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HUMAN DEVELOPMENT IN INDIA:

PAST TRENDS AND FUTURE CHALLENGES

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1. Introduction

It is now 16 years since economic reforms were launched in India. The Indian economy has growth remarkably over this period; indeed, in the last decade, it has been one of the fastest growing economies in the world. The robust growth of the economy has certainly reduced poverty – with poverty incidence falling from 32 per cent in 1993-94 to 23 per cent in 2004-05 in the rural areas and from 28 per cent to 22 per cent in the urban areas (Sundaram 2007). But how has the Indian economy performed on broader indicators of human and social development? This chapter looks at India's performance on five dimensions of human development – infant mortality, child nutrition, nutrient intake, educational attainment, and sex ratios – especially during the decade of the 1990s. The chapter also discusses the challenges that remain going forward.

2. Infant Mortality

Health conditions have improved considerably in India over the last several decades. The infant mortality rate, which is one of the best indicators of overall health outcomes in a nation, has fallen from about 140 deaths per 1,000 live births in the early 1970s to only 58 in 2005, representing an annual rate of decline of 2.3 per cent per year (Figure 1). Infant mortality rates in the rural areas have fallen at approximately the same rate as those in the urban areas, so that the rural-urban divide has not narrowed appreciably during this period.

While a decline in the infant mortality rate of 2.3 per cent per annum is respectable, it is certainly not impressive in comparison to the experience of other low- and middle-income countries in Asia. Figure 2 shows that, over a comparable period, infant mortality rates in South Korea and Indonesia declined by about 3 per cent annually, while those in Sri Lanka and Thailand declined at 4 per cent annually. Most impressive, however, is the experience of neighboring Bangladesh – a country that is not only significantly poorer than India but whose economy has grown much less rapidly than India's over the last 2-3 decades. During the period 1970-2000, Bangladesh saw its infant mortality rate fall by 5.6 per cent annually! Thus, India's performance in infant mortality reduction has fallen significantly short of the experience of other developing countries.

An *average* infant mortality rate for India of 58 deaths per 1,000 live births masks very large intra-national variations. Kerala has an infant mortality rate of 14 – comparable to that observed for Russia, Macedonia, Thailand and Uruguay – while Orissa's infant mortality rate of 75 is as high as Zimbabwe's, Tanzania's and Senegal's infant mortality rate. Further, the different states in India have experienced varying declines in infant mortality over the last quarter century. Kerala, which had the lowest rate of infant mortality in 1981, experienced the largest decline in infant mortality between 1981 and 2005 (Figure 3). But Bihar and Uttar Pradesh, which had among the highest infant mortality rates in the country in 1981, were also among the top performers in IMR reduction over the same period. Andhra Pradesh and Karnataka – states that are normally perceived to be good human development (HD) performers – had the slowest rate of IMR decline over the 25-year period.

Is there any evidence of convergence in infant mortality rates over time? Figure 4 shows that, if the experience of Kerala is ignored, a generally-inverse relationship is observed between the initial level (in 1981) of infant mortality in a state and the subsequent (1981-2005) rate of decline in infant mortality experienced by that state. States that had the highest level of infant mortality in 1981 (e.g., Uttar Pradesh and Madhya Pradesh) experienced the most rapid decline in infant mortality over the 1981-2005 period. States that had lower levels of infant mortality, such as Punjab, experienced smaller rates of decline. It is apparent from Figure 4 that not only Kerala but also West Bengal and Tamil Nadu are positive outliers – in the sense that infant mortality has declined more rapidly in these states than would be expected based on their initial levels of infant mortality, while Karnataka is a negative outlier (i.e., it has performed worse than would have been expected). However, because of the generally-inverse relationship seen in Figure 4 between initial levels of and relative declines in infant mortality, there was some convergence in infant mortality rates over the last quarter-century.

There are even larger variations in infant mortality at the intra-state level. Regional estimates of infant mortality,[1] derived for two years – 1988-92 and 1994-98 – from the first two rounds of the National Family Health Survey,[2] are shown in Figure 5. The data suggest that, while infant mortality fell in the majority of regions in the country, a number of regions experienced no change or even an increase in infant mortality. These regions were distributed throughout the country – in the West, Center, and the South.

Why have infant mortality rates in India not fallen more rapidly than – or at least as rapidly as – in other Asian countries? What could bring about more rapid declines in infant mortality in the future? Obviously, there are multiple reasons for the high levels of infant and child mortality found in India, including a high incidence of poverty, low levels of maternal education, and poor access to health services and infrastructure. As an example of the latter, consider that nearly 60 per cent of all births in India take place at home and without a health professional in attendance. Any delivery complication, such as umbilical cord sepsis, puts these births at very high risk of premature death. The latest (third) round of the National Family Health Survey (NFHS-3) conducted in 2005-06 indicates that, in states such as Bihar and Uttar Pradesh, only a fifth of all births take place in institutions (Figure 6). While most states experienced increases in the proportion of institutional births between 1992-93 and 2005-06, the increases were, for the most part, modest.

A large number of infants and children also die prematurely because of preventable diseases. This is why child immunization has an extremely important role to play in preventing premature child deaths. The NFHS-3 paints a dismal picture of the expansion of child immunization in the country during the 1990s. The percent of children aged 12-23 months who were fully immunized (against BCG, measles, and three doses each of polio and DPT) increased merely from 36 per cent in 1992-93 to 42 per cent in 1998-99 (Figure 7). The increase from 1998-99 to 2005-06 was even more anemic – to 44 per cent. Many states, including prosperous states such as

[1] Regions are a collection of several districts grouped together on the basis of broadly-similar agro-climatic conditions. They are not, however, administrative units. The National Sample Surveys (NSS) have defined a total of 78 regions for India. Data from household surveys, such as the NSS, are often representative at the regional – rather than the district – level.
[2] http://www.nfhsindia.org.

Haryana, Punjab, Maharashtra and Gujarat, saw their full-immunization rates fall between 1998-99 and 2005-06.

According to the NFHS-2, health-services coverage is poor in India. Only 13 percent of rural residents reported access to a primary health center in 1998-99, while 33 percent had access to a sub-center. In states such as Bihar and Orissa, the access rates were much lower. In addition to lack of access, there is often widespread absenteeism of health workers at primary health centers and sub-centers; most government health facilities are in disrepair; and the availability of drugs and medical supplies at public health facilities is typically nonexistent. For example, a recent survey across India indicates that 58% of health workers in primary health facilities in Bihar were absent from their positions on any given day (Chaudhury *et al*. 2003). In the country as a whole, 43% of primary health care workers are typically absent from their place of work at any given point in time.

In response to these challenges, the Indian government has recently launched the National Rural Health Mission (NRHM). A central goal of the mission is to vastly improve health infrastructure and the delivery of health services in the country by increasing public expenditure on health from the current 1.1 percent of GDP to roughly 2-3 per cent of GDP within the next five years. The NRHM has a clear geographical focus on rural areas, especially in the 18 states that have weak health outcomes and infrastructure, including eight particularly disadvantaged states.[3]

The mainstay of the NRHM, which will cover approximately 250,000 villages in the 18 states, is an Accredited Social Health Activist (ASHA) in each village. ASHAs, who would be drawn from local communities, would function as intermediaries between the village population and the local health centers or sub-centers. They would be trained in sanitation, hygiene, contraception, child immunization, and primary medical treatment of diarrhea, minor injuries, and fevers. ASHAs would be expected to escort patients needing medical attention to the health center, as well as deliver direct observed short course therapy for tuberculosis and oral

[3] The 18 focus states are Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Himachal Pradesh, Jharkhand, Jammu and Kashmir, Manipur, Mizoram, Meghalaya, Madhya Pradesh, Nagaland, Orissa, Rajasthan, Sikkim, Tripura, Uttaranchal, and Uttar Pradesh. EAG states are Bihar, Chattisgarh, Jharkhand, Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh and Uttaranchal.

rehydration, to give folic acid tablets and chloroquine to patients, and to alert authorities to outbreaks of diseases. Most importantly, ASHAs would receive performance-based compensation for promoting universal immunization, referral and escort services for RCH, construction of household toilets, and other health-care delivery programs.

Of course, this is not the first time the government has tried out a health functionary program at the village level. There have been a number of such programs over the last three or four decades – the Auxiliary Nurse Midwives, the Lady Health Visitors, Village Health Guide, *anganwadi* worker, etc. Many of these schemes have failed to make much of a dent in rural health outcomes, in some part because they did not have the right incentives in place to make the village health workers accountable to the community. Currently, the plan is for ASHAs to be accountable to the village panchayats and for their compensation to be linked to their performance. How these employment contract details are operationalized will have an important bearing on the eventual success of the ASHA program.

Thus, the major challenge in improving health in the next decade or two will be to dramatically improve the appalling health infrastructure in the country and improve the rural population’s access to health services, while at the same time providing incentives for health workers to be accountable to the communities they serve. Within the delivery of health services, the highest priority should be placed on ensuring that all pregnant women have access to prenatal care, that all births take place in institutions or in the presence of trained health personnel, and that all children be immunized against preventable diseases. The experience of Kerala and Tamil Nadu suggests that these interventions will significantly reduce the high rates of maternal, infant and child mortality in India.

3. Child Malnutrition

Poor nutrition among children, as manifested in stunting, underweight and wasting, is another major health problem in India. Malnutrition is known to significantly increase the likelihood of premature death in infants and children, with some estimates indicating that child malnutrition is responsible for half or more of child deaths in the developing world.[4] There is also a large body of international evidence showing strong associations between under-nutrition in childhood on the one hand and low levels of school performance, cognitive development, health, and adult labor productivity on the other hand. Thus, child malnutrition in India is likely to have very high economic and human costs.[5]

Child malnutrition rates in India are extraordinarily high – among the highest in the world. In 1992-93, the first National Family Health Survey had estimated that nearly one-half of all children under 3 years of age were either underweight or stunted.[6] (This indicates that Indian children suffer from short-term, acute food deficits, as reflected in low weight, as well as from longer-term, chronic under-nutrition, as manifested in stunting). While the second and third rounds of the NFHS suggest that stunting rates have fallen appreciably (by about 10 percentage points) over the 13-year period between 1992-93 and 2005-06, underweight rates have not declined significantly (Figure 8). Even in 2005-06 – after nearly 14 years of post-reform growth and prosperity in the country – anywhere from 38 per cent to 46 per cent of Indian children are malnourished.

Interestingly, in the Indian context, child malnutrition is not merely a function of poverty. Even in the urban areas, which are significantly more prosperous than the rural areas, a third of all children under 3 are underweight (Figure 9). While there is a

[4] For instance, based on worldwide evidence, Pelletier and Frongillo (2003) estimate that a 5 percentage point reduction in the prevalence of low weight-for-age could reduce child mortality by about 30 per cent and under-5 mortality by 13 per cent.

[5] The World Bank (1998) suggests that the cost of undernutrition in India is at least US$10 billion annually in terms of lost productivity, morbidity and mortality.

[6] As in the literature, a child is considered underweight when his or her weight-for-age is more than two standard deviations below the NCHS reference weight. A child is stunted when his or her height-for-age is more than two standard deviations below the NCHS reference. Severe underweight and stunting occur when the relevant nutrition indicator is more than three standard deviations below the NCHS reference.

strong inverse relationship between child malnutrition and mother's schooling, even children of relatively-educated mothers are at significant risk of malnutrition. More than a quarter of the children of mothers with 10 or more years of schooling are underweight (the rate is 55 per cent among children of mothers with no schooling). Since better-educated children are very unlikely to face constraints on food intake, these findings suggest that child malnutrition in India (as in other developing countries) has a strong cultural dimension. It is related not merely to poverty but to dietary habits and feeding customs.

India's performance in bringing down its child malnutrition rate pales in comparison to other low-income countries, such as Vietnam. Vietnam brought down its child underweight rate from 52 per cent in 1985 to 25 per cent in 2005 (UNICEF 2006) – an annual rate of decline of about 3.7 per cent. In contrast, India's underweight rate has declined at a rate of only 0.9 per cent per annum over the period 1992-93 to 2005-06.

