(not-Sunday) (N=125)		(Sunday) (N=125)	
9 to 10 hours	4.76	8 to 10 hours	30.95
11 to 12 hours	31.74	11 to 12 hours	26.98
13 to 14 hours	33.33	13 to 14 hours	2.38
15 to 16 hours	23.01	No work	33.88
17 to 18 hours	6.34		

If there is one thing that distinguishes these migrant workers from local workers, it is that they are eager to work overtime; a week with three, four and even six days of overtime is not uncommon. Bangladeshi migrants who work in the construction sector are usually paid on a daily-wage basis. One important benefit of being a daily-wage worker is that the migrant can maximize his earnings by working overtime. Overtime payment is usually double the basic wage, that is,

from S$ 1.5 to 3 for every hour. One informant summed it up: "More OT (overtime) means more money". Migrants are fond of inquiring about the economic health of other migrants by asking briefly: "Do you have OT?" Migrants spend a considerable amount of time on work. All migrants in this study worked from 9 to 18 hours per day (table 3)[10] and 63 per cent of them worked between 13 and 18 hours per day.

The desire to work long hours comes from the migrants' side, as they are desperate to earn more money within the contract period. The data on the uses of time for work show time allocated for working as well as commuting. Some construction companies offer the opportunity to work on Sundays as well. If a company offers such an opportunity, migrants hardly turn down the offer. The data reveal that 61 per cent of the migrants worked from 8 to 14 hours on Sunday. Work on Sundays is considered overtime work and is paid accordingly. Migrants who work on Sundays want to make the best use of Sundays by earning extra money rather than staying at home. Usually, almost all (98 per cent) of Bangladeshi migrant workers gather in the "Little India" area of Singapore every Sunday evening. Working on Sundays does not hinder their visits to Little India (a more detailed discussion on this gathering is presented later).

With regard to health matters, employers usually pay for the medical treatment of migrant workers. Generally, migrant workers who are not well receive wages for non-working days; however, some migrant workers do not receive financial assistance for medical treatment from their employers and wages are deducted for non-working days. When workplace accidents occur, migrants are protected by insurance.

Migrants' earnings

There are two variables that can considerably influence migrant workers' earnings: type of employer (direct employer or supplier) and status of migrant (skilled or unskilled). Direct employers hire the workers from overseas and employ them under their direct supervision. Indirect employers are actually labour-suppliers. They supply foreign workers to different companies on demand. The data reveal that 62 per cent of the migrants came to Singapore under direct employers while 38 per cent came under labour-suppliers. Migrants prefer to come under direct employers because they are usually treated better. Initially, the bulk of the migrants in this study came to Singapore as unskilled migrants. Later, through Singapore's skill-promotion test, many of these migrant workers upgraded their status.

Table 4. Income patterns of migrants per day

Income (Singapore dollars)	**On arrival** Percentage	**At the time of interview** Percentage
12 to 13	19.81	6.30
14 to 15	49.54	27.92
16 to 17	18.01	24.32
18 to 19	5.40	19.81
20 to 21	0.90	9.90
22 and more	6.30	11.71

N=111.

The skill-promotion test is a positive initiative taken by the Government of Singapore to offer better earning opportunities for foreign workers. Migrants do not need to return home for the test, although recently such tests have also been conducted in Bangladesh. The findings reveal that 91 per cent of the migrants were unskilled when they first came to Singapore. However, only 52 per cent of migrants were unskilled at the time of the interview, indicating that a significant number of migrants had upgraded their skills over time. As the majority of the migrants worked on a daily-wage basis, the basic wage per day was immensely important for each migrant. Table 4 compares the monthly earnings of migrants, with the data showing a substantial increase in basic salary over time. Table 5 presents total income per month.[11] Except for a few cases of misuse of earnings, the bulk of the migrants managed to save a good amount monthly. Seventy-six per cent of the migrants saved more than S$ 301 a month, while some saved as much as S$ 1,151 per month.

Table 5. Monthly income and savings of migrants

Income (N=125) (Singapore dollars)	**Percentage**	**Savings** (N=107) (Singapore dollars)	**Percentage**
250 to 400	2.4	Below 200	2.80
401 to 550	12.8	201 to 400	19.62
551 to 700	32.8	401 to 600	42.98
701 to 850	31.2	601 to 800	15.88
851 to 1,000	15.2	Above 801	5.60
1,001 or more	5.4	No savings	13.08

Besides overtime work, the migrants' skill composition and position in the company (supervisor/foreman) contribute to the disparity in incomes. The average monthly salary of a migrant is estimated to be S$ 712,[12] which is about three times higher than the salary of a newly appointed civil servant in Bangladesh. This finding is also supported by other studies. For example, Lee (1999) in his study of Singapore's foreign workers reported that the majority of workers from non-traditional sources (India, Bangladesh and Sri Lanka) earned between S$ 500 and 600 per month. Another study done by Siew (1986) on foreign workers in Singapore reported that 60 per cent of workers earned between S$ 501 and 750 per month and 30 per cent earned between S$ 751 and 1,000.

Regarding the availability of work in Singapore, the present findings reveal that 77 per cent of the migrants had work all year round, while 22 per cent had irregular work. Irregular work means that, during their entire stay in Singapore, they had no work to do for a period of at least 15 days consecutively. Sometimes the commencement of a new project after the completion of the old one would take a few weeks; migrant workers are generally housed during this period, but some employers do not pay wages for this non-productive time. However, most employers usually pay for some of the food and other basic necessities of their workers. Most of the migrants in our sample received their wages regularly; however, we heard of some cases of non-payment of salary, premature cancellation of work permits and deportation. To settle any such disputes, migrant workers usually visit the Labour Relations Department under the Ministry of Manpower. That Department promotes and maintains industrial peace and stability in Singapore mainly by providing a legal framework to balance the interests of employers with those of employees.

Patterns of expenditure

This section examines the patterns of expenditure of earnings at home and abroad. First, the expenditure of migrants in Singapore was examined. Second, the total volume of remittances and the areas of expenditure of the remittances by the families of the migrants in Bangladesh were ascertained. Although in this sample some migrants were found to be spendthrifts, the majority were careful about their expenditures in Singapore. As previously mentioned, accommodation in Singapore is usually free for foreign workers. Since food is the most basic of their necessities, it is not surprising that a substantial proportion of their income is spent on food. The findings reveal that 69 per cent of the migrants spent less than S$ 250 per month for food, transport, smoking and other pocket expenses (table 6). Among other regular items of expenditure, buying lottery tickets is very popular

among the Bangladeshi migrants. From the very beginning of their arrival in Singapore, many migrants begin buying lottery tickets regularly and they maintain this habit throughout their stay. The data reveal that 50 per cent of the migrants bought different types of lottery every month (table 6); the lottery has several draws per week.[14] Fifty-one per cent of the migrants expressed their intention to keep on buying lottery tickets. In general, the temptation to do so increases when migrants see that their actual earnings are inconsistent with their high expectations.

Table 6. Monthly expenses (in Singapore dollars) in Singapore

Patterns of expenditure	**Percentage**	**Expenditure on lottery**	**Percentage**
(N=126)		Less than 20	15.87
On basic needs: food, transport and		21 to 40	18.25
pocket expenses		41 to 60	10.31
Less than 100	3.17	More than 61	5.54
101 to 150	14.28	No expense	50.00
151 to 200	24.60	**Expenditure on long-distance telephone calls**	
201 to 250	26.98	Less than 20	19.04
251 to 300	11.96	21 to 40	33.33
301 to 350	10.13	41 to 60	15.87
351 or more	8.73	More than 61	13.48
		No telephone calls	18.25

The migrants maintain contact with their home in Bangladesh through the mail or by telephone. Migrants whose family members are within reach of a telecommunication facility or whose houses are near a *thana*[15] (see table 8) make telephone calls frequently to their families in Bangladesh, and spend a good deal of money on such international calls. The latent function of international telephone calls is that it reintroduces migrant families to their communities of origin. Everyone in the *bari* (collection of families) gets to know about such calls, and people outside the villages come to recognize the recipients of such calls as migrant families. Previously unknown or little known families thus reintroduce themselves as "Singaporean families" in their villages. Twenty-nine per cent of migrants spent more than S$ 40 per month on international phone calls (table 6).

The total volume and the uses of remittances in the home country were investigated in detail. Sixty-six per cent of the migrants remitted more than their cost of migration (approximately S$ 7,000); however, the remaining 34 per cent of them could not recover the cost of migration. Indeed, these were the newcomers.[16] The areas of expense were ascertained in two ways: "areas of past uses of remittances" and "areas of future uses of remittances" (table 7). The data on past uses suggest that remittances were used mainly for basic consumption, debt repayment, renovating their house and purchasing land. Seventy-four per cent of the migrants' families used remittances for basic consumption. Forty per cent of such families depended primarily on remittances for basic consumption and 44 per cent depended on them secondarily. With regard to the areas of future uses of remittances, 82 per cent of the migrants' families intended to use the remittances for basic consumption. Thus, the families' basic consumption needs dominate the use of remittances.

Table 7. Use of remittances in Bangladesh: Past areas of use and future areas of use

Areas of expenditure	Past uses (Percentage)	Future uses (Percentage)
Personal consumption	74.59	81.74
Debt repayment	45.08	15.07
Land	30.32	21.42
House construction	18.85	20.63
Education	13.93	16.56
Extending loan for migration	13.11	4.76
Savings	11.47	30.95
Weddings/births/deaths	9.01	16.66
Medical	7.37	0
Productive (farm and non-farming)	7.36	14.28
Others	3.32	3.17

N=126.

