

Estimates of levels of sex selection abortion in East Asian countries

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Abstract: This report provides estimates of sex selection abortion levels derived from male-female sex ratios at birth for the Republic of Korea, Republic of China (Taiwan), Hong Kong, and PR China. The Republic of Korea, Hong Kong, and PR China all showed a rise in sex select abortions (both estimated numbers and as a fraction of all abortions) when it became possible to determine fetal gender, followed by a decline when sex select abortions were banned. The Republic of China (Taiwan) shows a similar pattern in estimated numbers of sex select abortions, though abortion data is too incomplete to compare to overall abortions.

Introduction

Birth sex ratio statistics allow for estimates of the numbers of abortions for sex selection, although this is complicated by killing or fatal neglect of girls after birth, and by incomplete birth and abortion statistics.

The premise used in these estimates is that abnormal deviations in male-to-female sex ratios at birth (SRB) are due to sex selective abortions. This is generally believed to be the case in the countries examined here, and indeed is affirmed by the response of several of these countries' governments to ban sex select abortions and/or prenatal ultrasounds for the purposes of determining sex. In the case of PR China, high SRB values in the 1980s are more likely to involve other factors such as failure to register female births—with the child being raised illegally, or with the child being killed (infanticide).

Sex select abortions are a profound issue in India, but given the incompleteness of Indian abortion statistics, the high variability of birth sex ratios between states, and the issue of infanticide, India will be evaluated separately in a later report.

Republic of Korea (South Korea)

Data for the Republic of Korea in Table 1 is from Johnston (2016a) and sources therein.

Table 1. Data on live births by sex and sex select abortions, Republic of Korea, 1970-2012.

year	live births	sex ratio at birth	male live births	female live births	abortions, interpolated estimates	implied sex select abortions	sex select abortions as % of all abortions
1970	1,006,645	109.5	526,100	480,500	331,000		
1971	1,024,773	109.0	534,500	490,300	351,000		
1972	952,780	109.5	498,000	454,800	370,000		
1973	965,521	104.6	493,600	471,900	390,000		
1974	922,823	109.5	482,300	440,500	487,000		
1975	874,869	112.4	463,000	411,900	584,000		
1976	796,331	110.6	418,200	378,100	533,000		
1977	825,339	104.2	421,200	404,100	558,000		
1978	750,728	111.3	395,400	355,300	631,000		
1979	862,669	106.4	444,700	418,000	627,000		
1980	862,835	105.3	442,600	420,200	624,000		
1981	867,409	107.1	448,655	418,754	620,000		
1982	848,312	106.8	438,077	410,235	581,000		
1983	769,155	107.3	398,194	370,961	542,000		
1984	674,793	108.3	350,775	324,018	503,000	800	0.2
1985	655,489	109.4	342,506	312,983	480,000	4,200	0.9
1986	636,019	111.7	335,588	300,431	458,000	10,300	2.2
1987	623,831	108.8	325,038	298,793	435,000	2,200	0.5
1988	633,092	113.2	336,203	296,889	427,000	14,400	3.4
1989	639,431	111.8	337,475	301,956	418,000	10,500	2.5
1990	649,738	116.5	349,617	300,121	410,000	23,600	5.8
1991	709,275	112.4	375,276	333,999	320,000	13,500	4.2
1992	730,678	113.6	388,573	342,105	230,000	17,700	7.7
1993	715,826	115.3	383,365	332,461	396,000	22,500	5.7
1994	721,185	115.2	386,080	335,105	344,000	22,400	6.5
1995	715,020	113.2	379,604	335,416	291,000	16,100	5.5
1996	691,226	111.5	364,433	326,793	239,000	10,600	4.4
1997	668,344	108.3	347,491	320,853	280,000	900	0.3
1998	634,790	110.2	332,803	301,987	246,000	6,200	2.5
1999	614,233	109.6	321,194	293,039	212,000	4,400	2.1
2000	634,501	110.2	332,647	301,854	234,000	6,200	2.6

2001	554,895	109.1	289,461	265,434	255,000	2,600	1.0
2002	492,111	110.0	257,821	234,290	277,000	4,400	1.6
2003	490,543	108.7	255,515	235,028	299,000	1,600	0.5
2004	472,761	108.2	245,705	227,056	320,000	400	0.1
2005	435,031	107.8	225,685	209,346	342,000		
2006	448,153	107.5	232,173	215,980	308,000		
2007	493,189	106.2	253,999	239,190	275,000		
2008	465,892	106.4	240,119	225,773	241,000		
2009	444,849	106.4	229,351	215,498	188,000		
2010	470,171	106.9	242,901	227,270	169,000		
2011	471,265	105.7	242,121	229,144	150,000		
2012	484,300				135,000		

Republic of China (Taiwan)

Data for the Republic of China (Taiwan) in Table 2 is from Johnston (2016b) and sources therein.

