

Has Thailand's Fertility Decline Stalled?

New data show that continued low fertility may be expected for some time to come

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Probably the most important demographic development to occur during the last quarter century has been the onset of fertility decline in a number of third world countries. While most Sub-Saharan African countries as well as a number in the Middle East and West Asia have yet to participate in this phenomenon, fertility in countries elsewhere in Asia and in much of Latin America has started down a path towards levels far lower than have ever prevailed in their modern histories. Given that mortality declines preceded the fall in fertility, and that most of these populations have been experiencing

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unprecedented rapid population growth rates at levels that would lead to extraordinary numbers of people in just decades, most observers concerned with population matters view the onset of fertility decline as a logical and welcome development.

In its broadest outline, the changes in many of the current third world countries can be seen as conforming to the pattern typically referred to as the demographic transition, i.e. the shift from a rough balance of high mortality and high fertility to a rough balance of low mortality and low fertility.

This process is already close to completion in most of the more developed countries of the world where fertility is generally below the replacement level and population growth is slow or even negative. The demographic history of the more developed countries suggests that, once begun, the secular decline in fertility associated with the demographic transition is typically continuous and ceases only after far lower levels than previously experienced are reached (van de Walle and Knodel, 1980). It is already clear that the pace of the fertility and mortality declines currently taking place in the third world is usually considerably faster than that experienced many decades earlier in the more developed world. Whether fertility declines will follow the largely continuous and irreversible process that previously characterized the demographic transition remains to be seen and is an interesting empirical question for investigation.

Concern has already been expressed by some observers about what appear to be stalls in the fertility declines of a number of developing countries and even a possible levelling off of fertility well above the replacement level. When viewed with a longer historical perspective in mind, a stall of a few years or even a few decades may seem insignificant. Nevertheless, such stalls can have substantial implications for population size at any given point in time in the foreseeable future, especially when a considerable gap between birth and death rates still exists.

Of special interest, therefore, are not only countries which have yet to embark on a fertility decline, but also those in which the fertility decline has apparently stalled. One study commissioned by the World Bank has already been completed; it focuses on apparent fertility stalls in Costa Rica, the Republic of Korea and Sri Lanka (Gendell, 1984). In addition, the issue of retardation of fertility decline was one of the major topics addressed in a recent IUSSP (International Union for the Scientific Study of Population) seminar on the fertility transition in Asia.^{1/}

Fertility trends in Thailand

Thailand is one of the third world countries where a very substantial fertility decline has occurred during the last two decades (Knodel, Chamra-

trithirong and Debavalya, 1987). However, there has been some recent concern that the fertility decline in Thailand may have lost momentum at a level well above replacement fertility. Bongaarts (1987) includes Thailand in a list of developing countries where fertility declines have at least temporarily decelerated or plateaued.

The impression that Thailand's fertility decline has stalled stems primarily from information on fertility rates derived from the influential series of three national contraceptive prevalence surveys (CPS1, CPS2 and CPS3) conducted in 1978/79, 1981 and 1984. Fertility rates from these surveys are presented in table 1 together with results from the earlier Survey of Fertility in Thailand (SOFT), conducted in 1975 as part of the World Fertility Survey programme. Both total fertility rates and age-standardized general marital fertility rates are presented. It is useful to standardize the general marital fertility rate by age in order to eliminate the influence of differences in the age distributions of the samples. Based on fertility rates for the 12 months preceding each survey, it is evident that the fertility rates derived from SOFT are

Table 1: Fertility rates based on the Survey of Fertility in Thailand (SOFT) and three contraceptive prevalence surveys (CPS)

Survey	Year of survey	Total fertility rate		Age-standardized general marital fertility rate	
		12 months prior to survey	24 months prior to survey	12 months prior to survey	24 months prior to survey
SOFT	1975	4.50	4.21	223	206
CPS1	1978/79	3.77*	—	172*	—
CPS2	1981	3.68	—	186	—
CPS3	1984	3.47	3.36	183	173

Notes: The age-standardized general marital fertility rate is calculated by multiplying the age-specific marital fertility rates for each five-year age group of women by the proportional age distribution of currently married women aged 15-44 years as recorded in the 1970 census. The total fertility rates from SOFT represent revised figures and thus differ slightly from previously published estimates.

