


9-2008

Very low fertility in Pacific Asian countries: Causes and policy responses

Paulin Tay STRAUGHAN
Singapore Management University, paulints@smu.edu.sg

DOI: <https://doi.org/10.4324/9780203890066>

Follow this and additional works at: https://ink.library.smu.edu.sg/sooss_research

 Part of the [Asian Studies Commons](#), and the [Family, Life Course, and Society Commons](#)

Citation

STRAUGHAN, Paulin Tay. (2008). Very low fertility in Pacific Asian countries: Causes and policy responses. In *Ultra-low fertility in Pacific Asia: Trends, causes and policy issues* (pp. 1-22). London: Routledge.

Available at: https://ink.library.smu.edu.sg/sooss_research/2210

This Book Chapter is brought to you for free and open access by the School of Social Sciences at Institutional Knowledge at Singapore Management University. It has been accepted for inclusion in Research Collection School of Social Sciences by an authorized administrator of Institutional Knowledge at Singapore Management University. For more information, please email libIR@smu.edu.sg.

1 Very low fertility in Pacific Asian countries

Causes and policy responses

*Gavin Jones, Paulin Tay Straughan,
and Angelique Chan*

Introduction

Only 40 years ago, population experts were still worried about a population explosion that would threaten the future of humanity. Fortunately, while population growth is currently largely under control, sub-Saharan Africa and parts of South Asia still face massive increases with very serious potential consequences.¹ Paradoxically, however, a new problem is emerging, with its key locus in Pacific Asia (the term used in this book to refer to Asian countries with a Pacific littoral). This problem is ultra-low fertility. Japan, Singapore, Taiwan, South Korea, and Hong Kong SAR are among the very lowest-fertility countries in the whole world, and even China has reached fertility levels lower than those in many European countries. Fertility has sunk so low in many East Asian countries that if these levels continue over long periods, populations will face accelerating population decline not very far into the future. Not only this, but changes in age distributions in such populations raise major new questions for planning of economic and social welfare. The best-recognized prospect raised by ultra-low fertility is population aging, which brings with it an entirely new set of issues, for example, increasing old-age dependency ratios, financing old age and old age health care, continuing familial support of the elderly and elderly political participation. But there are many others, for example, the decline in size and changing age structure of the workforce, and the declining visibility of and perhaps attention paid to the needs and interests of children and young people.

Existing pro-natalist policies do not appear to be having much effect in these countries, and although governments realize that more needs to be done to encourage fertility, exactly *what* should be done remains elusive. Part of this elusiveness stems from a lack of information on what motivates people in Asia to marry in the first place, and once married, to have, or not have, children. (The route of bearing children without marrying is a little-travelled one in Asian countries, and not socially sanctioned.)

Though the shift in emphasis in population policy from anti-natalism to pro-natalism in some Asian countries over the course of just a decade or two is striking, the underlying issue is the same: whether governments have a legitimate interest in nudging fertility rates in desired directions, and if so, how policies designed to

accomplish this relate to family and social policy. Thus, it is of some relevance to recapitulate briefly the history of anti-natalist policies.

The case for fertility reduction in high-fertility countries

The general consensus among economists has been that there are social and economic benefits to be achieved by reducing fertility rates in high-fertility conditions. The literature on this is vast, but three references summarizing the received wisdom are National Research Council, 1986 (which drew very cautious conclusions), Cassen, 1994, and Birdsall, Kelley and Sinding, 2001. Thus, although there have always been dissenters (for example, Simon, 1981), the consensus among most economists over the most active period of family planning efforts was that governments are justified in taking active steps to bring birth rates down – in the interest of the welfare of future generations. The economic case for family planning was bolstered by the arguments of environmentalists, and those dealing with issues of food and water availability (see Pimentel, *et al.*, 1999; Alexandratos, 2005; Falkenmark, 1997).

Family planning programs were seen as the most direct route to achieving the goal of fertility reduction. They were designed to make information on contraception more readily available, and to facilitate the adoption of contraception by couples wishing to do so (Seltzer, 2002). Studies that estimated “unmet need” for contraception indicated that many couples at risk of pregnancy and who did not want any more children were not doing anything to protect themselves from pregnancy. Satisfying this unmet need was seen as appropriate in both meeting people’s expressed needs and in lowering the overall level of fertility (see, for example, Sinding, Ross, and Rosenfield, 1994; Casterline and Sinding, 2000). Many family planning programs went well beyond the mere supply of information and services, engaging in campaigns to persuade people of the advantages of delayed marriage and small family size.

But there are other routes as well – arguably more fundamental ones – to low fertility. Studies dealing with the determinants of fertility show consistently that fertility is inversely related to education of women, for example. In general terms, fertility is inversely related to levels of economic development and (a somewhat different indicator) human development (see UNFPA, 2003: 4), and an ongoing debate is therefore about whether “development is the best contraceptive” (the slogan adopted by many at the World Population Conference in 1974), or whether the urgency of reducing birth rates calls for more direct measures. Finally, to confuse the situation even more, there are countries (Myanmar a notable example) where fertility has fallen to fairly low levels without either much evidence of development or the assistance of an official family planning program.

Two key problems with the family planning approach were:

- In its implementation by governments that perceived (and were pressed by donors to perceive) the lowering of population growth as an overriding goal, the basic rights of the population were often given second place.²

- Family planning programs had limited success in settings in which religious opposition was not effectively counteracted, and where economic development was sluggish and not effectively felt by the masses (examples include Pakistan, the Philippines, and parts of Latin America).

Over the past decade, demographic trends have taken the wind out of the sails of the population-control movement. Fertility rates have fallen consistently across the world, though Africa and parts of South Asia are regions where fertility remains high, massive population increases are still in prospect, and the effect of this on human well-being requires ongoing attention. Still, population projections by the United Nations now show world population peaking at below 10 billion, whereas figures closer to 15 billion had earlier been thought likely.

The collapse of fertility in East Asia and the delayed switch to pro-natalist policies

There is now an interesting mix of situations in the world: in some countries, lowered fertility is arguably crucial to sustainability and the well-being of populations; in others, increased fertility is arguably equally critical to future well-being; in others, a *laissez-faire* approach to fertility seems justified. In the first two groups of countries, the issue of whether, and if so how, governments should become involved in matters that are frequently argued to be private and confined to the bedroom continues to exercise the minds of government planners.

The second group – countries needing to increase fertility – includes countries such as Japan, South Korea, Singapore, and Taiwan. Over the past five years or so, fertility in the first four of these countries has fallen to levels below those of almost all countries in Europe. There is controversy about where China and Thailand fit: needing to reduce fertility further or needing to raise it. Table 1.1 gives a brief summary of the population prospects faced by some of these countries. It shows that Japan, South Korea, Taiwan, and Singapore have now reached such low fertility levels that population declines have begun or are in prospect. The momentum towards a shrinking of population, inherent in the age structure and fertility levels, is well documented for these countries. In particular, they face sharp contractions in numbers in the adolescent and young-adult age groups, the key age groups affecting the size and dynamism of the workforce. Only a sharp rise in fertility or very high levels of immigration (the latter to some extent built into United Nations projections for Singapore and Hong Kong SAR) could prevent population decline. Politicians and planners in these countries are viewing ultra-low fertility as a “crisis”.