Table 2.

Data on live births by sex and sex select abortions, Republic of China (Taiwan), 1970-2015.

year	live births	male live births	female live births	sex ratio at birth	abortions	estimated sex-selective abortions
1970	394,015	203,200	190,900	106.4		
1971	380,424	195,900	184,500	106.2		
1972	365,749	188,100	177,600	105.9		
1973	366,942	189,600	177,400	106.9		
1974	367,823	189,600	178,200	106.4		
1975	367,647	189,300	178,400	106.1		
1976	423,356	218,700	204,700	106.8		
1977	395,796	203,800	192,000	106.2		
1978	409,203	212,000	197,200	107.5		
1979	422,518	218,500	204,000	107.1		
1980	413,881	213,200	200,700	106.2		
1981	414,069	213,900	200,100	106.9		
1982	405,263	209,400	195,800	107.0		

1983	383,439	198,200	185,200	107.0		
1984	371,008	192,000	179,000	107.3	1,268	
1985	346,208	178,300	167,900	106.2		
1986	309,230	160,200	149,000	107.5	1,300	1,300
1987	314,024	163,300	150,700	108.4	2,500	2,500
1988	342,031	177,700	164,300	108.1	2,400	2,400
1989	315,299	164,100	151,200	108.6	32,159	2,700
1990	335,618	176,000	159,600	110.3	18,475	5,500
1991	321,932	168,900	153,000	110.3	16,259	5,400
1992	321,632	168,500	153,100	110.0	10,606	5,000
1993	325,613	169,500	156,100	108.6	6,469	2,900
1994	322,938	168,400	154,500	109.0	5,062	3,500
1995	329,581	171,100	158,500	108.0	4,199	2,000
1996	325,545	169,500	156,100	108.6	3,572	2,900
1997	326,002	170,000	156,000	109.0	2,849	3,500
1998	271,450	141,500	130,000	108.8	2,339	2,700
1999	283,661	148,042	135,619	109.2	42,282	3,300
2000	305,312	159,726	145,586	109.7	4,300	4,300
2001	260,354	135,596	124,758	108.7	2,400	2,400
2002	247,530	129,537	117,993	109.8	3,500	3,500
2003	227,070	118,984	108,086	110.1	3,500	3,500
2004	216,419	113,639	102,780	110.6	41,586	3,800
2005	205,854	107,378	98,476	109.0	38,902	2,300
2006	204,459	106,936	97,523	109.7	36,902	2,800
2007	204,414	106,898	97,516	109.6	35,178	2,800
2008	198,733	103,937	94,796	109.6	35,349	2,700
2009	191,310	99,492	91,818	108.4	33,692	1,500
2010	166,886	87,213	79,673	109.5	32,633	2,100
2011	196,627	101,943	94,684	107.7	34,688	900
2012	229,481	118,848	110,633	107.4	34,927	900
2013	199,113	103,300	95,800	107.8	32,907	1,100
2014	210,383	108,700	101,700	106.9	34,287	300
2015	216,225				33,557	

Hong Kong

Data in Table 3 is from Hong Kong Dept. of Health (2018) for births and Johnston (2018a) and sources therein for abortions

Table 3. Data on live births by sex and sex select abortions, Hong Kong, 1981-2016.

year	live births, male	live births, female	sex ratio at birth	abortions	implied sex select abortions	implied % AB for sex select
1981	44,610	42,141	105.9	10,600		
1982	44,351	41,769	106.2	12,200		
1983	42,836	40,457	105.9	13,400		
1984	39,943	37,354	106.9	14,500		
1985	39,296	36,830	106.7	15,400		
1986	36,917	34,703	106.4	16,800		
1987	35,979	33,979	105.9	17,600		
1988	39,046	36,366	107.4	18,000		
1989	35,815	33,806	105.9			
1990	35,115	32,616	107.7	21,114		
1991	35,197	33,084	106.4	22,120		
1992	36,700	34,249	107.2	24,316	210	0.9
1993	36,505	33,946	107.5	26,057	330	1.3
1994	37,278	34,368	108.5	26,049	630	2.4
1995	35,566	33,071	107.5	25,363	320	1.3
1996	32,664	30,627	106.7	25,041	40	0.2
1997	30,880	28,370	108.8	23,939	630	2.6
1998	27,718	25,259	109.7	22,086	770	3.5
1999	26,712	24,569	108.7	20,891	510	2.4
2000	28,280	25,854	109.4	21,375	700	3.3
2001	25,160	23,059	109.1	20,235	570	2.8
2002	24,955	23,254	107.3	18,651	180	1.0
2003	24,406	22,559	108.2	17,420	360	2.1
2004	25,827	23,969	107.8	15,882	280	1.8
2005	29,880	27,218	109.8	14,192	840	5.9
2006	34,595	31,031	111.5	13,510	1,450	10.7
2007	37,448	33,427	112.0	13,515	1,740	12.9