* = Excluding the provincial urban population.

Sources: Knodel, Chamrathirong and Debavalya, 1987; Knodel *et al.*, 1982; Kamnansilpa and Chamrathirong, 1985; and Thailand Demographic and Health Survey.

clearly higher than those of the later contraceptive prevalence surveys but that only a very modest decline in the total fertility rate and a rise in marital fertility is indicated during the period spanned by the CPS series.^{2/}

New evidence is now available from a more recent national survey, the Thailand Demographic and Health Survey (TDHS) conducted in 1987, which permits calculation of retrospective fertility trends and clearly contradicts the suggestion of a stall in the fertility decline during the period covered by the contraceptive prevalence surveys. In addition, data from national vital registration, while presumably incomplete, likewise show a clear trend of continuously declining fertility during this period. In addition, indirect indicators of fertility and rising levels of contraceptive prevalence based on a variety of national surveys, including the contraceptive prevalence surveys themselves, all suggest a continuing decline in fertility during the period in question and indeed since the onset of fertility decline sometime in the 1960s. This article reviews this evidence in detail, and presents data on family size preferences and expectations as well as gender preferences, and discusses their implications for future fertility trends in Thailand.

Complete birth histories were collected in the TDHS for each respondent as well as information on the number of additional children wanted and the preferred total number of children. One innovative feature of the TDHS with respect to eliciting birth history was to ask respondents to show documentary evidence in the form of birth certificates or household registration forms in order to improve the accuracy and completeness of the reporting of birth dates by reducing reliance on the respondent's memory for such information. Respondents were able to provide documentation of the birth dates for about half (52 per cent) of all the births reported and this percentage does not vary greatly according to the birth year.

Although the TDHS collected birth histories only from ever-married women, it is possible to calculate fertility measures relating to all women regardless of marital status by assuming that women who were reported as having never married had no children.^{3/} To the extent that non-marital fertility is missed by the survey, however, the assumption of no births to women reported as unmarried will necessarily result in an underestimate of the level of fertility. While some births undoubtedly occur outside of marital unions, most observers agree that the level of non-marital fertility is likely to be quite low (Knodel *et al.*, 1982). Moreover, if at the time of the survey an unmarried woman was living with her child in a sample household, she might well have been reported as married in the course of eliciting the household listing and may have been included as an eligible respondent.

With data on complete birth histories for women in the reproductive

ages, such as collected in the TDHS, it is possible to calculate retrospective trends in fertility provided some adjustment is made for the fact that the data for women at the older end of the reproductive age span are progressively censored the further into the past is the year to which the rate refers. This problem arises because only women currently of reproductive age at the time of the survey were interviewed. Thus, for example, fertility rates for women 40-49 years of age 10 years prior to the survey, and thus aged 50-59 at the time of the survey, can not be determined directly from the birth histories, since those women were not interviewed. In order to calculate the trend in fertility, as measured by the total fertility rate based on the TDHS, adjustments have been made to allow for this effect of censoring of fertility rates at older ages.^{4/}

Total fertility rates for 1978 through 1986 based on the TDHS are presented in [table 2](#) together with corresponding rates based on vital regis-

Table 2: Total fertility rates based on the Thailand Demographic and Health Survey (TDHS) and uncorrected registration data

	TDHS*	Uncorrected registration**
1977	3.53	3.41
1978	3.21	3.15
1979	3.40	3.11
1980	3.21	2.97
1981	2.94	2.81
1982	2.81	2.76
1983	2.52	2.64
1984	2.33	2.30
1985	2.31	2.25
1986	2.21	2.12

Notes: * = The TDHS rates are two-year moving averages covering a 24-month period centred approximately on April of the year shown. See text and associated footnote for explanation of estimation procedures used to compensate for the progressive censoring of rates at the oldest age groups as the time period covered extends further into the past from the time of the survey.

