

## Fertility Preferences in Thailand

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### Introduction

Future trends in fertility in Thailand are a hotly debated issue in Thailand (see Wongboonsin and Prachuabmoh-Ruffolo, 1993; Guest and Jones, 1996; Knodel et al, 1996; Pardthaisong, 1996). Much of the debate centers on the lower limits of fertility decline. During the last three decades, Thailand has undergone some of the most rapid fertility declines ever recorded. The most recent estimate of TFR from the 1996 Contraceptive Prevalence Survey (CPS96) is 1.98 for the period 1994-1995 (Chamrathirong et al, 1997). This suggests only very moderate declines since the most recent national surveys conducted in the latter half of the 1980s.

Knodel et al. (1996) argue that fertility preferences of Thai couples set the lower limit for fertility decline. They state that most Thai couples now want two children, one of each sex. Furthermore, they argue that the changes that have occurred in fertility preferences have largely been in terms of increasing the concentration of couples who want two children, rather than larger numbers who want no children or only one child. Others, such as Pardthaisong (1996) use past declines in fertility to project future levels of fertility. This procedure is also employed in the official population projections of Thailand (NESDB, 1995) and results in low levels of expected future fertility. Guest and Jones (1996) argue that fertility decline can still occur in Thailand, in part because of the changing composition of Thai society, where an increasing proportion of couples are found in those categories where the desired number of children is low.

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Knowledge of future fertility plans are required in order to undertake more accurate projections of the population. There exists no country where, after the fertility transition has been completed, fertility has remained constantly low. In most developed societies below replacement levels of fertility were attained several decades ago, however, fluctuations in fertility have continued to occur, albeit at low base levels. These fluctuations have important planning implications and considerable research attention is paid in developed countries to monitoring and attempting to predict fertility trends. Fertility plans of couples in their reproductive ages are an essential component in such research efforts.

In this paper we use data from a recently completed national survey of contraceptive use to document fertility preferences of currently married Thai women. We also examine variations in fertility preferences across a range of variables. Finally, we will compare our results with earlier studies on this topic, particularly that of Knodel et al. (1996) in order to examine the extent of change.

### **Fertility Decline and Contraceptive Use**

The rapid decline in fertility that has occurred in Thailand over the last 30 years has been labeled a 'reproductive revolution' (Knodel et al. 1987). The fertility declines that began in the urban areas in the early 1960s had spread to rural areas by the end of the decade. In some areas fertility fell to below replacement levels extremely rapidly. For example, the TFR was below two in Chiang Mai province by 1978 (Pardthaisong, 1988).

Survey results indicate that changes in attitudes toward childbearing preceded the change in behavior. Knodel and Prachuabmoh (1973), using the 1969-70 Longitudinal Survey data, found little difference in desired family size between urban and rural residents. However, the similarities in family size desires of urban and rural

women were only translated into similarities in behavior when rural women gained easy access to contraceptives in the middle of the 1970s.

The rapidity of the fertility transition in Thailand is its most distinctive characteristic. From Total Fertility Rates (TFR) slightly over six in the early 1960s, fertility had declined to a TFR of 1.98 in 1994-95 (Chamrathirong et al, 1997). The main factor in the decline of fertility in Thailand has been the acceptance of contraception. The contraceptive prevalence rate (CPR) among currently married women aged 15-44 increased from approximately 15 per cent at the commencement of the National Family Program in 1970 to 53 per cent in 1978, 64 per cent in 1984, and exceeded 72 per cent in 1996 (Chamrathirong et al, 1997). Although this means that the target established by the National Family Planning Program of 77 per cent to be attained by the end of the Seventh Plan (1996) was not met, a CPR of around 70 per cent, given the mix of contraceptives used in Thailand, is sufficient to maintain fertility at, or slightly below, replacement levels (Bennett et al. 1990).

