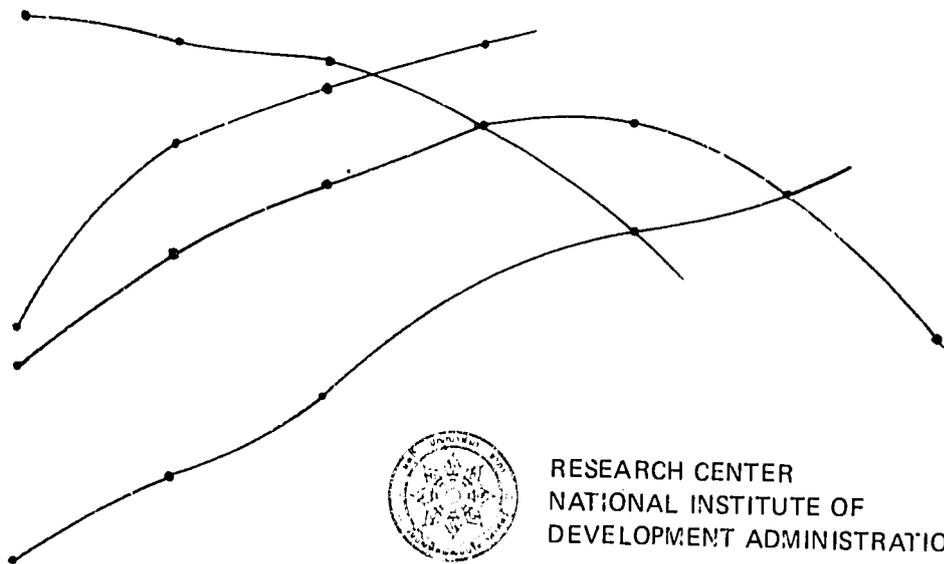


CONTRACEPTIVE USE

AND

FERTILITY IN THAILAND:

RESULTS FROM THE 1984 CONTRACEPTIVE PREVALENCE SURVEY



RESEARCH CENTER
NATIONAL INSTITUTE OF
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NATIONAL FAMILY PLANNING PROGRAM
MINISTRY OF PUBLIC HEALTH

PEERASIT KAMNUANSILPA

APHICHAT CHAMRATRITHIRONG

BANGKOK, THAILAND
1985

SURVEY STAFF

**Research Center,
National Institute of
Development Administration**

Peerasit Kamnuansilpa

Prachoom Suwattee

Usanee Prommas
Leka Valpajit

Likit Saingam
Orawan Sribaljam
Subadee Tangviro

Saowapa Srisuttipong
Ladda Luengtrakul
Yaowaluck Boonpakdee

Sureeporn Chiangniyom

Project Director

Consultant

Research Associate

Field Supervisor

Research Assistant

Project Administration

Secretary

**Institute for Population
and Social Research,
Mahidol University**

Aphichat Chamratrithirong

Pramote Prasartkul

Orapen Buravisit

Orapen Buravisit
Sirinan Saiprasert
Panee Wong-ake
Yöthin Sawangdee
Sivaporn Pokpong
Pimonpan Isarabhakdi

Aurapan Hanchangsith
Juthakan Atithananan
Supaporn Phumadan
Yaowaluck Jiaranai
Pornpong Pradapong
Sukon Sinkim

Rojana Phakditham

Technical Consultant : John Knodel

FOREWORD

It is a pleasure to share in inaugurating each new volume of the Contraceptive Prevalence Survey (CPS) series. This series has become a basic reference for family planning programming and evaluation, for planning and policy making.

This, the third round of CPS has encouraging news for Thailand: Contraceptive prevalence is up once more, fertility has continued its decline and, significantly, the decreasing trend in breast-feeding is showing signs of a reversal.

Most heartening about CPS3 however is that it is truly a Thai product. This excellent effort by the National Institute of Development Administration (NIDA) and the Institute for Population and Social Research (IPSR) was carried out independently of external technical support. Thus, the original goal of institutionalizing the CPS has been achieved and I would like to congratulate the NIDA and IPSR team.

As always, I look forward to the next round of the Contraceptive Prevalence Survey.

Somsak Varakamin, M.D., Dr. P.H.
Deputy Director-General
Department of Health
Ministry of Public Health

ACKNOWLEDGEMENTS

The third round of the Thailand's Contraceptive Prevalence Survey (CPS3) was carried out jointly by the Research Center, National Institute of Development Administration (NIDA) and the Institute for Population and Social Research (IPSR) at Mahidol University in collaboration with the Family Health Division of the Ministry of Public Health. Financial support for the project was provided by the Office of Health, Population and Nutrition, USAID, Bangkok. Without this support the project would not have been possible, and the support for this project is gratefully acknowledged.

Dr. Somsak Vorakamin, Deputy Director-General of the Department of Health, Ministry of Public Health, who initiated the series of contraceptive prevalence surveys in Thailand, provided both the needed logistical and moral support. Dr. Morakot Kornkasem, Director of the Family Health Division and Dr. Suvanee Satayapan, Assistant Director gave useful comments, guidance and support necessary for the overall success of the project. Mr. Suthon Panyadilok and Mr. Tony Bennett from the Family Health Division also played important roles in promoting an atmosphere of full collaboration between the two institutes which carried out the survey and the Family Health Division.

Assistance in computer work and time were provided by the Computer Center of the National Statistical Office. Programs for computer editing were prepared by Mr. Paitoon Sinchai from the Computer Center at NIDA. Miss Pasinee Bunnag of the Regional Computer Center at Asian Institute of Technology also provided valuable programming assistance. Appreciation is also expressed for the guidance and advice in the sampling design provided by Dr. Prachoom Suwattee, who was then Vice Rector for Special Projects, NIDA.

We owe an enormous debt to Professor John Knodel from the University of Michigan, who assisted us in almost all stages of the survey. His role as a technical consultant to the project proved to be very useful and in fact indispensable. Without his advice and help our work would have been much more difficult to finish on a timely basis. We also learned much from his experience and expertise in the field of demographic surveys and will profit in the future when analyzing data from other surveys.

Other agencies and individuals also contributed to the success of the survey, among them are the Officials of the Ministry of Interior in the sampled areas, and the 7,576 respondents who cooperated so fully with our interviewers.

Finally we would like to thank Dr. Pramote Prasartkul, Director of IPSR, Dr. Yawarat Porapakham, Head Department of Biostatistics, Mahidol University and Dr. Santat Sermsri from the Faculty of Social Sciences, Mahidol University for their valuable time in training our interviewers. Their roles as lecturers and trainers during the preparation of field work were an asset for ensuring that we have collected data of reliable quality.

We have benefited much from help from so many sources and persons. Nevertheless, responsibility for the contents of the report or any flaws which may remain lie fully with the principal investigators.

Peerasit Kamnuansilpa

Aphichat Chamrathirong

April, 1985

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CHAPTER 1 INTRODUCTION

Thailand a country with a population of approximately 50 million is undergoing a process of social and economic development. The country has already completed four Five Year Economic and Social Development Plans and at present is in the final two years of the Fifth Five Year National Economic and Social development Plan (1982-1986). During the first two Five Year Development Plans emphases were placed on the pure objective of economic development of which the building up of infrastructure was among the top priorities. The infrastructure development was in fact, considered to be the first step toward national economic development. It was thought with the construction of more highways, roads, irrigation systems or dams and electricity generating plants the country could be shifted from an agricultural base to a more prosperous industrial base. The attempts for national development at the time seemed to be eclipsed by the concept of aggregate growth through increase in Gross National Product, which may not be necessarily translated into an improved quality of life. In addition, the meager level of development at that time was literally eaten up, if not plagued, by the growth of population estimated to be around or no less than 3.2 percent per annum. Indeed, the rapid population growth created a serious hindrance to government goals of improving social and economic conditions in Thailand. Realizing the significance of demographic impacts on development, the National Economic and Social Development Board later on explicitly stated and included a demographic component in the Third Development Plan. More specifically, the policy goal was to reduce the growth rate of approximately 3.2 percent per annum to 2.5 percent by the end of 1976. This goal was achieved at the end of the Third Development Plan.

The recognition of the important role of demographic factors in development by the Third National Development Plan made it more natural and imperative for the subsequent Development Plans to continue studying and formulating the target growth figures that would be realistic to achieve, given the available resources and development levels. The Fourth National Economic and Social Development Plan (1977-1981) set a target of further-reducing the population growth rate to 2.1 percent. Again this target figure was achieved. But as the

pressure of population growth on development was still high, the current Fifth National Economic and Social Development Plan has put forward policies aimed at further lowering the annual growth rate to 1.5 percent by 1986. The success of the goal is yet to be determined.

It is widely accepted that one of the most important factors responsible for the decline of fertility in Thailand is the active national family planning program. The two previous rounds of Contraceptive Prevalence Survey documented the rise in the proportion of currently married women who were practicing contraception. Nearly all segments of Thai society participated in this increase in contraceptive practice. The usual differentials by rural-urban residence and education have been found to be very modest. As the national family planning program which coordinates both the activities of public and private agencies is instrumental in lowering population growth rate in the National Economic and Social Development Plans, there arises a need to ascertain data on contraceptive use and fertility. The Contraceptive Prevalence Survey (CPS) has been designed specifically for this purpose. The two previous rounds of CPS provided useful information for development planners in both evaluating the existing plans and in setting targets for the future National Economic and Social Development Plans. Similarly, CPS3 has been designed and carried out at a time particularly appropriate to help assess the demographic situation during the mid period of the Fifth Plan and to provide useful information for planning and formulating the Sixth Five Year National Economic and Social Development Plan.

Many Asian countries, particularly those with strong efforts to promote family planning, have an ultimate demographic goal to lower the growth rate to zero. China, for example, has recently been trying hard to reduce the growth rate below 1 percent per annum. Thailand likewise is well along in the process of demographic transition. Already, setting a target national growth rate of 1.1 percent per annum is contemplated. If adopted this target figure will require considerable effort and new approaches to achieve. The data from the third round of Contraceptive Prevalence Survey, the only most recent source available, should be particularly useful in helping decide which

target to set and what kinds of efforts would be required to achieve it. Thus the type of objective data provided by CPS3 should be incorporated into the planning and formulating of national development policies. The future growth rate will depend not only in family planning program performance which may incorporate new innovative efforts from both supply and demand sides but also on the demographic structure of which changes in age structure and nuptiality patterns are the most important factors. The Contraceptive Prevalence Survey of 1984 (CPS3) yields relevant and comprehensive information on a number of these factors to assist in the planning and development of population policies important to the future of the country.

HISTORY AND DEVELOPMENT OF CPS IN THAILAND

With the explicit goal of lowering the growth rate, Thailand needed detailed national information on population issues. To help meet this need, a number of national sample surveys have been undertaken with a special focus on detailed fertility and family planning data. The first such survey was conducted by the Institute of Population Studies (IPS) at Chulalongkorn University in 1969 and 1970. Several subsequent surveys were also undertaken by IPS including the Survey of Fertility in Thailand (SOFT), a part of World Fertility Survey, conducted in 1975. The first in the series of Contraceptive Prevalence Survey (CPS1) was conducted in late November 1978 to early January 1979 by the Research Center of the National Institute of Development Administration (NIDA). The second survey, CPS2, was also carried out by NIDA between March and June 1981. The most recent, CPS3, the subject of the present monograph, was conducted between April and July 1984 and was a joint project of NIDA and the Institute for Population and Social Research (IPSR) of Mahidol University. All of these surveys put together indicate that there has been a dramatic reduction in fertility and an increase in the rates of contraceptive use since the start of the decade of the 70's.

The first two rounds of CPS were conducted with technical and financial supports from the Westinghouse Health Systems under a large international technical support contract with the U.S. Agency for International Development, U.S. Department of State. The main computer analyses of the first two surveys were done at the offices of Westinghouse Health Systems, Columbia, Maryland. During

the course of these surveys, the project investigators worked closely with the staff of Westinghouse Health Systems. The investigators gained valuable experience from working with the professional staffs and the technologically advanced computer facilities. Unlike the first two CPSs, CPS3 was done exclusively by the local institutions in Thailand without the technical assistance of an external agency. In addition, the project used local computer facilities (including the AIT Regional Center) to analyze the data. Although the local facilities here in Thailand are not yet fully comparable to the ones available in the United States, through the capabilities and adaptability of local staff it was possible to successfully complete all analysis in Thailand while maintaining high international standards.

CPS'S OBJECTIVES

CPS in Thailand, as in other countries, was first initiated out of the need to have a scientific set of data suitable to be used by the family planning program administrators and development planners. The prime objective of CPS is to gather information which will provide a rapid feedback of situation regarding family planning program performance. Therefore, CPS serves as an important tool to evaluate and improve family planning information and service delivery programs. The data collected in CPS are all knitted into a basic issue of how the family planning programs is at work under varying situations or locales. The CPS emphasizes the concept of Contraceptive Prevalence Rate (CPR), rather than focusing on number or rate of new acceptors, which is more difficult to directly translate to demographic plans. Methodologically speaking, CPS is designed to provide basic ingredients for examining the relationship between contraceptive use and fertility.

Judging from a perspective of the NFPP, CPS is useful in determining how many women are left as the potential new clients of the program. CPS clarifies the situation by determining more precisely how many women are at risk of unwanted pregnancy-- that is, how many do not want to become pregnant and are still actually at risk in the sense that they are fecund, sexually active, and not using contraception. These are the women who have not yet been reached by family planning services and are of greatest interest to the program. Identifying this group of women is of prime importance, to program administrators. In fact, Thailand has been very effective in utilizing this aspect of CPS data. The results from the CPS1

conducted in 1978 indicated that approximately 40 percent of currently married women were at risk of unwanted pregnancy. As will be seen in Chapter 6 the percentage of women with the same characteristics have been reduced substantially in 1984.

Another important objective of CPS is the way it is designed to examine the availability of contraceptive supplies and services. Availability can be an important factor in facilitating or discouraging the use of contraception. CPS, therefore, analyzes the availability of services in connection with contraceptive use. The widespread dissemination of family planning services and supplies has always been a major thrust of the family planning programs in Thailand.

Another common objective of CPS is to check service statistics from family planning programs and to estimate the level of usage of contraceptives obtained from private sources such as drugstores or private clinics. While the NFPP kept fairly accurate service statistics, these data cannot represent the whole picture of contraceptive use in Thailand.

An explicitly stated goal of NFPP in Thailand is to reduce fertility and for that matter the population growth rate. CPS data, when compared with data from previous demographic and fertility surveys, can be used to examine current fertility levels and trends. Data from the two previous rounds of CPS in Thailand have proven to be useful for population planners in the formulation and target setting of national population plans.

Overall, the general objectives of all three rounds of CPS have stayed very much the same, that is to collect timely data for policy makers and program administrators. By measuring knowledge, identifying use status and method, revealing reason and obstacles to the use of services, and uncovering opportunities to make services available, CPS can be helpful for the NFPP. CPS can also adapt its scope to gather other information relevant to program needs. For example, data on infant feeding practices and postpartum amenorrhea can be collected and analyzed in relation to contraceptive use.

While each CPS has something in common, this time the investigators have adapted the scope and incorporated the current needs of the NFPP into the survey. The main concern in this round has been centered on the issue of why some people do not use contraception. Understanding the reasons behind

non use should help the NFPP in designing a program that would be acceptable to the needs and cultures of the non users. In addition, in response to the concerns of policy makers and administrators about the low contraceptive use and high fertility of the Southern region in general and of southern Moslems, in particular, CPS3 has systematically investigated these situations. It is hoped that the detailed analyses of the Moslems vis-a-vis the Buddhists in Chapter 8 can provide useful information and guidelines for devising a program that would be more appropriate for the groups with distinct socio-cultural backgrounds.

A BRIEF REVIEW OF CPS2

A brief description of the methodology and results of the second round of CPS are presented here in order to provide readers with some background information for better understanding of the CPS3 results. A sample of 7,038 ever married women aged 15-49 years were interviewed for CPS2. Field work for the second round of CPS was conducted between March 25 and June 10, 1981. Sampled women were asked questions on a) background characteristics, b) reproductive behavior and intention, c) knowledge of contraception, d) current and past contraceptive use, e) availability of family planning services, f) reasons for contraceptive non use, g) infant feeding practices, h) health and sanitation and i) village characteristics.

A comparison of the results of CPS2 with CPS1 indicated that the proportion of currently married women who were practicing contraception rose from 53 to 59 percent. The increase was evident in nearly all segments of Thai society. The traditional gap between rural and urban women was closed considerably. Important regional differences remained, however, with southern Thailand particularly lagging behind the other regions.

The increase in contraceptive prevalence resulted largely from greater use of female sterilization and, to a lesser extent from increased use of injectable contraceptives. The oral pill remained the method most commonly employed, but it was only slightly more popular than female sterilization by the time of CPS2. Pill users represented slightly more than one-third of all women using contraceptives, and sterilized women constituted slightly less than one-third. Government outlets of the Ministry of Public Health were by far the most important supplier of contraceptive service to Thai women. Over four-fifths of rural women obtained their contraception through a government outlet,

and two-thirds of urban women indicated that government outlets are their source of contraceptive supply

There was evidence indicating that Thai fertility continued to decline. The proportion of respondents reporting that they were currently pregnant declined from 10.1 percent in 1978 to 9.1 percent in 1981. The average length of the interval since a woman's last live births increased from 49.5 to 51.1 months. The average expected family size, calculated by adding the number of living children and the number of additional children desired, decreased from 3.8 to 3.5 during the same period. Fertility rates among currently married women, however, showed an increase. This, in part, appeared to be accounted for by a combination of methodological and sampling differences, rather than a reflection of real situation.

ORGANIZATION OF REPORT

In the remainder of this report, Chapter 2 covers the methodology of the survey. Detailed information about the preparation of the survey, the questionnaire design, the recruitment and training of field staff, and results of the pretest are given. The sample design, activities in the field and procedures for coding and editing of data are discussed. This chapter also briefly describes the characteristics of sampled women. Chapter 3 is the beginning of the

presentation of the substantive findings of the survey. The analyses of fertility in this chapter focus on both cumulative and current fertility. Expected and ideal number of children are also analyzed with particular concern regarding the implication for future fertility trends. Chapter 4 focuses on contraceptive awareness. Chapter 5 deals with the findings on the prevalence of contraceptive use. The availability and unmet need of contraception is examined in Chapter 6. Chapter 7 presents findings on the subject of infant feeding practices and postpartum amenorrhea in Thailand. Chapter 8 analyzes data on religious differentials collected for the first time in the series of Thailand's CPS to provide better documentation of Moslem-Buddhist differences in attitudes and practices relating to contraceptive use and fertility. It should be noted here that the presentation of the substantive results in this report from Chapter 3 to Chapter 7 are based on a weighted national sample. In Chapter 8, where the focus is entirely on a comparison of Moslem and Buddhists, the findings are based on the unweighted results from the representative national sample combined with a special Moslem supplementary sample. Chapter 9 concludes the report with a summary of the survey findings and their implication for population policy.

CHAPTER 2 METHODOLOGY

The third national Contraceptive Prevalence Survey (CPS3) was undertaken jointly by the Research Center of the National Institute of Development Administration (NIDA) and the Institute for Population and Social Research (IPSR) at Mahidol University in collaboration with the Family Health Division of the Ministry of Public Health. Field work took place during April 20 through July 20, 1984. The sample was designed to improve the ability to obtain results on a regional basis in comparison to previous surveys. In addition, a special supplementary sample of Moslems in the southern provinces of Satun and Yala were interviewed in order to enable more complete comparison of the Buddhist and Moslem population of the Southern region.

PREPARATORY ACTIVITIES

The Questionnaire Design

CPS3, like the previous contraceptive prevalence surveys, had as an objective the design of a simple questionnaire without sacrificing the sophistication of contents and analyses. Again in this round, a relatively short and straightforward questionnaire was designed to collect information to assist family planning program administrators in monitoring the progress of family planning efforts, and determining the level of fertility. Similar to CPS2, questions on breastfeeding, health care infrastructure, and a community module designed to collect information on the characteristics of villages in the rural areas were included. While much of the core questionnaire remained more or less the same as in CPS2, the detailed questions and issues of interest differ from the last survey. The core questionnaire, altogether, contained questions regarding:

- Background characteristics;
- Reproductive behavior and intention;
- Knowledge of fertility regulation method;
- Current and past contraceptive use;
- Availability of fertility regulation services;
- Reasons for contraceptive non use;
- Infant feeding practices;
- Health care infrastructure;
- Village characteristics.

A brief discussion of the rationale of inclusion of questions on these topics are given:

BACKGROUND CHARACTERISTICS

The CPS3 questionnaire begins with questions on background characteristics. These questions were asked of each eligible women to provide a respondent "profile" and permit more meaningful analysis of the survey data. The data derived from these questions provided an overall description of the characteristics of the sampled women. In addition, these questions served as the basis for developing determinants of past and present patterns of contraceptive use. They can also be used as control variables in the analyses of contraceptive practices and fertility. A discussion of the background characteristics which were used and the rationale for their inclusion follows:

Age of Respondent — Two questions—age and date of birth—were asked of each respondent. The two questions were used to check for consistency. Age was used to identify eligible women and it also served as a control variable in the analysis.

Religion — Religion was asked in this round to permit a comparative analysis of differentials in contraceptive use and fertility between Moslems and Buddhists.

Marital Status — Marital status served as a surrogate measure of exposure to sexual activity. The classification of marital status in terms of those who were currently married and those who were not currently married is essential in the analysis of contraceptive use and fertility.

Marriage Duration — Two questions—age and date of first marriage were asked. Marriage duration reflects both nuptiality pattern and sexual activity. A control of the variable is useful for the understanding of fertility behavior.

Place of Residence— Information was obtained on the place of residence. The information was used to analyze the survey results by region and/or rural-urban residence. This information is essential in the light of the considerable interest in regional variation in contraceptive use and fertility.

Education — In this round of survey, information on education of respondent, but not of husband, was collected. The reason for

not collecting data on husband's education was that it is highly correlated with wife's education. Education of respondent served as an explanatory variable for understanding differences in fertility, knowledge and practices of family planning.

Occupation — A simple question asking "what is your occupation" was used to elicit both information on occupation and work status. This variable, along with work status, is used as an independent variable in the analysis of contraceptive usage and fertility.

REPRODUCTIVE BEHAVIOR AND INTENTIONS

Three sets of questions focused on past, current, and intended (future) fertility were asked:

Pregnancies and Live Births The questions on pregnancy experience were asked to measure parity, identify women not in need of contraception, and estimate current levels of fertility.

Number of Living Children Number of living children provided data for calculating expected family size, and more importantly, provided data on actual current family size which can be a major influence on the decision to use contraception and on intentions to have additional births.

Desire for Additional Children Desire for additional children helped determine the respondent's potential for contraceptive use and permits differentiation of contraceptive spacers from limiters.

KNOWLEDGE AND USE OF FERTILITY REGULATION METHODS

Knowledge of contraceptive methods (prompted and unprompted) and contraceptive use levels were the most important variables collected in this survey. Identifying the relationships between these and the background characteristics mentioned previously was one of the major goals of the analyses.

AVAILABILITY OF FERTILITY REGULATION SERVICES

The CPS3 also asked the respondents who were either former or current users of a modern method of contraception about the source of the method, estimated travel time, convenience of the service, and cost of the method. In addition, they were also asked to give recommendation of how to improve the quality of services. Among the never users of modern method, they were asked about the method if they were to use it and from what source.

REASONS FOR CONTRACEPTIVE NON USE

Respondents were asked the main reasons why they were not using any family planning method. They were also probed whether they were fearful of health or side effects, forbidden by their husband, advised against by their friends or relatives, had objections based on religious beliefs, desired more children, were unable to afford the cost involved, or were of the opinion that the service was too inconvenient. These questions were asked to see whether there were any answers which were amenable to the NFPP, so that the program administrator can improve the quality of the services.

INFANT FEEDING PRACTICES

The CPS3 has continued investigation into the state of infant feeding practices. The rationale of asking questions about breastfeeding and other types of infant feeding stemmed from the fact that breastfeeding has a well documented contraceptive effect (Bongaarts, 1978) and can have a significant impact on infant mortality and morbidity, making the data useful for public health policy planners. Because of their relevance to the health of the infant, questions on age at weaning, age at giving the first supplemental food as well as types of supplemental food were asked with the expectation that information elicited from these questions should be useful for a program wishing to promote breastfeeding. The focus on breastfeeding was considered to be useful for a population program that emphasizes quality of the population rather than one focusing only on quantity and the reduction of the growth rate.

HEALTH CARE INFRA-STRUCTURE

The family planning program in Thailand, as in most countries, has been viewed as a part of health programs. In CPS3, respondents were asked about a place where they normally seek care when a member of their household became sick. The answer to this question provided some measure of the use of medical infra-structure. Given the importance of the NFPP health network, it is important to see if there was any hesitation to use this network.

VILLAGE CHARACTERISTICS

There has been an increased interest in the structural aspects of family planning program. The theory and rationale behind this interest was that use or non use of contracep-

tion may be accounted for by structural factors such as an existence of a family planning outlet nearby or within the village, level of development as manifested by some surrogate measures, such as the availability of electricity within the village, the presence of a school and its type, and population size. Of equal importance were the religious and geographical origin of the staff or of the service providers within the outlet vis-a-vis that of service seekers. In this survey, for each of the selected rural village, all the mentioned information were collected. These data will be used in the analyses of contraceptive use, and of fertility later in a separate paper.

*Recruitment and Training of Field Staff**

The interviewing was conducted by 45 female interviewers, all B.A. degree holders from universities in Thailand. These 45 interviewers were selected out of 885 applicants. Female interviewers were used because previous experiences, especially from CPS1 and CPS2, indicated that it was more natural and for that matter easier for female to establish rapport necessary for respondents to discuss sexually related and intimate topics openly.

The field work was carried out by six teams. Each team was assigned to be responsible for a geographic region. These six teams corresponded to the Bangkok Metropolitan Area, Central Region, North, Northeast, Upper South, and Lower South. Each team comprised of a supervisor, a field assistant, seven or eight interviewers, depending on the number of provinces covered within a region and distance to be travelled.

Both interviewers and field assistants were chosen after an interview with project staff and field supervisors. Selection was based upon field experiences, fluency in at least one of the local dialects, ability to solve field problems, and personality. After selection, trainees (both potential field assistants and potential interviewers) went through an intensive two week training program which included both classroom and field training. As in previous rounds of CPS, trainers were hired only after they had passed a performance evaluation at the end of the training.

The classroom training was designed to provide background of research methodology, with special emphasis on data collection and interviewing techniques. Lectures on the

methods and substantive areas of demography were also delivered to trainees. Trainees were also provided with a detailed description of contraceptive methods. An understanding of these methods was essential for effective communication between interviewer and respondent. In addition, the concept and the importance of the sample in the survey was explained to the trainees. A presentation of the survey's objectives and a review of the interview schedule concluded the first part of the training.

Following the classroom training, the interviewers were provided with practical field experience. All trainers were divided up into six teams, according to ability to communicate in a dialect of each region. All teams were taken out for field training in Pratoomtane Province. Each team, was instructed to select a tambol in Klong Laung District as a site for interviewing a rural sample of ever married women. During this phase of the training, each team was instructed to locate the boundary of the chosen village, and to list the number of households within the village, and then draw a systematic random sample of households for further selection of ever married women.

In the urban phase of field training, each team was instructed how to use the census blocks provided by the National Statistical Office. Again each team had to learn how to locate the coverage and boundary of each block. Should there be any changes or omission of any house, each team had to learn how to update the census block. Upon the completion of updating the census block, each team had to learn how to draw a systematic random sample of urban respondents, similar to the rural phase.

The field training was done under close supervision by the regional field supervisors. It was during this period of training that field assistants, who were recruited from former experienced interviewers who had worked with either the Research Center of NIDA or IPSR before, learned how to effectively assist their teams, and generally internalized their roles as part of the survey team in the field. The roles of field assistants were to assist the supervisors in logistical planning, editing and coding completed questionnaires, reinterviewing (for quality control), and serving as a substitute interviewer when staff shortages arose.

The field training were also useful to allow trainees to prepare themselves for living in the field and to develop the team spirit essential for successful field operation. A few trainees desired to drop out after learning what the

* See appendix for a detailed schedule of survey operations.

real situation in the field would be like. Therefore those who wanted to stay on were, in part, self selective in terms of their suitability for the field work in sometimes harsh conditions of living in remote rural areas.

All field supervisors were faculty members of either the Research Center of NIDA or IPSR, Mahidol University. They all had a number of years of experience in field research behind them. Prior to going out in the field of their region, they all met and participated in the project staff meeting with the purpose of exchanging ideas and experiences, but more importantly to standardize as well as to unify the quality of data so that the high standard of the previous surveys was matched.

Results of the Pretest

Principal investigators and field supervisors met prior to the pretest to review details concerning every question in the questionnaire. After each question had been clarified, the pretest team went out to Uthairathane Province to pretest the questionnaire. The pretest lasted for 3 days and 200 cases of tryout including both rural and urban segments of population were completed. It was during this period also that the field assistants had an opportunity to observe how the field work for CPS3 should be carried out. Field assistants also had an opportunity to try to interview a few pretest cases.

Each evening of the pretest days, the pretest team met to discuss the problems encountered. Since the CPS3 core questionnaire remained more or less the same as in the previous surveys, substantive changes were neither anticipated nor required. The focus of the pretest was on the new questions which were not included in the previous rounds. As in the previous rounds, responses to the open-ended questions were used to construct the coded responses used in the actual field work.

Based on the results from the pretest, some of the wording which respondents found difficult was refined. In addition, a few questions which had no significance to the respondents or no variation in the responses were deleted. Moreover, the sequence of the questions was modified to improve the logical flow. In the end, the result was a questionnaire which contained questions that provided cues for internal consistency check and at the same time of particular interest to the CPS3's objectives.

After the revision of the questionnaire based on the experiences gained and after problems encountered during tabulations of data from the pretest, the survey staff met again to

lay out plans for the second pretest, exclusively for the Moslems. It was decided to postpone the second pretest for this special group to after the completion of the training so that Yawee speaking interviewers could be employed for the task. The supervision of this phase was successful, in part, because one of the survey staff had her graduate training with a Master's Degree from Malaysia and could speak the Yawee language. The results from the second pretest indicated that it was possible to discuss the subject of family planning with the Moslems, especially when the interviewers were also Moslems themselves. The questionnaire in itself did not require any special adaptation, thus maintaining high comparability of questions with regard to analyses on religious differentials.

SAMPLE DESIGN AND WEIGHTING PROCEDURES

The sampling procedures employed in the third round of the Thailand Contraceptive Prevalence Survey (CPS3) were designed to yield both a nationally and regionally representative sample. Unlike the previous rounds, the design was based on a weighted sample scheme. The total size of sample in CPS3 was 7,576 ever married women aged 15 to 49. Among this 7,576 sampled cases, 317 were from a special purposively selected Moslem sample from Yala and Satun, leaving only 7,259 cases to be employed as national sample.

To maximize comparability and for the purpose of trend analyses, all provinces selected in CPS2 were included in the sample. A total of 25 provinces, including Bangkok, were treated as a national sample of provinces in CPS3, whereas the two specially selected provinces of Yala and Satun are excluded from analyses intended to be nationally representative.

Table 2.1 shows the number of unweighted cases according to region and provinces. It can be seen that there were 1,420 sampled women interviewed from the Bangkok Metropolitan Area (which serves both as a province and region in itself), 1,482 from the Central region, 1,479 from the North, 1,440 from the Northeast, and 1,755 from the South. Table 2.1 also shows the percentage distribution, both weighted and unweighted.

The sample design of CPS3 requires weighting of data in order to obtain nationally and regionally representative results. The final set of weights is the product of a two stage determination process. The first stage involved

TABLE 2.1 : PROVINCES INCLUDED IN CPS3 SAMPLE

Region	Number of cases (unweighted)	Percent distribution excluding special Moslem sample	
		Unweighted	Weighted
Bangkok	1,420	19.6	10.1
Central	1,482	20.4	21.0
Suphun Buri	248	3.4	2.2
Sing Buri	91	1.3	2.7
Ayudhaya	198	2.7	2.3
Samut Prakarn	190	2.6	2.4
Rayong	123	1.7	2.2
Chachoengsao	156	2.1	2.4
Trat	56	0.8	2.2
Raj Buri	221	3.0	2.4
Lop Buri	199	2.7	2.2
North	1,479	20.4	21.8
Chiengmai	494	6.8	4.4
Chiengrai	362	5.0	4.1
Nan	148	2.0	4.5
Sukho Thai	207	2.9	4.4
Phetchaboon	268	3.7	4.4
Northeast	1,440	19.8	34.8
Nakorn Rajchasisima	412	5.7	7.1
Buri Rum	227	3.1	7.0
Ubon Rajchatani	326	4.5	6.8
Udon Thani	304	4.2	6.8
Sakon Nakorn	171	2.4	7.0
South	1,755	19.8	12.3
Nakhon Sritham Maraj	549	7.6	2.6
Songkhla	401	5.5	2.6
Narathiwat	197	2.7	2.2
Phang Nga	89	1.2	2.7
Pattani	202	2.8	2.2
Yala*	200	—	—
Satun*	117	—	—
Total	7,576	—	—
Total excluding special Moslem sample	7,259	100	100

*New Provinces added in the CPS3 for selection of special Moslem sample.

the development of a set of provincial weights to ensure that the provinces within a region are represented proportional to population size within the region itself. The second stage involved applying a set of regional weights to ensure that each region is represented proportion to population size in the national results. Because the special moslem sample was

purposively selected as a supplement to the larger study, it is excluded from the weighted results. All results presented in the present report are based on weighted data except for those in Chapter 8 which focuses on religious differentials and incorporates the special moslem sample. The unweighted number of cases for each province and region are shown in Table

2.1 as well as their proportionate share of the sample both before and after weights have been applied. Note that both the provinces of Satun and Yala, which were the sites of the special moslem sample, are excluded from the percent distribution. The regional weights were designed such that the regional shares are identical to the proportion of ever married women that live in each region according to the 1980 Census.

Selection of the Rural Sample

The procedures used to select the rural portion of the CPS3 sample paralleled those in the CPS2. Multi-stage sampling techniques were employed in the selection of rural respondents. More specifically, the selection process comprised five stages. A brief description of each of these stages follows.

First Stage. The same 24 provinces selected in CPS2 (not including) Bangkok were included. These 24 provinces were treated as a random set of provinces with selection probability proportional to size from the four regions of Thailand.

Second Stage. In the second stage, two districts were drawn, with probability proportional to size of population.

Third Stage. The next step was to draw a sample of subdistricts (tambols). Two tambols were drawn again with probability proportional to population size of the subdistrict.

Fourth Stage. In the fourth stage, two villages (mubans) were drawn with the same principal of selection with probability proportional to size of population within the village.

Fifth Stage. In the final stage the households within the village were systematically selected from the listing of households within the village. Once the household was selected all eligible women within the household would be interviewed.

Selection of the Urban Sample

In the process of selecting the urban portion of the sample, the urban population was stratified into two groups: those in Bangkok Metropolitan Area (BMA) and those in provincial municipal areas. A total of 1,420 respondents were selected in BMA. In selecting the sample of women in BMA, random census blocks provided by the National Statistical Office were employed. In each census block, a random sample of households was selected. Once a household was selected, more than one eligible women within the household

was permissible for an interview. However, in BMA it would be rare to find more than one eligible women within the same sampled household. The number of eligible women interviewed in each block was 20. Therefore, the total number of census blocks selected and employed in BMA was 71. It should be noted that in selecting the census blocks all 24 administrative areas (Khet) were covered and the number of blocks within each Khet was determined by the number of households and subsequently the size of the population within each Khet.

In the selection of eligible women in the provincial urban areas, the similar census blocks were employed. However, the number of blocks selected in each province were only a few. This was because the proportion of the provincial urban population in each province was typically far smaller than the total rural population within the province. Again in each block a maximum of 20 eligible women was selected.

ACTIVITIES IN THE FIELD

Timing of Field Work

The field work for CPS3 was carried out between April 20 and July 20, 1984, by six teams, each comprised of a supervisor, a field assistant and 7 or 8 interviewers. In all selected provinces the team stayed either in the provincial or district town until all the interviews were completed. Similar to the previous rounds, if the interviewers were unable to complete an interview after three callbacks, a previously selected substitute respondent was interviewed. Substitute respondents were determined at the time of the selection of sampled households. In the rural areas, because the time of field work corresponded with the slack season, we were able to locate most of the respondents on the first visit. In BMA, where the population was not working in agriculture, the strategic planning of interviewing (or working) on weekends and holidays were effective in locating the respondents. In fact, like in the rural portion, we were able to contact most of the interviewees on the first visit. Therefore, a concern about a possible systematic bias toward selecting women who were at home because they were not in labor force seems not to have occurred. Because of the special probes in fertility section and on reasons for non-use of contraception, the average duration of an interview was 30 minutes-five minutes longer than the average interview for CPS2 and 10 minutes longer than for CPS1.

