

Changing Demographics, Emerging Risks of Economic-Demographic Mismatch and Vulnerabilities Faced by Older Persons in South Asia: Situation Review in India and Pakistan

It appears evident that neither India nor Pakistan are well prepared at the policy level to meet the challenges brought about by the changes in their population structures.

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This paper provides an overview of some important demographic changes in two major South Asian countries, India and Pakistan, resulting in a situation marked by sustained fertility decline, life prolongation and a growth of population in both the young (especially 25 years and over) and old (60 years and over) age groups. The study postulates that these changes may prove significant for both the countries – affecting, inter alia, the size and clearance mechanism of their labour

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markets, nature of dependencies, increasing ratios of young to old, etc. The study further postulates that a fair proportion of families in the two countries may find it difficult to endure old-age dependencies owing to increasingly widespread casualization of employment and jobless growth. Enduring old-age dependencies may also be difficult due to limited work opportunities for older persons, functional disabilities, perpetuating poverty, lack of social assistance, compression in real public health expenditure, etc. The study also postulates that the pro-market changes in these countries may not particularly conform to their age structure changes. It may as well create a situation fraught with a significant economic-demographic mismatch (see appendix 1).

The following underlie these arguments:

(a) India and Pakistan will remain both young and old for most of this century. Young, owing to past fertility and its momentum; and old, because of their changing demography and added life span. The size of the graying population in particular, in the two countries is expected to grow very fast. Besides, recent projections reveal that the pace of population ageing in Pakistan is likely to catch-up with India over the next few decades (United Nations, 2005a). The United Nations projections also reveal bulge in their working age populations, needing matching growth in employment opportunities.¹ This seems to be an uphill task for the two South Asian countries (Husain, 1999; Baqai, 2004; Thomas, 2005).

(b) India and Pakistan have fast emerging market regime although no credible social security system for the deprived and older persons. Deceleration in high productivity employment in the subregion aggravates the risks of deprivation. Jointly, (a) and (b) are expected to bring a mismatch between the changing demographics of the two countries and their emerging economic regimes (see diagram in appendix 1; also see appendix 2 for declining employment elasticity in India and Pakistan).²

(c) Casualization of labour market may constrain cash transfers from young to old.

(d) With grossly inadequate protective securities for older persons, the idea of down sizing the family loses some of its logical moorings – especially for low-income households.

(e) Left to fend for themselves, with decaying non-market institutions, older persons may face exclusions.

To justify some of those arguments, this paper begins with a brief description of changes in the demographics of the two major South Asian countries. How far are these changes in conformity with their existing economic scenario and what security environment do the persons aged 60 and over in these countries currently enjoy follow in the subsequent sections of this paper. Arguably, an examination of these issues would help in the identification of insecurities being faced by young and old persons alike in the two countries under study. In terms of value addition, this study expects to build a case for: (a) working towards preventing an economic-demographic mismatch, (b) setting up of a strong health and income security net for the aged and (c) ensuring the latest structure's public-private financing mechanism.

However, it is to be noted that for lack of access to readily available data on old persons in Pakistan, much of the empirical contents of this analysis remains confined to India. Yet, some of the authors' arguments have been substantiated by a couple of recent studies on older persons in parts of western Pakistan. The point made in later part of the study is that the ongoing economic liberalization may imperil the existing and preceding few cohorts of older persons in India and Pakistan. Combined with growing old-age dependency and perennial poverty, the study strongly questions the adequacy of familial transfers – in particular to ensure the financial and health security of older persons. The challenge may be even greater with households comprising widows or persons in the “older old” categories (80 years and over).³ This can easily be gauged by: (a) high prevalence of diseases causing dependence of oldest old persons in performing activities of daily living,⁴ (b) large-scale poverty, (c) lack of long-term saving instruments for old with decent terminal return,⁵ and (d) inadequate public expenditure on health.⁶ In addition, there are issues relating to the health sector reforms with privatization of various services, non-existent social insurance, informalization of the labour market,⁷ etc.

Demographics of India and Pakistan: selected indicators

Table 1 clearly suggests that both countries are already at fairly advanced stages of demographic transitions, paving the way for bulging in their working and higher age populations with many important socio-economic and health ramifications. Two significant questions arise here and need serious consideration: (a) can these structural changes in population composition of both countries be overlooked? And (b) do the economic and health regimes of these countries fully conform to changes in their age patterns? The discussion that follows attempts to explore these two questions farther, though not being able to derive any definitive answer.

**Table 1. Demographics of India and Pakistan: selected indicators
(1950-1960 to 2045-2050)**

Total fertility rates (TFR): Number		
Decades	India	Pakistan
1950-1960*	5.95	6.65
2000-2005	3.07	4.27
2010-2015	2.50	3.31
2020-2025	2.11	2.76
2030-2035	1.85	2.43
2045-2050	1.85	2.10
Population growth rates: Percentages		
1950-1960*	2.13	2.34
2000-2005	1.55	2.04
2010-2015	1.26	1.98
2020-2025	0.93	1.60
2030-2035	0.61	1.28
2045-2050	0.32	0.84
Life expectancy at birth (e₀): Years		
1950-1960*	40.65	40.50
2000-2005	63.10	62.90
2010-2015	66.70	66.50
2020-2025	70.00	69.50
2030-2035	72.70	72.20
2045-2050	77.90	75.40

Sources: * United Nations (1999a) and United Nations (2005a) for information from 2000-2005 to 2045-2050.

Another observation emerging from table 1 relates to potentials of these two countries to accelerate the process of their demographic shifts. This is particularly true for India. Table 1 indicates that India is likely to achieve its replacement level of fertility before 2025 (Srinivasan, 1999). India is, therefore, expected to bring down the rate of its population growth drastically over the coming decades. Pakistan is expected to follow India closely, though certain differences between the two will persist (table 1).

