Gender Inequality and the Sex Ratio in Three Emerging Economies

Prabir C. Bhattacharya
Heriot-Watt University

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Abstract

The aim of this paper is to study inequality and deprivations as reflected in the human sex ratio (commonly defined as the number of males per 100 females). The particular focus is on three emerging economies, viz., Russia, India and China. The paper compares and contrasts the experiences of these countries and discusses policy issues. It is noted that while the feminist perspective on the issues surrounding the sex ratio is important, it would be wrong to view these issues always or exclusively through the prism of that perspective. It is also suggested that India and China probably have better prospects of sustained economic growth in the foreseeable future than does Russia.

Keywords: sex ratio, gender inequality, emerging economies, policy.
I. Introduction

The human sex ratio (conventionally defined as the number of males per 100 females) varies greatly between countries and regions. Differentials in mortality by sex are now nearly universally recognised; with equal care and feeding, females experience lower mortality. This is particularly so in advanced age and also during the neonatal period. There is greater biological frailty of the male infant with regard to the congenital defects and the birth process. In western Europe and North America, female children typically have a substantial survival advantage. The biological norm is for about 105 boys to be born for every 100 girls more or less everywhere in the world. But given the greater survival rates of females, the sex ratio of the population in the West and in many other parts of the world is in favour to women. In the UK, the ratio is 98, in the US, 97; and in the EU taken as a whole, 92. In the sub-Saharan Africa, where the life expectancy at birth for both males and females is quite low, the ratio is 99. In Russia, Ukraine and some of the former Eastern block countries, the ratio is amongst the lowest in the world: 86 for both Russia and Ukraine.

In contrast, there are many countries in the world – most notably China and India – where the ratio is abnormally high: in both China and India, the ratio is 106. It has been estimated that if India and China had the same sex ratio as in sub-Saharan Africa, then, given the number of males in these countries, there would have been 37 million more women in India and 44 million more women in China in the mid-1980s.¹ According to Sen (1990), “These numbers tell us, quietly, a terrible story of inequality and neglect leading to the excess mortality of women”.

However, even in India and China, there are now more women than men in the elderly population. The sex ratio of the population in the age group 65 years and above is 90 in India, 91 in China. For comparison, this ratio is 76 for the UK, 75 for the US. However, for Russia this ratio seems astonishingly low: only 45.² This, coupled with the fact that the overall sex ratio is also quite low in Russia, while the sex ratios at birth and for childhood years are in line with the standard norms, leads one to wonder if the survival of men in Russia has not been particularly

¹ See Drèze and Sen (1989, Table 4.1, p52). See also Coale (1991) and Klasen (1994).
² This sex ratio is also very low for Ukraine and Belarus. Part of the explanation for this low sex ratio in these countries is likely to be the excess male deaths that occurred during World War II. However, by now this effect can only be a very small part of the explanation.
difficult. The difference in life expectancy at birth between males and females in Russia – a difference of 13 years in favour of females – is the highest of any country in the world today. There would clearly appear to be a problem of “missing men” in Russia.

The situation in Russia, however, does not seem to have received any attention in the context of the current discussions surrounding sex ratios, where the focus has mainly been on India and China, in particular on sex-selective abortions and excess female child mortality in these countries. This is not surprising given the large size of the populations in these countries (2.4 billion out of the world population of 6.7 billion). What happens in these countries will obviously have a profound effect on the overall masculinity of the population of the whole world. But clearly the Russian situation also deserves some attention in any discussion of the unusual sex ratio patterns. Besides, Russia – like India and China – is also regarded as a major emerging economy. It would, therefore, appear to be of some interest to compare and contrast these countries in terms of deprivations as reflected in their sex ratio patterns, and this is the main purpose of this paper.

The plan of the rest of the paper is as follows. The next section, Section II, discusses the Russian experience. Section III discusses the Indian case, while section IV considers the Chinese experience. Section V examines the consequences of “missing girls” in both India and China and discusses policy issues. Section VI offers some concluding observations.

II. Russia

Russia’s population has declined by 7 million from 149 to 142 million since 1992. The decline would have been even greater without net immigration. Most of the immigration has been by ethnic Russians, mainly from Ukraine, Belarus and Moldova. However, this ethnic Russian immigration has been declining and most analysts agree that immigration is unlikely to be an important source of population stabilization in the future. Many analysts believe that Russia could have a population of less than 100 million by 2050.

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3 As indeed also in Ukraine and Belarus.
4 Sex-selective abortions and higher than the normal sex ratio at birth (SRB) are, of course, not confined to India and China alone. Taiwan and Vietnam in East Asia, Ajerbaijan, Armenia and Georgia in West Asia, and Pakistan in South Asia all exhibit higher than normal SRB. However, in this study we focus on India and China, partly because more data are available for these countries, and partly because the lessons from the experiences of India and China are likely to be applicable to these other countries, too.
The decline in Russia’s population is linked to a sudden, sharp decline in fertility and high mortality rates. Until the mid-1960s, Russia’s total fertility rate (TFR), which represents the number of live births a woman would have were she to live through her childbearing years and bear children in accordance with the prevailing age-specific fertility rates, generally exceeded the replacement level fertility of 2.1. Then it hovered around 2.0, before exceeding 2.2 in 1986 and 1987 – the years of perestroika. After the collapse of communism, the TFR, however, went into a precipitous decline, the lowest level reached being 1.17 in 1991. Since then it has recovered somewhat to be around 1.3, a rate that is, however, still among the lowest in the world. It has been argued that “the poor economic conditions in the 1990s probably... contributed to lower fertility rates in Russia by making couples less able to afford to raise children and generally less optimistic about bringing them into the world”.⁵ Accompanying the low fertility rate in Russia has been one of the highest abortion rates in the world – at 70 per cent of pregnancies in 2000-2001.⁶

The rapid decline of fertility in early 1990s coincided with a rapid increase in mortality. In 1991-1992, the death rate passed the birth rate and since then Russian has recorded nearly thirteen million more deaths than births.