The dependence of families on remittances occurs because the families generally have to sell their economic assets in order to meet the cost of migration. Broadly, migrant families used their remittances in six major areas (in order of priority): basic consumption, repaying debts, purchasing/regaining land, renovating their house, making loans to relatives (for migration purposes) and obtaining an education. The six major areas named for "future uses of remittances" were as follows: basic consumption, purchasing/regaining land, renovating their house, holding wedding ceremonies, obtaining an education and repaying debts. The future uses of remittances suggest that basic consumption will remain the first priority, while purchasing/regaining land will shift from third to second place, renovating their house from fourth to third place and repaying debts from second to sixth place in order of priority. Weddings are in the fourth position and education remains in the fifth position in both cases.

Spending on expensive goods that would be considered prestigious in Bangladesh was found to be significant. The bulk of the migrants spent their earnings on gold, cosmetics and electronic appliances. The findings suggest that 40 per cent of migrants spent the equivalent of more than one fourth of the cost of their migration (Taka 50,000) on the purchase of such high-priced goods. With regard to the future use of income for such goods, 65 per cent of the migrants were also planning to spend more than Taka 50,000 on prestige goods before leaving Singapore. Studies on international migration conducted in a variety of countries and at different periods of time have also shown the tendency to use remittances for economically unproductive purposes (for example, Papademetriou and Martin, 1991). Although the economically unproductive spending habits of migrants are often blamed on the culture of the particular emigrant community in question, this tendency appears to be universal.

The migrants' perceptions of earnings affect their economic behaviour and consumption patterns. The literature on international return migration referred to above as well as our own observations of the behaviour of the migrants in Singapore seem to indicate that money earned as a result of working abroad is seen as being different from money that is earned locally.[17] The literature also suggests that the economic behaviour and consumption patterns of non-migrants, especially in villages where there was little or no migration, were invariably different from those of the migrants (see Lefebvre, 1999). Probably the most important factor is that the money earned abroad is generally several times higher than that earned from local employment.

Villagers often perceive overseas employment as high-paying and less physically arduous than local employment. As a result, they see overseas earnings

as "easy money", and thus not "fully earned" from their perspective. What is earned easily should be freely expended, the villagers think. Economic psychologists have pointed out that such income is treated very differently from income obtained through other means (Zelizer, 1989, p. 350). Typically, earning money easily and spending it freely are characteristics of the lifestyle of people in the upper class who, because of their affluence, are obliged to act as patrons for poorer and less fortunate villagers. This in turn secures social status for the migrants and a following among other villagers. Thus, we are of the view that migrants spend their money conspicuously in order to indicate that it has been earned easily (which is prestigious) and are lavish in their generosity to fellow villagers as well as to village causes in order to secure the goodwill of the community and a higher social standing.

Both conspicuous consumption and conspicuous generosity involve pronounced changes in the lifestyles of the migrants. The building of a large house is also of high priority since it is the most visible indicator of change in family status and will stand as a permanent indicator of success. Consumer durables are brought back home and proudly displayed probably for the same reason. In addition, "Singaporean goods" are of enormous importance to their households in their communities of origin. For example, possession of such goods reflects their families' access to the foreign labour market, which is a source of prestige for their households. When outsiders visit a "Singaporean family",[18] the first impression about the family's social position comes from the display of foreign goods; thus, these goods carry a social significance.

Leisure activities

Although the migrants have little free time for leisure activities, the bulk of the Bangladeshi migrants do engage in some indoor and outdoor recreational activities. To the migrant workers, leisure activity means mainly watching television programmes or videos and listening to music. Night-time is very important to them. Sometimes a group of migrants sit together, sing songs, share daily work experiences or recount childhood memories and accounts of love and romance. This type of informal gathering often takes place at their residence or in an open space near their residence, usually up to midnight. Some petrol stations remain open 24 hours a day in Singapore and sometimes the migrants are found sitting at different petrol stations until late at night passing their time by gossiping. Migrant workers at two Housing and Development Board construction sites in the Sengkang area can watch movies, read newspapers and sing along with karaoke sets. The facilities at these "recreation clubs"[19] may be basic, but they do keep up

the spirits of bored, jaded and lonely workers from Bangladesh, India, Thailand, Myanmar and China.

Movies, particularly in the Hindi language, are very popular among Bangladeshis. Many of the migrants regularly watch Hindi movies and listen to movie songs at night. Video and audio systems are not very expensive in Singapore compared with the monthly income of migrants. Sometimes Singaporeans give the migrants such sets free; in particular, workers who clean residential blocks frequently receive such appliances as gifts. The migrants also rent video tapes or compact discs. In this case, the cost is borne by a group of them. A few migrants listen to the Voice of America and the British Broadcasting Corporation's Bengali-language programmes on radio. Some migrants are multilingual as well. Apart from their mother tongue, Bengali, and the language of entertainment, Hindi, some have knowledge of Mandarin, Thai, Tamil and Malay. The migrants who have been in Singapore for an extended period of time have learned a working knowledge of these languages through interaction with their Chinese, South Indian, Malay and Thai foremen, supervisors or fellow workers. New migrants rely on these multilingual migrants for the purpose of communication with non-Bangladeshis.

Outdoor recreation generally means visiting "Little India" on Sundays. As previously mentioned, Sundays are very important to foreign workers in Singapore. Depending on their country of origin, these workers gather at different enclaves in the city. Bangladeshi, Indian and Sri Lankan workers gather at Little India; Thai workers, at the Golden Mile Complex on Beach Road; and Filipina maids, at Lucky Plaza on Orchard Road and the park next to the Orchard metro station. The history of Little India as a meeting place for immigrants from South Asia can be traced back to the nineteenth century. The earliest Indian migrants resided in Chulia Street and were mostly Tamil traders, money-lenders and shopkeepers. As Chulia Street became crowded in the early nineteenth century, a second group, largely Sindhis, Gujeratis and Sikhs, moved to the High Street area. Another group, mainly Indian Muslim textile and jewelry merchants, established a third residential area in Arab Street. By the late nineteenth century, however, most Indians had settled in Serangoon Road, which is today's Little India enclave (Siddique and Shotam, 1982; Sandhu, 1969).

There are some roads and open spaces in Little India where South Asian workers congregate; sometimes, as many as 50,000 foreign workers gather in this area (*The Straits Times,* 31 July 1997). In the space of several hours on Sunday, the foreign workers can relax, establish relationships with friends and find comfort in the company of their countrymen. On Sunday, the migrant is first a Bangladeshi, and second, a worker. When Sunday evening comes, large throngs of these foreign

workers gather in this part of Serangoon Road, at Tekka Market, Mustafa department store, on grass patches, in back lanes and in coffee shops — virtually every spot that can be occupied. They come to meet relatives and friends, make remittances to their families, collect letters,[20] or shop for the coming week. Sunday's Little India is a home away from home.

The migrants start gathering at Little India from noon and stay at particular places and roadsides until approximately 11 p.m. The spots chosen for gathering in Little India depend first on the workers' home districts in Bangladesh and second on *thanas* (subdistricts) (table 8). At the first meeting with a fellow migrant worker, the question one generally hears is: "*Apner desh kothay*?", that is, "Where is your country?" In this setting "country" means "district" to them and not the country "Bangladesh". The migrants have a strong sense of identification with their places of origin based on the administrative unit or "district". They have a sense of belonging to a particular district and a tendency to favour the people from their own district over those from other districts. Also, migration to Singapore is confined to people from a few districts of Bangladesh. The migrants use their own names to indicate several roads and spaces in Little India. For instance, *Tangail Mhat* is the place where people from Bangladesh's Tangail district gather. Identification of their place of origin is important to their lives in Singapore.

A brothel is situated on Desker Road in Little India. On Sundays, this road is crowded mainly with Indian and Bangladeshi foreign workers. By contrast, a few Bangladeshi migrants even have girlfriends, who are usually Filipina and Indonesian women working as housemaids. Those who have romantic relations with foreign housemaids repeatedly draw the attention of fellow migrants to their "manhood". Since both the men and women are foreigners and usually have Sundays off, they meet in the park, go window-shopping in the mall or walk along the beach. A few of these workers lavish gifts on their girlfriends, an indulgence that leads to economic misery for some of them. It is worth noting that foreign workers are not allowed to marry in Singapore. As a result, there is hardly any case of cross-cultural or international marriage as can be observed in Japan or in Malaysia (for details, see Piper, 2000).

Some Bangladeshi entrepreneurs have started businesses in Little India in order to meet the demands of Bangladeshi migrants. Among these are grocery shops with Bengali names. They sell goods and groceries that appeal to the taste of the Bangladeshi migrant population at competitive but reasonable prices. Since the migrants are busy on weekdays and for a variety of reasons visit Little India on Sundays, they choose to do their weekly shopping at these Bangladeshi shops. In fact, the shops are entirely dependent on this migrant population.

Table 8. Summary of spatial and social groupings in rural Bangladesh[a]

(Ascending order)

	Typical size[b]	Function[c]
Ghar (family)	Usually 2 to 10 individuals	Shared living space and eating unit; conjugal unit, fertility decision, land ownership, labour and income pooling
Bari (collection of families)	Usually 15 to 100 individuals (from 2 to 25 families)	Social and geographic unit, usually kin connected; social support; domestic activities; shared compound and common areas
Gustic (lineage)	Usually consists of several hundred individuals	Connected by patrilineal ties, social supports, maintains prestige and honour
Samaj (society)	Consists of several hundred to a thousand individuals; usually several hundred houses	Maintains proper behaviour, administers *salish* (village court)
Para (neighbourhood)	Usually consists of 100 to a 1,000 individuals; they do not overlap with *samaj*	Physical unit; also unit of social support and identity
Gram (village)	Usually consists of several thousand individuals and is made up of several *para*	Physical unit, uncertain boundaries, some social support and identity, if village is large, then *para* is more village is large, then within the village
Union	Thousands of individuals and several villages	Political unit; holds elections for lowest level of government
Thana (Administrative Unit)	Consists of several unions	Arranges local government functions, tax collection, police force, college, major market, hospitals
Zila (Districts)	Several *thanas*	Major government functions, unit of social and cultural identity for migrants

[a] Adapted from Randall S. Kuhn (1999). "The logic of letting go: Family and individual migration from rural Bangladesh", unpublished Ph.D. thesis, University of Pennsylvania.