Quality Control During the Field Work

It is the principle of CPS, as is true with other kinds of survey, to emphasize quality of data. To ensure quality, during the early stages of the field work each supervisor and field assistant were instructed to observe the interviews and to provide assistance if the interviewer or the respondent failed to communicate effectively. This procedure was reinforced by joint supervision of all supervisors and field assistants on the first day of CPS3 (April 20, 1984) field work at a village cluster and a census block in the urban of Samut Prakan province. When all teams went out to their respective region, this principle was strictly observed. The whole concept was to built in a field managing system that can detect and correct any systematic errors. The interviewers submitted the completed questionnaires to the field assistants right after completion of interview. Field assistants would then check for any omissions (questions that were not asked) or incorrect skip patterns as well as to check internal consistency and then take appropriate action, e.g., correcting the questionnaires, having the interviewers reinterview specific questions or submitting them to the supervisors. The supervisors after receiving the completed questionnaires would examine them carefully to identify any errors in data entry, as well as inconsistent or doubtful responses.

As done in the past, field supervisors and their assistants reinterviewed some respondents to verify interview results. This was done more particularly and more frequently when responses were omitted or there were major inconsistencies. Spot checks were also made by field assistants and sometimes by supervisors during the field work to ensure that the interviewers were following the correct sample selection procedure.

FIELD WORK PROBLEMS

The investigators of CPS3 have already worked with the previous surveys. As a result problems encountered before in the previous surveys could be avoided by appropriate planning and adjustments. For example, communication problems arose during the field work of CPS2, due to interviewers inability to communicate in the Yawee language which is used commonly in three predominantly Moslem provinces in the South, were completely resolved. CPS3 hired special Moslem interviewers for the purpose. In addition, better rapport among Moslem respondents and interviewers was built into the survey.

Another problem which was avoided in CPS3 was the expensive cost of constructing a sampling list. Ideally or theoretically, the sampling frame of eligible women would have been constructed only after conducting a census-type enumeration of all eligible women in each selected area. Due to cost-efficiency and the rising cost of conducting surveys in Thailand, some practical methods were employed to maintain the high standard of CPS3 at a relatively inexpensive cost. In BMA and in provincial urban areas, the 1980 census blocks, which in almost all cases required only minor updating, were used to select eligible women within the selected households. At the same time the criterion of allowing more than one eligible women within any selected household to be interviewed adjusted itself to the assumption of equal probability of being selected among all eligible women.

Similarly, the intensive listing of all eligible women in the selected villages practiced in the previous rounds was modified to save time and costs by listing only the households within the selected villages.

The only minor problem which we were not able to completely eliminate had to do with the substitution of sample clusters. Like in the previous surveys, it was necessary to substitute some of the selected villages. It was found that 5 villages out of 208 (2.4%) had to be substituted by new villages. These new villages were selected from within the same tambol and were similar in size and demographic characteristics. Substitutions were required because there were changes in administrative boundaries which moved "selected" villages out of selected districts, so new villages within the district had to be chosen. These changes in administrative boundaries happened because the list of the villages we used in the selection of village clusters was not updated to correct for the changes. Another situation that involved substitution of the sample cluster had to do with the religious composition of village population in the two special provinces of Satun and Yala. More specifically, in two villages originally chosen the team found that there were not enough Moslems to be interviewed as a special sample, and thus two other villages were substituted.

CODING AND EDITING

Field Coding

After being carefully reviewed by the field supervisors, the questionnaires were returned to

the interviewers for coding in the field. Again as in the previous rounds, the precoded questionnaire was formulated in a way to facilitate coding. Also like in the previous rounds, the quality of data was ensured by limiting the amount of interviews per person per day. On an average, one interviewer interviewed and coded five questionnaires per day. The basic coding was completed before the team returned from the field. Interviewers were also assigned to review the coding of other interviewers before a final review by field assistants.

The field assistants served as coding editors. After the coding was edited, the supervisors would recheck the entries. The completed questionnaires were then sent to either the Research Center, NIDA or to IPSR, Mahidol University. More specifically since the three teams from the Research Center of NIDA were responsible for Bangkok, Central and the Lower Southern regions, all questionnaires from these regions were sent to the NIDA. Likewise, the three teams from IPSR of Mahidol University were responsible for the North, Northeast and Upper Southern regions and sent the completed questionnaires of those regions to the IPSR office in Bangkok. Proper coordination for editing, punching and processing of data was made to ensure smooth operation.

Machine Editing

All coded questionnaires were keyed directly into diskets. After all questionnaires were punched they were edited by an editing program written in Fortran IV language. This editing program was written by the project technical staff. The machine editing included

the following steps:

- 1) List all cards to see that the ID and number of card is in correct order;
- 2) Check that only legitimate codes appear in each column and that no "wild" codes are present;
- 3) Check the logical consistency of codes between items.

The editing was done step by step. Mistakes in each step were corrected before beginning the next step. After the machine editing, the frequency distributions of all variables were reviewed to identify any unusual responses.

CHARACTERISTICS OF THE SAMPLE

A brief summary of the characteristics of the women interviewed provides a reference for interpreting the findings presented in this report. Two types of sample characteristics, namely demographic and socio-economic are included. Table 2.2 presents figures on some selected demographic characteristics of the sample by region. The average age for the entire sample of women was 31.9 years. When classified by region the difference in the age was small. The Central region showed the highest age of 33 years, but that was only 1.1 years above the national average. The mean age at marriage for the sample was 19.7 years. Similarly, the difference of mean age at marriage when classified by region was small. The largest difference of 2.1 years was between Bangkok and the South. The difference among any pair of other regions was no more than 1.4 years.

Women in the sample were also described by the average number of children ever born,

TABLE 2.2 : MEAN VALUES OF SELECTED DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS BY REGION

Characteristic	Whole Kingdom	Bangkok	Central	North	North-east	South
Age	31.9	31.7	33.0	31.2	32.0	31.3
Age at marriage	19.7	21.1	20.4	19.3	19.5	19.0
Children ever born	2.8	2.5	2.8	2.5	3.4	3.3
Living Children	2.7	2.4	2.6	2.3	3.1	3.1
Ideal family size	3.0	2.6	2.9	2.5	3.3	3.5
Expected family size*	3.3	2.9	3.1	2.8	3.7	3.8

* Expected family size is calculated by adding living children and the number of additional children desired.

CHAPTER 3 FERTILITY

While the most important goal of Contraceptive Prevalence Surveys is to monitor levels and patterns of contraceptive use, an important second purpose is to help monitor fertility and related phenomena. In this chapter data on age at marriage, cumulative fertility, current fertility, and fertility preferences and expectations are presented. In addition, indirect estimates of infant mortality based on a comparison of children ever born and living children are included.

AGE AT MARRIAGE

The age at which a woman marries has a direct bearing on her fertility and reproductive behavior. In Thailand, the date of first marriage ordinarily indicates initial experience with sexual intercourse. Because age at marriage influences fertility by governing the number of years of exposure to the risk of conception, it is important to understand the marriage patterns. It should be noted, however, that the mean age of first marriage based on ever married respondents of all ages in a cross-sectional sample such as CPS3 tends to understate the true age at marriage in the population. The reason for this is that such a calculation necessarily excludes persons from younger cohorts who have yet to marry and who will inevitably marry at an older age than did women of the same age group who were married at the time of the survey. Nevertheless such a measure can

be useful for showing regional differences since relatively similar biases will be present in each region.

Table 3.1 shows the mean age at first marriage by age group for ever married women by region. The mean age at first marriage for ever married women at the time of survey was almost 20 years. The mean age for residents of Bangkok is the highest at 21 years. Women in the Central Region also marry later than the national average, but their average is only a bit more than half a year later than the national average. The differences in the mean age at marriage among women in other regions are relatively small. The South is characterized by the youngest age at first marriage.

CUMULATIVE FERTILITY

In this section the mean number of children ever born and number of living children are presented by rural-urban residence, region and several socio-economic status variables. Table 3.2 compares the mean number of children ever born by age for all three CPSs. The mean number of all women in the reproductive ages declined steadily across the surveys from 3.7 to 3.0 children. Age standardization reduces the extent of the decline slightly but the trend remains unchanged. Examining the trends for different age groups reveals little or no change among women under age 25, and the most pronounced changes among older women

TABLE 3.1 : MEAN AGE AT FIRST MARRIAGE FOR EVER MARRIED WOMEN BY AGE AND REGION

Age	Whole Kingdom	Bangkok	Central	North	North-east	South
15 - 19	16.1	15.9	16.0	16.4	16.1	16.1
20 - 24	18.1	18.6	18.1	18.1	18.3	17.5
25 - 29	19.6	20.3	20.0	19.3	19.5	19.2
30 - 34	20.2	22.1	20.9	19.6	20.0	19.1
35 - 39	20.7	22.4	21.4	20.3	20.1	20.0
40 - 44	20.6	22.4	21.3	20.3	20.0	20.2
45 - 49	20.5	22.2	21.4	20.1	19.9	19.7
All ages	19.7	21.0	20.4	19.3	19.5	19.0

TABLE 3.2 : MEAN NUMBER OF CHILDREN EVER BORN TO EVER MARRIED WOMEN BY AGE BASED ON CPS1, CPS2 AND CPS3

Age group	CPS1 1978	CPS2 1981	CPS3 1984
15 - 19	0.7	0.7	0.8
20 - 24	1.4	1.4	1.4
25 - 29	2.4	2.1	2.1
30 - 34	3.4	3.1	2.8
35 - 39	4.6	4.2	3.7
40 - 44	5.7	5.3	4.8
45 - 49	6.5	6.1	5.5
15 - 49	3.7	3.3	3.0
15 - 49, standardized*	3.6	3.3	3.1

* Standardized for age using the distribution of ever married women for the whole kingdom from the 1970 census as standard population.

Table 3.3 shows that ever married women aged 15-49 at the time of CPS3 had an average of 3.0 children ever born alive. Out of these children, approximately 2.7 children were still living. The number of children ever born and living children increases steadily by age of woman. At the end of the reproductive period (age 45-49) a woman had an average completed

family size of 5.5, with 4.7 children still living. When the figures from the CPS3 are standardized by age, using the standard population of ever married women in the 1970 Census, slightly higher current estimates of average numbers of children ever born and living children are revealed.

TABLE 3.3 : MEAN NUMBER OF CHILDREN EVER BORN (CEB) AND LIVING CHILDREN (LC) PER EVER MARRIED WOMAN BY AGE AND RURAL-URBAN RESIDENCE.

Age	Whole Kingdom		Bangkok		Provincial Urban		Rural	
	CEB	LC	CEB	LC	CEB	LC	CEB	LC
15 - 19	0.812	0.754	0.865	0.758	0.694	0.694	0.818	0.758
20 - 24	1.443	1.380	1.177	1.130	1.174	1.155	1.492	1.424
25 - 29	2.138	2.014	1.936	1.830	1.847	1.762	2.193	2.063
30 - 34	2.824	2.654	2.447	2.355	2.519	2.407	2.907	2.720
35 - 39	3.732	3.414	3.280	3.114	2.983	2.858	3.850	3.504
40 - 44	4.768	4.305	3.713	3.450	3.703	3.459	4.957	4.457
45 - 49	5.544	4.744	4.367	4.164	4.891	4.544	5.709	4.816
15 - 44	2.738	2.540	2.336	2.216	2.315	2.208	2.823	2.609
15 - 49 ^a	2.976	2.727	2.479	2.354	2.510	2.384	3.077	2.802
15 - 44, standardized*	2.763	2.556	2.355	2.226	2.281	2.176	2.852	2.628
15 - 49, standardized*	3.062	2.792	2.571	2.435	2.562	2.431	3.159	2.864

* Standardized for age using the age distribution of ever married women for the whole kingdom from the 1970 census as standard population.

Cumulative fertility, measured here in terms of average number of children ever born alive and living children is also presented for Bangkok, provincial urban and rural areas of Thailand in Table 3.3. For both measures, the figures differ little between Bangkok and other urban places. The fertility gap between urban areas generally and rural areas is substantial. It is interesting to note that the urban/rural gap in number of children ever born is larger than that in living children. This is due to higher levels of mortality among infants and children in the rural areas. Fertility is higher for the rural areas than in Bangkok or provincial urban areas for almost all age groups. In both urban and rural places, cumulative fertility continued to increase consistently even after age 40.

Regional differentials in cumulative fertility are shown in Table 3.4. Apart from Bangkok, the Central and the North were characterized by the lowest fertility, while the South and the Northeast were higher. Until about age 40, fertility of the Northeast was generally lower than the South. The opposite was true

for the older age groups.

Differentials in cumulative fertility can also be examined by some measures of socio-economic status. Besides place of residence, probably no other social variable has been so consistently associated with fertility differentials as education. It is generally expected that at any point in time, fertility and educational level are inversely related. Table 3.5 presents the mean number of children ever born to ever married women by age and education. For all age groups except 15-19 education is inversely associated with number of children except for women with less than the basic four years of elementary education. Among these women there is no consistent difference between those with no education and those with 1-3 years of schooling. However, for women at the end of these reproductive years, i.e., age 40 or above a consistent inverse association is apparent. The results indicate that after standardizing for age, women with less than four years of formal school had an average of 3.6 children, compared to 2.2 children for those who had 5 or more years of schooling

TABLE 3.4.: MEAN NUMBER OF CHILDREN EVER BORN (CEB) AND LIVING CHILDREN (LC) PER EVER MARRIED WOMAN BY AGE AND REGION.

Age	Bangkok		Central		North		North-east		South	
	CEB	LC	CEB	LC	CEB	LC	CEB	LC	CEB	LC
15 - 19	0.865	0.758	0.714	0.698	0.745	0.722	0.825	0.738	0.975	0.912
20 - 24	1.177	1.130	1.458	1.397	1.310	1.253	1.496	1.440	1.745	1.639
25 - 29	1.936	1.830	1.911	1.816	1.876	1.751	2.404	2.257	2.375	2.258
30 - 34	2.447	2.355	2.571	2.419	2.395	2.276	3.174	2.961	3.475	3.214
35 - 39	3.280	3.114	3.283	3.000	3.038	2.811	4.237	3.858	4.503	4.098
40 - 44	3.713	3.450	4.108	3.829	4.081	3.698	5.640	4.952	5.170	4.776
45 - 49	4.361	4.164	5.071	4.336	5.178	4.538	6.266	5.190	6.102	5.293
15 - 44	2.336	2.216	2.551	2.387	2.265	2.115	3.112	3.000	3.158	2.929
15 - 49	2.479	2.354	2.842	2.612	2.483	2.296	3.384	3.054	3.329	3.066
15 - 44, Standardized*	2.356	2.226	2.474	2.316	2.357	2.194	3.128	2.861	3.217	2.980
15 - 49, Standardized*	2.573	2.435	2.754	2.533	2.661	2.446	3.466	3.112	3.528	3.229

* Standardized for age using the age distribution of ever married women for the whole kingdom from the 1970 census as standard population.

TABLE 3.5 : MEAN NUMBER OF CHILDREN EVER BORN AND LIVING CHILDREN PER EVER MARRIED WOMAN BY AGE AND EDUCATION

Age	Education							
	No Ed.		1 - 3 Yrs.		4 Yrs.		5 Yrs. and Over	
	CEB	LC	CEB	LC	CEB	LC	CEB	LC
Children Ever Born								
15 - 19	1.0	1.0	0.7	*	0.8	0.8	0.8	0.7
20 - 24	2.1	1.9	2.3	2.1	1.5	1.4	1.2	1.1
25 - 29	2.4	2.1	2.6	2.3	2.2	2.1	1.6	1.6
30 - 34	3.4	3.1	3.5	3.3	2.3	2.7	2.2	2.1
35 - 39	4.3	4.0	4.3	3.8	3.8	3.5	2.8	2.2
40 - 44	5.6	5.0	5.3	4.9	4.7	4.3	3.1	2.9
45 - 49	6.4	5.2	5.8	5.0	5.5	4.7	3.9	3.7
15 - 49	4.1	3.6	4.3	3.9	3.0	2.8	1.8	1.7
15 - 49, Standardized**	3.6	3.2	3.6	3.3	3.1	2.8	2.2	2.1

* Insufficient cases

** Standardized for age using the 1970 census distribution of ever married women aged 15 - 49 for the whole kingdom as standard population.

Differentials in fertility by occupation can be seen in Table 3.6 which shows that women who worked in agriculture or were laborers or servants had the largest number of children ever born (3.2) while professionals (1.7) were among those occupational groups which had smallest family size. In general, the data confirm the expectation that there is a

tendency toward smaller families among women of high occupational status. The average number of children ever born among professionals was lower than that for women in all other occupations. Women who were skilled or semi-skilled workers (2.1) had smaller number of children than those in sales and business (2.9).

TABLE 3.6 : MEAN NUMBER OF CHILDREN EVER BORN PER EVER MARRIED WOMAN BY AGE AND OCCUPATION

Age	Occupation											
	Agriculture		Professional		Sales & Business		Skilled & Semi-skilled		Labor & Servant		Housewife	
	CEB	LC	CEB	LC	CEB	LC	CEB	LC	CEB	LC	CEB	LC
15 - 19	0.8	0.7	*	*	0.9	0.9	0.8	0.7	0.6	0.6	0.8	0.8
20 - 24	1.5	1.4	0.6	0.6	1.2	1.2	1.0	0.9	1.7	1.6	1.5	1.4
25 - 29	2.2	2.1	1.2	1.2	2.1	2.0	1.6	1.6	2.3	2.1	2.2	2.1
30 - 34	2.9	2.7	1.6	1.6	2.7	2.6	2.0	2.0	3.2	3.0	2.9	2.7
35 - 39	4.1	3.7	2.4	2.3	3.3	3.1	2.9	2.7	3.8	3.4	3.5	3.2
40 - 44	5.2	4.7	2.8	2.5	3.9	3.7	3.2	3.0	5.0	4.3	4.0	3.7
45 - 49	5.8	5.0	4.1	4.1	4.7	4.4	4.2	3.7	6.2	4.7	5.4	4.6
15 - 49	3.2	2.9	1.7	1.7	2.9	2.8	2.1	2.0	3.2	2.8	2.6	2.4
15 - 49, standardized**	3.2	2.9	2.0	1.9	2.7	2.6	2.2	2.1	3.3	2.9	2.9	2.7

* Insufficient cases

** Standardized for age using the age distribution of ever-married women from the 1970 census for the whole kingdom as standard population.

Table 3.7 gives data on employment status and age as they relate to the mean number of children ever born and living children. As can be seen the major factor in the role of employment status on fertility is whether the woman is involved in farm work. Of course a number of socio-demographic variables could influence this relationship but their exact role was not within the scope of this survey and so they were not measured. When the total children ever born is age standardized, the initially lower level of completed fertility enjoyed by women outside the labor force is replaced by women in non-farm employment.

INFANT MORTALITY

Although the CPS3 questionnaire was not designed with the objective of collecting data on mortality, it is possible to estimate infant mortality rates from the information on the number of live births a woman has had and the number of children still living. The proportion dead among children ever born (which is merely one minus the proportion still living) classified by age groups of mothers, can be interpreted as probabilities of dying from birth to exact ages of childhood when appropriate modifications have been made. Since the method used to indirectly estimate infant mortality rates is somewhat complicated, it will not be described here but greater detail on the method is available elsewhere (see Knodel and Chamrathirong, 1978).

The indirect estimates of infant mortality are provided in Table 3.8 for the country as a whole as well as by rural-urban residence and region. Two sets of estimates are presented based on two different sets of model life tables used in the estimation process. Previous research has generally indicated that in the recent past the age pattern of mortality in Thailand conforms most closely to the North model life tables (see Knodel and Chamrathirong, 1978). Examination of the age pattern of mortality under age 5 as indicated by the Thai life table based on the 1974-76 Survey of Population Change conducted by the National Statistical Office indicates that the age pattern for females conforms most closely to the North model life table but that the age pattern for males conforms most closely to the West model life tables. Since the indirect estimates provided by CPS3 are based on both sexes combined, results are shown based on each model. It should be noted that regardless of which model life table set is used in the estimation process, the resulting estimates refer to a time period roughly 4 years prior to the time of the survey corresponding therefore to around 1980.

The choice of either the West or North model life tables makes little difference for the estimated level of overall mortality under age five but does result in moderately different estimates of infant mortality. For example at the national level the probability of a child dy-

TABLE 3.7 : MEAN NUMBER OF CHILDREN EVER BORN TO EVER MARRIED WOMEN BY AGE AND WORK STATUS

Age	Work Status					
	Outside of Labor Force		In Labor Force, Farm		In Labor Force, Non-Farm	
	CEB	LC	CEB	LC	CEB	LC
15 - 19	0.8	0.8	0.8	0.7	0.8	0.7
20 - 24	1.5	1.4	1.5	1.4	1.3	1.3
25 - 29	2.2	2.1	2.2	2.1	2.0	1.9
30 - 34	2.9	2.7	3.0	2.7	2.6	2.5
35 - 39	3.5	3.2	4.1	3.7	3.3	3.0
40 - 44	4.0	3.8	5.2	4.7	4.1	3.8
45 - 49	5.4	4.6	5.8	4.9	5.0	4.4
15 - 49	2.6	2.4	3.2	2.9	2.8	2.6
15 - 49, standardized*	2.9	2.7	3.3	2.9	2.7	2.5

* Standardized for age using the age distribution of ever married women from the 1970 census for the whole kingdom as standard population.

TABLE 3.8 : INFANT AND CHILD MORTALITY RATES ESTIMATED FROM DATA ON THE PROPORTION DEAD AMONG CHILDREN EVER BORN BY RURAL-URBAN RESIDENCE AND REGION

Residence and Region	Based on West model life tables		Based on North model life tables	
	Probability of dying Before 1	Before 5	Probability of dying Before 1	Before 5
National	.045	.058	.041	.058
Rural	.047	.060	.042	.060
Urban	.037	.045	.034	.046
Bangkok	.040	.050	.036	.051
Central	.042	.053	.037	.053
North	.044	.056	.040	.056
Northeast	.046	.059	.042	.060
South	.050	.065	.045	.066

Note : For method of calculation see Knodel and Chamratitirong, 1978

ing before age five is estimate as .058 regardless of the model life tables involved. In contrast, the West model life tables yield an estimated risk of dying in the first year of life of .045 or 45 per 1,000 births compared to .041 or 41 per 1,000 births if the North model is used. Results for CPS2 based on the North model only indicated that the national level infant mortality was 52 per 1,000 births, again for a period corresponding roughly to 4 years prior to the survey which in the case of CPS2 would be 1977. A decline in infant mortality from 52 to 41 within a three year period is quite substantial. It should be recognized, however, that these indirect estimates are only approximate and that in addition sampling variation as well as the possible under reporting of deceased infants needs to be taken into account. Thus the results should be considered as only suggestive of declining mortality and not taken as a precise estimate of the trend. The fact that the estimated infant mortality rate also depends on the model life table used in the estimation procedure further cautions against attributing great precision to the results.

Rural-urban as well as regional differences in infant and child mortality risks are evident. Rural levels are distinctly higher than urban levels although the differential is less pronounced than found for CPS2 (a rural-urban difference in infant mortality based on the North model of 55 versus 37 infant deaths per 1,000 births). The results also indicate that

Bangkok is characterized by lower infant and child mortality risks than any of the four major regions although the difference is not as great as most previous estimates have shown. The highest infant and child mortality is found in the South although even there the level indicated is not usually high for developing countries. In general the regional differences in Thailand on infant and child mortality appear to be quite moderate.

CURRENT FERTILITY

In an attempt to improve the accuracy of the data collected to estimate fertility, a new approach of obtaining information on recent births was incorporated into the CPS3 questionnaire. Rather than asking only about the date of the most recent live birth, as was the case in CPS1 and CPS2, information on the last two live births was collected and a probe about pregnancies since the last live birth was introduced to attempt to elicit information on recent births that may have died at very early ages and possibly be otherwise unreported. It is likely that the result of the new questionnaire format has been to elicit a more complete set of information on recent births although this cannot be determined exactly. If so, comparison between CPS3 and earlier surveys would tend to minimize the apparent extent of fertility decline. Also because of the more extensive information collected in CPS3 on births, it is possible to estimate fertility during the two

years period prior to the survey rather than to limit fertility estimates only to a one-year period. Nevertheless, even with the improved questionnaire structure, for a variety of reasons including sampling variance, it is typically difficult to estimate recent fertility with great precision with sample surveys.

Age specific marital fertility rates are shown in Table 3.9 for CPS3 based both on the 12 and 24 months preceding interview. The 12 month rate refers essentially to the period between mid May 1983 and mid May 1984 while the 24 month rate refers to the period between mid May 1982 and mid May 1984. Results from CPS2 based on a twelve month period prior to the survey, essentially mid May 1980 to mid May 1981, are also presented for comparison. A 24 month rate is not available from CPS2 because information only on the date of the most recent birth was asked. It should be noted that the marital fertility rates shown for CPS2 differ slightly from those previously presented because they have been recalculated based on a more exact denominator which adjusts the number of women years of exposure for women married less than one year. This has been done to make the CPS2 results comparable to the CPS3 results which are based on an exact calculation of the number of women years of exposure for women married less than a full year for the 12 month rate

and women married less than two years for the 24 month rate.

Comparison of the 12 and 24 month rates from CPS3 points to an additional problem in interpreting results on fertility from CPS3, namely the fact that rates based on births reported during 24 months prior to the survey are generally lower than rates based on births reported during the prior 12 month period. This is the opposite of what would be expected if fertility was declining and is probably the result of some distortion in the reporting or recording pattern. A similar phenomenon has been observed for virtually every fertility survey conducted in Thailand over the last 15 years. The 24 month rate may well be a more accurate measure of fertility since the 12 month rate may be somewhat artificially inflated due to displacement of births occurring prior to the 12 months period preceding the survey into it. Nevertheless, when comparing results between CPS2 and CPS3 it is necessary to rely on the 12 month rate since only a 12-month rate can be computed for CPS2.

It should also be recognized that in the case of CPS2, the 12 month rate will exclude births that occurred within the 12 month period to women who had a subsequent birth within the same 12 months. Since very few women have two births within the same 12

TABLE 3.9: AGE SPECIFIC MARITAL FERTILITY RATES FOR CURRENTLY MARRIED WOMEN FOR THAILAND BASED ON CPS2 AND CPS3

Age group	CPS2 (1981)*	CPS3 (1984)	
	For preceding 12 months	For preceding 12 months	For preceding 24 months
15 - 19	.391	.520	.442
20 - 24	.364	.353	.331
25 - 29	.258	.241	.227
30 - 34	.160	.134	.131
35 - 39	.092	.079	.080
40 - 44	.055	.061	.065
45 - 49	.007	.002	.009
Total (per 1,000 women)			
Unstandardized	181.5	179.8	168.0
Age-standardized**	186.2	183.2	172.6

* The rates shown for CPS2 differ from those presented in previous reports because of differences in the method of calculation. See text for explanation.

** Standardized for age using the age distribution of currently married women for the whole kingdom in the 1970 census as standard population.

month period, however, the number of such births excluded should be minimal. Twins are not affected by this problem since twin births have been explicitly coded as such and counted as two births in the calculation of the fertility rate. A similar problem exists with respect to the 24 month rate for CPS3 regarding births to women who have more than two births within the preceding 24 month period. Again twins are not affected. Presumably very few births are omitted as a result of this limitation since few women have more than two births (not counting twins) within the same 24 month period.

Although some decline in marital fertility is indicated between CPS2 and CPS3, the amount of decline is quite minimal and, as noted above might be understated because of the different questionnaire structure. Moreover, sampling variation undoubtedly has some effect. Some decline is indicated for each age group except women 15-19 and 40-44. The substantial increase indicated for the 15-19 year old group should be viewed with some caution since it is based on a relatively small

number of cases. In general, the marital fertility rate for 15-19 year old in populations where the usual age of marriage is at a later age is often volatile because it is particularly sensitive to prenuptial conceptions and inaccuracies in the reporting of the marriage age or date. Overall the unstandardized marital fertility declined by only 1 percent and the age standardized rate by 2 percent. Unfortunately because of the manner in which responses were recorded, it is not possible to determine how many additional live births, if any, were picked up by the probe question and thus it is not possible to judge how much higher we could expect the CPS2 rates to have been had the probe also be included in that survey.

Age standardized general marital fertility rates are presented in Table 3.10 by region, rural-urban residence and education. A comparison of 12 month rates between CPS2 and CPS3 indicate a modest increase in marital fertility in the North, a substantial increase in the South and a decline elsewhere. Given the substantial sampling variance associated with these estimates, they should only be treated as

TABLE 3.10 : AGE STANDARDIZED GENERAL MARITAL FERTILITY RATES PER 1,000 CURRENTLY MARRIED WOMEN AGED 15 - 49 BY REGION, RURAL-URBAN RESIDENCE AND EDUCATION BASED ON CPS2 AND CPS3

	CPS2 (1981)*		CPS3 (1984)	
	Prior 12 months	Prior 12 months	Prior 12 months	Prior 24 months
Whole Kingdom	186	183	183	173
North	145	152	152	141
Northeast	202	181	181	180
South	192	257	257	222
Central, Total	191	176	176	165
Bangkok	187	177	177	186
Excluding Bangkok	192	174	174	155
Urban-Rural Residence				
Rural	186	183	183	170
Urban, Total	188	178	178	180
Provincial urban	188	179	179	171
Education				
Less than 4 years	185	201	201	198
4 years	185	176	176	163
5 or more years	193	212	212	196

* The rates shown for CPS2 differ from those presented in previous report because of differences in the method of calculation. See text for explanation.

suggestive. In particular, because the CPS2 sample was self weighting, the fertility rate for the South is based on fewer women than other regions and thus is more subject to sampling variability. Marital fertility appears to have declined in both rural and urban areas.

Variation in the regional level of marital

fertility as indicated by CPS3 is evident. Based on the 24 month rate, the North is characterized by the lowest marital fertility and the South by the highest. Moreover the difference between these two regions is quite substantial, with southern women experiencing more than half again as high fertility as northern women.

FIGURE 3.1 : TREND IN TOTAL FERTILITY RATE (TFR) FOR WHOLE KINGDOM

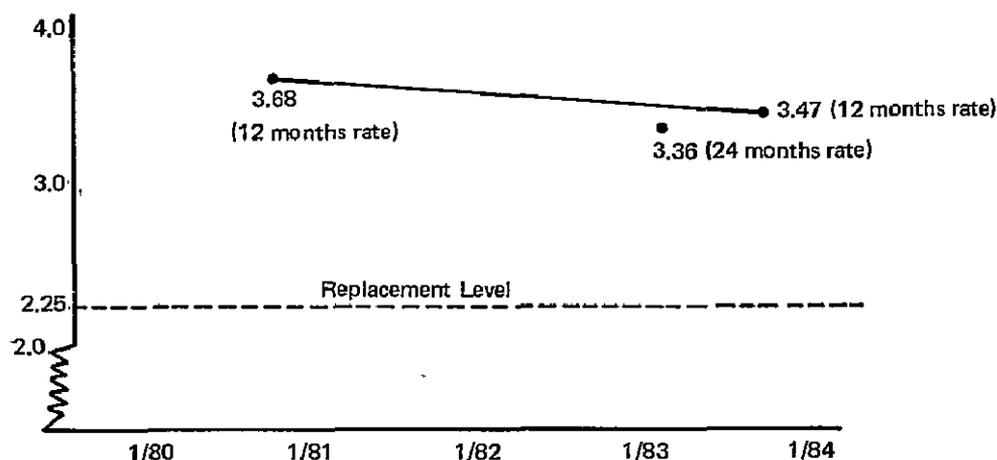


TABLE 3.11 : AGE-SPECIFIC FERTILITY RATES, TOTAL FERTILITY RATE (TFR) AND CRUDE BIRTH RATE (CBR) FOR THAILAND BASED ON CPS2 AND CPS3

Age group	CPS2 (1981)*	CPS3 (1984)	
	For preceding 12 months	For preceding 12 months	For preceding 24 months
15 - 19	.065	.081	.071
20 - 24	.200	.193	.182
25 - 29	.199	.181	.173
30 - 34	.136	.111	.109
35 - 39	.081	.068	.071
40 - 44	.049	.057	.058
45 - 49	.006	.002	.008
TFR	3.68	3.47	3.36
CBR	29.0	28.8	27.5

* The rates shown for CPS2 differ from those presented in previous reports because of differences in the method of calculation. See text for explanation.

Notes: The age specific fertility rates have been calculated by multiplying the age specific rates for ever married women interviewed in the survey by the proportions ever married for each five year age group assumed to prevail at the time to which the fertility rates correspond based on extrapolation of the trend in proportions ever married implied by a comparison of the 1970 and 1980 censuses. The crude birth rate has been estimated by applying the age distributions based on the 1981 population projections from the Working Group on Population Projections of the Sub-Committee on Population Policy and Planning to the age specific fertility rates.

Educational differentials show women with the basic four years of education as having the lowest fertility and women with more or less than four years experiencing very similar levels to each other.

Although CPS2 and CPS3 only surveyed ever married women, it is possible to estimate age specific fertility rates for all women and total fertility rates (TFR) if some assumptions are made regarding the marital status distribution of the population and if births to never married women are negligible. For the purpose of calculating age specific fertility and TFRs, the proportions married among women at different ages have been estimated based on the trend between the 1970 and 1980 censuses. (see appendix tables for the estimates for proportions ever married). Results are presented in Figure 3.1 and Table 3.11. Age specific fertility rates for CPS2 have been reestimated to make them comparable to those from CPS3. This involved both applying the proportions ever married as derived from the censuses and adjusting the determination as described in the preceding of censuses of marital fertility.

Based on births reported as occurring 12 months prior to the surveys, total fertility at the national level declined from 3.68 to 3.47 between CPS2 and CPS3. As noted above, it is possible that the actual decline is somewhat larger because births may have been more completely reported in CPS3. It is worth noting that much of the decline in the TFR is attributable to the assumed change in marriage patterns implied by the census (with the proportions remaining single increasing) given that marital fertility is only slightly lower for CPS3 than for CPS2.

It is further possible to estimate the crude birth rate (CBR) by applying the age

specific fertility rates to the age distribution of the population. The population projections made by the Working Group in Population Projections of the Sub-Committee on Population Policy and Planning have been used for this purpose. The results show almost no change in the crude birth rate between CPS2 and CPS3 despite the 6 percent decline indicated by the TFR estimates. Unlike the TFR which depends solely on age specific fertility rates, the CBR is a joint product of age specific fertility rates and age structure. Recently the age structure of the Thai population has been changing in a way that tends to inflate the CBR. More specifically, the past decade and a half of rapid fertility decline has led to a proportionate increase in the share of the population that are in the most active reproductive ages thus exerting an inflationary pressure on the CBR. This tendency will inevitably continue for sometime into the intermediate future rendering decreases in the growth rate more difficult than has been the case until recently. Thus to some extent declines in fertility with regard to their effect on the growth rate will be cancelled out by age structure changes at least in the near term. Indeed even if the crude death rate were not to decline further and the TFR were to remain constant for the next five years, the growth rate would increase.

Regional estimates of age specific and total fertility show considerable differences among regions as seen in Figure 3.2 and Table 3.12. The lowest TFR is found in Bangkok although judging from the 24 month rate, TFR's in the Central Region and in the North are not much higher. In all three cases, TFR based on 24 months is below 3 births per couple. Nevertheless, in all cases fertility is still well above the replacement level which is approximately equal to a TFR of 2.25 given Thailand's current

FIGURE 3.2: TOTAL FERTILITY RATE (TFR) BASED ON 24 MONTHS PERIOD* FOR REGION

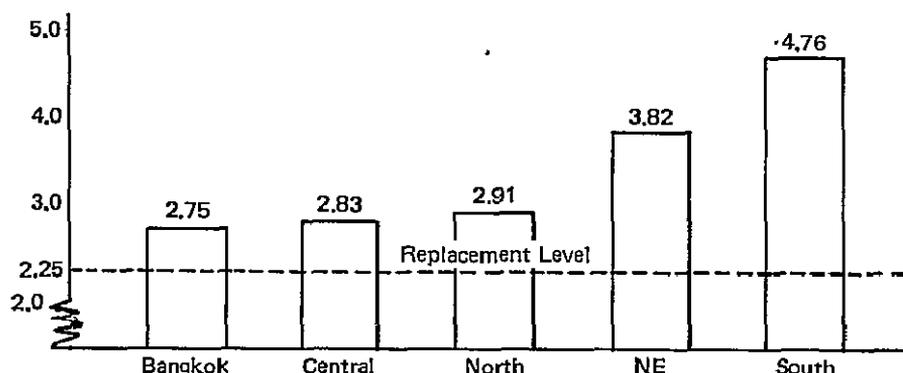


TABLE 3.12: AGE SPECIFIC FERTILITY RATES AND TOTAL FERTILITY RATE (TFR) BY REGION BASED ON BIRTHS REPORTED AS OCCURRING IN 12 AND 24 MONTHS PRIOR TO INTERVIEW

Age group	Based on births in preceeding 12 months					Based on births in preceeding 24 months				
	Bangkok	Central	North	North-east	South	Bangkok	Central	North	North-east	South
15 - 19	.029	.064	.087	.091	.116	.036	.052	.077	.084	.090
20 - 24	.125	.181	.175	.240	.237	.118	.161	.176	.231	.207
25 - 29	.126	.161	.183	.191	.273	.132	.141	.170	.191	.244
30 - 34	.138	.115	.088	.091	.167	.123	.107	.069	.116	.152
35 - 39	.055	.055	.026	.065	.170	.095	.056	.036	.064	.143
40 - 44	.027	.031	.065	.075	.065	.043	.048	.048	.071	.067
45 - 49	.000	.000	.000	.000	.019	.002	.000	.005	.006	.049
TFR	2.50	3.04	3.12	3.75	5.24	2.75	2.83	2.91	3.82	4.76

Note: The age specific fertility rates have been calculated by multiplying the age specific rates for ever married women interviewed in the survey by the proportion ever married for each five year age group assumed to prevail at the time to which the fertility rates correspond based on extrapolation of the trend in the proportions ever married implied by a comparison of the 1970 and 1980 censuses.

level of mortality. Fertility is considerably higher in the Northeast and even greater in the South. At the present fertility rate, based on the 24 month rate, Northeastern women average about one child and Southern women about two children more than women in the remainder of Thailand.