There was also a decline in fertility and an increase in mortality in all former Soviet block countries in Eastern Europe following the collapse of communism and currently all of these countries have fertility rates which are among the lowest in the world. However, in all of these countries, unlike in Russia, the increase in mortality did not last long and was replaced by mortality decline and increases in life expectancy (on this more below). By contrast, in Russia mortality continued to increase and life expectancy at birth has continued to decline erratically or at best stagnated at a very low level.

Life expectancy in Russia improved rapidly from the 1920s through the early 1960s, with life expectancy for both males and females increasing by nearly 30 years during this period. By 1964, Russia’s life expectancy was nearly equal to that of the United States for both males and females. But then over the period 1965-84, Russia’s life expectancy actually fell by about a year and a half, while life expectancy was increasing rapidly in most other parts of the world. The reasons for this decline are not obvious. Changes in the Russian diet in favour of more red meat

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⁵ DaVanzo and Grammich (2001, p24).
⁶ The abortion rate, however, has been declining in recent years due to the greater availability of modern means of contraception.
and sugar and away from cereal and starches, the bleakness generated by the Soviet system, and alcohol abuse are all plausible candidates. This decline in life expectancy was halted in 1985 and there was an increase in life expectancy by more than 3 years from 1985 to 1987. This period coincided with Gorbachev’s anti-alcohol campaign. It has also been suggested that “the advent of perestroika and its notions of social democratization also may have cut mortality rates by inspiring hopes for a better future”.

But even in 1987 the overall life expectancy for Russia was only marginally higher than what it had been in 1964. Then came the collapse of communism and from 1992 to 1994 life expectancy of Russian males declined from 63.8 to 57.7 years. Female life expectancy over these years declined from 74.4 years to 71.2 years. This fall in life expectancy is beyond the peacetime experience of any industrialized country. After 1994, mortality showed a slight decrease, but in August 1998 Russia experienced another economic crisis in the form of the crash of the banking system and male life expectancy declined from 61.3 in 1998 to 58.7 years in 2001, while female life expectancy declined from 72.6 to 71.6 years during the same period. The latest (2009) figure for male life expectancy is 59.33 years, and for female life expectancy 73.11 years. For male life expectancy, Russia has been in the same league as most sub-Saharan African countries for a number of years.

Early childhood mortality generally improved since the fall of the Soviet Union. The upsurge of mortality has been disproportionately concentrated among men and women of working age, particularly among men. For men in their thirties and forties, Russia’s death rates today are roughly twice as high as they were forty years ago. It has been estimated that if Russia had been able to maintain the survival schedules it achieved during 1985-87, then there would have been 6.6 million fewer deaths between 1992 and 2006, of which 4.9 million would have been men and 1.7 million women. As Eberstadt and Shah (2009) say, “The striking fact is that if Russia had been able to maintain the hardly exacting survival schedules it achieved in the late Soviet era, the country’s two-decade long population decline would not have occurred”.

What have been the main causes of this upsurge in death rates? While there have been rapid increases in the HIV/ Aids infections and the incidence of tuberculosis in recent years, it is deaths from cardiovascular disease (CVD) and from “external causes” (deaths from injuries,

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7 See DaVanzo and Grammich (2001, p38).
8 DaVanzo and Grammich (2001, p42).
9 150,000 new infections a year, many of them drug-resistant.
homicide, poisoning, etc.) which have been mainly responsible for Russia’s upsurge in mortality. In 1980, CVD mortality in Russia was over 50 per cent higher than in western Europe; by 2006, it was 3 times higher. Similarly, deaths from external causes which had been 2.5 times higher than in western Europe in 1980 were 5.3 times higher by 2006.

Linked to both of these causes of mortality is alcohol abuse. Russian men in particular tend to consume predominantly hard spirits and to drink in binges (McKee et al. 2001; Shkolnikov et al. 1998; Shkolnikov et al. 2002). It has been argued that an average adult in Russia drinks the equivalent of a bottle of vodka per week. Binge drinking of hard spirits greatly increases both the risk of CVD mortality and the “danger of fatal injury through falls, traffic accidents, violent confrontations, homicide, suicide, and so on”. Local-level studies have consistently pointed to alcohol abuse as a direct factor in premature mortality. And while Russian’s have always drunk vodka, the psychological stress experienced by adults following the collapse of communism (Shkolnikov et al. 1998; Ivanova et al. 2004) would appear to have played an important role in recent times. One is almost tempted to say that a large number of Russians would appear to have lost the will to live and are simply drinking themselves to death.

The question then arises as to why the populations of other countries in the former Soviet block in Eastern Europe did not suffer similar trauma stretching over such a long period of time? As already noted, mortality initially increased in many of these countries following the collapse of communism, but soon this was reversed and life expectancy increased. During the period 1989-2006, overall life expectancy increased by 8 years in East Germany, 5 years in Czech Republic and Slovenia, and 4 years in Hungary. These countries would appear to have managed their transition much better than has Russia. It is also the case that these countries had moorings other than just communism or the communist state. In Poland, the Catholic church played an important role in the lives of people; in Czechoslovakia and Hungary, nationalism was always an important force. By contrast, in Russia the communist state was all pervasive and it is perhaps not surprising that the post-communist years have proved so difficult for so many to adjust to.

