AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D. C. 20523

# BIBLIOGRAPHIC INPUT SHEET

FOR AID USE ONLY

**1. SUBJECT CLASSIFICATION**

A. PRIMARY: Population — PC00-0000-G750

B. SECONDARY: Family planning--Thailand

**2. TITLE AND SUBTITLE**

Thailand's reproductive revolution

**3. AUTHOR(S)**

Knodel, John; Debavalya, Nibhon

| 4. DOCUMENT DATE | 5. NUMBER OF PAGES | 6. ARC NUMBER |
|---|---|---|
| 1978 | 19p. | ARC TH301.32.K72 |

**7. REFERENCE ORGANIZATION NAME AND ADDRESS**

APHA

**8. SUPPLEMENTARY NOTES** *(Sponsoring Organization, Publishers, Availability)*

(In Int. Family Planning Perspectives and Digest, v. 4, no. 2, 1978, p. 34-49)

**9. ABSTRACT**

**10. CONTROL NUMBER**

PN-AAG-148

**11. PRICE OF DOCUMENT**

**12. DESCRIPTORS**

Fertility
Family planning
Cultural factor
Rural women
Socioeconomic indicators
Surveys
Thailand

**13. PROJECT NUMBER**

**14. CONTRACT NUMBER**

AID/pha-C-1100

**13. TYPE OF DOCUMENT**

AID 590-1 (4-74)

105
TH
301.32
K72

PN-AAG-748

OPTIONAL FORM NO. 10
MAY 1962 EDITION
GSA FPMR (41 CFR) 101-11.6

TED STATES GOVERNMENT

# Memorandum

TO : DISTRIBUTION

DATE: October 19, 1978

THRU : DS/POP/DEMO, James W. Brackett, Chief JWB

FROM : DS/POP/DEMO, John C. Chao

SUBJECT: Family Planning Efforts and Urban-Rural Fertility Decline in Thailand

The attached article entitled "Thailand's Reproductive Revolution," written by John Knodel and Nibbon Debavolya, clearly indicates the casual relationship between the extent of family planning program efforts and rapidity of fertility decline as evidenced in Thailand.

> For the kingdom as a whole, the [marital fertility] rate declined by 18 percent between 1967-1970 and 1973-1975. In all three surveys, the rate was considerably higher among rural than among urban women; however, marital fertility declined twice as much among rural as among urban women between 1967-1970 and 1973-1975 -- 20 percent as compared to 10 percent. As a result, the urban-rural difference in fertility levels appears to be contracting (p. 36, see also Table 2).

The same phenomenon of bridging the gap of reproductive differential between urban and rural Thai women can be shown from the data on reduction in proportion currently pregnant and lengthening in average birth intervals during the period from 1969 to 1975:

> The trend in the proportion pregnant among all women aged 15-44 has been steadily downward in both rural and urban areas. When the percent pregnant is standardized for age, the trend is even more pronounced. Th urban-rural differential is similar to that seen in the marital fertilit rates:.... The mean interval since the last birth increased substantial among both rural and urban wives, but the increase among rural wives was about twice that among urban wives. (p. 37, see also Table 3).

It is true that fertility levels among the rural and less educated are still higher than those of the urban and more educated Thai women (Tables 4 p. 37), it is precisely because of the larger share of excessive births, the rural and less educated women are more motivated to accept contraception:

> The substantial urban-rural differential in contraceptive knowledge at the time of the first round of the Longitudinal Study contracted substantially during the period between the surveys. By 1975, there remained very little difference between urban and rural women in the extent of their knowledge of contraception, by either measure. (p. 38, see also Table 5).

5010-110

*Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan*

> Contraceptive usage increased rapidly during the period under observation, as may be seen in Table 6. The proportion of currently married women of reproductive age who had ever used contraception nearly tripled -- from 19 percent to 51 percent -- in the 5-6-year period covered by the surveys. Current use more than doubled -- increasing from 15 percent to 37 percent of married women. The improvement was most striking in rural areas, where the proportion of current users increased from 11 percent to 35 percent of women. (p. 39).
>
> ....The pronounced urban-rural differential in contraceptive usage evident from the first round of the Longitudinal Study has contracted considerably as a result of the more rapid increase in contraceptive practice among rural women." (p. 39, see also Table 6).

The rapid adoption of contraception and greater reduction in fertility among rural Thai couples is largely attributable to family planning program facilitated by the existing communication and transportation network systems:

> ....the official national program was not launched until 1970,.... the substantial proportions of urban women who reported in 1970 -- before the official program was begun -- that they used contraception undoubtedly were availing themselves of the family planning services provided by large government hospitals or of commercially available contraception. Our surveys indicate that the situation was quite different in rural areas. Only very minimal practice of contraception appears to have predated the on set of the national program. (pp. 39-40).

By 1975, more than half of the currently married fecund women who desire no more children were practicing contraception in rural areas and three-fourths of those in urban areas (Table 8). By far, proportionally more women in rural areas are practicing contraception for the sake of eliminating further births than their urban counterparts (Table 9). The authors point out, however, that as more women engage in contraceptive practice, the desired number of children will be gradually reduced. If this trend continues, the observed fertility differentials between urban and rural, or well educated and less educated Thai women will be rapidly reduced.

Such a development has profound policy and program implications not only for Thailand but for many other developing countries.

# Thailand's Reproductive Revolution

**Thailand's reproductive revolution is preceding widespread development. Although Thailand is primarily rural, fertility has declined by about 20% and contraceptive use has risen by about 150% in the last six years. The traditional urban-rural fertility gap is closing. A strong national family planning program has had substantial impact.**

*By John Knodel and Nibhon Debavalya*

During the last decade, the rate of world population growth has begun to slow, reversing rapidly accelerating increases which reached unprecedented levels in the years following World War II.[1] The rise in population growth rates had been largely attributable to spectacular mortality declines brought about by improvements in nutrition, health and sanitation measures. But the single most important factor contributing to the historic turnaround in world population growth rates has been sharply declining fertility in a number of less developed countries. Thailand is one of the developing countries that are now in the midst of a transition to lower levels of fertility.

Several demographic analyses suggest that the crude birthrate may have started a protracted decline in Thailand in the mid-1950s.[2] Increases in the proportion of the unmarried population may have resulted in some small reduction in crude birthrates during the 1947–1960 period.[3] However, there is no evidence that there was any sharp or sustained fertility decline at the national level before the end of the 1960s.

Data from Thailand's vital statistics registration system, which has been in operation since the early part of the century, are generally considered to be deficient. Underregistration of births is acknowledged to be substantial—somewhere between 16 and 30 percent. Nevertheless, these official data provide some idea of the *trend* in fertility, at least for the more recent period.

After increasing fairly steadily during the 1950s, presumably because of improving coverage, the registered crude birthrate in Thailand averaged 35.4 per 1,000 during 1960–1964 and 35.3 during 1965–1969; for the 1970–1975 period, the rate declined to 31.7. Annual rates declined between 1968 and 1975 from 36.6 to 28.4, with successive declines in every year but one.[4] Data on birth order also show that a basic change in reproductive patterns is under way, indicative of increased efforts to limit family size. The percentage of all registered births that were of third or higher order declined slightly from 60.5 to 59.4 between 1961–1965 and 1966–1970, but then fell more sharply to 53.9 for the 1971–1975 period.[5]

Estimates of fertility from the 1970 census also suggest only a very moderate fertility decline during the 1960s; according to these estimates, the total fertility rate* fell only four percent in the country as a whole and only two percent among rural women between 1960–1964 and 1965–1969.[6] Analysis of birth histories from the World Fertility Survey, on the other hand, indicates that total fertility fell from 6.3 children per woman in 1965–1969 to 4.9 children in 1970–1974, a decline of 22 percent.[7] Although there is some evidence that a sustained fertility decline had begun several years earlier in the neighboring northern provinces of Chiang Mai and Lamphun,[8] and perhaps even earlier than that in Bangkok-Thonburi and other urban areas,[9] it seems safe to conclude that on a countrywide level, fertility decline in Thailand did not get under way until the end of the 1960s. Unlike nuptiality patterns in a number of other countries in Asia, those in Thailand have changed little over the last 15 years.[10] Thus, the recent fertility decline in Thailand is largely attributable to reductions in marital fertility.

*Typical Thai scene: Floating markets sell everything from vegetables to contraceptives.*

In this article, we examine the anatomy of Thailand's fertility transition as revealed by several sample surveys more or less national in scope. The surveys took place between 1969 and 1975 and thus cover the critical initial period of fertility decline. They provide information on fertility behavior, fertility preferences and contraceptive knowledge and

The authors wish to thank the following for their help in various stages of the research: Tony Bennett, Napaporn Burapathana, Fred Day, Panthip Dhermasaraja and Saovalack Plampiti. Funds from the American Public Health Association and the United Nations Fund for Population Activities have facilitated this research. An earlier version of this article was presented at the Conference on Comparative Fertility Transition in Asia, Tokyo, Mar. 27–31, 1978. A fuller version of this study is being published under the title "Fertility Transition in Thailand: A Comparative Analysis of Survey Data," in *World Fertility Survey, Survey of Fertility in Thailand*, Report No. 3, Institute of Population Studies and National Statistical Office, Bangkok, 1978.

*The projected average completed fertility per woman if current age-specific fertility patterns were to continue.

practice. This information provides a substantial picture of the reproductive evolution now under way in Thailand.

### The Surveys and the Samples

Data for this article come from the two rounds of the National Longitudinal Study of Social, Economic and Demographic Change (the Longitudinal Study) and the Survey of Fertility in Thailand (SOFT). SOFT was conducted under the auspices of the World Fertility Survey. The bulk of the interviewing for SOFT took place during April and May 1975 in urban and rural areas.*

The Longitudinal Study conducted by the Institute of Population Studies of Chulalongkorn University in Bangkok, was undertaken in order to provide detailed countrywide information on behavior and attitudes related to fertility and family planning, as well as on a variety of other social and economic characteristics of the Thai population. Interviews for the first round of the study were conducted with a sample of rural households in April and May of 1969 and with a sample of urban households a year later. The second round consisted of reinterviews of the rural sample in April and May of 1972 and reinterviews of the urban sample a year later. Results for the country as a whole are approximated in this article by combining the results of the rural and urban phases of each round.† Since the data on which the present study is based are derived from samples, the results necessarily incorporate some degree of sampling error and cannot be assumed to be precisely equal to national parameters.‡

This article focuses on married women of reproductive age. A comparison of the age distribution of married women aged 15–49 in the two rounds of the Longitudinal Study, SOFT and the 1970 census reveals differences larger than might be expected just from sampling error or from differences between the sampling universes. Thus, comparisons of age-related variables between the rounds of the Longitudinal Study and SOFT, especially for rural women, may be influenced by the different age distributions of the samples. We control for age in the analysis, directly or through standardization, in order to minimize the impact of this difference between the samples. The two longitudinal surveys and SOFT provide three national population cross-sections: The first combines the 1969 Longitudinal Study sample for the rural sector with the 1970 sample for the urban sector; the second combines the 1972 rural sample with the 1973 urban sample from the second round of the Longitudinal Study; and the third comes from SOFT, which took place in 1975 and covered both rural and urban sectors. These same sources also provide separate results for three rural and urban cross-sections. The rural cross-sections refer to 1969, 1972 and 1975, while the urban cross-sections refer to 1970, 1973 and 1975.