What follows from most of these changes are obvious in the coming year the two countries will increasingly experience:

- An upward population momentum, with a rapid growth of population in the higher age groups. This phenomenon would keep both the countries young with large fractions of population in search of services and avenues to build superior human capital leading to good quality employment;
- A situation where, propelled by declining mortality and increasing life expectancy, large segments of the population in both the countries will grow older facing serious health and income security issues.

Of the two situations described above, the former may act to flood the labour market and affect bargaining strength of lower-end job seekers, while the latter would require income and health security for older persons. Unfortunately, both are missing from the two countries.

Macroeconomic and health indicators of India and Pakistan: do they conform to the countries' demographics?

Like many other commonalities and shared problems, both India and Pakistan are busy managing huge populations – majority in reproductive ages with considerably large young age dependencies. Moreover, a large section of those populations suffer from asymmetric income distribution, poor health conditions, limited civic amenities and high growth of entrants in the labour market. In some of these traits, Pakistan outperforms India, and vice versa (table 2; also see ILO, 2004). Similar observations emerge from a few of the more recent studies dealing particularly with the economic climate in these countries and their tryst with pro-market reforms (Srinivasan, 2002).⁸

As argued, the current economic regimes in India and Pakistan would increasingly confront in coming years via two demographically mediated issues: (a) swelling in the labour markets and (b) accelerating growth in elderly populations including the oldest old. As it is, the current economic regimes in both countries do not seem to have much to offer to either of these population groups. Speedier expansion in their labour markets, for example, require corresponding increase in job opportunities – that too at wage rates commensurate with prevalent market prices of life serving essential goods and services (Baqai, 2004; Husain, 1999; Bhattacharya and Shakhthivel, 2004). Increase in the number of older persons will require matching support provisions (Alam, 2004a).

Like all other traditional societies, elderly care in India and Pakistan lies with families.⁹ But this may be possible only if families have adequate transferable income.

Table 2, however, presents a picture that makes informal family-based old-age support in both countries a difficult proposition (see table 2, panels G and H)

Further, accompanying the fast growing young and old in both countries are several complex issues such as decelerating employment opportunities (see appendix 2), high growth of labour, income inequalities, poor formation of human capital, inadequate access to health services, and so on (see table 2; also see ILO, 2004). Given the cascading effects of these issues, the authors postulate that any bailing out process would require linking the demographically mediated age structure changes in both countries with their growth strategies.

Information, provided in table 2 suggests a mixed position. Pakistan, for example, has an edge over India if judged against the international poverty criterion, sanitation and availability of certain medical personnel.¹⁰ Gini coefficient however brings them fairly close.¹¹ Economically, India appears to be doing better.¹² Another disturbing factor in the case of Pakistan is the growth of its labour force. By available economic trends and policies, absorption of such a high growth of labour would not be easy for Pakistan (Baqai, 2004; Ghayur, 2001; Joeques and others, 2000).

Table 2. Selected socio-economic and health indicators of India and Pakistan
(Various years)

Indicators	India	Pakistan
Panel A. Population (million)	1,028.61 (2001)	132 (1998)
Panel B. Population momentum	1.4	1.7
Panel C. Average growth rate of labour force (per cent)		
1980-1998	2.0	2.9
1998-2010	2.0	3.3
Panel D. Employment elasticity		
1983 to 1993/1994	0.52	0.56 (1972-1978)*
1993/1994 to 2000	0.16	0.41 (1978-1987)*
Panel E. GNP per capita (US \$)	540 (2003)	520 (2003)
Panel F. Annual per capita growth of GDP (per cent)		
1980-1990	5.7	6.3
1990-2003	5.9	3.6
Income inequalities: Gini Coefficient	0.325 (1999-2000)	0.330 (1998-1999)

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Table 2. (Continued)

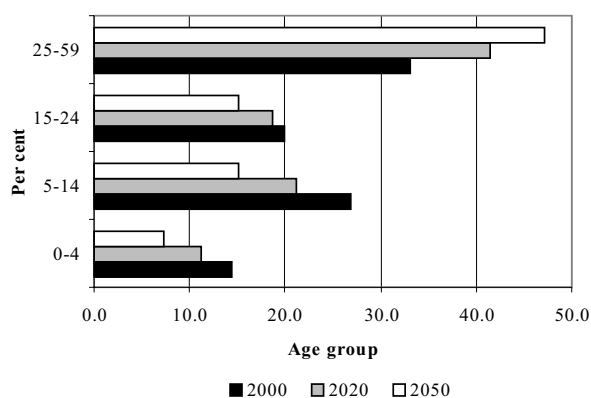
Indicators	India	Pakistan
Panel G. Persons below poverty line (per cent)		
Rural	30.2 (1999-2000)	35.9 (1998-1999)
Urban	24.7 (1999-2000)	24.2 (1998-1999)
Total	28.6 (1999-2000)	32.6 (1990-1996)
Panel H. International poverty line		
Below 1 US \$ (per cent)	34.7 (1999-2000)	13.4 (1998-1999)
Below 2 US \$ (per cent)	79.9 (1992)	65.6 (1998-1999)
Panel I. Percentage share of income/consumption by different income groups		
Lowest 10 per cent	3.9 (1999-2000)	3.7 (1998-1999)
First 20 per cent	8.9 (1999-2000)	8.8 (1998-1999)
Second 20 per cent	12.3 (1999-2000)	12.5 (1998-1999)
Third 20 per cent	16.0 (1999-2000)	15.9 (1998-1999)
Fourth 20 per cent	21.2 (1999-2000)	20.6 (1998-1999)
Highest 20 per cent	43.3 (1999-2000)	42.3 (1998-1999)
Panel J. Primary investment as percentage of gross domestic fixed investment		
1980	55.5	45.0
1997	70.1	58.2
Panel K. Adult literacy rate (15 per cent and above)		
	57	43
Panel L. Access to health care (per cent)		
Access to general health services (per cent)	85 (1991-1995)	55 (1991-1995)
Safe water (per cent)	88 (2000)	88 (2000)
Sanitation (per cent)	31 (2000)	61 (2000)
Physician per 100,000 persons (number)	48 (1990-1999)	57 (1990-1999)
Panel M. Human development index (HDI)		
1960	0.206	0.183
2003	0.602	0.527
Panel N. 60 years and over population and old age dependency burden		
Population (in millions)	76.8 (2000)	8.1 (2000)
Dependency burden: (per hundred pop. 15-59)	12.9 (2000)	10.9 (2000)
Dependency burden: 2050 (per hundred pop. 15-59)	23.6 (2050)	19.8 (2050)

Sources: Different data sources were used including the World Bank (2000, 2005); Human Development Centre (1997, 2002); ADB (2001); Planning Commission of India (2002); United Nations (2003).