But why have men of working age suffered more than women of the same age group? It has been suggested that the gender order that developed during the Soviet era made men virtually

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10 See Eberstadt (2009) where he quotes Nemstov, one of Russia’s leading authorities in this area.
11 As Gabrilova and Gabrilov (2006, p6) write, “economic conditions of the early 1990s resulted in a rapid impoverishment of large segments of the population. Individual who failed to cope with economic changes lost jobs, housing, engaged in alcohol abuse and eventually became socially marginalized.”
redundant within the typical (especially urban) Russian household. The Soviet system promoted a gender order to serve the perceived needs of the state. In that order, “women were expected to combine the roles of worker, mother and household manager, while men were prescribed the far more limited role of serving the state as soldiers, workers and managers”. Soviet society was “matrifocal” with everyday family life relying “heavily on cross-generational help and caregiving relations, taking place mostly between women”, with men mostly estranged from most family spheres. The respect men commanded within the household depended mainly on their role as primary breadwinners. Once that role came under threat or disappeared, they had no other roles or support network to fall back on. This gender order interacted with the fact that vodka drinking has long been a part of traditional male culture in Russia and this served to make heavy drinking of vodka a culturally appropriate way of coping with hardships among men. For women, while alcohol consumption has increased after the collapse of communism, their drinking habits have differed, with wines and beers – the intakes of which have far less detrimental effects on health than the binge drinking of vodka containing at least 40% alcohol – being their main drinks. Women’s motivations for drinking also appear to have been different. It has been suggested that alcohol consumption for Russian women today is a means of breaking with the Soviet past, and the ideal of Western masculinity associated with independence and assertiveness has been an important factor in increased alcohol use among them.

Be that as it may, while men are dying in larger numbers than women in Russia, they are not dying – it can be argued – because of any deliberate or conscious discrimination against men in the society. By contrast, in India and China it is the culture of discrimination against females that has been mainly responsible for the sex ratio imbalances and it is to a discussion of the situations in India and China that we turn in the following sections.

III. India

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13 See Ashwin and Lytkina (2004).
14 See, among others, Rotkirch (2000).
15 See Hinote et al. (2009).
16 See Van Gundy et al. (2005) and Minagawa (2010).
The sex ratio of India’s population has increased almost continuously throughout the last century (Table 1).\textsuperscript{17} British officials overseeing the first censuses conducted in India in the late 19th century had already commented on the masculinity of the population composition in the country.

**Table 1. Trends in the Sex Ratio (number of males per hundred females), India**

<table>
<thead>
<tr>
<th>Year</th>
<th>SR</th>
<th>Year</th>
<th>SR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1901</td>
<td>102.88</td>
<td>1961</td>
<td>106.27</td>
</tr>
<tr>
<td>1911</td>
<td>103.73</td>
<td>1971</td>
<td>107.53</td>
</tr>
<tr>
<td>1921</td>
<td>104.71</td>
<td>1981</td>
<td>107.07</td>
</tr>
<tr>
<td>1931</td>
<td>105.26</td>
<td>1991</td>
<td>107.87</td>
</tr>
<tr>
<td>1941</td>
<td>105.82</td>
<td>2001</td>
<td>107.18</td>
</tr>
<tr>
<td>1951</td>
<td>105.71</td>
<td>2011</td>
<td>106.38</td>
</tr>
</tbody>
</table>

Note: SR = Sex ratio.  
Source: Census of India 2011.

But a serious demographic analysis had to wait the publication of Visaria’s (1967, 1968) work which conclusively showed that higher female than male mortality was the principal cause of the male-heavy character of the Indian population. Subsequent research\textsuperscript{18} showed that the sex differential in child mortality was a substantial, probably the largest, contributor to India’s abnormally high sex ratio in the recent past. A number of studies found that girls received less medical care than boys and that health dysfunctioning was tolerated more in the case of girls than boys. It was the neglect of female children, especially when they fell sick, rather than some phenomenon of hidden female infanticide, that was primarily responsible for the female disadvantage in child survival.\textsuperscript{19} There was also evidence of selective discrimination against girls by birth order. Das Gupta (1987) found that in the Punjab the second and third daughters of well-educated mothers were more than twice as likely to die before their fifth birthday as their brothers, regardless of their birth order.

The female disadvantage in child survival (measured as the excess of female deaths over male deaths by age 5), however, has been declining in India in recent years, declining from 11.3

\textsuperscript{17} India does not use the international convention of specifying the sex ratio (SR) as the number of males per 100 females. Instead, it measures the sex ratio in reverse of the usual standard by measuring it as the number of females per thousand males, usually called the female to male ratio or FMR. Clearly, FMR=100,000/ SR. In this paper, we follow the international convention for facilitating comparisons.


\textsuperscript{19} Female infanticide, where it occurs, takes place within the first few weeks of life. The bulk of excess female child mortality in India, on the other hand, was found to occur after the age of 1, beyond the stage of female infanticide. See, among others, Bhattacharya (2006), Drèze and Sen (2002), and Miller (1981).
per thousand in 1981 to 6.4 per thousand in 1991, to 1.03 per thousand in 2001. Child mortality itself (defined as the probability of dying by age 5) also registered a major decline from about 157 per thousand in 1981 to 101 per thousand in 1991, to 70 per thousand in 2001. The ratio of female to male child mortality declined from 1.07 in 1981 to 1.06 in 1991, to 1.04 in 2001. There has at the same time been a fall in adult female mortality rates relative to male adults. Taken all age groups together, the overall survival chances of females in India are now higher than those of males. Life expectancy at birth for both males and females has been increasing, but the gains for females have been much greater than for males in the past few years.

In the early years of the 20th century, the overall life expectancy was around 20 years. By 1961, this had risen to 41.3 years (41.9 for males, 40.6 for females). There was an increase to 61.9 years by 2000 (61 for males, 62.7 years for females). The figures for 2009 show life expectancy at 69.89 years, with that for males being at 67.46 years and for females at 72.61 years.

This increase in female life expectancy should, in due course, be reflected in a lowering of the sex ratio. However, in recent years another upward influence on the sex ratio has emerged: selective abortions of female fetuses, and the sex ratio of the population in the age group birth to 6 years has registered a major increase from 103.95 in 1981 to 105.82 in 1991, to 107.87 in 2001 and 109.41 in 2011. So while the overall sex ratio declined between 2001 and 2011 from 107.18 to 106.38 (see Table 1), the sex ratio of the population aged 0-6 has seen a significant increase.