**Table 1. Number of children ever born to ever-married women aged 15–49, by age of women and residence, Thailand, 1969–1975**

| Age | Residence | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Kingdom | | | Rural | | | Urban | | |
| | 1969–1970 | 1972–1973 | 1975 | 1969 | 1972 | 1975 | 1970 | 1973 | 1975 |
| 15–49 | 4.46 | 4.43 | 3.92 | 4.63 | 4.59 | 4.02 | 3.68 | 3.56 | 3.25 |
| Age-standardized | 4.10 | 4.09 | 3.86 | 4.24 | 4.23 | 3.98 | 3.44 | 3.35 | 3.11 |
| 15–19 | 0.70 | 0.67 | 0.70 | 0.70 | 0.65 | 0.70 | 0.65 | 0.68 | 0.69 |
| 20–24 | 1.51 | 1.44 | 1.50 | 1.54 | 1.45 | 1.51 | 1.42 | 1.37 | 1.48 |
| 25–29 | 2.62 | 2.78 | 2.62 | 2.93 | 2.91 | 2.71 | 2.35 | 2.16 | 2.13 |
| 30–34 | 4.05 | 4.12 | 3.92 | 4.18 | 4.30 | 4.06 | 3.55 | 3.22 | 2.95 |
| 35–39 | 5.78 | 5.24 | 4.93 | 6.06 | 5.44 | 5.12 | 4.44 | 4.27 | 3.72 |
| 40–44 | 6.52 | 6.86 | 6.07 | 6.71 | 7.07 | 6.26 | 5.53 | 5.48 | 4.95 |
| 45–49 | 6.49 | 6.86 | 6.68 | 6.67 | 7.06 | 6.87 | 5.46 | 5.80 | 5.63 |

Note: In this and the remaining tables, (1) the age distribution for the entire kingdom as reported in the 1970 census is used as the base of the age-standardization for the appropriate marital-status group; and (2) the results for rural women in 1969 (the rural phase of round I of the Longitudinal Study) differ slightly from previously published results because of minor corrections made in the coding of women's age.

### Cumulative and Current Fertility

The high past fertility of Thai women is evident from data on the average number of children ever born, as shown in Table 1. In all three surveys, ever-married Thai women aged 40–49 averaged more than six live births over the reproductive span. The average number of past births among rural women was closer to seven, while urban women averaged more than one birth fewer than rural women. In fact, in virtually every age group in all three surveys, urban women averaged fewer children than rural women.

The effect of recent fertility trends is muted in these data since older women experienced much of their childbearing a number of years in the past. Nevertheless, some of Thailand's recent fertility decline is already reflected in the data on children ever born. For most age groups, cumulative fertility is lower than it was five or six years earlier. The average number of children ever born to both rural and urban women declined steadily from survey to survey, although the extent of the decline, particularly among rural women, is reduced after standardization for age.§ Average cumulative fertility, (age-standardized) was about six percent lower in 1975 than it was at the turn of the decade.

*The sample consisted of more than 4,000 households in nonmunicipal and municipal areas selected from 267 clusters (234 villages in 78 districts, four rural districts that are part of the Bangkok metropolis, and 29 urban blocks, 14 of which are in Bangkok). The result was approximately an equal probability national sample. In the processing of results from SOFT for the present report, sample clusters were weighted to compensate for small original deviations from equal probability and also for differential nonresponse. A detailed description of the sample design and survey is available in the WFS First Country Report for Thailand (see reference 7).

†No account is taken of the fact that for each round, the rural and urban phases occurred one year apart; this should be borne in mind when interpreting the results. It should also be noted that the combined urban and rural phases of each round do not represent strictly national samples, because some districts were excluded from the sampling universe of the Longitudinal Study. The areas excluded contain about 20 percent of the rural population and about five percent of the urban population. The excluded rural areas are generally more isolated than the included areas and thus less exposed to the forces of modernization currently at work in Thailand.

‡It should be noted that the urban part of the SOFT sample is considerably smaller than either the rural part of SOFT or the rural and urban samples of the Longitudinal Study. In the Longitudinal Study, a much larger sampling fraction was used for the urban sample than for the rural sample to compensate for the fact that less than 15 percent of the Thai population lives in municipal areas. There was no similar compensation in the SOFT sample.

§The older age distribution of the Longitudinal Study samples as compared to the SOFT sample serves to exaggerate the differences in children ever born when age is not controlled.

**Table 2. Number of births per 1,000 currently married women, by age, and index of fertility control (m) during the two years preceding the surveys, by residence, 1967–1969 to 1973–1975**

| Age one year before survey | Residence | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Kingdom | | | Rural | | | Urban | | |
| | 1967–1970 | 1970–1973 | 1973–1975 | 1967–1969 | 1970–1972 | 1973–1975 | 1968–1970 | 1971–1973 | 1973–1975 |
| 20–44 (age-standardized) | 256 | 225 | 210 | 271 | 234 | 216 | 191 | 180 | 172 |
| 15–19 | 402 | 386 | 421 | 411 | 383 | 420 | 385 | 410 | (498) |
| 20–24 | 362 | 349 | 346 | 396 | 350 | 345 | 378 | 344 | 347 |
| 25–29 | 306 | 278 | 254 | 328 | 284 | 259 | 224 | 246 | 221 |
| 30–34 | 227 | 212 | 202 | 248 | 226 | 207 | 180 | 145 | 185 |
| 35–39 | 197 | 151 | 152 | 216 | 162 | 163 | 96 | 90 | 75 |
| 40–44 | 139 | 115 | 73 | 148 | 125 | 81 | 83 | 51 | 28 |
| 45–49 | 37 | 25 | 20 | 40 | 28 | 21 | 13 | 16 | 12 |
| m index | .05 | .14 | .36 | .01 | .08 | .29 | .42 | .69 | 1.06 |

Notes: Rates in parentheses are based on denominators of fewer than 50 women-years per five-year age group. The periods covered are from the beginning or middle of April of the earlier year through March or mid-April of the later year.

Estimates of current age-specific marital fertility levels can be derived from data contained in the birth histories that were collected from respondents in each of the surveys. These birth history data were examined to determine the number of births each currently married woman reported for the two years immediately prior to the survey. They serve as the basis of the marital fertility rates presented in Table 2. These rates, therefore, refer to the two-year period prior to each survey and, taken together, indicate recent trends in marital fertility.*

In order to summarize the age-specific marital fertility rates, we have calculated the age-standardized rate for women 20–44. For the kingdom as a whole, the rate declined by 18 percent between 1967-1970 and 1973-1975. In all three surveys, the rate was considerably higher among rural than among urban women; however, marital fertility *declined* twice as much among rural as among urban women between 1967-1969 and 1973-1975—20 percent as compared to 10 percent. As a result, the urban-rural difference in fertility levels appears to be contracting. For the first round of the Longitudinal Study, the rural age-standardized marital fertility rate exceeded the urban rate by 42 percent; for the SOFT sample, the rural rate was only 26 percent greater. Part of the larger rural decline and apparent urban-rural fertility convergence can be attributed to the fact that we are measuring fertility decline over an average six-year period for rural women, but only over an average five-year period for urban women. However, judging from the rate of fertility decline implicit in the results of Table 2, the one-year lag between the initial rural and urban surveys does not seem sufficient to account for the entire difference in the extent of fertility decline, or for the contraction of the urban-rural differential in marital fertility rates.

The age pattern of fertility decline, although not entirely regular, is generally indicative of a population in which family limitation is increasingly being practiced. As family limitation spreads, older women are more likely than younger women to adopt contraceptive methods and use them more efficiently, because they are more likely to have already exceeded their desired family size.[11] This pattern is evident in the Thai data. The percentage declines in marital fertility are larger for older women than for younger women. For example, the average decline among the three five-year age groups above 35 was 39 percent, compared to an average decline of 13 percent for the three age groups 20–34.

The Coale-Trussell index of fertility control (m), also shown in Table 2, measures shifts in the age structure of marital fertility, indicating increasing use of birth control. The index has been described in detail elsewhere.[12] Briefly, it measures the extent to which a particular set of age-specific marital fertility rates deviate from the age structure of a standard schedule of natural fertility (i.e., fertility in the absence of family limitation). Fertility control is implicit in the age pattern of marital fertility if rates at the older reproductive ages are disproportionately lower than rates at younger

*Estimates of age-specific marital fertility for a one-year period prior to the two rounds of the Longitudinal Study have been published previously (see reference 25). A comparison between those rates and the present results based on a two-year period reveals that the two-year rates are generally lower. In addition, unpublished results from SOFT indicate that rates based on births one year prior to the survey are also higher than the two-year rates. At present, we have no explanation for the differences. The changes in fertility between the two rounds of the Longitudinal Study indicated by the two sets of rates, however, are quite similar. Both sets of rates indicate that the fertility of married women 15-49 declined 14 percent between the two rounds for rural women, six percent for urban women and 12 percent for all women combined.

*Declining fertility among all Thais may help eliminate crowded housing like that seen above.*

**Table 3. Percentage of currently married women aged 15–44 pregnant at the time of the surveys, and mean interval since last birth, by residence, 1969–1975**

| Fertility measure | Residence | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Kingdom | | | Rural | | | Urban | | |
| | 1969–1970 (N= 2,438) | 1972–1973 (N= 2,494) | 1975 (N= 3,126) | 1969 (N= 964) | 1972 (N= 1,091) | 1975 (N= 2,694) | 1970 (N= 1,474) | 1973 (N= 1,403) | 1975 (N= 432) |
| Percentage pregnant | | | | | | | | | |
| Unstandardized | 14.6 | 13.1 | 11.7 | 15.5 | 13.7 | 12.1 | 10.9 | 9.5 | 9.1 |
| Age-standardized | 15.3 | 14.3 | 11.8 | 16.2 | 14.9 | 12.2 | 12.2 | 10.7 | 9.5 |
| Mean no. months since last birth* | | | | | | | | | |
| Unstandardized | 35.1 | u | 45.9 | 31.7 | 38.4 | 44.9 | 50.9 | u | 57.5 |
| Age-standardized | 31.2 | u | 42.6 | 28.4 | 33.8 | 41.1 | 45.0 | u | 52.5 |

*Excluding currently pregnant women.

Notes: u = not available. Data on the mean interval since last birth from the second urban round of the Longitudinal Study (1973) were not yet coded at the time of the present analysis. The Ns in this table also apply to the analyses of currently married women shown in subsequent tables.

ages relative to the standard schedule. A value of zero indicates essential conformity with the natural fertility schedule, while progressively higher values indicate increasing levels of birth control use. As may be seen in Table 2, the value of the fertility control index for both rural and urban women has increased steadily, indicating that the shift in the age pattern of marital fertility is consistent with that typically associated with transition from high to low fertility levels. At each date, the urban value substantially exceeds the rural value.

The results shown in Table 2 clearly support the impression from birth registration data that fertility has fallen substantially since the late 1960s and is now moving toward modern levels of low fertility. Thailand's reduction of 18 percent in marital fertility in just over a half-decade is extremely rapid when compared to the historical experience of the developed world. The pace of Thailand's recent fertility decline is like that experienced by Hong Kong, Singapore and Taiwan.[13] But it is more significant because of the substantially rural nature of the decline and the much larger size of Thailand's population.

Additional evidence of the decline in marital fertility is shown in Table 3, which presents data on the percentage currently pregnant and the mean interval since last birth as derived from the sample surveys. Pregnancy status is based on answers to a direct question asking the respondent if she thought she was pregnant. Thus, it is derived independently of the pregnancy histories from which the age-specific marital fertility rates have been calculated. The trend in the proportion pregnant among all women aged 15–44 has been steadily downward in both rural and urban areas. When the percent pregnant is standardized for age, the trend is even more pronounced. The urban-rural differential is similar to that seen in the marital fertility rates: For both rounds of the Longitudinal Study and for SOFT, the proportion pregnant was lower among urban women than among rural women.