There are wide inter-state variations in both the level of child malnutrition and its rate of decline over time (Figure 10). While states such as Bihar and Madhya Pradesh have child underweight rates as high as 60 per cent, the corresponding rates are about 27-29 per cent in Kerala and Punjab. It should be noted that even the relatively low rates of child malnutrition in Kerala and Punjab are very high by international standards. Most countries having an infant mortality of 14 deaths per 1,000 live births (Kerala's rate) have child underweight rates of only 5-10 per cent – not 29 per cent, as does Kerala. There is thus a big disconnect between Kerala's performance on child health and its performance on child malnutrition. This incongruence is difficult to understand as most factors that are associated with low rates of infant and child mortality (e.g., delivery and utilization of high-quality health services, high female literacy, and good hygiene and health practices) typically also influence child malnutrition rates.

Even worse, Figure 10 suggests that there has been little progress in reducing child malnutrition in a number of states. The large and poor states of Bihar, Madhya Pradesh, and Rajasthan have actually seen an increase in child underweight rates. Even in a relatively prosperous state like Gujarat, child malnutrition rates have been stagnant over the past decade. However, states such as Haryana, Karnataka, Maharashtra, Punjab, Tamil Nadu and West Bengal have shown respectable (although not big) declines in child malnutrition.

There are many reasons for the high levels of child malnutrition in India. Some of these have to do with feeding practices, which are critical during the first few days and months of an infant's life. Data from the NFHS-3 indicate that fewer than one-quarter of Indian babies are breastfed within an hour of being born. In the poor states of Bihar and Uttar Pradesh, this ratio is even lower (only 4-7 percent). This is how the cycle of child malnutrition begins very early in an Indian child's life. The delay in breastfeeding is often related to an incorrect perception that the first breast milk (*colostrum*) is an inferior food, when in fact *colostrum* is rich in antibodies and highly beneficial to the new-born infant.

Another common feeding practice in India that has adverse implications for child nutrition is the early termination of exclusive breast-feeding and introduction of supplementary feeding. One reason why mothers give up exclusive breastfeeding early is their perception that they are producing insufficient quantities of milk due to their poor nutrition and heavy workload. Premature introduction of foods other than breast milk greatly increases the risk of infection in the small infant, and this sets in motion the process of malnutrition. It also puts the infant at greater risk of malnutrition, since weaning diets are often inadequate in India. The NFHS-3 data indicate that fewer than one-half of children aged 0-5 months nationally (and only about one-quarter in Bihar) are exclusively breastfed (i.e., supplementary feeding is introduced), which is not in line with the recommendations of WHO and UNICEF that exclusive breastfeeding continue for the first six months of a child's life.

Finally, illnesses and infections, especially diarrheal infections, are also strongly associated with child malnutrition. Infections reduce the ability of the body to absorb critical nutrients from food, which in turn leads to malnutrition. The NFHS-2 data indicate that an average infant begins suffering from diarrheal diseases very early in his or her life; by the age of 6 months, he or she has already experienced an average of 2.2 diarrheal episodes, and by the age of 12 months, 5.2 illness episodes. Diarrhea is even more prevalent among infants in the poor states of Bihar, Madhya Pradesh, Uttar Pradesh, Orissa and Rajasthan.

The Indian government has had a very large national program of supplemental child feeding for more than a decade – Integrated Child Development Services or ICDS. In addition, a number of states have school feeding programs under the scheme known as the National Mid-Day Meal program. However, there is evidence that these programs have poor coverage, targeting, and implementation. For example, the ICDS mostly focuses on children aged 3-6 years, but the consensus among nutritionists is that it is critical for direct nutritional interventions to reach 6-24 month olds and pregnant women to prevent malnutrition (World Bank 1998, 2001). Further, the ICDS *anganwadi* center health worker – one per center – is typically over-burdened, as she has to manage pre-school education, supplementary feeding, and outreach activities. Another problem with the ICDS program is the frequent disruptions in food supplies that take place at the *anganwadi* center. The responsibility for the food component of the program lies with the state governments, many of which typically under-finance this component of the program owing to cost and logistical difficulties. One evaluation of the ICDS found that disruptions in food distribution were very common at most *anganwadi* centers, with the average center going without any food rations for 64 days per year (out of an intended 300 feeding days) (National Institute of Public Cooperation and Child Development 1992).

The challenge for India will be to reduce child malnutrition through a coordinated program of early childhood supplementary feeding, maternal education on proper infant and child feeding habits, and reduction of childhood infectious diseases (particularly water- and food-borne diseases). In this sense, there is a strong synergy between policies to combat high infant and child mortality and those to reduce child malnutrition. There is therefore an important need to coordinate the two set of interventions.

4. Nutrient Intakes

In a food-scare environment such as India's, an important indicator of well-being is the amount of food intake by an individual. Indeed, income poverty rates are designed to identify those persons who cannot meet their calorie needs based on their income.

Since the National Sample Surveys (NSS) obtain detailed information on household food consumption, it is possible to analyze trends in nutrient intake over time using the various rounds of the NSS. Figure 11 shows remarkable stability in average daily calorie and protein intakes per capita over the three decades between 1972-73 and 2004-05 in both the rural and urban areas of the country. At first glance, this might suggest that food intake – and food-poverty – has been stagnant. This would be a remarkable conclusion given that the Indian economy has grown tremendously – and household incomes have increased a great deal – over this period.

However, the trend in fat intake is very revealing. During the 32-year period, average fat consumption per person per day has increased by 32 per cent in the urban areas and by 48 per cent in the urban areas (Figure 11). Thus, the data suggest that both rural and urban Indians have responded to higher incomes by changing their diet in favor of foods that have a higher fat (but not calorie or protein) content. The unresponsiveness of protein consumption to income growth is surprising but probably reflects the vegetarian nature of the Indian diet. With a vegetarian diet, the major scope for improving dietary quality may be via an increase in fat intake.

There are wide variations in the dietary changes that have occurred across states. Punjab and Haryana have seen large declines in mean calorie and protein intake over the 1972-2004 period, but once again this reflects a shift in the composition of the diet rather than a decrease in food consumption per se (Figures 12 and 13). Both of these states have some of the highest levels of fat intake in the country, and mean fat intakes have increased – albeit by not very much – in these two states. The real surprise is the experience of Orissa, West Bengal and Kerala, all of which have seen mean fat intakes more than double over the 32-year period. The data thus suggest that in all the states – even the poorest ones like Bihar and Orissa – the average quality of the diet has improved significantly even though mean calorie intake has not.

Of course, the analysis undertaken above relates to *mean* levels of nutrient intake. It would be instructive to examine the changes that have occurred in the diets of different economic groups to see if the fat intakes of the poor have also increased at the same rate as that of the overall population.

5. Educational Attainment

Another important indicator of human development is education. One of the millennium development goals is to ensure that, by 2015, all children complete at least the primary cycle of schooling (typically five years). The abundant social and benefits of benefits of schooling are well-documented in the literature on economic development. Schooling is recognized as one of the most powerful instruments for reducing poverty, unemployment, and inequality; improving health and nutrition; increasing accountability and transparency among governments; and promoting broad-based economic growth. It is also self-perpetuating across generations, with better-educated parents much more likely than less-educated parents to provide schooling to their children.[7]

India has made rapid strides in schooling since Independence. The various Censuses show the literacy rate increasing from merely 18 per cent in 1951 to 35 per cent by 1971, 52 per cent by 1991, and 65 per cent by 2001. Since the literacy rates refer to persons seven years of age and older,[8] the increase in literacy reflects rapid expansion of schooling in the country. Despite this progress, large pockets of illiteracy remain in the country. Even in 2001, the literacy rate among rural females was merely 47 per cent – compared to 87 per cent among urban males. In Bihar, female literacy in 2001 was merely 34 per cent.

[7] Note that "primary" schooling refers to grades 1-5 in this chapter. The term "lower primary" is sometimes used in India to denote grades 1-5, while "upper primary" refers to grades 6-8. "Elementary" education refers to grades 1-8.

[8] Actually, literacy as defined in the 1951, 1961 and 1971 Censuses relates to the population aged five years and older. Since the 1981 Census, literacy is reported for persons aged seven years and older.

It is possible to get an idea of how educational attainment has increased over a much longer period by examining the completed schooling of different age cohorts from a single cross-sectional survey. We use data from the recently-released 61st round of the National Sample Survey (NSS) to construct average years of schooling for different age cohorts of adults.[9] Figure 14 shows that educational attainment increased rapidly over the course of the 20th century. Mean schooling years increased nearly three-fold among males born in 1981-85 as compared to males born before 1926. Among women, the rise in schooling attainment was even more spectacular. Females born in 1981-85 experienced an eight-fold increase in schooling attainment compared to females born before 1926. As a result, the ratio of female to male schooling attainment increased from about one-quarter in the oldest cohort in the sample to three-quarters in the youngest cohort.

The same data disaggregated by state reveals some interesting patterns.[10] Himachal Pradesh saw a spectacular increase in schooling attainment during the 1900s, with mean schooling years increasing from one in the oldest cohort (those born prior to 1926) to 8 in the youngest cohort (those born in 1976-85) (Figure 15). In comparison, Bihar's growth was anemic, with mean schooling years increasing from 3.7 years in the oldest cohort to 5.5 in the youngest cohort.

Figure 16, which displays the same data as Figure 15 in slightly different form, shows that, in most states, schooling expanded more rapidly in the first period (earlier part of the 20th century) than in the second period (latter part of the century). Only in Andhra Pradesh, Bihar and Karnataka did schooling attainment expand more rapidly in the second period than in the first period. In Gujarat, Orissa, Rajasthan and Tamil Nadu, growth during both periods was approximately similar.

The cohort analysis does not inform us about the expansion of education in the most recent past. For this, we need to analyze school enrollment data. While it is

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[9] The NSS reports levels of schooling – primary, junior secondary, senior secondary, college, etc. – completed. We assign years of schooling to each of these categories in order to convert the levels of schooling completed to years of schooling. This procedure does naturally introduce some imprecision in the schooling years estimates. Also note that the data are reported only for adults aged 21 years and over in 2004-05 that reported not attending an educational institution at the time of the survey.
[10] Because of a limited number of observations in the sample, the cohorts are redefined in 10-year – not 5-year – age groups in the state-level analysis.

possible to obtain school enrollment rates going back to the 1950s, these tend to be unreliable, as they are obtained from school administrative data, and these data typically overstate the number of enrolled students. Data from household survey data typically show much smaller enrollment rates. Below we use data from two rounds of the NSS household data – the 50th round conducted in 1992-93 and the 61st round conducted in 2004-05 – to analyze trends in schooling attendance over time.

Figure 17 shows the age-specific school attendance rate – viz., the proportion of children aged 5-24 years who attended an educational institution – in 1992-93 and 2004-05. It is obvious that there was a major expansion of school attendance during this 12-year period. Among the age group 5-12 years – the primary school-going age – attendance rates of boys increased by 10-15 percentage points while those of girls rose by 15-20 percentage points. For instance, only 79 per cent of 8-year old boys were attending school in 1992-93; by 2004-05, this ratio went up to 90 per cent. The shift among girls was even more dramatic; school attendance rate among 8-year old girls increased from 68 per cent in 1992-93 to 87 per cent in 2004-05.

What is impressive is that the school attendance rate has increased significantly more for girls than for boys at every single age (Figure 18). In fact, at older ages (17-24 years, corresponding to tertiary education), the increase in school attendance among males has been very modest or even negative. In contrast, females of these ages have seen double-digit growth rates in attendance. Of course, in absolute terms, school attendance rates at these ages are still relatively small.

The sharp growth in female school attendance at the secondary and tertiary levels is probably the result of two factors: (i) rapid economic growth during the 1990s that has brought about an expansion of female employment opportunities, especially in the urban areas of the country, and consequently increased the demand for post-primary education among girls; and (ii) the introduction of fee waivers and scholarships for girls at the secondary and tertiary levels, which has reduced the direct costs of completing post-primary education for girls. A number of states provide tuition fee waivers for girls attending Class VI to Class XII. There are also a number of similar UGC schemes at the graduate and post-graduate levels for female students.

As would be expected, schooling expansion during the 1990s varied significantly across the states. In general, the states with the lowest school attendance rates in 1992-93, such as Bihar, Uttar Pradesh, Madhya Pradesh, Rajasthan, Orissa, Andhra Pradesh and West Bengal, recorded some of the largest improvements in school attendance among 6-11 year olds between 1992-93 and 2004-05 (Figures 19 and 20). For instance, Andhra Pradesh saw school attendance among 6-11 year old boys go up from 79 per cent to 96 per cent during this period (Figure 19). In Rajasthan, the school attendance rate among 6-11 year old girls rose from 44 per cent to 79 per cent (Figure 20). These represent huge declines in the number of out-of-school children.

