

3 Fertility and pregnancy

- Birth rates
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Birth rates

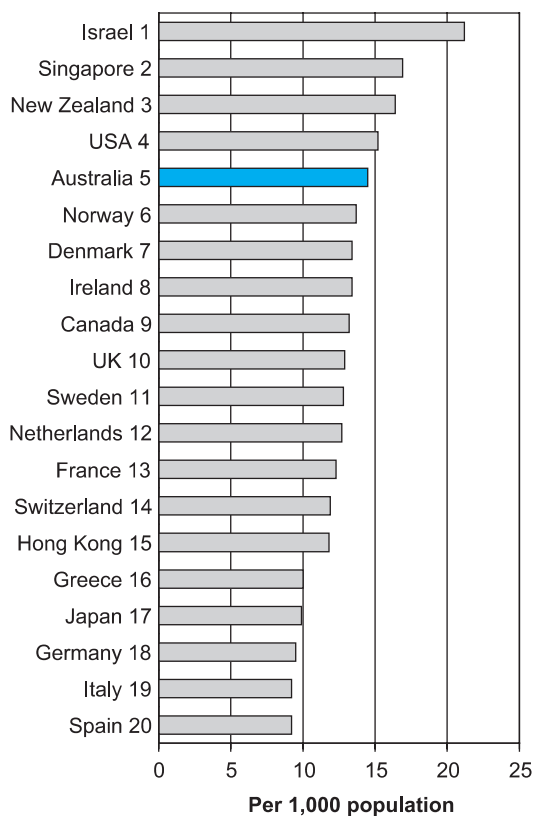


Figure 1: Crude birth rates, 1994

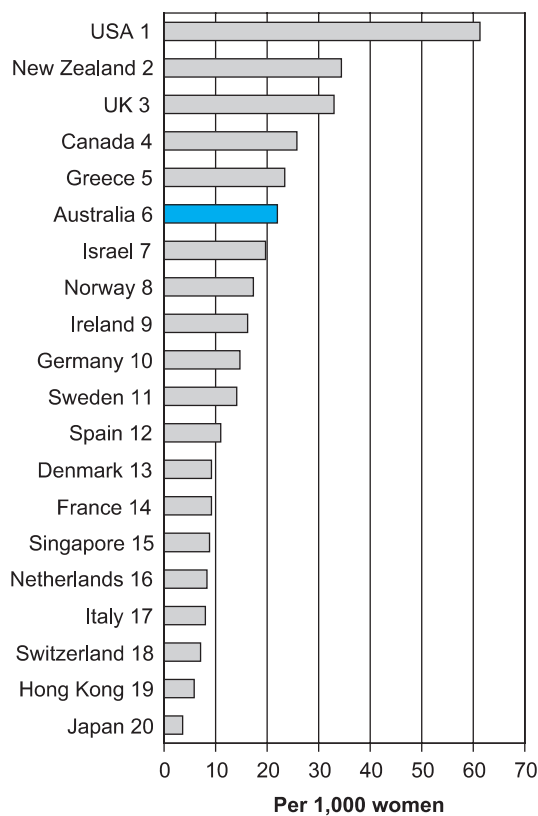


Figure 2: Age-specific birth rates, teenage girls aged 15-19, 1990

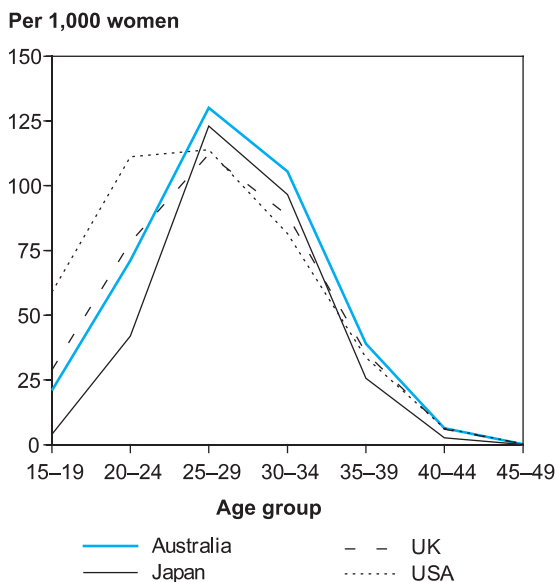


Figure 3: Age-specific birth rates, 1994

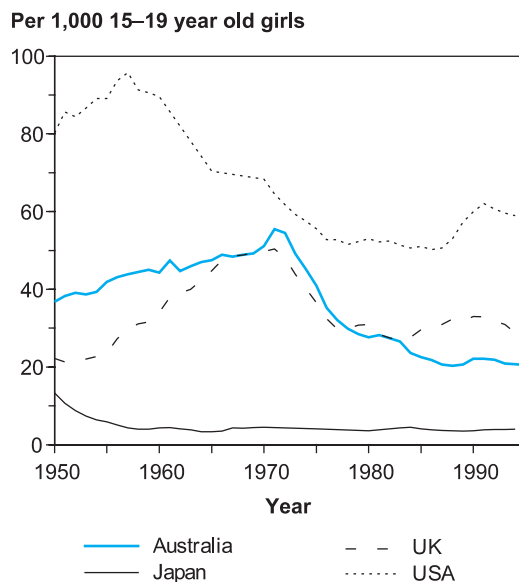


Figure 4: Trends in births to teenage girls aged 15-19, 1950 to 1994

Birth rates

Live births, crude birth rate and age-specific birth rates^(a)