The mean interval since the last birth increased substantially among both rural and urban wives, but the increase among rural wives was about twice that among urban wives. Standardization for age has little effect on the results. For the kingdom as a whole, the open interval increased by 11 months. There is a clear direct relationship between the length of the interval, as well as its increase over the period under observation, and women's age. The increase in the open interval rises from 2.5 months for the youngest age groups of women to 28.3 months for women 40–44 (data not shown). The large increases for older women are a typical feature of fertility transition[14] and undoubtedly reflect increasing use of contraception to limit births.*

## Education and Fertility

It is generally expected that at any given time, fertility and educational level are inversely related, and that during the transition from higher to lower fertility, better educated couples lead in the adoption of contraception and reduction of births. Many therefore expect that improvement of educational levels will contribute to declining fertility. Several studies have already demonstrated an inverse relationship between educational attainment and cumulative fertility in Thailand.[15]

Table 4 shows age-standardized marital fertility rates according to the educational attainment of each spouse. Al-

**Table 4. Number of births per 1,000 currently married women aged 20–44 (age-standardized) during the two years preceding the surveys, by number of years of schooling completed by each spouse, and by residence, 1967–1969 to 1973–1975***

| Years of schooling | Residence | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Kingdom | | | Rural | | | Urban | | |
| | 1967–1970 | 1970–1973 | 1973–1975 | 1967–1969 | 1971–1972 | 1973–1975 | 1968–1970 | 1971–1973 | 1973–1975 |
| Completed by wife† | | | | | | | | | |
| 0–3 | 262 | 232 | [illegible] | 269 | 237 | 228 | 210 | 205 | (184) |
| 4 | 266 | 227 | 207 | 278 | 235 | 212 | 199 | 172 | 167 |
| ≥5 | 178 | 197 | 178 | 231 | 237 | 192 | 160 | 173 | (172) |
| Completed by husband† | | | | | | | | | |
| 0–3 | 263 | 235 | 239 | 272 | 234 | 246 | 187 | 252 | (153) |
| 4–6 | 263 | 229 | 213 | 272 | 236 | 218 | 201 | 160 | 160 |
| ≥7 | 219 | 195 | 170 | 258 | 234 | 164 | 179 | 166 | 181 |

*See notes to Table 2.

†The available coded data did not permit the identical educational categories to be used for husbands and wives; thus, slightly different categories appear in the tables.

Note: Wives and husbands whose educational attainment is unknown are excluded from results presented in this table.

*Since this measure is derived from the birth histories, it is not independent of the marital fertility rate measures. Nevertheless, these results, together with those on the percent pregnant, help corroborate the finding that marital fertility has declined substantially among both rural and urban women.

*Schooling: still a factor, but fertility is falling among both uneducated and educated women.*

though the results are not entirely consistent, they generally indicate an inverse relationship between marital fertility and educational attainment. For the kingdom as a whole, the highest educational categories are associated with the lowest fertility in each of the periods covered. In addition, a consistent inverse relationship with education is apparent for both the 1970-1973 and the 1973-1975 periods. When the rural and urban data are considered separately, the results are somewhat less regular, but, again, a general inverse relationship is apparent. For each period and each educational category, the rural marital fertility rate exceeds the urban rate, almost without exception.

**Contraceptive practice and knowledge have increased among all groups, and the traditional urban-rural gap in fertility is being closed.**

For the kingdom as a whole, the fertility decline appears to have affected all the rates based on husband's education and all but the rate based on the highest completed education of the wife (where the numbers of respondents are so small that we can have little confidence in the fertility trend indicated). Results for rural and urban women separately are somewhat less regular, but generally indicate that the fertility decline has affected rural women in all educational categories and urban women in all but the highest educational categories, whether the rates are based on their own or their husbands' schooling. (It should be noted that urban women in the higher educational categories were already experiencing considerably lower fertility than women in all other educational-residence categories at the beginning of the period.)

### Contraceptive Knowledge and Practice

Evidence from the Longitudinal Study and SOFT indicates that the recent decline in fertility in Thailand has been accompanied by a dramatic change in contraceptive knowledge and practice. The first round of the Longitudinal Study represented the first attempt to measure contraceptive knowledge on a national level in Thailand. Table 5 compares those results with the results from the 1975 SOFT sample.* In both the Longitudinal Study and SOFT, respondents were first asked to mention, without prompting, all the specific methods of birth control that they knew. The interviewer then read off from a list the methods of contraception that the respondent had failed to mention and asked if the respondent recognized any of those methods. Responses concerning knowledge of specific methods of contraception can thus be classified according to whether the respondent was able to mention the method without a reminder or whether she needed to be prompted by the interviewer in order to recall it. Table 5 shows that by either measure, familiarity with contraceptive methods increased substantially in the 5-6 years between the surveys.

At the time of the first round of the Longitudinal Study, 74 percent of urban women and 48 percent of rural women were able to mention a method of contraception without being prompted. By 1975, 92 percent of urban women and 86 percent of rural women could mention a method without prompting.

Although Thai women showed some familiarity with contraception at the time of the first round of the Longitudinal Survey, birth control methods were clearly not as salient to them as in 1975, especially in the rural areas.†

The substantial urban-rural differential in contraceptive knowledge at the time of the first round of the Longitudinal Study contracted substantially during the period between the surveys. By 1975, there remained very little difference between urban and rural women in the extent of their knowledge of contraception, by either measure.

By 1975, the pill was the method most familiar to Thai women. It was clearly the most salient method, as shown by the much higher percentage of women who mentioned the pill without a reminder than mentioned any other method. In both urban and rural areas by 1975, the large majority of women had acquired at least some familiarity with all five modern methods of contraception listed in Table 5.

By 1975, the average rural woman was able to mention more than two specific techniques of contraception without prompting. This represents more than a doubling of the number mentioned on the average in 1969, just six years earlier. The increase for urban women was less dramatic (but still substantial—from 1.8 to 2.9) since knowledge of contraception was much more widespread in urban areas at the time of the first round of the Longitudinal Study. (Data not shown.)

*Many of the respondents who were questioned on contraceptive knowledge in the second round of the Longitudinal Study had been interviewed three years earlier on the same subject, perhaps influencing their responses in the second round. These, therefore, are omitted from Table 5.

†There is some evidence that familiarity with family planning methods may also have been increasing rapidly among rural women in the years just prior to the Longitudinal Study. Although no national-level data are available for this period, a 1964 survey of the Potharam district, a rural area about 80 kilometers from Bangkok, revealed that two-thirds of married women interviewed had ". . . no knowledge whatsoever of contraceptive methods." (See: A. H. Hawley and V. Prachuabmoh, *Family Growth and Family Planning in a Rural District of Thailand*, University of Chicago Press, Chicago, 1966, p. 541.)

Contraceptive usage increased rapidly during the period under observation, as may be seen in Table 6. The proportion of currently married women of reproductive age who had ever used contraception nearly tripled—from 19 percent to 51 percent—in the 5-6-year period covered by the surveys. Current use more than doubled—increasing from 15 percent to 37 percent of married women. The improvement was most striking in rural areas, where the proportion of current users increased from 11 percent to 35 percent of women. By 1975, almost half of all rural women reported having used some method of contraception. (The increases for rural women are especially impressive because the SOFT sample was drawn from an unrestricted sampling universe, while the Longitudinal Study sample excluded some of the more remote areas, where, presumably, contraception is less commonly practiced.) The greater increase in contraceptive practice in rural than in urban areas accords well with the larger decline in fertility observed for rural than for urban women over the same period (see Table 2).

The pronounced urban-rural differential in contraceptive usage evident from the first round of the Longitudinal Study has contracted considerably as a result of the more rapid increase in contraceptive practice among rural women. (It is worth noting that the percentage of rural women currently practicing or ever practicing contraception in 1975 exceeds the corresponding percentage of urban women who did so in 1970.) Part of the reduction in the urban-rural differential is undoubtedly an artifact of the one-year lag between the rural and urban phases of the first round of the Longitudinal Study, but it is unlikely that the lag accounts for all of it.

The reported increases in contraceptive use in just 5-6 years are among the most rapid on record; they are equal to those experienced in Taiwan a decade earlier.[16] The factors which have permitted the rapid adoption of contraception by Thai couples, especially in the rural areas, deserve careful study. Undoubtedly, an important facilitating factor has been the rapid development of a modern communications and transportation network in which transistor radios permeate even the most remote villages[17] and minibuses can easily bring rural residents to the district or provincial town. Thailand's National Family Planning Program has played a particularly important role, which we will describe later (see p. 43). It is worth noting here, however, that the development of the family planning program more or less coincides with the period of rapid increase in contraceptive practice. Although some family planning services were provided by the Ministry of Public Health prior to 1969, the official national program was not launched until 1970, and did not get into full swing in rural areas until after that time. The substantial proportions of urban women who re-

**Table 5. Percentage of currently married women aged 15–44 who mentioned and who ever heard of specific methods of contraception, by residence, 1969–1975**

| Method | Residence | | | | | |
|---|---|---|---|---|---|---|
| | Kingdom | | Rural | | Urban | |
| | 1969–1970 | 1975 | 1969 | 1975 | 1970 | 1975 |
| **Mentioned without reminder** | | | | | | |
| Any* | 53.0 | 87.1 | 48.4 | 88.4 | 73.8 | 92.0 |
| Pill | u | 77.7 | u | 76.7 | u | 84.6 |
| IUD | u | 51.4 | u | 50.3 | u | 58.7 |
| Tubal ligation | u | 45.3 | u | 46.0 | u | 40.8 |
| Vasectomy | u | 24.2 | u | 24.7 | u | 21.3 |
| Injection | u | 22.4 | u | 20.8 | u | 33.2 |
| **Ever heard of (with or without reminder)** | | | | | | |
| Any* | 81.5 | 96.9 | 78.8 | 96.6 | 94.0 | 99.3 |
| Pill | 59.2 | 93.2 | 54.5 | 92.8 | 80.9 | 95.8 |
| IUD | 47.5 | 87.2 | 41.8 | 86.3 | 73.6 | 92.8 |
| Tubal ligation | 57.8 | 88.5 | 52.1 | 87.8 | 84.2 | 93.0 |
| Vasectomy | 49.5 | 72.0 | 46.9 | 70.4 | 61.5 | 82.4 |
| Injection | 27.1 | 73.3 | 23.9 | 71.8 | 42.0 | 82.7 |

*Including methods not listed. u=unavailable.