Indeed, as Figure 21 shows, in all the states, female attendance rates increased much more rapidly than male attendance rates during the 1992-2005 period, so that girls caught up significantly with boys. In 1992-93 in Rajasthan, for instance, the school attendance rate for girls aged 6-11 was only 59 per cent of the corresponding rate for boys; by 2004-05, it was up to 89 per cent. In Bihar, as well, the female-male school attendance ratio at the primary level rose from 72 per cent to 89 per cent. Thus, there was a major improvement in gender equity in primary schooling between 1992-93 and 2004-05.

As Figures 22 and 23 indicate, there was a similar reduction in gender disparity in schooling among 12-15 and 16-17 year olds, especially in the low-income states of Bihar, Uttar Pradesh, Rajasthan, and Madhya Pradesh.

The large gains in schooling, especially during the last decade, are likely the result of a major program launched in 2001 by the Indian government in partnership with the states – the *Sarva Shiksha Abhiyan* (meaning Education for All). The program aims to universalize elementary education – primary schooling by 2007 and upper primary by 2010. In addition, the program seeks to close gender and social group disparities in school enrollment.

Already, the program has seen the establishment of more than a quarter million new schools and a decline in the number of out-of-school children from 32,000,000 in 2001-02 to only 7,000,000 by April 2006. Under the SSA, the government has dramatically increased public expenditure on elementary education. In its initial phase, public spending on elementary education was increased by an additional 0.2 percent of GDP each year. Extending universalization to upper primary levels, which is yet to be achieved, will cost more. A substantial portion of incremental spending on the SSA has been budgeted through a so-called $3.5 billion sector-wide approach (SWAP) operation involving external partners (IDA, DfID and the EU), state governments, and the central government, with the latter contributing 45 per cent, state governments contributing 25 per cent, and external partners the remaining 30 per cent. Interestingly, in the push for universalization, the central government's financial share, relative to the states, has far exceeded its overall share in education finance.

The major challenges that remain are achieving universal lower primary schooling in the poorest states, such as Bihar; extending universalization to the upper primary level; and focusing on quality improvements. There is anecdotal evidence that in the rush to achieve universal primary schooling, quality considerations may have been set aside. The education sector is afflicted by many of the same problems that ail the health sector – viz., poor accountability of teachers to students, parents and local communities, resulting in high rates of teacher absenteeism. Effective decentralization of educational services to local communities, so that these communities have a real say in the recruitment and dismissal of teachers, would improve teacher incentives and accountability.

6. Sex Ratios

Another indicator of human development – very relevant for India – is the juvenile sex ratio (i.e., the number of girls aged 0-6 years for every 1,000 boys of the same age). India is one of the few countries in the world to have a skewed juvenile sex ratio (less than 1,000), reflecting the fact that there are significantly fewer female than male children in the country. Even more bleak is the fact that the *aggregate* sex ratio in the country has been declining for much of the 20th century. After a period of increase from 1871-72 to 1901, it has been secularly declining (except for a brief reversal in 1981) (Figure 24). The *juvenile* sex ratio in the country has declined even more sharply than the overall sex ratio – from 976 in 1961 to 927 in 2001 (Figure 24). The low and falling juvenile sex ratio reflects two factors at work in the country: sex-selective foeticide and excess female infant mortality (relative to male infant mortality). Both in turn reflect parental discrimination against girls.

Interestingly, the national findings hold true for every single state in the country. Not a single state – not even the progressive state of Kerala that has high levels of female literacy – enjoys a juvenile sex ratio of 1,000 or more (Figure 25). Further, every single state other than Kerala experienced a decline in the juvenile sex ratio between 1991 and 2001. Even in Kerala, the juvenile sex ratio barely budged during the decade of the 1990s.

The Indian government has outlawed prenatal sex-determination tests and sex-selective abortions, but this has done little to stop such abortions from taking place. Enforcement of these laws is weak and there are many loopholes in the law that allow clinics and doctors to continue to perform sex-determination tests. The root of the problem is that, in Indian culture and society, women have much lower value and status than men. While there are several reasons for this, one is that, historically, inheritance laws in the country, especially among Hindus, have favored sons over daughters. Hindu inheritance customs were codified into law in a bill enacted in 1956 that provided the right of inheriting ancestral property to only males. It is widely believed that some of the worst manifestations of gender discrimination in India, such as female foeticide and dowry, can be traced to biased inheritance laws favoring sons.

During the 1990s, a few stalwart states, such as Andhra Pradesh, Karnataka, Maharashtra, and Tamil Nadu, changed their laws to provide women the right to inherit ancestral property. (Kerala had already accomplished this in 1975.) In 2004, the Indian Parliament introduced and passed the Hindu Succession (Amendment) Bill, which removed the discriminatory provisions of the 1956 Act and allowed parents to bequeath their property to their daughters.

7. Concluding Remarks

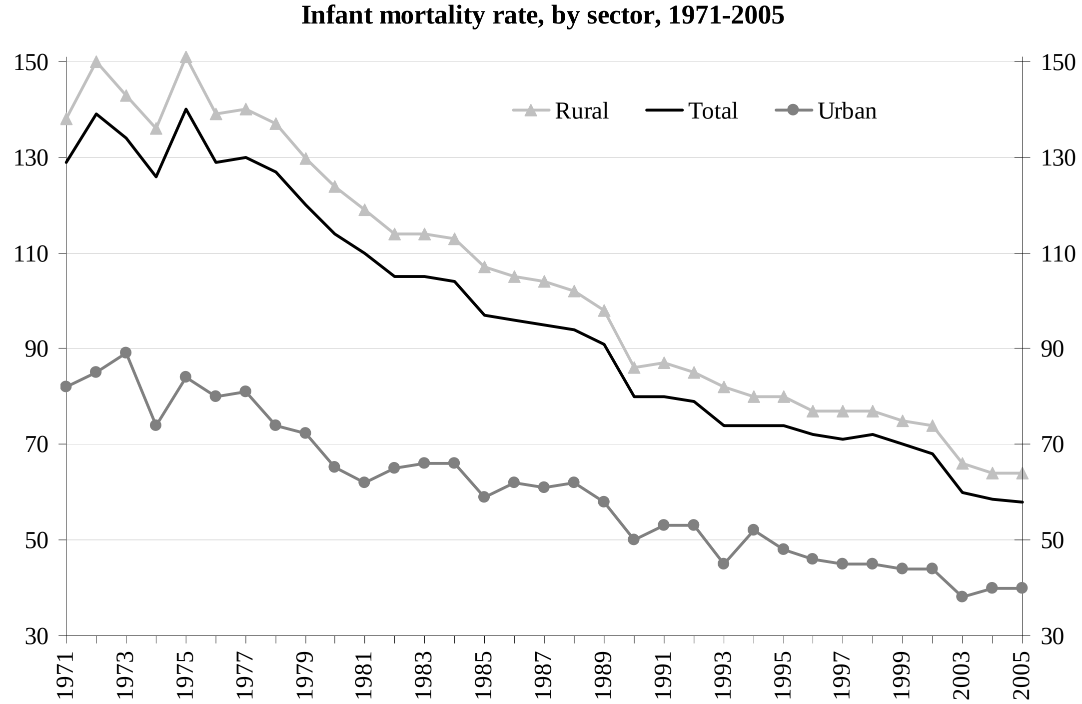
India’s record at human development is mixed. On the one hand, the country has made significant progress, especially during the 1990s, on expanding access to primary education. For the first time since its independence, India is close to achieving universal (lower) primary schooling. However, progress has not been as rapid as is needed in a number of other human development areas, especially health. Certainly, progress has been slower than in other countries in Asia, most particularly India’s neighbor, Bangladesh. A recent article by Dreze (2004) suggests that, despite being poorer than India and having a slower-growing economy than India’s, Bangladesh is now ahead of India on most social indicators. Bangladesh has lower infant and maternal mortality rates, higher child immunization rates, better access to ‘improved’ water sources and sanitation, and higher primary enrollment rates than India. In addition, Bangladesh has completely eliminated the gender gap not only in primary education but also in secondary education, while India still has a significant gender gap at both levels. Dreze admits that “Bangladesh is no paradise of human development,… but social indicators are improving quite rapidly not just for a privileged elite but also for the population at large.” On the other hand, Dreze contends that “… in India, social progress is slower and less broad-based, despite much faster economic growth. This is one indication, among many others, that India’s development strategy is fundamentally distorted and lop-sided.”

The very fact that infant mortality and child malnutrition have not fallen as rapidly in India as in Bangladesh – even though the Indian economy has grown much more rapidly than that of Bangladesh – suggests that economic growth, in and of itself, is unlikely to make a big dent in the problem of child mortality and malnutrition. And, of course, the fact that the juvenile sex ratio has actually fallen as economic growth has accelerated suggests that the problem of sex-selective abortions and female child neglect is unlikely to go away with increased growth and prosperity.

With the rapid growth of the Indian economy and the consequent increase in absolute tax revenues, scarce resources should no longer be a constraint to initiating – or an excuse for not initiating – big and bold interventions that finally allow the country to make major improvements in child health and nutrition. The recent National Rural Health Mission is an important step in this direction, but it remains to be seen whether this initiative will truly make a difference or whether it will end up like all the other health initiatives before it. Of course, lack of resources is not the only reason for India's poor record at human development; problems of governance, accountability, weak political will, and poor incentive structures, among others, have plagued the social sectors and compounded the problem of scarce resources.

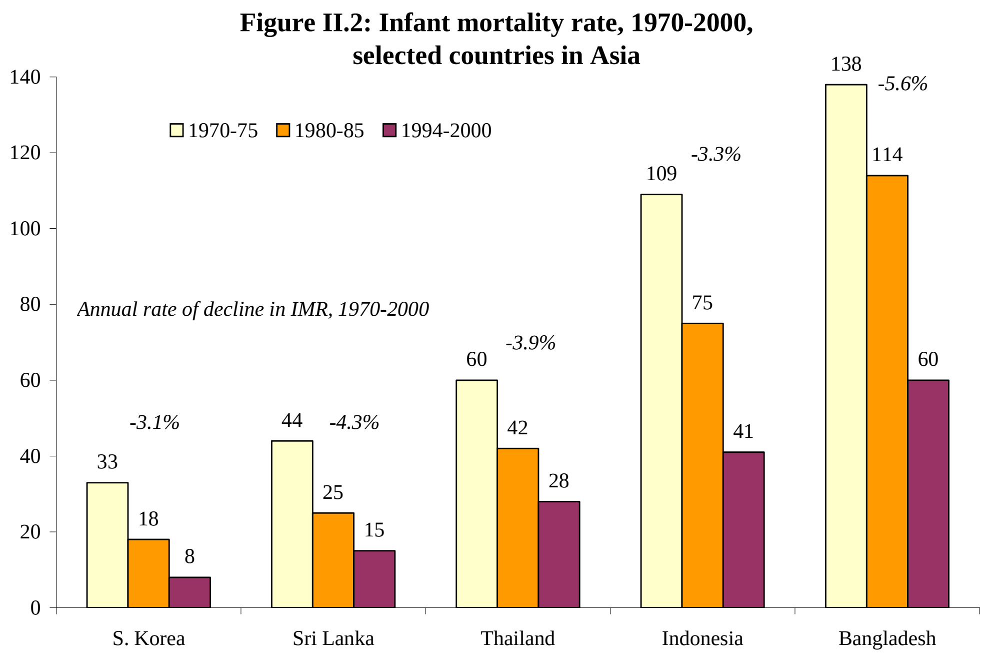
Finally, it is important to note that the different dimensions of human development analyzed in this chapter – infant mortality, child malnutrition, schooling and sex ratios – are strongly inter-related. Indeed, there is a great deal of evidence from around the world indicating significant synergies among these indicators of human development. For instance, improved nutrition during infancy reduces the risk of mortality in infancy and childhood. Although maternal mortality is an indicator that has not been analyzed in this chapter, interventions that reduce maternal mortality, such as tetanus immunization, expansion of antenatal care coverage, and an increase in the ratio of professionally-attended deliveries, also bring about large reductions in infant (especially neonatal) mortality. Likewise, reducing child malnutrition is likely to result in both schooling quantity and quality, as better nourished children are more likely to attend school and perform better in school. Improved female schooling is likely to reduce sex-selective abortions and improve the juvenile sex ratio (but only after the educated girls reach reproductive age). The existence of strong synergies among the different components of human development means that integrated and simultaneous action on all the dimensions of human development – infant mortality, child malnutrition, schooling, and sex ratios – will be very cost-effective.