Regional differences in fertility and contraceptive use have narrowed over the course of the fertility transition. Fertility reductions in the South and Northeast, commencing from higher levels in the early 1970s, began to catch up with the pace of the decline of the other three regions. Results from the 1996 Contraceptive Prevalence Survey (CPS96) show that TFRs ranged from a low of 1.68 in Bangkok to a high of 2.11 in the Northeast (Chamrathirong et al. 1997). Compared with data from the 1987 Contraceptive Use Prevalence Survey (CUPS), in 1996 only in Bangkok, where the CPR held steady at 72 per cent, was there no regional increase in levels of contraceptive use. The Southern region which, at 55 per cent, had the lowest levels of use, was at a level achieved in the other regions at the end of the 1970s (Bennett and Chamrathirong, 1988). Results from another survey, The Thailand Demographic Health Survey (TDHS), held in the same year as CUPS, show slightly lower levels of use, with a national level of 67.5, but similar regional ranking with the North and Central regions having the highest levels of use, followed by Bangkok, the Northeast,

and the South (Chayovan et al. 1988). In 1996, the CPR of Bangkok, the North and the Central regions were approximately the same (between 75 and 76 percent), was slightly lower for the Northeast at 71.6 percent, and only in the South was the CPR, at 61.6, significantly below the national average (Chamrathirong et al. 1996).

The dominant role that contraception played in the fertility decline in Thailand demonstrates the importance of changes in reproductive intentions. Thai couples wanted to reduce their family size and turned to contraception, and to a lesser extent abortion, to achieve their desired family sizes. The rapidity of the fertility decline, the rapid increases in knowledge of contraception and the changes in contraceptive mix towards more effective methods suggest that there were relatively few social, cultural or religious barriers to limiting family size (Knodel et al. 1987). Meanwhile the provision of knowledge of family planning and of contraceptive supplies allowed couples to achieve their reproductive goals.

The latest data previously available on fertility preferences of Thai women, indicate that the majority desire only 1 or 2 children, a very small proportion want no children, and only about 6 per cent want more than 4 children (NSO, 1993). These expressed fertility desires are now at levels that, with access to effective methods of contraception, are compatible with replacement level fertility. Knodel et al (1996) analyses changes in fertility preferences over a number of years and conclude that Thai couples have an aversion to having less than two children. They suggest that this means that fertility will not decline to levels significantly below replacement level.

Underlying the small family sizes and preferences of Thai couples is a social and economic context that can be expected to provide continued support for low fertility. For the last decade Thailand has had a booming economy (see Warr, 1993). Even although a fair share of the benefits of these economic changes has not reached the mass of the population (Krongkaew, 1993), economic growth has created a social

context in which it is perceived that social mobility depends on investment in the education and training of children (Knodel, 1994).

The factors that led to the current low levels of fertility are not static. Pressures for low fertility will continue and in fact could increase. For example, Knodel (1994) has recently documented the increasing aspirations of Thai parents for their children, both male and female, to receive a higher level of education. The costs of education after primary school are significant for poor families, especially for those in rural areas. These costs, in combination with increasing demand for skilled workers, and declining opportunities for those with little education, could place more downward pressure on fertility levels. However, to the extent that cultural preferences put a lower limit on fertility desires, future fertility declines are likely to be modest.

### **Data**

Fertility has been the most intensively studied of the demographic processes in Thailand (Knodel et al. 1987). One of the major reasons for the success of family planning efforts was the availability of data and research findings on contraceptive use (Bennett et al. 1990). National surveys of contraceptive use commenced in 1978 with the Contraceptive Prevalence Survey (CPS I). Three other national surveys followed at three year intervals: CPS II, CPS III, and the Determinants and Consequences of Contraceptive Use Patterns in Thailand (CUPS) in 1981, 1984 and 1987 respectively. Thailand has also participated in the two major international fertility data collecting efforts, the World Fertility Survey (SOFT) in 1975 and the Demographic and Health Survey (TDHS) in 1987. The Surveys of Population Change (SPC), the last of which occurred in 1995, also collected information on fertility. However, no specialized national survey on contraception and fertility had been carried out since 1987 until the Institute for Population and Social Research of Mahidol University conducted a national survey in 1996. This survey known as CPS96, is the main source of data used in the this report.

CPS96 was fielded between October, 1996 and January 1997. The sample design was multistage and was intended to obtain data that was representative of the five regions of Thailand and of rural and urban areas. Districts were used as the first stage unit of selection in rural areas. The second stage of selection was villages and the third stage was the household. In Bangkok, the first stage was urban districts, followed by census blocks and then households. For provincial urban areas, the first stage selections was urban areas, followed by census blocks and then households. In the first and second stages of selection for all strata, selection was based on the probability of selection being proportional to the population size of the area.

The target population was women aged between 15 and 49, irrespective of marital status. From the households selected, 14,399 eligible women were identified and interviews were completed with 9,588 of these women. The data are weighted to reflect the age and regional distribution of women aged 15-49 in Thailand. More detailed information about the design, contents and results of the survey can be found in Chamrathirong et al. (1997).