It is important to note that some four or five decades ago, four of these East Asian countries with ultra-low fertility (South Korea, Taiwan, Singapore, and Hong Kong) were facing high fertility and rapid population growth; all of them were considered densely populated, and their governments were very concerned at the prospect of rapid population growth. It is not surprising, then, that they were pioneers in adopting policies to reduce fertility, including family planning

Table 1.1 Trends in Total Fertility Rates and projected population growth, selected East Asian countries

<i>Total Fertility Rates</i>	<i>Japan</i>	<i>South Korea</i>	<i>Taiwan</i>	<i>Singapore</i>	<i>Hong Kong SAR</i>
1995	1.42	1.64	1.78	1.67	n.a.
1996	1.43	1.70	1.76	1.66	1.19
1997	1.39	1.54	1.77	1.61	1.12
1998	1.38	1.47	1.47	1.47	1.02
1999	1.34	1.42	1.56	1.47	0.98
2000	1.36	1.47	1.68	1.60	1.04
2001	1.33	1.30	1.40	1.41	0.93
2002	1.32	1.17	1.34	1.37	0.94
2003	1.29	1.17	1.24	1.25	0.90
2004	1.29	1.16	1.18	1.24	0.93
2005	1.25	1.08	1.12	1.25	0.97
2006	1.32	1.13	1.12	1.26	0.98
<i>Projected % growth, UN medium projection, 2005–30*</i>					
Population	-4.3	2.8	n.a.	20.2	22.3
15–64 age group	-17.0	-8.7	n.a.	-0.3	4.2
15–24 age group	-20.0	-36.9	n.a.	-25.2	-15.3
<i>Projected % growth, UN low projection, 2005–30*</i>					
Population	-9.9	-4.3	n.a.	12.7	13.0
15–64 age group	-19.8	-12.2	n.a.	-3.3	0.9
15–24 age group	-37.7	-53.1	n.a.	-42.3	-38.2

Source: Japan: Ministry of Health and Welfare, Vital Statistics, various years; Korea: June 2004, Table 3.6; Hong Kong: Census and Statistics Department, The Government of the Hong Kong Special Administrative Region (using resident population approach); Taiwan Province of China: Tsay, 2003. Figures for 2003–2006 from Department of Household Registration Affairs, Ministry of Interior; Singapore: Singapore Department of Statistics, various years.

* United Nations Population Division, 2006.

programs (Robinson and Ross (eds), 2007). Japan's situation was different, in that it had already reached replacement-level fertility at that time. The history of population policies in the other four countries, adopted to deal with a situation contrasting so sharply with the current demographic prospects they face, should be kept in mind in understanding delays in altering policies to respond to changing circumstances, as discussed below.

Governments in ultra-low-fertility countries are now arguing that raising birth rates is crucial for national survival and welfare. But the change from anti-natalist to pro-natalist policies did not come easily. Singapore was the first government in the region to reverse anti-natalist policies. The long lag in recognizing the need for policy change meant that the reorganization of policy was abrupt, and somewhat shocking to the general public, who had long grown used to anti-natalist messages. Singapore's fertility fell to replacement level in 1975, but it was not until 1986 that the first signs of a change in policy were seen, with a government

announcement of plans to review population policies and dialogue sessions with the public. Pro-natalist measures were finally introduced in 1987, 12 years after replacement fertility had been reached and with fertility close to 25 percent below replacement level.³ The curious result of the haste in which the policy changes were made was that almost overnight anti-natalist messages were replaced by pro-natalist measures on the nation's bus stops and other places, presumably to the bemusement of a populace well primed to follow the exhortations of a seemingly omniscient government.

The Korean government showed a similar reluctance to modify policies after fertility fell below replacement level in 1984. By 1990, fertility was well below replacement level, prompting a debate on population policies.

Those supporting continuation of fertility control argued that the current level of low fertility is mostly due to the strong population control policies and the change of policies would bring the fertility level up resulting in rapid population growth again, slowing down economic growth and effecting heavy burdens on environment and resources. Those supporting the relaxation of fertility control policies argued that the socioeconomic conditions of Korea have changed greatly resulting in changes in attitudes and values towards preference for small size families. They also argued that further decline in fertility would result in rapid population aging and increasing burden of support for the elderly.

(Choe and Park, 2005: 8)

It was not until 1996 that the emphasis of population policy was shifted from population control to quality and welfare of the population, one of the aims being to prevent fertility from declining further from its level of 1.7 at that time.

Taiwan's fertility had been below replacement level for eight years before a new population policy statement was issued by the Executive Yuan, calling for raising fertility to replacement levels. However, there were no explicit proposals as to how to raise the marriage rate or the birth rate. In an assessment of this policy, Freedman and Freedman (1993: 28) wrote: "We see nothing in the new policy statement that is likely to have an effect on fertility levels, one way or the other. Therefore, the balance of the existing pro-natalist and anti-natalist influences in the society are likely to determine what actually happens". It was not until 2006, 22 years after fertility fell below replacement level, that any national-level pro-natalist policies were introduced, although a few county-level administrative units had introduced small-scale pro-natalist measures.

Japan followed a different fertility trajectory, having experienced below-replacement-level fertility over the 1970s and 1980s. Although, unlike the other countries, it did not have anti-natalist policies to reverse, it was not until it reached a record low TFR of 1.57 in 1990 that the government started looking into possible measures to reverse the downward trend.

As for China, the implementation of the "one-child policy" after 1979 has been greatly modified over time, and the "one-child policy" these days applies

to only 35 percent of China's population (Gu, Chapter 4, this volume). Nevertheless, China's population policy remains clearly anti-natalist. There is controversy over China's current fertility levels, but it is clear that fertility is so far below replacement level that China is actually in much the same position that Singapore was in 1975: namely, of having succeeded in the policy of fertility reduction, but being slow to "take off the brakes" when fertility slid well below replacement level. In China, many interpret the slide in fertility to well below replacement level as a sign of success. On the other hand, the population structure, aging and other issues arising from recent low fertility levels (compounded by the distorted age structures inherited as a legacy of past events – notably the planning disaster of the "Great Leap Forward" – and changing population policy) have been well publicized in the literature. Many demographers and economists are now arguing that pro-natalist policies are needed (Wang Feng, 2005; Zeng Yi, 2007). But government leaders and the population-control establishment have been slow to change their mindset. In February 2008, the Vice Minister of the National Population and Family Planning Commission did announce that China is considering "incrementally" lifting limits on the number of children a couple can have – an announcement that appeared to be subsequently rebutted by Premier Wen Jiabao (*Straits Times*, March 6, 2008). But even the initial announcement indicated a weakening of anti-natalist measures, rather than foreshadowing a switch to pro-natalism.