Figure 9.1



Source: *SRS Bulletin*, Registrar General of India, various issues.

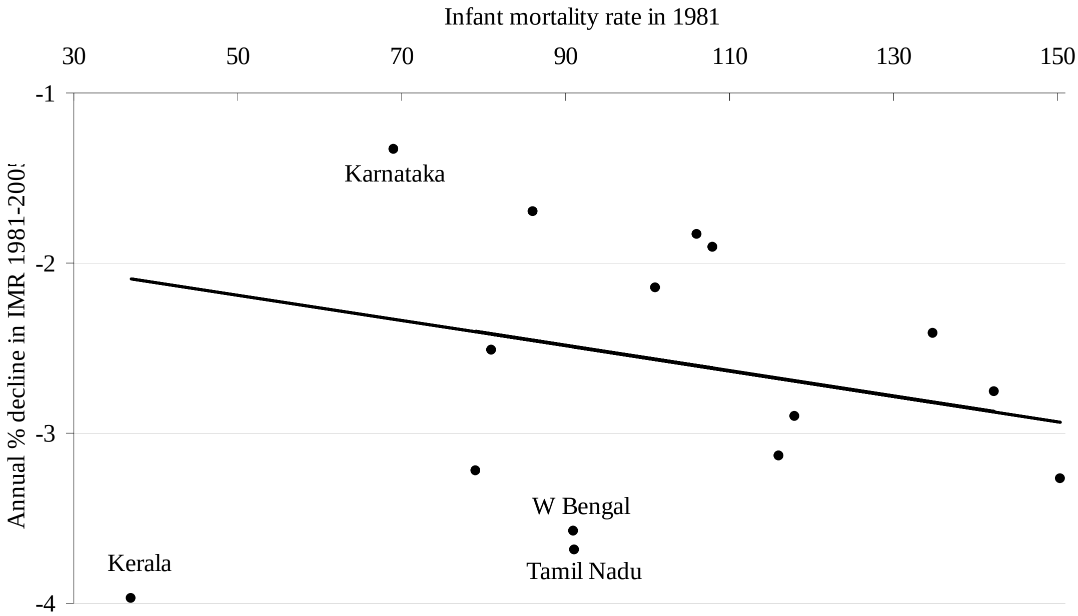
Figure 9.2



Source: *World Development Report*, World Bank, various issues.

Figure 9.3

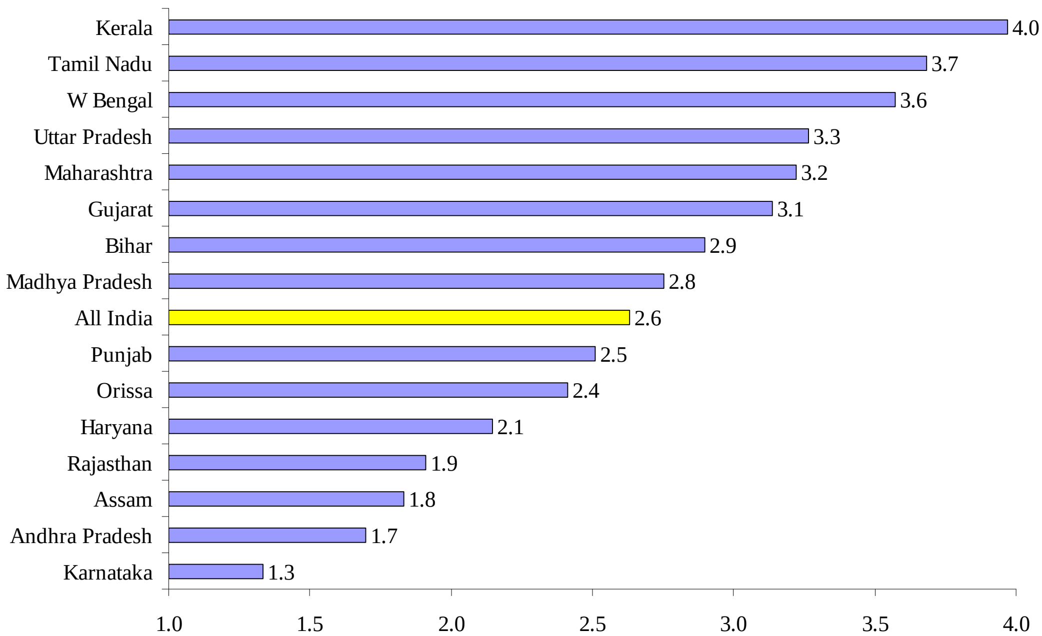
Annual percent decline in infant mortality rate 1981-2005 across states, plotted against state's level of infant mortality rate in 1981



Source: *SRS Bulletin*, Registrar General of India, various issues.

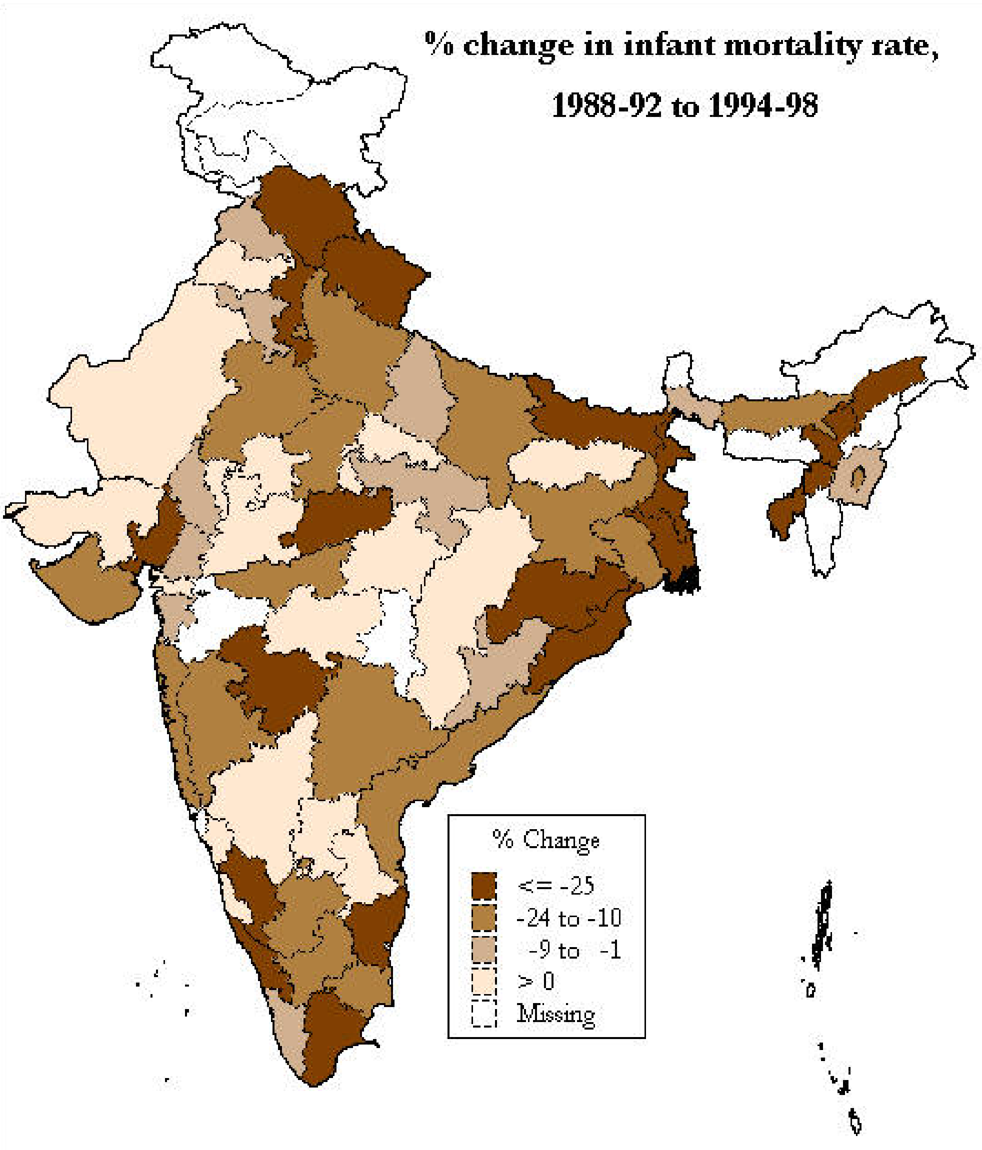
Figure 9.4

Annual rate of IMR decline by state, 1981-2005



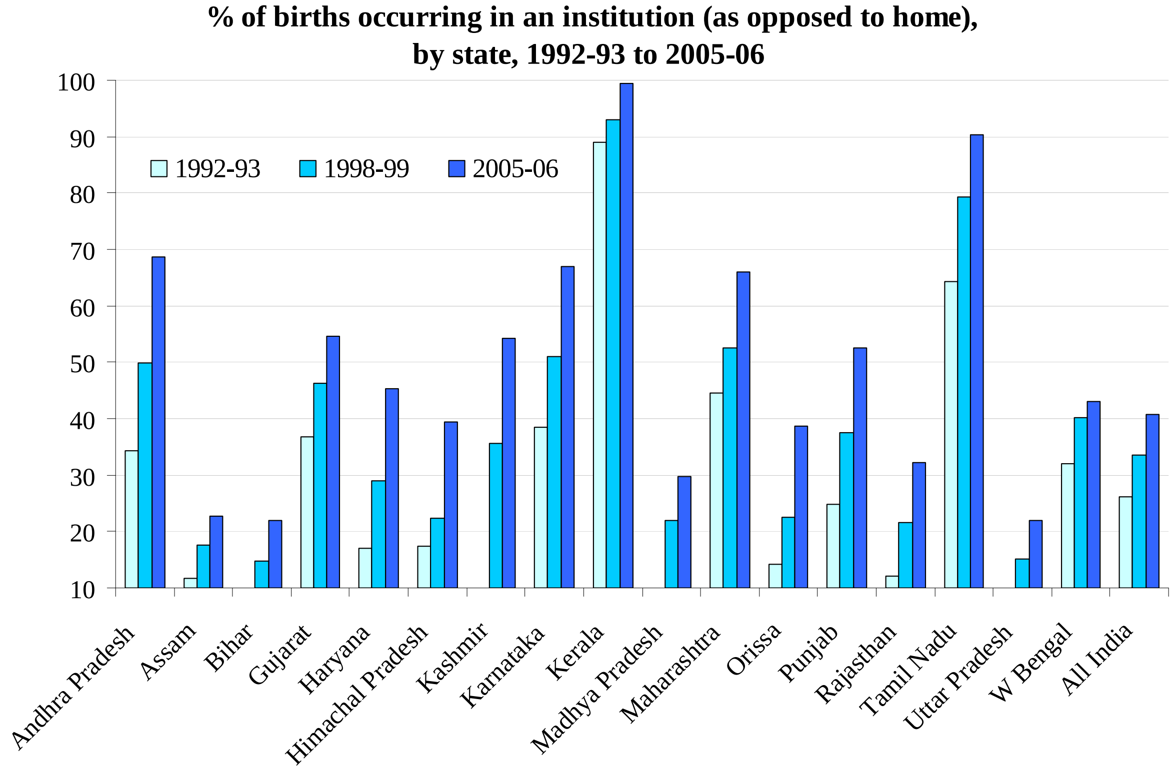
Source: *SRS Bulletin*, Registrar General of India, various issues.