2008	41,928	36,894	113.6	13,199	2,480	18.8
2009	43,966	38,129	115.3	12,028	3,150	26.2
2010	47,366	41,218	114.9	11,231	3,260	29.0
2011	51,286	44,165	116.1	11,864	3,990	33.6
2012	48,777	42,781	114.0	11,298	3,020	26.7
2013	29,806	27,278	109.3	10,653	710	6.7
2014	32,262	30,043	107.4	10,359	250	2.4
2015	31,218	28,660	108.9	9,890	650	6.6
2016	31,724	29,132	108.9	9,481	660	7.0
1997-2004	213,938	196,893	108.7	160,479	3,990	2.5
2005-2008	143,851	128,570	111.9	54,416	6,500	11.9
2009-2012	191,395	166,293	115.1	46,421	13,420	28.9
2013-2015	93,286	85,981	108.5	30,902	1,610	5.2
2013-2016	125,010	115,113	108.6	40,383	2,270	5.6

PR China

The PR China government restricts some demographic data, and released data may be incomplete or otherwise suspect. Live births and abortions are from Johnston (2018b) and sources therein. SRB data are from multiple sources: Goodkind and West (2007); Huang et al. (2016); Li (2007); and UNICEF (2015). Two estimates of sex select abortions are provided in Table 4, a low estimate using low SRB values and a natural SRB of 107, and a high estimate using high SRB values and a natural SRB of 106.

Table 4. Data on live births by sex and sex select abortions, PR China, 1982-2015.

year	live births	abortions	min SRB	max SRB	min missing female births	max missing female births	min % SS AB	max % SS AB
1982	22,650,000	12,419,663	107.2	108.5	20,000	256,000	0.2	2.1
1983	20,800,000	14,371,843						
1984	20,770,000	8,890,140						
1985	22,270,000	10,931,565						
1986	24,110,000	11,578,713						
1987	25,500,000	10,489,412	108.0	113.1	115,000	802,000	1.1	7.6
1988	24,840,000	12,675,839	108.1	108.1	123,000	236,000	1.0	1.9
1989	24,320,000	10,379,426	108.2	111.3	131,000	575,000	1.3	5.5
1990	24,080,000	13,493,926	109.0	114.7	215,000	921,000	1.6	6.8

1991	22,790,000	14,086,313	109.7	116.1	274,000	1,005,000	1.9	7.1
1992	21,370,000	10,416,287	110.5	114.2	332,000	772,000	3.2	7.4
1993	21,440,000	9,496,119	111.2	114.1	398,000	765,000	4.2	8.1
1994	21,210,000	9,467,064	112.0	112.0	468,000	566,000	4.9	6.0
1995	20,740,000	7,476,482	112.6	117.4	511,000	1,026,000	6.8	13.7
1996	20,780,000	8,834,195	112.9	112.9	538,000	635,000	6.1	7.2
1997	20,480,000	6,589,869	113.1	120.4	548,000	1,262,000	8.3	19.2
1998	19,510,000	7,384,290	113.4	113.4	547,000	638,000	7.4	8.6
1999	18,420,000	6,764,357	113.7	113.7	540,000	626,000	8.0	9.3
2000	17,780,000	6,658,550	114.0	119.9	544,000	1,060,000	8.2	15.9
2001	17,080,000	6,284,844	115.5	115.5	630,000	710,000	10.0	11.3
2002	16,520,000	6,812,317	120.0	120.0	912,000	992,000	13.4	14.6
2003	16,040,000	7,215,440	117.5	117.5	724,000	800,000	10.0	11.1
2004	15,980,000	7,140,588	121.0	121.0	946,000	1,023,000	13.2	14.3
2005	16,210,000	7,105,995	118.6	120.5	804,000	1,006,000	11.3	14.2
2006	15,840,000	7,308,615	119.0	119.0	811,000	887,000	11.1	12.1
2007	15,940,000	7,632,539	120.0	120.0	880,000	957,000	11.5	12.5
2008	16,080,000	9,173,101	120.0	120.0	888,000	965,000	9.7	10.5
2009	16,190,000	6,111,375	119.0	119.0	829,000	907,000	13.6	14.8
2010	15,920,000	6,361,539	117.7	117.7	731,000	807,000	11.5	12.7
2011	16,040,000	6,631,310	117.5	117.5	724,000	800,000	10.9	12.1
2012	16,350,000	6,690,027	117.5	117.5	738,000	816,000	11.0	12.2
2013	16,400,000	6,922,000	110.2	110.2	230,000	306,000	3.3	4.4
2014	16,870,000	7,163,000	108.8	108.8	135,000	213,000	1.9	3.0
2015	16,550,000	7,411,000	109.5	109.5	187,000	263,000	2.5	3.5