There is therefore a fascinating history with respect to the change of government policy in East Asian countries in response to changing demographic circumstances. South Korea, Taiwan, Singapore, and China all had long-standing policies to lower fertility, centered on family planning programs. Their delays in reversing policy can be summarized by noting the number of years that their TFR had fallen below replacement level, and the percentage below replacement reached at the time policy was altered, as shown in Table 1.2. It should be noted that in the cases of South Korea and Taiwan, though policies were modified at earlier points in time, it was more than 20 years after the replacement fertility level was breached that more serious pro-natalist measures were introduced. The same may well turn out to be the case in China.

Why the delay? There were probably three main reasons:

- Demographic momentum meant that population kept increasing despite below-replacement fertility, thus seemingly obviating the need to modify or reverse policy. This is certainly a major reason for the continuation of a strongly anti-natalist policy in China.
- Inertia and the entrenched bureaucratic interests and mindsets of agencies entrusted with anti-natalist policies and leaders who had been promoting anti-natalist policies.
- A deficiency in the theory of demographic transition. Little attention was given to what happens after fertility reaches replacement level, and the assumption prevailed that fertility would not fall far below replacement (Demeny, 1997). The United Nations Population Division population projections for a

Table 1.2 Delays in reversing anti-natalist policies, selected East Asian countries

<i>Country</i>	<i>Year in which replacement fertility was reached</i>	<i>Year in which anti-natalist policy was reversed</i>	<i>Number of years elapsed</i>	<i>% below replacement when policy reversed</i>	<i>Comments</i>
Singapore	1975	1987	12	25	—
South Korea	1984	1996	12	20	Very mildly pro-natalist policies
South Korea	1984	2004	20	50	More serious pro-natalist measures
Taiwan	1984	1992	8	20	Pro-natalist statement but no measures
Taiwan	1984	2006	22	47	Specific pro-natalist measures under consideration
Japan	1973 ¹	1990	17	25	Mildly pro-natalist measures
China	1992	No reversal	16 (+)	—	25% below replacement in 2007; policy not altered

¹ Actually, Japan's TFR was slightly below replacement level as early as the 1950s, but it hovered around that level for two decades, and did not fall definitively below replacement level until 1973.

long time assumed, against all the evidence, that TFRs that had sunk below replacement level, even well below this level, would gradually rebound to replacement level. This added official weight to the idea that there was no need for a policy response to very low fertility.

Pro-natalist policies, family policy and social policy in the very low-fertility countries

Before giving some details about pro-natalist policies in Asian countries, we will set these in a broader context by looking first at some aspects of family policy in general, and considering how it has been used in European low-fertility countries. One thing to keep in mind is that, unlike in East Asia, “in most European countries overt population-policy measures would meet resistance rather than acclamation among the population” (Neyer, 2003: 49). But family policy measures are an acceptable means of encouraging child-bearing. Of course, family policies are difficult to conceptualize and measure, and represent a diverse range of policy objectives. The primary purpose is not always connected to child-bearing and child-raising as such. Because of this diversity, “family policies may encompass inconsistent or even divergent aims” (Neyer, 2003: 51).

McDonald (2002: 435) classifies policies directed toward the reversal of low fertility into three broad categories:

- financial incentives
- support for parents to combine work and family
- broad social change supportive of children and parenting.

The first category includes child benefits (public transfers paid for children). The second includes such items as maternity-leave policies, parental-leave policies (leaves of absence from employment granted parents by law in order to take care of their child during the first few years of life), and childcare services (offered by the state, the market, employers or non-profit institutions). The extent to which support of these kinds is provided to parents varies greatly between European countries, largely according to the kind of welfare-state regime they follow. Common classifications of welfare-state regimes in Europe distinguish between universalistic welfare states (the Nordic countries), conservative welfare states (continental European countries), liberal welfare states (Anglo-Saxon countries), and Southern European welfare states (see, for example, Gauthier, 2002, Table 1).

Conservative welfare states rely heavily on familialism – that is, on the family as a provider of welfare. Southern European countries display an even higher degree of familialism. In this respect, Southern European countries clearly have an important element in common with the East Asian countries currently facing the issue of how to raise birth rates, to match the other element they share in common: that of having the lowest levels of fertility in the world. It has been argued persuasively by McDonald (2000a; 2000b) that the sharing of these two common elements is not accidental; it is precisely their familialism, in the context of widened educational and employment opportunities for women, that poses strong conflicts of interest for women and leads to delayed marriage and low levels of child-bearing.

To return to the Asian countries that are the focus of this paper, we will summarize briefly the kinds of pro-natalist policies some of these countries have been introducing.

Japan

Japan⁴ has gradually been cranking up its pro-natalist policies as the level of concern with very low fertility rises. Japanese policy has followed two main approaches: direct subsidies for child-bearing and child-raising; and changing the institutional framework to facilitate marriage and child-raising. As in many other countries, child allowances (first introduced in 1972) were a family policy measure to assist low-income families, rather than a pro-natalist measure. But after 1990, pro-natalist concerns led to large increases in the allowances, though an eligibility criterion remains. In 1991, unpaid leave for childcare was introduced, though part-time workers were excluded. The “Angel Plan,” introduced in 1994, called for major expansion of childcare centres, with eligibility criteria varying by locality. Later, part payment during childcare leave was introduced.

In 1999 the “New Angel Plan” called for further expansion of the heavily subsidized day-care centres, after-school programs and family support centres. In 2001,

the proportion of salary received by an employee on childcare leave was raised from 25 percent to 40 percent, and this was raised to 50 percent in late 2007.

It seems that many employees, especially women, were not taking childcare leave because of social disapproval from fellow workers. Thus the government introduced measures aimed at creating an atmosphere within firms that would encourage parents to take the childcare leave to which they were entitled. Complying firms could use a logo saying “we support child-bearing among our employees”. Finally, in 2005, the government extended the right to childcare leave to part-time workers, under certain circumstances. Workers on short-term (for example, three-month or six-month) contracts whose contracts were not renewed were not eligible for such leave, however.

The gradual gearing up of pro-natalist policies in Japan is clear, but it is noteworthy that large tax deductions for children are not yet entertained. Moreover, the typically very small contribution of husbands to housework and child-rearing tasks (see Tsuya *et al.*, 2005) means that the burden borne by the working wife remains very high. Without change in broader gender relations in Japan, the task of raising fertility appears formidable.

South Korea⁵

In 1996, the South Korean government adopted new population-policy goals, in the face of continuing declines in fertility (the TFR had been around 1.6 or 1.7 for a decade). However, these goals were hardly pro-natalist, but rather emphasized maintaining the level of fertility, better reproductive health, redressing the imbalance in sex ratios at birth and reducing the incidence of induced abortion, tackling the sex-related problems of youth and adolescence, and empowering women by expanding employment opportunities and welfare services for them (Cho and Lee, 2000: 151–161).