[b] Numbers are variable.

[c] Major functions are stated.

Remitting money on Sundays is a common practice. *Hundi* is the term used to describe an informal means of transferring remittances from Singapore to Bangladesh. The migrants send money home through *hundi* men, who are usually from the same districts in Bangladesh as the migrant workers. *Hundi* men make use of prominent migrants (who are respected and honoured in their home villages) from the migrants' villages of origin in order to convince other migrants to send money home through them. These migrants, who could also be considered middlemen, facilitate the operation of *hundi* men. As evening shadows deepen on Sundays, the handful of workers swells to thousands, and the *hundi* men start collecting cash from the workers. At the money market in Little India, the *hundis* and their runners broadcast their rates. A worker picks his *hundi*, tells him to whom the money should go and that family's address, and hands over his cash.

Although a few official transfer agencies from Bangladesh have been set up in Singapore to help in remitting earnings in a safe way, migrant workers prefer to use the *hundi* system and the rates charged for these services. The formal remitting agencies cannot compete with the *hundi* men, because they levy an administrative fee; the *hundi* men do not. In addition, the *hundi* men deliver the promised amount in person by visiting the migrants' families in remote villages in Bangladesh. Because of this personalized service and the relatively higher conversion rate offered, the bulk of the migrant workers continue to use the *hundi* system for the transfer of remittances, ignoring the continued appeals by the Government of Bangladesh to channel remittances through formal channels. *Hundi* men are in a position to provide these services because, with the cash from the migrants, they buy goods in Singapore to sell in Bangladesh at a profit. It is assumed that the *hundi* system will probably continue to exist as long as *hundi* men can provide effective services.

The data show that most migrants (95 per cent) remit money through the *hundi* men. Cases of misappropriation of cash are not very common; only 6 per cent of the migrants reported having lost their remittances once. The reasons for those losses are quite complex; dishonesty is usually not the problem. Sometimes *hundi* men are robbed in Singapore (usually by fellow countrymen) or sometimes the goods that they buy with the migrants' cash to sell in Bangladesh are confiscated by the authorities at the airport in Dhaka. Such unforeseen events lead to misery for both the *hundi* men and the migrants' families.

Conclusion

This study found that the systematic labour-recruitment policies adopted by the Government of Singapore have been fine-tuned over the years to match the

needs of the local economy with that of the Bangladeshi migrants who are employed mostly in unskilled or semi-skilled jobs in the construction sector. Although the majority of the migrants' families in our sample were affected by the devastating floods of 1988, this event was not a significant consideration in their migration because the cost of migrating to Singapore is prohibitive for rural households living at the subsistence level. The authors identified about seven districts in Bangladesh that were major sources of migrant labour for Singapore. Contrary to the view that the eldest son of South Asian families stayed at home to look after the household, over 50 per cent of the migrants who had been interviewed said that they were either first or second sons. In taking into account this factor together with the development of migrant networks in these districts in the 1990s, it is believed that that Bangladeshis in Singapore are the product of "chain migration".

The concentration of Bangladeshi labour in construction tends to minimize abuse by employers, as this sector of the economy is well regulated and supervised by the industry and the State.[21] The system enables unskilled workers to upgrade their status after they have acquired skills, which entitles them to a higher rate of pay. The authors found that over 40 per cent of the workers interviewed in the sample increased their earnings in this manner. It was also found that over 60 per cent worked overtime during the week and on Sundays, contributing significantly to higher earnings. Average monthly earnings of S$ 712 were three times that of a typical civil servant in Bangladesh.

The expenditure pattern of migrants in Singapore is also worthy of attention. The cost of migration is normally borne by two major sources, namely, family or personal savings and remittances. In this study it was found that remittances were expended, in order of priority, on the following: basic consumption, debt repayment, land investments, house renovations, the extension of loans to relatives and education. When asked how remittances would be expended in the future, the only change was that debt repayment would come last in order of priority. A significant amount of earned and expected income was also allocated for prestigious goods such as gold, cosmetics and electrical appliances. Singapore's reputation as a source of competitively priced good quality products is well known in Bangladesh, and families who have migrant members in Singapore are highly regarded in terms of social status.

The authors conclude that migration is an integral part of the lives, household planning and expected outcome of families in our sample. The study suggests that, despite the heavy cost of migration from Bangladesh, Singapore is a much sought-after destination for these migrants because the risk and uncertainty of such

an undertaking is minimal. Temporary migration to Singapore does indeed yield material and social benefits for a significant number of people.

The present inquiry into the socio-economic conditions of Bangladeshi migrants in Singapore is intended to fill a void in three areas. First, it is hoped that this study contributes to the relatively underresearched subject of temporary labour migration in this part of Asia. Second, by examining in detail the living and working conditions of Bangladeshis in Singapore, one is able to explain why Singapore is a desirable destination for the migrants. Third, it is only by adopting such a methodology – tracking the process of migration from the origins and demographic profiles of the migrants, the recruitment policy of the host and the income and expenditure of migrants, to the lifestyle offered by the receiving society – that one can begin to understand why people choose to migrate, stay and perpetuate the process through the life cycle of the extended family. Such a mode of inquiry might facilitate the integration of the micro- and macro-level understanding of migration. The authors suggest that it is only by replicating this approach, either in intranational or extranational migration, that one will begin to ground some of the excessive claims made in migration theory.

Policy implications

Although the emphasis of government policies in Bangladesh is currently on the export of human resources, with labour migration being seen as a short cut to national development because of its role in unemployment relief, balance of payments relief and capital formation at the national level, an important question that needs to be asked is: "How can migration be made to work for the benefit of poor migrants?" The critical concern should be to maximize the benefits and minimize the risks of migration for the migrants and their families. In doing so, the relevant government bodies in Bangladesh may wish to streamline labour export policies with a view to safeguard the migrant workers and their families from economic misery at home and abroad. In this context, the following measures could be undertaken to achieve these goals.

(a) With regard to the cost of migration, it is known that recruiting agents charge each migrant exorbitant fees – on average, equivalent to almost 10 months of wages. The Government could take measures to reduce the inflated cost of migration by reigning in the excesses of recruiting agencies; this would greatly assist migrant workers and their families.

(b) The authors have identified how migrants raise funds to cover the financial costs associated with migration, for example, the sale or

mortgage of livestock, arable land and homestead property and taking loans from traditional moneylenders. The dispossession of livestock and property or failure to repay loans to the moneylenders on time leads to severe misery for poor migrant households. If the Government takes the necessary measures to provide bank loans at low interest rates to individuals who intend to migrate, such measures would make a great difference in the survival strategy of migrant households. Moreover, by facilitating the funding process, the Government would also be making it easier for some of its citizens to earn much-desired foreign exchange.

(c) The Government of Bangladesh should establish more bank agencies in Singapore so that foreign workers can remit their earnings conveniently. The motivation for the opening of bank agencies should be on a non-profit basis and they should not charge high service fees.

(d) The establishment of the Ministry of Expatriates' Welfare and Overseas Employment in Bangladesh is a positive step. However, the Ministry must allocate adequate funding to tertiary-level educational institutions or centres such as the Refugee and Migratory Movements Research Unit and the Bangladesh Institute of Development Studies so that they would be able to conduct research focusing on overseas Bangladeshi workers.

(e) Bangladesh's diplomatic missions abroad should be provided with adequate resources for dealing with the problems of Bangladeshi workers on foreign soil.

Endnotes

1. "Every year, more than 30,000 Bangladeshi workers … come here (Singapore)" "The Journey of Hope" *The Straits Times,* 18 December 1999. Usually, Bangladeshi migrants come on a two-year contract. Therefore, about 50,000 Bangladeshi migrants were living in Singapore in any given year since the mid-1990s.

2. See Singapore's Ministry of Manpower web site for details about foreign workers, the relevant rules and regulations and abuses such workers have endured at the hand of their employers, such as the withholding of their passports, withdrawals from their salary and even physical abuse, <http://www.mom.gov.sg/MOM/CDA/0,1858,1276————6433——,00.html>, accessed on 15 January 2005. The Commission for Migrants and Itinerant People has helped such persons; see the following web site for details: <http://www.migrant.org.sg/international.htm>.

3. "Jobless workers prefer to stay here", *The Sunday Times*, 28 June 1998.

4. "Adding Manpower to Singapore's Engine", *The Straits Times*, 20 May 1999.

5. CIA World Fact Book: <http://www.cia.gov/cia/publications/factbook/geos/bg.html>, accessed in 2003.

6. CIA World Fact Book: <http://www.cia.gov/cia/publications/factbook/geos/bg.html>, accessed in 2003.

7. Data include the family members whose food was cooked at the same hearth at the time of interview.

8. *Statistical Pocket Book of Bangladesh*, Ministry of Planning, Bangladesh Bureau of Statistics, 1999, p. 3.

9. See Ministry of Manpower, Singapore web site: <http://www.mom.gov.sg/MOM/ManpowerNews/mpn0902/pg7.htm>, accessed on 15 January 2005.

10. For the convenience of the calculation, we inquired about the working hours for the last full working day when the interview was taken.

11. At the time of interviews, migrants were asked about their total earnings for the previous two months. This was averaged for presentation purposes. The information on the previous two months' earnings was asked in order to produce a more reliable figure.

12. This average monthly salary was estimated from the total salary for the previous two months.

13. Singapore's Ministry of Manpower has several departments, for example, the Foreign Manpower Employment Division, Occupational Safety and Health Division and Labour Relations Division, all of which facilitate the well-being of foreign workers during their stay in Singapore. For details, see <http://www.mom.gov.sg/MOM/CDA/0,1858,177————————,00.html>.