The most comprehensive analysis of the behaviour of the sex ratio over time in India is that by Bhat (2002) He noted that “in the first half of the last century, the sex ratio increased because of the increase at adult ages, especially at age 40 and over”. After independence (in 1947), the increase had mainly been at ages below 15. Following a careful reading of the evidence, Bhat’s conclusion was that the rise in the sex ratio until 1951 was mainly because of the control of famines that used to take heavier toll of older men than women. Control of famines and declines in starvation-related deaths meant that fewer of these men were dying than before. “Thus it was not really females who went additionally missing” during this period, “but it appeared so because older men do not succumb to starvation as they did before”. However, there was clear evidence that, after 1981 the sex ratio at birth had altered, pointing to the prevalence of sex selective abortions.
In the past, the sex ratio at birth (SRB) in India was not known to be different from the biological norm of about 105 (Visaria, 1968). Since the availability of sex-detection tests in the early 1980s, however, the ratio has risen. The estimates of SRB from the Sample Registration System (SRS)\(^{20}\) show the SRB to be close to 110 in the 1980s, and around 113 in the early years of this century. These estimates, however, are not supported by the census based estimates or

<table>
<thead>
<tr>
<th>Years</th>
<th>SRS Estimate</th>
<th>Source and Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1982-84</td>
<td>109.8</td>
<td>Based on: children ever born to women aged 20-29</td>
</tr>
<tr>
<td>1992-94</td>
<td>113.0</td>
<td>Census 1981</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Census 1991</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Census 2001</td>
</tr>
<tr>
<td>2002-04</td>
<td>113.4</td>
<td>births during the five years preceding survey:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NFHS-1: 1992-93</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NFHS-2: 1998-98</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NFHS-3: 2005-06</td>
</tr>
<tr>
<td></td>
<td></td>
<td>births during 1997</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SFMS 1998</td>
</tr>
</tbody>
</table>

Note: This table is based on Table 4 of Kulkarni (2007).

estimates from the country’s three National Family Health Surveys (NFHS-1, 2 and 3), all of which give lower estimates (see Table 2). Only the Special Fertility and Mortality Survey (SFMS)\(^{21}\) conducted in 1997 yields estimate as high as the SRS estimates. However, the SFMS was conducted by the SRS organisation, while NFHS-1, 2, and 3 were conducted independently of the SRS.

Kulkarni (2007) has looked at these differences and after a careful analysis concluded that while the SRB was likely to have been higher than the NFHS and census based estimates, the SRS series of SRB appeared to be overestimates, and a correction factor\(^{22}\) needed to be

\(^{20}\) India is unique among developing countries in that it regularly publishes annual statistics on births and deaths from its Sample Registration System (SRS), a monthly survey of 1.3 million households.

\(^{21}\) SFMS covered 1.1 million households in 6671 nationally-representative units.

\(^{22}\) Kulkarn calculated the correction factor to be 0.9766. The correction factor is given by the ratio of the “implied sex ratio at birth” – “the implied sex ratio at birth” being computed by examining the departure of the actual number of females in a given age group from the expected number in that age group - to the SRS estimates of SRB.
applied to the SRS estimates. Kulkarni also provided estimates of the number of “missing girls” for the age group “birth to 14 years”. If India had the SRB of 105 and the same mortality differentials by sex as in the West, then there would have been, according to Kulkarni’s calculations, 9.85 million more girls in this age group in 2001. Of this, 3.78 million (38 per cent) Kulkarni attributed to excess female mortality and the rest, 6.07 million, to higher than the normal sex ratio at birth. This works out at 3.5 per cent of the female population in this age group. Kulkarni also estimated that during the 25 years since 1981, nearly 11 million sex-selective abortions were performed in India. This amounted to 3.6 per cent of female births or 1.7 per cent of live births. There have also been other estimates of sex-selective abortions in India. Based on the SFMS data, Jha et al. (2006), for example, offered an estimate of 10 million sex-selective abortions over the twenty year period 1986-2005. Regardless of which estimate one accepts as the most likely to be correct, it is clear that the number of sex-selective abortions in India has been quite high, though, as we shall see, not as high as in China.

Evidence show that the practice of sex-selective abortions is more prevalent in urban areas and amongst the well educated women. Sex ratio at birth is also found to increase with parity or birth order and vary substantially by the sex composition of previous children. As already noted, Jha et al. (2006) in their study based on SFMS data found an SRB of 111.2. However, the sex ratio for the second birth when the preceding child was a girl was 131.75; the sex ratio for the third birth when the previous two children were girls was 139.08. By contrast, the sex ratios for second or third births if the previous children were boys were about equal (90.74 and 85.03 respectively).

There are large regional variations in India’s sex composition and SRBs. The broad picture is that the major problem of sex-selective abortions is to be found in the northern-western region of India (mainly in the states of Punjab, Haryana, Delhi, Gujarat, Uttar Pradesh, and Rajasthan). These states are also ones which, in general, have higher female than male mortality during childhood. The explanations for these regional differences have usually been in terms of differing cultural and social traditions. Social standing of women has historically been much better in south India and also in much of the eastern region. The south, in particular, is

23 See also estimates by Arnold et al (2002) and Bhat and Zavier (2007).
24 See, for example, Jha et al. (2006), Guilmoto (2007).
25 See also Retherford and Roy (2003).
26 See Appendix Table 6 of Kulkarni (2007).
generally considered to be more liberal than other regions in the country in such characteristics as marriage customs, kinship, and inheritance patterns.