** = Based on the uncorrected number of births by age of mother as reported by the Ministry of Public Health and the estimated age distribution of women from official projections.

Sources: Thailand Demographic and Health Survey; Knodel, Chamrathirong and Debavalya, 1987; and additional calculations based on birth registration data provided by the Health Statistics Division of the Ministry of Public Health.

tration data. Clearly no sustained stall in the decline between 1978 and 1983, the period to which the fertility rates from the contraceptive prevalence surveys refer, is evident from either source.

Although the rates based on registration data are uncorrected for under-registration, the trend would be affected only if the degree of under-registration were changing, and a spurious decline would be indicated only if registration were becoming less complete. The trends from both sources indicate a continuous decline throughout the period covered, with the minor exception of a temporary rise in the 1979 rate based on the TDHS.

One striking feature of the TDHS results is the very low level of recent fertility indicated. The total fertility rate (TFR) of 2.21, indicated for 1986 but which refers actually to the 24-month period preceding the survey (since results in [table 2](#) are two-year moving averages), is just about at replacement level for Thailand, given the current mortality conditions. Indeed, the fertility rates revealed in the TDHS are low in comparison with other estimates of recent fertility levels, not only from the most recent Contraceptive Prevalence Survey (CPS3) but also from the Survey of Population Change (SPC), a large-scale survey employing a “dual record system” methodology.

The most recent SPC estimates a TFR of 2.73 for the period spanning mid-1985 to mid-1986 which, while considerably lower than the 1984 CPS3 rates, is still noticeably higher than the TDHS rates. This factor raises the possibility that the TDHS understates the true fertility level.

The large discrepancy between the CPS3 and TDHS estimates is likely to be attributable, at least in part, to differences in survey methodology. A policy followed during CPS3 fieldwork, but not in the TDHS, permitted substitution of originally selected sample households when nobody was found at home despite the interviewers having made repeated visits. If, as a result of being able to substitute sample households in such instances, the interviewers were less persistent in their attempts to reach an originally targeted household when nobody was home, such a policy could conceivably lead to a disproportionate selection of households in which a recent birth had occurred.

A recent birth to a woman in a household would make it likely that someone would be at home, especially during the daytime, to care for the young infant. As a result, the CPS3 fertility rates could be inflated. Unfortunately, no information is available on the extent to which substitution actually occurred and thus the potential effect it might have had cannot be estimated.^{5/} The policy of permitting substitution, however, would not explain why fertility estimates from the CPS series fail to show declining fertility,



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unless monitoring of the interviewers' persistence in attempting to contact households with no one initially at home deteriorated over the series.

Perhaps the most compelling evidence that the recent levels of fertility may be higher than indicated from the TDHS is that the TFRs calculated from registered births, as reported by the Ministry of Public Health without any adjustment for under-registration, are quite close to those indicated by the TDHS. For example, for the five-year calendar period from 1982 to 1986, the TFR as indicated by TDHS is only 1 per cent higher than the TFR based on registered births unadjusted for under-registration. Although the extent of under-registration is debatable, it is generally acknowledged that registration of births is incomplete.^{6/}

While it is not possible to draw a definitive conclusion about the accuracy of the fertility estimates from the TDHS, they may underestimate the true level to some unknown extent. However, there is no obvious reason why an underestimation of levels would necessarily effect the trend shown. Moreover, previous impressions of considerably higher recent fertility, based largely on CPS3 results, were probably exaggerated.

A more complete representation of the trends in fertility indicated by the TDHS is presented graphically in the [figure on the opposite page](#), which shows the trend in the TFR (based on the TDHS) over the last decade and a half and compares the trend with those based on data from SOFT, estimates based on the "own children" technique as applied to the 1980 census, and uncorrected registration data (in combination with population estimates of the base population). Also shown are the estimated TFRs from the second and third SPCs referring to 1974-1976 and 1985-1986, respectively.