Two other measures related to recent fertility that can be obtained from CPS3 are the percent of currently married women who report themselves as pregnant and the average number of months since last birth, typically referred to as the open interval. As seen in

Table 3.13, both of these measures point towards declining fertility. Between CPS1 and CPS3, the age standardized percent of women aged 15-44 who reported themselves pregnant declined steadily from 10.1 to 8.6 percent. At the same time the age standardized open interval increased steadily from 49 months to 56 months.

The percent of currently married women reporting themselves as pregnant is presented in Table 3.14 in greater detail. For the Kingdom as a whole and for each region, the highest percent pregnant is found among married wo-

TABLE 3.13: AGE STANDARDIZED PERCENT CURRENTLY PREGNANT AND MEAN OPEN INTERVAL (IN MONTHS) AMONG CURRENTLY MARRIED WOMEN AGED 15-44 BASED ON CPS1, CPS2 AND CPS3

	CPS1 1978	CPS2 1981	CPS3 1984
Percent currently pregnant	10.1	9.1	8.6
Open interval	49	51	56

Note: Results are standardized for age using the age distribution of currently married women for the whole kingdom from the 1970 census as standard population.

men aged 15-19 reflecting both the fact that all of these women are recently married and few are at a point in their family building process where they wish to have no more children. Moreover, some of these women may have gotten married at an earlier than average age because they were pregnant. This may be particularly true in the case of Bangkok, where the pregnancy rate is the highest among the 15-19 group and the usual age at marriage the latest.

Almost without exception, the percent pregnant declines steadily with age in each region as well. On the regional level, there is a rough correspondence between the percent reporting themselves as pregnant and current fertility levels with the lowest pregnancy rates found for northern women and the highest for southern women. Northeastern women are also characterized by an above average percent pregnant.

TABLE 3.14 : PERCENT CURRENTLY PREGNANT AMONG CURRENTLY MARRIED WOMEN BY AGE AND REGION

Age	Whole Kingdom	Bangkok	Central	North	North-east	South
15 - 19	21.5	31.8	22.4	23.8	21.3	13.4
20 - 24	15.5	11.1	17.8	11.7	19.8	12.4
25 - 29	11.2	11.0	11.1	7.5	12.9	13.3
30 - 34	5.5	6.1	5.4	4.4	4.1	10.5
35 - 39	3.3	1.2	1.5	2.5	3.8	8.0
40 - 44	1.3	0.0	0.0	0.0	3.1	1.0
45 - 49	1.1	0.0	1.3	1.2	1.5	0.0
15 - 49	7.9	7.0	7.0	6.4	9.1	9.6
Age 15 - 44, standardized*	8.6	8.1	8.5	6.8	9.8	9.8

* Standardized for age using the age distribution of currently married women for the whole kingdom in the 1970 census as standard population.

TABLE 3.15 : MEAN OPEN INTERVAL (IN MONTHS) AMONG CURRENTLY MARRIED WOMEN BY AGE AND REGION OF RESIDENCE

Age	Whole Kingdom	Bangkok	Central	North	North-east	South
15 - 19	12.6	13.7	14.1	10.2	13.5	11.1
20 - 24	20.7	17.6	21.9	23.7	19.4	18.9
25 - 29	35.2	35.3	37.1	38.6	34.9	27.3
30 - 34	58.6	46.7	60.4	73.6	54.7	50.0
35 - 39	85.9	78.3	93.3	103.2	82.9	60.7
40 - 44	111.3	131.8	122.5	133.0	95.6	92.5
45 - 49	142.6	174.6	149.2	157.8	127.8	117.1
15 - 44	56.7	53.5	64.5	64.1	52.8	44.7
15 - 49	63.5	61.9	73.6	70.4	58.8	48.8
15 - 44, standardized*	56.5	55.1	60.6	67.1	52.6	45.1
15 - 49, standardized*	64.9	66.7	69.2	75.9	59.9	52.1

*Standardized for age using currently married women for the whole kingdom in 1970 census as standard population.

Regional variation in the open interval is provided in Table 3.15. For the Kingdom as a whole and for each region, the mean length of the open interval increases with age. Again there is a general correspondence on the regional level between the length of the open interval and the fertility level. The longest mean open interval is found for the North and the shortest for the South. Also the open interval for the Northeast is shorter than elsewhere except the South.

Table 3.16 presents the mean open interval by educational level. Because of substantial differences in the age distribution of women in different educational categories it is useful to examine the results standardized by age. After standardization, there appears to be little difference in the mean open interval for women with different amounts of education with the exception of women with 11 or more years of schooling. The shorter open intervals found for these women probably reflects their relatively late start in childbearing associated with their higher age at marriage.

FERTILITY PREFERENCES AND EXPECTATIONS

Several questions were included in CPS3

which enable an analysis of fertility preferences and expectations. Women were asked if they wished to have any additional children and if so how many. In addition women were asked if they could have exactly the number of children they wanted, how many would they have. Answers to this latter question provides information on what can be referred to as ideal family size. Answers to the former questions when combined with information on the number of living children can serve to indicate the expected family size. One important difference between these two measures is that by definition, expected family size can never be less than the number of living children that a woman already has, while a woman can respond with an ideal family size which is smaller than her present family size given the hypothetical nature of the question.

Together such information has programmatic value since the decision to adopt contraception as well as the choice of method typically depends on the stage at which a couple is in terms of their family building process. For example, some couples may be less motivated to use contraception before achieving their desired family size while others who wish to space births might wish to switch to

TABLE 3.16 : MEAN OPEN INTERVAL (IN MONTHS) AMONG CURRENTLY MARRIED WOMEN BY AGE AND EDUCATION

Age	Education				
	No Ed.	1 - 3 Yrs.	4 Yrs.	5 - 10 Yrs.	11 Yrs. and Over
15 - 19	7.8	5.8	12.4	13.6	*
20 - 24	18.5	22.5	22.1	17.3	14.8
25 - 29	35.8	34.0	36.6	34.8	18.8
30 - 34	61.7	66.6	60.7	52.5	32.9
35 - 39	91.5	63.5	88.7	80.2	63.1
40 - 44	98.6	105.7	112.1	135.1	129.9
45 - 49	133.2	139.1	144.6	141.0	159.9
15 - 44	64.2	64.1	59.0	42.4	36.2
15 - 49	74.3	81.4	65.2	44.5	41.3
15 - 44, standardized**	55.7	52.7	58.1	57.0	45.0
15 - 49, standardized**	63.2	61.1	66.5	65.2	56.2

* Insufficient cases.

** Standardized for age using currently-married women for the whole kingdom in 1970 census as standard population.

TABLE 3.17 : PERCENT OF CURRENTLY MARRIED WOMEN WANTING NO MORE CHILDREN BY AGE AND REGION

Age	Whole Kingdom	Bangkok	Central	North	North-east	South
15 - 19	19.5	12.7	14.9	23.6	25.0	7.8
20 - 24	33.2	36.8	33.2	34.1	32.6	30.6
25 - 29	52.7	53.7	53.2	61.2	52.1	37.1
30 - 34	69.2	69.2	67.4	74.1	67.9	67.0
35 - 39	84.0	88.6	82.0	88.4	82.2	81.9
40 - 44	90.4	87.8	87.9	94.7	93.4	81.3
45 - 49	93.5	94.7	91.8	97.5	93.4	89.8
Total	64.2	65.4	65.8	66.8	64.1	56.2

more permanent methods of contraception once their desired number of children is reached.

Table 3.17 shows the percent of currently married women who want no more children by age and region. For the country as a whole almost two thirds of currently married women indicated they did not wish additional children. There is very little regional variation with the exception of the south where the percent not wishing additional children is considerably lower than elsewhere. The percent of women not wanting more children increases rapidly with age reaching over 50 percent by ages 25-29 in all regions except the South. By ages 30-34 over two thirds of women indicate they wish no more children in all regions.

The association between the percent wanting no more children and age is probably largely a function of the increase in family size with age. The strong relationship between the percent wishing to cease childbearing and number of living children is evident in Table 3.18 for each region. Very few women with less than two children indicate they wish no more. Only in urban areas in general and in Bangkok do more than a fifth of women with only one living child indicate they wish no more. Examination of results referring to women with two living children are of particular interest for assessing the acceptability of a two child family. For the Kingdom as a whole, almost two thirds with two living children express a wish to stop having additional births. Regionally, there is considerable variation in this respect, however, with about twice as many Northern women (84 percent) than Southern women (43 percent) with two children wanting no addi-

tional births. In between there is also variation with about half of Northeastern women with two children indicating a desire to stop childbearing compared to close to 70 percent of Central women and over 70 percent of Bangkok women stating so. Clearly these data reveal substantial regional differences in fertility preferences.

Women who indicated they wished more children were also asked the number of additional children desired. An indication of the number of total children expected can be derived by adding the number of living children the women already has with the additional number desired. The expected number of children then is a measure which combines the past fertility of a woman with her future desire and can serve as a rough measure of future completed family size of women who have yet to pass through the reproductive age span. A purer measure of fertility preferences alone is the ideal family size which, as mentioned above, is elicited through a question which does not constrain the women to any minimum number regardless of how many children she already has. In practice, however, it is common for some women to "rationalize" their answers to a question on ideal family size in the sense of adjusting their preferences to their actual experience even if their actual experience does not necessarily reflect their true preferences. Thus while ideal family size is intended as a pure measure of fertility preferences, in reality it also is in part a reflection of past experience although not as explicitly so as is the case with expected family size.

Table 3.19 summarizes results from the

TABLE 3.18 : PERCENT OF CURRENTLY MARRIED WOMEN AGED 15 - 49 WANTING NO MORE CHILDREN BY NUMBER OF LIVING CHILDREN AND REGION

Number of living children*	Whole Kingdom	Residence			Region			
		Rural	Urban	Bangkok	Central	North	North-east	South
0	7.3	7.7	5.8	9.0	9.4	10.1	4.7	0.0
1	18.8	17.1	25.1	28.8	18.2	18.8	17.8	9.3
2	64.9	64.3	68.1	72.7	68.7	84.2	50.7	42.7
3	82.2	81.0	88.0	90.6	86.4	90.9	75.5	74.1
4	88.4	89.1	84.6	90.1	92.0	97.0	87.5	76.0
5+	94.6	94.8	92.6	91.3	96.1	100.0	96.3	85.6
Total	64.2	64.7	61.9	65.4	65.8	66.8	64.1	56.2

* For pregnant women the number of living children has been increased by 1 to allow for the birth of the expected child since the question on desire for additional children referred to desire for children after the expected birth.

series of Contraceptive Prevalence Surveys regarding the expected and ideal number of children by age of woman. The expected number of children has been quite stable for younger married women but has declined more or less steadily for married women aged 25 and above. In contrast ideal family size shows little systematic change between CPS2 and CPS3 although in both surveys it shows a tendency to increase with age of woman perhaps

reflecting to some extent the rationalization process referred to above.

Regional differences in the expected and ideal number of children are shown in Table 3.20 for the full series of contraceptive prevalence survey. For the whole kingdom the expected number of children declined by half a child from 3.8 to 3.3 children between CPS1 and CPS2. Moreover, a decrease is indicated for every region. Nevertheless, at the time of each

TABLE 3.19 : MEAN NUMBER OF CHILDREN EXPECTED AND IDEAL FAMILY SIZE FOR CURRENTLY MARRIED WOMEN BY AGE BASED ON CPS1, CPS2 AND CPS3

	Age						
	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49
Expected number of children							
CPS1	2.3	2.5	3.0	3.6	4.4	5.2	5.8
CPS2	2.3	2.5	2.7	3.3	4.0	4.7	5.3
CPS3	2.4	2.5	2.7	3.1	3.6	4.5	5.0
Ideal family size*							
CPS2	2.4	2.6	2.6	2.9	3.2	3.4	3.5
CPS3	2.5	2.5	2.7	2.9	3.2	3.6	3.7

Note: Number of expected children is calculated by adding the number of living children and the number of additional children desired.

* Not asked in CPS1

TABLE 3.20 : MEAN NUMBER OF CHILDREN EXPECTED AND IDEAL FAMILY SIZE FOR CURRENTLY MARRIED WOMEN AGED 15 - 49 BY REGION BASED ON CPS1, CPS2 AND CPS3

	Whole Kingdom	Region				
		Bangkok	Central	North	North-east	South
Expected number of children						
CPS1	3.8	3.3	3.9	3.4	4.2	4.6
CPS2	3.5	2.8	3.3	3.1	3.9	4.2
CPS3	3.3	2.9	3.1	2.8	3.7	3.8
Ideal family size*						
CPS2	2.9	2.5	2.8	2.5	3.1	3.7
CPS3	3.0	2.6	2.9	2.5	3.3	3.5

Note: Number of expected children is calculated by adding the number of living children and the number of additional children desired.

* Not asked in CPS1

survey, considerable regional differences existed in the number of expected children. In each case, expected family size was highest in the South and next highest in the Northeast. By the time of CPS3, the lowest expected number of children characterized the North although Bangkok was only slightly higher. According to these most recent results, currently married women in the South expected one child more than their counterparts in the North.

Ideal family size was exactly 3 children for the whole sample as reported in CPS3 and thus was slightly higher than the 2.9 ideal family size reported in CPS2. Little change in ideal family size is indicated for any of the major regions. Considerable regional variation, however, is apparent paralleling the differences in the expected number of children discussed above. At the time of CPS3, ideal family size is highest in the South, second highest in the Northeast and lowest in the North.

Education differentials in the expected and ideal number of children are shown in Table 3.21 for the full series of contraceptive prevalence surveys. The expected number of children declined steadily between CPS1 and CPS3 for all educational categories except the highest (women with 5 or more years of schooling) for whom a slight increase is indicated between CPS2 and CPS3 but in both cases the number is below that found in CPS1. Nevertheless, in all three surveys the expected family

size is lower for this group of women than for any of the other educational categories. By the time of CPS3, women with 5 or more years of schooling expected fully one and a half fewer children than women with no education and 1.8 fewer than women with 1-3 years of schooling. In general an inverse association between expected number of children and educational level is evident although the difference between women with no schooling and those with 1-3 years is small in all these surveys. In addition the latter group expected more children than the former in CPS3. Educational differences in ideal family size more or less parallel those for the expected number with women with 5 or more years of schooling experiencing an ideal number of almost one child less than those with less than the basic four years of elementary schooling.

Of particular interest for the future trends of fertility and demand for family planning services are the group of women who have recently married and thus are at a relatively early stage of their reproductive career. Their fertility expectations and preferences are likely to be influential for the course of fertility over the next decade and are likely to be more representative of the next generation of parents than are the fertility expectations and ideals of women towards the end of their reproductive span. Moreover, their responses regarding ideal family size are unlikely to be affected by

TABLE 3.21: MEAN NUMBER OF CHILDREN EXPECTED AND IDEAL FAMILY SIZE AMONG CURRENTLY MARRIED WOMEN AGED 15-49 BY EDUCATION BASED ON CPS1, CPS2 AND CPS3

	Education			
	No Education	1-3 yrs.	4 yrs.	5 yrs. and over
Expected number of children				
CPS1	4.8	4.7	3.7	2.8
CPS2	4.5	4.2	3.5	2.5
CPS3	4.1	4.4	3.3	2.6
Ideal family size*				
CPS2	3.5	3.1	2.9	2.4
CPS3	3.5	3.5	3.0	2.6

Note: Number of expected children is calculated by adding the number of living children and the number of additional children desired.

* Not asked in CPS1

ex post facto rationalizations since few recently married women will have already exceeded their desired number of children

Table 3.22 presents the expected and ideal number of children for currently married women who have been married less than 5 years based on both CPS2 and CPS3. Both measures remained constant at the national level between the surveys and differ from each other by only one-tenth of a child. At the regional level it is worth noting that the largest change evident is for the South where both measures have declined by three-tenths of a child. Nevertheless, recently married women in the South desire and expect more children than in any other region. Northeastern women are also above average in both their expected and ideal number of children.

Perhaps the most important features of the results concerning expected and ideal family size are that both of these measures are considerably lower for recently married women than for currently married women in general and that differences between rural and urban women as well as women with different educational backgrounds are virtually negligible. For example, according to CPS3, the expected and ideal number of children for the lowest educational category of rural women is only slightly higher than for the most educated category of urban women and in no case is the expected or ideal number above two and a half children. This is quite a contrast to the far more pro-

nounced differentials presented above for all currently married women. These findings clearly point to the pervasive spread of small family desires and expectations throughout much of Thai society. The fact that regional differences are larger than rural-urban or educational differences suggests that cultural factors may be of more crucial importance for fertility in Thailand than factors more typically associated with social and economic development. Moreover even the regional differences are moderate.

The distribution of ideal family size responses is shown in Table 3.23 for recently married women by rural-urban residence and region. Overall the responses are remarkably concentrated within the narrow range of 2-3 children. Nationally, 57 percent stated a preference for a two child family and over 80 percent stated a preference for either two or three children. Thus a clear consensus for a small family has emerged among Thai women in the early stages of the family building process. At the same time that a clear modal preference for two children is evident, it is also clear that there is virtually no support for remaining childless and very little support for a one-child family. It is interesting to note that a consensus on a two-child family appears to have increased since the proportion stating a preference for two children among recently married women rose from 51 percent in CPS2 to 56 percent in CPS3. At the same time there

has been almost no change in the apparent aversion to having fewer than two children with only 9 percent indicating preference for less than 2 in CPS2 compared to only 8 percent in CPS3. Thus while the two-child family represents the target for an increasing number of women in Thailand it also appears to set a lower limit on the extent to which fertility will decline.

There is a modest difference in the distribution of ideal family sizes among recent married rural and urban women with the latter more likely than the former to express a preference for two children. Nevertheless the majority of rural women also preferred two as the ideal number. Regional differences are quite evident, however. It is interesting to note

that a preference for one child, while still generally a small minority, is clearly highest in Bangkok. Childlessness, however, has virtually no support even in Bangkok. The two-child ideal family is most common among recently married Northern women with over three fourths expressing a preference for two children and least popular in the South where only slightly more than a third of women stated two as their ideal. Even in the South, however, over 70 percent stated preferences within the 2-3 children range. Everywhere, only a relatively small minority wish to have four or more children although again considerable regional variation is evident with the proportion highest in the South and lowest in the North.

CHAPTER 4

CONTRACEPTIVE AWARENESS

One of the goals of the National Family Planning Program was to create awareness among the potential clients. Achieving the highest level of knowledge over the broadest range of contraceptive methods has been a major aim of Thailand population program. One of the objectives of the Contraceptive Prevalence Survey is to determine the proportion of the female population in reproductive ages who are aware of family planning. The CPS3 findings presented in this chapter confirm the results from the previous rounds that Thai women generally know about family planning and that most of them recognize all of the modern methods. Again the CPS3 results document virtual achievement of this program goal.

MEASURING CONTRACEPTIVE KNOWLEDGE

The CPS measured the level of contraceptive knowledge through a series of questions similar to those used in the Survey of Fertility in Thailand. (SOFT). In all three rounds of CPS a general question on awareness of ways for delaying or preventing pregnancy was asked. Respondents were also asked to indicate the specific methods they knew. For each method that the respondents did not spontaneously mention the name, interviewers would prompt with the more common colloquial name for the method. Any respondent who indicated that she knew of the method after the interviewer had mentioned the name of a method the respondent failed to spontaneously mention would be classified as a person with prompted knowledge of the specific method.

The impact of contraceptive method prompting procedures on CPS results can be seen in Figure 4.1. Prompting leads to some impressive increases in the reporting of contraceptive knowledge by respondents. The specific methods which showed substantial increases provide insights into possible response biases. Other research has shown that women in many cultures are hesitant to indicate knowledge of male associated methods. This same bias is clearly illustrated in Figure 4.1, where knowledge for male sterilization and condom jumped

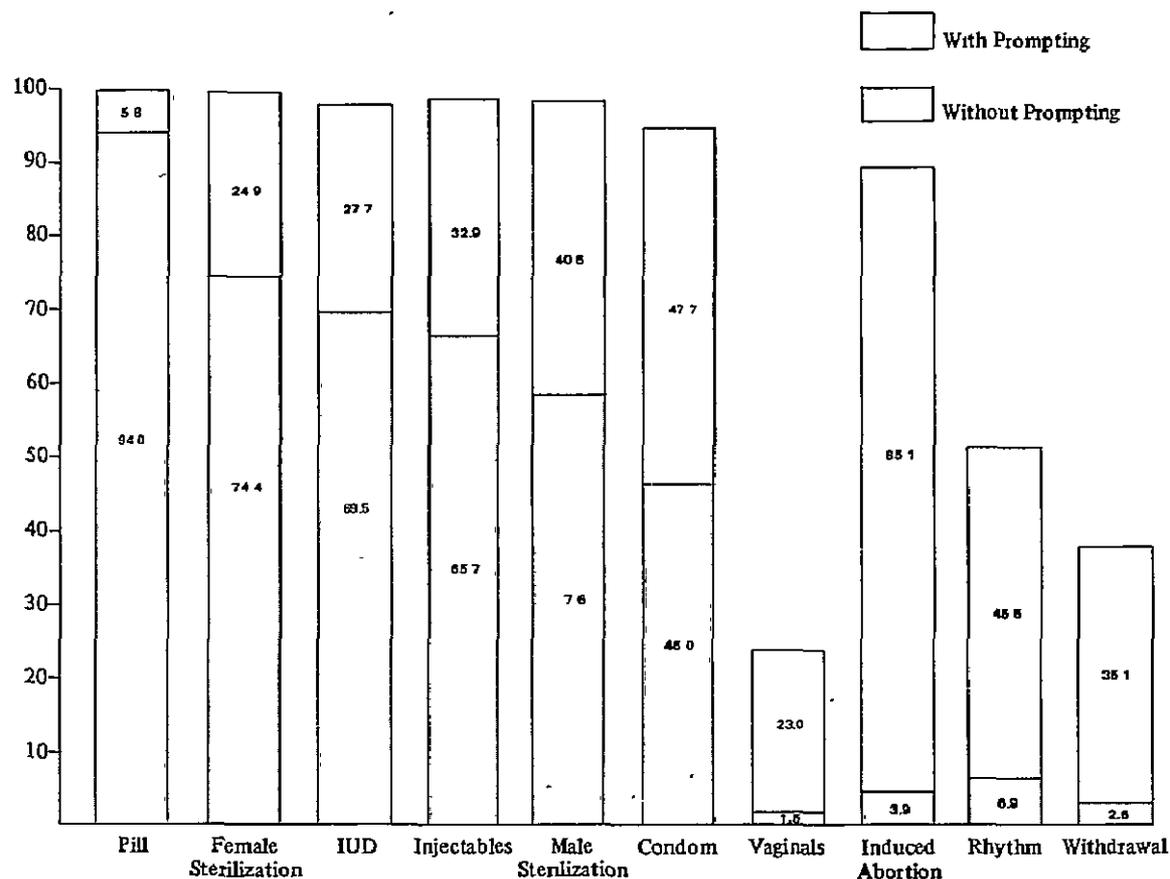
significantly under prompting. The relatively high level of knowledge for both methods, a large proportion of which was garnered by prompting, clearly indicates that there is some hesitancy to respond to questions on male methods, despite relatively high levels of knowledge.

Knowledge of abortion (85.1%) also increases significantly following prompting. Abortion is not included in Thailand's organized family planning efforts so is not promoted or offered by program workers. This may explain why Thai women do not appear to consider abortion as a fertility regulation method, unless they are specifically prompted on it.

When the levels of contraceptive awareness reported in CPS3 are compared with those obtained in CPS2 (data not shown), it was found that there was an increase in the proportion who indicated method knowledge without prompting in 1984. This increase was noted in all modern methods, except vaginal methods and abortion which were not the methods included in the NFPP's promotion plans. The slight decrease in the proportion indicated unprompted knowledge of rhythm and withdrawal, the so-called natural family planning methods, may result from these methods being overshadowed by the IE & C program which emphasized modern methods. However, the impact of IE&C component on the concept of family planning may have a spillover effect in knowledge of these methods. Thus while rhythm and withdrawal yielded very low unprompted knowledge proportions, there was an increase from CPS2 in the proportions who indicated unprompted knowledge. The net result was that there were increases in the proportions of women who were aware of either rhythm (52.4%) or withdrawal (37.7%) as a method of contraception between the two surveys.

Interestingly enough, while vaginal methods, induced abortion, rhythm and withdrawal all yielded very low unprompted knowledge, the proportion who demonstrated awareness of induced abortion as a method of family planning increased most dramatically when prompted. This may reflect the potential demand of the method in the future. The other

FIGURE 4.1 : PERCENT OF EVER-MARRIED WOMEN AGED 15-49 AWARE OF SPECIFIC CONTRACEPTIVE METHODS WITH AND WITHOUT PROMPTING



three contraceptive methods, namely, vaginal methods, rhythm and withdrawal were still far below the levels seen for the methods promoted under the National Family Planning Program.

In addition to the possible effect of prompting on the proportion of women claiming knowledge of a specific method, the quality of contraceptive knowledge should be considered. The CPS measures only the most rudimentary aspects of contraceptive awareness. Knowledge, in this case, is only an indication that the woman has heard of the method, and not that she understands its contraceptive effect or its proper use. In addition it should be noted that knowledge of a specific contraceptive method does not signify approval of that method nor any intention to use that method or any other method.

Throughout the following discussion of levels of contraceptive knowledge in Thailand it is assumed that women are aware of a specific method if they reported that they have heard of that method, either with or without prompt-

ing from the interviewer. Inclusion of prompted responses may result in some over-reporting of knowledge; however, it is not likely that the over-reporting is extensive given the extremely high levels of method knowledge.

TRENDS IN CONTRACEPTIVE KNOWLEDGE

Contraceptive awareness is virtually universal in Thailand. Table 4.1 compares the percentage of respondents reporting knowledge of methods in CPS3 and the two previous rounds of CPS. These data show clearly that knowledge levels were already quite high and in fact, nearly universal in 1978. Although the time span between CPS1 and CPS3 of almost 6 years is relatively long, we should not expect to see any dramatic increase in the levels of knowledge. For example, knowledge of the pill increase by only one possible percentage point from 99 percent in 1978 to universality of 100 percent of ever married women in 1984.

TABLE 4.1: PERCENT OF EVER MARRIED WOMEN AWARE OF SPECIFIC CONTRACEPTIVE METHODS BASED ON CPS1, CPS2, AND CPS3

Method	CPS1 1978	CPS2 1981	CPS3 1984
Pill	99	98	100
Female sterilization	96	97	99
IUD	92	93	97
Injectables	90	95	99
Male sterilization	87	93	98
Condom	82	83	94
Vaginals	19	22	25
Induced abortion	62	75	89
Rhythm	—	43	52
Withdrawal	-	29	38

TABLE 4.2: NUMBER OF CONTRACEPTIVE METHODS KNOWN WITHOUT PROMPTING AMONG CURRENTLY MARRIED WOMEN BY RESIDENCE BASED ON CPS2 AND CPS3

Number of methods known without prompting	Rural		Urban		Kingdom	
	CPS2	CPS3	CPS2	CPS3	CPS2	CPS3
0	3.8	1.0	1.6	0.6	3.5	0.9
1	7.5	3.7	4.9	3.3	7.1	3.7
2	10.7	8.8	10.6	9.5	10.7	8.9
3	16.3	15.0	19.7	19.7	16.9	15.8
4	22.1	24.3	24.8	22.8	22.6	24.0
5+	39.6	47.2	38.4	44.1	39.2	46.7
Total	100.0	100.0	100.0	100.0	100.0	100.0
Mean, number known	3.9	4.3	3.9	4.3	3.9	4.3

Note: Results for CPS2 refer to women aged 15-44; results for CPS3 refer to women aged 15-49.

The most significant increases have been for induced abortion (up 27%), condom (up 12%) and vasectomy (up 11%). The increased awareness of specific methods of fertility regulation can be attributed to several factors including effective social marketing, increased availability, and rising levels of family planning awareness in general among Thai couples.

The change in levels of contraceptive awareness is further illustrated in Table 4.2. The focal point of comparison is between 1981 and 1984.¹ During the reference period, the proportion of currently married women who knew five or more methods increased by about 19 percent for the whole kingdom as well as

for the rural. The increase for the whole kingdom matches very closely with the increase of the rural sector, as one would expect with a high proportion of the Thai population in rural areas. The expectation that urban levels of knowledge would be higher than rural levels is not born out in Table 4.2. What seems to be an

¹ It should be noted here that CPS3 may have under estimated the magnitude of increase in the level of awareness. This is because the comparison of analysis of women in 1984 with that of CPS2 in 1981 was not based on the same age group. In other words the currently married women in CPS3 included those who were 45-49 years, as compared to only 15-44 years for CPS2.

TABLE 4.3: PERCENT OF EVER MARRIED WOMEN AWARE OF SPECIFIC CONTRACEPTIVE METHODS BY AGE

Method	Age							
	All Ages	15-19	20-24	25-29	30-34	35-39	40-44	45-49
Pill	100	99	100	100	99	100	100	99
Female Sterilization	99	96	100	100	100	100	100	99
IUD	97	94	97	98	98	97	97	96
Injectables	99	96	99	99	99	99	98	95
Male Sterilization	98	94	99	98	99	99	97	97
Condom	94	90	96	96	96	95	90	84
Vaginals	25	16	19	23	26	27	28	28
Induced Abortion	89	90	91	89	91	89	86	84
Rhythm	52	42	55	55	57	54	48	39
Withdrawal	38	27	36	39	43	41	33	31

interesting finding was that by 1984, in all segments of society, about 70 percent of currently married women knew 4 or more methods of contraception without prompting.

Further evidence to substantiate the lack of differentials in knowledge of contraception by rural-urban residence is also clearly evident in Table 4.2. For 1984, as in 1981, the mean number of contraceptive methods known without prompting was virtually the same for rural and urban residents. The only difference noted was that the mean values of 3.9 in 1981 was lower than the value of 4.3 for 1984.

DEMOGRAPHIC AND SOCIO-ECONOMIC DIFFERENTIALS

Age Differentials

Age levels of knowledge are generally so high among respondents in the Thai CPS that analysis of differentials is not very fruitful for uncovering meaningful differences among sub-groups. The data is provided in this report primarily for reference to better understand patterns of contraceptive usage which will be presented later in this report, and for researchers and program managers using these data in comparison with other programs.

In Table 4.3, the proportion with knowledge of each method by age is presented. The general pattern for knowledge appears to be that the youngest group (15-19) and the oldest group (45-49) tend to have slightly less knowledge than those in between (20-44). There are two exceptions, namely with induced abortion

and vaginal methods. Data in Table 4.3 show that the level of knowledge about induced abortion for the age 15-19 group was not necessarily lower than those who were in the age groups of 25-29, 35-39 and 40-44. But with no exception those who were in the ages of 45-49 had the lowest knowledge about induced abortion, or at least they were less likely to consider it as a potential method of family planning. Another deviation from the general pattern is seen in the vaginal methods, which refers to foam, jelly, diaphragm, suppository and sponge. In contrast to induced abortion, older women (40-49) had their prime reproductive years at the time when the vaginal method were first introduced into practice. The vaginal methods not only lost their popularity but actually were not provided by the NFPP. Therefore, those in younger cohorts were less likely to know of the vaginal methods.

While this section discusses the age differentials in knowledge, it should be emphasized that the differences between the proportions with knowledge of a specific method in any age group are not particularly large. This confirms the generalization that there has been a widespread awareness of contraception through all the age groups in Thailand.

Educational Differentials

Table 4.4 shows that levels of knowledge follow an expected pattern when related to education. Those women with lower education levels tend to have lower levels of contraceptive knowledge. In the first round of the CPS there

were some inconsistencies in this pattern for condoms. However, the second round found a more consistent and expected pattern for this methods. In this third round, the basic pattern of differentials in awareness of contraceptive methods by education persisted. But there was one qualification with regard to the method of injection. In other words, the irregularity of relationship between education and awareness of injectables requires a combined categories of those women who had no formal education and those who finished not more than 3 years to see a clear positive relationship between education and knowledge of injectables. Again it should be noted that the differentials in education were only modestly.

SUB-NATIONAL PATTERNS

Urban-Rural Differentials in Contraceptive Awareness

The pattern of awareness of specific contraceptive methods by rural and urban (Bangkok/other urban) is presented in Figure 4.2. Clearly the universality or near universality of knowledge about most methods make differential analysis less meaningful. The significance of the analysis in this section is to

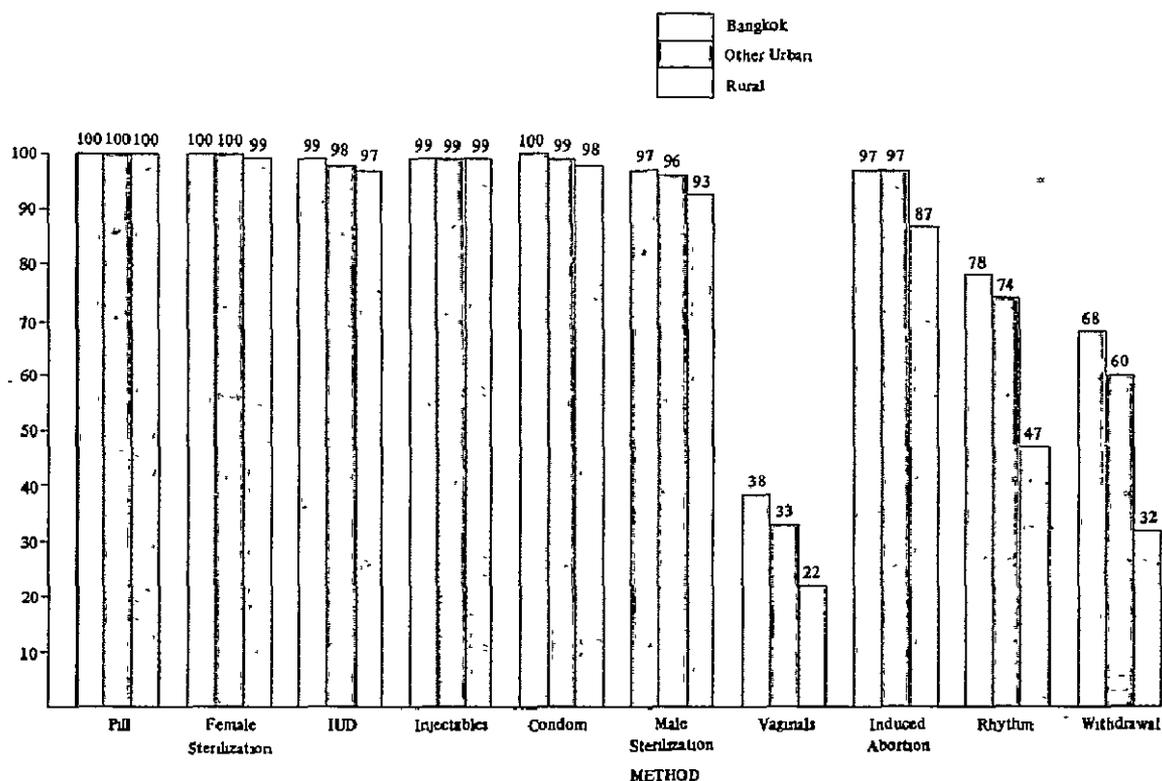
document the pattern of awareness among all segments of population so that the program managers can usher the NFPP to the goal of cost effectively reducing the pressure of population growth. In the previous rounds of CPS,

Bangkok was always highest in percentage aware of specific methods, with other urban areas equal or marginally less than Bangkok, and rural areas only slightly lower than Bangkok/other urban areas. In this round the differentials are even less visible. The only methods for which there appear to be any real difference

by residence are vaginals, rhythm, and withdrawal. The levels of awareness were highest in Bangkok, followed respectively by provincial urban areas and rural areas. It should be noted here that the differentials for these three methods were greater between Bangkok and rural than the other two paired comparisons.

As a final point before moving to the next section it should be noted that gaps in awareness of induced abortion virtually do not exist between Bangkok and provincial urban areas. The only noticeable difference is between the rural category and the other two residential categories.

FIGURE 4.2 : PERCENT OF EVER-MARRIED WOMEN AWARE OF SPECIFIC CONTRACEPTIVE METHODS BY URBAN-RURAL RESIDENCE



Regional Differentials in Contraceptive Awareness.

Regional variations in contraceptive knowledge are presented in Table 4.5. One interesting conclusion derived from results in this table is that the South had a relatively poor showing of awareness of all modern methods. Unlike the rest of the country, all other regions were more or less equal in the levels of awareness. Some interesting exceptions, however, were found in the methods of induced abortion, rhythm and withdrawal. While it is true that the South's (85.8%) level of awareness of induced abortion

was lower than the national average (89.0%), the Northeast's (77.8%) was even lower than the South. On the other hand, the awareness of IUD seems to be a method more commonly known in the Northeast (99.0%), but only slightly above the national average (97.2%). The most interesting analysis in this section, however, has to do with the indication that awareness of traditional methods was greater in the South than any other regions, except Bangkok. This findings are consistent with the use patterns of rhythm and withdrawal which will be discussed again in the following chapter.