14. The TOTO and 4D lotteries that the workers buy are drawn two and thee times a week respectively. In Bangladesh, lotteries are not popular.

15. Local-level administrative unit.

16. Interviews were conducted with the migrants who were working in Singapore for at least six months. The workers who could not recover their cost of migration were mainly working between 6 and 12 months, and were on two-year contracts.

17. It must be emphasized that money earned as a result of short-term international migration is only one type of income that is seen to be unearned. Such patterns of consumption behaviour are manifested in other cases as well, for example in the case of money obtained through winning a lottery, or through illegal means. In addition, Bangladeshis use a term *kacha poisha* (easily earned money) to refer to such earnings.

18. We use the term "Singaporean families" to describe the households who have members in Singapore. Such families are characteristically different from other non-migrant households in terms of the possession of so-called prestige goods.

19. "Recreation Clubs for Foreign Workers", *The Straits Times,* 15 June 2000.

20. Since migrants change their workplace frequently owing to the construction jobs available, many of the migrants use the addresses of their friends and relatives who have a more stable residence, or of some Bangladeshi shops in the Little India area.

21. The Labour Relations Department under Singapore's Ministry of Manpower should be mentioned for its role in solving salary or employment disputes. This Department assists employers and employees to resolve employment or salary disputes amicably through conciliation. Further, Bangladeshi migrants usually seek the Department's services when they become involved in employment or salary disputes.

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Does Retirement Affect Healthy Ageing? A Study of Two Groups of Pensioners in Mumbai, India

The key problem in retired life is the dearth of positive and creative roles for the retirees to play until they succeed in carving out new roles for themselves.

By Aparajita Chattopadhyay and T.K. Roy*

The World Health Organization (WHO) defines health as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. Among the many concerns of humankind, the ability to lead a life free from illness or disability during old age is a dominant one. Health is thus a key factor to livability. For older persons, health determines their ability to perform the tasks that facilitate their participation in society. Society for its part depends on the

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good health of its members to enable them to perform their roles adequately, be they of an economic, community or family nature.

The last 50 years of the twentieth century witnessed a significant lengthening of the average human life span. Increases in the expectation of life in the developing world have been due mainly to the steady decline in death rates of persons in the younger cohorts. The risk of death increases with age, although medical technology could minimize that risk somewhat if biological factors alone were involved. Comfort (1964) claimed that emotional stress accompanying the ageing process is likely to increase the risk of death because it lessens the efficiency of the physiological response to stress. Thus, aside from biological deterioration, socio-psychological stress and its varying effects on physiology determine the "quality" and "span" of life of ageing populations. The challenge is to add "life" to the latter stage of life, instead of meaninglessly "adding years".

Ageing is not a disease. Also, it does not corroborate with drastic changes in mental fitness. However, because the modern world gives emphasis to active ageing, retirement is often seen as a traumatic and degrading experience, especially for those who are weak in terms of finances, health, family support and social involvement. It can also adversely affect those who formerly held very prestigious jobs. The loss of a highly valued occupational identity leads to a sudden identity crises, feelings of inferiority in social interactions, a vacuum in daily routines, a decreased level of contentment and poor adjustment, which altogether accelerate physical and psychological complications, and often result in early demise.

The attempt of this article is to determine how these aspects affect older persons in two occupational groups, namely, schoolteachers, who belong to middle-income groups and experienced less stressful jobs during their careers, and civil servants, who were bureaucrats, had power and fame as well as work-related stress during their period of service. It attempts to observe how successful they have been in coping with retirement.

The Jakarta Declaration on Leading Health Promotion into the Twenty-first Century calls for increasing health expectancy and narrowing the gap in health expectancy between countries and groups (WHO, 1997). Thus, without studying health expectancy, the health of a particular population cannot be understood as a whole; measuring health expectancy makes easier health comparisons across populations and over time. The results can be used to identify and strengthen the findings concerning health differentials and in turn to propose ways to improve health. Moreover, health expectancy is an excellent indicator to measure the degree of successful ageing. In 1984, a group of experts in the epidemiology of ageing proposed to WHO a general model of health transitions which distinguishes

between total survival, disability-free survival and survival without chronic disease. The relevance of this model, which led to the conclusion of different health expectancies (WHO, 1984), lies in the fact that it makes possible the simultaneous assessment of mortality, morbidity and disability conditions.

For this reason, this paper attempts to capture health status in a comprehensive manner by applying life-table techniques. In the first part on subjective health, the presence of any chronic disease and functional health are considered in order to calculate health expectancies, adopting the Sullivan method. In the second part, attention is given to determining the rate of suffering from chronic diseases and testing whether retirement has any significant impact on accelerating "disease onset". The first part combines mortality and morbidity with the assumption that the mortality of the study population is identical[1] (as life expectancy in Maharashtra State as a whole is considered for both study groups in calculating their health expectancies). This section assumes a unanimous effect of age (or biological factors) on the rate of initiation of chronic diseases. The rationale behind the second assumption is that the self-regulating feedback mechanism of living organisms decreases in efficiency with age and at a constant rate. This homeostatic mechanism is disrupted easily by stress and strain as ageing progresses. Hence, stresses resulting from changes in the physical and social environments are likely to increase the risk of biological degradation (Selye, 1970). An 11-year follow-up study during the 1970s, investigated by Granick and Patterson (1971) on the data from the United States of America revealed that biological ageing (age) alone plays only a minor role on health degradation in the absence of disease. However, biological ageing accelerates when disease or any other stress factors comes to the fore.

Methodology

Non-conventional secondary data were collected from the Mumbai Pay and Accounts Office, with the intention of analysing the mortality risk of pensioners (not for this article) and to construct a sampling frame for the primary survey. The secondary dataset comprised a total sample of 1,014 (schoolteachers = 859, and civil servants = 155) to provide information about pensioners in the two occupational groups who had retired during the period 1980-1999.[2] Of the 1,014 pensioners, 650 teachers and 124 civil servants were still alive at the end of the observation and thus formed the sample frame for the primary survey. Two hundred and forty-eight teachers were randomly chosen based on the Yamane (1962) formula for selecting an appropriate sample size. The missed out cases were either out of the area during the survey period (December to April 2000) or refused

to give an interview mainly owing to time constraints or a lack of interest. Very few of them (only four) were in ill health.

Keeping the health dimensions in mind, an attempt has been made to assess the health status of the pensioners based on subjective and behavioural evidence (directly) and clinical evidence (indirectly), assuming that the educated urban respondents were well aware of their chronic diseases.

For functional health, the guidelines of the International Network on Health Expectancy and the Disability Process of the Réseau de Espérance de Vie en Santé (REVES) are followed (Robine and others, 1993). Questions on the ability to perform 13 activities customary in Indian society were asked. Five of the functions are required in normal life (activities of the wider world, or AWW) such as climbing stairs, bending and lifting heavy things; two are instrumental activities (IADL) such as shopping and housekeeping and six are basic activities of daily living (ADL) such as taking a bath, getting dressed, cutting one's nails and combing one's hair. Health expectancy was calculated based on the observed prevalence of subjective health, chronic disease and functional activity status by applying the Sullivan method (1971). In this method, years in any health condition (disability or perceived poor health as "p") are nothing but the product of the prevalence of that very health condition and the years lived in various age groups. Mumbai being the state capital of Maharashtra, two life table columns namely, the survivors (l_x) and number of years lived between two ages ($_nL_x$) are taken from the abridged life table of urban males in Maharashtra, India, 1994. The prevalence rate of different health conditions is then used to calculate the number of years lived with disability or poor health. By subtracting these from $_nL_x$, the number of years lived without a "p" health condition is obtained ($_nL'_x$). The cumulative total of these years is then computed from any given age, say "x", and related to the total number of survivors at that age (l_x) in order to obtain a health expectancy free from a "p" health condition.

The proportion belonging to the group under the category healthy life expectancy (HLE) comprised those pensioners who perceived their health as being "very good" or "good". Similarly, disease-free life expectancy (DIFLE) bifurcates the retirees into two groups: one comprised those who had suffered from at least one chronic disease during the previous one-year period; the other, those who were free from any chronic disease. To calculate the observed prevalence in functional limitation-free life expectancy (FLFLE), those who did not face any difficulty in performing AWW functions are grouped under the same category. The other band incorporates three groups, namely, those who were unable to perform any of the AWW functions or who performed any of those functions with difficulty or

avoided any such actions as a precautionary measure. Similarly, activity restriction-free life expectancy (ARFLE) and handicap-free life expectancy (HFLE) are measured based on the performance of ADLs. A subtle difference between these two measures is that HFLE is based on the proportion who are able to perform (with or without difficulty) all the basic activities without any assistance, while ARFLE incorporates as the numerator those who perform all these basic activities without difficulty (and obviously without assistance). Instrumental activities of daily living (IADL) were not taken into consideration in the health expectancy calculation because of response bias.

The previously mentioned Sullivan method is aptly used in 46 countries of the world for the simplicity of its data requirements. The main advantage of this observed-prevalence life-table method lies in the separate collection of mortality and disability data. However, it is not a period indicator. One problem associated with this method lies in approximating the period prevalence by the observed prevalence of disability (Robine, 1998). Even if it is always preferable to estimate health expectancies based on multi-state methods which will occur if period data are available, the Sullivan method provides a helpful indicator which can be used as long as its limitations are understood. The definitional criteria of health expectancies adopted in the article are as follows:

Health expectancies: This is a general term referring to the entire class of indicators expressed in terms of health expectancy in a defined state of health. Health expectancies are hypothetical measures and indicators of current health and mortality conditions. They include both positive and negative health states, which may be defined in terms of disability, self-rated health and other concepts.

HLE: The average number of years an individual is expected to live in good perceived health (self-rated on a scale such as excellent/good/average/poor/very poor). It should be noted that "good" combines the first two points of the scale.