The results from the TDHS clearly indicate a substantial and relatively steady decline in fertility over the last decade and a half. In addition, the different sources are quite consistent in portraying a more or less steady fertility decline over the last two decades. The series from TDHS fits quite well with the series from SOFT, both in terms of overlapping fairly closely for the several years shown in common and in continuing the trend of decline evident in the earlier SOFT series. However, while both the SOFT and the TDHS series data are quite parallel to the "own children" estimates from the 1980 census, they both generally fall below the latter estimates. In addition, the 1974-1976 estimate from the SPC, while relatively consistent with the "own children" rates, is higher than both the SOFT and TDHS trend lines and the 1985-1986 SPC estimate is above the equivalent TDHS rate. Quite possibly, fertility rates from SOFT and TDHS, which in both cases are derived from retrospectively collected birth histories from ever-married women, underestimate fertility

Figure: Trends in the total fertility rate, selected sources, 1960-1986

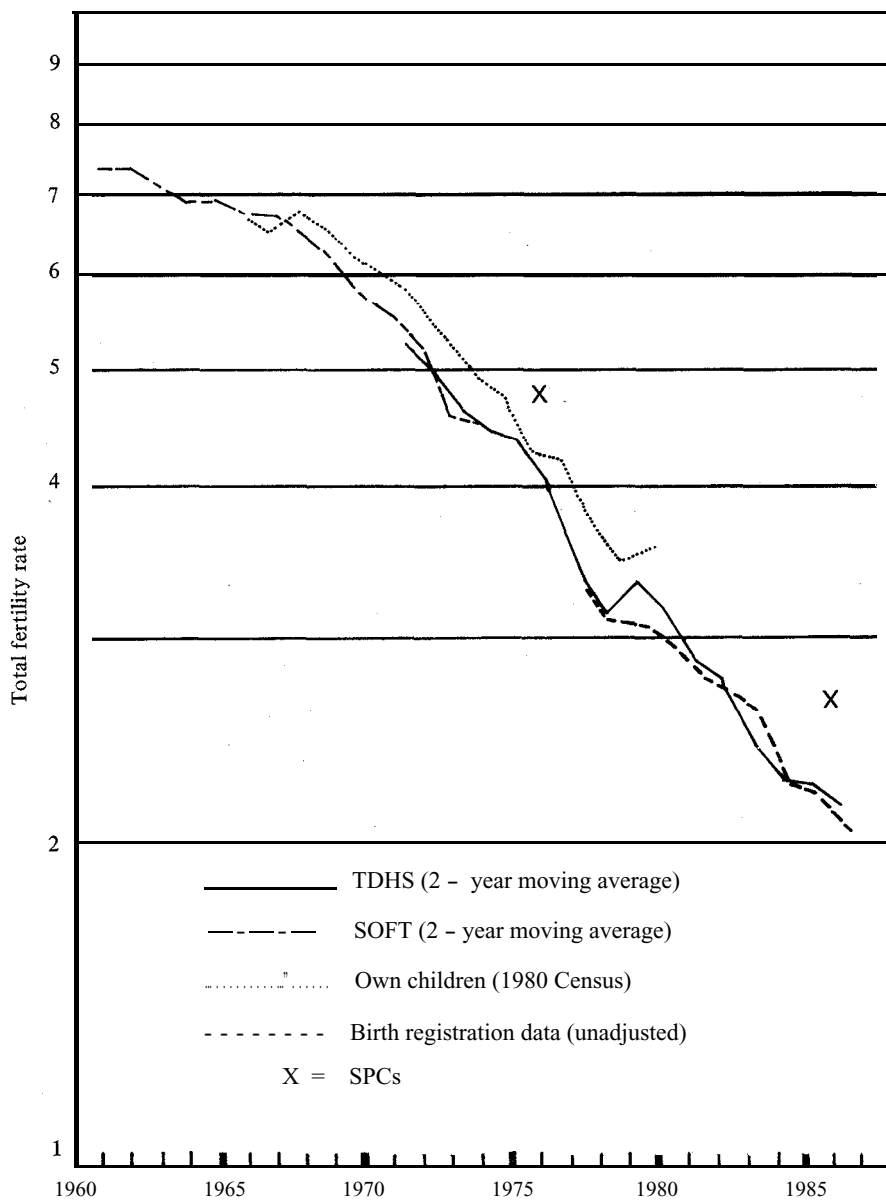


Table 3: Percentage pregnant, mean open interval and contraceptive prevalence among currently married women aged 15-44 years, from various national surveys