There are several questions available from the survey that can be used to analyze fertility preferences. These questions include the desired number of additional children and the total desired number of children. The question on desired number of children asked for the total number of desired children, the desired number of children irrespective of sex and, if there was a sex preference, the desired number of boys and the desired number of girls. Similar questions were asked about the ideal number of children. This paper focuses on the fertility preferences of currently married women.

## Results and Discussion

The data shown in Table 1 illustrate the low levels of fertility achieved by the Thai population. Currently married women aged 45-49, who have essentially completed

their childbearing, had on average slightly over three children each. Women aged 35-39 had on average only 2.28 children.

**Table 1 Mean number of living children, mean hypothetical completed fertility<sup>1</sup> and percentage distribution of desire for additional children: by age group of currently married women**

Indicator	Age Group							Total
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
Mean number of children ever born	0.62	0.99	1.49	1.91	2.28	2.75	3.28	1.91
Mean hypothetical fertility	1.95	2.08	2.27	2.46	2.54	2.90	3.42	2.49
Percent desiring additional children								
Want	75.1	68.4	48.0	28.4	12.3	7.4	5.8	33.8
Not want	17.5	25.8	46.2	65.2	84.1	90.6	92.7	61.5
Not sure	7.4	5.8	5.9	6.5	3.6	2.0	1.5	4.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source : CPS96

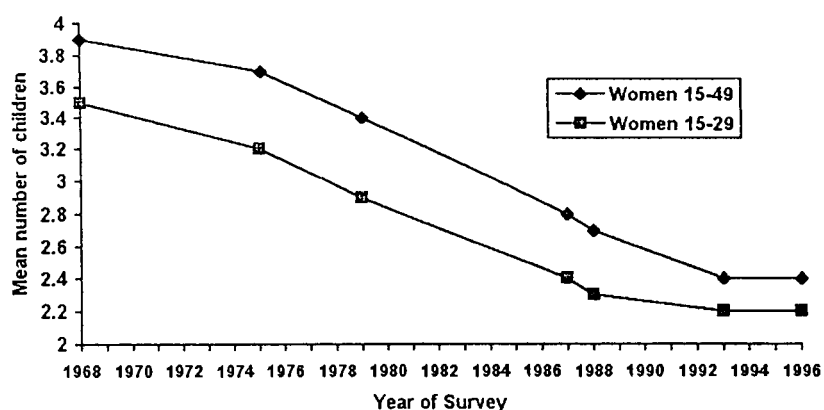
Note : <sup>1</sup> Hypothetical fertility is measured as children ever-born plus additional children desired.

The hypothetical completed fertility, which is constructed by summing children-ever-born with number of additional children desired, shows that the average number of children born at the end of childbearing of currently married women aged 15-49 would be approximately 2.5 children if they had the exact number of additional children that they currently desired. What is most striking, however, is that the lowest average number is almost two, for age group 15-19, and is approximately at replacement level for women currently in their twenties. These results suggest that for most married women two children are seen as their desired completed family size.

The percentage of women desiring more children falls rapidly after age 20-24. At this age, approximately one-quarter of currently married women desire no more children, by age 25-29 almost one-half want no more children, for ages 30-34 almost two-thirds desire no additional children and at ages 35-29 approximately 85 percent desire no more children. Therefore approximately one-half of married women have achieved their desired family size while still in their twenties. It is also notable that the desire to have, or not to have, additional children is clear-cut for most women, with fewer than 10 percent of women in each age group unsure about whether to have additional children. This is evidence of clear fertility targets among Thai couples.

The trend in the average number of desired children is similar to that described above for fertility. In the late 1960s and early 1970s there was a gradual decline in mean desired number of children by currently married women from almost four children for women aged 15-49 in the late 1960s to around 3.8 in 1975. From 1975 declines were rapid, with the average desired number being around 2.7 in 1988. There were further declines to around 2.4 in 1993, a number that is also recorded in the 1996 CPS (see figure 1)..

Figure 1  
MEAN DESIRED NUMBER OF CHILDREN OF CURRENTLY MARRIED WOMEN :  
SELECTED YEARS



Sources: Except for 1996, data are drawn from Knodel et al (1996). Data for 1996 are from CPS96. Data for 1968 are for the period 1966-1970.