A decade later, with fertility dipping even lower, in 2006 the Korean government was developing policies (“Vision 2020”) in response to low fertility and an aging society. It is attempting to create a favorable environment for childbirth and child-rearing by transferring some of the burden of child-raising from family to society. More specifically, subsidies for the costs of child-rearing and education, currently available for low-income groups, are to be available for the middle class as well. Day-care for children up to age 4 would be subsidized according to the family’s income level. After-school programs would be expanded, particularly for lower-grade primary school children, as an alternative to expensive private tutoring institutions. Taxes would also be lowered for households with young dependent children or large families, and the tax system altered to reduce the costs of health insurance for such families. The introduction of a child-allowance system, which Korea as yet does not have, is being seriously considered.

Childcare facilities are to be expanded in number and quality, with the government playing a central role. This is part of an effort to create a family-friendly and gender-equal social culture, making work and family more compatible. Companies providing maternity leave will be supported. Women workers at small

to mid-sized firms who take maternity leave can receive up to three months of employment insurance protection. Starting in 2008, male partners will automatically receive three days off to help after childbirth. Childcare leave that hitherto applied only to parents of children under the age of one will now be extended to children up to three years of age.

*Singapore*⁶

Tracing the history of anti-natalist policy in Singapore is complicated by the fact that for a period of time, beginning in 1984, Singapore adopted policies that were seemingly unique in Asia. These policies were selectively pro-natalist for the well-educated but anti-natalist for the poorly educated. They were adopted in the interests of improving the genetic quality of the population, but not directed at a general increase in fertility rates.

Not very long after that, in 1987 however, Singapore reversed its fertility objectives. Since then, it has experimented with a wide range of measures designed to raise fertility. The general trend has been towards a strengthening of these measures over time, and especially since the further downward trend in fertility since 1996.⁷ The first task was to loosen or abandon the old anti-natalist policies, and this was gradually done (Saw, 2005: Chapter 11). A number of limited pro-natalist measures were also introduced in 1987. For example, couples having a third child were given priority in getting access to a larger HDB apartment through sale of their smaller apartment, and tax rebates were granted for third or fourth children. Subsequently, the involvement of the government in encouraging marriage was widened from a concern with ensuring that well-educated women married (through the Social Development Unit) to a broader program targeting also the non-tertiary educated.

Further pro-natalist policies were announced in 2000, with the introduction of the baby bonus scheme for second and third children. The scheme consists of a two-tier payment given annually by the government for a period of six years after the birth of the child. The first tier is an outright cash gift (paid in five instalments over five years), totalling S\$3,000 for the second child and S\$5,000 for the third child, while in the second tier both parents and government contribute to a co-savings account. The scheme has been structured so that the funds must be used solely for the benefit of the children. Other pro-natalist provisions announced in 2000 included limited arrangements for paid leave in the public sector to marry and to attend to sick children, flexible working hours, and childcare subsidy for enrolment in childcare centres.

In 2004, it was decided that these measures had been insufficient, and a raft of new schemes were introduced, including a Medisave maternity package and extra paid maternity leave (extending paid maternity leave from the 8 weeks in 2001 to 12 weeks). In addition there were: further modification of the provisions for getting an HDB apartment to encourage marriage; extensions to the baby bonus from the second and third children to include the first and fourth child; an increase in the subsidy paid by the government for enrolment of an infant

in childcare; a more liberal parenthood tax rebate; and a streamlined working mother's child-relief scheme. Further measures announced in 2004 included: provision of the statutory two-day paid childcare leave for a parent of a child under 7 years of age; a lower maid levy for parents with children under 12 years of age; tax relief for working mothers where the grandparent serves as care-giver; introduction of a five-day working week in the civil service (though the week's total working hours remain the same); equal medical benefits for male and female civil servants; and incentives for firms to seek better "work-life harmony" for their employees.

Taiwan

As noted earlier, the new population policy announced in Taiwan in 1992, though advocating the maintenance of reproduction at the replacement level, and essentially ending the family planning program, included no specific pro-natalist measures. It seems that even up to the present no financial incentives have been provided for child-bearing, except for limited tax deductions and, in 2007, free kindergarten schooling for low income families. Policies have included the exhortation for more single Taiwanese to marry, but the rapid rise in marriages between Taiwanese men and foreign women (Tsay, 2004) appears to have caught the government by surprise.

Assessment of policies in these East Asian countries

How do the pro-natalist policies in Japan, Korea, Singapore, and Taiwan compare with those in European countries? A systematic assessment of this would require much more time and resources than we are able to apply to it, but instead we will try to put forward a few generalizations. First, these Asian countries follow a familialist approach that places much higher expectations on the family to provide the kinds of support needed for children and the elderly than is the case in the European countries, with the possible exception of the Mediterranean countries. Second, the amount of resources put into the first two kinds of family support programs listed above (financial incentives, and support for parents to combine work and family) is far less in these Asian countries than in the Scandinavian countries or indeed in European countries in general, again with the possible exception of the Mediterranean countries. Third, the range of policies in the ultra-low fertility Asian countries (except Taiwan) has widened considerably in recent years and the financial resources provided for these policies are growing rapidly. Fourth, there is a long way to go in bringing about broad social change supportive of children and parenting in these countries. Thus, for example, in Japan and Korea there is evidence of only a glacially slow change in the amount of time husbands put into household tasks and child-rearing in families where both spouses are working (Tsuya and Bumpass (eds), 2004; Tsuya *et al.*, 2005).

The policies recently introduced by South Korea appear to illustrate the "too little, too late" problem – Korean fertility is probably now the lowest in the world

among countries with populations over 30 million, yet the range of policies introduced in 2006 appears modest compared with that in the European low-fertility countries.

What has been the effect of pro-natalist programs on fertility?

There is a substantial literature on the effect of family planning programs on fertility (see, for example, Ross and Forrest, 1978; United Nations, 1979; Mauldin, 1983; Phillips and Ross (eds), 1992) and an almost equally substantial literature on the effect on fertility of pro-natalist measures adopted by the low-fertility countries (summarized in Neyer, 2003: 78–81; see also Gauthier and Hatzius, 1997). In both cases, the problem for measurement is the uncertainty about the “counter-factual”: what would have happened to fertility in the absence of the programs?

There are, of course, many ways to deal with this problem, none of them yielding absolutely trustworthy conclusions, hence the continuing spate of writings on the subject. The most sophisticated studies on the anti-natalist effects of family planning programs have dealt with population-based methods measuring the net program effects upon fertility for the population as a whole. These can be grouped as areal regression techniques, multilevel regression and experimental design (for details, see Ross and Lloyd, 1992: 36–43; Phillips *et al.*, 1988).

In this book we are more interested in assessing the impact of pro-natalist programs on fertility. But before attempting such an exercise, it is necessary to have some idea of the underlying causes of the decline in fertility to very low levels in these East Asian countries. Only when the causes are reasonably well understood is it likely to be possible to assess the impact of policy.