Note: * Husain (1999).

By no means however has it implied that labour issues are less significant in India. Bulging of population in the age group 25 years and over is striking in both countries (see figures 1 and 2). Since the labour force participation of persons in this age group is highest in almost every country, the nature of the problems ahead is self-explanatory (see table 2, panel D for declining employment elasticity).

Figure 1. Changes in size of below 60 age groups (per cent): Pakistan, 2000-2050

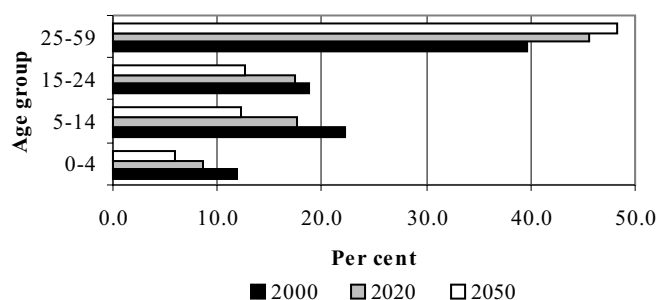


Source: United Nations (2005b).

An exclusive study on labour and employment in South Asian countries by Anant, Sundaram and Tendulkar (1999) highlights many similar issues including those relating to their growing labour markets followed by decelerating job opportunities in the high productivity sectors of these countries. On the flip side, the study notes a gradual decline in dependence on agriculture in most of this region. The study also suggests a general rise in real wages and improvements in sectoral productivity. The study however confronts with many nagging issues arising due to:

- Low levels of social and educational attainments: denying market driven opportunities to large segments of the population;
- Growing size of labour force and decline in labour absorption by higher productivity sectors;
- Higher levels of open unemployment and high informalization of labour market.

**Figure 2. Changes in size of below 60 age groups (per cent):
India, 2000-2050**



Source: United Nations (2005b).

This scenario with underlying issues of food insecurities (United Nations, 2006), malnourishment (Gragnolati and others, 2006), and poor human capital formation (PROBE, 1999; Dreze and Murthi, 2001) may force a big fraction of young job seekers in both countries to seek refuge in low-paid informal economy (Alam and Mishra, 1998; ILO 2004). For many of them enduring old-age dependencies with all its attendant issues may not be easy (Roy, 2003).

The other side of the demographics in India and Pakistan: Ageing, growing share of the oldest old and emerging issues

As stems from table 1, India and Pakistan are moving to a bimodal age composition with bulging in younger and older age groups. What does it look like in terms of age pyramids? How do the two countries differ – especially considering that the latter is still in a high fertility stage? These questions are discussed briefly below.

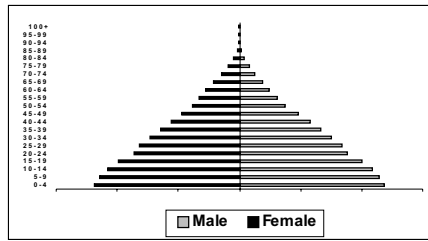
Using United Nations population projections (2002 revisions), age pyramids of both the countries are presented in figures 3 and 4 over three points of time – i.e., 2000, 2020 and 2050.

Broadly, these two sets of population pyramids clearly indicate that the age structure of India and Pakistan may not mutually converge before the later half of this century. In terms of life expectancy, however, Pakistan is likely to surpass India sooner and may, therefore, face the issues linked with bimodal population growth more severely.

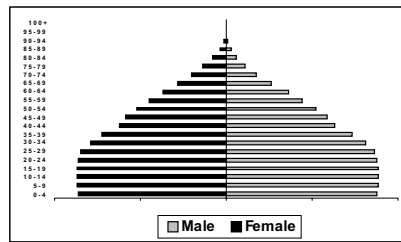
Another observation from these pyramids relates to the accelerating growth of older old – leading to expand the size of health care markets in both the countries.

Figure 3. Age structure of population: India

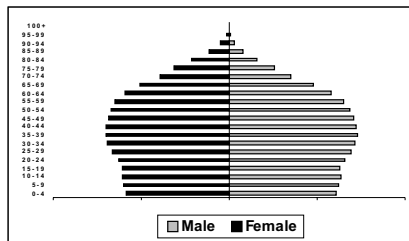
3a: 2000



3b: 2020



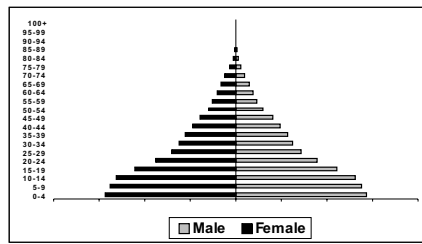
3c: 2050



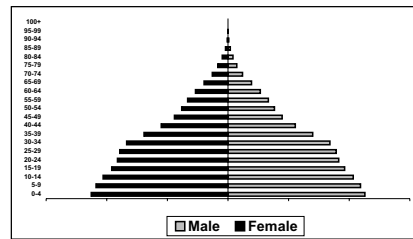
Source: United Nations (2005b). *World Population Prospects, The 2004 Revision.*

Figure 4. Age structure of population: Pakistan

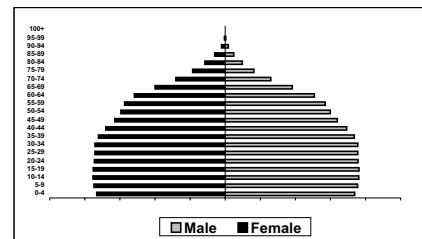
4a: 2000



4b: 2020



4c: 2050



Source: United Nations (2005b). *World Population Prospects, The 2004 Revision*.