Year	Survey	Standardized for age*		
		Per cent pregnant	Open interval	Contraceptive prevalence
1969/70	LS1	15.3	31	15
1972/73	LS2	14.3	36	26
1975	SOFT	11.8	43	37
1978/79	CPS1	10.1**	49**	53**
1981	CPS2	9.1	51	59
1984	CPS3	8.6	56	65
1987	TDHS	7.1	62	68

Notes: * = The national age distribution of currently married women as reported in the 1970 census serves as the basis for the age standardization. LS1 and LS2 refer to the first and second rounds of the National Longitudinal Study of Social, Economic and Demographic Change.

** = Excluding the provincial urban population.

Source: Knodel, Chamrathirong and Debavalya, 1987; and Thailand Demographic and Health Survey.

levels to some modest extent. However, there is no compelling reason in either case to expect that the possible under-reporting of births would seriously distort the trend.

Indirect evidence on fertility trends is provided by information on the percentage of women who report themselves as pregnant, the mean open birth interval and the contraceptive prevalence rate as recorded in various national surveys, including the three contraceptive prevalence surveys. All three measures are presented in [table 3](#) for surveys covering most of the last two decades.

Since some women may not recognize or may hesitate to report an early pregnancy, the reported percentage pregnant is undoubtedly underestimated. However, if the bias is relatively constant over time, it should reflect the trend in fertility. The results presented show that the percentage pregnant declined steadily with each successive survey, including CPS2 and CPS3.

Although a straight-forward interpretation of the mean open interval, defined as the number of months since last birth, is not possible because of

the various biases to which it is subject, it has been found on a cross-national basis to show very similar rank orders to those of total fertility (Hananberg, 1980).

The results show that the open interval increased steadily between each successive survey, including CPS2 and CPS3. In addition, contraceptive prevalence, as measured by the percentage of currently married women aged 15-44 years practising some contraceptive method, increased steadily over the same period, rising from 15 to 68 per cent. Moreover, since 1975 there has been a substantial shift towards sterilization, the most effective contraceptive method (Knodel, Chamratrithirong and Debavalya, 1987; Chayovan, Kamnuansilpa and Knodel, 1988). Thus the persistent trends towards a declining percentage pregnant, a longer open interval and a high contraceptive prevalence level are all consistent with a continuous decline in marital fertility over the period covered by the surveys.

Preferred and expected family size

Information on the number of children Thai couples prefer and the number they expect to have is useful not only for understanding the trend in fertility over the recent past but also for judging the likely level in the near-term future. Family size preferences, as indicated by responses to questions on the number of children a respondent would like to have if she could have exactly the number wanted, have been measured in various national surveys in Thailand. Table 4 summarizes the results from a number of these surveys,

Table 4: Mean preferred number of children among all currently married women aged 15-44 years and among those married fewer than five years

Year	All married women	Married fewer than five years
1972/73	3.8	3.2
1975	3.6	3.0
1979	3.3	2.8
1984	3.0	2.4*
1987	2.7	2.3*

Note: * = Refers to women aged 15-49 years.

Source: Knodel, Chamratrithirong and Debavalya, 1987; and Thailand Demographic and Health Survey.

including the recent 1987 TDHS. The mean preferred number of children is shown both for all currently married women in the reproductive ages and for those who are recently married.⁷¹ The latter group, defined as women married fewer than five years, is of special interest because their responses are unlikely to be affected by *ex post facto* rationalization given that most are still at too early a stage of their reproductive careers to have exceeded the number of children they would like to have. In addition, their responses are more likely than those of women whose child-bearing occurred further in the past to be indicative of the attitudes that will shape reproductive behaviour in the near future.