For the period of the late 1960s to the late 1980s, the trends for currently-married women aged 15-29 are very similar to those described above for all currently married women aged 15-49. During this period the mean desired number of children for currently married women aged 15-29 was generally 0.4 to 0.5 of a child less than that of women aged 15-49. The lower desired number of children for the younger age group of women reflects the rapid change in fertility preferences that was sweeping through Thailand, and that was being expressed first in the lower fertility preferences of women who were just beginning their reproductive life. By 1988, the average number of desired children of married women aged 15-29 was already at the low level of 2.3 and by 1996 had only marginally declined to 2.2, the same level reported in 1993. Therefore in 1996 the difference in average desired number of children between those aged 15-29 and those aged 15-49 was only 0.2 of a child. Fertility desires had reached a lower limit of slightly more than two, and this number for younger women had remained relatively constant for a considerable period of time, allowing the over mean levels for all women in the reproductive ages to decline to almost the same level.

It is very clear that underlying fertility desires have changed little over the last decade in Thailand. For young women, the average number of desired children has remained relatively constant since 1988. By 1996, most of the women aged 20-29 in 1988 were in their thirties and their low level of fertility preferences formed during the 1980s, remained unchanged as they moved through their thirties. Hence the relatively large decline in desired fertility observed for the late 1980s and early 1990s was more a result of older women with preferences for high fertility moving out of the reproductive ages, rather than a continuing decline in desired fertility levels among current cohorts of reproductive aged women.

*In Table 2 regional variations in the distributions of desired number of children for currently married women aged 15-49 (top panel) and currently married women aged 15-29 (bottom panel) are shown. Only the South stands out as a region that has a pattern of desired fertility that is substantially different from other regions.*

Furthermore, a comparison of the two age groups suggest that there has been only very slight changes in fertility preferences among women in the South. Whereas 54 percent of women in the South aged 15-49 desired three or more children, the corresponding percentage for those aged 15-29 was 49. The respective percentages for the other four regions were: 29.4 vs. 23.3 (Bangkok), 33.3 vs. 18.7 (Central), 20.6 vs. 11.6 (North), and 38.6 vs. 22.6 (Northeast). Apart from the South, five percent or less of currently married women aged 15-29 wanted four or more children, while two percent or less wanted no children. In Bangkok, Central and North regions the percentage of women desiring one children were roughly similar to those desiring three children, while in the Northeast the proportion wanting three children was several times higher than that for those desiring only one child. In all regions, the modal desired number of children was two.

The pattern of desired number of children by urban and rural residence (see figure 2) illustrate the similarities in reproductive behavior between urban and rural areas. Very little difference can be seen in the distributions of number of children desired by urban and rural currently married women aged 15-29. For both groups, approximately 76 percent desire two or fewer children, while less than five percent desire four or more children. There is slightly greater variation when comparing women aged 15-49 by place of residence, with rural women desiring on average a greater number of children, but these differences are not great and reflect the lag in onset of the fertility transition in rural areas compared to urban areas. For women aged 15-29 the differences in timing of the fertility transition has not resulted in differences in desired number of children because the fertility preferences of young women were formed after the fertility transition had swept through both rural and urban areas.

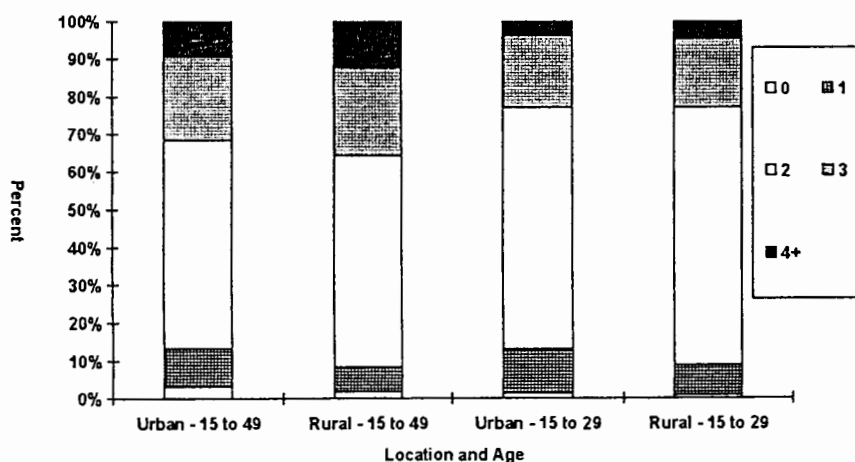
**Table 2 Percentage distribution of desired number of children by region: currently married women aged 15-49 and 15-29**