**Table 6. Percentage of currently married women aged 15–44 who ever used contraception, and percentage currently practicing, by age and residence, 1969–1975**

| Age | Residence | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Kingdom | | | Rural | | | Urban | | |
| | 1969–1970 | 1972–1973 | 1975 | 1969 | 1972 | 1975 | 1970 | 1973 | 1975 |
| **Ever used** | | | | | | | | | |
| 15–44 | 18.9 | 33.6 | 51.2 | 14.4 | 29.4 | 49.0 | 39.7 | 56.5 | 65.7 |
| Age-standardized | 18.2 | 33.2 | 51.3 | 13.9 | 29.2 | 49.1 | 37.7 | 54.7 | 65.6 |
| 15–19 | 5.0 | 11.4 | 28.3 | 3.8 | 10.0 | 25.9 | 14.0 | 24.5 | (51.1) |
| 20–24 | 9.4 | 28.9 | 43.9 | 5.6 | 23.3 | 40.8 | 28.4 | 46.3 | 64.3 |
| 25–29 | 19.1 | 37.3 | 57.8 | 14.3 | 33.0 | 58.2 | 39.6 | 58.0 | 68.9 |
| 30–34 | 27.4 | 38.3 | 59.1 | 21.2 | 33.5 | 57.3 | 50.9 | 61.5 | 71.5 |
| 35–39 | 21.2 | 43.4 | 57.4 | 16.3 | 38.4 | 56.7 | 44.7 | 62.8 | 68.5 |
| 40–44 | 17.8 | 25.6 | 43.7 | 15.0 | 21.5 | 41.1 | 33.3 | 55.7 | 60.4 |
| **Currently using** | | | | | | | | | |
| 15–44 | 14.8 | 28.3 | 36.7 | 10.9 | 22.8 | 34.8 | 32.6 | 45.1 | 49.4 |
| Age-standardized | 15.1 | 28.0 | 36.8 | 11.3 | 22.8 | 34.9 | 30.9 | 43.2 | 49.2 |
| 15–19 | 3.8 | 6.0 | 16.1 | 0.0 | 5.0 | 16.7 | 12.0 | 15.6 | (32.6) |
| 20–24 | 11.0 | 20.1 | 30.9 | 9.2 | 18.3 | 28.5 | 18.9 | 29.6 | 46.8 |
| 25–29 | 14.4 | 28.6 | 41.0 | 10.9 | 25.0 | 39.9 | 29.7 | 45.6 | 47.2 |
| 30–34 | 22.0 | 31.4 | 44.0 | 16.2 | 27.4 | 42.4 | 43.6 | 51.0 | 54.3 |
| 35–39 | 18.0 | 35.6 | 42.3 | 14.0 | 31.9 | 40.3 | 37.2 | 53.3 | 54.8 |
| 40–44 | 13.1 | 19.4 | 30.5 | 10.0 | 15.7 | 27.6 | 30.2 | 46.3 | 48.9 |

Note: Numbers in parentheses based on fewer than 20 women.

*37% of women use contraception; 2% use injectables, like Chiang Mai women pictured.*

ported in 1970—before the official program was begun—that they used contraception undoubtedly were availing themselves of the family planning services provided by large government hospitals[18] or of commercially available contraception. Our surveys indicate that the situation was quite different in rural areas. Only very minimal practice of contraception appears to have predated the onset of the national program.

It can be seen from Table 6 that except for the youngest group of married women—who are just beginning their childbearing and who have had an average of less than one birth each (see Table 1)—there is remarkably small variation among the different age groups of women in the proportion who, as of 1975, have ever used or are currently using contraception.* Above age 20, increases in the percentage who have ever used or who are currently using a method are about as large for the younger women as for the older women. This pattern probably reflects a combination of two counterbalancing effects: Greater proportions of older women probably are motivated to try to limit family size as they have larger numbers of surviving children; while younger, more "modern" women increasingly adopt contraception not only for limiting but also for spacing births.

An impression of the increase in contraceptive practice with age can be gained by comparing (in Table 6) the proportion that had ever used contraception in any given age group in round one of the Longitudinal Study (1969-1970) with the proportion in the next successive age group of the SOFT sample (1975).† The comparisons suggest that during this period of generally increasing use of contraception, the proportion of the cohort that had ever practiced contraception increased sharply as the cohort grew older.

The specific methods of contraception used by respondents are shown in Table 7. By 1975, the pill was clearly the method most commonly used by both rural and urban women. Increased use of the pill during the period under observation accounts for more of the total increase in contraceptive use than increases in all of the other methods combined. This observation is consistent with the report that during the period, the majority of new clients of the National Family Planning Program chose the pill.[19]

Over the six years, there was a considerable increase in tubal ligations reported by rural women. Among urban wives in each of the surveys, female sterilization accounts for a large proportion of the women practicing contraception. The program has provided a substantial number of tubal ligations in hospitals located in Bangkok and in provincial capitals. Even before the program officially began, sterilization was provided at many urban government hospitals. The proportion of urban women reporting that they have been sterilized appears to have decreased in the most recent period. This may reflect the increased availability of alternative methods in urban areas, combined with the effects of aging as women who have previously been sterilized pass out of the reproductive ages.

Use of the IUD, another method provided by the program, has also increased over the period under observation, especially among rural women. Unlike use of the pill, however, which has benefited from the permission given to auxiliary midwives to prescribe and distribute it in the national program, acceptance of the IUD has been limited by the requirement that only physicians may insert the device. Both mobile clinics and rural health centers staffed by physicians have brought this method to rural women. Recently, the Ministry of Public Health formally changed its policy to allow nurse-midwife insertion following the favorable outcome of an experimental project to evaluate its feasibility.[20]

Injectable contraceptives have been available only on a limited scale in Thailand, largely through a private program and commercial channels.

### Terminating and Spacing Childbearing

A main goal of the family planning program is to help women avoid unwanted births. A prime target of the program, therefore, is women who are still fecund but who have already achieved their desired family size and wish to have no additional children. Indeed, it is usually assumed that during the initial phases of a fertility transition, couples who want no more children will be the most receptive to adoption of birth control. Table 8

**Table 7. Percentage of currently married women aged 15–44 practicing contraception, by method and residence, 1969–1975**

| Method | Residence | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Kingdom | | | Rural | | | Urban | | |
| | 1969–1970 | 1972–1973 | 1975 | 1969 | 1972 | 1975 | 1970 | 1973 | 1975 |
| Total | 14.1 | 28.3 | 36.7 | 10.3 | 22.8 | 34.8 | 32.6 | 45.1 | 49.4 |
| Pill | 3.8 | 10.4 | 15.2 | 2.8 | 9.6 | 14.3 | 8.4 | 15.0 | 20.6 |
| IUD | 2.2 | 4.6 | 6.5 | 2.2 | 4.6 | 6.7 | 2.3 | 4.9 | 4.9 |
| Tubal ligation | 5.5 | 6.8 | 7.4 | 3.1 | 4.8 | 6.5 | 16.5 | 18.0 | 13.6 |
| Vasectomy | 2.1 | 2.9 | 2.2 | 2.0 | 2.7 | 2.2 | 2.8 | 3.8 | 2.4 |
| Injection | 0.4 | 0.9 | 2.1 | 0.4 | 0.8 | 2.1 | 0.5 | 1.1 | 2.1 |
| Condom | 0.8 | 0.1 | 0.5 | 0.0 | 0.0 | 0.3 | 1.9 | 0.6 | 1.7 |
| Other | | 0.6 | 2.9 | 0.5 | 0.4 | 2.7 | | 1.8 | 4.0 |

Note: Columns may not sum exactly because of rounding and minor coding discrepancies.

*A substantial proportion of the 40–44 group believe themselves to be sterile (excluding surgically sterilized women), a factor that undoubtedly influences the likelihood of their practicing contraception (see reference 9, J. Knodel and V. Prachuabmoh, 1974).

†This comparison should provide a rather close approximation of the increase for urban women since the two samples were interviewed exactly five years apart and we are dealing with successive five-year age groups. The comparison is somewhat less exact for the rural women since the rural phase of the first round of the Longitudinal Study preceded SOFT by six years.

*Northern Thai tribal women receive contraceptive services along with primary health care.*

shows for each survey date the proportion currently practicing contraception of fecund wives who want no more children. Results are shown including and excluding sterilized couples.* The table documents the dramatic increases in family planning practice among fecund women who wish to terminate childbearing. If sterilized couples are included, over half of the prime-target group are currently practicing some form of birth control as of 1975, and for all survey years the proportion using contraception is considerably higher than among currently married women in general (as shown in Table 6).

The increase in contraceptive use among fecund wives who do not want any more children is also greater than among married women in general. Table 9 shows that an increasing proportion of women are beginning to use birth control *before* they reach their final desired family size. For all of Thailand, the percentage of users reporting that they want more children doubled between 1969 and 1975—from 11 percent to 23 percent. Among rural women, the proportion quadrupled—from five percent to 21 percent. Thus, Thai women increasingly are using birth control methods not only to limit family size but also to space births. In the very short period of time that the fertility transition in Thailand has been under way, the same evolution in contraceptive practice that is assumed to have occurred over a much longer period in developed countries is already clearly evident. This suggests that in the future, the demand for family planning services in Thailand for spacing purposes will probably contribute significantly to the overall demand.

### Education and Contraceptive Use

Table 10 shows that without exception, at each survey date there is a clear inverse relationship among rural as well as among urban women between the proportion currently using contraception and the number of years of schooling completed.† Consistent and substantial increases in the practice of contraception are indicated among women in virtually all educational and residence categories. Better educated urban women are the exception. These women show the highest rates of contraceptive use of all the groups, but the rate of increase appears to have plateaued between 1973 and 1975. For the kingdom as a whole, the differences in the proportions using contraception according to educational attainment are most pronounced for the second round of the Longitudinal Study and least pronounced for the 1975 data. The apparent reduction of educational differentials on the national level is not as evident within each of the residence categories. Some contraction of the urban-rural difference within each educational category, however, is apparent over time. But even in 1975, urban women consistently show higher rates of con-

**Table 8. Percentage currently practicing contraception of fecund, currently married women aged 15–44 who want no more children (including and excluding sterilized couples), by residence, 1969–1975**

| Residence | Including sterilized couples | Excluding sterilized couples |
|---|---|---|
| **Kingdom** | | |
| 1969–1970 | 25.8 | 10.8 |
| 1972–1973 | 44.0 | 28.1 |
| 1975 | 54.8 | 44.7 |
| **Rural** | | |
| 1969 | 20.0 | 9.1 |
| 1972 | 37.9 | 25.3 |
| 1975 | 52.0 | 43.0 |
| **Urban** | | |
| 1970 | 59.3 | 28.4 |
| 1973 | 77.4 | 54.2 |
| 1975 | 75.1 | 61.6 |

Notes: (1) Women who reported themselves or their husbands sterilized were generally not asked if they desired additional children; in this and the following table, they are assumed not to want any additional children unless specifically coded otherwise. (2) In the 1975 SOFT sample, women who reported using contraception were not asked about their fecundity status but are included in this table.

**Table 9. Percentage distribution of currently married women aged 15–44 currently practicing contraception, by desire for more children and residence, 1969–1975**

| Residence | Want more children | Want no more children | Not sure | Total |
|---|---|---|---|---|
| **Kingdom** | | | | |
| 1969–1970 | 11.4 | 87.4 | 1.1 | 100 |
| 1972–1973 | 15.5 | 82.3 | 2.2 | 100 |
| 1975 | 22.6 | 75.0 | 2.4 | 100 |
| **Rural** | | | | |
| 1969 | 4.7 | 95.3 | 0.0 | 100 |
| 1972 | 14.9 | 84.3 | 0.8 | 100 |
| 1975 | 21.3 | 76.5 | 2.2 | 100 |
| **Urban** | | | | |
| 1970 | 21.8 | 75.3 | 2.9 | 100 |
| 1973 | 17.1 | 76.8 | 6.1 | 100 |
| 1975 | 28.4 | 68.0 | 3.6 | 100 |

Notes: See note (1) to Table 8. Percents may not add to 100 because of rounding.

*Since some of the women in sterilized couples would have considered themselves infecund by the time of each survey even if they (or their husbands) had not been sterilized, the results including sterilized couples somewhat inflate the extent of contraceptive use among the prime-target population. On the other hand, exclusion of sterilized couples clearly results in underestimation of contraceptive usage among this group.