Finally, what has been the link between fertility decline and sex-selective abortions in India? India’s total fertility rate (TFR) declined from around 5 in 1981 to 4.4 in 1991, to 3.2 in 2001. Sex-selective abortion can, of course, contribute to a decline in fertility; however, it has been a minor cause of fertility decline in India. Calculations by Bhat (2003), for example, which assume that the rise in the sex ratio of the population aged 0-6 between 1981 and 2001 was due entirely to female feticide, showed that only 7 per cent of the fertility decline during this period could be attributed to this cause. It also does not appear to be the case that the SRB has necessarily been higher in those Indian states which have lower TFRs. Some of the states with the highest SRBs – Pubjab, Delhi and Gujarat – do indeed have lower TFRs than the Indian average; but some others with high SRBs – Uttar Pradesh and Rajasthan – have high TFRs; Haryana has the TFR at the national average; equally, however, the lowest TFRs are to be found in the southern states of Karala and Tamil Nadu, which have normal or near normal SRBs. Clearly, factors other than just the level of TFR are involved in explaining variations in the SRB across states in India.

IV. China

As in India, in China too the sex ratio imbalance is not a new phenomenon. It is believed that in various periods in the past, Chinese families used infanticide to control the size and gender balance of their families.\textsuperscript{27} There is evidence to suggest that a shortage of females was a pervasive feature of the Qing dynasty (1644-1912) and the republican period.\textsuperscript{28} However, modern demographic analyses of China had to wait the conduct of modern national censuses and surveys (beginning with the census of 1953). These analyses show the existence of high rates of female infanticide in the 1930s and early 1940s, but a large reduction of this practice by the 1960s. Many demographers attribute this reduction to the improving status of women in the communist era.\textsuperscript{29}

The communists came to power in 1949 and enacted a series of laws that supported freedom of marriage, equal pay, equal benefits, and equal educational opportunities for women.

\textsuperscript{27} See, among others, Cai and Lavely (2003).  
\textsuperscript{28} See, among others, Lee et al. (1994) and Skinner (1998).  
\textsuperscript{29} See Coale and Banister (1994) and Chen Wei (2003).
Collectivisation in the countryside transformed the traditional household labour into collective labour. Women earned incomes from their labour in the collective production. This was a radical change in a society where women had long been regarded as economically dependent. They became equal providers of their families, “an important position to be reckoned with in the rural society” 30. In urban areas, all working age men and women were provided with jobs assigned by the state. The objective was to generate full employment, with low but relatively equal wage rates.

The economic reforms that began in the late 1970s changed the landscape. In the countryside reforms led to the ending of the collective farming system and the revival of the household as the basic unit of production and brought many women back to the household where their roles were traditionally defined. Elsewhere, in the competition for jobs in the market economy, many women started losing relative grounds, chiefly as a result of gender based discriminations in the labour market. 31 So, while in Russia in the transition from a planned to the market economy, a large number of men found themselves faring worse than women, in China the relative position of women – certainly in the labour market – deteriorated during the transition. 32 It was against the background of these changes that sex-determination tests became available in the early 1980s. And soon there was the beginning of sex-selective abortions and the rise in the SRB.

The degree of effective voluntary control of fertility was negligible in China until 1970. In 1970, the government launched a birth control programme which provided family planning services. The programme was voluntary rather than coercive in nature. Total fertility rate (TFR) declined from 5.9 in 1970 to 2.9 in 1979. In 1979, the one-child policy was introduced. The one-child rule, however, applies only to urban couples. In rural areas, where the majority of China’s population lives, a second child is permitted if the first is a girl. A third child is allowed for some ethnic minorities. “In addition, urban couples who are themselves both only children are now allowed to have more than one child”. TFR in China fell from 2.9 in 1979 to 1.7 by 1995 and has hovered around that level since.

31 See, for example, Wang and Cai (2006), Gustafsson and Li (2000).
32 Though, of course, the high growth rates achieved since the reforms have brought increased economic prosperity to the vast majority of the Chinese people – both women and men.
Table 3 charts the increasing SRB in China. In China – in contrast to India – the SRB is higher in rural than in urban areas. (In 2005, for example, the SRB in rural areas was 122.9, in the peri-urban areas 119.9, and in the cities 115.2). This is perhaps not surprising given the exceptions to the one-child rule noted above. Table 4 presents birth-order specific SRBs and here, as in India, the SRB is seen to increase with birth order.

There are regional variations in SRBs. However, except for Tibet, SRB in all provinces have by 2005 deviated from the normal level. SRB levels are particularly high in provinces such as Jiangsu and Anhui while levels are lower in western provinces or metropolises such as Beijing, Tianjin and Xinjiang. The former are believed to be provinces with strong traditional cultures.

Is the one-child policy responsible for the high SRBs in China? Experiences of countries such as India which have high SRBs but no coercive family planning regulations suggest that the one-child policy may not be the only cause of China’s high SRBs and sex ratio imbalance. The
fundamental reason in China, as in India, would appear to be one of son preference (coupled with the availability of sex-selection techniques). Like India, in China, too, the highest SRBs are not necessarily found in regions with lower TFRs.

China has a record of excess female child mortality at a level much higher than seen in India, though child mortality itself is lower in China than in India. Child mortality in China declined from about 120 per 1,000 live births in 1970 to about 70 in 1980, to around 45 in the early 1990s. For the period 1990-2000, Bannister and Hill (2004) have provided an estimate of 37.7 deaths per 1,000 live births. This may be contrasted with the figure of 71 deaths per 1,000 live births for India in 2001.

The sex ratio of male to female child mortality gives an indication of the extent of excess female child mortality. Data from many countries suggest that the normal value of this sex ratio is 120 to 130 for infant mortality and 100 to 120 for mortality between ages 1 and 4. While in 1982 the ratios for all of these ages were below normal in China, since 1990 the ratio had improved for children aged 2-4 years, but declined dramatically for infants, to values below 90. Such a change in the pattern of discrimination is also noticeable in India, with discrimination against older female children declining and that against female children between the ages of 1 and 2 (and probably also below the age of 1) increasing (this, it will be noted, was happening at the same time as when the practice of sex-selective abortions was becoming widespread in both countries).