Country	Year	Live births	Crude birth rate	Age of mother (years)						
				15–19	20–24	25–29	30–34	35–39	40–44	45–49
Australia	1994	258,051	14.5	20.7	69.2	126.0	105.1	41.2	6.7	0.3
Canada	1992	398,642	14.0	25.7	75.1	119.4	85.4	28.9	4.2	0.1
Denmark	1994	69,668	13.4	9.3	63.4	141.6	107.0	36.5	5.2	0.2
France	1991	759,056	13.3	9.1	73.2	139.4	93.4	37.0	7.4	0.5
Germany	1994	769,603	9.5	10.1	52.7	85.4	69.9	25.6	4.4	0.3
Greece	1994	103,763	10.0	14.2	67.7	98.8	62.1	23.6	4.5	0.4
Hong Kong	1994	71,646	11.8	6.8	40.8	83.2	79.0	29.9	4.3	0.2
Ireland	1994	47,928	13.4	15.3	49.5	112.1	123.0	58.5	12.6	0.7
Israel	1994	114,543	21.2	18.5	124.9	188.9	151.3	77.9	18.0	1.4
Italy	1991	562,787	9.9	8.0	49.7	90.7	71.8	29.3	5.2	0.2
Japan	1994	1,238,328	9.9	4.0	41.9	123.0	96.6	25.6	2.6	0.1
Netherlands	1994	195,611	12.7	6.9	41.1	111.0	113.8	38.1	4.9	0.3
New Zealand	1992	59,266	17.2	33.8	95.3	142.0	108.5	39.9	6.5	0.3
Norway	1992	60,109	14.0	16.0	85.7	137.5	98.3	35.2	5.3	0.2
Singapore	1994	49,602	16.9	7.6	48.4	136.2	116.0	45.4	7.1	0.1
Spain	1991	395,989	10.1	11.0	46.3	99.7	77.9	27.9	5.8	0.4
Sweden	1994	112,257	12.8	9.7	73.4	140.0	103.0	43.0	7.5	0.3
Switzerland	1994	82,980	11.9	6.0	51.3	115.8	92.2	32.2	4.8	0.1
UK	1994	750,671	12.9	28.8	78.2	112.1	88.5	35.4	6.0	0.3
USA	1994	3,952,767	15.2	58.9	111.1	113.9	81.5	33.7	6.4	0.3

(a) The crude birth rate is the number of live births during the year, per 1,000 of the resident mid-year population. Age-specific birth rates are the live births according to age of mother, per 1,000 of the female resident population of the same age.

United Nations 1979, 1997.

- There were 258,051 live births registered in Australia in 1994—a crude birth rate of 14.5 per 1,000 population. Although at its lowest point ever, this rate is high compared to other developed countries, and was exceeded only by Israel, Singapore, New Zealand and the United States that year (Figure 1). Countries with lower crude birth rates include Spain, Italy, Germany and Japan, all at under 10 births per 1,000 population in 1994.
- The age-specific birth rate is typically the highest for mothers aged 25 to 29 years—in 1994 the Australian rate was 126.0 births per 1,000 women in this age group (Figure 3). This rate, however, is the lowest yet recorded for Australian women. Age-specific birth rates for older women have increased in recent years, reflecting the trend for women to defer child-bearing to later ages (AIHW 1996).
- The age-specific birth rate for teenage mothers (aged 15–19) in 1994 was 20.7 births per 1,000 teenage girls. Australia ranked high for births to teenage mothers—in 1990, sixth among 20 developed nations (Figure 2). The United States rate (58.9 in 1994) was almost twice as high as that for the next highest country—New Zealand (33.8 in 1992). The Japanese rate for teenage pregnancies (4.0 in 1994) was in comparison low.
- In Australia, the birth rate for teenage mothers increased steadily until the early 1970s and then fell away rapidly to stabilise in the mid-1980s (Figure 4). Changing social behaviours, including the increased availability of contraceptives and access to legal abortion, have influenced this trend. The United States and the United Kingdom showed similar patterns for this age group, although the rate peaked 15 years earlier for teenagers in the United States.
- Crude birth rates may be affected by the differing age structures of populations in different countries, making international comparisons problematic. A measure such as the total fertility rate (see following page) overcomes this difficulty.

For more information, see:

United Nations 1997. 1995 demographic yearbook. New York: United Nations.