Background factors influencing the decline to ultra-low fertility in East Asia

The context in which delayed marriage and sharp fertility declines have occurred in East Asia has been one in which women’s educational levels have been rising and their workforce participation generally increasing. Concurrent with the rapid rise in numbers of women with secondary and tertiary education, there has been a very sharp rise in the proportion of females working. Trends in labor-force participation rates (LFPRs) for women aged 25–39 in Japan, Singapore and South Korea are shown in Table 1.3. In both Japan and Singapore, there was a sharp increase from 1975 onwards for all three age groups. In South Korea, by contrast, it was only after 1985 that female participation rates rose sharply, and even then to levels well below those in Japan or Singapore.

The sharp rise in LFPRs in Japan and Singapore coincided with sharp increases in delayed marriage (Jones, 2007). The delayed increase in LFPRs in South Korea was consistent with the much later onset of delayed marriage for females in that country. Causation, of course, remains difficult to determine, because of the “chicken and egg” issue: did women remain single longer because they were

Table 1.3 Labor-force participation rates for females in Japan, Singapore, and South Korea, certain age groups, 1960–2000

	<i>Japan</i>			<i>Singapore</i>			<i>South Korea</i>		
	25–29	30–34	35–39	25–29	30–34	35–39	25–29	30–34	35–39
1970	46	48	46	31	23	19	31.7	36.3	43.1
1975	43	44	43	47	32	29	35.1	40.7	49.3+
1980	49	48	49	59	44	37	34.1	46.1	55.5
1985	54	51	54	67	49	45	35.9	43.2	55.8
1990	61	52	61	76	63	55	42.8	49.6	58.0
1995	66	54	66	79	64	58	47.8	47.5	59.2
2000	70	57	70	84**	74**	63**	55.9	48.5	59.1
2004	74	61	74	86	77	68	63.9	50.4	58.9

Source: Jones, 2007: Table 5.

** 2001.

in the workforce, or were they in the workforce because they were still single? In Japan, which has the best data for examining these issues, the fact that the labor-force participation rate (LFPR) increased faster after 1975 for women aged 25–29 than for women in other age groups indicates that some reverse causality was occurring at age 25–29 (Retherford *et al.*, 2001: 77). There was a major increase in the proportion single in this age group, and because the LFPR was much higher for single women, this drove up the LFPR independently of other factors that were also driving up this rate. But the LFPR for single women was also rising over this period (from 81 percent in 1972 to 92 percent in 1999). Retherford *et al.* (2001: 82) claim that there is evidence of a substantial increase in the opportunity cost for women of quitting their job to marry and have children, which would have driven up the age at marriage, though this pressure may be decreasing because a declining proportion of women are quitting the labor force after marriage and first birth, especially in the period between 1995 and 1998.

In theory, young people may be avoiding marriage for reasons that differ from those that influence married couples to avoid having children. For example, marriage itself could be seen by young women intent on pursuing a career as a distraction from their goal, or they may be delaying it until, inadvertently, they find that they are faced by a lack of suitable partners (the “good man is hard to find” syndrome). In reality, however, marriage is a package, as it is not simply about the relationship between two people, but tightly linked with child-bearing, child-rearing, and other family obligations. Thus the delay in marriage in the region is undoubtedly linked to a considerable – though not easily measurable – extent with the same kinds of concerns that are influencing married couples to delay child-bearing or to have only one or two children. To marry without the intention to have children is still considered aberrant behavior throughout the region. There is no doubt that after marrying young couples are subjected to considerable pressure to have a baby, from family and to a lesser extent from friends. The easiest way to

avoid this is to remain single. Although single people are also pressured to marry, this may be less than that exerted on married couples to produce their first child.

The arguments against having children, especially for upwardly mobile women throughout the region, appear compelling. Not only are the opportunity costs of having children alarmingly high, but the actual financial costs of raising and educating children are also very substantial. These financial costs have been estimated at US\$253,000 for an average family in Korea, based on a survey conducted by the Korea Institute for Health and Social Affairs,⁸ and about the same level for Singapore. When opportunity costs are added in as well, it has been estimated that for female university graduates in Japan, the costs of raising and educating a child could well exceed 1 million US dollars. (For the data on which this estimate is based, see Retherford and Ogawa, 2005: 15–16.)

The role of women in these South-East and East Asian societies may provide additional reasons to avoid bearing children. Patriarchal attitudes among employers and in government, resulting in poor workplace provision for the needs of working mothers (including lack of flexible working hours, childcare leave and provision of crèches), and reluctance of husbands to take much of the housework and child-rearing tasks from working wives, adds considerable stress to the lives of women with children. The extreme pressure in countries such as Japan, South Korea and Singapore to raise *high-quality* children, and the unequal role given to mothers in achieving this goal, is another strong deterrent to beginning the process of family building (see, for example, Hirao, 2004).

There are, then, expressed substantial obstacles to raising fertility rates in the ultra-low fertility countries. But this is not a reason to despair about the possible efficacy of policy. Not only in these East Asian countries but also in the low-fertility countries of Europe, women report family size ideals that are very close to the levels needed for population replacement (Quah, 2003: 71–73; Prachuabmoh and Mithranon, 2003: 39–40).

There is an argument that expressed fertility desires do not prove very much about “real” fertility desires in low-fertility situations. In the European countries with well-below-replacement fertility, expressed desired fertility is much above the actual levels of fertility and rarely falls below two, nor does it differ much by cohort or social group (Van de Kaa, 2001; Bachrach, 2001). Indeed, international evidence indicates that there tends to be a crossover in actual and expressed desired family size when actual family size falls to levels a little above replacement level. Above this level, desired fertility tends to be below actual, but below this level the reverse holds (Bongaarts, 2001: 263–266). As Livi Bacci (2001: 284) notes, “the suspicion is that stated preferences are heavily influenced by stereotypes and particularly by the model of the two-child family (a boy and a girl). This stereotype is pervasive and many surveyed individuals are ‘prisoners’ of it”.

It would be inappropriate, however, to push such an argument to the extreme of concluding that expressed preferences give no cause for optimism about the possible efficacy of pro-natalist policy. As McDonald (2006: 485) argues, “in expressing higher ‘ideal preferences’ on average, women are effectively commenting upon the nature of the social-institutional setting in which they

consider having children". The interest of society is in assisting them to realize their stated desires, in two key ways:

- by designing policies that make it more desirable for individual women to have children within the given social-institutional setting;
- by altering aspects of the social-institutional setting that influence their fertility decisions.