Discussion

Figure 1 shows SRB over time for the studied countries, along with SRB for the United States from Mathews and Hamilton (2005). Historically and globally, SRB tends to have a value around 105, corresponding to about 5% more male births than female births. SRB tends to fluctuate over time, particularly for countries with smaller populations due to statistical effects, or for other natural reasons. But this natural variability is low compared to the deviations seen in East Asia in recent decades.

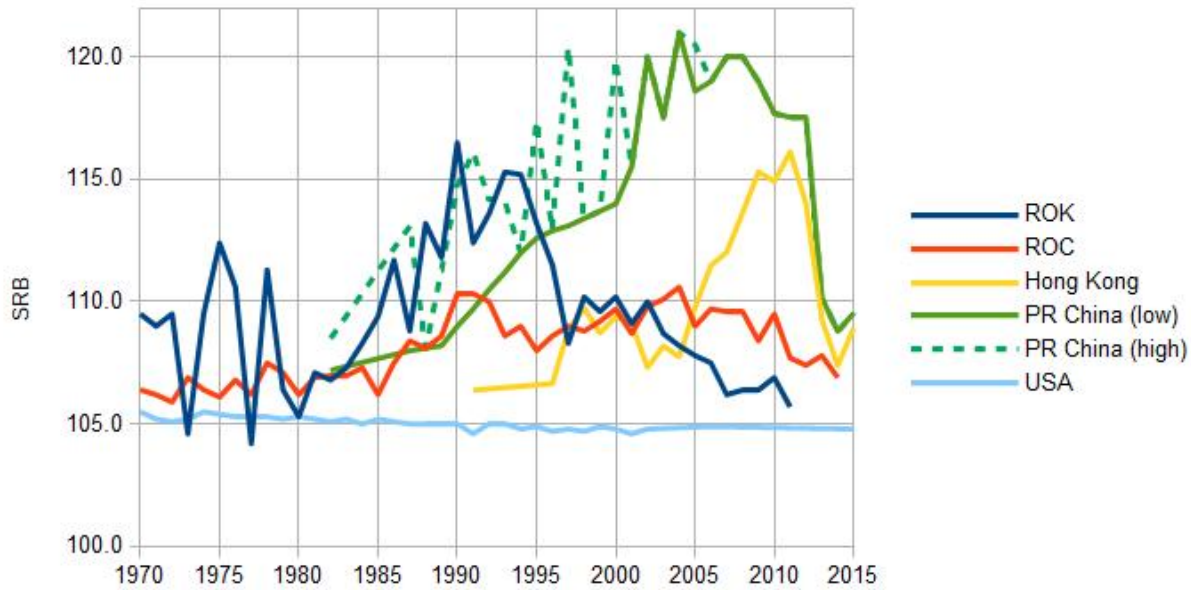


Figure 1. Sex ratio at birth for Rep. of Korea, Rep. of China (Taiwan), Hong Kong, PR China, and the United States.