	Region					Total
	Bangkok	Central	North	Northeast	South	
Currently Married women 15-49						
0	4.5	1.4	5.6	1.0	0.5	2.3
1	11.6	10.7	8.8	4.1	4.8	7.4
2	54.5	55.5	65.1	56.3	40.0	55.7
3	19.6	23.3	13.9	26.6	30.9	23.1
4 or more	9.8	9.0	6.7	12.0	23.9	11.5
Total	100.0	100.0	100.0	100.0	100.0	100.0
N	717	1,451	1,249	2,221	767	6,405
Currently married women 15-29						
0	1.0	1.1	2.2	0.5	0.6	1.0
1	10.7	15.5	11.3	4.5	4.7	8.8
2	64.9	64.7	74.9	72.3	47.7	67.4
3	17.5	16.5	9.1	20.0	31.1	18.3
4 or more	5.8	2.2	2.5	2.6	16.0	4.4
Total	100.0	100.0	100.0	100.0	100.0	100.0
N	205	621	510	1,033	338	2,707

Source : CPS96

Note : A total of 94 women aged 15-49 and 30 women aged 15-29 are excluded because they did not provide a specific number of desired children

Figure 2  
PERCENTAGE DISTRIBUTION OF DESIRED NUMBER OF CHILDREN OF CURRENTLY  
MARRIED WOMEN : BY PLACE OF RESIDENCE AND AGE



Source: CPS96

One of the characteristics that is usually associated with lower desired family size is education. The typical relationship is that women with higher education desire fewer children than those with lower levels of education. In Table 3, the percentage distributions of desired number of children by educational level of currently married women are shown. Among women aged 15-49, there is a very clear division in desired number of children among those with a grade 4 or less level of education and those with a completed level of education of grade 5 or more. Among the former, approximately 45 percent desire three or more children while among the latter groups approximately 25 percent desire three or more.

However, it is very apparent that much of the affect of education might be related to age. The great majority of those with a low level of education are older women. If we examine the desired number of children among women aged 15-29, the differences among education groups are much smaller compared to those observed for all women in reproductive ages. For example, the proportions wanting three or more

children range from 19.5 (grade 11 and above) to 30 (grade 4). Between 57 and 69 percent desire two children. It appears that fertility desires have become standardized to the extent that there are now limited differences among social groups.

**Table 3 Percentage distribution of desired number of children by highest level of completed education: currently married women aged 15-49 and 15-29**

	Education			
	Less than grade 4	Grade 4	Grades 5-10	Grade 11 and above
Currently Married women 15-49				
0	5.7	2.6	1.5	1.9
1	6.1	5.3	8.2	12.2
2	42.8	47.0	64.8	61.2
3	21.3	27.7	20.6	18.2
4 or more	24.1	17.4	4.9	6.5
Total	100.0	100.0	100.0	100.0
N	507	2,487	2,627	765
Currently Married woman 15-29				
0	5.3	0.0	0.8	1.0
1	10.9	9.9	8.0	11.6
2	57.4	60.1	69.0	67.8
3	14.5	21.4	18.8	15.0
4 or more	11.9	8.6	3.4	4.5
Total	100.0	100.0	100.0	100.0
N	137	247	2,000	307

Source: CPS96

Note: see table 2 for details of cases excluded

This standardization of fertility desires at two children can also be seen when we examine fertility desire by current occupation (see Table 4). Only among the small number of women aged 15-29 in the 'other' occupation category do we observe less than 60 percent of women who want two children. In all other occupational groups, and for housewives, between 61 and 71 percent of married women desire two children. The group with the highest percentage who desire two children is those working in agriculture, where 71.1 percent report desiring two children. This is a further indication of the extent that the desire for small families has become the norm among all social groups in Thailand.

An important component of the argument by Knodel et al (1996) that two children is a lower limit to fertility desires among most Thai couples, is that the desire for both boys and girls means that most couples will want at least two children. While there is little or no son preference among Thai couples there does seem to be a clear desire to have families that includes at least one child of either sex. The responsibilities and satisfactions derived from boy and girl children do differ in Thai society and, depending on the strength of preferences for families with a desired sex composition, this could affect the number of children desired. In Figure 3 we show the percentage distribution of sex preference for desired children for currently married women aged 15-49.