DIFLE: The average number of years an individual is expected to live free of any chronic disease if current patterns of morbidity and mortality continue to apply.

FLFLE: The average number of years an individual is expected to live free of a functional limitation if the current pattern of mortality and disability continue to apply. Functional limitations mean restriction in abilities such as walking and kneeling (AWW activities).

ARFLE: The average number of years an individual is expected to live free of activity restriction if the current pattern of mortality and disability continue to apply. Those who face difficulty in any of the basic complex human functions such as getting dressed and bathing (ADL activities) are termed as "activity restricted".

HFLE: The average number of years an individual is expected to live free of a handicap if the current patterns of mortality and disability continue to apply. The term handicap means inability to perform basic ADL functions; the main dimensions of handicap are: orientation, physical independence, mobility, occupation, social integration, economic self-sufficiency and other handicaps.

The REVES classification system is summarized below for conceptual clarity, considering only those concepts that are used in the study:

	Concept	***Health expectancies***
ICD-10[a]	***Disease***	With/without disease
ICIDH[b]	***Disability***	With/without functional limitation
		With/without activity restriction
	Handicap	With/without handicap
	Perceived health	In good/ bad health

Source: J.M. Robine, and others (1993). Calculation of Health Expectancies: Harmoniztion, Consensus Achieved and Future Perspectives (London, John Libbey Eurotex).

[a] World Health Organization (1992). *International Statistical Classification of Diseases and Related Health Problems*, tenth revision, vols. 1-3 (Geneva, WHO).

[b] World Health Organization (1980). *International Classification of Impairments, Disabilities and Handicaps (Geneva, WHO).*

Last but not least, an endeavour has been made to see whether retirement has any effect on the prevalence of chronic health hazards, as it is often said that the very event of retirement imparts a negative effect on life as a whole and health in particular. The life-table technique is applied to calculate the cumulative probability of suffering from chronic diseases per annum in a synthetic cohort, where the cumulative probability of not becoming chronically ill with a particular disease by age i (Q_i) is the product of the probability of not "falling ill" at age i, that is, $Qi = (q_o * q_1 * \ldots q_i)$. Thereafter, trend analysis is carried out to check whether the rate of disease prevalence truly differs in the pre- and post-retirement periods, assuming that age (biological factors) is having equal effects for the two occupational subgroups of the study population prior to and after retirement. By applying the principle of the ordinary least squares method, the values of the two constants are estimated. The effectiveness of the curves to ascertain the morbidity trend is checked by testing goodness of fit. The rationale behind applying this method for estimating the effect of an event (in this case, retirement) on a particular component (disease) in year "t" is to project the expected proportion of the

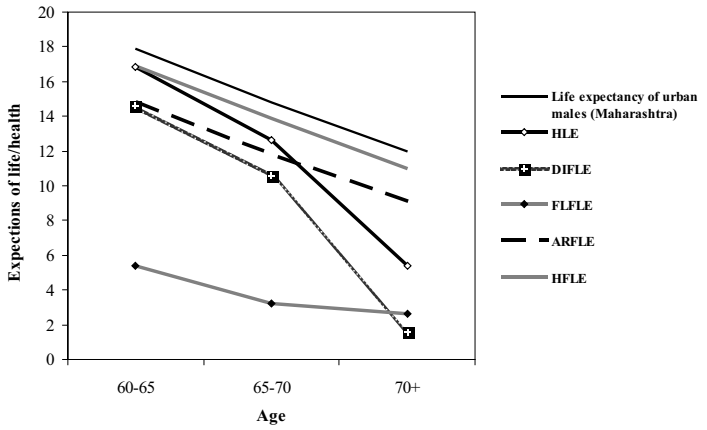
component in the absence of the event (Roy and Rao, 1984). In the present study, an estimation of the expected proportion is made based on the rate of suffering of the population in the period immediately prior to retirement. The basic assumption in this method is that all the biological or genetic factors which were responsible for establishing a particular trend or pattern in disease prevalence of a population in the pre-event period would not change their behaviour to produce any abrupt change in the prevalence of chronic ailments. Retirement is considered as an event which leads to behavioural and socio-environmental changes in life. If the two curves fitted for the pre-and post-retirement periods are not identical, this would mean that a difference exists in the "disease onset" rate and the event "retirement", which is a proxy for behavioural changes, has made a significant impact.

Results and discussion

Health expectancies

The health expectancies data (see appendix 1) clearly indicate that age is an important factor in determining health status according to any of three modes of measurement (subjective, disease and functional). At age 60, male is expected to survive an additional 17.9 years. Of these 17.9 years, he is considered to be in good health for 17 years, a difference of less than a year in which that person would be expected to be not in good heath (see figure 1). However, with increasing age, the gap between actual life expectancy and health expectancy increases, especially after age 70, in respect of HLE and DIFLE. For example, at age 65, out of 15 years of additional life, only 11 years would be expected to be free of any chronic disease. Conditions deteriorate sharply beyond age 70 when, out of 12 years of additional life, an older male would be expected to live most of the time (10 years) with at least one chronic disease. On the contrary, the change is not so distinct with age in terms of the disability-free life expectancies (FLFLE, ARFLE) and handicap-free life expectancy (HFLE) compared with HLE and DFLE. This is mainly because human behaviour involves coping: FLFLE and ARFLE are a reflection of the combined effect of behaviour and coping, whereas HLE and DIFLE are essentially the outcome of perception. Hence, any sudden change in behavioural science is unexpected, otherwise the whole system would collapse. It is evident from figure1 that a 60-year-old person would likely remain free of any minor functional difficulty for only 5 out of 18 years at the beginning of retired life. However, about 80 per cent of a person's life is supposed to be free from difficulties in performing basic complex functions (ARFLE). The ratio of disability- or handicap-free life expectancy to total life expectancy remains more or less constant with age, which is not true for HLE and DIFLE.

Figure 1. Health expectancies of two groups of pensioners in Mumbai

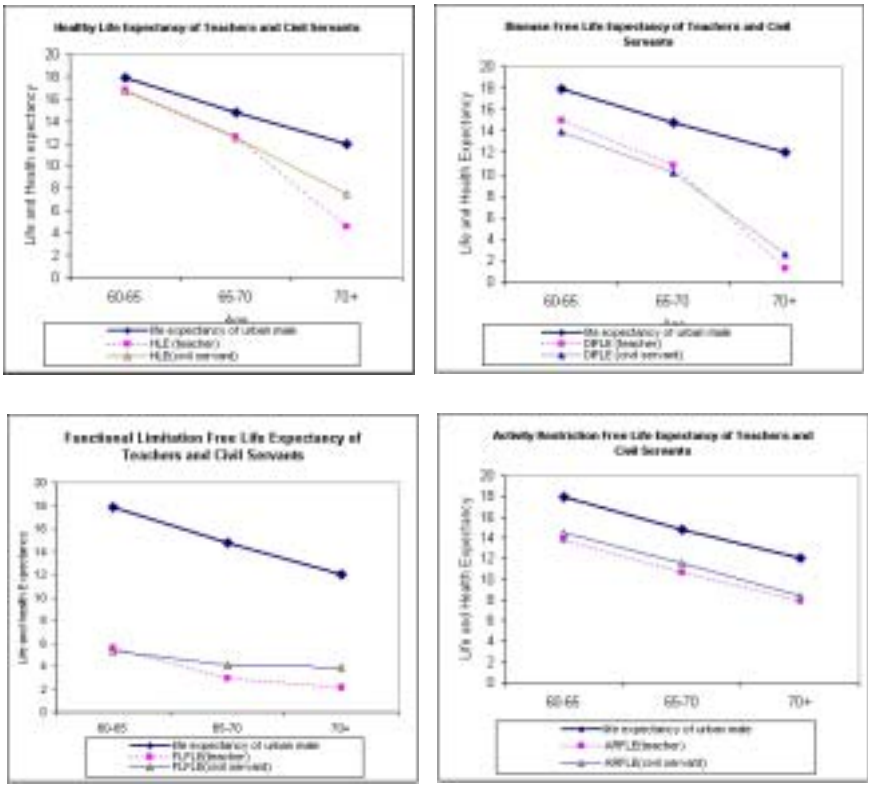


[a] HLE = healthy life expectancy.
[b] DIFLE = disease-free life expectancy.
[c] FLFLE = functional limitation-free life expectancy.
[d] ARFLE = activity restriction-free life expectancy.
[e] HFLE = handicap-free life expectancy.

Hence, it can be argued that with age, the effect of disease on perceived health is likely to be much stronger than its effect on behavioural performance. From age 65 to 70 years, HLE and DFLE drop about 60 to 80 percentage points, while ARFLE and HFLE diminish only by 25 to 21 percentage points.

It would be interesting to observe how much difference exists among teachers and civil servants in terms of their health expectancies (see figure 2). At the beginning of retired life, i.e., in their early 60s, there is not much difference between these two groups of pensioners with regard to all the different types of health expectancies; teachers enjoy a slightly advantageous position, except for ARFLE. With regard to life free from difficulties in performing basic activities, civil servants are expected to have one more year than their counterparts, a trend that continues until the end of life. With advancing age, the health expectancies of civil servants surpass that of the schoolteachers, with the widest difference being noted in HLE, which is based on perceived health status. At age 70, civil servants are likely to be in good health for 8 years out of the 12 additional years remaining; for teachers at this age, only 5 more years of good health may be expected. The decline in DIFLE is steepest among all health expectancy measures from

Figure 2. Different health expectancies of teachers and civil servants



"middle-old" to "old-old" age and the trend is more pronounced among teachers. This also suggests that the rate of initiation of chronic diseases might be higher for teachers than civil servants in old age. However, careful examination would be necessary to prove this presumption. Thus, the next section of this article is devoted to determining how much difference exists between these two groups of retirees in terms of the rate of suffering from any chronic disease as age progresses.