TABLE 4.4: PERCENT OF EVER MARRIED WOMEN AWARE OF SPECIFIC CONTRACEPTIVE METHODS BY EDUCATIONAL STATUS

Method	Educational Status				
	All Categories	No Education	Grades 1-3	Grade 4	Grade 5 and above
Pill	99.8	98.6	99.7	99.8	99.9
Female Sterilization	99.3	97.5	98.7	99.6	99.7
IUD	97.2	88.1	95.7	97.9	98.7
Injectables	98.6	95.0	94.9	98.9	99.5
Male Sterilization	98.1	94.0	95.6	98.3	99.3
Condom	93.7	82.9	88.9	94.0	98.2
Vaginals	24.5	18.2	19.8	22.5	37.6
Induced Abortion	89.0	81.4	83.1	88.6	95.7
Rhythm	52.4	32.1	32.9	49.8	79.4
Withdrawal	37.7	24.8	25.4	33.7	65.7

TABLE 4.5: PERCENT OF EVER MARRIED WOMEN AGED 15-49 AWARE OF SPECIFIC CONTRACEPTIVE METHODS BY REGION OF RESIDENCE

Method	Whole Kingdom	Bangkok	Central	North	North-east	South
Pill	99.8	99.8	99.8	100.0	99.6	98.9
Female Sterilization	99.3	99.9	99.7	99.7	99.5	97.2
IUD	97.2	98.5	98.7	99.0	99.1	85.4
Injectables	98.6	99.0	99.3	99.6	98.2	96.1
Male Sterilization	98.1	99.5	98.7	98.8	98.2	93.8
Condom	93.7	97.2	94.0	97.5	92.5	86.8
Vaginals	24.5	37.5	19.6	27.5	25.6	13.5
Induced Abortion	89.0	96.7	97.0	97.5	77.8	85.8
Rhythm	52.4	78.2	44.7	52.5	48.7	54.7
Withdrawal	37.7	68.2	29.4	36.5	30.1	50.4

CHAPTER 5 CONTRACEPTIVE USE

Contraceptive prevalence among Thai women is the central focus of CPS. In this chapter, ever and current use of contraception will be closely investigated. Trends in contraceptive prevalence by method from CPS1, CPS2 and CPS3 will be presented. Regional and socio-economic differentials are also discussed. Finally, we examine problems associated with contraceptive use and reasons for its discontinuation.

EVER USE OF CONTRACEPTION

Level and Trend

The percent of ever married women aged 15-49 who had ever used contraception by method based on CPS1, CPS2 and CPS3 is presented in Table 5.1. It is evident that the percent ever using any method increased substantially from 69 in 1978 to 82 in 1984. This increase was very significant for some of the most efficient methods including pill, injectables and female sterilization. Ever use of other methods either rose only slightly, remained almost at the same level or even decreased somewhat in some cases. As a result, the pill remained the most used method with 57 percent ever using the pill. Injectables and female sterilization were the second and third most popular methods but their levels of use

were much lower than the pill (24 and 23 percent). Ever use of other methods was lower. These included condom, IUD, rhythm, withdrawal, vasectomy, abortion and vaginal methods respectively.

Regional Patterns

Regional as well as rural-urban pattern of contraceptive use is of great interest among both social scientists and policy makers. Table 5.2 presents the percent of ever married women aged 15-49 who ever used specific contraceptive methods, rural-urban residence and region. The percent who ever used any method is generally very high in both urban and rural places. The figure is the highest in Bangkok (88.4 percent). The provincial urban and rural areas, however, were not very different in the percent who ever used any method (84.7 and 80.9 respectively). The narrow rural-urban gap reflects the widespread use of contraception in rural places. As for the four regions, the South still lagged behind in terms of ever use of contraception. The results indicate is 66.9 percent ever use in the South as compared to 86.7 and 86.5 for the Central and the North. The Northeast was characterized by an intermediate percent of ever use but much higher than the South (79.6 percent).

TABLE 5.1: PERCENT OF EVER MARRIED WOMEN AGED 15-49 WHO HAD EVER USED CONTRACEPTION BY METHOD BASED ON CPS1, CPS2 AND CPS3

Method	CPS1 1978	CPS2 1981	CPS3 1984
Any Method	69	76	82
Pill	47	51	57
Condom	10	11	13
Vaginal Methods	2	2	1
Injectables	12	18	24
IUD	10	12	13
Female Sterilization	13	18	23
Male Sterilization	4	4	4
Abortion	3	2	3
Rhythm	8	10	8
Withdrawal	8	7	7
Other	1	1	1

TABLE 5.2: PERCENT OF EVER MARRIED WOMEN AGED 15-49 WHO EVER USED SPECIFIC CONTRACEPTION BY METHOD, RURAL-URBAN RESIDENCE AND REGION

Method	Whole Kingdom	Rural-Urban Residence			Region			
		Bangkok	Provincial Urban	Rural	Central	North	North-east	South
Any method	81.9	88.4	84.7	80.9	86.7	86.5	79.6	66.9
Pill	57.3	62.9	56.1	56.8	61.9	69.4	52.5	37.2
Condom	13.0	27.4	22.7	10.4	11.1	10.7	11.5	12.9
Vaginal	0.8	1.7	2.1	0.6	0.5	0.9	1.1	0.0*
Injectables	24.1	21.9	24.8	24.3	31.0	29.4	20.2	15.7
IUD	13.4	11.1	11.7	13.8	11.7	11.1	19.3	5.5
Female sterilization	22.6	29.2	30.6	21.1	22.3	27.0	20.4	16.1
Male sterilization	4.4	5.7	2.5	4.4	7.1	1.3	4.8	3.0
Abortion	3.2	2.8	5.8	3.0	2.1	4.7	3.6	1.3
Rhythm	8.1	15.5	16.1	6.5	6.4	6.5	7.5	9.3
Withdrawal	6.8	14.7	10.2	5.5	5.0	3.1	5.5	13.5
Other	0.7	0.0	0.4	0.8	0.3	0.2	0.6	3.0

* *Less than one tenth of a percent*

The rural-urban and regional pattern of method mix is also shown in this table. Pill is the method most commonly ever used for all rural and urban places and regions. In Bangkok, the ever use of condom and withdrawal was the highest of all places. The most apparent difference between the urban and rural areas is the higher percent ever using condom, female sterilization, rhythm and withdrawal among the urban women. Other rural-urban differences in method use were not very significant. It should be noted however that the ever use of IUD was even greater in the rural than either in Bangkok or provincial urban places.

The pattern of ever use of different methods among the four regions is also interesting. Although pill was the most popular method for all regions, the percent of women who ever used the pill was much lower in the South. The low level of ever use of the pill in the South accounts for much of the difference in the percent using any method compared to other regions. For other methods, injectables were the highest in the Central and the North. IUD was the most popular in the Northeast. Female sterilization in the North was also surprisingly high. Male sterilization was the most popular method in the Central Region.

The South was uniquely characterized by the highest level of usage of rhythm and withdrawal among the four regions but slightly lower than in Bangkok. Regional variation in contraceptive use in Thailand is therefore quite a significant.

Age Patterns

Contraceptive use especially by method is clearly associated with age of women. Table 5.3 reveals percent of ever married women who ever used specific contraceptive methods by age of women. It is of great interest to note that even at ages 15-19, slightly more than 60 percent of ever married women had already ever used some form of contraception. Contraceptive use in Thailand starts at a very early age. The level of ever use of any method increases with age until ages 30-39 and then declines at older ages. This reflects the lower use of contraception by women of the older generation.

At ages 15-19, slightly less than half of ever married women had already used pills. This important temporary method of contraception reaches its peak at ages 25-29, at 63.0 percent ever use. The major permanent method, female sterilization, increases rapidly from ages 20-24 to ages 35-39. About ten percent of wo-

TABLE 5.3: PERCENT OF EVER MARRIED WOMEN WHO EVER USED SPECIFIC CONTRACEPTION BY METHOD AND AGE

Method	Age						
	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49
Any method	61.5	79.7	84.5	86.8	88.2	79.4	68.1
Pill	47.2	60.5	63.0	60.9	58.7	50.1	39.6
Condom	9.9	15.0	16.5	14.9	12.8	7.2	5.3
Vaginal methods	0.4	0.3	0.6	1.1	0.9	1.8	0.4
Injectables	17.5	26.4	30.0	25.8	23.4	18.3	11.8
IUD	0.8	9.3	13.0	14.3	17.8	15.8	14.1
Female sterilization	0.6	10.1	18.7	29.3	34.0	29.4	19.8
Male sterilization	0.7	0.6	2.3	6.3	6.9	6.9	6.0
Abortion	1.5	3.1	3.1	3.8	3.0	3.1	3.0
Rhythm	6.7	8.5	8.4	8.7	8.9	8.5	3.5
Withdrawal	6.1	7.1	8.5	7.4	7.3	4.1	3.3
Other	0.6	0.4	0.4	1.0	0.7	0.5	1.4

men aged 20-24 are sterilized. By ages 35-39, about one-third of ever married Thai women had already gone through sterilization.

The use of injectables, condom, rhythm and withdrawal is also evident at early stages of married life among Thai women, i.e., as early as ages 15-19. The peak of these methods was usually around ages 25-29, except for rhythm which seems not to be related to any specific age group. The incidence of reported

abortion is also not associated with the age of women. The use of IUD on the other hand starts mainly at ages 20-24 and reaches its peak at ages 35-39 where 17.8 percent of women ever used this method. In conclusion, for most of the methods there is an observed age pattern of use behavior among the Thai women and for some contraceptive methods the use is also at a very early stage of the reproductive life of these women.

TABLE 5.4: PERCENT OF EVER MARRIED WOMEN WHO EVER USED A METHOD OF CONTRACEPTION BY AGE, REGION AND RURAL-URBAN RESIDENCE

Age	Whole Kingdom	Rural-Urban Residence			Region			
		Bangkok	Provincial Urban	Rural	Central	North	North-east	South-east
15 - 19	61.5	78.5	58.3	60.5	70.6	69.7	55.9	47.3
20 - 24	79.7	89.3	80.6	78.6	82.6	88.5	74.2	65.9
25 - 29	84.5	88.0	89.1	83.6	91.3	89.4	81.2	71.6
30 - 34	86.8	94.1	86.1	85.8	91.6	91.6	84.4	69.4
35 - 39	88.2	88.2	91.4	87.9	91.8	88.7	90.8	74.2
40 - 44	79.4	76.1	77.9	79.9	85.2	85.3	80.1	58.9
45 - 49	68.1	88.9	81.8	65.0	73.7	62.6	65.5	51.9
15 - 49	81.9	88.4	84.7	80.9	86.7	86.5	79.6	66.9
15 - 49, standardized*	80.8	87.2	83.2	79.9	86.0	84.8	78.8	65.8

* The results have been standardized for age using the age distribution of ever married women for the whole kingdom from the 1970 census as standard population.

The age pattern of contraceptive behavior and the early use of family planning methods can be further investigated by rural-urban residence and by regions in Thailand. Table 5.4 presents the percent of ever married women who ever used a method of contraception by age, region and rural-urban residence. In Bangkok, the ever use of contraception is the highest and starts very early: At ages 15-19, as many as almost 80 percent of couples had already practiced some form of contraception. This level was much higher than any other places in the country. At age 30-34, a remarkably large proportion of women in Bangkok (94.1 percent) had ever used contraception.

Provincial urban and rural places are quite similar in terms of the age pattern of contraceptive use. At ages 15-19 slightly more rural women had ever used some form of family planning methods than their urban counterparts. This may be due to the lower age of marriage among rural women who would have experienced on average longer durations of marriage and exposure of family planning use. Both rural and urban women are characterized by the highest levels of ever use of contraception at ages 35-39. At ages 45-49, the rural-urban difference was the highest, i.e., rural women were much less likely to have ever used contraception (65.0 as compared to 81.8 percent). This may merely reflect the past history of the rise in contraceptive prevalence in the rural places.

Among the four regions excluding Bangkok there seems to be a certain similarity between the Central and the North and between

the Northeast and the South in terms of age pattern of ever use of contraception. The Central and the North experienced a very high level of ever use for almost all ages. It started with a high level of about 70 percent at ages 15-19 and increased sharply and remained fairly constant for older ages up to age 44. For age group 45-49, the lower level in the North probably reflects an earlier rise in contraceptive prevalence in the Central Region than in the North

As for the Northeast and the South, the later experienced lower levels of contraception for all age groups. For both regions, however, the age pattern is similar. The percent ever using increases gradually by age and reaching a peak at ages 35-39. The high level of experience with family planning for this younger generation of women presents a very favourable picture of the general success of spreading contraception in Thailand. This issue will be discussed further in the investigation of the current use of family planning in a later section of this chapter

Number of Methods Ever Used

Information on number of methods ever used by women is provided in the CPS data. Table 5.5 presents the average number of modern contraceptive methods ever used by ever married women aged 15-49 by age, region and rural-urban residence. It shows that, for the whole kingdom on the average a woman had ever used approximately 1.5 modern methods of contraception. The average number of methods ever used increases with age from ages 15-19 until ages 35-39 after which it declines

TABLE 5.5: AVERAGE NUMBER OF MODERN CONTRACEPTIVE METHODS EVER USED BY EVER MARRIED WOMEN AGED 15-49 BY AGE, REGION AND RURAL-URBAN RESIDENCE

Age	Whole Kingdom	Rural-Urban Residence			Region			
		Bangkok	Provincial Urban	Rural	Central	North	North-east	South
15 - 19	0.92	1.23	1.10	0.88	1.03	1.18	0.81	0.60
20 - 24	1.41	1.69	1.74	1.36	1.46	1.55	1.33	1.11
25 - 29	1.64	1.94	2.00	1.57	1.70	1.78	1.56	1.28
30 - 34	1.73	2.35	2.01	1.62	1.75	1.80	1.61	1.33
35 - 39	1.74	2.01	1.85	1.70	1.77	1.80	1.75	1.38
40 - 44	1.46	1.53	1.56	1.44	1.60	1.50	1.48	0.97
45 - 49	1.08	1.50	1.61	1.00	1.16	1.16	0.97	0.68
Total	1.54	1.93	1.83	1.47	1.59	1.65	1.47	1.17

In Bangkok and other provincial urban places, on the average a woman had tried almost two modern methods. This is in contrast to the rural areas where only about 1.5 methods were ever used. Although the level of ever use between provincial urban and rural places is not very different, as discussed in the previous section, the use of different methods on the other hand is clearly greater in the urban places.

As for the four regions, those which had the higher level of ever use of contraception tended also to be characterized by a greater number of methods ever used. Women in the North and the Central region had ever used 1.7 or 1.6 methods on the average as compared to 1.2 methods among Southern women. The figure for the Northeast was again intermediate i.e., 1.5. It is very interesting to note that even at age under 20, many women in the Central Region and the North had already tried more than one modern method of contraception. The number of methods ever used in the Northeast and the South was still smaller but increased steadily with age up to ages 35-39. Future prospects of these two regions in terms of contraceptive prevalence and choices seems to be very favorable.

CURRENT USE OF CONTRACEPTION

Levels, Trends, and Method Mix

Current use of contraception is the central indicator of contraceptive prevalence in a population and is the focus of the CPS. Table 5.6 shows contraceptive prevalence by method for all three CPS surveys as measured by the percentage of currently married women

aged 15-44 (CMW15-44) who are currently using a contraceptive method. Figure 5.1 indicates the distribution of methods among current users for each survey

According to the three CPS surveys overall prevalence increased substantially and steadily, from 53 to 59 to 65 percent from 1978 to 1981 to 1984, when the three surveys were undertaken. The biggest increase in use was in female sterilization which increased from 13.0 to 18.7 to 23.5 percent of CMW15-44 and by the time of CPS3 is currently the most common method of contraception in Thailand, accounting for 36 percent of all methods currently used. Indeed, the increase in female sterilization explained 86 percent of the increase in overall prevalence between 1981 and 1984. It is interesting to note that the increase in prevalence of female sterilization occurred at a time when statistics on new acceptors to the national programme had remained fairly constant. This underscores the fact that prevalence is cumulative and can continue to increase when numbers of new acceptors level off or even decline.

Prevalence of the pill, now the second most common method currently used, remained steady at about 20 percent of CMW15-44. Because of the increase in female sterilization, the contribution of the pill to the overall contraceptive prevalence declined steadily from 41 to 34 to 31 percent during the three survey periods. Use of vasectomy also remained almost constant and was far less popular than female sterilization with the later being practiced, in 1984, by five times more couples than was the case with vasectomy. There was also only modest change in the other methods (IUD,

TABLE 5.6: PERCENT OF CURRENTLY MARRIED WOMEN AGED 15 - 44 PRACTICING CONTRACEPTION BY METHOD USED, BASED ON CPS1, CPS2 AND CPS3

Method being used	CPS1 1978	CPS2 1981	CPS3 1984
Total	53.4	59.0	64.6
Pill	21.9	20.2	19.8
Female sterilization	13.0	18.7	23.5
Male sterilization	3.5	4.2	4.4
IUD	4.0	4.2	4.9
Injectables	4.7	7.1	7.6
Condom	2.2	1.9	1.8
Other	4.1	2.7	2.6

injectables, condoms and all other methods) especially between 1981 and 1984.

Regional Patterns

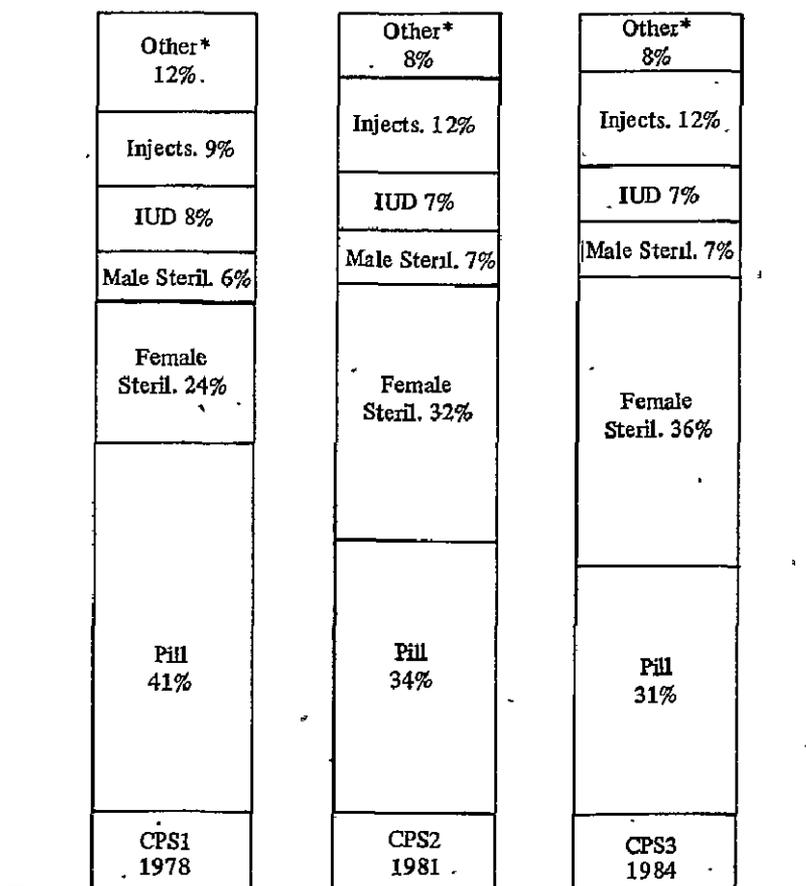
Regional as well as rural-urban patterns of current use are very important for better understanding overall prevalence of contraception in Thailand. Table 5.7 shows the prevalence rate for currently married women aged 15-44 by rural-urban residence and region for CPS2 and CPS3. The prevalence rate of Bangkok at the time of CPS3 was found to be the highest of all places, i.e., 71.8 percent, representing an increase from 65.2 percent in 1981 (CPS2). The gap between the provincial urban and rural areas has narrowed with the percent of women current using in the two areas at the time of CPS3 being 64.7 and 63.7 respectively. This represents a convergence due

mainly to a sharp increase in percent currently using in the rural areas, i.e., an increase of 6 percentage points since 1981 compared to little change in the prevalence rate for provincial urban areas.

Among the four regions excluding Bangkok, the prevalence rate at the time of CPS3 is the highest in the North, i.e., 71.4 percent. The prevalence rate of the Central region is the second highest in 1984, i.e., 68.8 percent. The Southern region is characterized by the lowest prevalence rate, i.e., 43.4 percent, although it is note worthy that the percentage points increase since 1981 was greater in the South than any other region. The Northeast remained intermediate, characterized by the prevalence level of 60.8 percent.

The regional method mix is shown in Table 5.8 in terms of prevalence among all

FIGURE 5.1: DISTRIBUTION OF CURRENTLY MARRIED WOMEN AGED 15-44 PRACTICING CONTRACEPTION ACCORDING TO THE SPECIFIC METHOD BASED ON CPS1, CPS2 AND CPS3



*Other-Includes condom, rhythm, withdrawal, norplant and folk methods.

TABLE 5.7: PERCENT OF CURRENTLY MARRIED WOMEN AGED 15 - 44 PRACTICING CONTRACEPTION BY RURAL-URBAN RESIDENCE AND REGION BASED ON CPS2 AND CPS3

	CPS2	CPS3
Whole Kingdom	59.0	64.6
Rural-Urban Residence		
Rural	57.7	63.7
Urban, total	65.2	69.0
Provincial urban	65.1	64.7
Region		
Bangkok	65.2	71.8
Central	64.3	68.8
North	65.8	71.4
Northeast	54.8	60.8
South	43.4	50.4

CMW15-44 and in Table 5.9 in terms of the distributions of all current users aged 15-44. Although the pattern is generally similar for all areas, each of the rural and urban places and the four regions have some distinctive features. For all areas, female sterilization is the most popular method being current used. Pills are the second most popular method for all regions and rural-urban places. Although the overall prevalence level between the provincial urban and rural areas is very similar, the method mix between these two areas is quite different.

The provincial urban places are characterized by a much higher percent female sterilization than the rural places, i.e., 30.3 percent of CMW15-44 as compared to 22.5 percent. On the other hand, the percent current use of pills is clearly higher in the rural areas than the provincial urban places, i.e., 20.2 of CMW15-44 and 12.8 percent respectively. Use of other methods is generally similar for the two areas. Among the four regions, there are also considerable differences in the method mix. The IUD is most common in the Northeast, female

TABLE 5.8: DISTRIBUTION OF CURRENTLY MARRIED WOMEN AND AGED 15-44 BY METHOD CURRENTLY USED, RURAL-URBAN RESIDENCE AND REGION

Method	Whole Kingdom	Rural-Urban Residence			Region			
		Bangkok	Provincial Urban	Rural	Central	North	North-east	South
Total*	64.6	71.8	64.7	63.7	68.8	71.4	60.8	50.4
Pill	19.8	21.5	12.8	20.2	23.2	24.1	17.1	13.3
Condom	1.8	5.3	3.7	1.2	1.4	1.9	0.8	1.9
IUD	4.9	1.9	4.4	5.4	3.0	3.7	8.7	2.5
Female sterilization	23.5	27.3	30.3	22.5	23.8	29.2	21.4	16.3
Male sterilization	4.4	5.7	2.0	4.4	6.2	1.4	5.3	2.9
Injectables	7.6	6.5	7.6	7.7	9.5	10.6	5.6	5.4
Withdrawal	1.3	1.5	1.1	1.2	0.5	0.3	0.8	5.3
Others	1.3	2.0	2.8	1.1	1.4	0.3	1.1	2.9

* The sum of the individual methods may differ slightly from the total due to rounding.

TABLE 5.9: DISTRIBUTION OF CURRENTLY MARRIED USERS AGED 15-44 BY METHOD AND REGION

Method	Whole Kingdom	Bangkok	Central	North	North-east	South
Pill	30.7	30.0	33.6	33.7	28.1	26.4
Condom	2.8	7.4	2.0	2.7	1.4	3.8
IUD	7.7	2.7	4.4	5.2	14.3	4.8
Female sterilization	36.5	38.0	34.5	40.8	35.2	32.4
Male sterilization	6.8	8.0	9.1	1.9	8.8	5.7
Injectables	11.7	9.0	13.8	14.8	9.3	10.7
Withdrawal	2.0	2.1	0.8	0.4	1.2	10.6
Others	1.9	2.8	1.9	0.4	1.8	5.5
Total	100	100	100	100	100	100

sterilization and injectables most common in the North, vasectomy most common in the Central region, and withdrawal most common in the South.

Age Patterns

As mentioned earlier, the increase in the prevalence rate of contraception was substantial and steady during 1978 and 1984. This trend is confirmed in Table 5.10 which includes results standardized for age for all three surveys. A consistent increase across the three surveys can be observed in all age groups except 15-19. Figure 5.2 presents graphically the percent of currently married women practicing contraception by age group. It is very interesting to find that according to CPS3 in 1984, the percent currently using

contraception among young women age 15-19 was quite high, i.e., almost 40 percent. That women start practicing family planning very early. The prevalence rate is considerably higher at 54.4 percent for women aged 20-24. Prevalence increases successively with age up to age group 35-39 but then declines for women aged 40-44. The lower level of current use among older women aged 40-44 may be related to the self perception of subfecundity which is investigated in the following chapter.

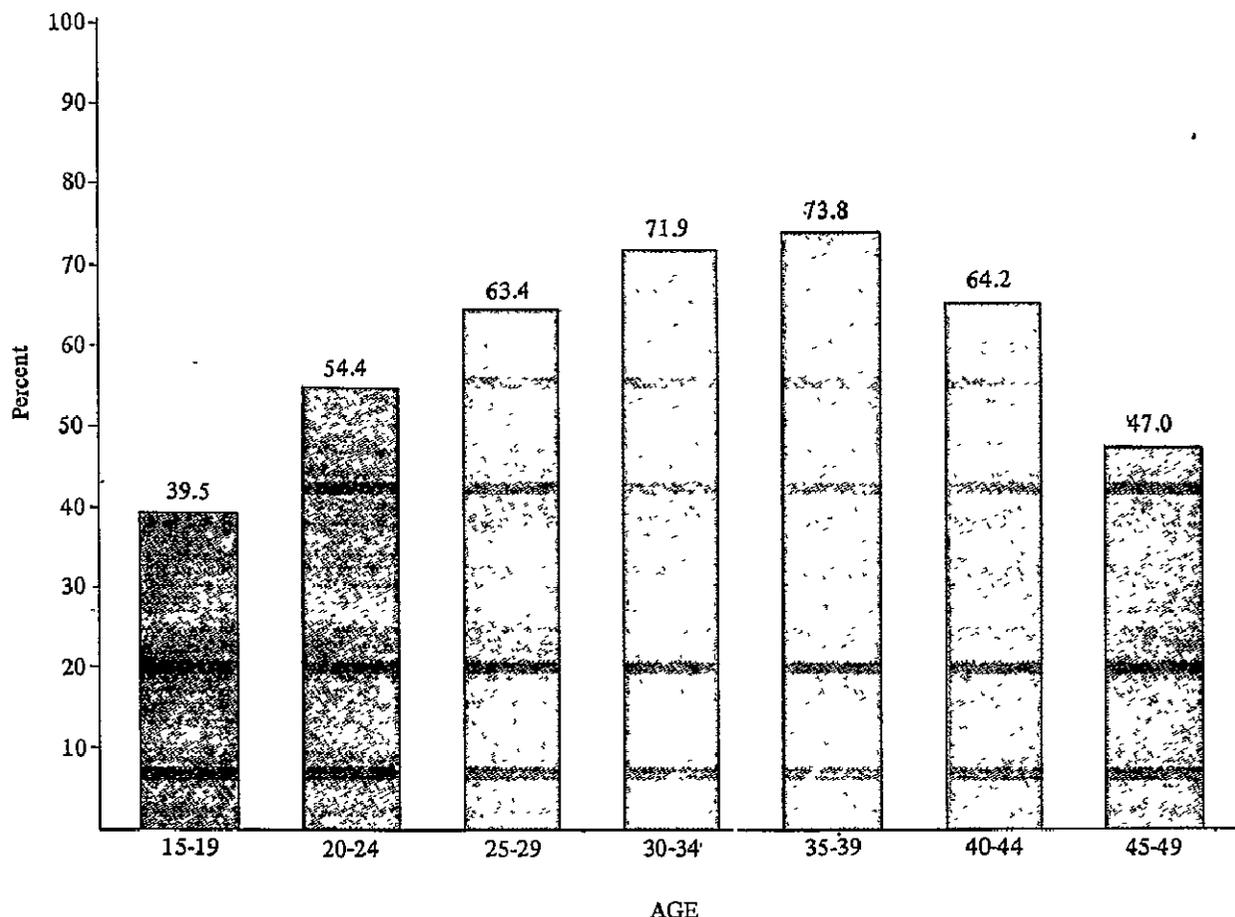
The age pattern of current use of contraception is closely related to the method mix. Figure 5.3 presents the distribution of currently married women aged 15-49 who were currently using contraception by age of women and method currently used. There appears to be a pattern of switching from temporary to per-

TABLE 5.10: PERCENT OF CURRENTLY MARRIED WOMEN AGED 15 - 44 PRACTICING CONTRACEPTION BY AGE BASED ON CPS1, CPS2 AND CPS3

Age group	CPS1 1978	CPS2 1981	CPS3 1984
15 - 19	31.3	29.0	39.5
20 - 24	44.2	47.5	54.4
25 - 29	54.4	60.4	63.4
30 - 34	61.1	67.7	71.9
35 - 39	62.8	68.6	73.8
40 - 44	49.5	56.4	64.2
15 - 44	53.4	59.0	64.6
15 - 44, standardized*	53.1	58.2	63.8

* The results have been standardized for age using the age distribution of currently married women from the 1970 census for the whole kingdom as standard population.

FIGURE 5.2 : PERCENT OF CURRENTLY MARRIED WOMEN PRACTICING CONTRACEPTION BY AGE



manent methods as women become older. Current use of pill and injectables declined rapidly and female and male sterilization increased sharply with age of women. Around ages 30-34 and above, permanent methods become the most popular, accounting for more than 50 percent of all methods combined

It is also interesting to investigate the age pattern of contraceptive use by rural-urban residence and regions. Table 5 11 presents percent of currently married women aged 15-49 practicing contraceptive methods by age and region. First of all, it should be noted that the regional pattern of contraceptive use is slightly changed when age standardization is applied and also varies slightly depending on whether currently married women aged 15-44 or aged 15-49 are being considered. Nevertheless the regional pattern is more or less as described previously.

A comparison of Bangkok, provincial urban and rural areas reveals that Bangkok is characterized by higher prevalence at most ages than either of the other two categories. In Bangkok, prevalence peaks at 80.4 percent of currently married women aged 30-34. No consistent pattern of differences by age are evident between the provincial urban and rural areas. At ages 15-19 almost 40 percent of rural women were already using some form of contraception. This figure was also clearly higher than that of the provincial urban women. As in the case of the percent ever use of contraception mentioned earlier, this may be due to a lower age of marriage and longer duration of marriage among the rural women. On the other hand, the level of current use was higher for provincial urban women than their rural counterparts at ages 20-24. Prevalence among rural women then exceeds that for provincial urban women at ages 25-39 but falls below

FIGURE 5.3 : DISTRIBUTION OF CURRENTLY MARRIED USERS AGED 15-49 BY AGE AND METHOD CURRENTLY USED.

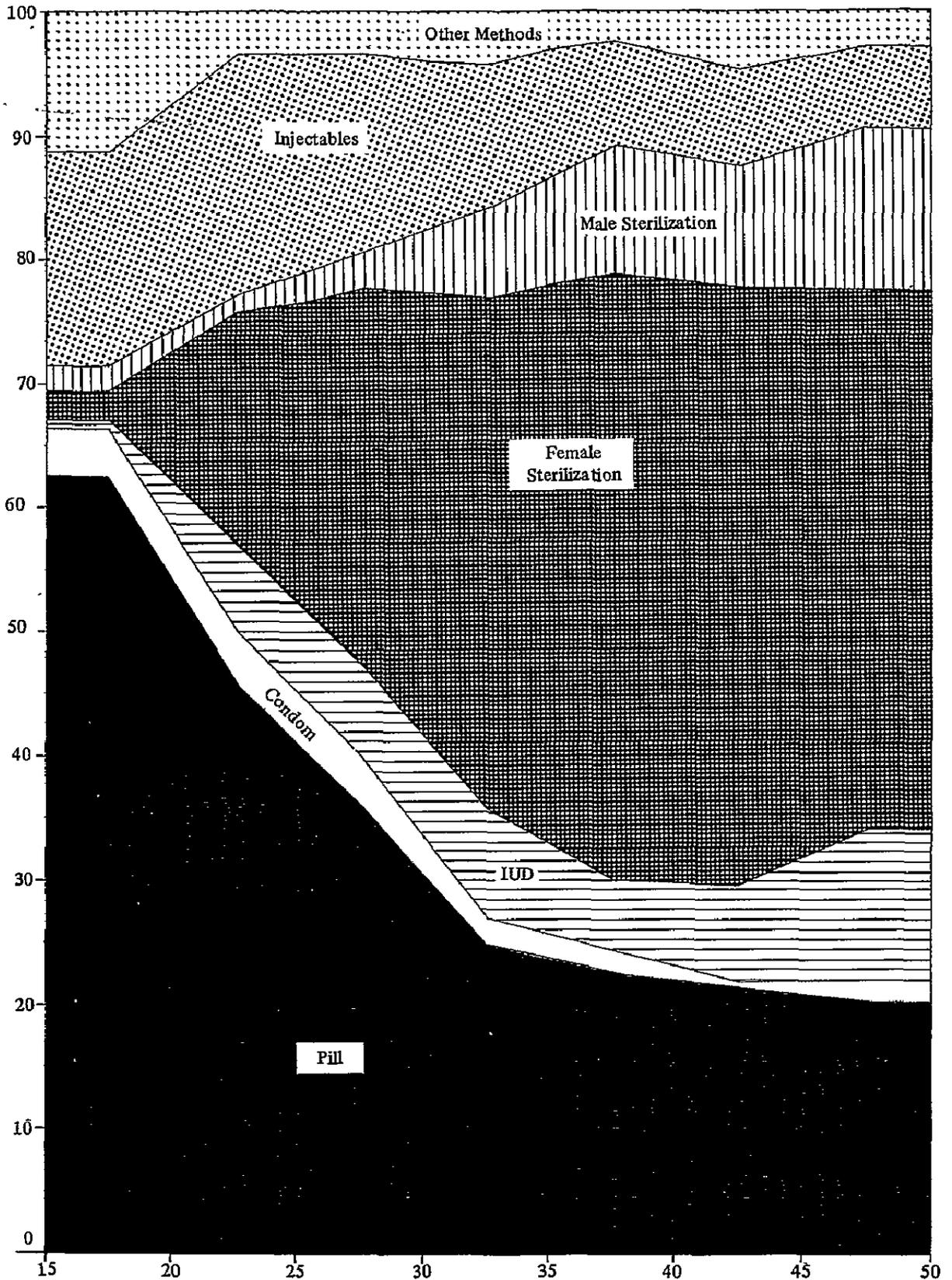


TABLE 5.11: PERCENT OF CURRENTLY MARRIED WOMEN AGED 15-49 PRACTICING CONTRACEPTIVE METHODS BY AGE AND REGION

Age	Whole Kingdom	Rural-Urban Residence			Region			
		Bangkok	Provincial Urban	Rural	Central	North	North-east	South
15 - 19	39.5	45.4	33.3	39.5	49.1	44.9	35.0	29.2
20 - 24	54.4	60.4	63.6	53.2	57.6	64.1	46.5	46.7
25 - 29	63.4	71.9	58.3	62.7	67.8	70.1	58.7	49.8
30 - 34	71.9	80.4	68.5	71.0	74.7	79.5	68.4	55.0
35 - 39	73.8	74.9	72.6	73.9	77.9	77.5	74.5	58.3
40 - 44	64.2	69.2	71.8	63.1	66.2	72.3	63.4	46.4
45 - 49	47.0	68.2	55.5	44.3	53.7	42.6	42.0	34.3
15 - 44	64.6	71.8	64.7	63.7	68.8	71.4	60.8	50.4
15 - 49	63.2	71.6	64.0	62.1	67.2	69.6	59.3	49.5
15 - 44, standardized*	63.8	69.8	64.2	63.2	67.7	70.8	60.4	49.9
15 - 49, standardized*	62.2	69.7	63.3	61.3	66.3	68.1	58.6	48.4

* The results have been standardized for age using the age distribution of currently married women for the whole kingdom from the 1970 census as standard population.

provincial urban levels after age 40 perhaps reflecting, as mentioned in the earlier section, a later spread of contraceptive practice in rural areas.

As for the four regions excluding Bangkok, the regional difference in the level of current use discussed earlier is largely confirmed when specific age groups are observed. The North stands out for its unusually high level of current use at ages 20-24 compared to the other regions and peaks in terms of contraceptive at almost 80 percent at the relatively early ages of 30-34. Women in the Central region were also characterized by high levels of use. At age 15-19, almost half of these women were already currently using a contraceptive method. The Northeast and even more so the South lag behind at most ages. Nevertheless, the prevalence rate for women in certain age groups are quite high and thus promising.