Numerical estimates of missing girls in China are available from Coale and Banister (1994) for the cohorts born from the late 1930s to the late 1980s. In the 1930s and 1940s, the proportion of missing girls — assuming a sex ratio at birth of 106 and relative survival rates for the two sexes as in the model life tables — they estimated at exceeding 10 per cent of the girls born, with the proportion in some early cohorts being as high as 15 per cent. As the practice of female infanticide became less prevalent, the proportion of missing girls declined, declining to 3 per cent in the late 1970s and early 1980s. Cai and Lavely (2003) have since provided estimates of missing girls for the cohorts born in the period 1980-2000. For the period as a whole, 4.1 per cent of girls were missing and in the late 1990s, the figure rose to over 8 per cent, a figure much higher than seen in India.

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33 See Li and Feldman (1996).
34 See Bhattacharya (2006).
35 Almost all of the excess deaths occurred very early in life.
Life expectancy at birth in China – as in India – has been increasing, but China’s record here has been better than India’s. In the early years of the 20th century, life expectancy in China was less than 25 years. Life expectancy of about 50 years was achieved by 1957 and after the interruption caused by the disaster of the great famine (1958-61) associated with the great leap forward, mortality decline resumed again. Average life expectancy in the 1964-82 intercensal period was 60 years (males 59 and females 61.4 years) and improved to nearly 71 years in the period 1990-2000 (males 69.7 and females 72.8 years). Since then it has risen further, with gains for females being higher than for males. The latest (2009) figures are: 71.61 years for males and 75.5 years for females.

The fall in mortality has occurred at all ages, including, as already noted, in childhood. But, as also already indicated, mortality rates for female children have been higher than for male children. Indeed, the mortality of females under age 1 increased slightly from 1982-90 to 1990-2000.

To conclude, both the sex ratio at birth and female disadvantage in child survival would appear to have been higher in China than in India. In adulthood, however, women (and men) in China seem to survive better than women (and men) in India. The overall sex ratio of the population in both countries is now the same at 106.

V. Missing Girls: Consequences and Policies

Why is there the preference for sons in China and India? At the heart is thought to be the patrilineal kinship system. Lineage of the family is continued only through sons, and daughters are typically excluded from inheritance rights. In societies where social security provisions for old age are absent or minimal, sons are expected to support their parents and sons provide the best assurance of security in the parents’ old age. By contrast, married-off daughters become members of their husbands’ families with little or no obligation towards their natal families. Marriages tend to be patrilocal (meaning that married couples live near the husbands’ family) or virilocal (married couples reside with the husbands’ parents). The parents of married sons, therefore, have the additional help of their daughters-in-law for farming and related activities. In South Asia, the practice of dowry adds to the financial burden of having daughters. Further, given the patrilineal inheritance system, a mother without a son will lose her husband’s assets on

36 And also in several other Asian countries?
his death. Overlaying all of these is the stipulation in both Hinduism and Confucian tradition that
certain death rites can be performed only by sons.\textsuperscript{37}

The practice of dowry would appear to have been of great significance in the Indian
context. It is reportedly one of the main reasons for son preference in the country.\textsuperscript{38} The practice
involves the giving of money, jewellery and other durable goods by a bride’s family to a groom’s
family. The amounts can be huge, constituting several years of the household income of the
bride’s family, and often indebting them severely. The “social justification” of this practice has
been in terms if it being the “last expense” that a girl’s family must bear before she becomes the
“responsibility” of her husband’s family and also in terms of compensating the daughter for her
exclusion from inheritance rights (though, of course, the “dowry gifts” never accrue to the
daughter; instead, they accrue to the husband and his family). In reality, the practice is more like
a groom purchase – in general, the more educated and the wealthier the groom, the higher the
dowry demanded. The practice, which at one time use to be confined mainly to North India and
among the upper castes, has now become widespread across India, despite the government
enacting legislation banning the practice. The Dowry Prohibition Act of 1961, subsequently
strengthened through amendments in 1984 and 1986, banned the practice. The law, however, has
been impotent in the face of widespread acceptance of the practice by the society. There has also
been a dowry inflation in recent years as economic prosperity has fuelled an increase in
“consumerism”. Indeed, in the early years of the availability of the sex-determination tests, they
were marketed with slogans such as: “Spend Rs. 500 now, save Rs. 50,000 later”.

It has been estimated that there will be 30 to 40 million more men than women of
marriageable age in China and India by 2020 as a result of sex-selective abortions. Many young
men will face difficulties in finding brides. The possible consequences of a large number of men
remaining unmarried have attracted a great deal of attention in both academic and popular
discussions in recent years.\textsuperscript{39}

In this context it is well to remember that the excess female child mortality in China and
India in the past meant that there must always have been a shortage of brides in their age groups.

\textsuperscript{37} See also the discussions in Das Gupta et al. (2003). It is also interesting to note in this context that son preference
does not seem to exist in sub-Saharan Africa or Latin America. In sub-Saharan Africa, parents seem to value the
contribution of their daughters and women actively participate in economic activities. In Latin America, Catholic
beliefs against all abortions are believed to hold wide sway.

\textsuperscript{38} See, among others, Bose and Shiva (2003) and Kaur (2009).

\textsuperscript{39} See, for example, Guilmoto (2007), The Economist, 4 March 2010 and the editorial in The Times, 11 September
2010.
for young men in these countries. In India, the marriage system evolved such that husbands are usually older than their wives. In China in the Qing dynasty (1644-1912) “about 10% of men probably never married”.

There have also been other societies where many men never married. In Ireland, for example, in the late 19th and the early 20th centuries, late marriage was quite common and a considerable proportion never married at all. Also, in the West today the proportion of men over 40 who never married has been rising. In the US, for example, while in 1970, 4.9 per cent of men in the age group 40-44 years had never married, in 2008, the figure was 16.9 per cent.