Assessment of the impact of pro-natalist programs on fertility

The preceding paragraphs summarize the East Asian setting in which pro-natalist policies are being practiced. Western countries, especially in Europe, have a longer history of pro-natalism, and the impact of pro-natalist programs on fertility in this setting has been discussed by various authors (for example, McDonald, 2002, 2006; Castles, 2003; Grant *et al.*, 2004; Adkins, 2003; Neyer, 2003). Assessment of the impact of these policies on fertility has often been pessimistic, but, by and large, the references cited support the argument that direct child-support payments have a positive impact on fertility, as does greater childcare availability, with the evidence on the effect of family-friendly workplaces more mixed. McDonald (2002: 442) argues that the impact of individual pro-natalist measures can rarely be treated in isolation, because the effect of any policy will depend on the broader setting:

A range of brilliant gender equity policies will be ineffective if unemployment rates are high for young people of childbearing age. Work and family policies can only work if there is work. Likewise, these same gender equity policies would be put under strain if the direct financial costs of children were very high or if the general tenor of the social setting was child-unfriendly.

As Sleebos (2003: 5) argues, "what is required is coherent application of a range of well-designed interventions, applied consistently over time".

The general consensus about pro-natalist policies in East Asian countries seems to be that they have failed, because there is no evidence that fertility has risen as a result of their introduction. A reasonable response to this is that fertility may have fallen even further if these policies had not been introduced. Another is that the policies have not gone as far as they might, and in many cases, strengthening of policies has occurred only recently, so it is therefore premature to judge their apparent lack of success as proof that pro-natalist policies will always fail.

But it is also true that the methodology of assessing the impact of pro-natalist policies on fertility is complex, and that for all countries, the likely efficacy of pro-natalist policies is difficult to predict. For example, as noted by Ogawa, Retherford and Matsukura (Chapter 3, this volume), programs making it easier to combine work and child-rearing can have both fertility reducing and fertility increasing effects. On average, for women who are already in the paid workforce, the effects of such policies should clearly be to raise their fertility. However, again

on average, by pulling some housewives into the labor force, this is likely to lower their fertility, since working women have lower fertility than housewives:

Which of these two effects predominates depends partly on:

- the magnitude of pre-existing fertility differences between workers and housewives
- how much the fertility of working women rises as a result of the government's policies and programs,
- the magnitude of the probability that a housewife will be pulled into the labor force as a result of the government's policies and programs,
- the relative numbers of workers and housewives to begin with.

If almost all women are already working, the overall effect will be to raise the TFR. If almost all women are housewives, the overall effect will be to lower the TFR.

(Ogawa, Retherford, and Matsukura, Chapter 3, this volume: p. 67).

Some implications

The World Population Plan of Action, 1974, Article 14(f) stated:

All couples and individuals have the basic right to decide freely and responsibly the number and spacing of their children and to have the information and means to do so; the responsibility of couples and individuals in the exercise of this right takes into account the needs of their living and future children, and their responsibilities toward the community.

This statement is careful in balancing rights and responsibilities. But there is frequently a tension between "individual good" and "common good" when it comes to matters of optimal family size. Many governments have taken the position that couples, acting on their individual right, are collectively causing population to develop in ways that have negative consequences for the community and nation, and that governments therefore have the responsibility to nudge population trends in ways that are collectively desirable.⁹ This was the argument for population control policies in high-fertility countries, and it is the argument for pro-natalist policies in low-fertility countries. In most low-fertility countries, under present arrangements, the fact is that the market will provide lower benefits to those with children than to those without children, and this affects fertility decision-making. "The collapse of birth rates in most industrialized countries is telling evidence of the failure of the market approach to allow social reproduction to proceed" (McDonald, 2002: 432). Governments, then, must act to redress the situation, but the corporate sector needs to be supportive, given the likely impact of many pro-natalist policies on its "bottom line".

The efforts to reduce fertility in high-fertility countries undoubtedly paid off in terms of slowing population growth, providing a context more favorable to poverty alleviation and providing a greater chance that humankind can reach a population equilibrium without putting intolerable strain on the earth's resources.

It is striking, though, that governments have proven to be far from omniscient in determining appropriate population policies. As we have seen, they have frequently been very slow to react to changing circumstances, for example, in failing to release the policy-imposed brakes on population growth early enough after their fertility level has fallen below replacement level. This raises the following issue: at the present time, which countries should be following a policy that is neither anti-natalist nor pro-natalist? We would argue that countries in which total fertility rates have fallen below about 2.7 do not need to follow specifically anti-natalist policies any longer, and those whose fertility remains above about 1.8 do not need to follow specifically pro-natalist policies. This is because international evidence suggests that once TFR declines to 2.7 or so, the decline tends to continue, and that countries where TFR is as high as 1.8 or so seem to have their family and other policies about right in maintaining their long-term population (and could make up any deficit through migration).

For countries in this key range of one child in the TFR – from about 1.8 to about 2.7 – attention would be better directed at:

- good-quality reproductive health services directed at the welfare of mothers (and fathers) and children, one element of which would be the encouragement of delay in child-bearing and better spacing;
- development of sound family policies directed towards the welfare of children;
- provision of appropriate options to combine work and child-rearing.

In terms of the effects of these policies on fertility, planners can afford to “let the chips fall where they may,” of course keeping a watching brief on where they do indeed fall. Available evidence suggests that by concentrating on the quality and ready availability of reproductive health services and on family policy providing financial and other support for child-raising and an appropriate “work-life balance” the chips will fall appropriately in the sense of keeping fertility from dropping too low.

Finally, there is need for introspection about many issues of social and family policy in the new ultra-low fertility situation. For example, the earlier concern about the treatment of women’s reproductive rights in population-control programs has surfaced again recently in relation to pro-natalist policy. Women must never be viewed as mere pawns in the game of either lowering or raising birth rates. In a speech to local members of Japan’s ruling Liberal Democratic Party (LDP) in January 2007, the Japanese Minister of Health, Hakuo Yanagisawa, said, “Because the number of birth-giving machines and devices is fixed, all we can ask for is for them to do their best per head”. Although after the subsequent furore, Mr Yanagisawa apologized, critics claimed that his words revealed a more widespread attitude among male government officials.

Another issue is that where those who give birth to and raise children are seen to be “national heroes” or rather “national heroines,” the kudos given to such parents seems to imply an inevitable downplaying of the recognition given to those who do not bear and raise babies – the single, the childless couples, the gay couples.

This seems particularly unfortunate in cases where failure to produce children is by circumstance rather than choice – infertile couples; those who would like to have children but who have not found a suitable partner; those who choose to remain single to care for aging parents. But even in the case of those who choose not to have children for what some would judge to be “selfish” reasons, the need for a varied, vibrant and inclusive society would seem to dictate that people’s contributions to society be judged on a much broader set of criteria than whether they produce and raise children to ensure society’s replacement by the next generation.

This is not to argue that income redistribution from those who do not produce children to those who do is inappropriate. Indeed, given the enormous direct financial and indirect opportunity costs – to well-educated women in particular – of having babies, much more substantial monetary transfers than are presently contemplated by countries of East Asia would appear to be necessary.