Socio-economic Differentials

Socio-economic differentials in current contraceptive practice are investigated here in three aspects namely, education, occupation and work status of women. Table 5.12 provides the percent of currently married women aged 15-49 currently practicing contraceptive methods by age and socio-economic status.

In terms of education, women of four and more years of schooling were characterized

by a higher rate of current use than women with less education. Women with no education used contraception the least. Those with 1-3 years of schooling were intermediate. It should be noted, however, that since about 70 percent of the women had four years of education, the fact that their prevalence rate is quite high is very encouraging for policy makers.

Occupational differentials seem not to be very drastic. Most occupations were characterized by a prevalence level of 60 percent or higher. Sales and business, labor-servant and professionals were currently practicing contraception at relatively high levels. Women in the agricultural sector which are the majority of the population were intermediate in terms of current use of family planning methods, i.e., 62.1 percent.

In terms of work status, women who were not in the labor force practiced contraception somewhat less than those in the labor force. Among working women, those engaged in non-farm activities were characterized by clearly higher percentages currently using than those working on farms.

SIDE EFFECTS AND DISCONTINUATION

In order to collect information on factors influencing contraceptive use patterns that might be helpful in promoting family planning

TABLE 5.12: PERCENT CURRENTLY MARRIED WOMEN AGED 15-49 CURRENTLY PRACTICING CONTRACEPTIVE METHODS BY AGE AND SOCIO-ECONOMIC STATUS

Socio-economic characteristic	Age							Total 15-49
	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	
Education								
No education	27.0	48.7	40.0	64.4	71.1	55.0	40.7	53.1
1 - 3 years	*	50.0	60.8	58.5	58.0	63.1	44.1	55.3
4 years	40.4	54.5	63.6	73.6	74.6	64.9	47.8	64.6
5 years and above	41.0	55.7	70.0	68.6	77.2	74.6	60.9	64.1
Occupation								
Agriculture	39.2	52.8	62.4	74.3	73.5	61.5	39.9	62.1
Professional	*	31.3	61.8	67.9	72.2	81.9	78.7	65.2
Sales and business	24.7	60.4	65.3	73.8	76.4	75.9	58.8	69.6
Skill and semi-skill	47.7	45.0	57.5	68.0	67.8	53.3	48.3	59.0
Labor-servant	59.2	65.1	68.6	73.5	70.3	57.4	51.9	67.0
Housewife	37.8	56.3	63.1	60.6	75.9	71.5	56.2	60.8
Work status								
Not in labor force	37.9	56.3	63.1	60.6	75.9	71.5	56.2	60.8
In labor force								
Farm	39.2	52.9	62.2	74.2	73.5	61.2	39.6	61.9
Non-farm	43.2	56.4	65.5	72.7	73.7	68.1	58.2	67.0

* *Insufficient cases*

use and increasing satisfaction of users, CPS3 asked about problems related to contraceptive use and reasons why women stopped using particular methods.

Table 5.13 provides the percent of current users according to their first mentioned problem with their current method according to method being used. It should be noted that the nature of problem stated can be either of the respondent's own perception or have been determined through consultation with medical personnel. There is much variation in the extent that problems are reported by women with respect to the different methods of contraception that they were using. Problems were most frequently cited in connection with use of pills, injectables, and female sterilization. Nineteen percent of pill users reported medical or health problem and another 18 percent of them said they experienced headaches and/or dizziness. As high as thirty percent of those using injectables mentioned medical or health problems. For sterilized women, 20 percent reported medical or health problem and 7.6

percent reported headaches and/or dizziness while 5 percent reported emotional or mental problems. Problems were also reported by IUD users although to a somewhat lesser extent. In most cases a medical or health problem was cited (21.2 percent).

Fewer problems were reported in connection with vasectomy and condoms. This may reflect the fact that these are male methods while the respondents are women. However, the percent reporting emotional and mental problems associated with vasectomy was close to the level of that associated with female sterilization.

In general, although these problems may be predominantly perceived by the users and thus may not all be actual, programs to educate users and promote the qualitative side of family planning services should be strengthened in the future.

These problems perceived by current users were probably a very important factor leading to the discontinuation of the methods. In order to pursue this topic further, Table 5.14

percent among women who used rhythm, withdrawal and IUD respectively. The failure rates of these methods seem substantial and need further investigation. Studies on the

qualitative side of contraceptive use including the extent of side effects, method compliance and method failure should be given high priority in the future.

CHAPTER 6

CONTRACEPTIVE SOURCE, UNMET NEED AND NON-USER PROFILE

Factors related to use and non use of contraception are very important for social scientists as well as policy makers who are trying to promote family planning program either for demographic impact or for the social welfare of the population at large. Important information is needed in relation to the availability and accessibility of the family planning program and the characteristics of those women who used or did not use the services. In this chapter, a detailed investigation is presented on the source and cost of contraception, and travel time to contraceptive sources among users. This is followed by an analysis of unmet need of contraception and a study of the profile of the non user. Finally, the extent and determinants of unwanted fertility will be examined. The purpose of this chapter is to help policy makers to identify and comprehend the target population for family planning and to evaluate policy strategy for promoting contraceptive use.

SOURCE OF CONTRACEPTION

Information on source of contraceptive methods is very crucial in the evaluation of the existing family planning program. Table 6.1 presents percent of current users by stated source of contraceptive method based on CPS1, CPS2 and CPS3. It is evident that at the times of the three surveys, the majority of users (almost 80 percent) received services from government sources. Percent of users obtaining services from the government outlets also increased slightly during the three survey periods. For female sterilization and pill, the two most predominant methods, government sources played a very important role, account-

ing for about 90 percent and 72 percent of current users respectively. Vasectomy, injection and IUD were also predominantly used at the government outlets. Source of condom however, was mainly the private outlets (63.4 percent).

Comparison between rural and urban areas and among the four regions is made in Table 6.2. Government outlets were found to be even more important in the rural places (83 percent). In the urban setting, on the other hand, the contribution of private sources rises to about 37 percent (about 30 percent in the provincial urban places and 41 percent in Bangkok). Among the government sources, district hospital, Tambol health center and provincial hospital were the three main outlets. This is true in both the urban and rural places. In the provincial urban areas, the provincial hospital and the MCH center were also very important. In Bangkok, other government hospitals such as university hospitals were major sources of contraception. Among the private outlets, on the other hand, drugstores, private clinics and private hospitals were main outlets especially in the urban areas.

The pattern among the four regions is also interesting. Government sources were most significant in the Northeast especially the district hospitals. Private outlets were more popular in the Central region. Private hospitals also played the most active role in the North when compared to other regions. In the South, Tambol health centers and provincial hospitals were particularly important.

Information on method specific sources is also very essential in the study of contraceptive outlet. Table 6.3 provides data on this

TABLE 6.1 : PERCENT OF CURRENT USERS BY STATED SOURCE OF FAMILY PLANNING AND METHOD BASED ON CPS1, CPS2 AND CPS3

	Pill			Condom			IUD			Injection			Ligation			Vasectomy			All methods		
	CPS1	CPS2	CPS3	CPS1	CPS2	CPS3	CPS1	CPS2	CPS3	CPS1	CPS2	CPS3	CPS1	CPS2	CPS3	CPS1	CPS2	CPS3	CPS1	CPS2	CPS3
Government																					
Outlets	73.8	65.2	71.9	29.9	23.1	36.6	80.7	96.1	92.8	76.5	73.4	72.9	95.5	95.6	89.1	66.7	72.8	73.5	76.9	78.2	79.6
Private																					
Outlets	26.2	34.8	28.1	70.1	76.9	63.4	19.3	3.9	7.2	23.5	26.6	27.1	4.5	4.4	10.9	43.3	27.2	26.5	23.1	21.8	20.4

TABLE 6.2: PERCENTAGE DISTRIBUTION OF CURRENT USERS OF CONTRACEPTION ACCORDING TO SOURCE BY RURAL-URBAN RESIDENCE AND REGION

Source	Rural-Urban Residence				Region				
	Whole Kingdom	Rural	Urban		Bangkok	Central	North	North-east	South
			Total	Provincial					
Government									
Tambol health center	21.8	26.5	1.7	1.5	1.8	23.7	26.6	22.6	27.0
District health center*	4.3	3.0	10.1	3.8	13.9	1.8	3.2	3.2	5.4
District hospital	22.5	27.1	2.8	5.1	1.3	14.5	25.2	34.6	18.2
Provincial hospital	15.8	15.7	16.4	40.8	1.5	19.0	16.7	16.6	21.7
Other government hospital	7.7	3.4	26.5	7.0	38.4	8.6	2.4	2.1	0.6
MCH center	3.2	2.8	4.7	10.5	1.2	4.4	1.8	2.8	7.9
Mobile unit	1.1	1.4	0.1	0.0	0.2	1.9	1.1	1.2	0.2
Village health volunteer/communicator	1.6	2.0	0.0	0.0	0.0	0.1	3.8	1.8	1.3
Other government source	1.1	1.2	0.6	1.0	0.4	1.7	0.5	1.5	0.5
Private									
Drugstore	8.7	6.5	18.3	12.9	21.5	10.4	5.3	6.3	5.5
Private clinic	7.1	6.7	8.8	11.5	7.1	9.8	5.7	6.0	8.4
Private hospital	3.9	3.0	7.7	5.2	9.3	3.3	6.6	0.6	3.0
PDA office or volunteer	0.5	0.4	0.9	0.3	1.3	0.7	0.8	0.0	0.0
Mobile unit	0.2	0.1	0.6	0.0	1.0	0.0	0.3	0.0	0.0
Other private	0.4	0.3	0.8	0.5	0.9	0.2	0.1	0.6	0.4
Total government	79.2	83.0	62.9	69.6	58.8	75.7	81.3	86.4	82.7
Total private	20.8	17.0	37.1	30.4	41.2	24.3	18.7	13.6	17.3
All sources	100	100	100	100	100	100	100	100	100

* Including Bangkok metropolitan health center

Note: Users of methods not requiring a supply or service are excluded from results.

TABLE 6.3: PERCENTAGE DISTRIBUTION OF CURRENT USERS OF SPECIFIC CONTRACEPTIVE METHODS ACCORDING TO SOURCE BY RURAL-URBAN RESIDENCE

Source	Rural						Urban					
	Pill	Condom	Injectable	IUD	Ligation	Vasectomy	Pill	Condom	Injectable	IUD	Ligation	Vasectomy
Government												
Tambol health center	58.3	33.6	40.8	11.1	0.5	13.9	5.4	0.0	0.0	4.2	0.3	0.9
District health center*	2.9	2.9	0.9	4.4	3.5	1.9	19.4	6.6	31.5	12.5	0.6	9.6
District hospital	7.6	11.2	21.3	53.8	40.8	23.9	0.3	0.9	2.0	4.6	4.1	4.1
Provincial hospital	0.5	0.5	4.3	12.7	34.7	14.4	1.1	3.5	8.5	26.4	29.6	4.3
Other government hospital	0.3	3.7	0.6	4.2	5.9	7.5	3.7	0.9	8.3	26.7	46.6	33.7
MCH center	0.1	0.0	1.2	4.2	5.4	2.5	6.4	2.4	17.4	15.8	0.5	0.3
Mobile unit	0.2	0.0	1.6	2.2	0.1	11.6	0.0	0.0	0.9	0.0	0.0	0.3
Village health	6.1	0.7	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Volunteer/communicator												
Other government source	2.2	0.0	2.6	0.5	0.0	1.7	0.4	1.5	0.2	0.0	0.9	0.0
Private												
Drugstore	16.4	42.6	1.2	0.0	0.0	0.3	48.8	81.1	0.0	0.0	0.0	0.0
Private clinic	3.4	0.5	20.6	4.7	3.9	16.2	10.1	2.1	28.8	7.5	3.1	21.6
Private hospital	0.6	1.9	3.6	1.4	5.2	4.4	1.8	0.0	1.7	2.1	14.3	7.7
PDA office or volunteer	0.9	2.4	0.4	0.0	0.0	0.2	1.4	0.0	0.0	0.0	0.1	7.1
Mobile unit	0.0	0.0	0.7	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	10.4
Other private	0.5	0.0	0.0	0.8	0.0	1.2	1.0	1.0	0.6	0.3	0.0	0.0
Total government	78.2	52.6	73.6	93.1	91.0	77.4	36.8	15.7	68.9	90.1	82.6	53.2
Total private	21.8	47.4	26.4	6.9	9.0	22.6	63.2	84.3	31.1	9.9	17.4	46.8
All sources	100											

* Including Bangkok metropolitan health center

Note: Users of methods not requiring a supply or service are excluded from results.

issue. The data indicate that in the rural areas where the government outlets are very important, most of the female sterilization cases were performed in the district (40.8 percent) and provincial (34.7) hospitals. Pills, on the other hand, were distributed mostly at Tambol health centers (58.3 percent). Village health volunteers and communicators contributed an additional of about 6 percent in providing pills. Sources of vasectomy and IUD were mainly district and provincial hospitals and in the case of IUDs also Tambol health centers. Government mobile units were also very important in providing about 12 percent of the vasectomy cases. As far as the injectables are concerned, Tambol health centers and district hospitals contributed the most.

In urban places, private sources also contributed significantly to the overall prevalence level especially for the distribution and services

of condoms, pills and vasectomy, i.e., accounting for 84.3, 63.2 and 46.8 percent respectively. Drugstores were the most important source for condoms and pills. Among the private sources, vasectomy was performed mostly at private clinics, mobile units, private hospitals and the Population Development Association offices. Although female sterilization was still predominantly performed at the government sources, in the urban areas, private hospitals also played an important role contributing to about 14 percent of the sterilization cases.

COST OF CONTRACEPTION

One point of interest in economic aspects of contraceptive use and utilization of the family planning service delivery system is the focus on cost of contraception. Information is provided by CPS3 on the extent of free supplies

TABLE 6.4: PERCENT OF CURRENT USERS WHO RECEIVED METHOD OF CURRENT USE FREE BY SOURCE FOR METHOD

Source	Method					
	Pill	Condom	Injectable	IUD	Ligation	Vasectomy
Government						
Tambol health center	63.5	51.8	3.6	72.0	*	93.4
District health center	26.8	*	9.2	68.6	58.3	*
District hospital	78.6	*	23.5	59.2	74.7	86.0
Provincial hospital	*	*	15.6	48.2	38.1	57.4
Other government hospital	48.4	*	*	55.9	41.6	73.8
MCH center	39.4	*	6.5	36.6	22.4	*
Mobile unit	*	—	*	*	*	97.1
Village health volunteer/ communicator	49.4	*	*	—	—	—
Other government source	54.2	*	0.0	*	*	*
Private						
Drugstore	0.4	3.5	*	—	—	*
Private clinic	5.7	*	0.0	0.0	41.5	14.5
Private hospital	*	*	0.0	*	37.6	65.0
PDA office or volunteer	0.0	*	*	—	*	*
Mobile unit	—	—	*	—	—	*
Other private	*	*	*	*	—	*
Total government	60.5	61.7	10.2	58.6	54.5	80.3
Total private	2.3	4.1	0.0	0.5	39.2	33.5
All sources	44.2	30.6	7.4	54.5	53.2	68.1

* Insufficient cases.

of contraceptive methods and their cost if not free. These informations are best treated as source and method specific. Table 6.4 presents percent of current users who received method of current use free by source for method. It is revealed that the extent of free use of contraception was not high, except for vasectomy of which about 68 percent was performed free of charge. Among users of IUD and female sterilization, only slightly more than half did not pay for the service. Still, the minority of users received free pill, condom and injectable.

Free provision of contraception was, as would be expected, much more common in the government sources than in private outlets. This is true for all methods. The extent of free service from the private sources is substantial only for female sterilization and vasectomy, i.e., accounting for about 39 and 34 percent of users of private sources of these two methods respectively.

Free pills are provided most frequently at the district hospital (78.6 percent) and Tambol health centers (63.5 percent). About half of the women who obtained pills from village health volunteer and communicator also did so free of charge. Free condoms from the Tambol health center were provided to approximately half of the users there. The extent of free injectables was rare except in the district hospital where about 24 percent of women received it free of charge. Female and male sterilization were performed mostly free of charge at the district hospital (75 percent for female and 86 percent for male sterilization). Vasectomy at the government mobile clinic and at the Tambol health center was almost universally free. Vasectomy without charge in the private hospital was also significant (65 percent).

Table 6.5 presents the average cost in baht by method currently used by source for

TABLE 6.5: AVERAGE COST IN BAHT BY METHOD CURRENTLY USED BY SOURCE FOR CURRENT USERS WHO PAID FOR METHOD

Source	Method					
	Pill	Condom	Injectable	IUD	Ligation	Vasectomy
Government						
Tambol health center	7.0	7.6	48.9	21.8	*	*
District health center	5.5	*	28.1	*	226.4	*
District hospital	8.0	*	19.3	22.3	127.0	*
Provincial hospital	*	—	18.2	25.2	257.2	371.1
Other government hospital	*	*	*	37.7	317.9	*
MCH center	*	—	14.8	47.7	371.3	*
Mobile unit	—	—	*	—	—	*
Village health volunteer/ communicator	4.8	—	*	—	—	—
Other government source	10.0	—	48.6	*	—	*
Private						
Drugstore	17.3	8.6	*	—	—	—
Private clinic	21.0	*	62.5	206.5	691.5	265.8
Private hospital	*	*	19.6	*	920.9	*
PDA office or volunteer	8.2	*	*	—	—	*
Mobile unit	—	—	*	—	—	—
Other private	*	—	*	*	—	*
Total government	6.9	8.2	36.1	27.4	244.9	314.3
Total private	17.5	21.3	55.0	168.8	830.7	260.3
All sources	12.1	18.0	41.7	49.4	308.7	284.8

*. Insufficient cases

current users who paid for method. The cost of female and male sterilization was highest of all methods, i.e., around 300 baht. Average cost of other methods ranged only from 12 to 50 baht. For all methods except vasectomy, the cost was higher at private sources. The difference is especially large for IUD and female sterilization.

Table 6.5 also presents cost by specific sources. Since female sterilization in the government hospitals and pill from Tambol health centers were the two most predominant methods currently used among most women in Thailand, the cost for these sources - specific methods are of particular interest. For the pill users at Tambol health centers, not only did most of them obtain pills free of charge, for those who paid the average cost was only 7 baht. The low cost of pills including free distribution may be important in facilitating use of this method. As for sterilization at the district hospital, again not only did most of the women not have to pay, but for those who had to pay, they spent only 127 baht on the average for the operation. This low cost may help explain the increase in female sterilization in Thailand which was discussed in the previous chapter.

TRAVEL TIME

In order to gain more insight into the extent to which the contraceptive methods were accessible to the Thai women, some measures of distance to the services should be investigated. Travel time (including waiting time for transportation) is one of the best measures on this issue. Table 6.6 presents average travel time in minutes by method by rural-urban residence and region among current users. It is revealed that a woman had to

travel approximately 20 minutes to get the pill and about one hour to go for a sterilization. Other temporary methods also took about less than half an hour to obtain services. Travel time for IUD and vasectomy was slightly less than one hour. In general, the accessibility to service measured preliminarily by travel time seems to be fairly favorable in Thailand.

A rural-urban comparison indicates a more favorable situation in the urban areas. In the provincial urban places, travel time for the pill was less than ten minutes and for female sterilization was less than half an hour. Travel time in Bangkok was slightly longer than the provincial urban areas probably reflecting difficulties in terms of traffic.

As far as the four regions are concerned, travel time for the pill was somewhat longer in the Northeast than the rest of the country. It should be noted also that in the South, among the pill users, it took only about 17 minutes to go to obtain pills. As far as female sterilization is concerned, the difference among the four regions in terms of travel time is not great.

UNMET NEED

Unmet need for contraception is a concept that has been developed for policy makers to identify and comprehend more fully the potential target population for family planning programs. Through refinements of questionnaire design based on previous experience, it has been possible to improve on the measurement of this concept. In this chapter analysis of unmet need for contraception will be supplemented by examining the profile of the non user and extent of unwanted pregnancy. Thus analysis of unmet need will be particularly thorough.

TABLE 6.6: AVERAGE TRAVEL TIME IN MINUTES BY METHOD BY RURAL-URBAN RESIDENCE AND REGION AMONG CURRENT USERS

Method	Whole Kingdom	Rural-Urban Residence			Region				
		Rural	Urban		Bangkok	Central	North	Northeast	South
			Total	Provincial					
Pill	18.8	20.0	12.4	9.9	13.4	17.3	14.8	26.1	16.7
Condom	20.4	25.7	11.5	7.1	14.1	28.1	15.6	30.1	20.9
Injection	25.1	26.7	16.1	13.0	18.7	23.1	20.8	36.6	19.4
IUD	52.6	56.4	20.7	14.6	27.9	61.7	40.9	57.4	36.5
Ligation	56.1	61.8	36.3	27.5	43.0	54.2	51.3	63.4	67.2
Vasectomy	55.4	56.2	50.6	53.4	49.6	62.1	60.1	47.0	74.7

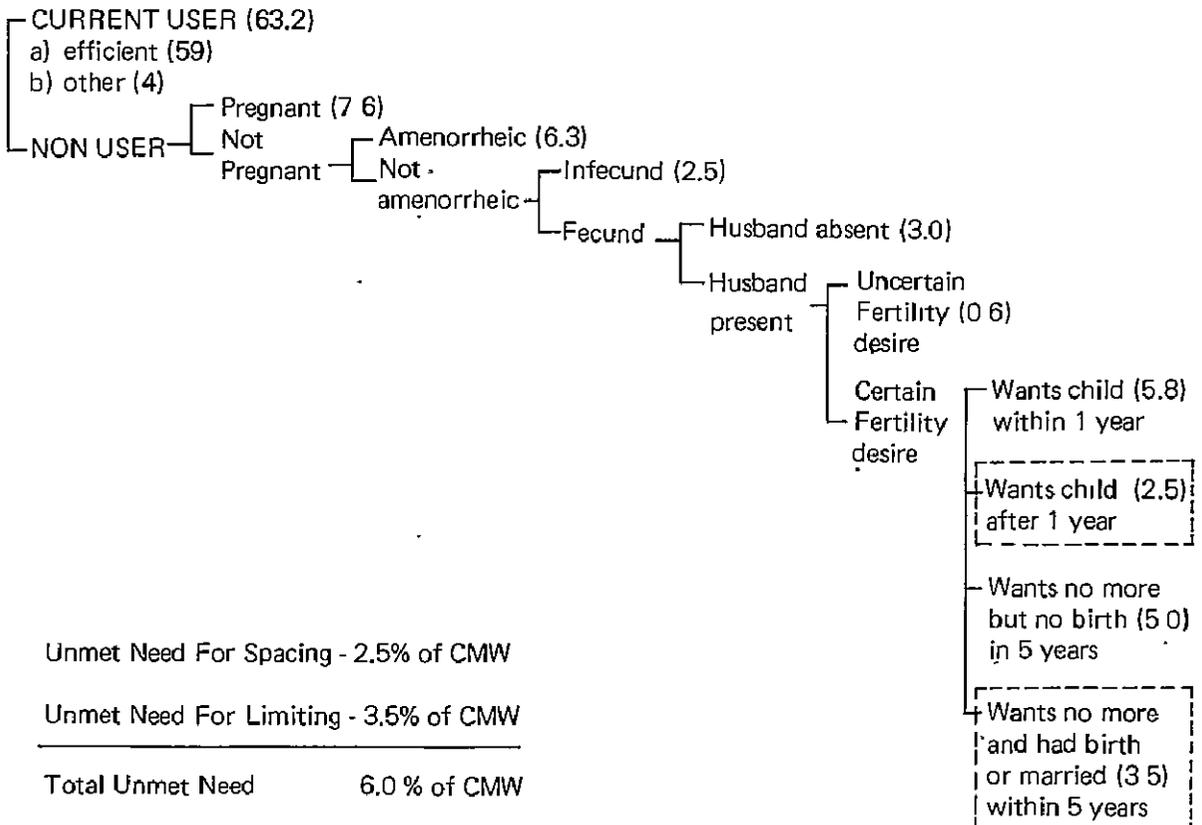
Figure 6.1 presents the chart showing the structure of how unmet need is determined. By categorizing currently married women by pertinent characteristics, the extent of unmet need can be derived. These characteristics include the status with respect to use of contraception, pregnancy, amenorrhea, and fecundity (perceived and estimated), presence of husband, certainty about fertility desires, desired timing of next birth and desire to avoid future child-bearing altogether.

Women who are current users are already having their need for contraception met although in some cases a switch from a less efficient to a more efficient method might be beneficial. Among non users, those who are pregnant, currently in a state of postpartum amenorrhea, infecund, or whose husband is absent are clearly not in need of contraception

at the moment. Likewise, women who are uncertain or indifferent about whether they want more children are unlikely to want to use contraception. Among women who want more children, those who wish to have a child soon (within a year) also are not in need of contraception. Among women who want no more children, those having no birth over the last five years despite the fact they are not using contraception are also unlikely to be in need of a method since they are apparently subfecund or infecund. The two remaining groups that have a relatively clear need for contraception are

- 1) The "potential spacers" defined as non users who want more children but wish to wait more than a year before giving birth and

FIGURE 6.1 : DETERMINATION OF UNMET NEED AMONG CURRENTLY MARRIED WOMEN AGED 15-49 FOR THE WHOLE KINGDOM



- 2) The "potential limiters" defined as non users who want no more children and are likely to still be fecund as demonstrated by having had a birth or having been married within the last five years.

CPS3 results indicate that only 2.5 percent of currently married women aged 15-49 have an unmet need for limiting and 3.5 per-

cent for spacing. Hence a total of only 6 percent of currently married women in reproductive ages seems to be likely remaining potential targets for the National Family Planning Program (NFPP). This means that only about 450,000 of the approximately 7.5 million currently married women under age 50 are not yet being served by the program or some commercial outlet. Clearly the NFPP has reached the vast majority of potential users already.

TABLE 6.7: STATUS REGARDING NEED FOR CONTRACEPTION AND SELECTED MEASURES OF UNMET NEED, CURRENTLY MARRIED WOMEN AGED 15 - 49 BY RURAL-URBAN RESIDENCE AND REGION

Need status*	Whole Kingdom	Residence		Region				
		Rural	Urban	Bangkok	Central	North	North-east	South
1) Current user	63.2	62.1	68.6	71.6	67.2	69.5	59.2	49.5
1a) (efficient method)	(59.1)	(58.7)	(60.8)	(63.3)	(64.1)	(66.9)	(56.7)	(39.9)
1b) (other method)	(4.1)	(3.4)	(7.8)	(8.3)	(3.1)	(2.6)	(2.5)	(9.6)
2) Pregnant	7.6	7.6	7.4	6.5	6.9	6.3	8.6	9.2
3) Amenorrhoeic	6.3	6.9	3.3	3.0	4.1	6.0	7.0	11.7
4) Infecund	2.5	2.5	2.1	2.2	2.5	2.2	3.3	0.8
5) Husband absent	3.0	3.3	1.7	1.2	3.3	1.8	4.7	1.2
6) Uncertain fertility desire	0.6	0.7	0.3	0.1	0.2	0.6	0.5	1.8
7) Wants child within 1 year	5.8	5.3	8.5	7.0	6.1	5.6	4.3	9.1
8) Wants child but after 1 year	2.5	2.6	2.0	1.7	1.9	1.5	2.9	5.0
9) Wants no more but had no birth in 5 years	5.0	5.2	3.9	3.8	5.9	4.3	4.9	5.7
10) Wants no more but had birth or married in last 5 years	3.5	3.8	2.2	2.8	1.9	2.2	4.7	5.9
Total	100	100	100	100	100	100	100	100
Unmet need								
Conservative estimate								
For limiting (10)	3.5	3.8	2.2	2.8	1.9	2.2	4.7	5.9
For spacing (8)	2.5	2.6	2.0	1.7	1.9	1.5	2.9	5.0
Total (8 + 10)	6.0	6.4	4.2	4.5	3.8	3.7	7.6	10.9
Maximum estimate								
(1b + 8 + 9 + 10)	15.1	15.0	15.9	16.6	12.8	10.6	15.0	26.2

* Each category takes precedence over all subsequent categories

Table 6.7 presents the extent of unmet need by rural and urban residence and by region. Unmet need was found to be slightly higher in the rural areas than in the urban settings, i.e., 6.4 percent in the rural places as compared to 4.2 percent in the provincial urban areas and 4.5 percent in Bangkok. As for the four regions, the South was characterized by the highest percent unmet need, i.e., about 11 percent. Unmet need for spacing in the South was especially higher than that of any

other region. Unmet need, especially for limiting family size, was the second highest in the North-east

The extent of unmet need can also be investigated by age of women. Table 6.8 reveals some variation in unmet need for limiting family size and for spacing by age groups. For women aged 15-19, unmet need for spacing is the highest, i.e., almost 12 percent. Unmet need for limiting family size was highest among women 40 years of age and over, i.e., about 7

TABLE 6.8: STATUS REGARDING NEED FOR CONTRACEPTION AND SELECTED MEASURES OF UNMET NEED AMONG CURRENTLY MARRIED WOMEN BY AGE

Need status*	Age							Total 15-49
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
1) Current user	39.3	54.5	63.4	71.9	73.8	64.2	46.9	63.2
1a) (efficient method)	(33.1)	(50.3)	(59.0)	(67.0)	(69.8)	(61.1)	(44.8)	(59.1)
1b) (other method)	(6.2)	(4.2)	(4.4)	(4.9)	(4.0)	(3.1)	(2.1)	(4.1)
2) Pregnant	21.5	15.5	10.8	4.9	2.7	1.3	1.0	7.6
3) Amenorrhoeic	12.8	11.7	8.8	5.2	2.7	2.7	0.2	6.3
4) Infecund	0.5	0.0	0.2	1.5	1.7	3.7	17.6	2.5
5) Husband absent	3.5	4.1	3.2	3.8	2.2	1.6	0.9	3.0
6) Uncertain fertility desire	0.0	0.4	0.6	0.6	0.7	1.2	0.4	0.6
7) Wants child within 1 year	8.0	6.9	7.5	5.7	4.7	4.0	2.6	5.8
8) Wants child but after 1 year	11.8	5.2	3.0	1.8	0.7	0.0	0.2	2.5
9) Want no more but had no birth in 5 years	0.0	0.0	0.4	1.5	6.8	14.3	23.4	5.0
10) Wants no more but had birth or married in last 5 year	2.6	1.7	2.1	3.1	4.0	7.0	6.8	3.5
Total	100	100	100	100	100	100	100	100
Unmet need								
Conservative estimate								
For limiting (10)	2.6	1.7	2.1	3.1	4.0	7.0	6.8	3.5
For spacing (8)	11.8	5.2	3.0	1.8	0.7	0.0	0.2	2.5
Total (8 + 10)	14.4	6.9	5.1	4.9	4.7	7.0	7.0	6.0
Maximum estimate								
(1b + 8 + 9 + 10)	20.6	11.1	9.9	11.3	15.5	24.4	32.5	15.1

* Each category takes precedence over all subsequent categories.

percent. The extent of unmet need among women aged 25-39 was very low. Unmet need of contraception for limiting family size was also found to be highest among women with less than four years of education (Table 6.9). This may, however, be partly due to the fact that such women are likely to be older than average since younger cohorts tend to have more education

NON-USER PROFILE

It is important to understand more about the non users of contraception as far as policy making is concerned. In this section, an attempt is made to investigate reasons for not using contraception among non users in general and among the women identified as having unmet need in particular. Table 6.10 presents reasons

given for non use of contraception by previous use and by unmet need status among currently married women aged 15-49. Reasons for non use are also categorized under whether they are non-amenable or potentially amenable to National Family Planning Program (NFPP). It is revealed that for all never users of contraception, reasons for not using were predominantly non-amenable to NFPP, i.e., almost 70 percent. These included such reasons as desiring pregnancy (34.2%), being sub-and infecund (20.3%) and being pregnant (7.9%). However, there were about one third of the women who did not use contraception because of different reasons such as having had or being afraid of side effects (18.5%) or experiencing objections by their husband, relative or friend (9.1%).

TABLE 6.9: STATUS REGARDING NEED FOR CONTRACEPTION AND SELECTED MEASURES OF UNMET NEED AMONG CURRENTLY MARRIED WOMEN BY RURAL-URBAN RESIDENCE AND EDUCATION

Need status*	Whole kingdom			Rural			Urban		
	Less than 4 yrs.	4 yrs.	5 or more yrs.	Less than 4 yrs.	4 yrs.	5 or more yrs.	Less than 4 yrs.	4 yrs.	5 or more yrs.
1) Current users	54.0	64.5	64.0	51.6	64.0	61.2	70.1	68.6	68.1
1a) (efficient method)	(51.6)	(61.2)	(55.0)	(49.6)	(60.9)	(54.3)	(64.5)	(63.7)	(56.1)
1b) (other method)	(2.4)	(3.3)	(9.0)	(2.0)	(3.1)	(6.9)	(5.6)	(4.9)	(12.0)
2) Pregnant	7.7	6.8	11.0	8.5	7.0	10.9	2.1	5.5	11.1
3) Amenorrhoeic	7.6	6.6	4.4	8.2	7.0	5.3	3.1	3.5	3.1
4) Infecund	5.7	2.3	0.6	5.6	2.4	0.1	6.4	2.1	1.2
5) Husband absent	1.3	3.2	3.3	1.4	3.4	4.6	0.8	1.8	1.6
6) Uncertain fertility desire	1.2	0.6	0.2	1.4	0.6	0.3	0.3	0.4	0.2
7) Wants child within 1 year	4.7	5.0	10.0	4.8	4.6	10.2	4.0	8.3	9.9
8) Wants child but after 1 year	2.4	2.3	3.6	2.7	2.3	4.6	0.5	2.2	2.2
9) Wants no more but had no birth in 5 years	7.7	5.3	1.6	7.3	5.4	1.8	10.0	4.7	1.4
10) Wants no more but had birth or married in last 5 years	7.7	3.3	1.2	8.5	3.4	1.1	2.8	2.8	1.3
Total	100	100	100	100	100	100	100	100	100
Unmet need									
Conservative estimate									
For limiting (10)	7.7	3.3	1.2	8.5	3.4	1.1	2.8	2.8	1.3
For spacing (8)	2.4	2.3	3.6	2.7	2.3	4.6	0.5	2.2	2.2
Total (8 + 10)	10.1	5.6	4.8	11.2	5.7	5.7	3.3	5.0	3.5
Maximum estimate									
(1b + 8 + 9 + 10)	20.2	14.2	15.4	20.5	14.2	14.4	18.9	14.6	16.9

* Each category takes precedence over all subsequent categories.

Among women who were not currently using contraception as many as about 26 percent had or feared side effects. Policy makers should aim at improving the quality of use and information among these women by means of educational programs and closer medical consultation. In general the qualitative aspect of contraceptive use needs more emphasis.

As for women with an unmet need either for spacing or limiting family size, only about 50 or 60 percent of them were potentially amenable to NFPP. Although the extent of amenable unmet need is quite small, among these groups of women, side effects is the major problem. Educational and consultation programs as mentioned above are needed.

In order to direct such programs to reach more efficiently the population with an unmet need, a general socio-economic profile of these groups of women is provided in Table 6.11. Women who had an unmet need for spacing and limiting their family size were more rural,

tended to be more from the Northeast and the South, have less education and are more likely to be a Moslem than the general population. Particularly interesting is the finding that rural women with an unmet need for spacing or limiting are about as likely as women on average to live in villages within 5 kilometers of a potential government supply of contraceptive supplies or services. Among rural women in general and among those with an unmet need less than 15 percent live in villages more than 5 kilometers from a hospital or health station. It thus seems unlikely that the remaining unmet need in Thailand is primarily a question of inaccessible supplies, at least from a health station.

Apart from side effects which seemed to be the major problem for the non user in general and those with an unmet need in particular, a question can be raised as to whether policy should also be aimed at motivating smaller family sizes among those who were not yet

TABLE 6.10: REASON GIVEN FOR NON-USE OF CONTRACEPTION BY PREVIOUS USE AND BY UNMET NEED STATUS, CURRENTLY MARRIED WOMEN AGED 15 - 49

Reason for non-use and whether amenable to NFPP	Never Users	All current non-users	Non-users with unmet need		
			Potential spacer	Potential limiter Had birth or married in last 5 years	No birth in last 5 years
Non-amenable to NFPP					
Pregnant	7.9	5.4	4.1	1.7	1.6
Dr.'s advice or illness	3.7	4.3	3.4	4.9	6.9
Sub-and infecund	20.3	13.3	9.6	16.5	33.6
Sexually inactive or separated	2.7	6.8	3.5	3.8	3.8
Desire pregnancy	34.2	31.7	29.6	10.4	6.1
Potentially amenable to NFPP					
Religious taboo	2.6	1.2	1.8	2.5	1.1
Had or fear side effect	18.5	26.4	31.9	42.6	35.8
Objection by husband, relative, or friend	9.1	4.7	5.6	7.2	5.0
Can't afford or inconvenient to get	0.9	0.8	1.7	3.0	0.7
Other	0.0	5.3	8.8	7.5	5.4
Total non-amenable	68.8	61.5	50.2	37.3	52.0
Total amenable	31.1	38.4	49.8	62.8	48.0
Total	100	100	100	100	100

either spacers or limiters. Investigation of the expected and desired family size of these women is therefore necessary. Table 6.12 presents the expected number of children and ideal family size by age for all currently married women and for non users of contraception who were or desired to be pregnant. It is revealed that expected and desired family size among non users who were or still desired to have more children was not very different from that among all currently married women in general. As a matter of fact, it was slightly lower. This is with the exception of former users of contraception who were or desire an additional child at ages 35 and over. The expected and desired family size of this group of women was higher than that of the population at large. With this

exception, the programs to motivate smaller family size only among non users seem inappropriate. Perhaps policy makers should aim at motivating smaller ideal number of children for all women regardless of their contraceptive use status.