†Except for rural women in 1969, the age-standardized results show more pronounced educational differentials in contraceptive use than do the unstandardized results. Presumably, this is due to the disproportionate representation of younger women (fewer of whom practice contraception) in the highest educational category (not shown in Table 10).

traceptive practice for each educational category than their rural counterparts.

### Fertility Desires

Both the Longitudinal Study and SOFT included inquiries about fertility preferences. Respondents were asked about their preferred family size and whether or not they desired to have additional children. As may be seen in Table 11, the mean preferred number of children among both urban and rural wives of reproductive age declined over the period of observation. Among rural women, however, the entire decline occurred between 1972 and 1975; while the mean number preferred by urban wives decreased at each successive survey.

It is notable that between 1969 and 1972, the number actually increased slightly for rural wives at the same time that contraceptive usage increased substantially and fertility declined. The Thai experience is roughly similar to that of several other Asian countries which have recently embarked on the fertility transition. In both Taiwan and Korea, initial increases in contraceptive practice and decreases in fertility took place in the absence of any noticeable concomitant change in desired family size; only after those changes had gained some momentum was a decline in the preferred number of children observed.[21] In all three countries, the stated preferred number of children was substantially below the number of living children women had actually borne by the end of their childbearing years.

**Fertility preferences decline following increase in contraceptive use. Two-thirds of married Thai women want no more children.**

The experience of these countries suggests that a two-way interaction may exist between fertility norms and the spread of birth control. Fertility desires may respond to the spread of family planning practices rather than vice versa. Perhaps only after the concept of family planning becomes widely known, and contraceptive practice reaches a moderate level, is it realistic for couples to start adjusting their preferred number of children downward.[22] In Thailand, this phenomenon may well have occurred before 1970 among urban women. In the rural areas, where contraceptive knowledge was much more limited and contraceptive practice only minimal at the beginning of the period, a short time lag may have been required before fertility preferences began to decline. Throughout the period under observation, rural women expressed somewhat larger preferred family sizes than urban wives. To some extent, these larger family size preferences may be due to rationalization of children already born, since actual family size is substantially larger for rural than for urban women.

Table 11 shows that the decline in the preferred number of children has been fairly general among all age groups. Among rural women, only those aged 30-34 expressed a preference for a slightly larger number of children in 1975 than in 1969; among urban women, the mean preferred number of children declined for every age group. At any particular time, the preferred family size increases with age. The smaller family size preference expressed by urban women in every age group, including the youngest, suggests that at least some of the urban-rural differential is genuine and not just the result of rationalization. It is noteworthy, however, that the urban-rural differences for women under 30 are less pronounced than the average difference for all women.

In general, desired family size is inversely related to the educational attainment of the respondent (see Table 12). At the same time, the urban-rural differential persists for each educational category. The decrease in the preferred number of children during the observed period apparently affected all educational and residence categories, with the possible exception of better educated urban women. Among rural women, the relationship between preferred family size and education is irregular in 1969, but because the preference decline is greatest among the best-educated women, the inverse relationship becomes quite pronounced in 1975. Among urban women, on the other hand, the decline in preferred number of children is greatest among the least educated, and some convergence of the educational groups appears to be taking place.

The percentages of wives who said they want no more children are shown in Table 13. The data show a clear associa-

**Table 10. Percentage of currently married women aged 15–44 currently using contraceptic (age-standardized), by number of years of schooling completed and residence, 1969–1975**

| Years of schooling | Residence | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Kingdom | | | Rural | | | Urban | | |
| | 1969–1970 | 1972–1973 | 1975 | 1969 | 1972 | 1975 | 1970 | 1973 | 1975 |
| 0–3 | 9.6 | 14.9 | 34.0 | 7.3 | 12.5 | 32.7 | 28.1 | 34.3 | 44.0 |
| 4 | 15.5 | 28.3 | 37.2 | 12.8 | 26.4 | 35.9 | 30.8 | 42.2 | 49.6 |
| ≥5 | 30.9 | 45.9 | 48.4 | 16.8 | 37.7 | 45.0 | 36.3 | 53.8 | 53.3 |

Note: Women whose educational attainment is unknown are excluded from results presented in this table.

**Table 11. Mean preferred number of children among currently married women aged 15–44, by age and residence, 1969–1975**

| Age | Residence | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Kingdom | | | Rural | | | Urban | | |
| | 1969–1970 | 1972–1973 | 1975 | 1969 | 1972 | 1975 | 1970 | 1973 | 1975 |
| 15–44 | 3.89 | 3.97 | 3.61 | 3.94 | 4.07 | 3.65 | 3.68 | 3.42 | 3.33 |
| Age-standardized | 3.83 | 3.82 | 3.61 | 3.89 | 3.91 | 3.66 | 3.59 | 3.37 | 3.31 |
| <25 | 3.3 | 3.3 | 3.0 | 3.4 | 3.4 | 3.1 | 3.0 | 2.9 | 2.9 |
| 25–29 | 3.7 | 3.8 | 3.4 | 3.8 | 3.9 | 3.4 | 3.4 | 3.2 | 3.2 |
| 30–34 | 3.9 | 3.8 | 3.9 | 3.9 | 3.9 | 4.0 | 3.9 | 3.4 | 3.3 |
| 35–39 | 4.3 | 4.4 | 4.0 | 4.3 | 4.6 | 4.0 | 4.0 | 3.5 | 3.5 |
| 40–44 | 4.3 | 4.6 | 4.1 | 4.3 | 4.7 | 4.1 | 4.2 | 4.0 | 4.1 |

Note: Women whose preferred number of children is indeterminate are excluded from results presented in this table.

tion between the desire for additional children and the number of living children, with the percentage of wives indicating they want no more children rising rapidly with the number of living children. In 1975, even among women with only two children, the majority indicated they wished to stop childbearing, and almost three out of four women with three children said they wanted no more. The majority of both rural and urban wives in each of the surveys indicated they wanted no more children.

The proportion who want no additional children is somewhat higher among rural women; this is partially because rural women have larger numbers of living children on average than their urban counterparts. When the results are standardized for the number of living children, the rural-urban differential remains, but is considerably diminished. This result contrasts with the finding of a persistent urban-rural difference in mean preferred number of children (see Table 12). As we indicated above, however, the larger reported preferred number of children among rural women may result in part from a rationalization of the actual number of children rather than from a true desire for larger families. It seems unlikely that such rationalization would affect responses concerning the desire for additional children. If we assume that the percentage of women who want no additional children more accurately reflects fertility desires, the results in Table 13 suggest that rural women have larger families than urban women because they are less effective in implementing their fertility desires. Under these circumstances, increasing availability of contraception among rural women could lead to a decrease in urban-rural differentials in fertility levels. Indeed, this is what apparently has been happening during the period covered by our surveys.

The changes between survey dates in the expressed desire for additional children parallel fairly closely the results on preferred number of children. The percentage of women not wanting additional children (as standardized for the number of living children) increased steadily in urban areas between 1970 and 1975. The percentage of rural wives who said they wanted no more children remained essentially constant between 1969 and 1972, but increased substantially by 1975. Although differences in the manner in which the question on desire for additional children was handled in the Longitudinal Study and SOFT create some problems for a definitive reading of these trends, it is clear that substantial proportions of Thai women indicate that they do not want additional children, and these proportions increase very rapidly with the number of living children.

**Table 12. Mean preferred number of children (age-standardized) among currently married women aged 15–44, by number of years of schooling completed and residence, 1969–1975**

| Years of schooling | Residence | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Kingdom | | | Rural | | | Urban | | |
| | 1969–1970 | 1972–1973 | 1975 | 1969 | 1972 | 1975 | 1970 | 1973 | 1975 |
| Total* | 3.83 | 3.82 | 3.61 | 3.89 | 3.91 | 3.66 | 3.59 | 3.37 | 3.31 |
| 0–3 | 4.06 | 3.89 | 3.79 | 4.08 | 3.93 | 3.84 | 3.84 | 3.62 | 3.41 |
| 4 | 3.78 | 3.83 | 3.60 | 3.77 | 3.88 | 3.62 | 3.65 | 3.47 | 3.40 |
| ≥5 | 3.40 | 3.30 | 3.13 | 3.97 | 3.76 | 3.17 | 3.18 | 3.01 | 3.11 |

*Includes a small number of women whose educational attainment is unknown.

## Family Planning Program Impact

The coincidence in the timing of the development of a large-scale national family planning program and the dramatic changes in reproductive and contraceptive behavior that we have noted suggests a causal connection. As indicated above, government family planning activities only began in the late 1960s. The number of annual family planning acceptors officially attributed to the program increased from 57,000 in 1968 to nearly 500,000 by 1975, and the number has apparently continued to increase.[23] The total number of acceptors between 1968 and 1975 exceeded 2.6 million. If these statistics are anywhere near correct, it seems unimaginable that the program did not contribute substantially to the increase in contraceptive practice, particularly in view of the various studies which have shown relatively high continuation rates in Thailand.[24] In addition, previous analysis of the Longitudinal Study data indicates that contracepting couples are effective in reducing their fertility, and that a substantial proportion of the fertility decline observed between the two rounds of the study is directly attributable to increased use of contraception.[25] Unfortunately, it is not possible to ascertain what propor-

**Table 13. Percentage of currently married women aged 15–44 who want no more children, by number of living children and residence, 1969–1975**

| No. of living children | Residence | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Kingdom | | | Rural | | | Urban | | |
| | 1969–1970 | 1972–1973 | 1975 | 1969 | 1972 | 1975 | 1970 | 1973 | 1975 |
| Total (unstandardized) | 62.3 | 61.5 | 63.7 | 64.2 | 62.7 | 64.7 | 53.3 | 55.0 | 56.7 |
| Standardized for no. of living children | 57.4 | 56.7 | 63.7 | 58.7 | 57.1 | 64.0 | 52.2 | 56.0 | 62.0 |
| 0 | 12.0 | 8.7 | 18.5 | 13.6 | 8.0 | 17.1 | 6.4 | 12.8 | 26.4 |
| 1 | 24.8 | 19.6 | 28.0 | 26.8 | 22.0 | 29.5 | 16.5 | 11.7 | 20.4 |
| 2 | 46.9 | 46.6 | 54.8 | 48.8 | 47.7 | 54.9 | 40.2 | 41.5 | 54.2 |
| 3 | 67.1 | 69.4 | 73.8 | 69.3 | 69.9 | 74.5 | 56.6 | 67.3 | 68.8 |
| 4 | 75.5 | 79.5 | 88.5 | 75.2 | 78.0 | 86.7 | 76.8 | 88.2 | 85.1 |
| 5 | 84.9 | 82.6 | 93.4 | 85.6 | 81.7 | 94.1 | 81.9 | 88.6 | 88.2 |
| 6 | 86.8 | 90.6 | 91.0 | 86.9 | 90.7 | 90.4 | 86.6 | 89.7 | 100.0* |
| ≥7 | 95.8 | 92.2 | 96.8 | 96.5 | 92.1 | 96.8 | 91.4 | 92.9 | 95.7 |

*Based on fewer than 20 women.

Notes: (1) See note (1) to Table 8. (2) Women in the 1975 SOFT sample who indicated that they thought they could no longer have any additional children were also not asked if they desired additional children and are counted as not wanting more children for the present analysis. (3) Women in the 1975 SOFT sample who indicated they were pregnant were specifically asked if they wished to have an additional child after the one they were expecting; in the earlier surveys, pregant women were asked if they wished to have an additional child without specific reference to the current expected child. (4) The distribution of currently married women aged 15–44 with respect to the number of living children as reported for the whole kingdom in the 1975 sample was used as the basis for the standardization for number of living children.