Figure 9.5: Regional estimates of the change in the infant mortality rate, 1988-92 to 1994-98



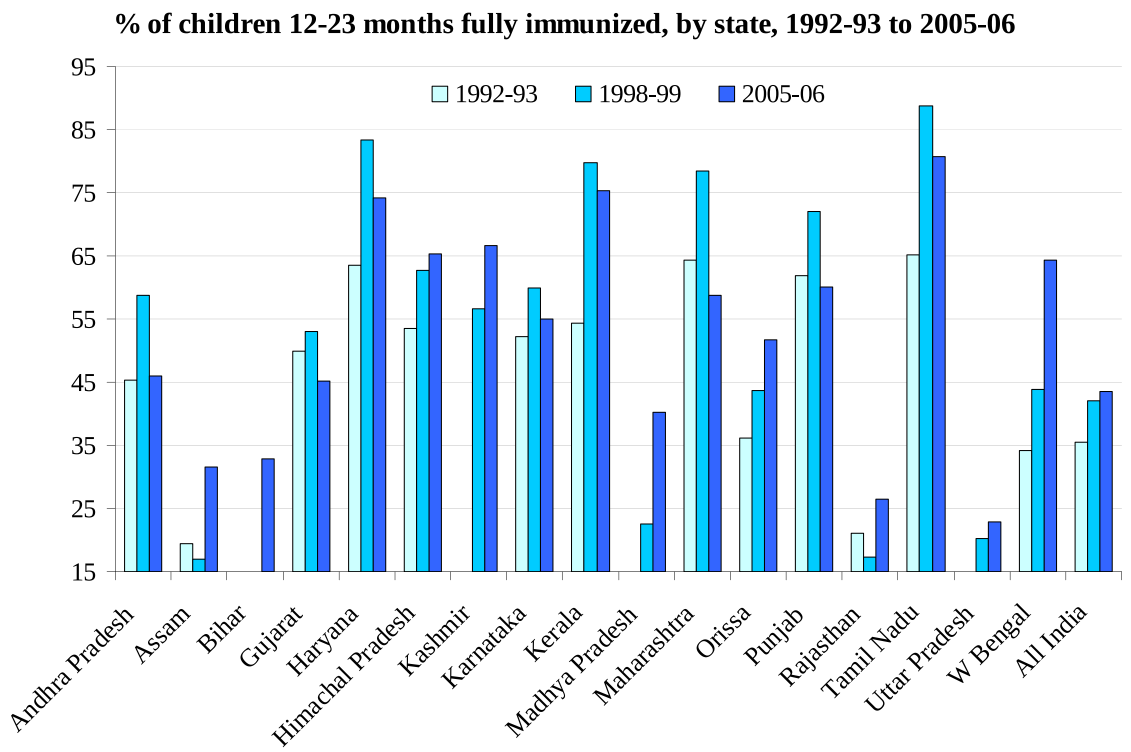
Source: Author's calculations from Rounds 1 and 2 of the National Family Health Survey.

Figure 9.6



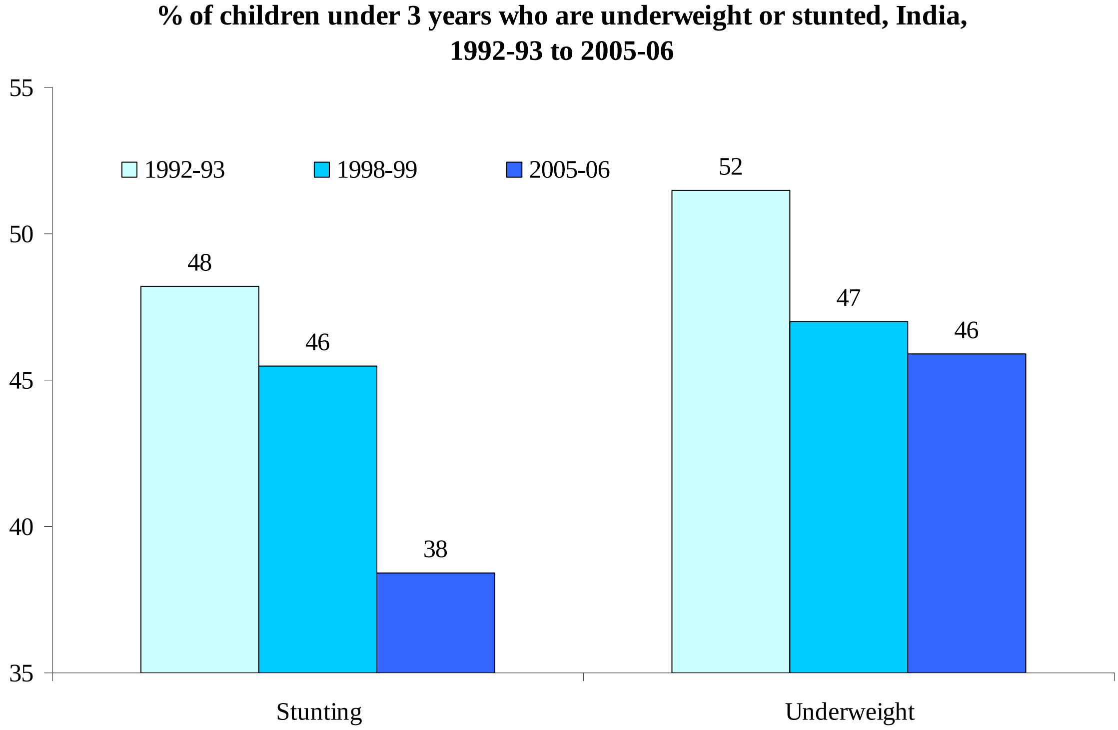
Source: Author's calculations from Rounds 1, 2 and 3 of the National Family Health Survey.

Figure 9.7



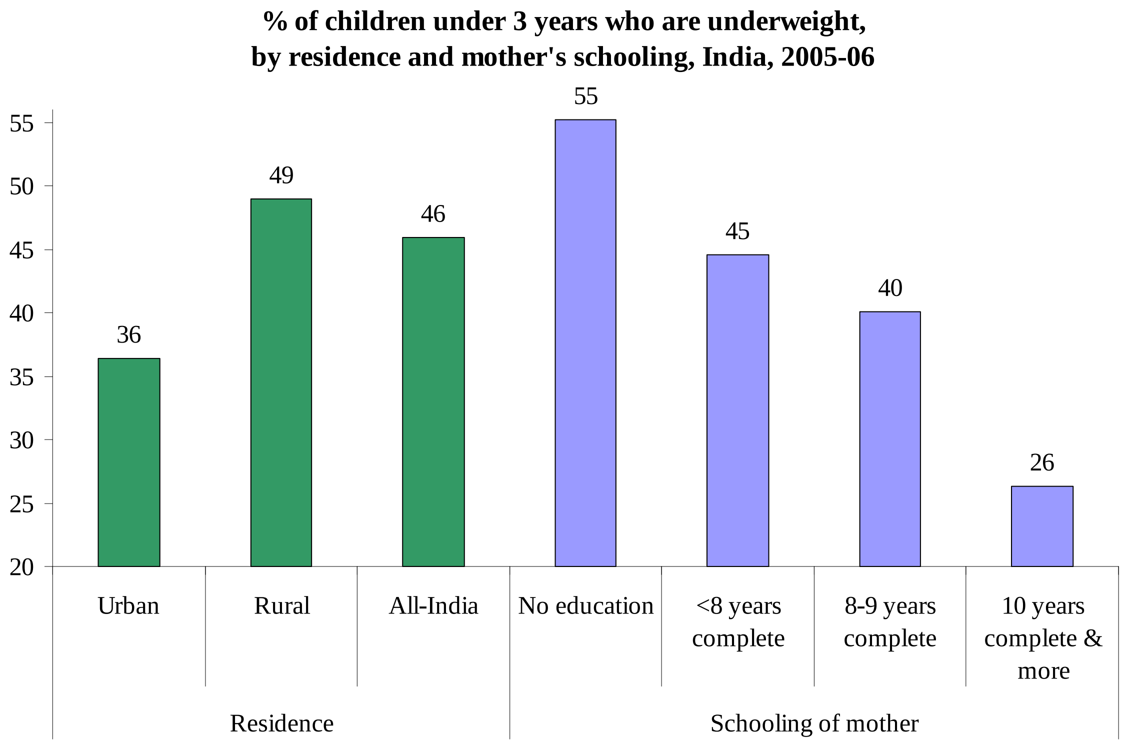
Source: Author's calculations from Rounds 1, 2 and 3 of the National Family Health Survey.

Figure 9.8



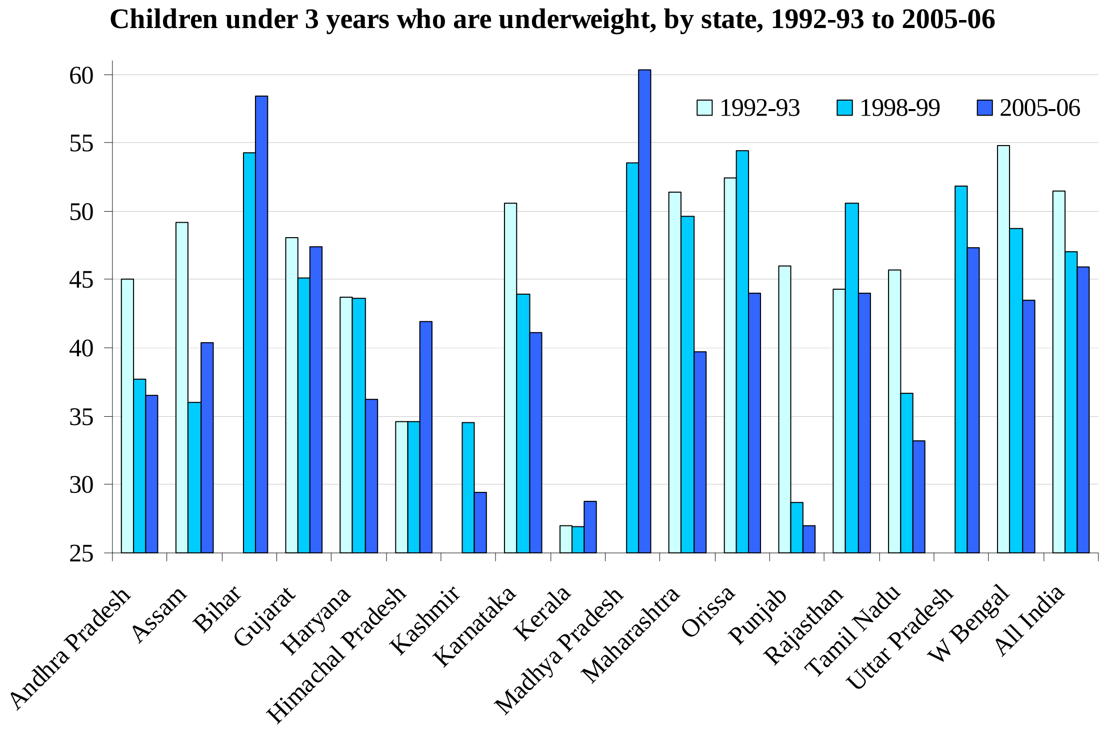
Source: Author’s calculations from Rounds 1, 2 and 3 of the National Family Health Survey.

Figure 9.9



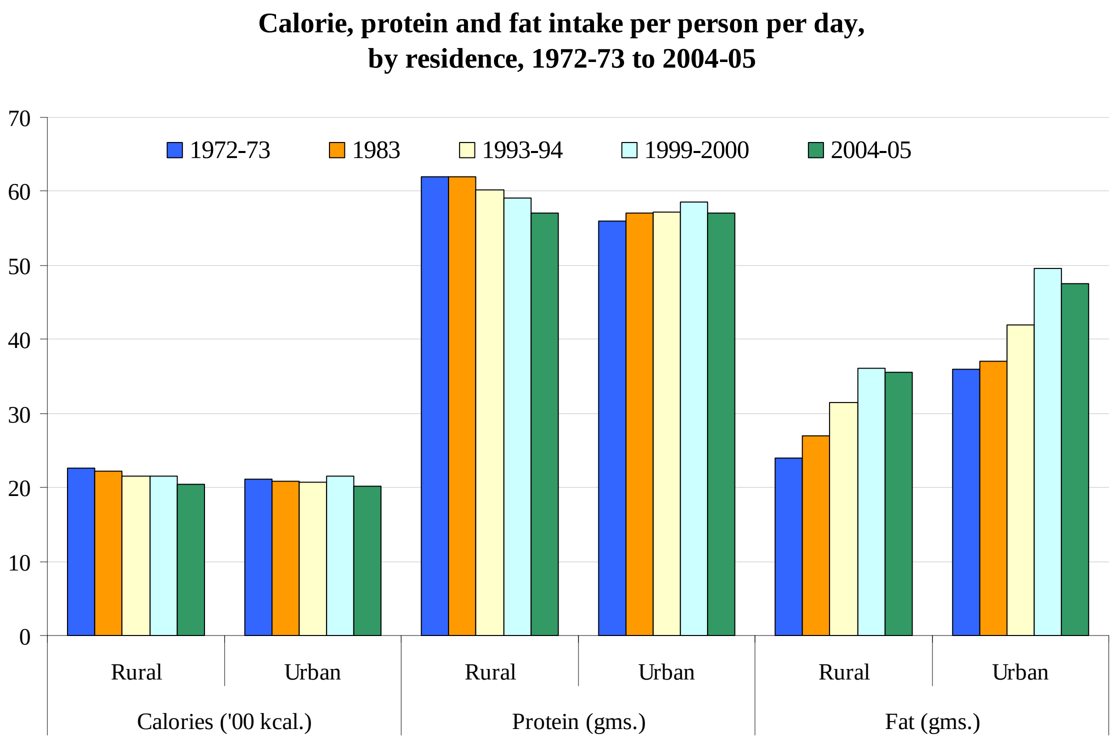
Source: Round 3 of the National Family Health Survey.