Fertility rates

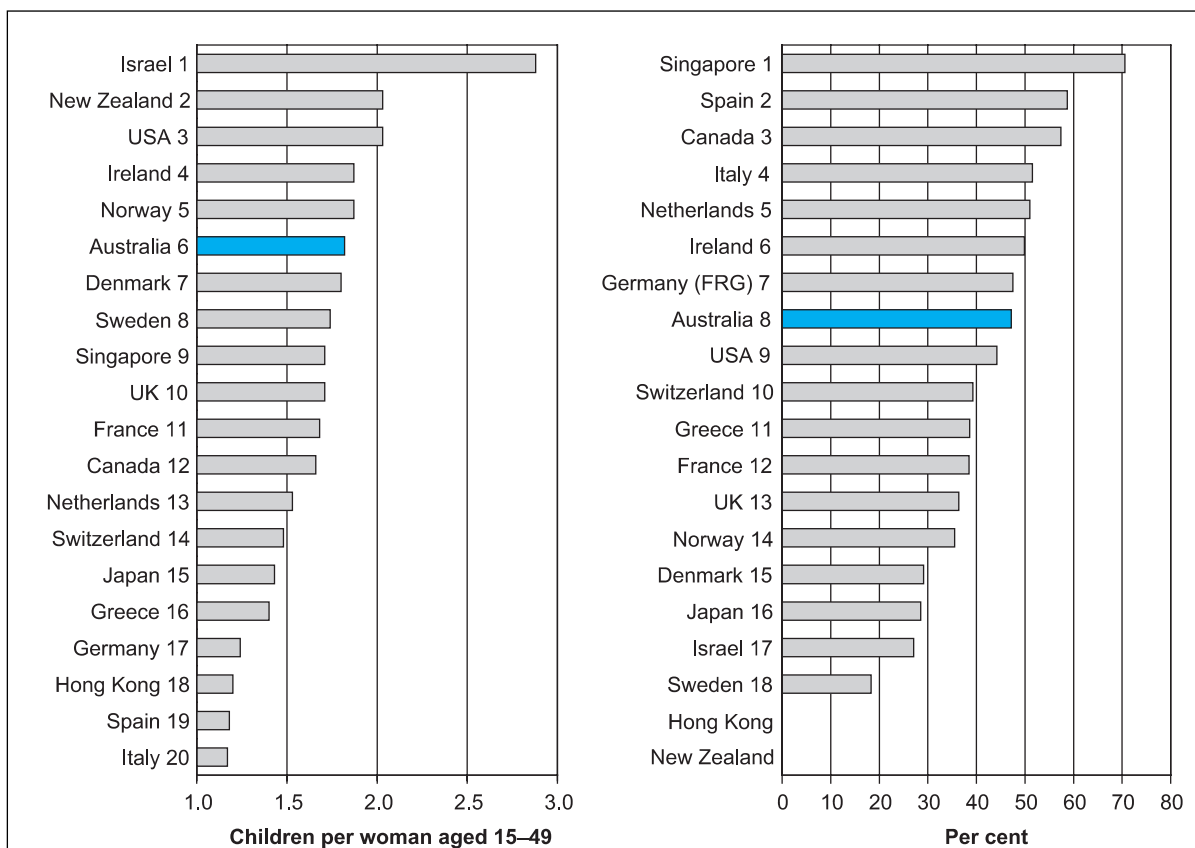


Figure 1: Total fertility rates, 1995

Figure 2: Declines in total fertility rates, 1960 to 1995

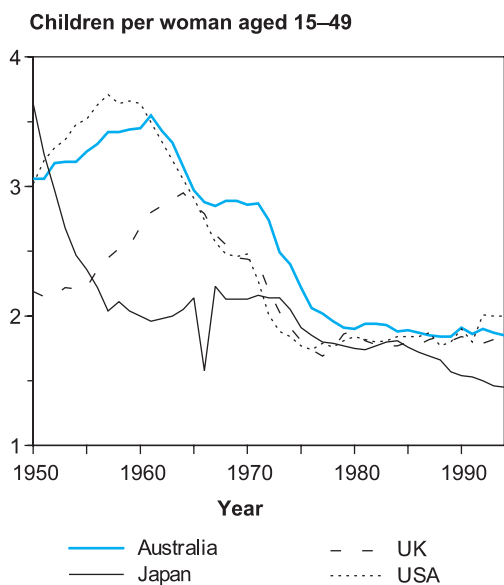


Figure 3: Trends in total fertility rates, 1950 to 1995

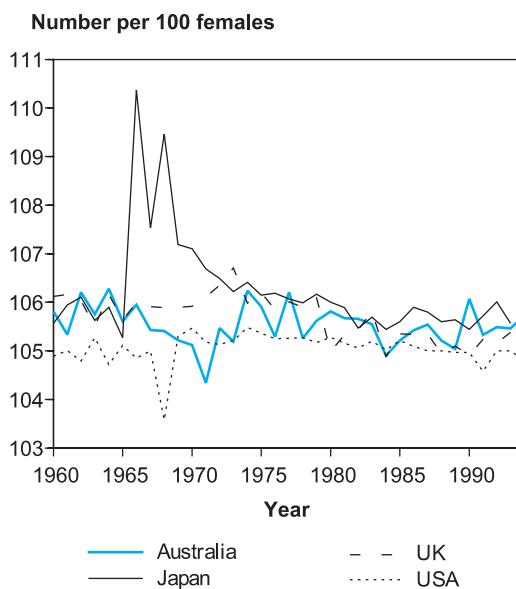


Figure 4: Trends in male:female ratios at birth, 1960 to 1995

Fertility rates

Total fertility rate (children per woman aged 15–49)^(a)