UNWANTED FERTILITY

Need for contraception can also be investigated by the extent of unwanted pregnancy among women. CPS had information on women whether they wanted to have more children before they became pregnant the last time. The extent of negative answers points to the need for contraception in the past. Table 6.13 presents the percent of ever married women aged 15-49 who did not want their last birth at

TABLE 6.11: SELECTED CHARACTERISTICS OF CURRENTLY MARRIED WOMEN AGED 15 - 49 ACCORDING TO USE AND NEED STATUS

	All currently married Women	Contraceptive users		Unmet need status		
		Efficient method	Other method	Potential spacer	Potential limiter Birth or married in last 5 yrs.	No birth in last 5 yrs.
% Rural	83	83	68	86	89	87
Regional distribution (%)						
Bangkok	10	11	21	7	8	8
Central	21	23	16	16	12	25
North	22	25	14	13	13	19
Northeast	35	33	21	40	46	34
South	12	8	30	25	21	14
Educational distribution (%)						
Less than 4 years	12	10	7	12	26	19
4 years	72	75	58	66	68	76
5-10 years	11	11	18	17	4	4
11+ years	5	5	17	6	2	7
% Moslem	6	3	13	16	13	9
% In village within 5 kilometers of hospital or health station*	87.9	88.0	92.4	89.5	86.1	90.4
Mean values for						
current age	31.7	32.1	30.5	24.9	35.6	41.9
Years since first marriage	12.0	12.5	10.2	5.8	16.0	22.3
Children ever born	2.97	3.15	2.54	1.64	4.90	4.60
Living children	2.73	2.31	2.36	1.44	4.43	4.20
Expected number of children**	3.30	3.26	2.99	2.87	4.43	4.20
Ideal family size	3.01	2.95	2.93	2.95	3.67	3.50

* Refers to rural women only

** Expected number of children is calculated by adding the number of living children and the number of additional children desired.

TABLE 6.12: EXPECTED NUMBER OF CHILDREN AND IDEAL FAMILY SIZE BY AGE FOR ALL CURRENTLY MARRIED WOMEN AND FOR NON-USERS OF CONTRACEPTION WHO ARE OR DESIRE TO BE PREGNANT

Age	All currently married women	Non-users who are or desire to be pregnant		
		All non-users	Never user	Former user
Expected number of children**				
15 - 19	2.36	2.39	2.50	2.17
20 - 24	2.49	2.60	2.59	2.61
25 - 29	2.75	2.75	2.81	2.71
30 - 34	3.11	2.87	2.80	2.94
35 - 39	3.65	3.39	2.84	3.71
40 - 44	4.52	4.20	3.47	5.43
45 - 49	5.01	3.56	2.76	6.06
Total				
Unstandardized	3.30	2.83	2.74	2.92
Standardized*	3.36	3.10	2.84	3.56
Ideal family size				
15 - 19	2.56	2.58	2.74	2.26
20 - 24	2.55	2.58	2.60	2.55
25 - 29	2.75	2.78	2.92	2.68
30 - 34	2.97	2.86	2.81	2.91
35 - 39	3.20	3.13	2.53	3.50
40 - 44	3.66	3.98	3.89	4.13
45 - 49	3.78	3.14	2.83	4.03
Total				
Unstandardized	3.01	2.80	2.80	2.79
Standardized*	3.04	3.00	2.89	3.14

* The results have been standardized for age using the age distribution of currently married women for the whole Kingdom from the 1970 census as standard population.

** Expected number of children is calculated by adding the number of living children and the number of additional children desired.

the time of pregnancy by residence, number of children ever born and number of years since last birth based on CPS2 and CPS3

It is revealed from Table 6.13 that about 27 percent of ever married women had unwanted fertility at the time of the last pregnancy. This percentage is considered to be quite high, especially when it is compared to the fact that unmet need of contraception was only about 6 percent. Although, measurement problems may exist, the extent of inefficiency of contraceptive use among Thai women may be quite significant. Further investigation on the

qualitative aspect of family planning use is especially essential in the future.

The extent of unwanted fertility however declined between CPS2 and CPS3 with the exception of the urban areas. Furthermore when years since last birth are considered a decline is also evident. The level of unwanted fertility is lower for more recent years than further in the past. In addition unwanted fertility is higher in rural than urban places. In the urban setting, however, the level was slightly higher in CPS3, although for each survey the trend was downward when related to number

TABLE 6.13: PERCENT OF EVER MARRIED WOMEN AGED 15 - 49 WHO DID NOT WANT THEIR LAST BIRTH AT THE TIME OF PREGNANCY BY RESIDENCE, NUMBER OF CHILDREN EVER BORN AND NUMBER OF YEARS SINCE LAST BIRTH BASED ON CPS2 AND CPS3

	National		Rural		Urban	
	CPS2	CPS3	CPS2	CPS3	CPS2	CPS3
Number of children ever born*						
1	7.0	8.8	7.0	8.5	7.1	10.0
2	18.3	18.2	20.8	17.7	8.6	20.8
3	26.1	28.8	26.5	28.3	24.7	31.0
4	36.5	33.7	37.6	35.4	30.3	25.0
5+	60.2	51.7	60.4	52.9	58.6	42.0
Number of years since last birth						
0 - 1	25.8	24.7	27.8	25.9	16.1	19.5
2 - 4	31.7	24.7	34.3	25.4	18.6	21.1
5 - 9	39.6	30.2	41.0	30.5	30.7	28.4
10+	34.7	31.6	35.7	31.9	30.4	29.9
Total	32.2	27.2	34.2	28.0	22.3	23.6

* For pregnant women the number of children ever born has been increased by 1 to allow for the anticipated birth of the expected child since the question on whether or not the last pregnancy was wanted referred to their current pregnancy.

of years since last birth. The difference between the two surveys probably reflects the sampling variation rather than a real trend.

Unwanted fertility was also found to be greater at higher parity (Table 6.13). About one-third of ever married women whose last birth was their fourth indicated it was unwanted and as high as half of women whose last birth was their fifth or higher did not want the birth at the time of pregnancy with those children. This overwhelming level of unwanted fertility needs to be studied further in more detail.

Table 6.14 presents the extent of unwanted fertility by region. The Northeast was characterized by the highest level of unwanted fertility. This is true in both more recent years and the past. Percent not wanting previous pregnancy was the lowest in the North where contraceptive use has been high for some time. The South, having the highest ideal family size, was characterized by the second lowest level of unwanted fertility. In the Northeast, at the third parity, almost 36 percent of women already had an unwanted children.

The extent of unwanted fertility also declined sharply and consistently with higher education (Table 6.15). This is again, true in both recent years and the past, and for almost all parities. This educational differential is very important in terms of its policy implication. Programs aiming at lower socio-economic groups of women are strongly needed.

In conclusion, contraceptive need in Thailand is still a problem of concern especially when specific socio-economic groups as well as regions are considered. Educational and consultation programs are needed to promote use efficiency. Motivational programs aiming at lowering ideal family size should be aimed at the population in general regardless of current contraceptive use status but pertaining more to the Southern and Northeastern regions. With regard to further studies and evaluation of family planning program, the qualitative aspect of contraceptive use needs to be emphasized.

TABLE 6.14: PERCENT OF EVER MARRIED WOMEN AGED 15-49 WHO DID NOT WANT LAST PREGNANCY AT THE TIME OF PREGNANCY BY REGION, NUMBER OF CHILDREN EVER BORN AND NUMBER OF YEARS SINCE LAST BIRTH

	Bangkok	Central	North	North-east	South-east
Number of children ever born*					
1	12.6	9.6	4.5	11.8	6.7
2	28.6	13.6	10.0	26.8	13.2
3	36.9	29.7	16.3	35.8	20.4
4	29.3	30.3	31.1	40.8	23.4
5+	43.2	50.2	47.6	60.6	35.2
Number of years since last birth					
0 - 1	24.8	21.4	13.1	34.4	21.2
2 - 4	23.9	19.8	13.3	34.5	20.3
5 - 9	34.4	30.8	16.8	40.9	18.1
10+	34.1	27.4	23.7	43.2	27.8
Total	28.2	24.8	16.4	37.2	21.0

* For pregnant women the number of children ever born has been increased by 1 to allow for the anticipated birth of the expected child since the question on whether or not the last pregnancy was wanted referred to their current pregnancy.

TABLE 6.15: PERCENT OF EVER MARRIED WOMEN AGED 15-49 WHO DID NOT WANT THEIR LAST PREGNANCY AT THE TIME OF PREGNANCY BY YEARS OF SCHOOLING, NUMBER OF CHILDREN EVER BORN AND NUMBER OF YEARS SINCE LAST BIRTH

	Years of schooling				
	0 - 3	4	5 - 10	11+	
Number of children ever born*					
1		11.8	9.4	7.9	5.3
2		24.0	17.9	17.5	16.5
3		29.9	29.5	24.8	22.2
4		35.7	33.9	32.6	3.1
5+		52.0	51.7	53.8	39.2
Number of years since last birth					
0 - 1		39.2	26.0	16.1	11.3
2 - 4		34.2	24.8	16.9	16.0
5 - 9		37.7	30.6	20.7	13.0
10+		36.9	30.5	33.3	16.5
Total		37.1	27.7	18.6	13.1

* For pregnant women the number of children ever born has been increased by 1 to allow for the anticipated birth of the expected child since the question on whether or not the last pregnancy was wanted referred to their current pregnancy.

CHAPTER 7

INFANT FEEDING PRACTICES AND POSTPARTUM AMENORRHEA

In Thailand as elsewhere in the developing world there is considerable interest in monitoring infant feeding practices due to their potentially important demographic and health consequences. A number of previous national surveys have provided some evidence of breastfeeding patterns and trends. CPS3 provides the most recent and comprehensive national information on infant feeding practices in Thailand presently available. Due to the expansion and improvement of the section of the questionnaire dealing with infant feeding practices and the related phenomenon of postpartum amenorrhea, more detailed and precise information on these topics is provided by CPS3 than by any previous national survey. Several differences between the CPS3 and CPS2 questionnaires are of particular interest for these topics:

- 1) In CPS3 questions on the supplementary feeding of both milk and non-milk foods were included while only a question on non-milk foods was included in CPS2.
- 2) In CPS3 information was collected on the feeding of the most recently born child during the last four years regardless of survival status at the time of interview. In CPS2, only mothers who had a surviving child born in the two years prior to the surveys were queried about infant feeding.¹
- 3) In CPS3, direct questions on postpartum amenorrhea were posed while in CPS2 the duration of postpartum amenorrhea had to be inferred from indirect evidence.

Based on the information about whether the child was ever breastfed, whether it was still being breastfed, and at what age it was weaned if it was no longer being breastfed, it is possible

¹ In CPS3, however, comparison of age at death of non surviving children and reported durations of breastfeeding suggests that in some cases, especially when the most recent child died soon after birth, women reported the duration of breastfeeding for their most recent surviving child rather than for their most recent child.

to construct a life table estimating the probability that a woman would still be breastfeeding her last-born child at successive months since its birth. It should be noted since the life table approach incorporates information on reported age at weaning, it is influenced by inaccuracies in the data such as those caused by the concentration (heaping) of responses at certain durations, particularly at whole or half years.²

Figure 7.1 shows the estimated proportion of women still breastfeeding their last-born child at successive months of age based on the life table approach. Results are shown both for the entire sample and for the rural and urban components separately. Sharp rural-urban differences are evident; the more prolonged breastfeeding typical of rural women is reflected in the high proportions of rural mothers estimated to be still breastfeeding at each month since birth. The precipitate declines following 12 and 18 months reflect the artifactual heaping of responses referred to above.

A comparison of breastfeeding estimates from CPS2 and CPS3 based on the Life Table approach are summarized in Table 7.1 for Thailand as a whole and by rural-urban residence. As indicated above, in CPS2 only women with a surviving birth in the previous 2 years were asked about breastfeeding. In order to facilitate the comparison between the two surveys, results for CPS3 presented in Table 7.1 are also subjected to these same restrictions. The results indicate a slight increase in the median duration of breastfeeding at the national level. For rural mothers, the median duration is about a year and a half with no change registered between the two surveys; for urban mothers, the median duration is only about four months but with a small increase indicated between the two surveys.

The proportion of mothers who said they never breastfed appears to have declined between the two surveys in both rural and

² The extent of heaping is not severe in either CPS2 or CPS3 with less than one in four women who reported having weaned their last child reporting an age of weaning in terms of a half or a whole year. For a fuller description of the life table approach and some limitations see Knodel et al., 1982.

FIGURE 7.1 : ESTIMATED PROPORTION OF WOMEN STILL BREASTFEEDING BY MONTHS SINCE LAST BIRTH, DERIVED BY LIFE TABLE TECHNIQUES, BY RESIDENCE, FOR WOMEN WITH A BIRTH IN THE 48 MONTHS PRECEDING THE INTERVIEW

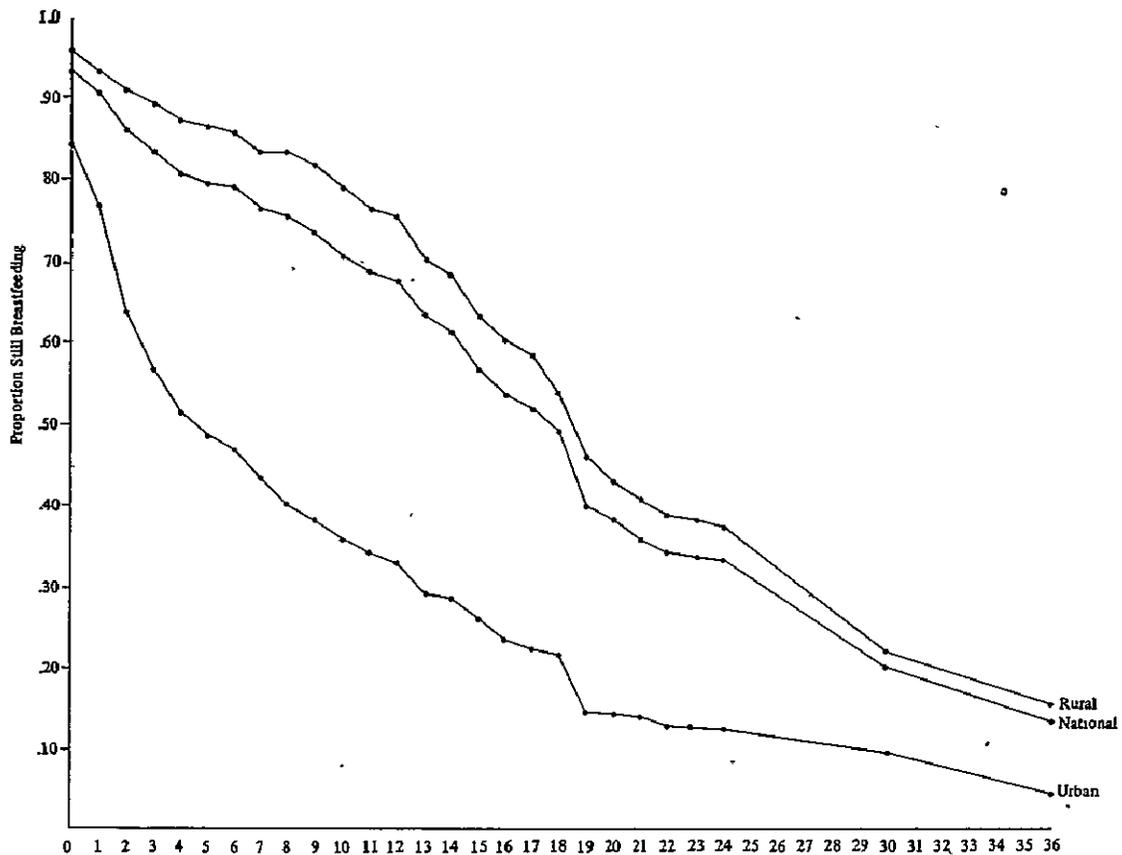


TABLE 7.1: MEDIAN DURATION OF BREASTFEEDING, PROPORTION NEVER BREASTFEEDING AND PROPORTION WHO BREASTFED FOR AT LEAST 3, 6 AND 12 MONTHS DURATION BASED ON THE LIFE TABLE APPROACH AMONG WOMEN WITH A SURVIVING BIRTH IN THE 24 MONTHS PRECEDING THE SURVEY BY RURAL-URBAN RESIDENCE BASED ON CPS2 AND CPS3

	National		Rural		Urban	
	CPS2 1981	CPS3 1984	CPS2 1981	CPS3 1984	CPS2 1981	CPS3 1984
Median duration (in months)	16.6	17.1	18.3	18.3	4.0	4.3
Proportion never breastfeeding	.091	.059	.075	.046	.167	.119
Proportion breastfeeding at least						
3 months	.819	.834	.875	.897	.565	.561
6 months	.756	.786	.824	.861	.451	.460
12 months	.660	.679	.732	.768	.338	.293
18 months	.459	.464	.520	.526	.191	.194
24 months	.294	.261	.332	.304	.129	.076

urban areas. Clearly the initiation of breastfeeding is close to universal in rural Thailand and even in urban areas only a small minority appear not to have been breastfed at all.

A more detailed examination of the proportion of women still breastfeeding at different durations since last birth indicates a slight increase nationally at durations through 18 months but a slight decline of breastfeeding at 24 months duration. The pattern is similar for rural mothers but less regular for urban mothers who show a small decrease in the proportion still breastfeeding at 12 and 24 months but essentially no change at 18 months.

Rural-urban, regional and educational differential in breastfeeding are presented in Table 7.2 based on application of the Life Table approach to the full set of CPS3 data. The results thus differ slightly from those in the previous table since they refer to all women with a birth in the last 48 months rather than only women with a surviving birth in the preceding 24 months

At the national level, the median duration of breastfeeding is close to a year and a half but sharp differentials exist. Rural women breastfeed for longer on average than urban women and among the latter, breastfeeding is of substantially shorter duration in Bangkok than in provincial urban places. Nationally, just over two-thirds of mothers breastfeed at least a year with three-fourths of rural mothers doing so but only a third of urban mothers breastfeeding this long

Regional differentials are evident and conform closely to results from CPS2 (see Knodel et al., 1982). The median duration of breastfeeding is two years in the Northeast, just over a year and a half in the South and not much over a year in the North or the Central region excluding Bangkok. Close to nine out of ten Northeastern women breastfeed at least a year but only about two-thirds of Southern and Northern mothers do so and even fewer mothers in the Central region excluding Bangkok breastfeed this long.

TABLE 7.2: MEDIAN DURATION OF BREASTFEEDING, PROPORTION WHO NEVER BREASTFEEDING, AND PROPORTION WHO BREASTFED AT LEAST 3, 6 AND 12 MONTHS BASED ON THE LIFE TABLE APPROACH AMONG WOMEN WITH A BIRTH IN THE 48 MONTHS PRECEDING INTERVIEW

	Median duration (months)	Proportion who never breastfed	Proportion breastfeeding at least		
			3 months	6 months	12 months
National	17.5	.069	.834	.789	.677
Residence					
Rural	18.5	.050	.893	.860	.755
Urban	4.5	.155	.566	.469	.326
Provincial Urban	6.4	.200	.591	.508	.352
Bangkok	3.9	.125	.549	.443	.308
Region					
Central					
Including Bangkok	10.0	.143	.654	.580	.482
Excluding Bangkok	14.7	.154	.716	.661	.585
North	13.7	.049	.903	.867	.657
Northeast	24.4	.021	.950	.930	.871
South	18.8	.067	.812	.752	.679
Residence and schooling					
Rural					
Less than 4 years	18.9	.074	.892	.870	.792
4 years	18.7	.045	.908	.878	.773
5 years or more	14.8	.058	.812	.746	.609
Urban					
0 - 4 years	6.9	.180	.630	.539	.398
5 - 10 years	5.9	.131	.607	.498	.324
11 years or more	1.9	.119	.358	.260	.140

Rural-urban and regional differences in the proportion of mothers who never breastfed are less pronounced than differences in the overall duration of breastfeeding. In all regions and rural-urban categories the vast majority of women initiate breastfeeding. As few as two percent of Northeastern mothers reported not breastfeeding their most recent child. Only among the provincial urban population did as many as one in five mothers indicate they had not breastfed their child at all.

Consistent with results from previous surveys, a woman's educational attainment is also associated with the extent of breastfeeding. Because of differences in the educational distribution of women in rural and urban areas, somewhat different educational groupings have been used for each. In particular, in urban areas there are relatively few reproductive aged women with less than four years of education and thus they have been grouped together with those with four years of schooling, the basic primary level of education that prevailed when most women currently in the reproductive ages attended school. Among rural women, the limited number of women with education past four years, prevents a more detailed breakdown of this group.

In general, reduced breastfeeding is associated with educational levels past four years of education both in rural and urban areas. Among rural women there appears to be little difference in the breastfeeding practices of those with exactly four years and those with less than four years of schooling. Among urban women with more than four years of education, those with 11 or more years of education breastfeed less than those with 5-10 years of schooling.

FULL BREASTFEEDING AND SUPPLEMENTAL FOODS³

CPS2 was the first national survey in Thailand to collect information about the prevalence and nature of supplemental feeding

³ The terms *supplemental food* and *supplementary feeding* are used here to connote food other than breastmilk. In cases where the mother never initiates breastfeeding or where such food is provided only after the child has been weaned, such foods are not strictly supplemental as they are the only food being provided. Since the vast majority of mothers do breastfeed and since such foods are usually introduced prior to weaning, for convenience the term *supplemental food* is used to cover all cases.

and the age at which it was first introduced permitting an estimate of the duration of full breastfeeding. However, the question on supplemental feeding referred only to non-milk products and did not take into account the possibility that milk products might have been introduced into the diet of the infant even before non-milk products were. Nevertheless it was found that non-milk products were typically given infants at an early age and that the median duration of breastfeeding prior to giving any non-milk foods among mothers who initiated breastfeeding was only slightly over two months nationally (Knodel et al., 1982). The duration of true full breastfeeding is presumably even shorter than this since some infants are provided milk products before ever receiving any non-milk food.

In CPS3 information was collected on whether or not the mother fed her most recently born child any food other than breastmilk. Separate questions were asked about milk and non-milk products. In addition, the mother was asked about the age of the infant when such food were first provided⁴. This data thus permits the estimation of the duration of true full breastfeeding defined as breastfeeding in the absence of any supplemental food at all whether of a milk or non-milk variety. Results based on the life table approach are presented in Table 7.3 by rural-urban residence, region and education. Due to the very early age at which supplementary feeding starts, results are presented in terms of weeks rather than months. Unlike the analyses of CPS2, which dealt only with mothers who initiated breastfeeding, the results for CPS3 are presented including women who do not breastfeed at all. They are treated as having a duration of zero weeks of full breastfeeding.

Nationally, the median duration of full breastfeeding is only slightly over four weeks and in urban areas under one week. Thus the extent of full breastfeeding is even less than the

⁴ Interviewers were instructed to indicate that the foods should have been provided of least for four or five days to ensure that the information collected referred to the start of regular feeding and not just to an occasional feeding by a nurse in the maternity ward at the time of giving birth or by the mother herself as simply an experiment to see if the infant like the food.

TABLE 7.3: MEDIAN DURATION OF FULL BREASTFEEDING AND PROPORTION WHO FULL BREASTFED AT LEAST 4,8,12 AND 26 WEEKS BASED ON THE LIFE TABLE APPROACH BY RURAL-URBAN RESIDENCE, REGION AND EDUCATION

	Median duration (weeks)	Proportion full breastfeeding at least			
		4 weeks	8 weeks	12 weeks	26 weeks
National	4.08	.506	.375	.293	.100
Residence					
Rural	4.35	.527	.402	.316	.114
Urban	0.95	.409	.253	.187	.093
Provincial urban	1.64	.462	.321	.248	.047
Bangkok	.91	.374	.207	.146	.033
Region					
Central					
Including Bangkok	2.26	.465	.308	.224	.078
Excluding Bangkok	4.23	.518	.367	.270	.104
North	10.25	.689	.549	.454	.144
Northeast	1.34	.414	.312	.244	.087
South	4.78	.569	.433	.336	.121
Education					
Rural					
Less than 4 years	5.60	.579	.463	.384	.203
4 years	4.17	.512	.393	.309	.108
5 or more years	4.64	.566	.398	.303	.072
Urban					
0 - 4 years	1.05	.429	.282	.203	.066
5 - 10 years	1.77	.446	.296	.228	.015
11 or more years	0.78	.317	.131	.101	.001

estimate provided by CPS2 based only on information on non-milk foods.⁵¹

Clearly mixed breastfeeding regimes are the usual pattern in Thailand with food other than breastmilk introduced to the infant at very early ages. Regional differences are also apparent. The median duration of full breastfeeding exceeds 10 weeks in the North in contrast to a median of not much more than one week in the Northeast. Unlike overall breast-

⁵¹ Since the 21 month median duration of breastfeeding in the absence of non-milk foods indicated by CPS2 for Thailand as a whole was based only on mothers who initiated breastfeeding, it is not strictly comparable to the estimates of full breastfeeding calculated from CPS3 which includes mothers who did not breastfeed at all. Nevertheless since only a small proportion of mothers did not initiate breastfeeding, the CPS3 median would be increased only a little by their exclusion and would still be considerably shorter than the CPS2 median. This result is expected since some mothers start a mixed feeding regime by first providing milk foods to the infant and information on this was lacking in CPS2.

feeding, education shows only a weak and inconsistent relationship with the duration of full breastfeeding within rural and urban areas taken separately. Regardless of education, rural urban residence, or even region, however, full breastfeeding is quite brief in any absolute sense for Thai mothers generally.

CPS3 is the first national survey in Thailand to collect information on prevalence of feeding infants milk products. As Table 7.4 indicates slightly over a third of mothers with an infant under one year of age had ever fed the infant formula and less than 10 percent had ever fed the infant condensed milk. Moreover, very few mothers with infants under 3 months of age had ever fed the infant condensed milk. In contrast formula was only modestly less common among mothers with very young infants than with mothers with infants 3 months old or over. It should be noted that the results in Table 5 do not refer to the exclusive feeding of formula or condensed milk and that in many cases the mother was still breastfeeding at the

TABLE 7.4: PERCENT OF MOTHERS WITH AN INFANT UNDER ONE YEAR OLD WHO EVER FED FORMULA OR WHO EVER FED CONDENSED MILK TO THEIR INFANT BY AGE OF INFANT, RURAL-URBAN RESIDENCE, REGION AND EDUCATION

	% Ever fed formula* Age in months				% Ever fed condensed milk** Age in months			
	Under 3	3 - 5	6 - 11	Total	Under 3	3 - 5	6 - 11	Total
National	30.9	41.1	35.6	36.0	1.8	8.8	8.7	8.3
Residence								
Rural	24.5	30.3	25.5	26.5	1.5	9.2	9.5	9.0
Urban	71.8	82.1	78.8	78.4	3.7	7.1	5.2	5.6
Provincial urban	57.1	84.7	76.3	76.5	0.0	7.3	8.1	7.6
Bangkok	79.1	80.2	80.5	80.1	5.5	7.0	3.1	5.5
Region								
Central								
Including Bangkok	57.2	69.9	63.2	63.8	2.8	10.4	8.3	8.5
Excluding Bangkok	44.6	62.0	53.2	53.6	1.3	13.0	11.4	11.4
North	19.2	23.2	29.3	26.1	0.0	4.0	0.0	2.6
Northeast	10.7	20.6	11.8	14.4	0.0	6.6	7.2	7.0
South	48.6	49.5	40.8	45.8	5.5	14.4	22.2	18.7
Education								
Less than 4 years	19.1	28.5	27.5	25.7	4.1	17.9	8.1	10.9
4 years	25.2	30.6	25.4	26.7	1.9	7.8	9.2	8.3
5 - 10 years	32.4	64.5	59.5	57.3	0.0	11.1	6.5	8.6
11 years or more	96.8	91.3	88.6	91.8	0.0	0.0	9.5	9.5

* Includes a small number of women who provided whole milk and soybean milk rather than formula.

** Includes a small number of women who provided ovaltine rather than condensed milk.

time milk products were introduced. In addition, some mothers were also feeding their infant non-milk products as well. Moreover, a number of mothers who had ever fed their infant condensed milk had also fed their infant formula.

Considerable variation by rural-urban residence, region and education is apparent in the proportion of mothers who had ever fed their infant either formula or condensed milk. Formula feeding was far more common in urban areas. Almost four out of five urban mothers who had an infant under one year of age provided formula to the infant compared to only slightly more than one in four rural mothers. In contrast, urban mothers were less likely than rural mothers to feed their infant condensed milk. Regionally, formula feeding was most widespread in the Central region even after excluding Bangkok and least common in the Northeast. Providing condensed milk was most common in the South and quite rare in the North. Formula feeding shows a strong po-

sitive association with education with over 90 percent of mothers with 11 years or more of schooling providing their infants with formula. In contrast, feeding infants condensed milk is not systematically related to education

POSTPARTUM AMENORRHEA

Infant feeding practices have important health and demographic consequences. Among the most significant is the now well-established fertility-inhibiting effect of breastfeeding. Prolonged lactation protects against pregnancy by delaying the return of ovulation and thereby extending the postpartum nonsusceptible period during which the woman is usually amenorrheic. Direct information on postpartum amenorrhea in Thailand, however, is rare.

In CPS3 women with a birth in the previous 48 months were asked if menstrual periods had returned since their last birth and if so how long after their last birth menses returned. This represents the first time questions

directly relating to postpartum amenorrhea were asked in a national survey in Thailand. The only previously available national estimates of the duration of postpartum amenorrhea come from CPS1 and CPS2 but were derived indirectly from a question on when menstruation last occurred. Based on responses to the indirect question, the median duration of postpartum amenorrhea was estimated by the two

previous surveys to be about 5 months and the mean duration about 7 to 8 months at the national level (Knodel, et al., 1982; Knodel and Lewis, 1984).

The data collected in CPS3 permit for the first time the application of the life table approach to estimate the duration of postpartum amenorrhea. Results are presented in Figure 7.2 and Table 7.5. Nationally the life

FIGURE 7.2 : ESTIMATED PROPORTION OF WOMEN STILL AMENORRHEIC BY MONTHS SINCE LAST BIRTH, DERIVED BY LIFE TABLE TECHNIQUES, BY RESIDENCE, FOR WOMEN WITH A BIRTH IN THE 48 MONTHS PRECEDING INTERVIEW

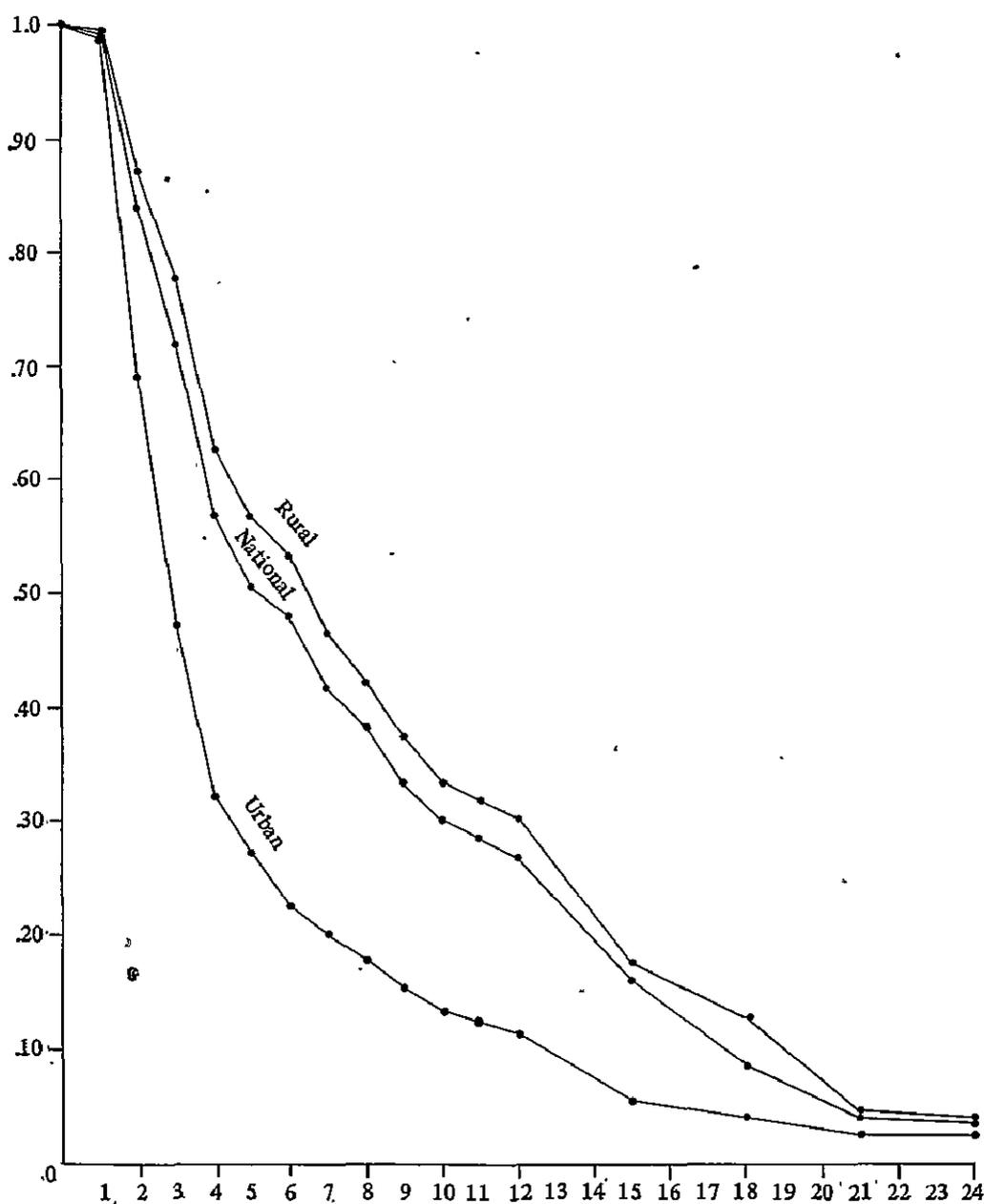


TABLE 7.5: MEDIAN DURATION OF POSTPARTUM AMENORRHEA AND PROPORTION STILL AMENORRHEIC AT LEAST 3, 6 AND 12 MONTHS POSTPARTUM BASED ON THE LIFE TABLE APPROACH AMONG WOMEN WITH A BIRTH IN THE 48 MONTHS PRECEDING INTERVIEW BY RURAL-URBAN RESIDENCE, REGION AND EDUCATION

	Median duration (in months)	Proportion amenorrheic at least		
		3 months	6 months	12 months
National Residence	5.7	.720	.482	.267
Rural	6.5	.775	.539	.300
Urban	2.9	.472	.227	.116
Provincial urban	2.9	.484	.227	.145
Bangkok	2.8	.464	.228	.096
Region				
Central				
Including Bangkok	3.6	.582	.323	.173
Excluding Bangkok	4.0	.652	.379	.216
North	6.6	.790	.546	.265
Northeast	7.0	.818	.583	.333
South	5.2	.658	.468	.291
Education				
Rural				
Less than 4 years	10.4	.828	.689	.476
4 years	6.4	.785	.532	.295
5 or more years	4.9	.668	.443	.172
Urban				
0-4 years	3.4	.553	.296	.169
5-10 years	2.9	.472	.204	.078
11+ years	2.3	.263	.076	.026

table estimates indicate a median duration of postpartum amenorrhea of slightly less than six months⁶¹. Moreover by twelve months almost three quarters of new mothers have experienced the termination of postpartum amenorrhea. Given the relatively long average duration of breastfeeding in Thailand, the duration of postpartum amenorrhea is relatively short in comparison with other countries. One plausi-

ble explanation for why breastfeeding in Thailand is not extending postpartum amenorrhea for longer periods may be the very short durations of full breastfeeding. There is considerable evidence indicating that the impact of breastfeeding on ovulation is considerably less for women who follow a mixed feeding regime than women who are full breastfeeding (Van Ginneken, 1974).

⁶¹ Estimates of the median duration are calculated as the duration at which 50 percent of the synthetic life table cohort experience return of menstruation. Thus they do not take into account the possibility that for some proportion of any real cohort of women who recently gave birth, postpartum amenorrhea will merge into menopause and hence menstruation will never occur. In the case of Thailand this clearly involves only an insignificant proportion of women as reflected by the fact that less than one percent of women with a birth between three and four years prior to interview were still amenorrheic. See also Knodel and Lewis (1984) on this issue.

Considerable differences are apparent in the duration of postpartum amenorrhea according to rural-urban residence, region and education. Particularly pronounced is the difference between rural mothers who are characterized by a median duration of six and a half months and urban mothers for whom the median duration is less than three months. This most likely reflects the substantial rural-urban differences in breastfeeding patterns with rural women breastfeeding overall far longer as well as introducing supplemental food to their in-

fants at a somewhat more advanced age than their urban counterparts.