*"A Happy Family Is a Two-Child Family." A traffic stopper in the center of Bangkok.*

tion of respondents who used contraception received their methods from the government program, since questions on the source of contraception were not asked in SOFT and the relevant data collected in the second round of the Longitudinal Study have not yet been coded.

In order to evaluate the impact of the national program on contraceptive use and marital fertility by 1975, we have related two measures of family planning program activity to data collected on contraceptive use and fertility for the SOFT sample:

- the ratio of cumulative new acceptors (for 1968-1970 and 1974 only) per woman of reproductive age, and
- the number of pill cycles distributed during 1975 per woman of reproductive age.

The smallest administrative unit for which these data are available is the district (amphoe), which is the next level below the province (changwat). There are approximately 520 districts in Thailand.

Unfortunately, data for new acceptors on the district level are available only for the years 1968-1970 and 1974 onward. Our measure of cumulative acceptance is thus limited to the sum of the acceptors for 1968-1970 and 1974. New acceptors for 1975 are not included since most of them probably accepted after SOFT was fielded (in April and May). Although this measure is clearly deficient as an indication of the cumulative acceptors in the program prior to SOFT, it represents the best that could be done on the district level.

The second measure of program input is the average number of pill cycles distributed in 1975 per woman of reproductive age. Unlike data on new acceptors, figures for pill distribution have the advantage of including women who initially accepted the method in prior years and are continuing users, as well as women who began use in the current year. The measure has the obvious disadvantage of referring to only one of the methods provided by the program. The majority of acceptors in the program since its inception, however, have been pill users (64 percent of new acceptors between 1968 and 1975). Thus, pill distribution represents a most important part of the national program effort.

In order to relate this information on national family planning program activity to the data collected for the SOFT sample, all the districts included in the sample were ranked according to the two measures just described. Since the program is directed mainly toward providing family planning for rural women, and since commercial distribution of contraception through drugstores and private clinics is particularly important in the urban areas, we have limited our analysis to rural women not living in districts that contain an urban center. These women have been divided into three groups according to whether the district in which they reside is ranked in the top third, middle third or bottom third with respect to our two measures of family planning program activity.

Table 14 compares these groups of currently married women with respect to contraceptive usage, marital fertility and the percent pregnant as reported in the survey. In general, the results indicate a direct relationship between the extent of program activity and the proportion of women who report that they are currently using contraception or that they have ever used it, and an inverse relationship between the level of marital fertility and program activity. The relationship with current contraceptive use is more pronounced when pill distribution is used as the indicator of program activity rather than new acceptors. This possibly reflects the limitations of the new acceptor measure described above. Interest-

**Table 14. Percentage currently using contraception, percentage that ever used, age-standardized rate of marital fertility and percentage pregnant among currently married rural* women of reproductive age,† according to ranking of district of residence by family planning program activity, 1975**

| Program activity measure | % currently using | | % ever used | Births per 1000 wives 20–44‡ | % pregnant |
|---|---|---|---|---|---|
| | All | Pill | | | |
| **New acceptors (1968–1970, 1974)** | | | | | |
| High | 37.3 | 18.4 | 51.6 | 203 | 9.3 |
| Middle | 32.9 | 15.1 | 44.9 | 208 | 16.3 |
| Low | 30.8 | 8.3 | 45.9 | 239 | 13.4 |
| **Pill cycles distributed (1975)** | | | | | |
| High | 42.4 | 21.5 | 54.8 | 169 | 9.6 |
| Middle | 37.5 | 15.2 | 54.5 | 208 | 12.1 |
| Low | 22.0 | 6.3 | 34.2 | 270 | 15.8 |

*Respondents residing in urban areas or rural portions of districts with municipal areas (amphoe muang) are excluded from this table.

†15–44 for all measures except marital fertility rate, where the age is 20–44.

‡Marital fertility rates refer to fertility during the two years prior to the 1975 SOFT.

Notes: Measures of family planning program activity are expressed in terms of the estimated number of women aged 15–44 resident in the district in 1975. Data on pill cycle distribution and eligible women on the district level were kindly provided by Frederick Day; data on acceptors in 1968–1970 and 1974 were compiled from official reports made available by Tony Bennett.

ingly, the percentage of women who report using any method of contraception is almost as strongly related to the measure of pill distribution as the percentage of women who report specifically using the pill. Both marital fertility and the percent pregnant show an inverse relationship with the measure of pill distribution. Marital fertility is also inversely related to cumulative acceptors, but when this measure of program activity is used, the percent pregnant is greatest for the middle activity category and lowest for the highest activity category.

Although the results in Table 14 provide only a very crude test of the impact of the family planning program on contraceptive practice and fertility, they are an encouraging sign that the program is having a substantial impact. A check of the educational attainment of women included in the groups shown in Table 14 reveals no systematic differences between women in districts with different amounts of program activity. Educational differences, therefore, cannot account for our findings, although factors other than program activity which have not been controlled may play important roles. It should be noted that the comparison of program activity with contraceptive use and fertility in Table 14 is basically cross-sectional, and does not directly show changes in reproductive behavior. Unfortunately, it is not possible to relate actual changes in contraceptive use and marital fertility to program activity, because very few of the districts included in the Longitudinal Study sample were identical to those included in the SOFT sample.

### The Socioeconomic Context

The period prior to and during the current fertility transition in Thailand was also one of economic growth and social change. Undoubtedly, these have influenced both attitudes and behavior affecting fertility. Although we will not attempt to assess this impact in any systematic fashion, some general comments on the nature and extent of development in Thailand are in order.

Tables 15 and 16 document various facets of the socioeconomic transformation that is currently taking place in Thailand. Virtually all socioeconomic indicators are moving in a direction which most observers would consider as reflecting development. Literacy among adults (Table 15) and enrollment in primary school among eligible children

**Table 15. Socioeconomic indicators for whole kingdom, as derived from the 1960 and 1970 censuses, and by residence, as derived from the 1970 census**

| Indicator | Kingdom | | By residence, 1970 | |
|---|---|---|---|---|
| | 1960 | 1970 | Rural | Urban |
| **Education** | | | | |
| % literate | | | | |
| Total aged ≥10 | 70.8 | 81.8 | 80.5 | 89.3 |
| Women aged 20–44 | 38.2 | 82.0 | 80.7 | 89.8 |
| % with secondary or higher education | | | | |
| Women aged 20–44 | 4.2 | 5.8 | u | u |
| Total aged 9–29 | u | 6.4* | 3.4* | 24.3* |
| **Labor force** | | | | |
| % economically active women aged ≥11 | | | | |
| Counting all work statistics | 77.2 | 69.8 | 74.7 | 40.6 |
| Excluding nonpaid family workers | 14.1 | 16.8 | u | u |
| % of economically active population in agriculture | 82.3 | 79.3 | u | u |
| % of economically active women in agriculture | 86.4 | 83.5 | u | u |
| **Geographical mobility** | | | | |
| % not born in province of residence | 12.7 | 14.6 | 11.6 | 34.3 |

*Derived from V. Prasarttong-Osoth, "Population Growth and Educational Development," in Economic and Social Commission for Asia and the Pacific, *Population of Thailand*, Table 122, pp. 119–134 (see reference 28).

Notes: u=unavailable. All indices were derived directly from the whole-kingdom volumes of the 1960 and 1970 censuses (Central Statistical Office, *Thailand Population Census: 1960, Whole Kingdom*, Bangkok, 1962; and National Statistical Office, *1970 Population and Housing Census, Whole Kingdom and Regional Reports*, Bangkok, 1973), except where noted.

**Table 16. Indicators of economic and social development, selected years, 1960–1976**

| Indicator | 1960 | 1964 | 1968 | 1970 | 1974 | 1976 |
|---|---|---|---|---|---|---|
| **Economic growth** | | | | | | |
| G.N.P. per capita index* | 100 | 116 | 144 | 156 | 182 | 191 |
| Agricultural production index* | 100 | 122 | 145 | 169 | 200 | 215 |
| Total industrial production index* | 100 | 148 | 240 | 291 | 462 | 527 |
| **Communications** | | | | | | |
| Radios per 1,000 population† | 6 | 54 | 76 | 78 | 125 | u |
| TVs per 1,000 families‡ | u | u | 42§ | u | 102 | 106** |
| Newsprint consumption (kilograms per capita per year)† | 0.7†† | 0.7 | 1.0 | 1.0 | 1.4 | 1.3** |
| **Health** | | | | | | |
| Infant mortality rate per 1,000 live births‡‡ | u | 84§§ | u | u | 56*† | u |
| Maternal mortality rate per 1,000 live births*‡ | 4.2 | 3.2 | 2.7 | 2.3 | 1.7 | 1.5 |
| Life expectancy*¶ | 53.0 | u | u | 57.6 | 60.7*† | u |
| **Urbanization** | | | | | | |
| Percent of population living in municipal areas†* | 12.5 | u | u | 13.2 | 15.5 | 17.0 |

*At constant price of 1962; data from National Economic and Social Development Board, *National Income of Thailand*, 1968–1969 edition and 1976 edition.

†Data from United Nations, *Statistical Yearbook*, various years.

‡Data from National Statistical Office, *Report of Radio and Television Survey, Whole Kingdom 1968–1969, 1975*.

§1968–1969 data. **1975 data. ††1955–1959 data.

‡‡Data from the Survey of Population Change (National Statistical Office, Bangkok, 1976).

§§1964–1965 data. *†1974–1975 data; excludes Bangkok.

*‡Data from Division of Vital Statistics, Ministry of Public Health, *Public Health Statistics*, various years.

*¶1960–1970 data derived from B. Rungpitarangsi, "Mortality Trends in Thailand: Estimates for the Period 1937–1970," Paper No. 10, Institute of Population Studies, Chulalongkorn University, Bangkok, 1974; 1974–1975 data derived from Survey of Population Change (National Statistical Office, 1976).

†*1960 and 1970 data from the census; 1974 and 1976 refer to registration data from Ministry of Interior.

Note: u=comparable rates unavailable.

*Umbrella makers: The whole family works.*

(not shown) are becoming universal. The proportion of the labor force engaged in agriculture is decreasing slightly (Table 15), while the proportion of the gross domestic product derived from industrial activity is increasing (Table 16). Both geographical mobility (Table 15) and the percent living in urban areas (Table 16) are on the rise. Rapid change is occurring in the area of communications (Table 16) as an ever-increasing proportion of the population is reached by the mass media. Life expectancy is rising as infant mortality is declining (Table 16). As in most Third World countries, development and its impact in Thailand are spread unevenly among the different segments of the population. While some regional differences are prominent,[26] considerably more impressive is the contrast between the rural and urban populations. For many important aspects of life, the gap between rural and urban residents remains large (Table 15).[27] Indeed, some of the changes evident in the socioeconomic indicators are largely limited to the urban population. This is decidedly *not* true, however, with respect to the fertility transition.