Country	1950	1960	1970	1980	1992	1993	1994	1995	% change 1960–1995
Australia	3.06	3.45	2.86	1.90	1.90	1.87	1.85	1.82	–47.2
Canada	3.37	3.90	2.33	1.68	1.71	1.70	1.68	1.66	–57.4
Denmark	2.58	2.54	1.95	1.55	1.76	1.75	1.81	1.80	–29.1
France	2.92	2.73	2.48	1.95	1.73	1.65	1.65	1.68	–38.5
Germany (FRG)	—	2.36	2.01	1.44	1.40	1.30	1.26	1.24	–47.5
Greece	—	2.28	2.34	2.23	1.40	1.35	1.38	1.40	–38.6
Hong Kong	—	—	3.29	2.06	1.26	1.23	1.22	1.20	—
Ireland	—	3.73	4.03	3.23	2.02	1.93	1.85	1.87	–49.9
Israel	—	3.95	3.91	3.09	2.93	2.92	2.90	2.88	–27.1
Italy	—	2.41	2.43	1.69	1.26	1.21	1.19	1.17	–51.5
Japan	3.64	2.00	2.13	1.75	1.50	1.46	1.45	1.43	–28.5
Netherlands	3.10	3.12	2.57	1.59	1.59	1.57	1.56	1.53	–51.0
New Zealand	—	—	3.17	2.03	2.12	2.10	2.04	2.03	—
Norway	2.53	2.90	2.50	1.72	1.88	1.86	1.87	1.87	–35.5
Singapore	—	5.81	3.09	1.82	1.76	1.78	1.75	1.71	–70.6
Spain	2.46	2.86	2.84	2.22	1.23	1.24	1.22	1.18	–58.7
Sweden	2.32	2.13	1.94	1.68	2.09	2.00	1.89	1.74	–18.3
Switzerland	2.40	2.44	2.10	1.55	1.58	1.51	1.49	1.48	–39.3
UK	2.19	2.69	2.44	1.89	1.79	1.82	1.75	1.71	–36.4
USA	3.02	3.64	2.48	1.84	2.01	2.00	2.00	2.03	–44.2

(a) The total fertility rate is the sum of the age-specific birth rates, and represents the number of children that would be born to a woman were she to experience the age-specific rates for the year shown.

Sources: OECD 1997; United Nations 1979, 1997.

- Unlike crude birth rate, the total fertility rate is a summary measure of fertility that is not affected by the age–sex composition of the population, thus allowing for international comparisons.
- Australia's total fertility rate is at its lowest level ever. In 1995, a woman in Australia would bear 1.82 children during her reproductive years. This rate, however, is still in the upper third for the 20 developed countries included here for comparison purposes. Apart from Israel, which in 1995 had a total fertility rate of 2.88, rates in all other countries were below the replacement level of 2.1 (Figure 1). This represents the average number of births per woman required to replace a population in the long-term, given prevailing mortality levels (ABS 1998a).
- Post-war fertility in Australia exhibits three distinct phases—a steady increase until the early 1960s (the 'baby boom'), a rapid decline until the early 1980s (with a temporary recovery in the late 1960s), and a levelling off since the early 1980s. Similar patterns are seen in the United States and United Kingdom, but not in Japan (Figure 3). Fertility in Japan fell rapidly until the early 1960s, and has continued to decline steadily since. The Japanese saw a sharp decline in births in 1966, due to this being a year of *hinoeuma*, a superstition which held that girls born in this year were unlucky. This led to an unequal ratio of male to female births (Ministry of Health and Welfare 1995). Normally there are about 5 to 6 per cent more male births than female births (Figure 4).
- Fertility has declined substantially in almost all developed countries, except Sweden, since 1950. Most of this decline occurred in the younger age groups, with childbirth increasingly being deferred to later ages. A number of other social and attitudinal changes have also contributed to this decline. These include the wider availability of contraceptives and the acceptance of a two-child family norm.
- Leaving aside the effects of immigration and mortality, declining fertility rates in some European countries imply sharply contracting populations by 2050.

For more information, see:

Australian Bureau of Statistics. Births, Australia. Cat. No. 3301.0. Canberra: ABS.
 Australian Bureau of Statistics 1986. Australian demographic trends 1986. Cat. No. 3102.0. Canberra: ABS.

Low birthweight



Figure 1: Proportion of low birthweight babies, 1992

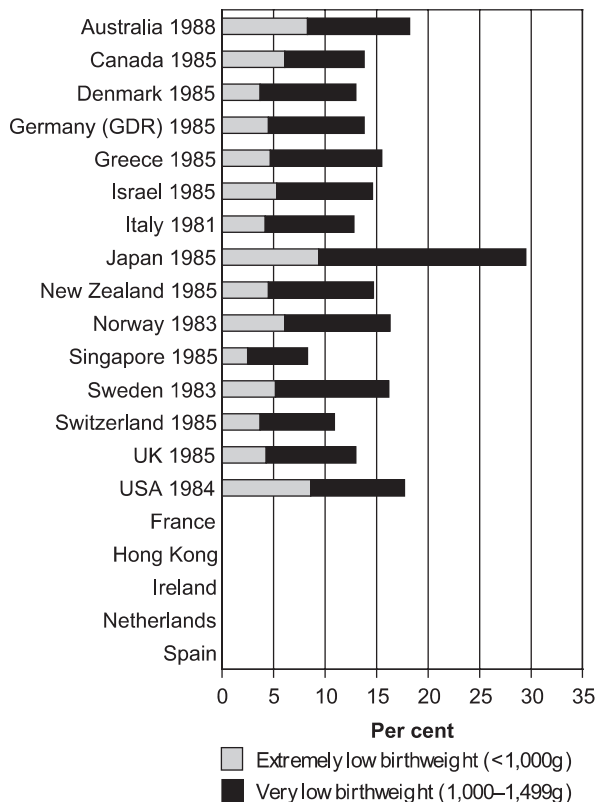


Figure 2: Proportions of extremely low and very low birthweight babies, mid-1980s