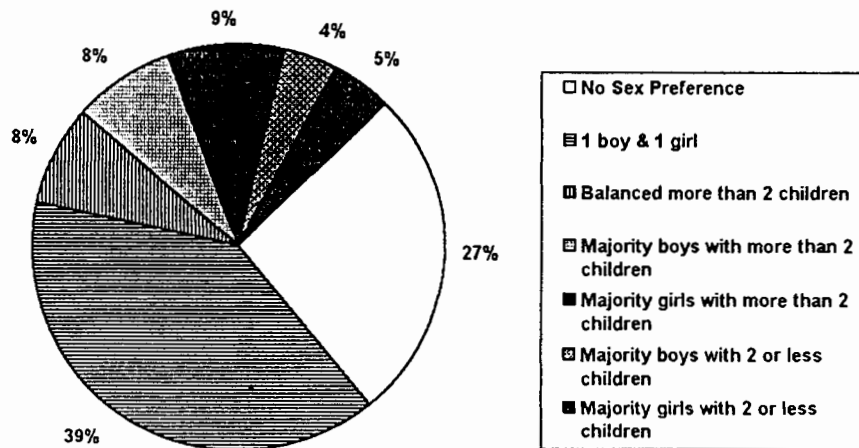
**Table 4 Percentage distribution of desired number of children by current main activity: currently married women aged 15-49 and 15-29**

	Current Activity						
	Agriculture	Professional	Sales and Business	Skilled and semi- skilled	Unskilled	Housewife	Other
Currently married women 15-49							
0	2.0	2.3	3.3	2.6	2.1	2.4	3.0
1	4.9	12.1	8.1	9.5	9.5	9.8	11.0
2	56.1	60.4	52.5	61.3	51.4	57.5	56.7
3	24.6	19.9	24.2	20.0	22.8	19.8	23.1
4 or more	12.4	5.3	12.0	6.6	14.2	10.6	6.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N	2,966	455	939	217	776	913	138
Currently married women 15-29							
0	0.8	2.8	0.8	0.7	1.5	0.8	1.2
1	5.5	10.3	10.2	11.6	12.9	10.8	1.6
2	71.1	70.4	63.2	68.0	61.2	66.7	56.6
3	19.1	15.1	22.6	16.4	17.8	15.0	23.2
4 or more	3.6	1.4	3.2	3.3	6.6	6.7	4.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N	1,215	147	266	108	393	481	97

Source: CPS96

Note: see table 2 for details of cases excluded

Figure 3  
PERCENTAGE DISTRIBUTION OF SEX PREFERENCE FOR CHILDREN:  
CURRENTLY MARRIED WOMEN



Source: CPS96

Almost 40 percent of women stated that they wanted two children, with one girl and one boy. A further 8 percent wanted more than two children with a balanced number of boys and girls. Roughly equal percentages wanted more than two children but with a majority of girls (9 percent) or a majority of boys (8 percent). Similarly, roughly equal proportions of women had desires for 2 or less children with a majority of girls (5 percent) or a majority of boys (4 percent). Although the data clearly indicate that there is no son preference in Thailand, they also show that there is a very clear sex preference for a balanced sex composition.

While the findings from the CPS96 do provide strong support for the argument put forward by Knodel et al (1996), it is also interesting to note that



approximately 27 percent of women stated that they had no sex preference for children. This suggests that a substantial proportion of women do not have a lower limit placed on their desired fertility through a desire to have children of both sexes.

### **Conclusion**

Thai fertility is now at level that would have been considered impossibly low two or three decades ago. There can be no doubt that fertility is below replacement level, with the Total Fertility Rate (TFR) now around 2.0. Fertility decline has occurred primarily through the adoption of efficient forms of contraception. Fertility levels are low because couples desire small families. The extent to which fertility can decline further is a question that is of great importance. There is also considerable disagreement among researchers about the answer to this question. Some argue that the fertility transition is complete and that there will be no further sustained declines in fertility. Others argue for a continuation of past trends.

The results presented in this paper suggest that among married women fertility desires have been stable over the last decade. The majority of women want only two children. Furthermore, with the exception of women in the Southern region, there is little variation in the number of desired children among women living in different areas, or among women with different levels of education or among occupations. The two-child norm is now accepted among almost all social groups.