Notes

- 1 For example, the poor, semi-arid country of Niger in West Africa faces a trebling (or more) of population with very bleak prospects for development (Cleland *et al.*, 2006: 1812).
- 2 There was a long-running debate over how women’s rights fared under population control policies. The debate tended to pit feminists against family planners (see Hartmann, 1987; Dixon-Mueller, 1993; Sen, 1994). There were awkward elements to the debate on both sides. Feminists had to deal with the evidence of the great need for family planning information and methods by women seeking to assert control over their fertility, and the potential contribution of appropriately conducted family planning programs to meeting this need. The family planners had to confront the evidence that in many countries the goal of reducing fertility was given priority over the need to provide women with appropriate choices. The argument that women were being treated simply as objects producing excess babies was irrefutable when applied to fertility control programs in China and India at particular times. The taking up of positions – the need for population control on one hand and the need to empower women to take control of their own lives on the other – tended to leave little common ground between family planning advocates and those arguing for reproductive rights, although, arguably, there was a large area of common ground to be occupied.
- 3 Actually, important modification in Singapore’s population policy had been made in 1983, when Prime Minister Lee Kuan Yew’s National Day speech discussed the differences in fertility levels according to the education of the mother. The following year, the first pro-natalist programs were launched, but these were only directed to the issue of fertility differentials between well-educated and less-educated women, not at raising the overall level of fertility.
- 4 For more detail, see the chapter by Ogawa, Retherford and Matsukura in this book.
- 5 The following paragraphs draw heavily on Eun, 2007.
- 6 The following paragraphs draw heavily on Saw, 2005, Chapters 11–13.
- 7 This downward trend was interrupted by a rise in a single year – 2000 – which was a Dragon Year (Saw, 2005: 207–210). This was only a blip in the downward trend.
- 8 This survey covered 11,816 children across Korea (*Straits Times*, 28/10/2007).
- 9 As Demeny (1986: 476) has argued, “When socially advantageous modification of demographic behavior is beyond the capacity of private markets to provide, it assumes the character of a public good that must be acquired, if at all, through the political marketplace”.

References

- Adkins, D., 2003, "The role of institutional context in European regional fertility patterns," paper presented at the Annual Meeting of the Population Association of America.
- Alexandratos, Nikos, 2005, "Countries with rapid population growth and resource constraints: issues of food, agriculture and development," *Population and Development Review*, 31(2): 237–258.
- Bachrach, Christine, 2001, "Comment: the puzzling persistence of postmodern fertility preferences," in Rodolfo A. Bulatao and John B. Casterline (eds), *Global Fertility Transition*, supplement to Vol. 27, *Population and Development Review*: 332–336.
- Birdsall, N., A.C. Kelley, and S.W. Sinding, 2001, *Population Matters: Demographic Change, Economic Growth and Poverty in the Developing World*. Oxford: Oxford University Press.
- Bongaarts, John, 1997, "The role of family planning programmes in contemporary fertility transition," in Gavin W. Jones, Robert Douglas, John C. Caldwell, and Rennie d'Souza (eds), *The Continuing Demographic Transition*. Oxford: Clarendon Press.
- Bongaarts, John, 2001, "Comment: desired family size and the future course of fertility," in Rodolfo A. Bulatao and John B. Casterline (eds), *Global Fertility Transition*, supplement to Vol. 27, *Population and Development Review*: 332–336.
- Cassen, Robert, 1994, *Population and Development: Old Debates, New Conclusions*. Oxford: Transaction Publishers.
- Casterline, John B. and Steven W. Sinding, 2000, "Unmet need for family planning and implications for population policy," *Population and Development Review*, 26(4): 691–724.
- Castles, F., 2003, "The world turned upside down: below replacement fertility, changing preferences and family-friendly public policy in 21 OECD countries," *Journal of European Social Policy*, 13(3): 209–227.
- Cho Nam-Hoon and Lee Sam-Sik, 2000, "Low fertility and population policy development in the Republic of Korea," in Korea Institute for Health and Social Affairs, *Low Fertility and Policy Responses to Issues of Ageing and Welfare*. Seoul: KIHASA.
- Choe, Minja Kim and Kyung-Ae Park, 2005, "Fertility decline in South Korea: Forty years of policy-behavior dialogue," paper presented at the XXV IUSSP International Population Conference, Tours, France.
- Cleland, John, Stan Bernstein, Alex Ezeh, Anibal Faundes, Anna Glasier, and Jolene Innes, 2006, "Family planning: the unfinished agenda," *Lancet*, 368(9625): 1637–1722.
- Demeny, Paul, 1986, "Pronatalist policies in low fertility countries: patterns, performance and prospects," in Kingsley Davis *et al.* (eds), *Below-Replacement Fertility in Industrial Societies: Causes, Consequences, Policies*, supplement to Vol. 12, *Population and Development Review*: 335–358.
- Demeny, Paul, 1997, "Replacement-level fertility: the implausible endpoint of the demographic transition," in Gavin W. Jones, Robert Douglas, John C. Caldwell, and Rennie d'Souza (eds), *The Continuing Demographic Transition*. Oxford: Clarendon Press.
- Dixon-Mueller, Ruth, 1993, *Population Policy and Women's Rights: Transforming Reproductive Choice*. Westport, CT: Praeger.
- Eun, Ki-Soo, 2007, "Lowest-low fertility in the Republic of Korea: causes, consequences and policy responses," *Asia-Pacific Population Journal*, 22(2): 51–72.
- Falkenmark, M., 1997, "Meeting water requirements of an expanding world population," *Philosophical Transactions of the Royal Society B: Biological Sciences*, 352(1356): 929–936.