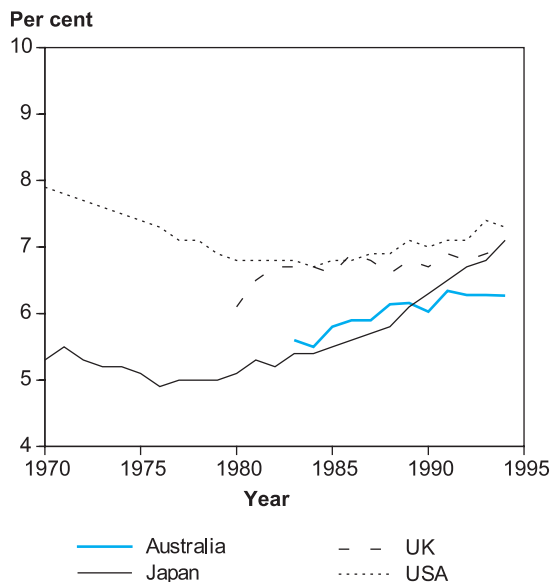


Figure 3: Trends in proportions of low birthweight babies, 1970 to 1994

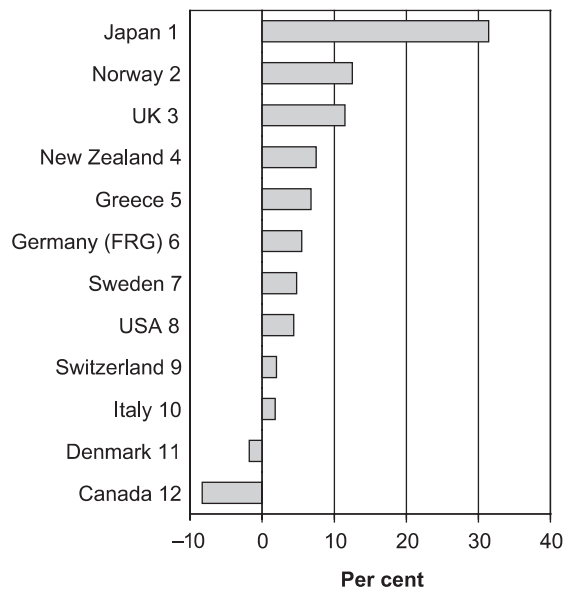


Figure 4: Changes in the proportion of low birthweight babies, 1980 to 1992

Low birthweight

Low birthweight (per cent <2,500g)

Country	1970	1975	1980	1985	1990	1991	1992	1993	1994
Australia				5.8	6.0	6.4	6.3	6.3	6.3
Canada	7.8	6.6	6.0	5.7	5.4	5.5	5.5	5.8	6.0
Denmark	6.0	6.6	5.6	5.4	5.2	5.4	5.5	5.3	5.2
France					5.3	5.7	5.8	5.8	5.9
Germany (FRG)		5.9	5.5	5.7	5.7	5.8	5.8	5.8	6.0
Greece			5.9	6.0	6.0	6.1	6.3	6.8	
Hong Kong									
Ireland				4.1	4.2	4.2	4.1		
Israel		6.1	7.0	7.3	7.0				
Italy			5.6	5.6	5.6	5.8	5.7	5.9	6.0
Japan	5.3	4.8	5.1	5.4	6.3	6.5	6.7	6.8	7.1
Netherlands					4.9	4.9	4.9		
New Zealand		5.4	5.3	5.5	5.8	5.9	5.7	5.9	6.0
Norway	4.8	4.4	4.0	4.4	4.5	4.6	4.5	4.4	4.5
Singapore		8.7	7.5	6.9	7.0				
Spain				4.4	5.0	5.5	5.0	5.4	
Sweden	4.3	4.7	4.2	4.8	4.5	4.5	4.4	4.3	4.1
Switzerland			5.1	5.2	5.1	5.2	5.2	5.3	5.2
UK			6.1	6.6	6.7	6.9	6.8	6.9	7.0
USA	7.9	7.4	6.8	6.8	7.1	7.1	7.1	7.2	7.3

Sources: OECD 1997; United Nations 1988.