A parallel and substantial reduction in the mean preferred number of children is evident for both groups. The preferred number of children is consistently lower among recently married women than among all ever-married women for each survey.

This difference undoubtedly reflects some degree of rationalization and perhaps genuinely higher family size preferences among women of earlier marriage cohorts who, by virtue of longer marriage duration, are more advanced in their reproductive careers. By 1987, the preferred number of children for all ever-married women had fallen to 2.7, down from 3.8 in 1972/73, and is the lowest preferred number of children reported to date from any Thai national survey.

By comparison, women married fewer than five years in 1987 expressed a preference for an average of only 2.3 children, down from 3.2 in 1972/73 and also lower than any Thai national survey has previously indicated. When considered together with the fact that a small proportion of Thai women do not marry and presumably remain childless, current fertility preferences among recently married women imply a fertility level in the future for all women that would be very close to the replacement level.

A measure of the expected number of children can also be calculated from the TDHS and a number of earlier surveys by adding to the number of additional children each respondent indicated she wanted the number of living children she already had at the time of the survey. Although in a strict sense this measure is based on future fertility desires rather than expectations per se, the two are probably quite similar, especially in a setting such as Thailand where contraception is universally known and commonly practised. Note also that the expected number is expressed in terms of living children rather than live births since this is undoubtedly the way respondents envisage family size. This measure is less hypothetical than the preferred number of children since it is based on actual past fertility and future desires rather than on the assumption that the respondent could start child-bearing all over again.

Table 5: Preferred and expected number of children among currently married women married fewer than five years, percentage distribution and mean, 1975 and 1987

Number	Preferred number		Expected number	
	1975	1987	1975	1987
0	0	1	2	2
1	7	8	11	13
2	34	65	37	64
3	28	20	22	15
4+	31	7	28	5
Total	100	100	100	100
Mean	3.0	2.3	2.8	2.0

Note: Some percentages do not add up to 100 because of rounding.

Sources: Survey of Fertility in Thailand; and Thailand Demographic and Health Survey.

The distribution of both preferred and expected numbers of children is presented in [table 5](#) for recently married women in 1975 and in 1987. The emergence of a consensus on small families, with a strong modal preference and expectation for two children, is clearly evident. The percentage of recently married women indicating a preference for two children increased from 34 to 65 per cent between 1975 and 1987. During the same period, the percentage preferring more than three children declined from 31 to 7 per cent. Despite the decline in the mean preferred number of children, there has been virtually no change in the percentage of recently married women who indicate a preference for fewer than two children. So far, a preference for a one-child family has yet to gain any substantial support nationally.

Changes in the distribution of the expected number of children are quite similar to those described for the preferred number of children. A massive increase between 1975 and 1987 is evident in the percentage expecting two children, accompanied by a moderate decline in the percentage expecting three and a dramatic decline in the percentage expecting more than three. While the percentage expecting fewer than two remains unchanged, it is somewhat higher in both surveys than the percentage preferring fewer than two. This probably reflects some combination of fecundity impairments and perceived economic constraints among couples with fewer than two children that prevents them from having their larger preferred number.

Gender preferences

The number of children a couple has depends not only on their preference for a particular overall family size, but also on their preference concerning the number of children of each sex that they want. In Thailand, there is considerable evidence that children of both sexes are valued and that many couples wish to have a child of each sex (Knodel, Chamratrithirong and Debavalya, 1987). Such a preference may underlie the apparent aversion to one-child families and may serve to limit the extent to which the on-going decline in fertility will continue into the future.