Regionally postpartum amenorrhea is longest in the Northeast where breastfeeding is also most prolonged. Interestingly, however, the duration of postpartum amenorrhea is almost as long in the North where breastfeeding is considerably shorter. Again the explanation may well relate to the differences in the extent of full breastfeeding. Despite the relatively short duration of overall breastfeeding in the North, supplementary food is introduced considerably later there than elsewhere in Thailand. Exactly the reverse is true for the Northeast where prolonged overall breastfeeding is associated with very early supplementation. The Central region on the other hand, especially when Bangkok is included, is characterized by relatively short postpartum amenor-

rhea and by both relatively short durations of overall breastfeeding and full breastfeeding. Very likely the regional differences in Thailand reflect the complex nature of the influence of infant feeding patterns on postpartum amenorrhea.

Educational level is related to the duration of postpartum amenorrhea essentially as would be expected from the educational differences apparent in infant feeding practices. Both in rural and urban areas, the negative relationships between years of schooling and duration of overall breastfeeding is mirrored in a similar but less pronounced inverse association with length of postpartum amenorrhea. The strength of this relationship is probably indicated by the weak and inconsistent educational differentials in full breastfeeding.

CHAPTER 8

MOSLEM—BUDDHIST DIFFERENTIALS

The two previous CPSs focused on the national performance regarding contraceptive use and fertility. Regional and rural-urban residence were among the key variables in analyses for the determinants of contraceptive use and fertility. CPS3 has already documented the shift toward the minimal differentials by region and rural-urban residence. In spite of this move toward smaller differentials, contraceptive use in the South is still low and fertility is still high. There is a common view that the lag of the Southern region with regard to contraceptive and reproductive behavior is due to the high concentration of the Moslems in the population, especially in the four Southern most provinces of Satun, Yala, Pattani and Narathiwat. This explanation is inferred from some previous surveys which show that within the Southern region contraceptive use is lower among the Moslems than among the Buddhists. One objective in designing CPS3 was to substantiate the religious differentials in contraceptive and reproductive behavior, especially within the Southern region of Thailand. This chapter looks first at the background characteristics of Moslems vis-a-vis Buddhists. The differentials in fertility and contraceptive use are then systematically presented and analyzed.

As noted in Chapter 2, a special supplemental sample of respondents in predominantly Moslem villages in the provinces of Satun and Yala were interviewed to increase the number of Moslems so that a more reliable quantitative analysis could be done. Results in the present chapter, unlike the preceding ones, includes this special supplemental sample. In addition, because the supplemental sample was not part of the nationally or regionally representative sample results in this chapter are based on unweighted data.

From the combined national and purposively selected Moslem women, eight categories based on religion, region and language were constructed and are employed in the analyses throughout this chapter. Respondents were first classified by religion. Moslem or Buddhist. A small proportion of respondents who professed religions other than Islam and Buddhism are excluded from the analysis of this chapter. After identifying religion, respondents were classified further by region. Moslems were classified into those who lived in the

South and those who lived in the Central region and Bangkok. Buddhists were classified into those who lived in the South, those in the Central region and Bangkok, and those in the North and Northeast. The next step was to classify those Moslems in the South by language: Yawee and Southern Thai speaking Moslems. All three categories of Moslems are combined to make up an "All Moslems" category. Likewise, all Buddhists in different regions are combined to make an "All Buddhist" category.

BACKGROUND CHARACTERISTICS

Selected background characteristics of the sample are shown in Table 8.1 by religion, region and language. It can be seen that there are some differences in current age. In general, the Moslems in the sample were almost three years younger than the Buddhists. This is undoubtedly a function of the earlier age at marriage for Moslems (17.4) compared to Buddhists (20.2). There appears to be almost no difference in the average current age among the Buddhists from all regions. The largest difference of one year is found between the North and Northeast (31.6) as against the higher age of the combined Central and Bangkok region (32.6). Among the Moslems sample, those who lived in the Central region and Bangkok were clearly older than their counterparts in the South. But within the South itself, Yawee speaking Moslems were exactly one year younger than the Thai speaking Moslems. Again differences in current age are explained by differences in nuptiality patterns, since the sample is limited to ever married women only, Moslems will be more represented at the younger ages, and thus correspondingly less at older ages. This interpretation is substantiated by the mean age at marriage. The differences in average age at marriage for all groups are consistent with the current age. Among Moslems, Yawee speakers are lowest (16.3) and Central and Bangkok Moslems are highest (20.2) resembling all Buddhists (20.2). The Southern Thai speaking intermediate among the Moslems (18.4) themselves. Among the Buddhists there appear to be only small differences in the mean age at first marriage among different regions.

TABLE 8.1 : SELECTED BACKGROUND VARIABLES OF EVER MARRIED WOMEN AGED 15-49 BY RELIGION, REGION AND LANGUAGE

	Moslems				Buddhists			
	South		Cent. and Bangkok	All Moslems*	South	Cent. and Bangkok	North and NE	All Buddhists
	Yawee	Thai						
Unweighted N	547	232	132	912	975	2,735	2,903	6,613
Mean values								
Current age	29.1	30.1	32.7	29.8	32.5	32.6	31.6	32.2
Age at first marriage	16.3	18.4	20.2	17.4	20.5	21.0	19.4	20.2
Years since first marriage	12.8	11.7	12.5	12.5	12.0	11.7	12.2	12.0
Year of schooling	3.4	3.8	5.5	3.8	5.0	5.4	4.2	4.8
% rural	86	96	35	80	82	46	94	72
% Divorced or separated	5	2	4	4	3	4	3	3
Educational distribution (%)								
Less than 4 years	38	19	5	29	8	12	13	12
4 years	44	70	65	53	72	60	75	69
5-10 years	15	9	20	14	11	17	9	13
11+ years	3	2	9	4	9	11	3	7
Occupational distribution(%)**								
Agriculture	24	31	18	25	53	28	67	49
Profession	1	0	3	1	5	5	2	4
Sales and business	12	16	18	14	13	20	10	15
Business employee	0	0	3	1	1	3	0	1
Skill and semi-skill	8	9	10	9	2	7	4	5
Laborer, servant	17	17	15	17	9	14	6	10
Housewife	38	26	34	34	17	24	11	17

Note: Results in this table are unweighted

* Including one moslem in the Northeast

** Excluding a small number of cases coded as "student", "Other".

But interestingly, in light of the small differences, the South (20.5) was characterized by the highest mean age at marriage and North and Northeast (19.4) the lowest.

Judging the nuptiality patterns from marriage duration (actually duration since first marriage) yields a similar conclusion as examination of age at first marriage. That is to say that, in general, those who married at younger ages are the same groups that were married for longer average durations. Hence, it can be said that Yawee speaking Moslems (12.8) were married the longest among all the Moslems (12.5). But it is interesting to see that despite their higher mean age at marriage, Moslems in the Central region and Bangkok were married for about one year longer than were the Southern Thai speaking Moslems. Among the Buddhists, the variances of mean age at marriage among the regions were not large. Therefore, the differences in marriage duration among the Buddhist in different regions were also not large and thus consistent with the age at first marriage.

In terms of education, the average number of years of school completed among all the

Moslems (3.8) was one year lower than that completed by all the Buddhists (4.8). The differences among the Moslems were greater than the differences among the Buddhists. Clearly, among the Moslems those in the Central and Bangkok (5.5) had the highest level of education. In fact, their level of education was even slightly higher than their Buddhists, counterparts (5.4).

In terms of residential background, 80 percent of the Moslems lived in the rural areas as compared with only 72 percent of the Buddhists. For both religions, Central and Bangkok is characterized by the highest degree of urbanization, thus having the lowest percentage of rural residents. On the other hand, 90 percent of Southern Thai speaking Moslems in the sample lived in the rural areas, as compared with 94 percent among Buddhists in the North and Northeast

Looking at the marital stability, it can be seen that Yawee speaking Moslems (5%) are characterized by the highest proportion of women who were either divorced or separated from their spouse. On the other hand, the Thai speaking Moslems in the South (2%)

TABLE 8.2 : MEAN NUMBER OF CHILDREN EVER BORN TO EVER MARRIED WOMEN AGED 15-49 BY DURATION SINCE FIRST MARRIAGE, RELIGION, REGION AND LANGUAGE

Duration since first marriage	Moslems				Buddhists			
	South		Cent. and Bangkok	All Moslems*	South	Cent. and Bangkok	North and NE	All Buddhists
	Yawee	Thai						
0 - 4	1.1	1.3	1.0	1.1	1.2	1.0	1.1	1.1
5 - 9	2.4	2.5	2.4	2.4	2.4	2.0	2.0	2.1
10 - 14	3.7	4.1	3.4	3.8	3.3	2.7	2.8	2.8
15 - 19	4.1	5.4	4.6	4.5	4.3	3.4	3.8	3.7
20+	6.0	6.1	6.6	6.1	5.8	4.8	5.4	5.2
Total	3.3	3.6	3.5	3.4	3.2	2.6	2.9	2.8

Note: Results in this table are unweighted

* Including one muslim in the Northeast

were least likely to be divorced or separated from their spouse. There is no differences among Moslems and Buddhist in the Central region and Bangkok, regarding marital stability. Among the Buddhists in the South and in the Northeast there is also no differences in this regard.

The educational distribution of the sample reveals differences between Moslems and Buddhists. While about 20 percent of the Buddhists finished more than 4 years of formal education, only about 18 percent of the Moslems had the same qualification. At the other end of the educational range, about 29 percent of the latter had less than 4 years of school, compared with only 12 percent among the former. Within religion comparisons show that the Moslems in the Central region and Bangkok had higher levels of educational attainment than the other two Moslem groups in the South. It should be noted also that the Moslems in the Central region and Bangkok were more similar to their Buddhist counterparts in the same region. But among the Buddhists those in the North and Northeast achieved the lowest levels of education, with only 12 percent finished more than 5 years of school.

The occupational distribution of both religions are quite interesting. While the majority of all categories of women engaged in farming, more Buddhists did so. The Moslems are more concentrated in the laborer, servant (reflecting employment on rubber plantations) and the housewife categories.

FERTILITY DIFFERENTIALS

The mean number of children ever born serves as a measure of cumulative fertility and is presented in Table 8.2 to indicate differentials in fertility by marriage duration, religion and language. The average number of children both for Moslems and Buddhists among those who were married less than 5 years was equal at 1.1 children. But in all other marriage duration categories, there appears to be a clear pattern with Moslems having had more children than the Buddhists.

Among the Moslems, there appears to be some small differences in the mean number of children ever born. In almost all marriage duration categories, the data point to Thai speaking Moslems having had more children than either Yawee speaking Moslems or who were residents of the Central region and Bangkok. The only exception to this was detected among those who were married for 20 or more years. Among this marriage cohort, those who lived in the Central region and Bangkok (6.6) had the largest number of children.

Among the Buddhists, who make up the vast majority of Thailand's population, those who lived in the Southern region bore more children than those who resided in other regions. But the average number of children borne by even the Southern Buddhists was lower than the number borne by any Moslem category.

TABLE 8.3 : PERCENT PREGNANT AMONG CURRENTLY MARRIED WOMEN AGED 15-44 AND MARITAL FERTILITY AMONG CURRENTLY MARRIED WOMEN AGED 15-49 BY RELIGION, REGION AND LANGUAGE

	Moslems				Buddhists			
	South Yawee	Thai	Cent. and Bangkok	All Moslems*	South	Cent. and Bangkok	North and NE	All Buddhists
Percent pregnant (For women 15 - 44)	13.4	13.4	8.6	12.7	9.3	7.9	7.9	8.1
Marital fertility rate (per 1,000 women 15 - 49)								
In previous 12 months	328	354	205	317	209	167	163	172
In previous 24 months	276	315	220	277	195	155	158	161

Note. Results in this table are unweighted

* Including one moslem in the Northeast

Fertility differentials can be further analysed by looking at the current fertility level. Two different measures of current fertility are used in this report: the percent of women reporting themselves as pregnant and the general marital fertility rate.

It can be seen from Table 8.3 that among currently married women aged 15-44, those who professed Islam (12.7) had a higher percentage reporting a pregnancy at the time of interview than those who professed Buddhism (8.1). Among the Moslems those who resided in the Central region and Bangkok only 8.6 percent reported they were currently pregnant as compared to 13.4 for both Yawee and Southern Thai speaking Moslems. It is interesting also to see that the Moslems in the Central region and Bangkok had higher percentages reporting pregnancy than Buddhists from any region, including those in the South (9.3%).

For Buddhists, the South is characterized by a higher percentage reporting pregnancy than all other regions. This is consistent with the analysis of cumulative fertility. This shows that both religion and region have independent effects on fertility.

The independent effects of both religion and region can be seen again from the figures on the general marital fertility rate Table 8.3, which shows the marital fertility rate both for one year and two years preceding the survey, demonstrates that the current level of fertility for Moslems is higher than for Buddhists. Marital fertility, as measured by the annual average

number of birth per 1,000 married women during the two years preceding the survey, is over 70 percent higher for Moslems than for Buddhists. While Central and Bangkok Moslems experience lower fertility than Moslems in the South, their rate was still above Buddhists regardless of region. Among Buddhists, those in the South experience higher fertility than those living elsewhere. Basically, the same conclusion can be drawn when analyzing the marital fertility rate during the year preceding the survey.

FERTILITY PREFERENCE

As already analyzed in the previous sections, fertility differentials exist between Buddhists and Moslems. The high levels of fertility among the latter may be more the result of family size norms than purely demographic factors. CPS3 data permit us to analyze how the Buddhists and the Moslems are different with regard to fertility preferences and expectations.

The analyses on this topic begin with an investigation of ideal family size and expected number of children by religion, region and language, controlling for marriage duration. Table 8.4 shows that both the ideal family size and expected number of children are higher for Moslems than for Buddhists. On average the former views 3.9 children as an ideal size. This

TABLE 8.4 : MEAN IDEAL FAMILY SIZE AND MEAN NUMBER OF EXPECTED CHILDREN FOR CURRENTLY MARRIED WOMEN AGED 15-49 BY RELIGION, REGION AND LANGUAGE

Measure and Duration since first marriage	Moslems				Buddhists			
	South		Cent. and Bangkok	All Moslems*	South	Cent. and Bangkok	North and NE	All Buddhists
	Yawee	Thai						
Ideal family size								
0 - 4	3.3	2.9	2.5	3.1	2.5	2.2	2.3	2.3
5 - 9	3.8	3.4	2.9	3.6	3.0	2.5	2.6	2.6
10 - 14	4.3	4.1	3.5	4.1	3.3	2.8	2.9	2.9
15 - 19	4.2	4.3	3.9	4.2	3.8	3.1	3.2	3.3
20+	4.9	4.5	4.7	4.8	4.2	3.6	3.7	3.7
Total	4.0	3.7	3.4	3.9	3.3	2.7	2.9	2.9
Expected number**								
0 - 4	3.2	2.9	2.6	3.1	2.4	2.1	2.2	2.2
5 - 9	3.8	3.6	3.0	3.6	3.0	2.5	2.6	2.6
10 - 14	4.5	4.5	3.6	4.3	3.4	2.8	2.9	3.0
15 - 19	4.4	5.3	4.9	4.7	4.3	3.4	3.7	3.6
20+	5.6	5.7	6.3	5.7	5.6	4.5	4.9	4.9
Total	4.2	4.2	4.0	4.2	3.6	3.0	3.2	3.2

Note: Results in this table are unweighted

* Including one moslem in the Northeast.

** Number of expected children is calculated by adding the number of living children and the number of additional children desired.

number is one child more than the 2.9, considered to be an ideal family size for the Buddhists. Similar differentials in the expected number of children are also evident in the same table. Likewise, the number of expected children, as calculated by adding the number of living children and the number of additional children desired, is exactly one child more for Moslems (4.2) than for Buddhists (3.2) as a whole. In addition, regional variations are also noted. As expected, the ideal family size for Yawee speaking Moslems is the highest of all. Among the Moslems themselves, the Thai speaking is intermediate, whereas those in the Central region and Bangkok (3.4) not only preferred smaller families but also resembled those Southern Buddhist (3.3). Among the Buddhists, as expected, those in the Southern region (3.3) preferred the largest family size, followed by those in the North and Northeast (2.9) and finally the Central region and Bangkok (2.7). Similar conclusions can be drawn from examination of data on the expected number of children. However, it should be noted that unlike ideal family size both Yawee speaking and Southern Thai speaking Moslems

expected the same number of children (4.2)

It is useful when examining ideal and expected numbers of children to control for marriage duration. Particularly interesting is the data for those who were married for less than 5 years. This group of women have a strong bearing on and implication for the future fertility of the country and at the same time are less likely to be influenced by rationalization of the existing number of children. Clearly, the same conclusion with regard to fertility differentials interpreted earlier can be drawn. That is to say that both the ideal and expected family sizes are higher among Moslems as compared to Buddhists and that differentials remained within each religion. Demographically speaking, what seems to be the most interesting finding was the decline of both ideal and expected family size from earlier to more recent marriage cohorts, among both Moslems and Buddhists. With the exception of Yawee speaking Moslems, the declines were regular. Unfortunately it is not possible to disentangle the effect of possible changes in family size norms from effects of rationalization which are likely to be greater as

TABLE 8.5: PERCENT OF CURRENTLY MARRIED WOMEN AGED 15 - 49 WANTING NO MORE CHILDREN BY NUMBER OF LIVING CHILDREN BY RELIGION, REGION AND LANGUAGE.

Living children**	Moslems				Buddhists			
	South		Cent. and Bangkok	All Moslems*	South	Cent. and Bangkok	North and NE	All Buddhists
	Yawee	Thai						
0	0	0	17	3	0	10	7	8
1	4	8	18	7	14	23	18	20
2	22	31	56	30	56	69	72	69
3	39	56	70	48	86	88	83	85
4	50	65	67	56	86	94	92	92
5+	69	81	91	76	97	97	97	97
Total	35	50	60	42	66	65	65	65

Note: Results in this table are unweighted

* Including one moslem in the Northeast

** For pregnant women the number of living children has been increased by 1 to allow for the birth of the expected child since the question on desire for additional children refers to desire for children after the expected birth.

the stage of family building advances. It is interesting to note that the most rapid decline in family size norm was found among the Moslems in the Central and Bangkok (47%).

In order to see the extent to which religious and regional differentials in the percent wanting no more children, data on this subject are shown in Table 8.5 for currently married women aged 15-49 by number of living children, religion, region and language. The differences in the figures are quite striking. Clearly fertility preferences are higher among Moslems than Buddhists. Among women with two children, only 30 percent of Moslems indicated they wished to stop childbearing compared to 69 percent of Buddhists. Again differences are apparent within each religious grouping. Central and Bangkok Moslems are far more likely to wish to cease childbearing at two children than Southern Moslems while Southern Buddhists with two children are less likely to want no more than are Buddhists elsewhere, showing an identical level to that found for Central and Bangkok Moslems.

Differentials in fertility preference should be viewed also within the context of the desired timing of having a baby. Table 8.6 shows how the Moslems differ from the Buddhists in terms of when they desired to have the next child. The data in this table are shown for currently married women aged 15-44 who wanted at least one additional child. It can be seen that Moslems (30%) were less likely to indicate that they wanted to have their next

child within one year than were Buddhists (34%). Looking at the other extreme, Moslems (45%) were also more likely to indicate that they wanted to have the next child after waiting two years than Buddhists (36%). This religious differential probably reflects a stronger interest in spacing births among Moslems as compared with Buddhists.

Within religions, however, there appears to be considerable variation. Among the Moslems in the South, those who spoke Thai (47%) were more interested in delaying the next child than their counterparts in the Central region and Bangkok. But among Buddhists, those in the North and Northeast (41%) as well as those in the South (40%) showed a high interest in spacing births. But more interestingly, while the proportion of Buddhists (10%) who reported that the desired timing of the next child depends on the economic situation and well being of their family differs by only one percent from the Moslems (9%), the differences within religions are greater. This certainly indicates that region may have a stronger influence on economic considerations than religion. For example, Moslems (17%) in the Central region and Bangkok were more likely to consider the economic pinch than those who lived in the South, be they Yawee (9%) or Thai speaking (7%) Moslems. Likewise, those Buddhists in the Central region and Bangkok also felt the same way as their Moslem counterparts. It is intriguing, however, to see that the percentage who reported that the timing of the

TABLE 8.6: DESIRED TIMING OF NEXT CHILD AMONG CURRENTLY MARRIED NON-PREGNANT WOMEN AGED 15-49 WHO WANT AT LEAST ONE ADDITIONAL CHILD BY RELIGION, REGION AND LANGUAGE

Desired timing	Moslems				Buddhists			
	South		Cent. and Bangkok	All Moslems*	South	Cent. and North Bangkok and NE		All Buddhists
	Yawee	Thai						
Within one year	31	23	38	30	38	37	28	34
One to two years	5	7	12	6	10	10	12	11
More than two years	47	50	26	45	40	30	41	36
Depends on economic circumstances	9	7	17	9	3	13	9	10
Uncertain	9	13	7	10	9	9	10	9
Total	100	100	100	100	100	100	100	100

Note: Results in this table are unweighted
* Including one moslem in the Northeast

next child depended on economic circumstances was lower for Buddhists in the Central region and Bangkok (13%) than Moslems. Whatever, interpretation one can derive from the figures in Table 8.6, it is interesting to examine the extent to which the respondents really made any efforts in controlling family size and birth-spacing, the subject discussed in the next section.

CONTRACEPTIVE USE

The focus of this section is the religious differentials in contraceptive prevalence rates. The percent of women who were currently practicing various methods of contraception are shown in Table 8.7. Consistent with the findings in chapter 5, contraceptive prevalence is distinctly lower in the South. It should be noted here that the results of Table 8.7 as all tables in this chapter are based on the unweighted sample and should not be directly compared with any analyses based on the weighted sample as presented in chapter 5. As clearly seen in table 8.7, Moslems lag behind Buddhists in terms of contraceptive use. The gap between the two religions in this regard is even wider when comparison is strictly limited to use of a modern and efficient method. This reflects the situation among the Moslem users that a greater proportion use inefficient methods,

such as withdrawal and rhythm, than the Buddhists.

Within religions, there is variation in contraceptive practice. The Yawee speaking Moslems are least likely to practice contraception, with only 23 percent currently practicing any kind of method and only 14 percent practicing an efficient method. The Southern Thai speaking Moslems are intermediate between the Yawee speaking Moslems and Central and Bangkok Moslems. Among the Buddhists, those who lived in the South were less likely to use a method of contraception, as compared with the rest of the country.

Consideration of the method mix reveals that Moslems, especially those who were Yawee speaking, were more likely to be unwillingly adopt a permanent method. In general female and male sterilization are disproportionately low among Moslems in comparison with Buddhists. Again among Moslems, the levels of sterilization vary sharply according to language and region with only 2 percent of Southern Yawee Moslem couples, 8 percent of Southern Thai speakers and 18 percent of Bangkok and Central Moslems reporting either ligation or vasectomy. Even for the latter group, however, sterilization is below the level reported by Buddhists regardless of region. It is also notable that withdrawal is particular common among Southern Moslems and Southern Buddhists but largely absent outside the South.

TABLE 8.7: PERCENT OF CURRENTLY MARRIED WOMEN AGED 15 - 44 CURRENTLY USING CONTRACEPTIVE METHODS BY METHOD, RELIGION, REGION, AND LANGUAGE

Method	Moslems				Buddhists			
	South		Cent. and Bangkok	All Moslems*	South	Cent. and Bangkok	North and NE	All Buddhists
	Yawee	Thai						
Pill	6	17	23	11	12	22	22	20
Condom	1	1	2	1	2	3	1	2
IUD	1	0	4	1	3	3	6	4
Ligation	2	6	15	5	20	25	24	24
Vasectomy	0	2	3	1	4	6	3	5
Injectables	4	8	5	6	6	8	10	8
Withdrawal	5	9	2	6	6	1	0	1
Others	3	1	2	3	3	2	1	2
Any method	23	44	56	34	57	70	67	67
Any efficient method**	14	33	50	24	46	63	65	61

Note: Results in this table are unweighted

* Including one moslem in the Northeast

** Efficient methods include pill, IUD, ligation, vasectomy and injectables

TABLE 8.8: RELIGIOUS ATTITUDES AMONG CURRENTLY MARRIED WOMEN AGED 15-49 REGARDING FERTILITY CONTROL AND CONTRACEPTIVE METHODS BY RELIGION, REGION AND LANGUAGE

	Moslems				Buddhists			
	South		Cent. and Bangkok	All Moslems*	South	Cent. and Bangkok	North and NE	All Buddhists
	Yawee	Thai						
Percent of never users citing religious reasons for nonuse	63	80	67	67	12	9	17	13
Percent of women 15-49 believing the following is against their religion:								
Deliberate spacing	27	54	41	40	7	12	12	11
Limiting family size	77	89	69	79	11	13	19	15
Percent of women knowing method who believe use of method is against their religion.								
Pill	28	65	44	40	7	12	15	12
Condom	40	60	35	45	7	10	14	11
Injection	28	67	43	40	7	12	15	12
IUD	41	68	42	50	8	11	15	12
Ligation	83	90	73	83	10	12	17	14
Vasectomy	83	90	72	83	11	12	17	14
Withdrawal	38	46	23	38	4	6	12	8

Note: Results in this table are unweighted

* Including one moslem in the Northeast

ATTITUDES TOWARD CONTRACEPTION

One reason suspected for non-use of contraception among Moslems is their assumed religious attitudes regarding the use of contraception. CPS3 included a number of questions designed to test this hypothesis

It can be seen from Table 8.8 that Moslems (67%) are distinctly more likely to cite religious reasons for not using any method of contraception. In contrast, only 13 percent of Buddhists did cite the same reasons. Interestingly, the variations among the Buddhists in percentage citing religious reasons by region are much lower than the variation among the Moslem categories. This reflects a more uniform

view on the matter among the Buddhists than among the Moslems, and that Buddhism appears to be more favorable toward contraceptive practices.

Of special interest is the high percentage (80%) of never users among Southern Thai speaking Moslems who cited religion as a reason for not using any contraception. This relative position of the Thai speaking Moslems who never used contraception is perplexing when viewed with the fact that overall practice of contraception is higher for Thai speaking than Yawee speaking Moslems. On the other hand, the latter had a (63%) lower proportion of never users who indicated opposition on religious grounds than even the Bangkok and Central Moslems (67%).

TABLE 8.9: STATUS REGARDING NEED FOR CONTRACEPTION AND SELECTED MEASURES OF UNMET NEED, CURRENTLY MARRIED WOMEN AGED 15-49 BY RELIGION, REGION AND LANGUAGE

Need status**	Moslems				Buddhists			
	South Yawee	Thai	Cent. and Bangkok	All Moslems*	South	Cent. and Bangkok	North and NE	All Buddhists
1) Current users	22.5	43.5	53.6	32.6	55.3	68.5	65.4	65.2
1a) (efficient method)	(13.1)	(32.3)	(48.0)	(23.3)	(44.7)	(62.6)	(63.0)	(60.1)
1b) (other method)	(9.4)	(11.2)	(5.6)	(9.3)	(10.6)	(5.9)	(2.4)	(5.1)
2) Pregnant	12.7	12.6	7.2	11.9	8.5	7.0	7.1	7.2
3) Amenorrhoeic	18.0	18.4	4.0	16.1	9.2	3.7	6.0	5.5
4) Infecund	0.6	0.9	5.6	1.4	1.6	2.4	2.9	2.5
5) Husband absent	1.2	0.9	2.4	1.3	1.4	2.2	2.8	2.4
6) Uncertain fertility desire	3.7	1.8	0.0	2.7	0.7	0.3	0.5	0.5
7) Wants child within 1 year	12.9	4.5	11.2	10.5	7.5	6.7	5.0	6.1
8) Wants child but after 1 year	12.2	6.7	1.6	9.2	3.8	1.9	2.3	2.3
9) Wants no more but had no birth in 5 years	6.7	4.9	8.8	6.5	5.3	4.8	4.4	4.7
10) Wants no more but had birth or married in last 5 years	9.4	5.8	5.6	7.9	6.6	2.5	3.5	3.5
Total	100	100	100	100	100	100	100	100
Unmet need								
Conservative estimate								
For limiting (10)	9.4	5.8	5.6	7.9	6.6	2.5	3.5	3.5
For spacing (8)	12.2	6.7	1.6	9.2	3.8	1.9	2.3	2.3
Total (8 + 10)	21.6	12.5	7.2	17.1	10.4	4.4	5.8	5.8
Maximum estimate								
(1b + 8 + 9 + 10)	37.7	28.6	21.6	32.9	26.3	15.1	12.6	15.6

Note: Results in this table are unweighted

* Including one Moslem in the Northeast

** Each category takes precedence over all subsequent categories.

We have already noted that the Moslems appear to be receptive to the concept of birth spacing. It will be interesting to analyze again whether spacing *vis-a-vis* limiting family size is against or consistent with religious belief. Table 8.8 supports the earlier analysis and discussion based on Table 8.6. It can be seen that more Moslems are opposed to the concept of limiting (79%) family size than to the idea of spacing (40%). Again the Southern Thai speaking Moslems demonstrated a stronger opposition on both the practices of spacing and limiting birth than any other Moslem group. For Buddhist opposition to either spacing or limiting is not large in any region.

Attitudes toward contraception are also examined by method. Only a small proportion of Buddhists indicated that they believed any contraceptive method was against their religion. In contrast, Moslems were far more likely to indicate any particular method was against their religion although there was far less opposition expressed against temporary methods than against permanent methods. For example, only 38 and 40 percent of Moslems said withdrawal or the pill respectively was against Islam but 83 percent indicated religious opposition to female sterilization. Some variation in attitudes are evident among Moslems, but even among Central and Bangkok Moslems, considerable opposition to contraception and particularly permanent methods was expressed despite the rather substantial level of prevalence among Moslems in the Central region and Bangkok.

CONTRACEPTIVE NEED STATUS

From the perspective of the National Family Planning Program, it is useful to know the proportion of the population that is poten-

tially in need of family planning methods but is not using them. Information with regard to this topic for the national sample broken down by rural-urban residence, region, age and education has already been presented and discussed in detail in Chapter 6. This section will focus on the religious differentials. Caution should be made in making a direct comparison of figures derived in Chapter 6 and those presented in Table 8.9, since the latter are unweighted and not intended to be the nationally representative.

Whichever estimates of unmet need status are used, be they conservative or maximum, results in Table 8.9 show that the South in general is characterized by the highest incidence of unmet need. The Moslems were more likely to be characterized by an unmet need status than the Buddhists. For the former, there were noticeable proportions who were characterized as those who were in need of spacing. The Yawee speaking Moslems, in particular, showed the most unmet need for spacing (12.2%).

In an absolute sense, the Yawee speaking Moslems had the greatest unmet need for contraception, followed respectively by the Southern Thai speaking and Central and Bangkok Moslems. It is also interesting to see that while the Southern Thai speaking Moslems had more need for contraception than the Southern Buddhists, the differences were not large. On the other hand, those Moslems in Bangkok and the Central region appeared to have lower unmet need for contraception than the Southern Buddhists.

The results in this table and those from earlier tables indicate that differentials in current and potential contraceptive use result from a combination of both regional and religious factors operating at the same time.

CHAPTER 9

SUMMARY AND IMPLICATIONS FOR FAMILY PLANNING PROGRAM

The Third Contraceptive Prevalence Survey has produced a multitude of findings concerning family planning and fertility. In this final chapter we attempt to summarize and highlight some of the major findings. Such a process is necessarily highly selective given the extensive amount of material presented in the forgoing chapters. We conclude by suggesting some implications for the national family planning program in Thailand stemming from our findings. As with our summary, we do not attempt to be exhaustive in this effort. We anticipate that persons directly involved in the program will find a variety of other implications and be in an appropriate position to utilize them to guide their future activities.

SUMMARY

The third national Contraceptive Prevalence Survey (CPS3) was undertaken jointly by the Research Center of the National Institute of Development Administration (NIDA) and the Institute of Population and Social Research (IPSR) at Mahidol University in collaboration with the Family Health Division of the Ministry of Public Health. Field work took place during the months of April through July of 1984. The sample was designed to improve the ability to obtain results on a regional basis in comparison with previous surveys. In addition a special supplementary sample of Moslems in the southern provinces of Satun and Yala was included in order to enable a more complete comparison of the Buddhist and Moslem populations of the Southern region. A total of 7,576 ever married women were interviewed of which 317 were for the special sample.

Contraceptive prevalence as measured by the percentage of currently married women aged 15-44 (CMW 15-44) who are currently using a contraceptive method increased nationally, from 59 to 65 percent between 1981, when the previous survey (CPS2) was undertaken, and 1984. The biggest increase in use was in female sterilization which increased from 18.7 percent to 23.5 percent of CMW 15-44 and is now the most common method of contraception in Thailand. Indeed, the increase in female sterilization accounts for 86 percent of the increase in overall prevalence between 1981 and

1984.

Prevalence of the pill, now the second most common method, remained steady at about 20 percent of CMW 15-44. Use of vasectomy also remained almost constant and is far less popular than female sterilization with the latter being practiced by five times more couples than is the case with vasectomy. There was also only modest change in the other methods (IUD, injectables, condoms and all other methods)

Contraceptive prevalence increased by approximately equal amounts in all four regions and Bangkok with the amounts of increase only ranging from 5 percentage points in the Central to 7 percentage points in Bangkok and the South. Female sterilization increased substantially in all regions. Nevertheless, considerable regional differences in prevalence exists with the lowest prevalence, 50 percent, in the South and the highest prevalence, over 70 percent, in Bangkok and the North. There are also considerable regional differences in the method mix. The highest use of the IUD was in the Northeast, for female sterilization and injectables the highest use was in the North, for vasectomy in the Central region, and for withdrawal in the South. In all four regions and in Bangkok, however, female sterilization was the most common method.

In order to determine the potential for increasing prevalence in the future and for recruiting new acceptors to the National Family Planning Program (NFPP), it is important to assess the extent of unmet need for contraceptive services that still exists. Based on a detailed classification scheme which recognizes explicitly that not all non users of contraception have a need for contraception, CPS3 results indicate that only 2.5 percent of currently married women aged 15-49 have an unmet need for spacing and only 3.5 percent have an unmet need for limiting. Hence a total of only 6 percent of currently married women in reproductive ages seem to be likely remaining potential targets for the NFPP. This means that only about 450,000 of the approximately 7.5 million currently married women under age 50 are not yet being served by the program or some commercial outlet. Even among these women, not all are truly in need of contraception. When questioned further about why they were

not using contraception, a substantial number indicated that they had some fecundity problem or a health problem that did not permit the use of contraception or, that they were sexually inactive. Furthermore many of the potential spacers said they were not using because they desired a pregnancy thus suggesting that their desire to delay the next birth was not very strong. Clearly the NFPP has reached the vast majority of potential users already.

With the information collected by CPS3 a profile of those women with an unmet need was constructed. Both the potential spacers and the potential limiters with an unmet need for contraception tend to be more likely to live in rural areas than currently married women in general. In addition they are more likely than average to be Moslems or be residents of the Northeast or the South. Potential limiters with an unmet need also are far more likely than average to have less than four years of education. This could largely reflect their above average age, however, since older women are more likely both to be potential limiters and to be less educated. Particularly interesting is the finding that rural women with an unmet need for spacing or limiting are about as likely as women on average to live in villages within 5 kilometers of a potential government supply of contraceptive supplies or services. Among rural women in general and among those with an unmet need less than 15 percent live in villages more than 5 kilometers from a hospital or health station. It thus seems unlikely that the remaining unmet need in Thailand is primarily a question of inaccessible supplies.

The large majority of Thai couples practicing contraception used a government outlet as their most recent source of supply or service. For the country as a whole, 79 percent of current users of methods requiring a source use a government outlet, for rural couples the equivalent figure is 83 percent and for urban couples 63 percent. The proportion obtaining their contraceptive method from the government varies substantially according to method, especially in urban areas. In both rural and urban areas, the IUD and female sterilization are overwhelmingly obtained through government outlets. Pills in contrast are largely government supplied only in rural areas and not in urban areas where almost two thirds of users buy pills commercially, primarily from drugstores. Even in rural areas almost half of couples relying on condoms purchase them from the private sector and in urban areas the vast majority obtain con-

doms commercially, again primarily from drugstores. Overall, however, the government component of the NFPP is clearly the major source of contraception in Thailand.

Based on births reported as occurring 12 months prior to the surveys, total fertility at the national level declined from 3.68 to 3.47 between CPS2 and CPS3. It is possible that the actual decline is somewhat larger because births may have been more completely reported in CPS3. It is worth noting that much of the decline in the TFR is attributable to the assumed change in marriage patterns implied by the census (with the proportions remaining single increasing) and that marital fertility is only slightly lower for CPS3 than for CPS2.

Regional estimates of total fertility based on a 24 month period prior to the survey show considerable differences among regions. The lowest TFR is found in Bangkok although TFR's in the Central Region and in the North are not much higher. In all three cases, TFR is below 3 births per couple. Nevertheless, in all cases fertility is still well above the replacement level which is approximately equal to a TFR of 2.25 given Thailand's current level of mortality. Fertility is considerably higher in the Northeast and even greater in the South. At the present fertility rate, Northeastern women average about one child and Southern women about two children more than women in the remainder of Thailand.