- Low birthweight is an important indicator of the social and biological processes leading to birth. It can result from prematurity or poor foetal growth, and may also be associated with elevated risks of infant morbidity and mortality.
- In 1992, 6.3% of all newborns in Australia weighed less than 2,500 grams, and were thus classified as low birthweight. This placed Australia in the first quarter of 17 developed countries for which data were available (Figure 1). The United States (7.1% in 1992) and the United Kingdom (6.8%) had higher proportions of low birthweight infants. Ireland (4.1%) and Sweden (4.4%) had much lower proportions of low birthweight babies.
- Risk factors for low birthweight include maternal age and parity, socioeconomic status, multiple births, cigarette smoking, the consumption of alcohol during pregnancy, and the nutritional status of the mother.
- The proportion of infants considered to be of low birthweight has been rising in Australia and Japan and several other developed countries in recent years (Figures 3 and 4). New technology is giving extremely low (<1,000g) and very low (1,000–1,499g) birthweight infants an increased chance of survival which may have contributed to these upward trends.
- Although they might be expected to be closely related, a population's average birthweight is

not considered to be a good predictor of overall infant mortality. Sweden and Japan both have low infant mortality rates, yet have high and low average birthweights respectively. Japan and the United States have low average birthweights, yet the lowest and highest infant mortality rates among the comparison countries (US Congress, Office of Technology Assessment, 1993). Instead of using an arbitrary weight of 2,500g to define low birthweight, it may be more useful to use a proportion of a particular country's birthweight distribution.

For more information, see:

US Congress, Office of Technology Assessment 1993. International health statistics: what the numbers mean for the United States. Background paper, OTA-BP-H-116. Washington DC: US Government Printing Office.