Figure 9.10



Source: Author's calculations from Rounds 1, 2 and 3 of the National Family Health Survey.

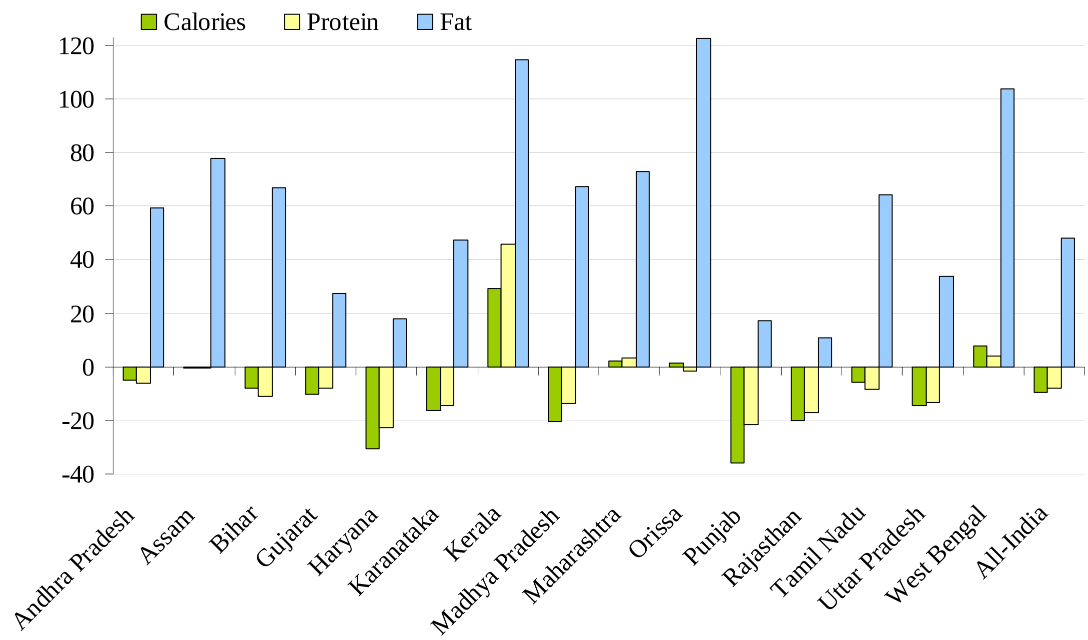
Figure 9. 11



Source: NSSO, *Nutritional Intake in India*, Report Numbers 405, 471, and 513.

Figure 9.12

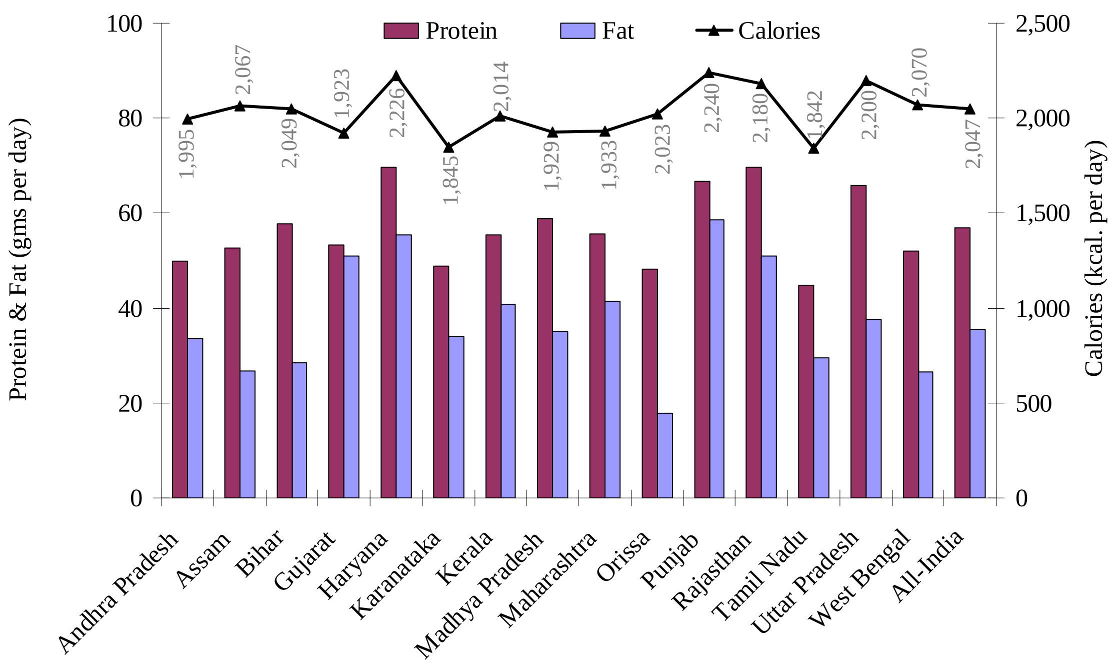
Changes in nutrient consumption per capita per day, rural areas, 1972-73 to 2004-05



Source: NSSO, *Nutritional Intake in India*, Report Numbers 405, 471, and 513.

Figure 9.13

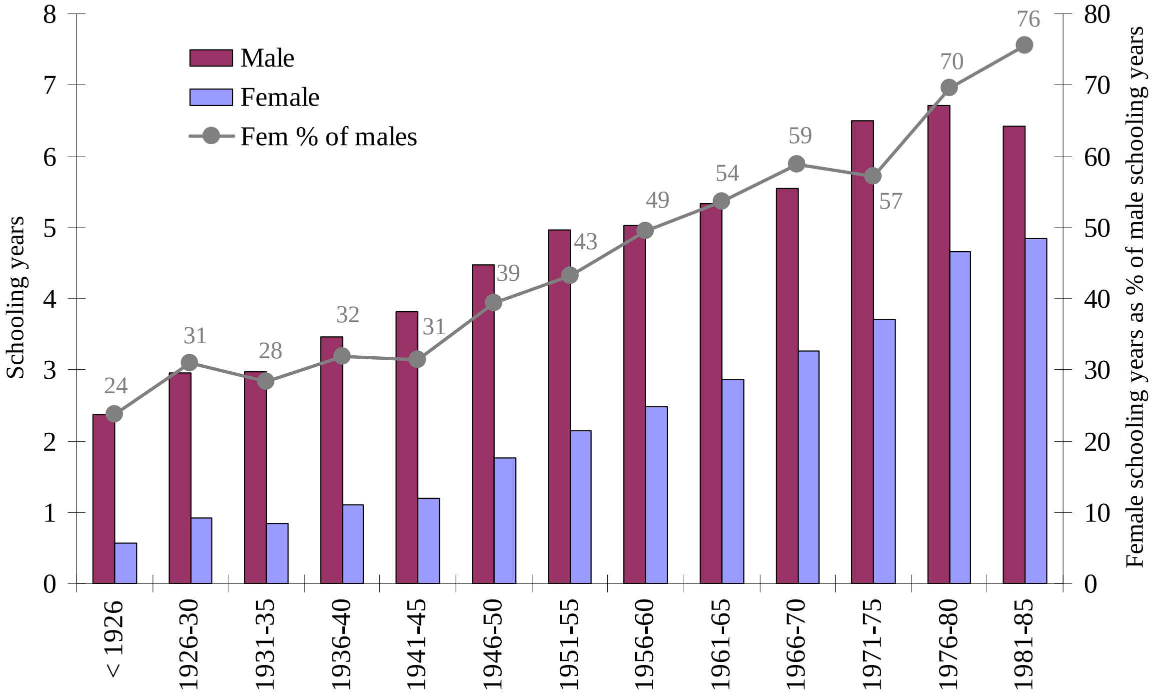
Calorie, protein and fat intake per person per day, by state, 2004-05 (rural areas)



Source: NSSO, *Nutritional Intake in India*, Report Numbers 405, 471, and 513.

Figure 9.14

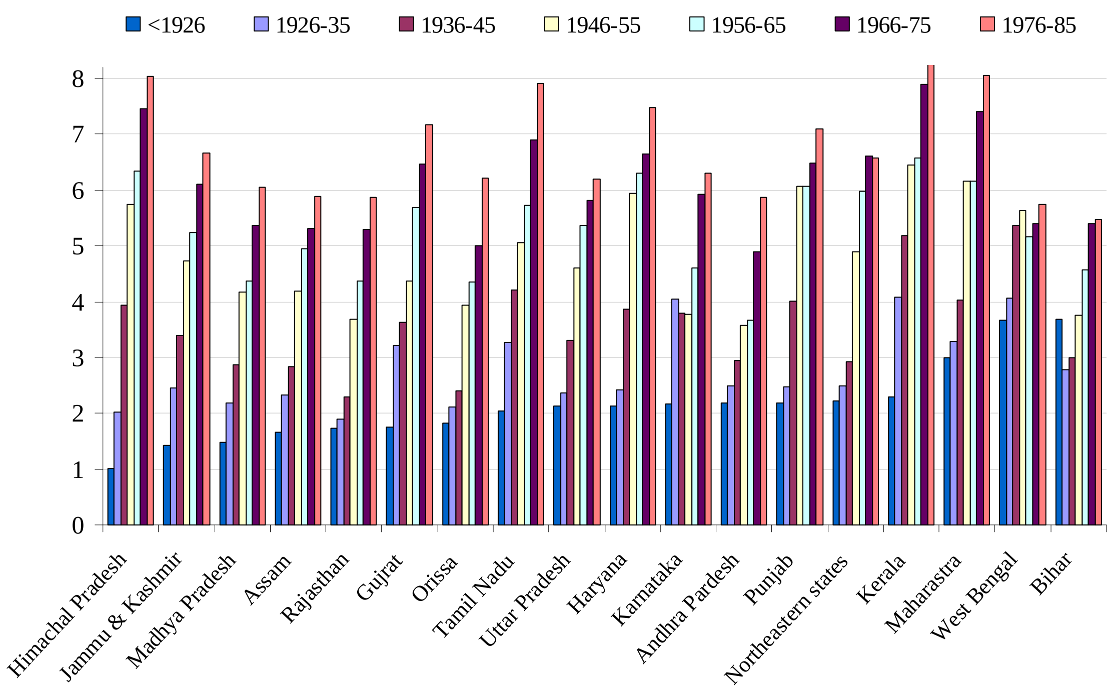
Average years of schooling by sex and ratio of female schooling to male schooling, by year of birth



Source: Author's calculations from the 61st round of the National Sample Survey data.