However, it has sometimes been argued that in the West people are choosing not to get married, while in India and China, this will be due to the “marriage squeeze”. It has further been argued that this marriage squeeze will result in socially disruptive behaviour among men unable to find brides, that there will be an increase in violence against women (including kidnapping and trafficking of women), a rise in sexually transmitted diseases, and an increase in mental health problems. There would also be difficulties of old age support for those who never married. One study has also claimed that about half of the increase in China’s savings rate over the last 25 years could be attributed to the rise in the sex ratio at birth: households with sons need to save more to attract brides in the highly competitive marriage market.

Policies to correct sex ratio imbalances has, in recent years, concentrated on preventing sex-selective abortions. However, as we have seen, excess female child mortality, while declining in recent years, still continues to be a problem in India and China. In India, in particular, it has been the neglect of female children, especially when they fall sick, which has been mainly responsible for the excess female child mortality. An important aim, therefore, should be to see that female children do not fall sick from infectious and communicable diseases. Here the provision of safe drinking water and compulsory immunisation programmes have been useful. Provision of free school meal would also be useful. Also, now that the discrimination

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41 In the Victorian period in England, many middle and upper class women also never married. As Best (1979) writes “The dependent daughter was one of the fundamentals on which the mid-Victorian home was based” (p305). Also, many women were sent to nunneries during this period (see Travelyan, 1946, p72).
43 Wei and Zhang (2009).
44 In contrast to the practice of dowry in India, the reverse practice of bridewealth is quite common in rural China.
against female children has shifted towards those in the youngest age groups, health centres could be encouraged to concentrate their efforts here.

Dealing with the issue of sex-selective abortion raises difficult ethical questions. As Mamdani and Mamdani (2006) write, “feminist groups have struggled long and hard to make abortion legal and easily available to women. They assert that women must have the absolute right to decide whether or not to carry the child to term as it is their body that will nurture this child and they will put in the labour to raise it till maturity. If we accept this position, we must also accept the right of a woman to choose the size and gender balance of her family”. It is, as we have seen, educated urban middle class women in India who have mainly resorted to sex-selective abortions and not the poor and the illiterates. As against this, the view could be taken that women themselves acquire patriarchal biases. Banning sex-selective abortions can also be justified on the ground that harms done to the many – the society – as a result of sex-selective abortions overwhelmingly outweigh the benefits to few – women and their families. However, again as Mamdani and Mamdanin (2006) note, “many of the ills attributed to gender imbalance in China could also be explained by the massive migration of males from rural to urban areas. Until we can show, without ambiguity, that denying the right to sex selection prevents severe harm to the society, we are being unjust, arbitrary and dictatorial”. In this context, it is of some interest to note that Sweden legalised sex-selective abortion in 2009.

It would also appear that the abortion rate (number of abortions per 100 women of childbearing age) has been much higher in the West than in India or China. In China 25 per cent of women of reproductive age have had at least one abortion; for the USA, the figure is 43 per cent. In the UK there are “nearly 200,000 aborted babies each year”. If we assume that over the last 25 years, the total number of abortions in the UK has been 2,500,000 (i.e., an annual average of 100,000), this would amount to 4 per cent of the current UK population. This may be compared with the figure of about 10 million sex-selective abortions in India during the same period, which amounts to about 1 per cent of the current Indian population. Given the high premium on sons in India, it is unlikely that there would have been many more abortions – in

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45 But declined in older age groups. See p15 above.
46 Many may also, of course, be subject to enormous pressures from in-laws and husbands to abort female fetuses, but in that case why the educated middle class women should be more susceptible to such pressures than the poor and the illiterates is a question that requires answering.
47 The abortion rate in Russia, of course, has been much higher than in the West.
48 The Times, 2 June 2010.
addition to the sex-selective ones – in India during this period. While the number of “missing girls” as percentage of the total population or female population may be greater in India or China than in the West, the number of “missing children” as percentage of the total population would appear to have been much greater in the West than in India or China.

Policies to rebalance high SRBs in India and China have included banning sex-determination tests and sex-selective abortions. These, however, have not been particularly successful. Establishing either that an ultrasound test is for sex determination or that a particular abortion is sex-selective is not easy (especially when abortion as such is legal as in India and China) and very few prosecutions have resulted under the relevant legislations. So while banning sex-detection tests and sex-selective abortions do have their place in an overall strategy to rebalance SRBs, the real need would appear to be to change the conditions that cause son preference.

And here continued economic development and associated modernising influences plus the counteracting forces generated by high SRBs themselves are likely to play important roles. As continued economic development opens up wider opportunities and roles for women in both the private and public spheres, traditional patriarchal values and norms will be increasingly questioned and weakened. Urbanisation and greater contact with the urban areas bring modernising influences to rural areas. At the same time wider access to education and various media (including satellite TV) exposes people to new ideas and new ways of viewing gender relationships. Continued economic development also makes it possible to make a start towards providing for old age security. Also, if, as a result of high sex ratios, sons cannot marry and have children, the continuation of the family line – the key plank of the patrilineal kinship system – becomes impossible. All of these would then tend to exert a downward influence on high SRBs and eventually bring high SRBs down.