Family planning

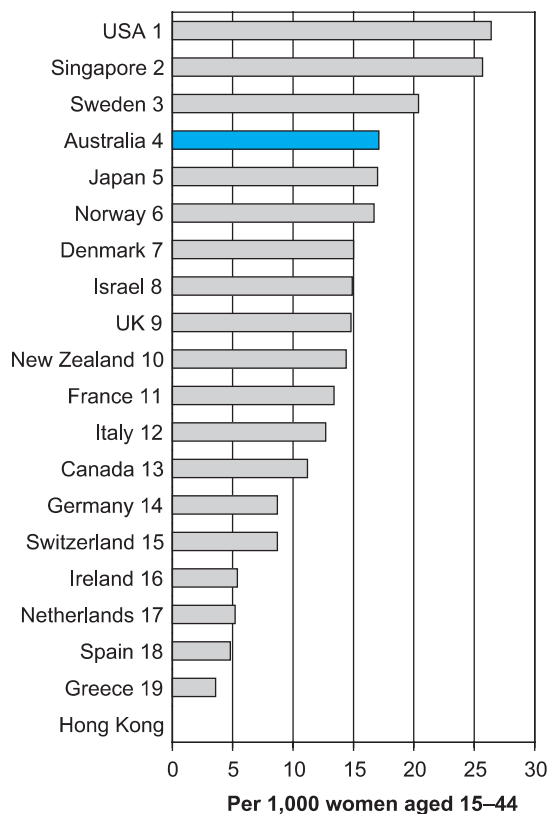


Figure 1: Elective abortion rates, 1990-1991



Figure 2: Contraceptive use, 1985-94

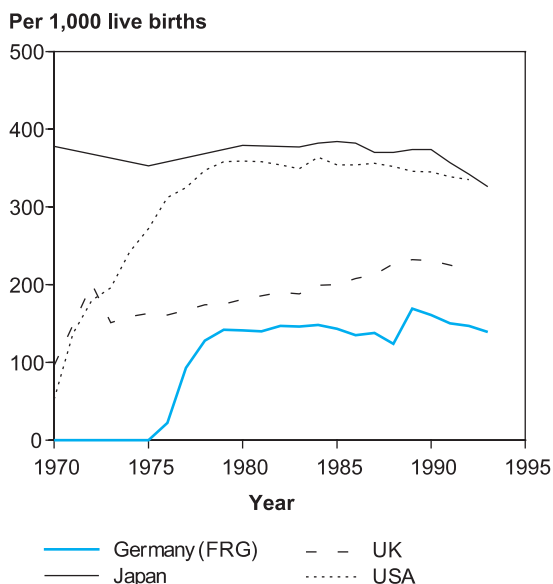


Figure 3: Trends in legally induced abortions, 1970 to 1995

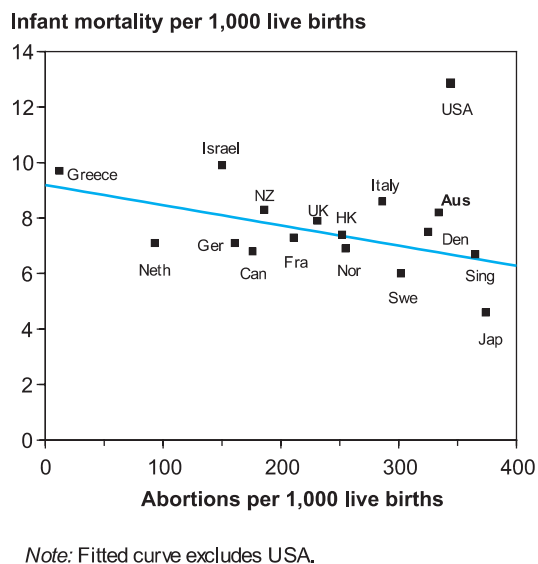


Figure 4: Infant mortality rate and legally induced abortions, 1990

Family planning

Legally induced abortions and prevalence of contraceptive use

Country	Year	Legally induced abortions	Live births	Proportion ^(a)	Contraceptive use rate, 1985–94 (%)
Australia	1993	^(b) 87,000	260,229	0.25	76
Canada	1992	59,694	398,642	0.13	73
Denmark	1994	17,598	69,668	0.20	78
France	1991	162,902	759,056	0.18	75
Germany	1994	103,586	769,603	0.12	75
Greece	1992	11,977	104,081	0.10	—
Hong Kong	1987	17,600	69,958	0.20	81
Ireland	1993	—	49,456	—	—
Israel	1993	17,164	112,330	0.13	—
Italy	1994	124,334	527,406	0.19	78
Japan	1994	364,350	1,238,328	0.23	59
Netherlands	1994	20,811	195,611	0.10	80
New Zealand	1992	11,460	59,266	0.16	70
Norway	1993	14,909	59,678	0.20	76
Singapore	1994	15,690	49,554	0.24	74
Spain	1993	—	388,708	—	59
Sweden	1994	32,293	112,257	0.22	78
Switzerland	1993	—	83,762	—	71
UK	1994	169,964	750,671	0.18	81
USA	1991	1,388,937	4,110,907	0.25	71

(a) (Abortions)/(Abortions+live births).

(b) Estimated. Based on unpublished Medicare data, data from the AIHW National Hospital Morbidity Database, ABS 1998b, and Adelson, Frommer & Weisberg 1995, 1996.

Sources: United Nations 1997; UNICEF 1996.

- In Australia, national information on induced abortions is lacking, with only South Australia and the Northern Territory collecting population-based data. In 1994, one in five (20.8%) pregnancies in South Australia resulted in abortion, with half of all teenage pregnancies being terminated (AIHW 1996). An estimate of the total number of pregnancies terminated annually in Australia can be made, based on available State and Territory data, Medicare data and hospital separations data. In 1993, about 87,000 abortions were performed – equating to one in four pregnancies being terminated.
- The proportion of pregnancies ending in abortion are similar in Australia and Japan, exceeded in 1990–1991 by the United States, Singapore and Sweden (Figure 1). Greece, Spain, the Netherlands and Ireland exhibit low rates – although many Irish women travel to England to have their pregnancy terminated (Brahams 1992, Francome 1992). Rates of abortion have been relatively stable in Japan, the United States and Germany since the late 1970s (Figure 3).
- Higher rates of elective abortion are correlated with lower infant mortality, possibly due to the selective termination of high-risk pregnancies (US Congress, Office of Technology Assessment, 1993). However, this relationship does not hold in the United States, where there are both high rates of elective abortion and infant mortality (Figure 4).
- Data on the prevalence of contraceptive use in developed nations is often out-of-date, or lacking altogether, due largely to the lack of population-based studies. Available data are reported in the above table, and in Figure 2, from studies or surveys conducted between 1985 and 1994.
- It is estimated that over the past three decades, regular contraceptive use has increased by approximately 27%. Were family planning services universally available, the 25 million or more abortions performed annually in the industrialised world would decline radically (UNICEF 1994). The United Nations estimates that 57% of married women of child-bearing age worldwide currently use family planning.

For more information, see:

WHO 1994. Family planning and health. World Health Stat Q 47: 2–39.