- Feyisetan, Bamikale and John B. Casterline, 2000, "Fertility preferences and contraceptive change in developing countries," *International Family Planning Perspectives*, 26(3): 100–109.
- Freedman, Ronald and Deborah Freedman, 1993, "Policy options at the end of the demographic transition: Taiwan, 1993," *Industry of Free China* 80(6): 25–36.
- Gauthier, A., 2002, "Family policies in industrialized countries: is there convergence?" *Population (English Edition)*, 57(3): 447–474.
- Gauthier, Anne H. and Jan Hatzius, 1997, "Family benefits and fertility. An econometric analysis," *Population Studies*, 51(3): 295–306.
- Grant, J., S. Hoorens, S. Sivadasan, M. van het Loo, J. DaVanzo, L. Hale, S. Gibson, and W. Butz, 2004, *Low Fertility and Population Ageing: Causes, Consequences and Policy Options*. Santa Monica, CA: RAND.
- Gwatkin, Davidson, R., 1979, "Political will and family planning: the implications of India's Emergency experience," *Population and Development Review*, 5(1): 29–59.
- Hartmann, Betsy, 1987, *Reproductive Rights and Wrongs: The Global Politics of Population Control and Contraceptive Choice*. New York, NY: Harper and Row.
- Hirao, Keiko, 2004, "Contradictions in maternal roles in contemporary Japan," paper presented at International Workshop on Working and Mothering: Asian Women Negotiating Work Challenges and Family Commitments, National University of Singapore, January 29–30.
- Jones, Gavin W., 2007, "Delayed marriage and very low fertility in Pacific Asia," *Population and Development Review*, 33(3): 453–478.
- Jones, Gavin W. and Richard Leete, 2002, "Asia's family planning programs as low fertility is attained," *Studies in Family Planning*, 33(1): 114–126.
- Livi Bacci, Massimo, 2001, "Comment: desired family size and the future course of fertility," in Rodolfo A. Bulatao and John B. Casterline (eds), *Global Fertility Transition*, Supplement to Vol. 27, *Population and Development Review*: 282–289.
- McDonald, Peter, 2000a, "Gender equity in theories of fertility transition," *Population and Development Review*, 26(3): 427–439.
- 2000b, "Gender equity, social institutions and the future of fertility," *Journal of Population Research*, 17(1): 1–16.
- 2002, "Sustaining fertility through public policy: The range of options," *Population (English Edition)*, 57(3): 417–446.
- 2006, "Low fertility and the state: the efficacy of policy," *Population and Development Review*, 32(3): 485–510.
- McIntosh, C. Alison and Jason L. Finkle, 1995, "The Cairo Conference on Population and Development: a new paradigm?" *Population and Development Review*, 21(2): 223–260.
- Mauldin, W.P., 1983, "Population programs and fertility regulation," in R.A. Bulatao and R.D. Lee (eds), *Determinants of Fertility in Developing Countries, Vol. 2, Fertility Regulation and Institutional Influences*. New York, NY: Academic Press.
- National Research Council, 1986, *Population Growth and Economic Development: Policy Questions*. Washington DC: National Academy Press.
- Neyer, Gerda, 2003, "Family policies and low fertility in Western Europe," *Journal of Population and Social Security (Population)*, Supplement to Volume 1: 46–93.
- Phillips, J.F., M.A. Koenig, and J. Chakraborty, 1988, "Determinants of reproductive change in a traditional society: evidence from Matlab, Bangladesh," *Studies in Family Planning*, 15(2): 62–73.
- Phillips, J.F. and J.A. Ross (eds), 1992, *Family Planning Programmes and Fertility*. Oxford: Clarendon Press.
- Pimentel, D., O. Bailey, P. Kim, E. Mullaney, J. Calabrese, L. Walman, F. Nelson, and X.

- Yao, 1999, "Will limits of the earth's resources control human numbers?" *Environment, Development and Sustainability*, 1(1): 19–39.
- Prachuabmoh, Vipana and Preeya Mithranon, 2003, "Below-replacement fertility in Thailand and its policy implications," *Journal of Population Research*, 20(1): 35–50.
- Quah, Stella R., 2003, *Home and Kin: Families in Asia*. Singapore: Eastern Universities Press.
- Retherford, Robert D. and Naohiro Ogawa, 2005, "Japan's baby bust: causes, implications and policy responses," *East-West Center Working Papers, Population and Health Series*, No. 118.
- Retherford, Robert D., Naohiro Ogawa, and Rikiya Matsukura, 2001, "Late marriage and less marriage in Japan," *Population and Development Review*, 27(1): 65–102.
- Robinson, Warren C. and John A. Ross (eds), 2007, *The Global Family Planning Revolution: Three Decades of Population Policies and Programs*. Washington DC: The World Bank.
- Ross, J.A. and J.D. Forrest, 1978, "The demographic assessment of family planning programs: a bibliographic essay," *Population Index*, 44(1): 8–27.
- Ross, J.A. and Cynthia B. Lloyd, 1992, "Measures for measuring the fertility impact of family planning programmes: the experience of the last decade," in J.F. Phillips, and J.A. Ross (eds), 1992, *Family Planning Programmes and Fertility*. Oxford: Clarendon Press.
- Saw, Swee-Hock, 2005, *Population Policies and Programmes in Singapore*. Singapore: Institute of Southeast Asian Studies.
- Seltzer, Judith R., 2002, *The Origins and Evolution of Family Planning Programs in Developing Countries*. Santa Monica, CA: RAND.
- Sen, Gita, 1994, "Reproduction: The Feminist Challenge to Social Policy," in Gita Sen and Rachel Snow (eds), *Power and Decision: The Social Control of Reproduction*. Harvard, MA: Harvard University Press.
- Simon, Julian L., 1981, *The Ultimate Resource*. Princeton, NJ: Princeton University Press.
- Sinding, Stephen W., John A. Ross, and Allan G. Rosenfield, 1994, "Seeking common ground: unmet need and demographic goals," *International Family Planning Perspectives*, 20(1): 23–29.
- Singapore Department of Statistics, various years, *Population Trends*. Singapore: Ministry of Trade and Industry.
- Sleeboos, J., 2003, *Low Fertility Rates in OECD Countries: Facts and Policy Responses*, OECD Social, Employment and Migration Working Papers No. 15, Paris: OECD.
- Tsay, Ching-lung, 2003, "Below-replacement fertility and prospects for labor force growth in Taiwan," *Journal of Population Research*, 20(1): 67–87.
- Tsay, Ching-lung, 2004, "Marriage migration of women from China and Southeast Asia to Taiwan," in Gavin W. Jones and Kamalini Ramdas (eds), *(Un)tying the Knot: Ideal and Reality in Asian Marriage*. Singapore: Asia Research Institute, National University of Singapore.
- Tsui, Amy Ong, 2001, "Population policies, family planning programs and fertility: the record," in Rodolfo A. Bulatao and John B. Casterline (eds), *Global Fertility Transition*, supplement to Vol. 27, *Population and Development Review*: 184–204.
- Tsuya, Noriko and Larry Bumpass (eds), 2004, *Marriage, Work and Family life in Comparative Perspective: Japan, South Korea and the United States*. Honolulu, HI: University of Hawaii Press.
- Tsuya, Noriko, Larry L. Bumpass, Minja Kim Choe, and Ronald R. Rindfuss, 2005, "Is the gender division of labour changing in Japan?" *Asian Population Studies*, 1(1): 47–68.
- UNFPA, 2003, "Achieving the Millennium Development Goals: Population and Reproduc-

- tive Health as Critical Determinants,” Population and Development Strategies Series, No. 10. New York, NY: UNFPA.
- United Nations, 1979, *Manual IX: The Methodology of Measuring the Impact of Family Planning Programmes on Fertility* (Sales No. E.78.XIII.8).
- United Nations, Department of Economic and Social Affairs, Population Division, 2006, *World Population Prospects: The 2006 Revision*. New York, NY: United Nations.
- Van de Kaa, Dirk J., 2001, “Postmodern fertility preferences: from changing value orientation to new behaviour,” in Rodolfo A. Bulatao and John B. Casterline (eds), *Global Fertility Transition*, supplement to Vol. 27, *Population and Development Review*: 60–92.
- Wang, Feng, 2005, “Can China afford to continue its one-child policy?” *Asia Pacific Issues*, Analysis from the East-West Center, No. 77.
- Zeng, Yi, 2007, “Options for fertility policy transition in China,” *Population and Development Review* 33(2): 215–246.