Age of initiation of chronic diseases

Prior to applying the life-table methods, it is necessary to assess whether a notable difference exists between teachers and civil servants in the age of initiation of different chronic diseases. The data in table 1 reveal that the mean ages at onset of chronic diseases is higher among civil servants, especially for hypertensive

disorders and diabetes. Cross tabulation by age gives more insight in this regard, as mean age may not be a good indicator if the time range (age at onset) of disease initiation is wide. Table 2 shows that almost 45 per cent of civil servants experienced a chronic heart problem before age 60, whereas only 33 per cent teachers were so affected during the same period. The difference is pronounced for diabetes and hypertension: about 70 per cent of the civil servants had had these two complaints prior to age 60, whereas only 20 per cent of teachers had had these complaints in that time frame. As a whole, three fourths of the retired civil servants had at least one chronic disease prior to age 60. This is recorded, however, for only two fifths of the teachers – a notable difference indeed.

Table 1. Mean number of years elapsing since initiation of chronic disease

Occupation	Initiation of chronic diseases by mean number of years before occurrence of:					
	Heart disease	Hyper-tension	Arthritis	Diabetes	Cataract	Hearing problem
Teachers	7.8	7.5	5.6	11.4	3.9	5.5
Civil servants	9.6	13.6	6.5	18.4	5.7	6.8
F	0.03[a]	15.86	0.24	1.92	1.33	0.43
p value	0.45	0.003	0.525	0.027	0.25	0.67

[a] groups' variance assumed equal; confidence interval 95 per cent; mean ages of teachers and civil servants are 68.4 and 68.8 years, respectively.

Probability of becoming chronically ill

Keeping all these findings in mind, the life-table approach has been adopted to calculate the probability of suffering from chronic diseases. The technique estimates the period and cumulative rates of disease initiation, thus combining the experience of different cohorts by using event-history data. Figures 3a, 3b and 3c outline the probability of falling chronically ill (by age) with any of 24 diseases mentioned in the checklist contained in appendix 2.

Among civil servants (figure 3a), the onset of any chronic disease begins at age 20, slowly increasing up to the mid-30s but rising alarmingly in the early 60s. However, the trend is not the same for teachers (figure 3b). Their experience of chronic illness begins almost 10 years later than that of the civil servants. The probability of becoming chronically ill goes up slowly to the mid-50s, thereafter rising steeply until age 70. To be more specific, at age 50, when the chance of having at least one chronic ailment is evident among 30 per cent of the civil

servants, the same situation is faced by only 10 per cent of the teachers. However, the scenario changes with age. For example, 55 per cent of the civil servants are likely to have had at least one chronic disease by age 65 compared with 50 per cent of the teachers. Therefore, the proportional difference in the likelihood of suffering from any chronic disease among these two occupational categories reduces with time (age). When two probability curves are plotted simultaneously from age 45 to 70 (figure 3c), it shows clearly that the gap between the two curves gradually shrinks after age 60, with the rate being higher for teachers compared with the more stable civil servants (see table 3). The possibility of becoming chronically ill is approximately 0.15 times higher for civil servants than teachers in their 40s and 50s; following superannuation, the rate increases steadily for teachers, which may be due either to the effects of age (biological factors) or retirement (socio-psychological factors).

Table 2. Age at initiation of chronic disease, by occupation

Disease	Occupation	Age at initiation (years)			
		Before 55	55 to 59	60 to 64	65 and older
		Age adjusted per cent distribution			
Heart disease	Teacher	17.4	15.2	28.1	39.1
	Civil servant	30.9	13.8	18.5	36.7
Hypertension**	Teacher	15.9	30.4	23.3	30.1
	Civil servant	48.8	19.4	11.9	19.6
Arthritis**	Teacher	8.9	15.0	28.4	47.5
	Civil servant	4.2	20.9	56.6	27.2
Diabetes**	Teacher	33.3	21.3	28.5	16.7
	Civil servant	68.5	15.9	0.0	15.4
Cataract	Teacher	1.9	9.6	14.9	58.2
	Civil servant	0.0	20.5	34.6	44.8
Any chronic disease***	Teacher	26.2	21.8	20.3	31.5
	Civil servant	55.0	17.1	15.8	11.9

** Significant at the 5 per cent level;
*** Significant at the 1 per cent level.

Table 3. Probability of suffering from any chronic disease, by age according to occupation

Age	Cumulative probability of suffering from any chronic ailment		
	Teachers	Civil servants	Total
45	0.097	0.247	0.114
46	0.097	0.247	0.114
47	0.107	0.276	0.132
48	0.107	0.276	0.132
49	0.120	0.276	0.140
50	0.125	0.285	0.149
51	0.147	0.330	0.183
52	0.165	0.356	0.207
53	0.173	0.372	0.215
54	0.186	0.388	0.231
55	0.223	0.396	0.262
56	0.235	0.419	0.277
57	0.262	0.433	0.298
58	0.281	0.455	0.319
59	0.325	0.476	0.347
60	0.358	0.503	0.366
61	0.379	0.509	0.379
62	0.437	0.538	0.416
63	0.458	0.552	0.434
64	0.500	0.552	0.451
65	0.535	0.552	0.478
66	0.573	0.552	0.504
67	0.593	0.538	0.519
68	0.629	0.552	0.543
69	0.663	0.552	0.566
70	0.696	0.552	0.588

Figure 3a. Probability of falling chronically ill, by age, of civil servants

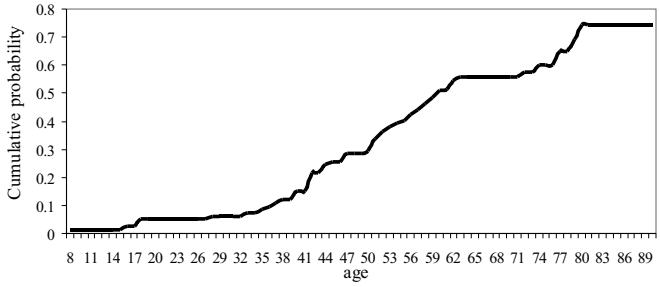


Figure 3b. Probability of falling chronically ill, by age, of teachers

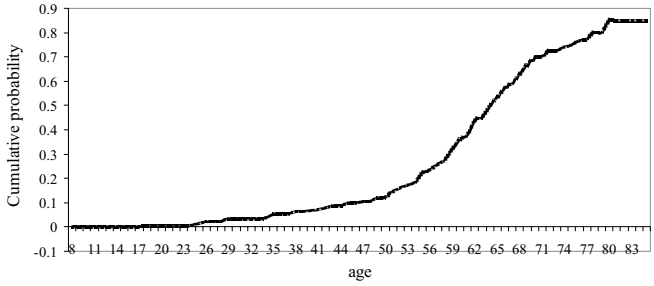


Figure 3c. Probability of falling chronically ill, by age, of teachers, civil servants and total

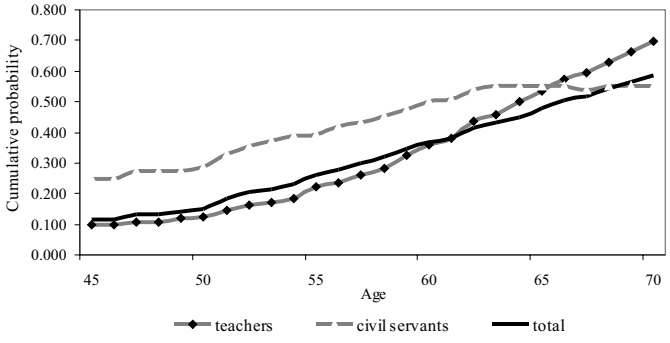
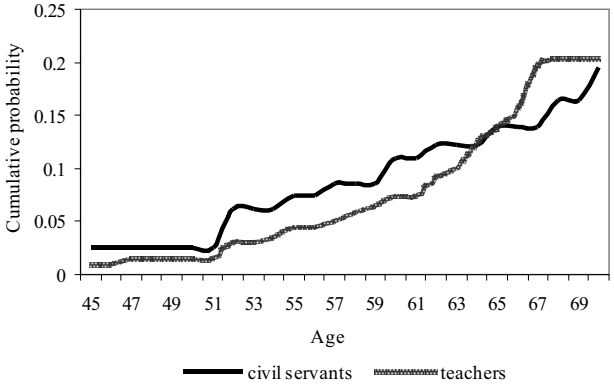


Figure 4. Probability of suffering from heart disease, by age



As the next step, we thought it would be interesting to determine whether occupational differentials exist in cases of specific diseases. As figure 4 portrays, the chances of having a chronic heart problem are higher among civil servants, especially between age 50 and 63. However, the increased likelihood of having a heart disease is more pronounced among teachers from age 61 to 68, thus surpassing the curve of the civil servants in their mid-60s. With regard to hypertension (figure 5), the risk for civil servants is higher than for teachers from age 45 to 70, but the probability of having hypertension is higher for teachers from

Figure 5. Probability of suffering from hypertension, by age

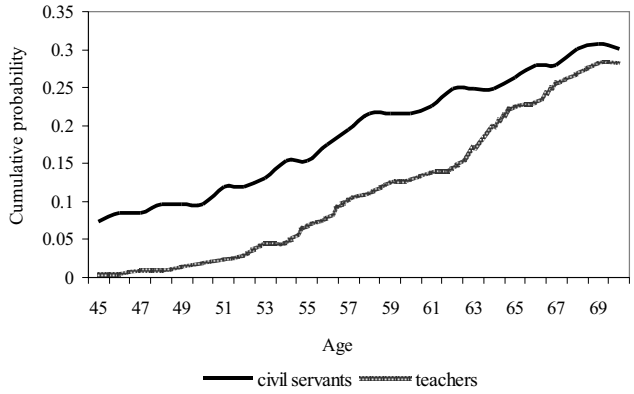
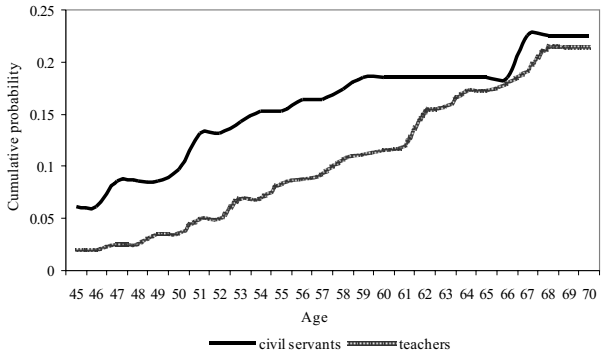