Figure 9.15

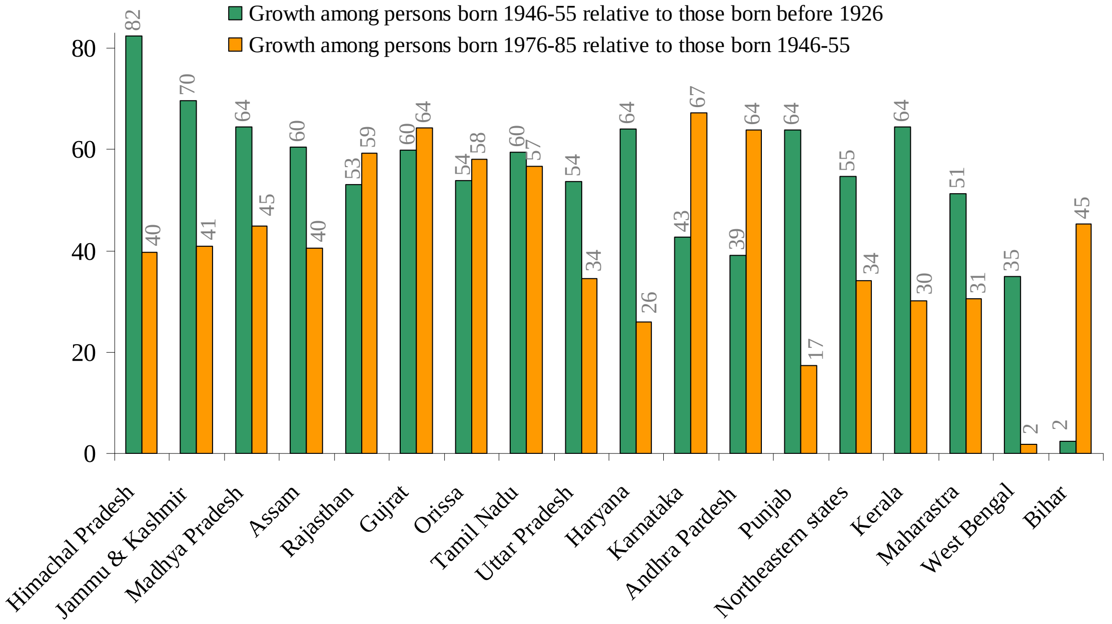
Average years of schooling by sex, year of birth, and state



Source: Author's calculations from the 61st round of the National Sample Survey data.

Figure 9.16

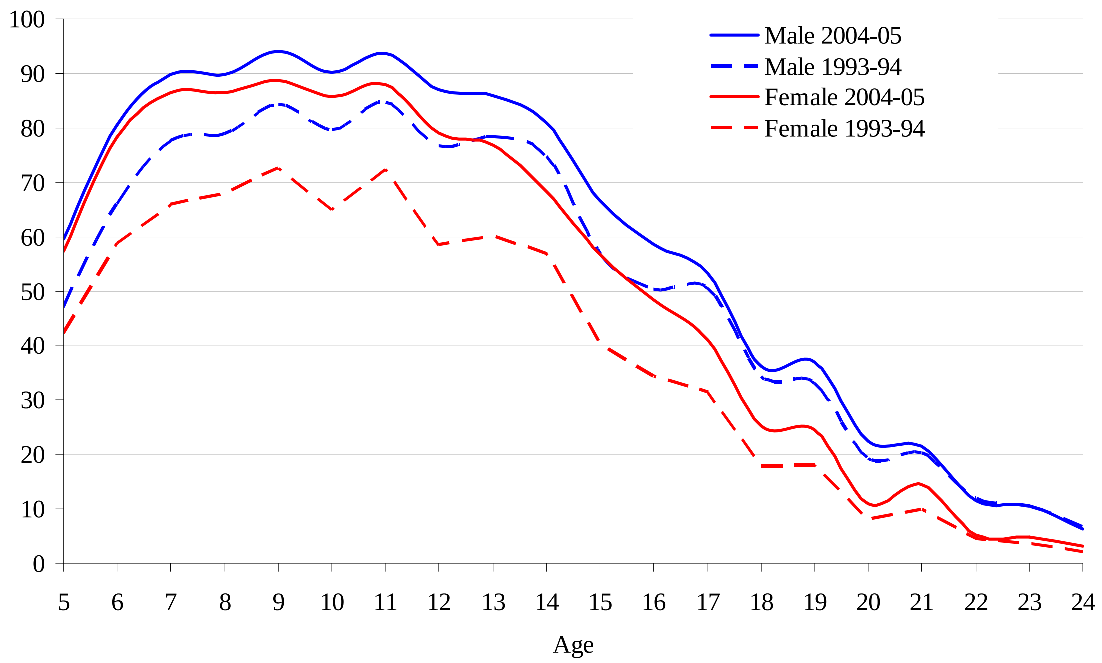
Percent growth in mean schooling years over two periods in the 20th century, by state



Source: Author's calculations from the 61st round of the National Sample Survey data.

Figure 9. 17

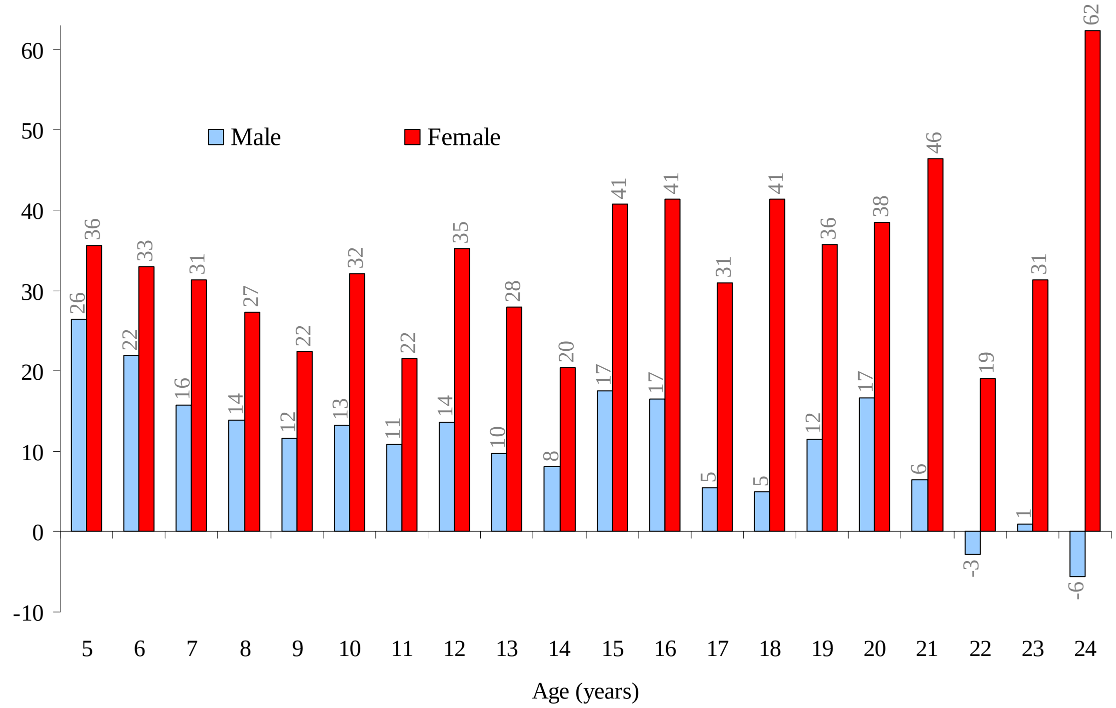
School attendance rates (%), by age and sex, 1993-94 & 2004-05



Source: Author's calculations from the 50th and 61st rounds of the National Sample Survey data.

Figure 9.18

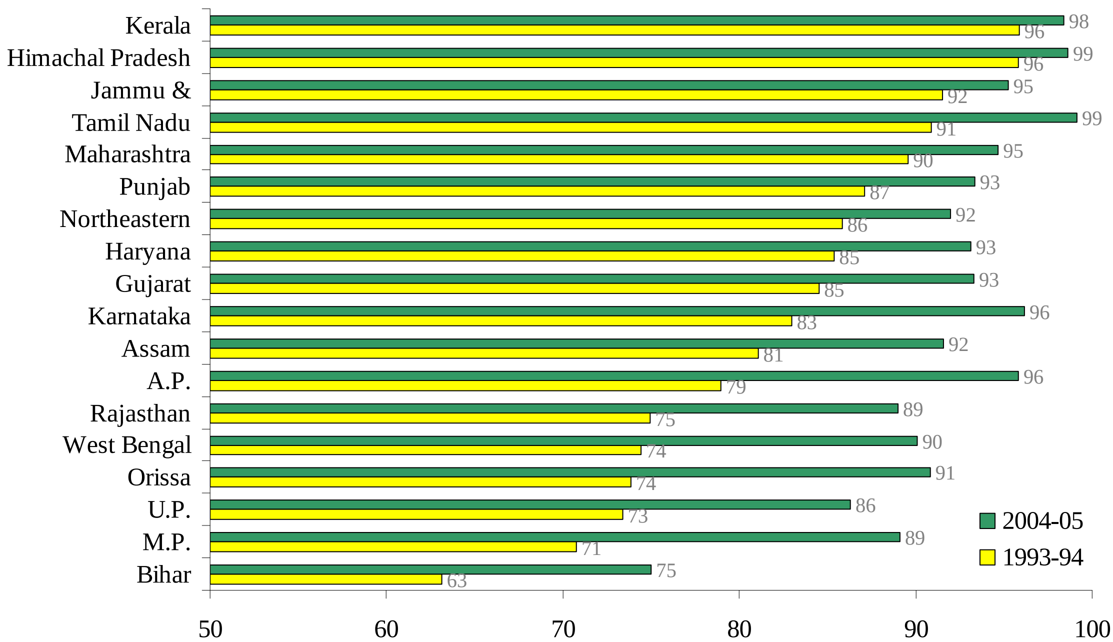
% increase in school attendance rate between 1992-93 and 2004-05, by sex



Source: Author's calculations from the 50th and 61st rounds of the National Sample Survey data.

Figure 9.19

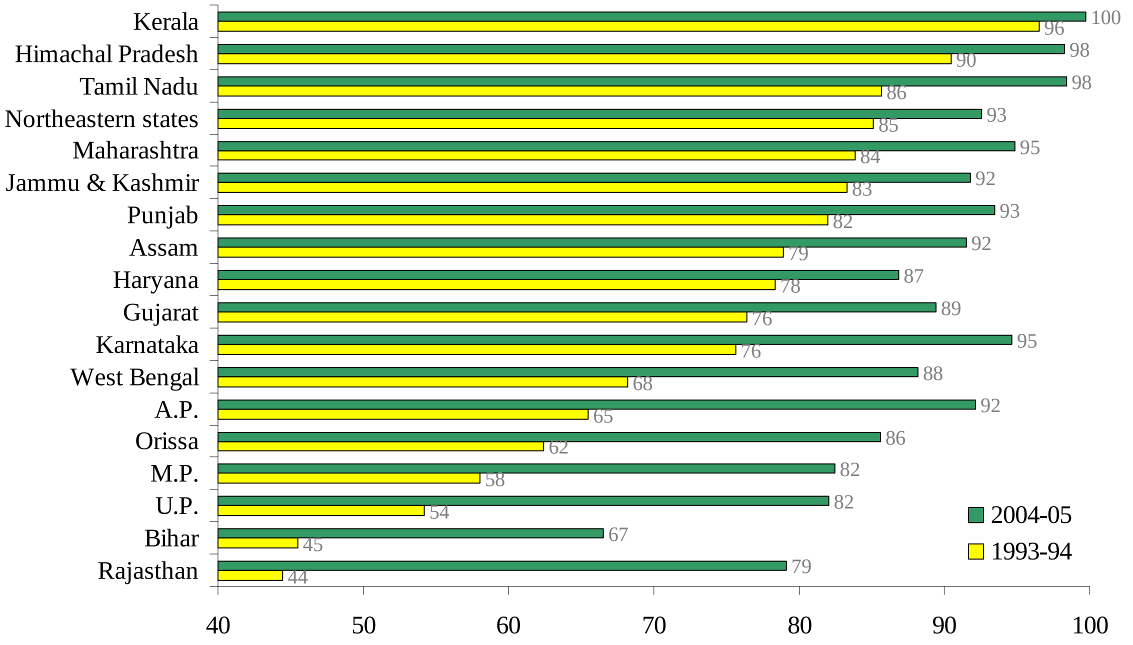
School attendance rates among males aged 6-11, by state, 1993-94 and 2004-05



Source: Author's calculations from the 50th and 61st rounds of the National Sample Survey data.