Maternal mortality



Figure 1: Maternal mortality, 1990-94

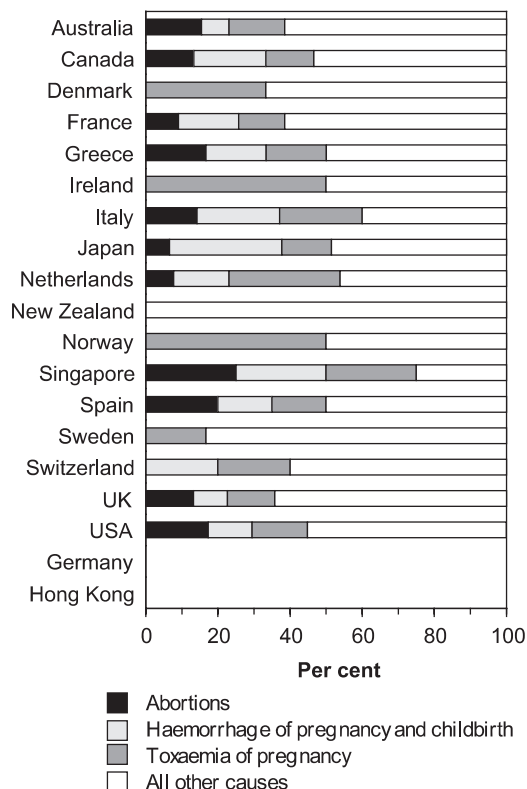


Figure 2: Maternal mortality, by cause, 1985-89

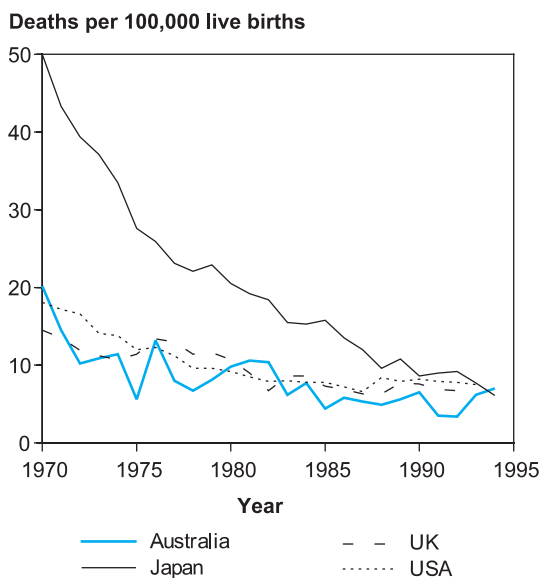


Figure 3: Trends in maternal mortality rates, 1970 to 1994

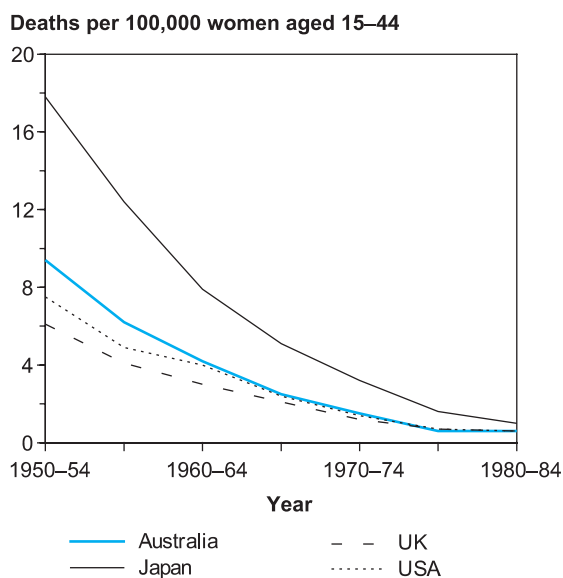


Figure 4: Trends in maternal mortality rates, 1950-54 to 1980-84

Maternal mortality

Numbers and rates of maternal mortality

Country	Year	Maternal deaths per 100,000 live births	Estimated number of maternal deaths, 1990	Lifetime risk of maternal death, 1990
Australia	1994	7.0	25	1 in 4,900
Canada	1994	3.6	25	1 in 7,700
Denmark	1993	7.4	5	1 in 5,800
France	1994	11.7	110	1 in 3,100
Germany	1994	5.2	190	1 in 2,700
Greece	1994	1.9	10	1 in 5,600
Hong Kong	1994	11.2	5	1 in 9,200
Ireland	1992	5.9	5	1 in 3,800
Israel	1994	5.2	5	1 in 4,000
Italy	1994	12.4	65	1 in 5,300
Japan	1994	6.1	230	1 in 2,900
Netherlands	1994	6.1	25	1 in 4,300
New Zealand	1993	20.4	15	1 in 1,600
Norway	1993	3.4	5	1 in 7,300
Singapore	1994	6.1	5	1 in 4,900
Spain	1993	6.2	30	1 in 9,200
Sweden	1993	5.1	10	1 in 6,000
Switzerland	1994	3.6	5	1 in 8,700
UK	1992	6.7	70	1 in 5,100
USA	1993	7.5	480	1 in 3,500
Asia			323,000	1 in 65
North America			500	1 in 3,700
Europe			3,200	1 in 1,400
Oceania			1,400	1 in 26
World			585,000	1 in 60

Sources: WHO 1994, 1996c; United Nations 1980, 1997.

- Deaths due to pregnancy-related causes are not solely a problem of the developing world. In developed countries in 1991, there were more than 200,000 deaths of women aged 15 to 44, of which 4,000 were ascribed to maternal causes (WHO 1995c). These causes include haemorrhage, sepsis, hypertensive disorders of pregnancy and obstructed labour (Figure 2).
- The Australian maternal mortality rate in 1994 was 7.0 deaths per 100,000 live births—a total of 18 deaths. This places Australia in the upper half of developed countries. It should be noted, however, that most developed countries have only small numbers of maternal deaths each year, and that rates may vary substantially from year to year. In 1992 for example, there were 9 maternal deaths in Australia—a rate of 3.4 deaths per 100,000 live births. About 30% of maternal deaths occur in Aboriginal and Torres Strait Islander women, who are responsible for only about 3% of all confinements (AIHW 1996).
- Averaged over the years 1990–94, Australia's maternal mortality rate of 5.3 deaths per 100,000 live births ranked 13th among 20 developed countries (Figure 1). New Zealand and France had rates in excess of 10 deaths per 100,000 live births—in comparison, Canada, Denmark, Greece, Singapore, Sweden and Switzerland all had less than 5 deaths per 100,000 population. The rates for Australia, the United Kingdom and the United States have shown steady declines over recent decades. The decline for Japan since 1970 has been substantial (Figures 3 and 4).
- WHO has calculated lifetime risks for maternal deaths. In 1990, these were 1 in 1,400 for a mother in Europe and 1 in 3,700 for a mother in North America. The Australian rate was calculated at 1 in 4,900, and that for Oceania at an unacceptably high 1 in 26. Maternal mortality among several Melanesian countries is extremely high.

For more information, see:

Abou Zahr C et al. 1996. Maternal mortality. *World Health Stat Q* 49: 77–87
 WHO 1996. New estimates of maternal mortality. *Weekly Epidem Rec* 71: 120–124