Figure 6. Probability of suffering from diabetes, by age



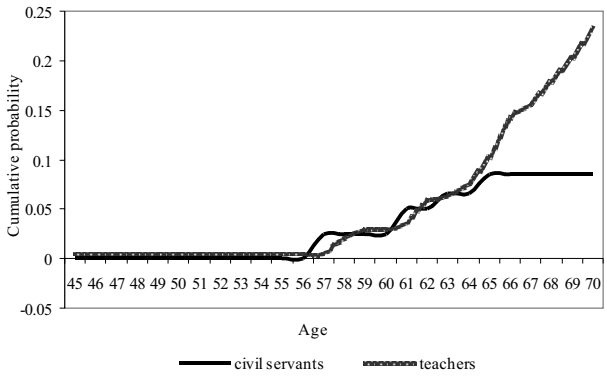
age 61 onward. Consequently, the space between the two curves narrows in the 70s. With regard to diabetes (figure 6), civil servants are at higher risk than teachers irrespective of age; however, the risk weakens from age 60 onward for the civil servants, while it strengthens for the teachers. With regard to cataracts and arthritis, the probability curves follow almost similar patterns. The chances of suffering from these two ailments start to increase in the late 50s. The likelihood as well as the change in the rate of suffering from these two diseases remain the same for both groups until their mid-60s, after which the risk for teachers steadily increases compared with that of their counterparts.

Therefore, there is no hesitation about the finding that the likelihood of onset of chronic diseases among civil servants is much higher than among teachers in the pre-retirement period. Nonetheless, following retirement, the possibility of teachers becoming chronically ill increases sharply, a trend that continues until age 70. On the contrary, for civil servants, the trend either remains stable or increases sluggishly subsequent to retirement.

Trend analysis of rate of "disease onset"

It now becomes interesting to test whether the change in the probability of suffering from a chronic disease in the pre- and post-retirement period is consequential. If the change is statistically significant during these two time periods, only then can it be said firmly that retirement does have an effect on the health condition of the retiree in terms of "disease onset". To examine this conjecture, trend analysis is carried out by fitting two straight-line curves in the

Figure 7. Probability of suffering from cataract, by age



pre-retirement (ages 45 to 57 years) and post-retirement (ages 58 to 70 years) periods based on the cumulative probability of falling chronically ill in the corresponding time-span. The amount by which morbidity changes per annum as a result of behavioural factors is calculated to be 0.0168 for schoolteachers and 0.150 for civil servants in the period prior to retirement. Curves for the post-retirement period show the annual rate of suffering from chronic disease as 0.034 and 0.0069 for the two respective groups. The combined data for disease prevalence in the pre- and post-retirement periods have been projected to increase annually at the rate of 0.026 for teachers, which is lower than the observed rate (0.034). On the contrary, for civil servants, the projected annual rate of disease prevalence as an effect of non-biological factors is 0.014, which is .007 points higher than the observed regression coefficient. Tabulated values of disease prevalence based on the combined dataset for both groups of retirees are different from the estimated figures at the 5 per cent level of significance. Therefore, the hypothesis of equality of the two regression equations in the pre- and post-retirement periods for both occupational groups is rejected. For a teacher, the rate of chronic disease prevalence significantly increases after retirement, while the opposite is true for civil servants. Thus, it can be firmly concluded that the rate of being chronically ill changes markedly after retirement owing to behavioural factors for both groups of pensioners, but in the opposite direction. Retirement significantly enhances "disease onset" among teachers, whereas for civil servants retirement markedly reduces the rate of disease prevalence in older persons. In other words, following retirement, ageing in terms of positive health (both health

expectancies and the likelihood of becoming chronically ill) is more successful among civil servants than among teachers.

Conclusion

This article attempts to observe the health condition of two groups of pensioners, namely, schoolteachers and civil servants, who belong to two different socio-economic strata with different exposure to work-related stress and responsibilities in their pre-retirement occupations.

It is generally assumed that retirement has an adverse impact on survival for those who are especially weak in terms of health, wealth and social support as well as for those who have held a prestigious job prior to retiring. The self-regulating feedback mechanism of every human being decreases with age. However, this mechanism gets interrupted easily by stress resulting from changes in the physical and social environment. While explaining the occupational differential in hazard rates of dying, Saxena and Kumar (1997) conducted the only study of occupational differentials in mortality of retired persons in India. They found that those engaged in civil service jobs died earlier than others. Thus, it could be assumed that civil servants who have experienced a prestigious job in their service life will experience faster degradation of health in the post-retirement period. This means that we can assume that retirement does indeed affect civil servants adversely. To check this hypothesis, we applied life-table techniques to determine how health expectancies vary with age and pre-retirement occupation. Then we carried out trend analysis to check whether the rate of disease prevalence truly differs in the pre- and post-retirement periods, assuming that age (biological factors) is having an equal effect on the two occupational subgroups of the study population prior to and after retirement.

The results indicate that during the first five years of retired life, there is not much difference between schoolteachers and civil servants in terms of health expectancies. However, after superannuation, with advancing age, the health expectancies of civil servants surpass those of teachers, with the maximum difference being in healthy life expectancy (based on perceived health). The decline in disease-free life expectancy is steepest among all health expectancies, especially for teachers. However, the onset of disease is much earlier among civil servants during the pre-retirement period. The possibility of becoming ill is approximately 0.15 times higher for civil servants than teachers during the age band of 40-59 years. Following superannuation, this rate increases steadily among teachers; after the mid-60s, it ultimately surpasses the rate of civil servants. Trend analysis and goodness of fit confirm significant differences in the probability of

having a chronic disease between the pre- and post-retirement periods for both groups, albeit in the opposite direction, which means that retirement distinctly accelerates the onset of disease among teachers, with the reverse being true for their civil servant counterparts. Hence, we have inferred that the trend in "falling ill" has increased significantly among teachers after retirement owing to non-biological factors because the individual impact of biological factors in catalysing "disease onset" is constant across all socio-economic classes (see Comfort, 1964; Selye, 1970; Granick and Patterson, 1971). Because retirement involves the abrupt ceasation of an active routine life and termination of an assured financial income, it can act as a major jolt in a person's smooth transition into older age. It is not clear what takes a heavier toll on health: the relative isolation from participating in work or the losses on the economic front. These aspects are not clear and need further investigation.

While explaining the occupational differential in hazard rates of dying, Saxena and Kumar (1997) were of the opinion that the mandatory regime of physical fitness comes to an abrupt end after superannuation for those engaged in civil service occupations. Thus, they encounter a major change in their lifestyle during their pre- and post-retirement periods when compared with others, while those who performed jobs less hazardous to their health experienced little difference in their lifestyle following retirement and thus enjoyed a lower risk of mortality.

Based on the findings of Saxena and Kumar (1997), we have assumed that deterioration of health would be faster among retired civil servants than retired schoolteachers, which has been proven to be otherwise in our analysis. We argue that the urban well-off educated class (civil servants) is not only independent financially but also self-sufficient in social and emotional terms.[3] After retirement they use much of their time actively participating in professional and creative work, acting as consultants, pursuing their hobbies and interacting with a few close relations. They cope with their retired life in such a way that it is full of pleasurable and meaningful activities; thus, they do not feel any difficulty in forgoing and replacing their former roles.[4] Although in terms of health they are comparatively disadvantaged in their early 60s, with advancing age, their health deterioration decelerates. To this group of people, age is not at all a factor that determines health status. With regard to the schoolteachers, who can be considered a proxy for middle-class educated older persons, life for them is centred around their family and contemporaries. The majority of them are still under the protective umbrella of a joint family, being financially dependent on their sons and emotionally confined to close relatives. In terms of health, they are comparatively better off than their

civil servant counterparts at the beginning of their retired life. With age, however, schoolteachers suffer a significant increase in chronic ailments.

Thus, it has been found that civil servant administrators cope better with the sudden changes brought about by retirement. They manage to maintain, albeit at a lower level, their social contacts and they possess greater economic security compared with teachers. Because an administrator's job was more stressful than that of a teacher when pursuing their careers, a greater magnitude of disease prevalence was found at the pre-retirement stage among the former compared with the latter, which may substantiate this point. To the extent that this early experience in dealing with disease prepares and helps administrators to better manage their later life, it will tend to diminish the importance of maintaining social contacts and having economic security in the process of leading a fruitful and healthy life.

The professional environment goes a long way in shaping the attitude of any population subclass. Because administrators are involved in the process of shaping the administration of the country, they have had substantial power and authority during their professional carrier. Their association with influential and powerful people built their self-esteem, which enhances their sense of self-worth. They emerge as enlightened individuals with a mission to contribute to the betterment of society and make a difference in the lives of the common people. This translates into their inspiration to actively involve themselves in social upliftment projects following their retirement.

The middle class is popularly epitomized by the schoolteachers. Although they play a significant role in shaping the future citizens of the country, they hardly ever get due recognition from society. This group symbolizes the working class of the country, who comprise an educated yet deglamourized lot. The absence of strong motivation casts serious doubts about their feelings of self-worth, which is manifested in this group by low interest in affairs beyond their own life and that of their family. Hence, the teachers' perceived values are equated with their savings, which quickly evaporate on superannuation. The resulting sense of insecurity and, in some sense, lack of a worthwhile identity isolate this group from taking any initiative to think beyond basic survival issues. With the march of time, such feelings of alienation and emotional void lead to ill health.