Indeed, one can think in terms of an inverted U-shaped curve, with the SRB first rising following the availability of sex-selection techniques in communities with strong son preference, but then over time as economic development continues forces are set in motion to bring the SRB back towards its biological norm. Of course, how high the SRB will rise and how long it will stay at this peak and how fast it will fall and the level it will fall to, will depend on a number of factors such as the extent and depth of the initial strength of son preference, the ease or

49 In this context, see also the discussions in Guilmoto (2009).
difficulties in obtaining sex-selective abortions, the speed and nature of economic growth and associated social changes, the rate of decline of TFR, and last, but not the least, the public policies perused. Policies that are likely to be of particular benefit would include giving greater property rights to women, provision of old age pensions, and preventing gender discrimination in the labour market.\footnote{Where women are disadvantaged in the labour market, their ability to care for elderly parents is less, and hence female children may be less welcome than male.}

The South Korean experience may provide a precedence here. South Korea had an SRB that peaked at 117 in 1990 – then highest in the world – from being normal in 1980. The figure for 2007 is 106. Child sex ratios (which too were amongst the highest in the world) are also now normal. Increased urbanisation, structural change in the economy from agriculture to non agriculture, greater employment opportunities for women, greater prosperity for individuals, establishment of more nuclear families, and several laws giving special rights to women have all been contributory factors in bringing about this transformation.\footnote{See, among others, Chung et al. (2007).}

There are now signs that in those states in India which have had the highest SRBs – Punjab and Haryana, in particular – SRBs have begun to decline.\footnote{In the Punjab, according to the SRS data, the SRB declined from 129.03 in 1999-2001 to 120 in 2006-2008. Similarly, in Haryana the SRB declined from 124.53 in 1999-2001 to 119.47 in 2004-2006. While still a long way from the desired 105, the data do indicate that a slow reversal has begun. See Sharma and Haub (2008). See also Das Gupta et al. (2009).} However, this has to be set against the fact that the sex ratio of the population in the age group birth to six years has seen an increase in some of the other states which previously had lower SRBs.\footnote{In Paper 1, Provisional Population Totals, Census of India 2011.} In China, the SRB did decline appreciably during 2000-2005 in several regions such as in the contiguous provinces of Guandong, Hainan and Guangxi in the southeast part of the country. In some other areas, the SRB is simply stagnating.

\textbf{V. Concluding Remarks}

It is possible that India and China will follow the South Korean path and eventually transit towards a more balanced sex ratio regime. The Russian situation, discussed in Section II, however, continues to be gloomy. It is believed that “Soviet norms and practices with regard to breadwinning and household management are being actively maintained by both men and
women” in the post-Soviet Russia, “despite the collapse of the state which underwrote them”.\textsuperscript{54} It is also interesting to note that, unlike in China, in Russia, the relative position of men and women within the labour market has remained more or less unchanged after the collapse of communism. And binge drinking of vodka still continues to be a part of traditional male culture in Russia. It is, therefore, important that, in focusing attention on sex-selective abortions and female disadvantage in child survival in India and China, we do not lose sight of the fact that adult males, too, can face relative survival disadvantage in particular contexts as indeed can adult women.

Indeed, even within India, there are some states in the northeast of the country where the sex ratio patterns differ from those elsewhere.\textsuperscript{55} In these states, female children in general survive better than female children elsewhere in India, but in older ages, women seem to lose this advantage and fare worse – in terms of survival – than women in most other states in India. The sex ratio of the population in the age group birth to 6 years in these states is among the lowest in the country, but that of the population in the age group 60 years and above is among the highest. (This remains true even after controlling for migration). In a recent note, Bhattacharya (2009) has offered some hypotheses to explain the observed behaviour of the sex ratios in these states.

The sex ratio of a population is influenced by both the current and the past pattern of fertility, mortality, sex-selective abortions and migration rates, and reflects not only a society’s attitude towards gender equality, but also the effects of events such as wars, famines, and economic dislocations. Disentangling the contribution of these various factors is critical to a proper understanding of the implications of any changes in the sex ratio over time. While the feminist perspective on the issues surrounding the sex ratio is important, it would be wrong to view these issues always or exclusively through the prism of that perspective.

Another conclusion one might wish to draw from the evidence discussed in the paper is that Indian and China probably have better prospects of sustained economic growth in the foreseeable future than does Russia. While high SRBs continue to be major problems in both

\textsuperscript{54} See, among others, Ashwin and Lytkina (2004) and Minagawa (2010).

\textsuperscript{55} The states in the northeast are ethnically, linguistically and culturally very distinct from the other states of India. The total population of the region is 38.8 million, comprising about 3.8 per cent of the population of India. Large parts of the region are hilly and inhabited by different tribal groups. In the pre-independence period, a large portion of the territory was unadministered or hardly administered and kept isolated from contact with the non-tribal people through the imposition of statutory restrictions. Traditionally, tribal people have not socially been divided into castes. These states, therefore, stand apart from the other states in India. It is also unfortunately the case that almost all research on demographic outcomes in India exclude these states from their purview.
China and India, life expectancy at birth for both males and females is increasing in both countries, with gains being particularly significant in the last few years (more so for females than for males). India also has the advantage that her youth ratio in the population is higher as compared to many other countries. By contrast, Russia, as we have seen, has had major problems with the death rates of its population in the working age groups, with the life expectancy of the Russian males today being lower than what it was in the late 1950s. Russia wishes to be a great economic and political power again (based, it seems, mainly on the exploitation of oil and natural gas resources). But surely an economy and society where human capital is as precariously poised as in Russia is likely to be greatly limited by that weakness.

Russia’s situation vis-a-vis vodka consumption and high mortality rates indeed has an historical echo. In England, too, in the first decades of the 18th century, the death rate had risen sharply and exceeded the birth rate. This rise of the death rate historians attribute partly to the growth of drinking cheap gin instead of beer.\textsuperscript{56} Gin drinking was encouraged by throwing open the distilling trade and by placing on spirits far too light a tax. It was only as the appalling social consequences of drinking gin – so eloquently captured in Hogarth’s delineation of the “horrors of Gin lane” contrasted with the “prosperous Beer street” – became apparent that the Parliament moved in 1751 to tax the spirits highly and undertook policies to limit the consumption of gin. Also, after the middle of the century tea drinking became a strong rival to alcohol consumption in all classes, and after 1780 “the death rate went down by leaps and bounds”. While this decline of the death rate was also due to many other causes, a change in drinking habits did play its part. Clearly, there are lessons here for Russia to consider.

References


\textsuperscript{56} See Trevelyan (1946, pp 341- 44).


_____ (1968), Sex Ratio of India’s Population, 1961 Census Monograph, Delhi: Controller of Publications.