Perhaps even more striking than the degree of socioeconomic improvement that appears to be coincident with the fertility decline is the relatively modest level of development implicit in a number of socioeconomic indicators at the onset of fertility decline. The vast majority of Thais still live in rural areas (Table 16) and are engaged in agriculture (Table 15). While illiteracy has largely disappeared, very few Thais have more than a primary education (Table 15). Although electric power production is increasing at a dramatic pace, in 1970 only 17 percent of all dwellings, and 13 percent of rural dwellings, had access to electricity.[28] Per capita income is slightly below average compared to income in developing countries generally.[29]

One aspect in which Thailand does stand out is in its apparently very high female labor force participation rates. However, as may be seen in Table 15, these high rates are partially a statistical artifact attributable to the inclusion of unpaid family workers in the definition of the economically active population used by the statistical office.[30] Undoubtedly, differences in the way these women were categorized in the 1960 and 1970 censuses account for the decline in the percent of economically active women shown in Table 15, since female labor force participation increases between the two censuses when nonpaid family workers are excluded. Definitional problems aside, most observers still agree that labor force participation among women is high in Thailand compared to most developing countries, and that women play important economic roles in Thai society.[31] In addition to producing a sizable proportion of the family income through their marketing activities, Thai peasant women (and, often, urban women as well) generally control family finances.[32] In urban areas, it is not uncommon for women to work for wages or as independent vendors both before and after marriage.[33]

Thailand is considerably less developed and more populous than other Asian countries which have experienced recent rapid fertility declines, such as Taiwan, Hong Kong, Singapore and, to a lesser extent, Korea. In all of these countries, active family planning programs as well as substantial socioeconomic development have accompanied the reduction in fertility levels and the increasing use of contraception. It is likely that there is an important interaction between development and effective family planning programs[34] that has resulted in the dramatic changes that have been occurring in reproductive patterns. The family planning program's contribution is especially important in Thailand, where fertility decline is occurring at a time when the population is still over four-fifths rural and the economy is overwhelmingly agricultural. While socioeconomic development undoubtedly has also played a role, it is notable that within Thailand, there is not a particularly good fit between the level of development and the extent and pace of fertility decline.

Regionally, the north of Thailand is clearly outpacing the rest of the country in the adoption of contraceptive practice and the reduction of fertility.[35] Yet with respect to a number of important socioeconomic indicators, such as the level of educational attainment, urbanization and infant mortality, the north appears to be less advanced than the rest of Thailand.[36] Thus, the experience of Thailand seems to confirm the conclusion drawn from the historical record of developed countries that it is very difficult to determine a meaningful threshold of development necessary for the fertility transition to begin.[37]

## Summary and Conclusions

Data collected in several national sample surveys conducted between 1969 and 1975 help document the remarkable changes in reproductive patterns that are now under way in Thailand. During the 5-6 years covered by the surveys, marital fertility appears to have declined by close to 20 percent. The reduction in fertility indicated by marital fertility rates is supported by data showing decreases in the percent of women who are currently pregnant and increases in the mean interval since last birth. The percentage of wives practicing contraception has increased from 15 to 37 percent. These changes have been particularly pronounced among rural couples. As a result, although fertility remains lower and contraceptive use higher in urban areas, the urban-rural gap is beginning to close. Contraceptive knowledge has apparently increased rapidly in the recent past, and is now close to universal among married women. The preferred number of children is also declining, although among rural women the decline in desired family size appears to be quite recent. Since the historical experience of developed countries, as well as the more contemporary experience of several developing countries, suggests that both fertility decline and increases in the use of family limitation are virtually irreversible processes,[38] it seems relatively safe to conclude that Thailand is now in the midst of a major transition from high to low levels of fertility.

Although we have made no systematic attempt to analyze the causes of the fertility decline in Thailand, there are sev-

eral inferences regarding the process of fertility transition which we believe might be drawn from the Thai experience. Although we offer these inferences as conclusions to our present analysis, we hasten to add that they are largely impressionistic and should be considered rather as hypotheses deserving more rigorous scrutiny than as firm conclusions based on the evidence presented here.

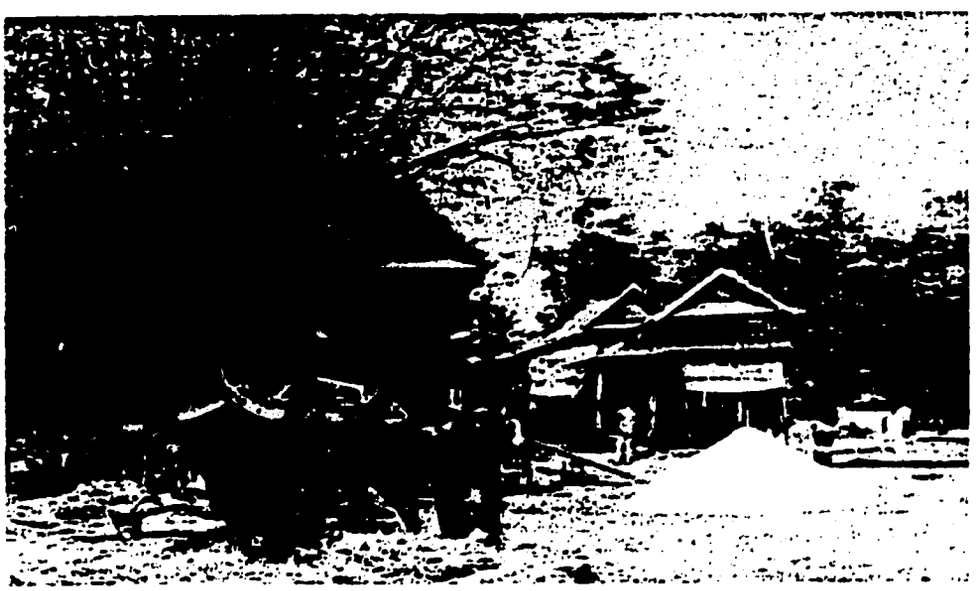
1. *The spread of family limitation practices can precede and influence declines in preferred family size.* The Thai experience seems to confirm that two related but conceptually distinct processes are involved in the fertility transition as it occurs in a number of developing countries. The predominant feature of the initial stage is a switch from the general absence of deliberate birth control within marriage to the initiation by a substantial minority of couples of family limitation practices. Fertility begins to decline *without* an accompanying change in preferred family size. After a brief period, these changes in the practice of birth control and the increasing awareness of the possibility of family limitation lead to reductions in desired family size, further increases in contraceptive use and further declines in fertility. We appear to be witnessing such a sequence of events in the survey data presented for rural Thai women. In urban areas, where contraceptive use was already moderate at the time of our initial observations, the initial stage may already have been passed.

Survey data on family size preferences, where they exist at all, are of only relatively recent origin, and, thus, any earlier changes in preferences can only be the subject of speculation. In addition, the balance between actual fertility and family size preferences, to the extent to which such preferences were articulated at all, must have changed as mortality declined. What is clear, however, is that responses to the initial surveys—which, in Thailand and in a number of other countries, were taken just prior to the onset of recent fertility declines—indicate that desired fertility was lower than actual fertility and that the very awareness of the idea of fertility control, as well as knowledge of and access to acceptable techniques of birth control, was often lacking among large proportions of the population.[39] Under such circumstances, the introduction of the concept and means of modern birth control through family planning organizations and other channels could have considerable appeal for the population at large. At this stage, the advantages of controlling family size may well be more readily and more universally apparent to couples than the advantages of having a small family.

Once the possibility of limiting family size is more commonly realized, and as more couples practicing birth control and experiencing the advantages associated with it become available as examples, smaller family size preferences may become both realistic and desirable, thus initiating the second process involved in the fertility transition, the reduction in desired family size. Increasing awareness of the possibility of family limitation may also help crystallize family size preferences. Thus, in the early stage of the fertility transition, fertility desires may respond to the spread of family planning practices as well as the reverse. As the transition proceeds, both processes occur concurrently and probably are mutually reinforcing. As long as the decline in desired fertility keeps ahead of the decline in actual fertility, increases in the demand for family planning services will continue to be generated.

2. *The modernization of tastes and attitudes influencing fertility-related behavior may in some cases be linked only weakly to socioeconomic development.* Although Thailand is not among the least developed of the Third World countries, it does not rank particularly high with regard to a number of conventional indices of socioeconomic development. Most striking, perhaps, is the fact that the fertility transition is taking place while the Thai population is still overwhelmingly rural and agricultural. In addition, although socioeconomic differentials exist in contraceptive use, family size preferences and fertility rates, and although better educated urban couples may have adopted more modern fertility behavior somewhat earlier than other couples, there seems to be a general receptivity among broad segments of the population to the changes in reproductive patterns that are now taking place. Indeed, the least educated of rural couples seem to be full participants in the current fertility transition.

Given the rapid expansion of the communications and transportation networks made possible by minibuses and transistor radios, the isolation of village life is giving way to an increasing exposure to a wider range of modern fashions, consumer goods and life-styles. In response, aspirations, tastes and attitudes can change rapidly without large proportions of the population moving to urban areas or working in the industrial sector of the economy. Through direct messages regarding family planning, and indirect messages instilling aspirations and tastes that compete with uncontrolled fertility, the expanding transportation and communications network can have an important impact on reproductive behavior that is only loosely linked to other changes in the socioeconomic structure. In addition, the socioeconomic changes that are taking place simultaneously may well help to reinforce the newly emerging attitudes and behavior regarding fertility.



*Threshing rice. Eight out of 10 Thais still work in agriculture.*

3. *Cultural factors, including the status of women, may be important in facilitating or inhibiting the fertility decline, to a large extent independently of the level of socioeconomic development.* Conventional statements of demographic transition theory have generally focused on mortality and socioeconomic change as the major causal factors involved in generating changes in traditional high fertility patterns. The importance of the cultural context has been largely ignored, at least until recently.[40] The Thai experience suggests that cultural factors may exert an important influence on fertility decline.

Some observers have claimed that Thai culture in general and Theravada Buddhism—the predominant religion—in particular tend to encourage a "loosely structured" social system which is unusual in its flexibility.[41] Indeed, Buddhism as practiced in Thailand emphasizes that each individual is responsible for his or her own salvation, and undoubtedly contributes to the unusual tolerance often associated with Thai culture. Buddhism contains no scriptural prohibitions against contraception, and Buddhist doctrine is not especially pronatalist.[42] Thus, the permissiveness of Buddhist culture may well contribute to the relative ease with which modern tastes, attitudes and behavior, including the modernization of reproductive patterns, are taking hold in Thailand.

Regional fertility differences in Thailand seem to confirm the importance of cultural factors. The northern and southern regions of Thailand, although similar according to a number of socioeconomic indices,[43] are quite distinct culturally, and provide an interesting contrast in fertility patterns. The south, which contains a large proportion of Moslems, many of whom speak in a Malay dialect, is probably the most culturally distinct region of Thailand. It is also characterized by higher than average fertility and the lowest prevalence of contraception.[44] Northern Thai culture, on the other hand, is noted for its greater degree of permissiveness regarding sexual behavior. The fertility decline in the north has been particularly rapid and contraceptive usage levels are unusually high. The earlier, dramatic fertility decline in the northern provinces of Chiang Mai and Lamphun is probably attributable to the efforts of a private family planning program which preceded the official government program by several years and relied heavily on injectable contraceptives.[45] However, results of a recent study of northern Thai fertility show that the neighboring province of Chiang Rai, which was outside the scope of the earlier nongovernment program, also experienced unusually rapid increases in contraceptive use and fertility decline once the government program began.[46] Thus, cultural factors may make northern Thais particularly receptive to modern fertility behavior once contraception is available.