Figure 9.20

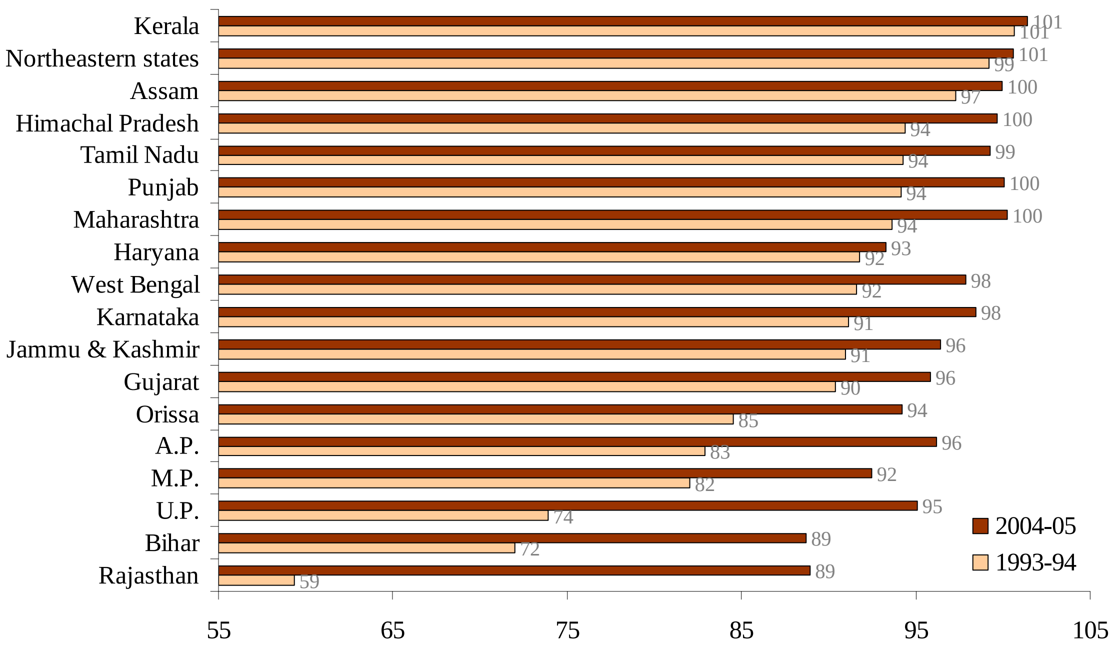
School attendance rates among females aged 6-11, by state, 1993-94 and 2004-05



Source: Author's calculations from the 50th and 61st rounds of the National Sample Survey data.

Figure 9.21

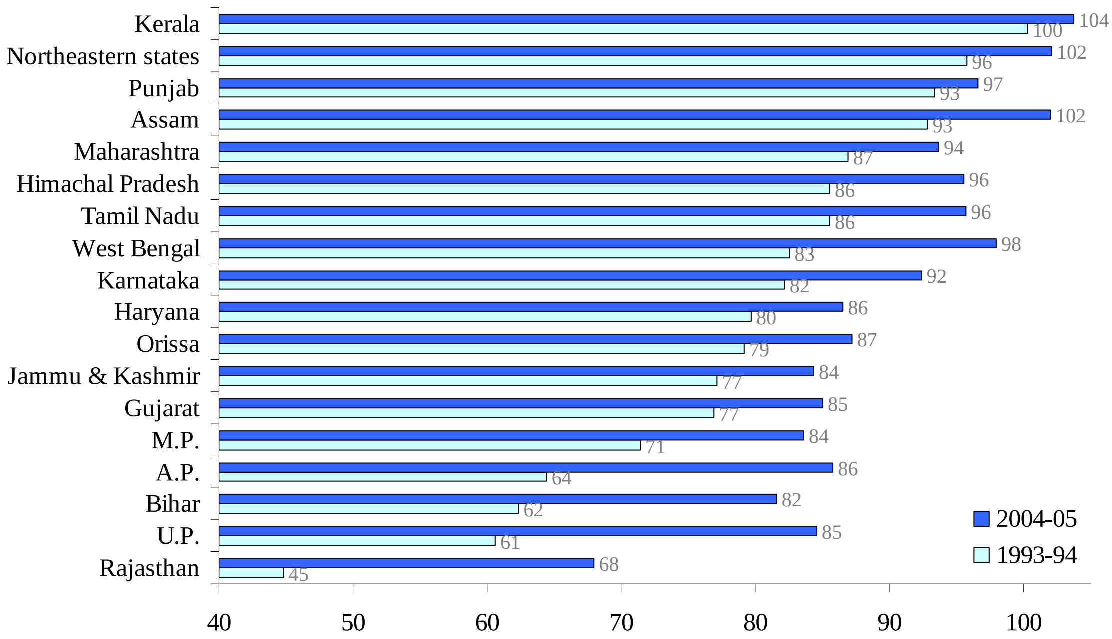
School attendance rates among females as % of those among males aged 6-11, by state, 1993-94 and 2004-05



Source: Author's calculations from the 50th and 61st rounds of the National Sample Survey data.

Figure 9.22

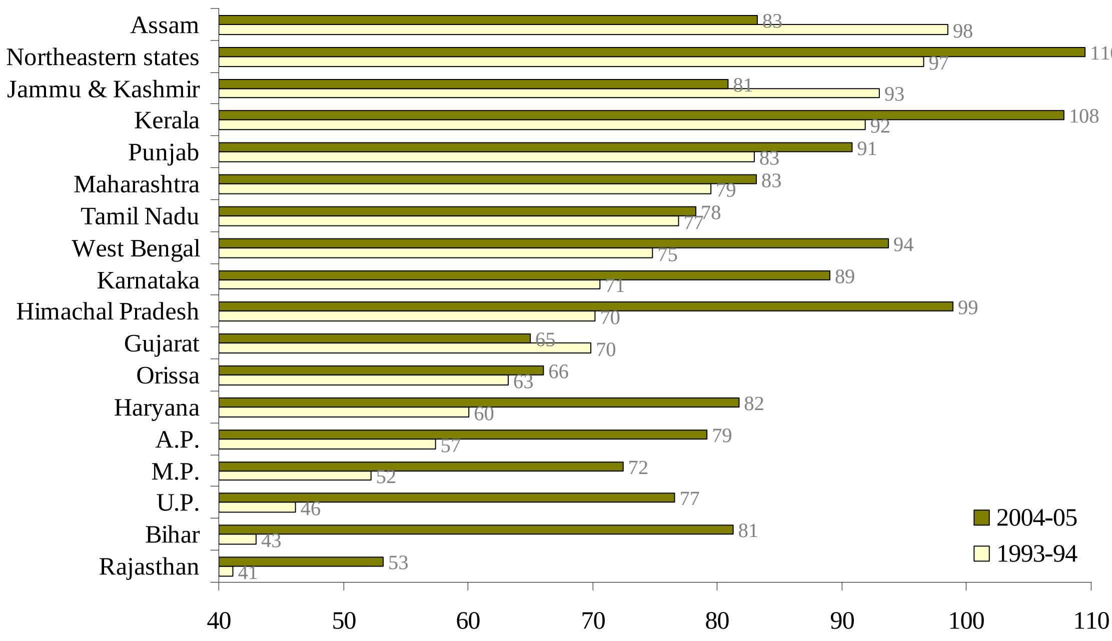
School attendance rates among females as % of those among males aged 12-15, by state, 1993-94 and 2004-05



Source: Author's calculations from the 50th and 61st rounds of the National Sample Survey data.

Figure 9.23

School attendance rates among females as % of those among males aged 16-17, by state, 1993-94 and 2004-05

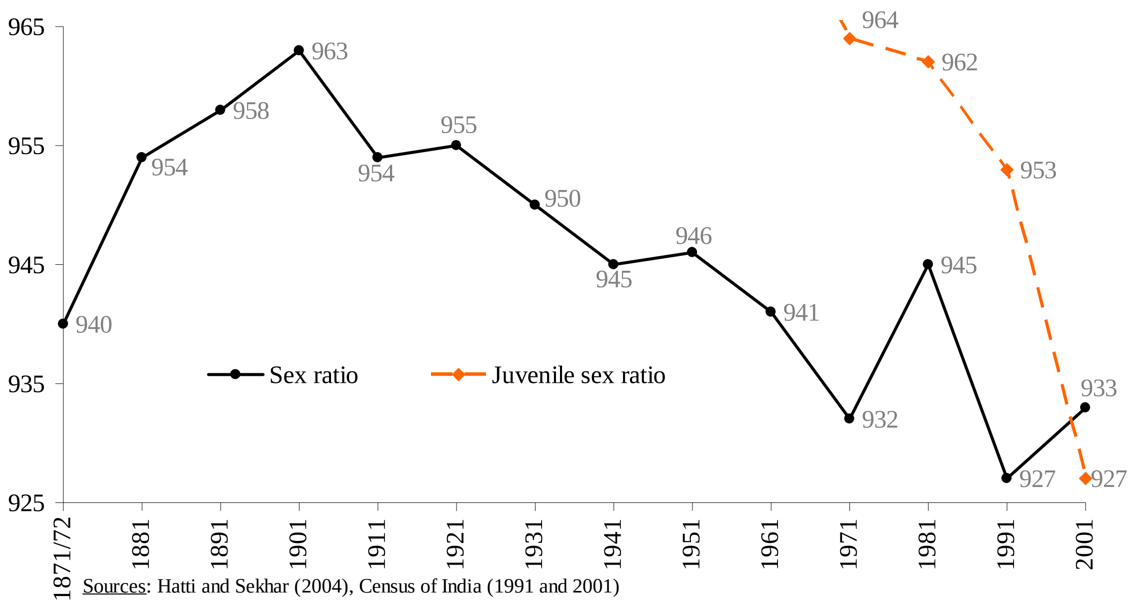


Source: Author's calculations from the 50th and 61st rounds of the National Sample Survey data.

Source: Census of

Figure 9.24

Aggregate and junvenile sex ratio in India, 1871-2001

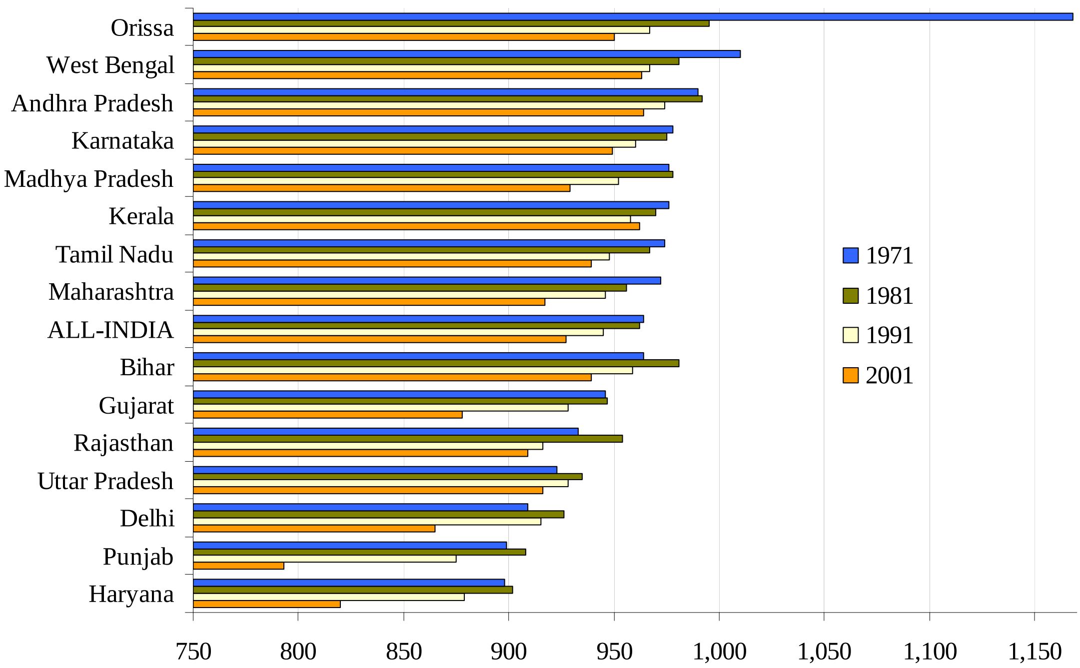


Sources: Hatti and Sekhar (2004), Census of India (1991 and 2001)
Note: The Census of 1871/72 was confined to the Old British Provinces and the former Princely State of Mysore.
The figures for 1881-2001 pertain to the territory as existing at the 2001 Census.

India, 1991 and 2001.

Figure 9.25

Juvenile (0-6 years) sex ratio, by state, 1971-2001



Source: Census of India, 1971, 1981, 1991, and 2001.

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