Results from TDHS presented in [table 6](#) suggest that the desire to have both a son and a daughter may exert some influence on reproductive behaviour beyond the numerical preference for two children that has emerged over recent years. The results show the percentage of currently married women aged 15-44 years who do not want additional children as well as the percentage who are sterilized or whose husbands are sterilized, according to the number of living

Table 6: Percentage of currently married women aged 15-44 years who want no more children, and percentage sterilized, by age of woman and number and gender composition of living children, 1987

Number of living children and gender composition	Want no more children			Sterilized		
	15-29 years	30-44 years	Total	15-29 years	30-44 years	Total
One child						
One daughter	24	47	29	1	11	3
One son	22	45	29	0	9	3
Two children						
Two daughters	55	74	65	20	35	27
One son, one daughter	72	85	78	26	44	36
Two sons	60	81	72	26	48	39
Three children						
Three daughters	70	80	78	23	47	42
One son, two daughters	87	91	90	43	56	53
Two sons, one daughter	86	92	91	53	51	52
Three sons	59	90	80	20	54	44

Source: Thailand Demographic and Health Survey.

sons and daughters at the time of the survey. Since many couples are now practising contraception for spacing, the percentage adopting permanent methods of contraception would serve as a better indicator of a true commitment to stop child-bearing than overall contraceptive use. Given the emerging consensus for small families, results are limited to women with one, two and three living children. Results are also shown separately for younger and older women. Responses on the desire for additional children among the younger women, unlike those for older women, are unlikely to be influenced by perceived low fecundity and thus are of somewhat greater interest. In addition, the younger women will continue to exert an influence on fertility trends for a longer period into the future.

The findings generally confirm that a preference for at least one child of each sex affects reproductive desires and behaviour, especially among younger women. For example, among married women under 30 years of age with two living children, substantially more want no additional children if they already have a son and a daughter than if both children are of the same sex.

A similar pattern holds for younger women with three living children. Those with at least one child of each sex are more likely to indicate that they wish no more children than are those with children all of the same sex. Couples in which the wife is under 30 years of age with three children are also more likely to adopt a permanent method of contraception if they have a child of each sex than if all are the same sex. Several patterns in the findings suggest that there is also some son preference. In particular, couples with two children are more likely to be sterilized if they have two sons than if they have two daughters, regardless of the age of the wife.

In terms of expressed desires to stop child-bearing, only a modest proportion of younger women with one child say they wish no more children, whereas the large majority of women, regardless of age, with three children say they want no more. Nevertheless, the findings do suggest that some women may continue child-bearing beyond their preferred number of children if they do not have at least one child of each sex.

Given the apparent aversion to one-child families evident from the data on the preferred number of children as well as the existence of gender preferences, the Thai fertility decline may be close to its lower limit, at least for the foreseeable future.

Conclusions

Recent evidence from the 1987 Thailand Demographic and Health Survey in combination with fertility trends calculated from registration data clearly

contradict the impression based on the earlier series of contraceptive prevalence surveys that Thailand's fertility decline had stalled or "bottomed out" during the early 1980s. In addition, evidence on trends in the percentage pregnant, the mean open interval, and the level of contraceptive prevalence, based on a number of national surveys including the contraceptive prevalence surveys, provides further indirect support for the conclusion that fertility decline in Thailand has been largely continuous since its inception two decades or so ago.

At the same time that fertility has been declining in Thailand, family size preferences have fallen more or less steadily. A consensus had been emerging favouring a two-child family, preferably with a child of each sex. Some tolerance for having three children is evident especially if the first two children are of the same sex. Very few couples, however, are willing to have more than three regardless of sex composition. The expected family size is low among women currently starting their reproductive careers and, together with evidence on the preferred number of children, suggests that low fertility will be a feature of the Thai population for some time to come.