Societal ageing in Pakistan: Growing issues and feeble responses

Despite an ongoing debate in Pakistan on its recent demographic achievements and declining fertility (Feeney and Alam, 2003; Soomro, 2000; Sathar and Casterline, 1998; Sathar and Kiani, 1998), the question of ageing or its various ramifications – especially for the economy and the society – remains in oblivion. Different reasons underlie this neglect. Most of them are perhaps rooted into micro perspective of ageing – with family at the centre. Incoming remittances and higher elderly participation in economic activities ease the burden of elderly care. Macroeconomic perspective of ageing is yet to take root (Soomro, 2000; Nasir and Ali, 2000; Clark, Zaman and Ghafoor, 2002).

Notwithstanding this, the United Nations projections on age structure changes in Pakistan reveal a very fast growth of societal ageing in the country – even faster than India after a certain time gap (table 3).¹³ Further, the growth of older old is expected to be much higher. Table 3 provides these changes more explicitly. It also suggests highest projected growth in 75 years and over age group, especially women.

Table 3. Age-wise annual average growth of population in Pakistan: 2000-2050

Age group	2000-2020 (per cent)		2020 – 2050 (per cent)		2000 – 2050 (per cent)	
	Male	Female	Male	Female	Male	Female
60-64	3.20	3.13	3.34	3.35	3.28	3.26
65-74	3.09	2.96	3.42	3.57	3.29	3.33
75 years and over	3.58	4.21	3.90	4.23	3.77	4.22
Total population	2.35	2.37	1.41	1.46	1.79	1.82

Source: Calculated on the basis of United Nations (2003), *World Population Prospects: The 2002 Revision*.

Taking cue from these age structure changes, certain attempts have recently been made in Pakistan to analyse the effects of population ageing for the country and its required institutional mechanism to improve the security environment for the aged (Afzal, 1994 and 1999; Khan, 1999; Clark, Zaman and Ghafoor, 2002). The study by Afzal (1999), for example, scans through these details including a few recent attempts by the Government of Pakistan to draw action plans for the welfare of older persons. The Special Education and Social Welfare Division of Pakistan has also commissioned a couple of multi-centric surveys in Lahore (1988) and Islamabad (1990) to make assessments about the ageing or its issues.

Table 4. Elderly status in Pakistan: selected details

	Female (per cent)	Male (per cent)
A. Living arrangement of older persons:		
Alone	11.6	9.1
With spouse	19.2	30.9
Spouse and children	6.3	14.0
With married son	51.6	37.0
Others including daughters/relatives	11.3	9.0
Total (N)	473	465
B. Do adult son/s provide support?		
Yes: provide support	18.2	13.1
No: do not provide support	72.1	73.5
No response	9.7	13.3
Total (N)	473	465
C. Proportion of support provided by son/s:		
Total support	18.2	13.1
Partial support	33.8	34.8
No support	38.3	38.8
No response	9.7	13.3
Total (N)	473	465
D. Work status of older respondents:		
Working for pay	14.1	36.5
Not working	71.2	58.5
No response	14.7	5.0
Total (N)	473	465
E. Reasons for not working/inactive:		
Sickness	22.27	28.67
Eye impairments	7.56	10.19
Functionally dependent	2.52	0.0
Physical weakness	22.69	34.39
Senescence	22.69	22.29
No need	17.65	0.0
No job opportunities/unemployment	1.26	0.0
Others	3.36	4.46
Total (N)	238	157

Source: Clark, Zaman and Ghafoor (2002). Information pooled from different tables.

As regards social security, Pakistan apparently has very few such schemes except for a small fraction of the country's total workforce comprising civil servants, military personnel and employees of public sector undertakings.

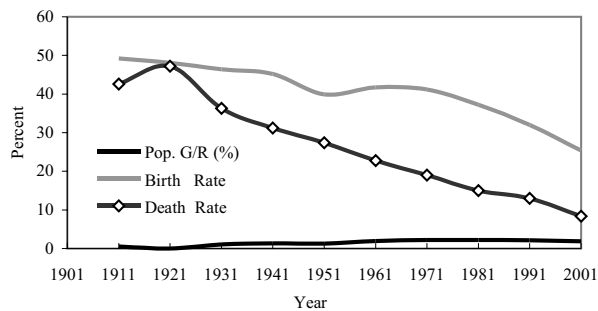
Outside the Government, a few non-profit voluntary organizations (e.g., the Senior Citizens Foundation of Pakistan or the Association of Retired Persons) have also been working as pressure groups to seek benefits in personal taxation after retirement, and subsidized medical care. These organizations have also succeeded in sensitizing the Government to include elderly welfare as part of its development agenda with gender specific public provisioning for the destitute elderly.

Despite those feeble responses, much of the ageing scenario in Pakistan looks rather bleak. This is emerging in particular from a study by Clark, Zaman and Ghafoor (2002), which was largely designed to examine the role of families in elderly care. Based on a survey of 938 elderly men and women from different places in Punjab province, the study reveals significant erosions in traditional values – leaving a big fraction of older persons in the lurch. Table 4 tries to reproduce a few of these details. Even a cursory scanning validates the authors’ earlier argument underlining insecure ageing with limited family support.

Population ageing in India: emerging health and non-health issues of aged

India has had a history of struggling with its large population base and slower fertility transition. However, there has been a gradual improvement over the past twenty years or so with a perceptible decline in the overall fertility level (table 1). This whole process was however camouflaged by faster ageing, caused by declining crude birth rate and crude death rate (figure 5) and growing longevity – especially at higher ages. As fertility continues to decrease, India is likely to age at an accelerating pace with fastest growth in the share of oldest old (table 5).

Figure 5. Population growth in India, crude birth and death rates



Source: Alam (2004b).