*Making rice paper: Women play key economic and social role.*

The status of women in Thailand may also have helped facilitate the current transformation of reproductive patterns. Improvement of women's status is usually considered part of the general process of socioeconomic development, but in Thailand women have traditionally experienced relative social and economic freedom. Thai women actively participate in many aspects of social and economic life. As a result, they are linked, like Thai men, to the modern communication networks that seem to be developing so rapidly as a result of the dramatic expansion of the mass media and the transportation system. Thus, even rural women are increasingly exposed to modern ideas and life-styles. Since most of the contraceptive techniques that have been responsible for the reduction of fertility in Thailand are female methods, and since the burden of childbearing and much of the burden of childrearing is borne by women, it is particularly important that women, as well as men, are exposed to those modernizing influences that are supposed to have an impact on fertility. It is noteworthy that the strong preference for sons which is common in a number of Third World cultures is not seen among Thai couples—and especially Thai women.[47]

4. *Deliberate intervention through organized family planning programs can have a substantial impact on facilitating the fertility transition in a receptive setting.* The development of a strong, widespread national family planning program corresponds fairly closely to the timing of the fertility decline in Thailand, especially in rural areas. It is highly unlikely that this is merely coincidental. We do not have any data that show directly the proportion of contraceptors who obtain services from the family planning program. However, program service statistics indicate a level of program activity so high that many contraceptive users, especially among rural women, have probably received their methods through the program. Furthermore, we have been able to demonstrate that measures of program activity based on service statistics are related in the expected direction to the level of fertility and extent of contraceptive use among women included in the rural portion of the 1975 SOFT sample. We cannot say with certainty that fertility would not have fallen as fast as it did, and that contraceptive use would not have increased as rapidly, if the program had not been in operation. But the evidence clearly points in this direction.

Family planning programs do not necessarily have such a substantial impact in all settings. However, it is plausible that the introduction of a program which provides reasonably accessible and diversified services, along with publicity for the very idea of family limitation and service availability, could have considerable impact on contraceptive use and fertility patterns in situations like Thailand's where actual fertility exceeds desired fertility, where awareness of family limitation is just emerging, where women are linked to the broader communications and transportation network, and where there are no strong cultural proscriptions against birth control.

There is undoubtedly an important interaction between family planning programs and socioeconomic development that brings about fertility decline. Without an adequate infrastructure for the de-

livery of health services, for example, it seems unlikely that the family planning program in Thailand would have been nearly as effective as it has been. At the same time, Thailand remains at a rather early stage of development as it is usually defined. Clearly, it is important to attempt to identify factors other than socioeconomic development, at least in the conventional sense, which can facilitate the onset of a rapid fertility transition. This is what we have attempted to do for Thailand.

**References**


1. L. R. Brown, P. L. McGrath and B. Stokes, "Twenty-Two Dimensions of the Population Problem," Worldwatch Paper No. 5, Worldwatch Institute, Washington, D.C., 1976.

2. J. Vallin, "La Population de la Thailand," *Population*, 31:154, 1976.

3. J. Knodel, unpublished research.

4. Ministry of Public Health, Thailand, *Public Health Statistics, A.D. 1972*, Bangkok, 1976; and Division of Vital Statistics, 1977, unpublished data.

5. T. Pardthaisong, "The Recent Fertility Decline in the Chiang Mai Area of Thailand," Paper No. 47, East-West Population Institute, Honolulu, 1978; and Division of Vital Statistics, Thailand, 1977, unpublished data.

6. R. Retherford and L.-J. Cho, "Comparative Analysis of Own Children Fertility Estimates in Pakistan, the Philippines and Thailand," paper presented at the Conference on Comparative Fertility Transition in Asia, Tokyo, Mar. 27-31, 1978.

7. Institute of Population Studies, Chulalongkorn University, and Population Survey Division, National Statistical Office, *The Survey of Fertility in Thailand: Country Report* [1975], Vols. I and II, Bangkok, 1977, p. 55.

8. T. Pardthaisong, 1978, op. cit.

9. J. Knodel and V. Prachuabmoh, "Demographic Aspects of Fertility in Thailand," *Population Studies*, 28:423, 1974; and R. Retherford and L.-J. Cho, 1978, op. cit.

10. P. Smith, "Tradition and Transition in South, Southeast and East Asian Nuptiality," paper presented at the annual meeting of the Population Association of America, St. Louis, Mo., Apr. 21-23, 1977; A. Chamratrithirong, "Fertility, Nuptiality and Migration in Thailand, 1970 Census: The Multiphasic Response Theory," unpublished Ph.D. thesis, Brown University, Providence, R.I., 1976; and Institute of Population Studies, 1977, op. cit.

11. J. Knodel, "Family Limitation and the Fertility Transition: Evidence from the Age Patterns of Fertility in Europe and Asia," *Population Studies*, 31:219, 1977.

12. A. J. Coale and T. J. Trussell, "Model Fertility Schedules: Variations in the Age Structure of Childbearing in Human Populations," *Population Index* 40:185, 1974 (see also Erratum, *Population Index*, 41:572, 1974);——"Technical Note: Finding the Two Parameters That Specify a Model Schedule of Marital Fertility," *Population Index*, 44:203, 1978; and J. Knodel, 1977, op. cit., pp. 221-224.

13. J. Knodel, 1977, op. cit., pp. 236-237; and T.-H. Sun, H.-S. Lin and R. Freedman, "Trends in Fertility, Family Size Preferences, and Family Planning: Taiwan, 1965-1976," *Studies in Family Planning*, 9:54, 1978.

14. T.-H. Sun et al., 1978, op. cit.

15. S. Goldstein, A. Goldstein and P. Tiesarwat, "The Influence of Labor Force Participation and Education on Fertility in Thailand," Research Report No. 9, Institute of Population Studies, Chulalongkorn University, Bangkok, 1972; and J. Knodel and V. Prachuabmoh, "The Fertility of Thai Women," Research Report No. 10, Institute of Population Studies, Chulalongkorn University, Bangkok, 1973, pp. 55-58.

16. T.-H. Sun et al., 1978, op. cit.

17. V. Prachuabmoh, J. Knodel, S. Prasithrathsin and N. Debavalya, "The Rural and Urban Population of Thailand: Comparative Profiles," Research Report No. 8, Institute of Population Studies, Chulalongkorn University, Bangkok, 1972, pp. 31-33.

18. A. G. Rosenfield and S. Varakamin, "The Postpartum Approach to Family Planning," *American Journal of Obstetrics and Gynecology*, 113:1, 1972.

19. A. G. Rosenfield, "The Development and Implementation of a Population Policy in Thailand," paper presented at the annual meeting of the Association for Asian Studies, New York, Mar. 1977.

20. N. H. Wright, C. Suipluem, A. G. Rosenfield and S. Varakamin, "Nurse-Midwife Insertion of the Copper T in Thailand: Performance, Acceptance and Programmatic Effects," *Studies in Family Planning*, 8:237, 1977.

21. R. Freedman, L. C. Coombs, M.-C. Chang and T.-H. Sun, "Trends in Fertility, Family Size Preferences and Practice of Family Planning: Taiwan, 1965-1973," *Studies in Family Planning*, 5:270, 1974; and J. Ross and K. Suk Koh, "Transition to the Small Family: A Comparison of 1964-1973 Time Trends in Korea and Taiwan," in Y. Chang and P. J. Donaldson, eds., *Population Change in the Pacific Region*, 13th Pacific Science Congress, Vancouver, 1977.

22. J. Knodel, 1977, op. cit., pp. 245-246; and C. F. Westoff, "The Unmet Need for Birth Control in Five Asian Countries," *International Family Planning Perspectives and Digest*, 4:9, 1978, Table 10 (and discussion).

23. A. G. Rosenfield, 1977, op. cit.

24. V. Chamnanloet and B. Leoprapai, *Report on Contraceptive Continuation Rates and Use-Effectiveness in Bangkok, Metropolis: 1975*, Institute for Population and Social Research, Mahidol University, Bangkok, 1976; J. O. Alers and C. Suwanwajk, eds., *Continuation of Contraceptive Practice in Thailand: The 1971 Follow-Up Survey*, Bangkok Research and Evaluation Unit, National Family Planning Program, Ministry of Public Health, Bangkok, 1974; and P. Donaldson, *Continuation of Oral Contraceptive Practice in Thailand: The 1974 Follow-Up Survey*, Bangkok Research and Evaluation Unit, National Family Planning Program, Ministry of Public Health, Bangkok, 1976.

25. J. Knodel and P. Pitaksopombati, "Fertility and Family Planning in Thailand: Results from Two Rounds of a National Study," *Studies in Family Planning*, 6:402, 1975.

26. Economic and Social Commission for Asia and the Pacific, *Population of Thailand*, ESCAP Country Monograph Series No. 3, Bangkok, 1976.

27. V. Prachuabmoh et al., 1972, op. cit.

28. International Bank for Reconstruction and Development, *World Tables*, Johns Hopkins University Press, Baltimore, 1976.

29. ——, *World Bank Atlas*, Johns Hopkins University Press, Baltimore, 1976.

30. N. Debavalya, "Labor Force Composition of Thailand," *The Journal of Social Sciences*, 7:143, 1971; and B. Leoprapai and J. Rachapaetayakom, "Economic Activity of the Population," in Economic and Social Commission for Asia and the Pacific, 1976, op. cit., pp. 135-154.

31. L. Sharp, "Neglected Entrepreneurs in Thailand," *Social Science Review Quarterly*, 8:58, 1970-1971.

32. J. de Young, *Village Life in Modern Thailand*, University of California Press, Berkeley, 1955, p. 24.

33. V. Prachuabmoh et al., 1972, op. cit., pp. 24-28.

34. K. S. Srikantan, *The Family Planning Program in the Socioeconomic Context*, The Population Council, New York, 1977; and W. P. Mauldin and B. Berelson, "Conditions of Fertility Decline in Developing Countries: 1965-1975," *Studies in Family Planning*, Vol. 9, No. 5, 1978 (forthcoming).

35. T. Pardthaisong, 1978, op. cit.; and Northern Thailand Fertility Study Team, "Fertility and Family Planning in Rural Northern Thailand: A Preliminary Report from the 1976-1977 Northern Thailand Fertility Study," *Studies in Family Planning*, Vol. 9, 1978 (forthcoming).

36. J. Knodel and A. Chamratrithirong, "Infant Mortality in Thailand: Levels, Trends and Differentials as Derived Through Indirect Techniques," unpublished manuscript, 1978; and Economic and Social Commission for Asia and the Pacific, 1976, op. cit.

37. E. van de Walle and J. Knodel, "Demographic Transition and the Fertility Decline: The European Case," paper presented at the 1967 Conference of the International Union for the Scientific Study of Population, Sydney, Aug. 21-25, 1967, and published in *Contributed Papers*, Australian National University Press, Sydney, 1968, pp. 47-55.

38. J. Knodel, 1977, op. cit.

39. W. P. Mauldin, "Fertility Studies: Knowledge, Attitude and Practice," *Studies in Family Planning*, Vol. 1, No. 7, 1965, p. 1.

40. A. J. Coale, "The Demographic Transition," paper presented at the 1973 Conference of the International Union for the Scientific Study of Population (IUSSP), Liège, 1973, and published in *Contributed Papers*, IUSSP, Liège, 1973, Vol. 1, p. 53.

41. J. F. Embree, "Thailand: A Loosely Structured System," *American Anthropologist*, 52:181, 1950.

42. R. Thomlinson, *Thailand's Population: Facts, Trends, Problems, and Policies*, Thai Watana Panich Press, Bangkok, 1971, pp. 95-96.

43. Economic and Social Commission for Asia and the Pacific, 1976, op. cit.

44. Institute of Population Studies, 1977, op. cit.

45. T. Pardthaisong, 1978, op. cit.

46. Northern Thailand Fertility Study Team, 1978, op. cit.

47. J. Knodel and V. Prachuabmoh, "Preferences for Sex of Children in Thailand: A Comparison of Husbands' and Wives' Attitudes," *Studies in Family Planning*, 7:137, 1976.