Footnotes

1. The Seminar on Fertility Transition in Asia: Diversity and Change, co-sponsored by the International Union for the Scientific Study of Population and the Institute of Population Studies, Chulalongkorn University, held at Bangkok, 28-31 March 1988, included papers on fertility retardation in Sri Lanka (Thapa, 1988), Malaysia (Leete and Tan Boon Ann, 1988) and the Philippines (Cabigon, 1988).
2. While full birth histories were collected in SOFT, in CPS1 and CPS2 fertility estimates are based on information about the date of the respondent's last live birth and hence only rates referring to the 12-month period prior to the survey can be calculated without unduly biasing the results. In the case of CPS3, women were asked for the dates of their last two live births as well as probed to identify any more recent births that might have occurred but have not been reported because the children did not survive. This information is sufficient to calculate fertility rates for a two-year period prior to the survey. Interestingly, in both CPS3 and SOFT, when fertility rates are based on the 24 months prior to the survey, lower levels are indicated than when rates are based on only a 12-month prior period. This is the opposite of what would be expected in a situation of declining fertility. Such a pattern also appears in the results from several other national surveys in Thailand (National Research Council, 1980). Thus it probably reflects errors in reporting, recording or coding, biases in the selection of respondents actually interviewed, or some combination of these rather than a genuine rise in fertility during the two-year periods involved.
3. Age-specific fertility rates for all women can be calculated from the TDHS by incorporating information on the number of never-married women from the household questionnaire which lists all persons present in the household the night prior to the interview, according to age, sex and marital status. In brief, based on weighted data from the household questionnaire, the ratio of all women (i.e. including those never-

married) to ever-married women at each single year of age is calculated. The denominators for age-specific fertility rates are expanded by multiplying through by these ratios. Thus each ever-married woman respondent, at each single year of age, is multiplied by the ratio of all women to ever-married women at that age as determined by the household listing. The numerators of the fertility rates remain the number of births reported by the ever-married women, assuming that no births occurred among never-married women. In practice, the calculation of these multiplication factors takes into account differences in the way in which age is derived in the household listing and the individual ever-married woman questionnaire. (For further details see Chayovan, Kamnuansilpa and Knodel, 1988.)

4. The adjustments were made as follows: total fertility rates (TFR) derived directly from the birth histories collected in the TDHS were calculated for successive 12-month periods preceding the survey based on ages 15-49 for the first three prior 12-month periods (covering 1984/85-1986/87), ages 15-44 for the next five prior 12-month periods (covering 1979/80-1983/84), ages 15-39 for the next five prior 12-month periods (covering 1974/75-1978/79), and ages 15-34 for the next four prior 12-month periods (covering 1970/71-1973/74). In order to convert the "partial" total fertility rates derived from the TDHS for the years prior to 1984/85 into complete TFRs covering the entire reproductive age span 15-49 years, the ratio of the complete to the partial rate was calculated from the age-specific fertility rates from the 1980 census based on the "own children" technique and the most recent Survey of Population Change (Arnold, Pejaranonda and Choe, 1985 and the National Statistical Office, forthcoming). The partial TFR from the TDHS is then multiplied by the appropriate ratio to estimate the complete rate. In all cases these inflation factors depend only on the age pattern of fertility and not the level of fertility reported by the sources from which they are derived.
5. In the TDHS, successful contact was made with the household on the first visit 93.6 per cent of the times, and once the household was contacted and an eligible woman identified, the eligible woman was interviewed at the time of first contact with the household 83.8 per cent of the time. Assuming that the percentage of times in which contact was made on the first visit for households having an eligible respondent is the same as for households overall, this implies that, in about 78 per cent of the cases ($.936 \times .838 \times 100$), an eligible respondent was interviewed on the first visit to the household.
6. The most recent SPC indicates birth registration is 88 per cent complete. This estimate, however, refers only to births actually occurring during the study period, mid-1985 to mid-1986, and does not necessarily imply the number of births registered nationally is 88 per cent of the number that actually occurred during the year. Differences can arise in at least two ways. The births reported nationally include all births registered in a given time period including births that occurred earlier but have been registered late, even if the birth registered refers to a child who is presently at school entry age or older. Unfortunately, the extent of late registration is unknown. In addition, errors that occur at the various levels of aggregation that take place prior to reporting the births to the national centre will also influence the extent to which the national figures reported for registered births in a year correspond to the actual number that occurred during that year.
7. Although the evidence on preferred number of children presented here is based on responses from ever-married women, several surveys have also included male respondents and suggest that there is little difference in family size preferences between the sexes in Thailand. (For a review of the evidence on sex differences in family size desires in Thailand as well as elsewhere, see Mason and Taj, 1987.)

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