Table 5. Growth of population in India by age and sex, 2000 - 2050

Broad age groups	Annual average growth rate of population: 2000-2050 (per cent)	
	Males	Females
80 years and over	4.04	4.27
75 years and over	3.61	3.78
60 years and over	2.80	2.84
0-14 years	- 0.41	- 0.38
15-59 years	0.89	0.96
Total population	0.77	0.87

Source: Calculated on the basis of United Nations (2003), *World Population Prospects: The 2002 Revision*.

Declining work participation and old-age poverty

Tables 6 and 7 focus on the continuing decline in work participation of older persons and its implication for poverty. Alike Pakistan, India is a country with low economic participation of elderly. This is particularly true for females, though rural women appear to be more active than their urban counterparts (table 6). Much of this may, however, be a coping strategy for the rural old, especially women.

Table 6. Elderly work participation: all India¹⁴

Sex	1961	1971	1981	1991
Urban (per cent)				
Persons	35.2	31.5	27.5	24.3
Male	58.4	55.4	48.3	42.9
Females	11.4	6.4	6.5	6.3
Rural (per cent)				
Persons	52.0	45.5	43.1	43.1
Males	79.9	77.4	69.1	65.4
Females	24.3	11.3	15.9	19.0

Note: All India Census figures for respective years.

With declining participation in economic activities, it may not be implausible to expect high old-age poverty. While the age-specific data on poverty are not readily available, the authors tried to draw certain inferences on the basis of an exercise reported in table 7. Using the 52nd National Sample Survey data on consumption expenditure of the rural and urban households with co-residing old, the authors noticed serious poverty issues in terms of the per capita monthly

consumption expenditure (PCMCE) in most major states with Orissa and Bihar facing very critical situations. The low consumption level is also accompanied by very high coefficients of variation in most of the states. Interestingly, while the mean consumption level is disturbingly low in rural areas, the levels of consumption disparities are much higher among the urban households.

Table 7. Variations in per capita monthly consumption expenditure of households with at least one elderly co-resident: India and major states: 1995-1996

Major states	Rural		Urban	
	Mean (Rs.)	s/*100	Mean (Rs.)	s/*100
Andhra Pradesh	323.79	56.7	534.42	75.0
Bihar	282.39	40.4	435.97	57.9
Gujarat	411.95	55.3	607.83	54.2
Karnataka	331.43	53.4	511.66	60.0
Kerala	455.73	72.1	529.73	68.3
Madhya Pradesh	314.55	47.6	455.33	55.1
Maharashtra	345.13	52.0	678.99	75.3
Orissa	279.10	45.5	424.69	48.5
Punjab	549.04	51.0	665.10	45.6
Rajasthan	378.43	36.8	513.50	48.8
Tamil Nadu	341.49	47.1	523.57	65.3
Uttar Pradesh	330.39	53.2	506.41	71.8
West Bengal	334.50	46.7	545.72	66.0
All India	357.40	55.8	559.99	66.9

Source: Computed on the basis of household data from NSS, 52nd round (1995-1996).

Familial support for older persons

The NSS in its 42nd (1986-1987) and 52nd (1995-1996) rounds provided several details about the socio-economic status of the aged including their relationship with the care providers. Some of these details are presented in table 8. Two observations bear attention. One, spouse and children are the two major sources of care for older persons. Second, grandchildren and other relatives – particularly the latter – are increasingly pulling out of these responsibilities (table 8). A declining trend may be noted for children and grandchildren as well although not to that extent. Therefore filial dependence may not remain an option for many in India in the long term.

With families increasingly participating in market-dominated formal activities, other caregiving alternatives for the elderly are yet to catch-up in India. A particular example may be the old-age homes. Available literature not only reveals that these are limited in number, but it also raises question about these homes' quality (Rajan, Misra and Sharma, 1999). Using data from HelpAge India (1998) Directory of Old Age Homes, a recent study by Alam (2006) makes certain interesting observations. One of them is that out of a total of 510 homes, over 40 per cent are located in just four southern states – namely, Kerala, Tamil Nadu, Karnataka and Andhra Pradesh. Bigger states with a considerable share of elderly population such as Uttar Pradesh and Bihar remain far behind. In addition, female old-age homes are particularly scarce. Another interesting observation is in regard to their inmate capacity and basis of stay. It was noted that a majority of the homes in the country are of medium size – with a capacity ranging from 25 to 50 inmates – and are free of charge without any or very limited facilities to meet medical contingencies (Alam, 2006).¹⁵

Table 8. Nature of care providers: all India

(Percentage)

Sex	Spouse		Children		Grandchildren		Others	
	1986-1987	1995-1996	1986-1987	1995-1996	1986-1987	1995-1996	1986-1987	1995-1996
Rural								
Male	7.0	11.3	75.0	76.6	6.2	5.0	11.8	7.1
Female	11.5	15.9	73.8	71.7	6.4	5.2	8.3	7.2
Persons	9.5	14.2	74.4	73.5	6.3	5.2	9.8	7.1
Urban								
Male	6.2	10.5	78.0	79.2	6.1	5.4	9.7	4.9
Female	11.3	18.2	72.3	69.5	6.5	5.6	9.9	6.7
Persons	9.0	15.6	74.9	72.8	6.3	5.5	9.8	6.1

Source: National Sample Survey, 52nd Round (1995-96) - Report No. 446.

Poor old-age health: major risk factors

One of the worst problems faced by older persons in India is the high prevalence of multiple diseases in almost every part of the country. Based on self-reported health conditions in the NSS 52nd round, table 9 distributes older persons in rural and urban areas by number of ailments/disabilities. Contrary to

general expectations, table 9 reveals that the rural elderly suffer more heavily with poor health conditions in many major states including Andhra Pradesh, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjan and Rajasthan. To its worst, those with multiple conditions exceed others in most of these states. Given the virtually non-existent public health-care infrastructure in most of rural areas, this is an issue with serious public policy concern.