The findings from this study also provide some support to the argument that it is the desire for families with a balanced sex composition that has set two as the lower limit for the desired number of children, and hence the lower limit for marital fertility. However, while it is clear that most women do desire a balanced sex composition, a significant proportion of women has no sex preference for the children they desire. There does appear, therefore, to be some possibility of a further lowering of desired number of children, although such a decline if it occurred would likely be small.

Although the results of this study, provide support for the position of Knodel et al. (1996) that fertility decline in Thailand has slowed because fertility desires have reached their lower limits, it should be noted that the analysis has focused on the married population. As noted by Guest and Tan (1994), fertility trends in the future are more likely to be driven by marriage patterns rather than changes in levels of marital fertility. However, if marriage patterns do not change in the short-term, we are likely to see little change in existing levels of fertility.

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### References

- Bennett, Anthony, and Aphichat Chamrathirong. 1988. *On Tracing the Origins of Thailand's Reproductive Revolution: A Regional Consideration*, Paper presented at the Seminar on Fertility Transitions in Asia: Diversity and Change, Organized by the International Union for the Scientific Study of Population and the Institute of Population Studies, Chulalongkorn University. Bangkok, March 28-31.
- Bennett, Anthony, Carl Frisen, Peerasit Kamnuansilpa and John McWilliam. 1990. *How Thailand's Family Planning Program Reached Replacement Level Fertility: Lessons Learned*. Occasional Paper No 4. Report prepared for U.S. Agency for International Development, Population Technical Assistance Project, DUAL & Associates, Inc. and International Science and Technology Institute, Inc., Arlington, VA.
- Chamrathirong, Aphichat, Pramote Prasartkul, Varachai Thongthai and Philip Guest. 1997. *Thailand 1996 Contraceptive Prevalence Survey*, Institute for Population and Social Research, Mahidol University (in Thai).
- Chayovan, Napaporn, Peerasit Kamnuansilpa and John Knodel. 1988. *Thailand Demographic and Health Survey*, Institute of Population Studies, Chulalongkorn University, and Institute for Resource Development/Westinghouse, Bangkok.

- Guest, Philip and JooEan Tan. 1994. *Social Change and Celibacy in Thailand*, Institute of Population and Social Research, Mahidol University, Bangkok.
- Guest, Philip and Gavin Jones. 1996. Policy options when population growth slows: the case of Thailand, *Research and Policy Review*, vol. 15, No. 2: 109-130.
- Knodel, John. 1994. *Gender and Schooling in Thailand*, Working Paper No 60. The Population Council, New York.
- Knodel, John, and Visid Prachuabmoh . 1973. *The Fertility of Thai Women*, Research Report No.10, Institution of Population, Chulalongkorn University, Bangkok.
- Knodel, John, Aphichat Chamrathirong and Nibhon Debavalya. 1987. *Thailand's Reproductive Revolution*. Madison: The University of Wisconsin Press.
- Knodel, John , Vipan Prachuabmoh Ruffolo, Pakamas Ratanalangkar, Kua Wongboonsin and Chintana Pejaranonda. 1996. *Reproductive Preferences in Post-Transition Thailand: Implications for the Future Course of Fertility*, unpublished paper.
- Krongkaew, Medhi. 1993. Poverty and income distribution, in *The Thai Economy in Transition*, Peter Warr (editor), Cambridge University Press, Cambridge: 401-437.
- National Economic and Social Development Board (NESDB). 1995. *Population Projections for Thailand, 1995-2020*. Bangkok: NESDB.
- National Statistical Office (NSO). 1993. *The Survey of Population Change 1991*, National Statistical Office, Office of the Prime Minister, Bangkok.
- Pardthaisong, Tieng. 1988. *Fertility Decline in Thailand: The Chiang Mai Experience*, Paper presented at the Seminar on Fertility Transitions in Asia: Diversity and Change, Organized by the International Union for the Scientific Study of Population and the Institute of Population Studies, Chulalongkorn University. Bangkok, March 28-31, 1988.
- Pardthaisong, Tieng. 1996. *The Collapse of Society and the end of Race due to Family Planning*, Paper presented at the seminar on the change in Thai population policy in the next decade, 8 July, 1996, Bangkok (in Thai).
- Warr, Peter. 1993. The Thai economy, in *The Thai Economy in Transition*, Peter Warr (editor), Cambridge University Press, Cambridge: 1-80.
- Wongboonsin, Kua and Vipan Prachuabmoh Ruffolo. 1993. The future of Thailand's population policy: potential directions, *Asia-Pacific Population Journal*, vol 8, No. 3: 3-18.