The national policy on older persons visualizes that the State will extend support to older persons for health care, shelter, welfare and other needs (Government of India, 1998). However, India has not yet duplicated Western countries where the older persons are financially supported by the State, where ill older persons are looked after by hospitals and where institutions render care for older persons. We think it is better for India not to follow the path of developed

countries, because its economic resources are scarce. Basic social security measures for older persons are undoubtedly necessary, such as the provision of health care and enabling people to earn a living. Huge investments in providing economic security, even to those who are already economically strong and have networks to maintain their standard of living through active participation in the work force, is not of much value. However, it would be more useful to adopt an alternative approach so as to strengthen family ties on one hand and provide basic security in a cost-effective manner on the other. The importance of intertwining the developmental and social security policies for older persons is immense. Further, keeping in mind the heterogeneous nature of India's population of older persons, it is more practical to develop a plan of action for a specified group of older persons, instead of having a generalized policy directed at the entire population (Chattopadhyay, 2004a).

Some of the specific measures that could be adopted are as follows:

- Specific health measures should ideally begin from the pre-retirement period. This is especially true for the middle-class group who may suffer from a lack of adequate preparation in planning their retired life. Any post-retirement emotional void should ideally be tackled with professional counselling in advance in order to guide the older persons with information about possible activities they may wish to pursue after their retirement. Such measures can go a long way in boosting the sagging morale of older persons and instill in them hope and give them purpose in their life.

- Monthly medical check-ups in municipal and government hospitals should be arranged in a cost-effective manner, at least for those who face financial constraints in providing for their own health care.[5]

- Another measure worth considering is the utilization of provident fund money of the retirees. If a certain portion of the total endowment is kept aside during retirement, that amount could be used to provide annual medical insurance coverage for its holder. Such policies could be packaged so that they could cover a minimum of, say, 10 years from the start of a person's retirement. Linking tax benefits to possible "old-age bonds" could be an innovative way to mobilize public funds, which subsequently could be dispensed to provide free medical check-ups exclusively for retirees.

Finally, it should be remembered that no single institution on its own can shoulder the responsibility for the population of older persons as their heterogeneity makes their problems complex. The responsibility for tackling ageing issues lies not solely with the State but also involves the surrounding society, family and, most importantly, each individual. The key problem in retired life is the dearth of positive and creative roles for the retirees to play until they succeed in carving out new roles for themselves. Hence, if an older person is capable replacing his or her former role with activities that add purpose in the years of remaining life, there will be no danger of feeling isolated, lonely, useless and unhealthy, which together can threaten the very survival of the retiree. It is the challenge of the retiree to adjust to a new life instead of mourning whatever has been lost. At the same time, it is the responsibility of the society to provide the retiree with the opportunity to play a meaningful role in society – one with a sense of function and value embedded in it. The dazzling progress of science and technology has extended life, but the victory will be incomplete if positive views do not endow aspects of ageing with the dignity it deserves. It does not take much – only a new outlook. This applies not only to those who are ageing but also to the young, or more precisely those who have not yet aged. The duty of researchers lies in determining whether the improvements in the field of mortality are only adding years to life or are adding life to years.

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Endnotes

1. Survival analysis depicts the mortality conditions or survival probability of schoolteachers and civil servants as not changing strikingly over the past 20 years. A hazard model does not reveal any significant difference in the risk of death between these two occupational categories even after controlling the time of superannuation (Chattopadhyay, 2002).

2. Both groups of superannuated older persons were government servants and they enjoyed the benefits of retirement pension schemes. In India, a government servant legally cannot maintain more than one service at a time during his or her service period. The Indian Civil Service is the administrative framework responsible for efficiently implementing policies concerning the economic, human and natural resources of the country. This coveted opportunity is extended only to those who succeed in a qualifying examination conducted by the Union Public Service Commission (UPSC) in centres throughout the country. Among the various services in the system are the Indian Administrative Service, Indian Foreign Service, Indian Police Service, Indian Accounts and Finance Service, Indian Postal Service and Indian Information Service, among others. The present study has considered only retired officers of the Indian Administrative Service and the Indian Police Service. In order to take the UPSC examination, a candidate must have attained 21 years of age but not be over 30 years on 1 August of the year of examination. Thus, all the civil servants in the study population had been engaged in government service for at least 30 years, as 60 years was the age of superannuation of the sample. Thus, a schoolteacher could never become a civil servant after the age of 30 and the possibility of shifting one's job from the civil service to become a schoolteacher is highly unlikely because the Indian Administrative Service and Police Service are considered among the best and most prestigious services in India.

3. Socio-economic characteristics of the sample respondents are given below:

Characteristics	Percentage distribution	
	Teacher	Civil servant
Living arrangement		
Without wife	10.7	12.7
With wife only	16.8	49.4
With wife and unmarried child	21.4	16.5
With wife and married child	51.0	21.5
Monthly pension (in Indian rupees)[a]		
Up to 6,000	92.4	1.3
6,001-8,000	7.6	1.3
8,000 and above	0.0	97.4 [b]
Currently working		
Yes	16.3	50.6
No	83.7	49.4
Number of very close confidants		
None	10.7	30.8
At least one	89.3	69.2
Total sample size (N)	**196**	**79**

[a] US$ 1 = about 45 rupees.

[b] The majority had a pension exceeding 12,000 rupees per month.

4. As revealed in the primary survey, retired schoolteachers are associated more with their domicile and related activities such as marketing household items, chatting with friends and performing household work, whereas the retired civil servants are involved with personal work such as hobbies (writing, playing games etc.), watching the daily news on television and engaging in consultancy work. Civil servants also tended to keep themselves in shape through physical exercise significantly more than the teachers irrespective of their health. The retired civil servants also tended to visit libraries, read novels or magazines and work on personal computers more frequently than the former teachers (Chattopadhyay, 2002).

5. In order to explore the needs and demands of older persons for their well-being, each of the respondents in the present study was asked to express his or her views and suggest measures for government intervention. The most common demand was related to the provision of costly medicine and medical service at a subsidized rate even in private clinics and hospitals; the next most frequent demand was that the government should take responsibility for high-risk older persons such as the destitute and disabled. Low-technology home-care services that could supplement family care in cases where an older person has none, or if the caregiver also is an older person, were also suggested as one of the ways of taking care of the disabled. One useful suggestion cropped up concerning the role of the Government on activities provided voluntarily by non-governmental organizations: for every locality there should be one comprehensive list of names of all the older persons in the population. Such lists would then be utilized for effectively monitoring and administering measures aimed at caring for the target population in a cost-effective manner. Another useful suggestion, raised mainly by civil servants, was that a periodic campaign be conducted on dreaded health disorders such as Alzheimer's disease, heart complications and Parkinson's disease. Another unanimous choice of this group of retirees was the creation of a government-sponsored health insurance scheme that would provide benefits to all sections of the older persons irrespective of their financial status (Chattopadhyay, 2004b).

Appendix 1. Different health expectancies, by age and occupation

A (total)

Age group (years)	Additional years of life expectancy of urban males (Maharashtra)[a]	HLE[b]	DIFLE[c]	FLFLE[d]	ARFLE[e]	HFLE[f]
60-65	17.9	16.9	14.6	5.4	14.8	16.9
65-70	14.8	12.6	10.6	3.2	11.8	13.9
70+	12.0	5.4	1.6	2.6	9.1	11.0

B (for teachers)

Age group	Additional years of life expectancy of urban males (Maharashtra)	HLE	DIFLE	FLFLE	ARFLE
60-65	17.9	16.8	15.0	5.6	13.8
65-70	14.8	12.6	10.8	2.9	10.6
70+	12.0	4.6	1.2	2.1	7.9

C (for civil servants)

Age group	Additional years of life expectancy of urban males (Maharashtra)	HLE	DIFLE	FLFLE	ARFLE
60-65	17.9	16.7	13.9	5.3	14.5
65-70	14.8	12.5	10.1	4.1	11.5
70+	12.0	7.5	2.6	3.9	8.4

Source: Sample registration system, 2000.

[a] Life expectancy of urban males from Maharashtra State (1993-1997).

[b] **HLE** = Healthy life expectancy (based on subjective health)

[c] **DIFLE** = Disease-free life expectancy (based on chronic disease)

[d] **FLFLE** = Functional limitation-free life expectancy (based on difficulty in IADL)

[e] **ARFLE** = Activity restriction-free life expectancy (based on difficulty in ADL)

[f] **HFLE** = Handicap-free life expectancy (based on inability in ADL)

Appendix 2. Checklist of chronic diseases

Code	Disease
G	**Cardiovascular**
	Heart disease
	Hypertensive disorders
H	**Respiratory diseases**
	Asthma
	Chronic bronchitis
L	**Musculoskeletal diseases**
D	**Endocrinal disorders**
C	**Diabetes mellitus**
I	**Digestive disorders**
	Peptic ulcer
	Chronic liver disease
	Other digestive diseases
J	**Diseases of the genito-urinary system**
	Hypertrophy of the prostate
	Colitis
	Genito-urinary hernia
	Nephritis
F	**Sense organ disorders**
	Glaucoma
	Cataract
	Hearing impairment
E	**Neuropsychiatric disorders**
	Paralysis
	Paralysis (partial)
	Parkinson's disease
	Dementia
K	**Skin disease**
N	**Oral disease**
A & B	**Neoplasm**

Note: Disease classification and coding is based on the cause of death classification World Health Organization (1992). *International Statistical Classification of Diseases and Related Health Problems,* tenth revision, vols. 1-3 (Geneva: WHO).

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