Table 9. Distribution of elderly by a number of conditions, rural and urban: 1995-1996

State	Urban (per cent)			Rural (per cent)		
	No disease	Single disease	Multiple diseases	No disease	Single disease	Multiple diseases
Andhra Pradesh	33.9	29.4	36.7	24.9	30.4	44.7
Assam	19.6	30.5	49.9	23.7	27.0	49.3
Bihar	46.3	25.8	27.9	43.5	24.4	32.1
Gujarat	31.9	34.3	33.8	39.7	26.8	33.5
Karnataka	42.0	25.3	32.7	51.5	24.2	24.3
Kerala	32.2	29.1	38.7	23.9	27.5	48.5
Madhya Pradesh	44.0	23.3	32.7	42.8	23.0	34.2
Maharashtra	33.5	29.8	36.6	30.9	30.6	38.4
Orissa	40.4	24.5	35.1	30.7	29.2	40.1
Punjab	36.8	23.8	39.4	31.6	29.7	38.7
Rajasthan	43.2	26.7	30.1	40.0	25.2	34.7
Tamil Nadu	36.8	27.0	36.2	39.2	24.7	36.1
Uttar Pradesh	34.1	27.5	38.3	34.0	26.5	39.5
West Bengal	16.2	29.1	54.7	22.2	23.9	53.9

Source: Computed on the basis of household data from NSS, 52nd round (1995-1996).

^a Both diseases and disabilities (see endnote 17).

Responding to this particular situation would obviously require making assessments about the causal risk factors responsible for the poor health of older persons, especially multiple conditions. The authors examined this issue by using a count data model and a set of variables representing socio-economic status of households, obtained from the NSS 52nd round. The specification of the model¹⁶ is briefly described below.

The dependent variable is the number of condition/s reported by individuals.¹⁷ Explanatory variables in the analysis are both continuous and

dichotomous. Age and Square of Age (Age^2) as well as household monthly consumption expenditure (HHMCE) are continuous variables, while others such as sex, literacy, drinking water, and toilet type are dichotomous.¹⁸

The model was estimated separately for the rural and urban areas (see table 10). Clearly, those estimates suggest a strong positive correlation between age and risk of suffering a greater number of diseases. This relationship does not however hold with Age^2 as its coefficient becomes negative. It indicates that people might be more susceptible to the risk of contracting multiple diseases up to a certain age. Thereafter, these susceptibilities may taper off. How far is this explanation justifiable requires sifting through the biological literature and the concept of health stock in early ages. These results also suggest negative implications of poverty on health outcomes, especially in rural areas. To be precise, better-off older persons living in rural areas with a higher consumption expenditure (HHMCE) are less likely to suffer from numerous diseases. This is shown by a negative but statistically significant relationship between the household's average consumption expenditure (a commonly used indicator of poverty) and the number of diseases. Similar relationship also exists between public health variables (such as drinking water, toilet facilities) and the disease risks. In other words, expenditure on public health and hygiene reduces the risk of ailments. Literacy level may also help to reduce the risks of sickness significantly – especially in urban areas. Compared with males, probabilities of females suffering co-morbid conditions are higher.

Table 10. Results of the count data regression model: negative binomial dependent variable: number of diseases

Explanatory variables	60 years and over living in rural		60 years and over living in urban	
	Coefficients	Standard error	Coefficients	Standard error
Constant	-5.900393	0.012076	-5.146724	0.024086
Age	0.143742*	0.00033	0.128663*	0.000666
(Age) ²	-0.000738*	2.26E-06	-0.000675*	4.56e-06
Sex dummy	-0.056446*	0.00037	-0.0608274*	0.000716
Literacy dummy	0.027533*	0.00045	-0.107109*	0.000740
Drinking water dummy	-0.111574*	0.00038	-0.0738475*	0.001180
Type of toilet dummy	-0.008248*	0.00226	-0.0220192*	0.000742
HHMCE	-6.21E-07*	1.40E-07	8.15E-06*	1.74E-07

* Coefficients significant at 1 per cent level.

Barring the HHMCE, all other variables follow a similar explanation both for the rural and urban elderly. The negative HHMCE drawn for older persons living in urban areas implies that persons with higher consumption levels are also susceptible to co-morbid conditions – perhaps owing to life-style problems.

How can one manage these conditions suffered by disadvantaged older persons? Obviously, in view of their poor economic background, declining work opportunities and very high prevalence of diseases, this issue is expected to become serious challenge for India and countries with similar characteristics. Two possible options may be considered to help tackle the situation. One is to upgrade the network of existing primary and community health centres with basic facilities to assist older persons. The other requires evolving a health fund to finance old-age health and long-term care.

Inadequate public health expenditure and declining use of public health facilities

By contrast, several states including Bihar, Rajasthan, Uttar Pradesh and West Bengal, have reduced their per capita health expenditure in real terms during 1990-1991 and 1995-1996 (table 11). Similar cut were also made in the Central

Table 11. Growth in real per capita health expenditure of centre and states: 1990-1991 and 1995-1996

State	1990-1991 (Indian rupees)	1995-1996 (Indian rupees)	Annual average growth (per cent)
1. Andhra Pradesh	34.6	83.8	19.35
2. Bihar	25.4	21.9	(-) 2.92
3. Gujrat	50.9	52.7	0.70
4. Haryana	44.1	49.8	2.46
5. Karnataka	37.1	53.0	7.39
6. Kerala	51.2	63.7	4.47
7. Madhya Pradesh	30.4	31.8	0.90
8. Maharashtra	58.4	61.7	1.11
9. Orissa	33.0	48.2	7.87
10. Punjab	54.9	57.7	1.00
11. Rajasthan	63.0	58.1	(-) 1.61
12. Tamil Nadu	70.2	72.8	0.73
13. Uttar Pradesh	33.1	29.4	(-) 2.34
14. West Bengal	41.6	34.4	(-) 3.73
Centre	9.2	4.7	(-) 12.57

Source: National Sample Survey, 52nd Round (1995-96) - Report No. 446.