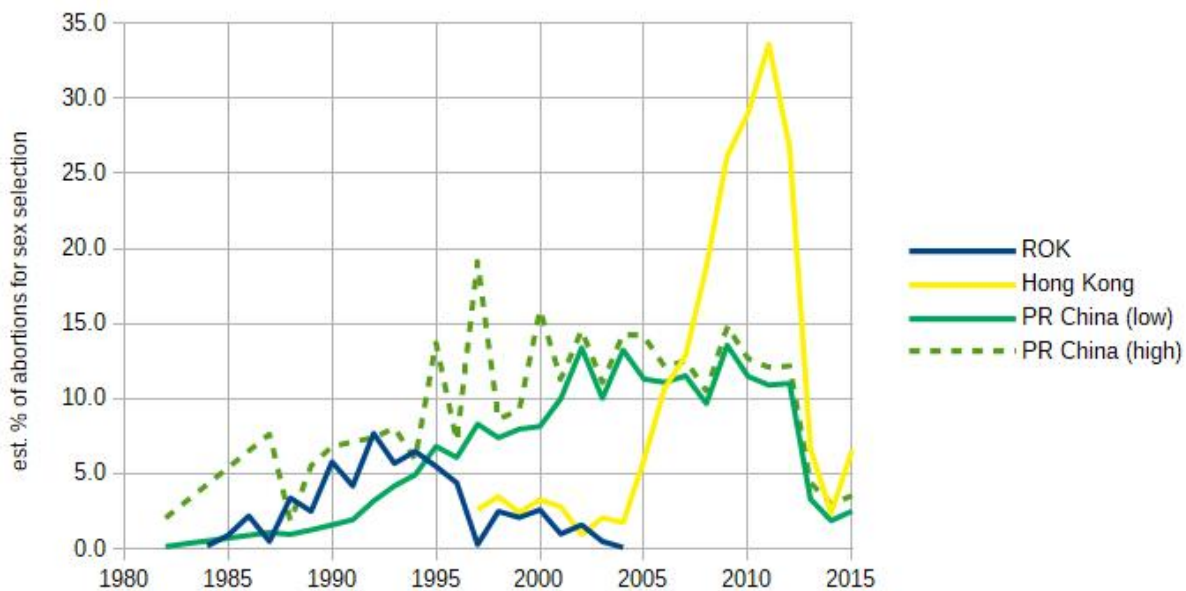


Figure 2. Estimated percentages of abortions for sex selection for Rep. of Korea, Hong Kong, and PR China (high and low estimates).

References

- Goodkind, Daniel, and Loraine West, 2007, China's sex ratio at birth: Reported ratios, actual ratios, and expected trends, *Princeton Univ.*, on line [<https://paa2007.princeton.edu/papers/70295>].
- Hong Kong Dept. of Health, 17 Jan. 2018, "Number of known births for different sexes and crude birth rate for the period from 1981 to 2016," *Data.Gov.HK*, on line [https://data.gov.hk/en-data/dataset/hk-dh-dh_ncddhss-ncdd-dataset-2/resource/7e80c788-3637-431b-a542-96a56184cd15].
- Huang, Yan, Wen Tang, Yi Mu, Xiaohong Li, Zheng Liu, Yanping Wang, Mingrong Li, Qi Li, Li Dai, Juan

- Liang, and Jun Zhu, 2016, The sex ratio at birth fro 5,338,853 deliveries in China from 2012 to 2015: A facility-based study, *PLOS One*, 11(12):e0167575
[<https://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0167575&type=printable>].
- Johnston, Wm. Robert, 25 Oct. 2016b, Republic of China (Taiwan): Reported abortions, 1951-2015, AWR Working Paper 14, *Global Life Campaign*.
 - Johnston, Wm. Robert, 22 July 2016a, Republic of Korea: Reported and estimated abortions, 1970-2015, AWR Working Paper 8, *Global Life Campaign*.
 - Johnston, Wm. Robert, 25 March 2018a, Historical abortion statistics, Hong Kong, *Johnston's Archive*, on line [<http://www.johnstonsarchive.net/policy/abortion/ab-hongkong.html>].
 - Johnston, Wm. Robert, 25 March 2018b, Historical abortion statistics, PR China, *Johnston's Archive*, on line [<http://www.johnstonsarchive.net/policy/abortion/ab-prchina.html>].
 - Li, Shuzhuo, Oct. 2007, Imbalanced sex ratio at birth and comprehensive intervention in China, 4th Asia Pacific Conference on Reproductive and Sexual Health and Rights, on line at *UNFPA* [<https://www.unfpa.org/sites/default/files/event-pdf/china.pdf>].
 - Mathews, T. J., and Brady E. Hamilton, 14 June 2005, Trend analysis of the sex ratio at birth in the United States, *National Vital Statistics Reports*, 53(20):1-18, on line at *CDC* [https://www.cdc.gov/nchs/data/nvsr/nvsr53/nvsr53_20.pdf].
 - UNICEF, 2 April 2015, Figure 1.10 Sex ratio at birth, 1982-2012, in *Children in China: An Atlas of Social Indicators 2014*, on line at *UNICEF* [<http://www.unicef.cn/en/atlas/population/777.html>].

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