Note: 1 USD = 99.35 Indian rupees.

budget. This trend was however contrasted by Andhra Pradesh, Karnataka, Orissa and so on who increased their per capita health expenditure during the same period (table 11). And yet, there appears to be growing dependence on private facilities over-time. This is clearly shown in table 12, which presents a substantial decline in utilization of public health facilities during the period under study. The table specifically suggests a reduction in utilization of government hospitals.

Table 12. Share of public and private sectors in hospitalized treatment

Hospital type	Rural (per cent)		Urban (per cent)	
	1986-1987	1995-1996	1986-1987	1995-1996
<i>Government</i>				
Hospital	55.4	39.9	59.5	41.8
PHC/CHC	4.3	4.8	0.8	0.9
Public dispensaries	-	0.5	-	0.4
<i>Non Government</i>				
Private hospital	32.0	41.9	29.6	41.0
Nursing home	4.9	8.0	7.0	11.1
Charity institutions	1.7	4.0	1.9	4.2
Others	1.7	0.08	1.2	0.6

Source: NSS 52nd Round (1995-96), Report No. 441, November 1998, p. 28.

Against this background, arises an important question: Will families alone be able, in countries like India and Pakistan, to take responsibilities for their elderly – especially in the current economic environment? Clearly, the answer is no.

Concluding observations

It appears evident that neither India nor Pakistan are well prepared at the policy level to meet the challenges brought about by the changes in their population structures, characterized by a simultaneous increase of younger and older adults. While the former will require a matching improvement in employment opportunities, the latter may make demands for health and social security provisioning. Unfortunately, however, one foresees an increasing mismatch between the two sets of demands.

Admittedly, meeting the growing social and health security requirements of the ageing population in both countries hinges on the countries' respective constrained fiscal situation. Nevertheless, these issues can no longer be ignored

and appropriate instruments will have to be created to address them – especially in order to minimize the risks of any major economic-demographic incongruities. This may, inter alia, require the following:

- With both India and Pakistan emerging as major “demographic bonus states”, three policy areas are likely to need further considerations: (a) nutrition and child health, (b) quality education with vocational training and market linkages, and (c) growth of activities with high employment potentials. Investment in rural economy is therefore a must. Also, quality of human life as measured in terms of socio-economic, environmental and welfare conditions will have to be taken into account as important indicators of development.
- Attempts will have also to be made to mainstream the post-retirement financial needs of the older persons. Problems faced by the low-income households in resource transfers to elderly need serious examination;
- On the health front, the large network of primary and community health facilities may need to be revamped in both India and Pakistan in order to offer additional facilities dedicated to providing basic health services for older persons. This however implies a change in public perceptions and attempts to include a few important geriatric conditions as part of the basic health-care package. In India, two major policy documents – i.e., the National Policy on Older Persons (NPOP, 1999) and the National Population Policy (2000) – endorse these initiatives;
- Reduction of expenditure on health services undermines the importance of negates the significance of the health security. The process has to be reversed;
- A complete reliance on families to provide care for older persons may not be realistic because of serious poverty issues and jobless growth in both countries. The Governments of India and Pakistan will have to chip in with appropriate financing mechanism;
- Attempts may nevertheless be made to strengthen the family system, for example, by allowing a rebate in personal taxation to those supporting their ageing parents;
- Creation of assured and stable savings instruments for older persons, contributing to income security. Some tax sheltered retirement accounts may also be designed;

- A social health insurance policy may be evolved with the help of finances generated through diverse financial sources including old-age taxes on health-hazardous industries, pay-role-tax, employers' contributions, public transfers;
- Pakistan may need to draw a clear-cut strategy for its ageing population and create institutions required for old-age income and health security.

Endnotes

1. The prospects of forward falling labour supply in developing countries like India and Pakistan is not considered.
2. This diagram postulates that the current economic regimes in India and Pakistan may not easily reverse their decelerating employment or bring qualitative improvement in labour situations despite being able to achieve faster GDP growth (see appendix 2). As both countries will keep expanding their pools of new job seekers due to upward demographic momentum, there may be problems in clearance of labour market and, to that extent, an economic-demographic mismatch may not be completely ruled. Further, educational achievements in the two countries are low. In India, this is particularly true in rural areas, among females, members of socially deprived groups, and in highly populous states like Bihar, Madhya Pradesh, Orissa, Rajasthan and Uttar Pradesh (Thomas, 2005). Pakistan is also confronted with more or less similar issues (Baqai, 2004). A situation like this may, inter alia, affect informal and family based support transfers to older persons.
3. Certain health financing studies from industrial societies have revealed that the growth of the elderly population has had little to do with the growth in health expenditures. To them, these spurts are to a large extent technology driven. This may or may not be true for Asian societies. Moreover, a faster growth of "older old", particularly in countries such as India and Pakistan, is likely to affect the demand for health care, requiring additional expenditure on health infrastructure and delivery. Long-term care is another emerging problem resulting from the high prevalence of functional disabilities among older persons in India (Alam, 2005; Alam and Mukherjee, 2005).
4. See, for example, Alam (2005) and Alam and Mukherjee (2005).
5. See Alam (2004b).
6. For details, see Prabhu and Chatterjee (1993).
7. See, for example, Alam and Mishra (1998).
8. For a more recent discussion on issues of poverty, food insecurity and malnourishment faced by people in India, see United Nations (2006). This publication clearly reveals that "... India still has the largest number of permanently and chronically undernourished people and one of the highest rates of child malnutrition in the world, and that hunger and malnutrition have been increasing since the second half of the 1990s". The report clearly substantiates some of the authors' arguments.
9. Governments in both the countries base their old-age policies on the assumption that the families will continue supporting their older persons. In many cases, however, these traditions are fast eroding. A

recent study on ageing in Pakistan by Clark, Zaman and Ghafoor (2002) supplements this argument. India is also facing similar problems.

10. These indicators may however mean little while discussing questions such as access, equity and efficiency.

11. Data on income distribution in Pakistan, especially the head count ratios of poverty, underlie serious conceptual issues as they often rely on household poverty levels rather than individual poverty levels. Further, the cut-off income level to determine whether persons are below or above poverty levels is questionable (Joekees and others, 2000).

12. For further details, see Husain (1999).

13. The elderly population in Pakistan is projected to grow from 8.1 million in 2000 to 15.6 million in 2020, and to 46.7 million in 2050 (United Nations, 2005).

14. Work participation rates of older persons from the 2001 census are still not available. The NSS (55th round for 1999-2000) however reports this figure as 29.9 per cent at the all-India level.

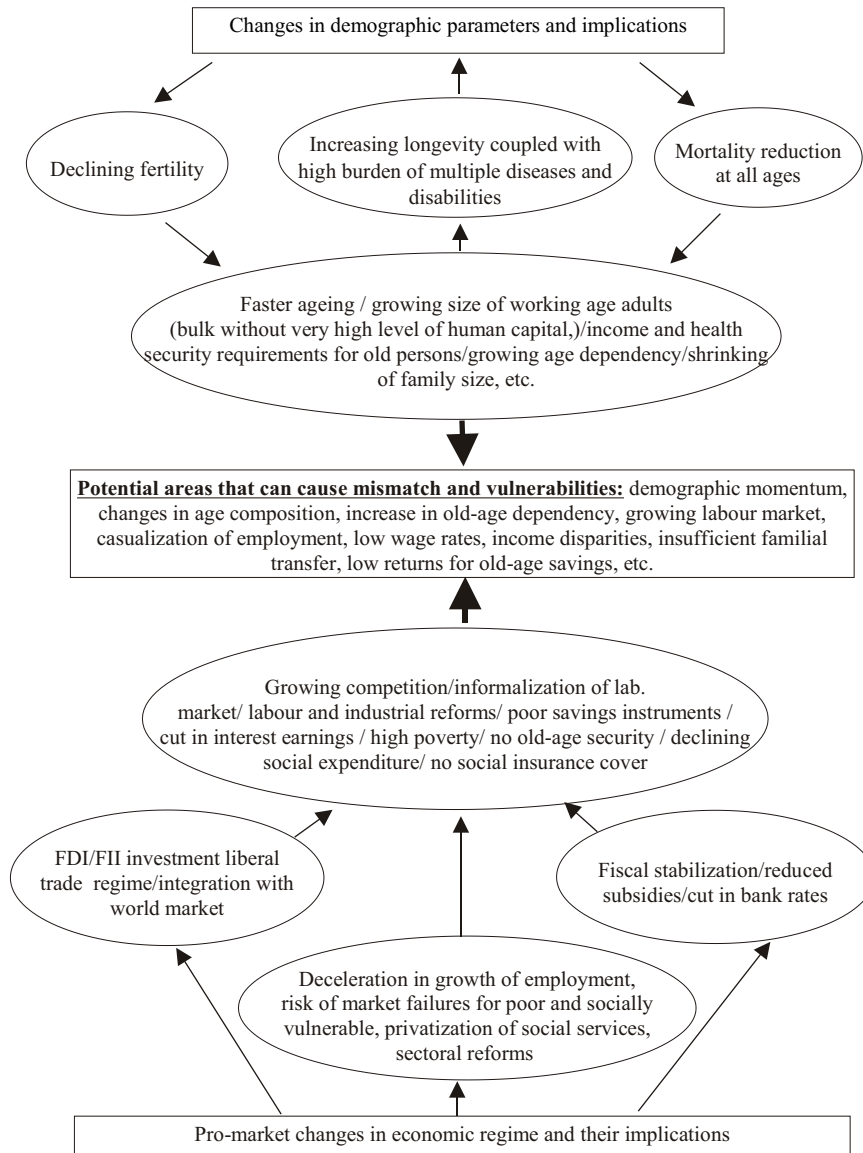
15. For a State-wise break-up of these facilities, see Alam (2006, table 1.10, p. 65).

16. Given the multiple and discrete nature of our dependent variable (i.e., the number of diseases/disabilities), a count data model was employed. Both Poisson and negative binomials were tried, but given the relative ease of the latter, especially while analysing the health outcomes that exhibit strong linkages between previous and successive events, we decided to restrict ourselves to the negative binomials (a Bernoulli process). For further discussion and methodological details, see Grootendorst, 2002; Cameron and Trivedi, 1986.

17. A total of 8 diseases and 5 disabilities were considered, including cough, haemorrhoids, joint problems, blood pressure, urinary problems, diabetes, cancer and heart disease. Disabilities comprise hearing and visual impairments, speech problems, locomotive disorders and amnesia.

18. Sex dummy (male = 1), literacy dummy (literate = 1), drinking water dummy (Tap, tube well and hand pump = 1, open well, canal water = 0), toilet type dummy (flush system = 1, all others = 0).

**Appendix 1. Factors in economic-demographic mismatch:
a hypothetical diagram**



Appendix 2. Decelerating employment, poverty risk and prospects of intergenerational transfer in India and Pakistan

India					
Year	Employment in organized sector			Employment in unorganized sector	Total
	Public	Private	Total		
1993-1994	19.3	7.9	27.2 (8.6 per cent)	288.7 (91.4 per cent)	315.9 (100.0 per cent)
1999-2000	19.4	8.7	28.1 (8.3 per cent)	308.6 (91.7 per cent)	336.7 (100.0 per cent)
Growth rate (1993-2000)	0.10 per cent	1.64 per cent	0.56 per cent	1.12 per cent	1.07 per cent
Employment elasticity	0.015	0.133	0.066	0.213	0.165

Source: Planning Commission of India (2002).

Pakistan		
Sectors	Elasticity coefficient	
	1951-1961	1978-1987
Agriculture	1.62	0.42
Mining and manufacturing	0.77	0.35
Construction	0.47	0.39
Electricity, gas and water	0.21	0.43
Transport and communication	1.71	0.43
Trade	0.86	0.48
All sectors	0.94	0.41

Source: Husain, Ishrat (1999), p. 242.

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