Two other measures of recent fertility that can be obtained from CPS3 are the percent of currently married women who report themselves as pregnant and the average number of months since last birth, typically referred to as the open interval. Both of these measures point towards declining fertility. Between CPS1 and CPS3, the percent of women who reported themselves pregnant declined steadily from 10.1 to 8.6 percent. At the same time the open interval increased steadily from 49 months to 56 months.

The desired family size of recently married women can serve as a useful measure of future interest in fertility control since these women will be among the prime clients of the NFPP in the next decade or so. Results from CPS3 indicate that fertility preferences among the new generation of married women are quite modest. The modal number of children desired among women married less than five years is two. Indeed over half of recently married women both in rural and urban areas indicated a preference for a two child family. Moreover, only a small minority of recently married women said they wanted more than three children.

At the same time very few women expressed a desire for less than two children. Even in the North where the average desired family size is only 2.0, the lowest in Thailand, only about one in ten women indicated they wished to have less than two children. Family size preferences are distinctly higher in the Northeast and South but even in these regions the large majority of recently married women express an ideal of two or three children only. It thus appears that the new generation of married couples will wish to make extensive use of contraceptive methods during their reproductive careers if they are to keep their family sizes to the modest numbers they indicate they prefer.

Considerable differences in the level of contraceptive prevalence were found between Buddhists and Moslems. For Moslems overall prevalence is only about half as high as among Buddhists. Considerable variation exists, however among Moslems according to language and region of residence. Among Moslems prevalence is lowest among Southern Yawee speakers, intermediate among Southern Thai speakers, and highest among Bangkok and Central region residents. Among Buddhists, those in the South are characterized by a distinctively lower prevalence level than Buddhists elsewhere although by a level considerably higher than either Yawee or Thai speaking Southern Moslems. Interestingly, prevalence among Southern Buddhists and Bangkok and Central Moslems is about equal. Apparently language, region and religion each exert an independent influence on contraceptive prevalence.

Another obvious difference in contraceptive use between Moslems and Buddhists is with regards to method mix. In particular, permanent methods of contraception (female and male sterilization) are disproportionately low among Moslems in comparison to Buddhists. Again among Moslems, the levels of sterilization vary sharply according to language and region with only 2 percent of Southern Yawee Moslem couples, 8 percent of Southern Thai speakers and 18 percent of Bangkok and Central Moslems reporting either ligation or vasectomy. Even for the latter group, however, sterilization is below the level reported by Buddhists regardless of region. It is also notable that withdrawal is particularly common among Southern Moslems and Southern Buddhists alike but largely absent outside the South.

Fertility levels and preferences differ considerably between Moslems and Buddhists. Marital fertility, as measured by the annual average number of births per 1,000 married women during the two years preceding the

survey, is over 70 percent higher for Moslems than for Buddhists. It is worth noting, however, that the impact of Moslem fertility on the national fertility level is quite modest. For example, if Moslem fertility were reduced to the level now characteristic of Buddhists, the national total fertility rate would be reduced only by about one-tenth of a child. While Central and Bangkok Moslems experience lower fertility than Moslems in the South, their rate was still above Buddhists regardless of region. Among Buddhists, those in the South experience higher fertility than those living elsewhere. Fertility preferences are also higher among Moslems than Buddhists. Among women with two children, only 30 percent of Moslems indicated they wished to stop childbearing compared to 69 percent of Buddhists. Again differences are apparent within each religious grouping. Central and Bangkok Moslems are far more likely to wish to cease childbearing at two children than Southern Moslems while Southern Buddhists with two children are less likely to want no more than Buddhists elsewhere, showing an identical level to that found for Central and Bangkok Moslems.

CPS3 also included a number of questions designed to determine religious attitudes regarding the use of contraception. Generally only a small proportion of Buddhists indicated that they believed any contraceptive method was against their religion. In contrast, Moslems were far more likely to indicate any particular method was against their religion although there was far less opposition expressed concerning temporary methods than against permanent methods. For example, only 38 and 40 percent of Moslems said withdrawal or the pill respectively was against Islam but 83 percent indicated religious opposition to female sterilization. Some variation in attitudes are evident among Moslems, but even among Central and Bangkok Moslems, considerable opposition to contraception and particularly permanent methods was expressed. Interestingly, this widespread religious opposition was expressed despite the rather substantial level of prevalence among Moslems in the Central region and Bangkok.

IMPLICATIONS FOR FAMILY PLANNING PROGRAM

1. Given the already high level of contraceptive prevalence and the low level of unmet need, it seems unlikely that a continuation of the steady increases in overall prevalence levels that characterized the last decade and a

half will continue into the future. More likely prevalence will start to level off, perhaps, close to 70 percent. This implies that the number of new acceptors to the NFPP is likely to decline as increases in prevalence become no longer possible. This decline in acceptors should be viewed as an inevitable sign of a maturing program and not necessarily as a sign of poor program performance. Instead measures of continuing use or overall prevalence would serve better as a means to judge the continuing success of the program.

2. Since the prevalence level is approaching a likely maximum, concern in improving the impact of the program on reducing fertility should shift from a focus on recruiting new acceptors to improving the quality and efficiency of contraceptive use among continuing users. In part this could mean encouraging shifts to more effective methods. However, the prevalence of permanent methods is already quite high and there is an obvious limit to the extent to which sterilization can continue to increase. Thus, greater concern might be fruitfully devoted to improving the efficiency with which temporary methods are used. In particular, encouraging and enabling proper use of the pill might merit more attention, especially given the fact that a substantial proportion of pill users in urban areas obtain their method from drugstores and may not be given proper instructions on use. Given the lack of knowledge on the use effectiveness of nonprogram methods such as withdrawal and rhythm and their greater acceptability among Moslems, research on this topic could be useful for guiding the program with respect to whether or not it should encourage couples practicing such methods to switch to more modern methods. In brief, greater attention needs to be paid to the issues of side effects, method compliance and method failure.

3. Family size preferences among newly married couples reveals considerable consensus on a two child family as the most desirable. Most remaining couples wish to have no more than three children. At the same time very few couples appear to want fewer than two children. Thus there seems to be little need for a major national campaign to lower fertility

preferences. Some effort to promote the two child family in the Northeast and South could potentially be useful. Since the two child family norm already seems well established among the new generation of parents, IEC efforts to reinforce are unlikely to offend potential clients of the program and might increase its popularity even further.

4. The low proportion of couples with unmet need in combination with the low proportion who appear to have a preference for a family size above 3 children suggests that there is little need to design special programs to reach "hardcore" resistance groups. Such groups will be difficult to identify since in many respects couples with an unmet need do not differ greatly from the general population. One possible exception are Southern Moslems and particularly Yawee speaking Moslems. It should be recognized, however, that Southern Moslems represent only a small proportion of the population and thus even if special efforts to increase prevalence and reduce fertility among them are successful, the demographic effect at the national level would be modest at most.

5. Any program designed to reach Moslems needs to recognize that contraceptive use in general is a more sensitive religious issue for them than for the Buddhist majority. In particular, religious objection to permanent methods appears to be widespread and suggests that efforts to promote temporary methods aimed at spacing are likely to be more acceptable.

6. During recent years, the National Family Planning Program has devoted special attention towards the Southern region because of the lower contraceptive prevalence and higher fertility characteristic of the region. While CPS3 reveals that prevalence is still the lowest and fertility the highest in the South, the Northeast is also found to have below average prevalence and above average fertility. Given the much greater share of the Thai population that lives in the Northeast and thus the much greater potential demographic impact on the national level of reductions in fertility there, it is important not to overemphasize the South relative to the Northeast in terms of special program efforts.

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APPENDIX A

APPENDIX TABLES

TABLE A1: UNWEIGHTED NUMBER OF EVER MARRIED WOMEN AGED 15-49 BY AGE AND RURAL-URBAN RESIDENCE

Age	National	Urban	Urban		
			Total	Bangkok	Provincial
15 - 19	254	205	49	31	18
20 - 24	1,153	869	284	210	74
25 - 29	1,644	1,187	457	324	133
30 - 34	1,569	1,100	469	349	120
35 - 39	1,123	809	314	229	85
40 - 44	893	671	222	154	68
45 - 49	623	459	164	123	41
Total	7,259	5,300	1,959	1,420	539

TABLE A2: UNWEIGHTED NUMBER OF EVER MARRIED WOMEN AGED 15-49 BY AGE AND REGION OF RESIDENCE

Age	Central		North	Northeast	South
	With Bangkok	Without Bangkok			
15 - 19	81	50	50	60	63
20 - 24	408	198	292	214	239
25 - 29	628	304	355	342	319
30 - 34	660	311	314	284	311
35 - 39	473	244	200	218	232
40 - 44	359	205	156	195	183
45 - 49	293	170	112	127	91
Total	2,902	1,482	1,479	1,440	1,438

TABLE A3: UNWEIGHTED NUMBER OF EVER MARRIED WOMEN AGED 15-49 BY AGE, NUMBER OF YEARS OF SCHOOLING AND RURAL-URBAN RESIDENCE

Age	National			Rural			Urban		
	Less than 4 yrs.	4 yrs.	5 or more yrs.	Less than 4 yrs.	4 yrs.	5 or more yrs.	Less than 4 yrs.	4 yrs.	5 or more yrs.
15 - 19	18	134	102	15	118	72	3	16	30
20 - 24	81	729	343	74	619	176	7	110	167
25 - 29	155	1,136	353	123	919	145	32	217	208
30 - 34	144	1,119	306	116	875	109	28	244	197
35 - 39	153	795	175	115	626	68	38	169	107
40 - 44	203	592	98	168	479	24	35	113	74
45 - 49	192	383	48	141	307	11	51	76	37
Total	946	4,888	1,425	752	3,943	605	194	945	820

TABLE A4: WEIGHTED NUMBER OF EVER MARRIED WOMEN AGED 15-49 BY AGE AND RURAL-URBAN RESIDENCE

Age	National	Rural	Urban		
			Total	Bangkok	Provincial
15 - 19	268	233	34	16	19
20 - 24	1,159	982	177	112	66
25 - 29	1,694	1,373	321	187	134
30 - 34	1,525	1,232	293	181	113
35 - 39	1,101	902	200	115	84
40 - 44	894	758	135	73	63
45 - 49	616	525	91	51	40
Total	7,257	6,004	1,252	735	517

Note: Small differences between numbers for totals and sums of columns occasionally occur as a result of fractional weights applied in the weighting procedure.

TABLE A5: WEIGHTED NUMBER OF EVER MARRIED WOMEN AGED 15-49 BY AGE AND REGION OF RESIDENCE

Age	Central		North	Northeast	South
	With Bangkok	Without Bangkok			
15 - 19	67	51	51	110	39
20 - 24	311	199	305	386	157
25 - 29	509	322	377	600	208
30 - 34	496	316	344	498	187
35 - 39	364	249	214	379	144
40 - 44	285	212	169	333	107
45 - 49	228	176	118	219	52
Total	2,261	1,526	1,579	2,524	893

Note: Small differences between numbers for totals and sums of columns occasionally occur as a result of fractional weights applied in the weighting procedure.

TABLE A6: WEIGHTED NUMBER OF EVER MARRIED WOMEN AGED 15-49 BY AGE, NUMBER OF YEARS OF SCHOOLING AND RURAL-URBAN RESIDENCE

Age	National			Rural			Urban		
	Less than 4 yrs.	4 yrs.	5 or more yrs.	Less than 4 yrs.	4 yrs.	5 or more than	Less than 4 yrs.	4 yrs.	5 or more yrs.
15 - 19	18	141	108	15	128	89	3	12	19
20 - 24	83	775	301	77	711	194	6	64	107
25 - 29	159	1,244	291	135	1,083	156	25	161	135
30 - 34	130	1,165	230	110	1,006	116	19	159	114
35 - 39	140	825	135	114	714	74	26	112	61
40 - 44	199	630	65	177	555	26	22	74	39
45 - 49	172	411	33	146	363	17	27	48	16
Total	903	5,190	1,164	774	4,559	672	128	632	492

Note: Small differences between numbers for totals and sums of columns occasionally occur as a result of fractional weights applied in the weighting procedure.

TABLE B1: UNWEIGHTED NUMBER OF CURRENTLY MARRIED WOMEN AGED 15-49 BY AGE AND RURAL-URBAN RESIDENCE

Age	National	Rural	Urban		
			Total	Bangkok	Provincial
15 - 19	247	200	47	31	16
20 - 24	1,116	842	274	202	72
25 - 29	1,579	1,142	437	312	125
30 - 34	1,502	1,056	446	334	112
35 - 39	1,059	761	298	221	77
40 - 44	821	623	198	139	59
45 - 49	543	403	140	105	35
Total	6,867	5,027	1,840	1,344	496

TABLE B2: UNWEIGHTED NUMBER OF CURRENTLY MARRIED WOMEN AGED 15-49 BY AGE AND REGION OF RESIDENCE

Age	Central		North	Northeast	South
	With Bangkok	Without Bangkok			
15 - 19	79	48	49	57	62
20 - 24	392	190	287	209	228
25 - 29	601	289	344	328	306
30 - 34	635	301	297	271	299
35 - 39	453	232	189	199	218
40 - 44	329	190	143	182	167
45 - 49	256	151	94	112	81
Total	2,745	1,401	1,403	1,358	1,361

TABLE B3: UNWEIGHTED NUMBER OF CURRENTLY MARRIED WOMEN AGED 15-49 BY AGE, NUMBER OF YEARS OF SCHOOLING AND RURAL-URBAN RESIDENCE

Age	National			Rural			Urban		
	Less than 4 yrs.	4 yrs.	5 or more yrs.	Less than 4 yrs.	4 yrs.	5 or more yrs.	Less than 4 yrs.	4 yrs.	5 or more yrs.
15 - 19	15	131	101	14	115	71	1	16	30
20 - 24	79	707	330	72	601	169	7	106	161
25 - 29	145	1,094	340	115	887	140	30	207	200
30 - 34	139	1,067	296	112	838	106	27	229	190
35 - 39	143	750	166	107	590	64	36	160	102
40 - 44	183	553	85	152	448	23	31	105	62
45 - 49	166	338	39	121	273	9	45	65	30
Total	870	4,640	1,357	693	3,752	582	177	888	775

TABLE B4: WEIGHTED NUMBER OF CURRENTLY MARRIED WOMEN AGED 15-49 BY AGE AND RURAL-URBAN RESIDENCE

Age	National	Rural	Urban		
			Total	Bangkok	Provincial
15 - 19	254	223	31	16	15
20 - 24	1,123	953	170	107	64
25 - 29	1,629	1,320	308	182	126
30 - 34	1,458	1,182	276	173	103
35 - 39	1,026	844	182	109	73
40 - 44	827	706	121	67	54
45 - 49	531	453	78	45	33
Total	6,847	5,682	1,165	698	468

Note: Small differences between numbers for totals and sums of columns occasionally occur as a result of fractional weights applied in the weighting procedure.

TABLE B5: WEIGHTED NUMBER OF CURRENTLY MARRIED WOMEN AGED 15-49 BY AGE AND REGION OF RESIDENCE

Age	Central		North	Northeast	South
	With Bangkok	Without Bangkok			
15 - 19	64	48	51	101	38
20 - 24	300	193	299	376	149
25 - 29	490	308	362	575	201
30 - 34	480	307	323	472	182
35 - 39	345	236	203	344	134
40 - 44	264	198	154	311	98
45 - 49	198	153	96	190	47
Total	2,141	1,443	1,488	2,370	849

Note: Small differences between numbers for totals and sums of columns occasionally occur as a result of fractional weights applied in the weighting procedure.

TABLE B6: WEIGHTED NUMBER OF CURRENTLY MARRIED WOMEN AGED 15-49 BY AGE, NUMBER OF YEARS OF SCHOOLING AND RURAL-URBAN RESIDENCE

Age	National			Rural			Urban		
	Less than 4 yrs.	4 yrs.	5 or more yrs.	Less than 4 yrs.	4 yrs.	5 or more yrs.	Less than 4 yrs.	4 yrs.	5 or more yrs.
15 - 19	15	134	105	14	122	86	0	12	19
20 - 24	80	753	291	74	691	189	6	62	102
25 - 29	151	1,199	279	128	1,043	150	23	156	129
30 - 34	122	1,116	220	106	965	112	16	151	108
35 - 39	128	770	127	106	668	70	22	102	58
40 - 44	176	594	57	157	525	24	19	69	33
45 - 49	147	358	27	123	318	13	24	40	14
Total	818	4,923	1,106	708	4,331	644	111	592	462

Note: Small differences between numbers for totals and sums of columns occasionally occur as a result of fractional weights applied in the weighting procedure.

TABLE C1: WEIGHTED AVERAGE NUMBER OF CHILDREN EVER-BORN AMONG EVER-MARRIED WOMEN AGED 15-49 BY AGE AND RURAL-URBAN RESIDENCE

Age	National	Rural	Urban		
			Total	Bangkok	Provincial
15 - 19	0.81	0.82	0.77	0.87	0.69
20 - 24	1.44	1.49	1.18	1.18	1.17
25 - 29	2.14	2.19	1.90	1.94	1.85
30 - 34	2.82	2.91	2.47	2.45	2.52
35 - 39	3.72	3.85	3.15	3.28	2.98
40 - 44	4.77	4.96	3.71	3.71	3.70
45 - 49	5.54	5.71	4.59	4.36	4.89
Total	2.98	3.08	2.49	2.48	2.51

TABLE C2: WEIGHTED AVERAGE NUMBER OF CHILDREN EVER-BORN AMONG EVER-MARRIED WOMEN AGED 15-49 BY AGE AND REGION OF RESIDENCE

Age	Central		North	Northeast	South
	With Bangkok	Without Bangkok			
15 - 19	0.75	0.71	0.74	0.83	0.97
20 - 24	1.36	1.46	1.31	1.50	1.74
25 - 29	1.92	1.91	1.88	2.40	2.57
30 - 34	2.53	2.57	2.39	3.17	3.47
35 - 39	3.28	3.28	3.04	4.24	4.50
40 - 44	4.01	4.11	4.08	5.64	5.17
45 - 49	4.91	5.07	5.18	6.27	6.10
Total	2.72	2.84	2.48	3.38	3.53

TABLE C3: WEIGHTED AVERAGE NUMBER OF CHILDREN EVER-BORN AMONG EVER-MARRIED WOMEN AGED 15-49 BY AGE, NUMBER OF YEARS OF SCHOOLING AND RURAL-URBAN RESIDENCE

Age	National			Rural			Urban		
	Less than 4 yrs.	4 yrs.	5 or more yrs.	Less than 4 yrs.	4 yrs.	5 or more yrs.	Less than 4 yrs.	4 yrs.	5 or more yrs.
15 - 19	0.91	0.82	0.78	0.95	0.83	0.77	0.71	0.71	0.82
20 - 24	2.14	1.48	1.16	2.18	1.49	1.23	1.65	1.37	1.05
25 - 29	2.47	2.21	1.63	2.48	2.23	1.70	2.41	2.12	1.55
30 - 34	3.43	2.88	2.21	3.45	2.91	2.35	3.30	2.67	2.07
35 - 39	4.30	3.78	2.79	4.52	3.85	2.81	3.38	3.52	2.76
40 - 44	5.47	4.72	3.08	5.60	4.81	3.70	4.34	4.07	2.67
45 - 49	6.04	5.47	3.89	6.14	5.57	4.98	5.46	4.72	2.79
Total	4.17	3.03	1.82	4.26	3.06	1.85	3.63	2.79	1.81

TABLE D1: WEIGHTED AVERAGE NUMBER OF LIVING CHILDREN AMONG EVER-MARRIED WOMEN AGED 15-49 BY AGE AND RURAL-URBAN RESIDENCE

Age	National	Rural	Urban		
			Total	Bangkok	Provincial
15 - 19	0.75	0.76	0.72	0.76	0.69
20 - 24	1.38	1.42	1.14	1.13	1.15
25 - 29	2.01	2.06	1.80	1.83	1.76
30 - 34	2.65	2.72	2.37	2.35	2.41
35 - 39	3.41	3.50	3.01	3.11	2.86
40 - 44	4.31	4.46	3.45	3.45	3.46
45 - 49	4.74	4.82	4.33	4.16	4.54
Total	2.73	2.80	2.37	2.35	2.38

TABLE D2: WEIGHTED AVERAGE NUMBER OF LIVING CHILDREN AMONG EVER-MARRIED WOMEN AGED 15-49 BY AGE AND REGION OF RESIDENCE

Age	Central		North	Northeast	South
	With Bangkok	Without Bangkok			
15 - 19	0.71	0.70	0.72	0.74	0.91
20 - 24	1.30	1.40	1.25	1.44	1.64
25 - 29	1.82	1.82	1.75	2.26	2.26
30 - 34	2.40	2.42	2.28	2.96	3.21
35 - 39	3.03	3.00	2.81	3.86	4.10
40 - 44	3.73	3.83	3.70	4.95	4.78
45 - 49	4.30	4.34	4.54	5.19	5.29
Total	2.53	2.61	2.30	3.05	3.07

TABLE D3: WEIGHTED AVERAGE NUMBER OF LIVING CHILDREN AMONG EVER-MARRIED WOMEN AGED 15-49 BY AGE, NUMBER OF YEARS OF SCHOOLING AND RURAL-URBAN RESIDENCE

Age	National			Rural			Urban		
	Less than 4 yrs.	4 yrs.	5 or more yrs.	Less than 4 yrs.	4 yrs.	5 or more yrs.	Less than 4 yrs.	4 yrs.	5 or more yrs.
15 - 19	0.91	0.75	0.73	0.95	0.76	0.73	0.71	0.70	0.74
20 - 24	1.92	1.43	1.11	1.95	1.43	1.18	1.65	1.34	0.99
25 - 29	2.18	2.09	1.60	2.21	2.10	1.67	2.01	2.01	1.51
30 - 34	3.19	2.70	2.13	3.18	2.72	2.25	3.26	2.53	2.00
35 - 39	3.91	3.46	2.63	4.08	3.51	2.58	3.20	3.14	2.68
40 - 44	4.94	4.25	2.86	5.04	4.31	3.50	4.11	3.80	2.43
45 - 49	5.11	4.67	3.68	5.09	4.71	4.62	5.23	4.37	2.73
Total	3.71	2.77	1.75	3.76	2.79	1.75	3.42	2.64	1.74

TABLE E1: WEIGHTED AGE SPECIFIC FERTILITY RATES ONE YEAR PRIOR TO SURVEY AMONG CURRENTLY MARRIED WOMEN AGED 15-49 BY AGE AND RURAL-URBAN RESIDENCE

Age	National	Rural	Urban		
			Total	Bangkok	Provincial
15 - 19	.5203	.5457	.3443	.3195	.3722
20 - 24	.3532	.3507	.3674	.3698	.3632
25 - 29	.2413	.2395	.2492	.2256	.2831
30 - 34	.1338	.1237	.1770	.1997	.1389
35 - 39	.0790	.0783	.0823	.0694	.1018
40 - 44	.0610	.0683	.0188	.0340	.0000
45 - 49	.0019	.0023	.0000	.0000	.0000
Total	.1833	.1832	.1781	.1765	.1792

TABLE E2: WEIGHTED AGE SPECIFIC FERTILITY RATES ONE YEAR PRIOR TO SURVEY AMONG CURRENTLY MARRIED WOMEN AGED 15-49 BY AGE AND REGION OF RESIDENCE

Age	Central		North	Northeast	South
	With Bangkok	Without Bangkok			
15 - 19	.4334	.4759	.4726	.5524	.6479
20 - 24	.3628	.3589	.2869	.3685	.4278
25 - 29	.2262	.2265	.2276	.2266	.3453
30 - 34	.1625	.1416	.1044	.1030	.1900
35 - 39	.0664	.0651	.0296	.0759	.1935
40 - 44	.0361	.0368	.0567	.0807	.0727
45 - 49	.0000	.0000	.0000	.0000	.0217
Total	.1760	.1742	.1522	.1813	.2565

TABLE E3: WEIGHTED AGE SPECIFIC FERTILITY RATES ONE YEAR PRIOR TO SURVEY AMONG CURRENTLY MARRIED WOMEN AGED 15-49 BY AGE, NUMBER OF YEARS OF SCHOOLING AND RURAL-URBAN RESIDENCE

Age	National			Rural			Urban		
	Less than 4 yrs.	4 yrs.	5 or more yrs.	Less than 4 yrs.	4 yrs.	5 or more yrs.	Less than 4 yrs.	4 yrs.	5 or more yrs.
15 - 19	.5979	.5483	.4709	.5946	.5907	.4706	1.0000	.1561	.4720
20 - 24	.4220	.3280	.4010	.4028	.3245	.4287	.6621	.3669	.3497
25 - 29	.2188	.2363	.2757	.2098	.2441	.2326	.2682	.1843	.3267
30 - 34	.1476	.1140	.2258	.1485	.1129	.1928	.1420	.1211	.2600
35 - 39	.1003	.0764	.0730	.0917	.0843	.0000	.1425	.0250	.1609
40 - 44	.0598	.0600	.0765	.0670	.0638	.1724	.0000	.0304	.0050
45 - 49	.0000	.0029	.0000	.0000	.0032	.0000	.0000	.0000	.0000
Total	.2013	.1760	.2121	.1960	.1814	.2027	.2744	.1346	.2253

TABLE E4: WEIGHTED AGE SPECIFIC FERTILITY RATES TWO YEARS PRIOR TO SURVEY AMONG CURRENTLY MARRIED WOMEN AGED 15-49 BY AGE AND RURAL-URBAN RESIDENCE

Age	National	Rural	Urban		
			Total	Bangkok	Provincial
15 - 19	.4425	.4556	.3573	.3968	.3141
20 - 24	.3306	.3306	.3302	.3428	.3083
25 - 29	.2275	.2214	.2542	.2362	.2799
30 - 34	.1306	.1226	.1652	.1767	.1460
35 - 39	.0803	.0751	.1048	.1202	.0816
40 - 44	.0650	.0670	.0534	.0531	.0537
45 - 49	.0087	.0102	.0000	.0000	.0000
Total	.1726	.1704	.1800	.1861	.1708

TABLE E5: WEIGHTED AGE SPECIFIC FERTILITY RATES TWO YEARS PRIOR TO SURVEY AMONG CURRENTLY MARRIED WOMEN AGED 15-49 BY AGE AND REGION OF RESIDENCE

Age	Central		North	Northeast	South
	With Bangkok	Without Bangkok			
15 - 19	.3649	.3520	.4074	.4894	.4990
20 - 24	.3268	.3182	.2840	.3587	.3602
25 - 29	.2131	.2000	.2128	.2219	.3047
30 - 34	.1475	.1312	.0824	.1306	.1715
35 - 39	.0824	.0649	.0391	.0721	.1581
40 - 44	.0548	.0554	.0464	.0798	.0748
45 - 49	.0000	.0000	.0067	.0073	.0556
Total	.1655	.1549	.1414	.1797	.2222

TABLE E6: WEIGHTED AGE SPECIFIC FERTILITY RATES TWO YEARS PRIOR TO SURVEY AMONG CURRENTLY MARRIED WOMEN AGED 15-49 BY AGE, NUMBER OF YEARS OF SCHOOLING AND RURAL-URBAN RESIDENCE

Age	National			Rural			Urban		
	Less than 4 yrs.	4 yrs.	5 or more yrs.	Less than 4 yrs.	4 yrs.	5 or more yrs.	Less than 4 yrs.	4 yrs.	5 or more yrs.
15 - 19	.5277	.4257	.4516	.5262	.4508	.4489	.7582	.2186	.4634
20 - 24	.3508	.3214	.3495	.3455	.3215	.3600	.4185	.3208	.3303
25 - 29	.2704	.2120	.2724	.2620	.2139	.2395	.3164	.1998	.3132
30 - 34	.1379	.1169	.1963	.1425	.1151	.1681	.1090	.1280	.2255
35 - 39	.1085	.0755	.0815	.1069	.0744	.0334	.1156	.0830	.1392
40 - 44	.0811	.0608	.0593	.0820	.0604	.1120	.0739	.0635	.0200
45 - 49	.0111	.0085	.0000	.0132	.0095	.0000	.0000	.0000	.0000
Total	.1981	.1632	.1956	.1965	.1648	.1845	.2268	.1498	.2109

TABLE F1: WEIGHTED PERCENT CURRENTLY PREGNANT AMONG CURRENTLY MARRIED WOMEN AGED 15-49 BY AGE AND RURAL-URBAN RESIDENCE

Age	National	Rural	Urban		
			Total	Bangkok	Provincial
15 - 19	21.48	20.27	30.01	31.84	28.13
20 - 24	15.51	15.82	13.77	11.10	18.25
25 - 29	11.21	10.73	13.24	10.98	16.50
30 - 34	5.48	5.42	5.77	6.06	5.28
35 - 39	3.29	3.75	1.15	1.19	1.09
40 - 44	1.27	1.49	0.00	0.00	0.00
45 - 49	1.11	1.30	0.00	0.00	0.00
Total	7.91	7.92	7.86	6.97	9.19

TABLE F2: WEIGHTED PERCENT CURRENTLY PREGNANT AMONG CURRENTLY MARRIED WOMEN AGED 15-49 BY AGE AND REGION OF RESIDENCE

Age	Central		North	Northeast	South
	With Bangkok	Without Bangkok			
15 - 19	24.72	22.38	23.79	21.29	13.39
20 - 24	15.44	17.83	11.69	19.80	12.42
25 - 29	11.04	11.07	7.52	12.93	13.32
30 - 34	5.65	5.42	4.40	4.11	10.54
35 - 39	1.38	1.47	2.51	3.82	8.00
40 - 44	0.00	0.00	0.00	3.06	1.04
45 - 49	0.99	1.28	1.22	1.46	0.00
Total	7.01	7.03	6.37	9.09	9.57

TABLE F3: WEIGHTED PERCENT CURRENTLY PREGNANT AMONG CURRENTLY MARRIED WOMEN AGED 15-49 BY AGE, NUMBER OF YEARS OF SCHOOLING AND RURAL-URBAN RESIDENCE

Age	National			Rural			Urban		
	Less than 4 yrs.	4 yrs.	5 or more yrs.	Less than 4 yrs.	4 yrs.	5 or more yrs.	Less than 4 yrs.	4 yrs.	5 or more yrs.
15 - 19	17.23	23.22	19.84	17.37	22.32	17.88	0.00	32.11	28.82
20 - 24	11.42	15.57	16.47	10.53	15.82	17.86	22.32	12.72	13.90
25 - 29	19.21	9.52	14.13	22.27	9.37	10.42	2.53	10.53	18.45
30 - 34	7.13	5.12	6.40	7.93	5.29	4.12	2.04	4.03	8.77
35 - 39	7.65	2.60	3.09	9.22	3.00	2.65	0.00	0.00	3.61
40 - 44	2.17	1.13	0.00	2.43	1.28	0.00	0.00	0.00	0.00
45 - 49	1.04	1.23	0.00	1.24	1.38	0.00	0.00	0.00	0.00
Total	7.88	7.12	11.41	8.79	7.30	11.06	2.06	5.80	11.90

TABLE G1: WEIGHTED EXPECTED FAMILY SIZE AMONG CURRENTLY MARRIED WOMEN AGED 15-49 BY AGE AND RURAL-URBAN RESIDENCE

Age	National	Rural	Urban		
			Total	Bangkok	Provincial
15 - 19	2.36	2.33	2.55	2.50	2.62
20 - 24	2.49	2.54	2.25	2.16	2.40
25 - 29	2.75	2.79	2.58	2.55	2.62
30 - 34	3.11	3.16	2.89	2.82	3.00
35 - 39	3.65	3.73	3.26	3.30	3.20
40 - 44	4.52	4.67	3.67	3.67	3.66
45 - 49	5.01	5.11	4.44	4.18	4.78
Total	3.30	3.37	2.95	2.89	3.05

TABLE G2: WEIGHTED EXPECTED FAMILY SIZE AMONG CURRENTLY MARRIED WOMEN AGED 15-49 BY AGE AND REGION OF RESIDENCE

Age	Central		North	Northeast	South
	With Bangkok	Without Bangkok			
15 - 19	2.16	2.04	1.94	2.37	3.23
20 - 24	2.35	2.46	2.17	2.69	2.92
25 - 29	2.52	2.51	2.31	3.03	3.32
30 - 34	2.85	2.87	2.65	3.46	3.70
35 - 39	3.25	3.22	2.99	4.14	4.41
40 - 44	3.92	4.01	3.85	5.20	5.05
45 - 49	4.55	4.65	4.88	5.44	5.51
Total	3.05	3.13	2.77	3.68	3.82

TABLE G3: WEIGHTED EXPECTED FAMILY SIZE AMONG CURRENTLY MARRIED WOMEN AGED 15-49 BY AGE, NUMBER OF YEARS OF SCHOOLING AND RURAL-URBAN RESIDENCE

Age	National			Rural			Urban		
	Less than 4 yrs.	4 yrs.	5 or more yrs.	Less than 4 yrs.	4 yrs.	5 or more yrs.	Less than 4 yrs.	4 yrs.	5 or more yrs.
15 - 19	2.58	2.31	2.39	2.58	2.30	2.35	2.00	2.47	2.60
20 - 24	2.91	2.50	2.36	2.89	2.51	2.50	3.17	2.38	2.12
25 - 29	2.87	2.79	2.49	2.99	2.80	2.51	2.27	2.72	2.47
30 - 34	3.70	3.13	2.67	3.72	3.14	2.85	3.57	3.09	2.49
35 - 39	4.31	3.68	2.81	4.39	3.74	2.72	3.93	3.32	2.92
40 - 44	5.23	4.45	3.13	5.36	4.51	3.66	4.16	3.96	2.74
45 - 49	5.53	4.88	3.90	5.54	4.96	4.80	5.46	4.31	3.06
Total	4.21	3.31	2.59	4.27	3.33	2.66	3.85	3.14	2.50

TABLE H1: WEIGHTED IDEAL FAMILY SIZE AMONG CURRENTLY MARRIED WOMEN AGED 15-49 BY AGE AND RURAL-URBAN RESIDENCE

Age	National	Rural	Urban		
			Total	Bangkok	Provincial
15 - 19	2.56	2.57	2.47	2.43	2.51
20 - 24	2.55	2.60	2.27	2.15	2.50
25 - 29	2.75	2.79	2.57	2.53	2.62
30 - 34	2.97	3.02	2.76	2.66	2.93
35 - 39	3.20	3.25	2.93	2.75	3.19
40 - 44	3.66	3.74	3.19	2.98	3.41
45 - 49	3.78	3.83	3.43	3.24	3.66
Total	3.01	3.06	2.74	2.62	2.92

TABLE H2: WEIGHTED IDEAL FAMILY SIZE AMONG CURRENTLY MARRIED WOMEN AGED 15-49 BY AGE AND REGION OF RESIDENCE

Age	Central		North	Northeast	South
	With Bangkok	Without Bangkok			
15 - 19	2.19	2.11	2.03	2.80	3.28
20 - 24	2.36	2.48	2.19	2.85	2.90
25 - 29	2.52	2.51	2.34	3.05	3.23
30 - 34	2.76	2.82	2.49	3.28	3.57
35 - 39	2.93	3.01	2.77	3.41	3.99
40 - 44	3.35	3.46	3.10	4.11	3.91
45 - 49	3.60	3.70	3.40	3.95	4.58
Total	2.80	2.89	2.54	3.32	3.52

TABLE H3: WEIGHTED IDEAL FAMILY SIZE AMONG CURRENTLY MARRIED WOMEN AGED 15-49 BY AGE, NUMBER OF YEARS OF SCHOOLING AND RURAL-URBAN RESIDENCE

Age	National			Rural			Urban		
	Less than 4 yrs.	4 yrs.	5 or more yrs.	Less than 4 yrs.	4 yrs.	5 or more yrs.	Less than 4 yrs.	4 yrs.	5 or more yrs.
15 - 19	2.64	2.57	2.54	2.65	2.58	2.54	2.00	2.42	2.51
20 - 24	2.88	2.56	2.42	2.89	2.58	2.53	2.77	2.34	2.21
25 - 29	2.87	2.80	2.49	2.95	2.82	2.49	2.42	2.66	2.48
30 - 34	3.48	2.99	2.60	3.57	2.99	2.74	2.91	2.97	2.45
35 - 39	3.68	3.20	2.69	3.74	3.24	2.65	3.37	2.95	2.75
40 - 44	4.11	3.61	2.89	4.14	3.67	2.74	3.83	3.13	2.99
45 - 49	3.84	3.80	3.14	3.91	3.80	3.91	3.44	3.78	2.42
Total	3.52	3.03	2.56	3.58	3.05	2.61	3.14	2.88	2.48

TABLE 11: PERCENT OF EVER MARRIED WOMEN WHO EVER USED SPECIFIC CONTRACEPTION BY METHOD, RURAL-URBAN RESIDENCE AND AGE

Method and residence	Age							Total 15-49
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
Total urban								
Any method	66.7	85.7	88.5	90.8	89.8	76.5	85.9	86.9
Pill	47.5	62.5	66.0	71.8	53.4	41.3	42.3	60.1
Condom	17.6	30.2	30.6	32.0	21.1	10.2	11.6	25.5
Vaginal methods	2.9	2.1	0.9	1.8	1.6	5.2	0.4	1.9
Injectables	19.2	26.4	28.8	26.3	22.7	12.2	4.2	23.1
IUD	2.7	7.7	11.2	12.1	14.6	9.5	15.0	11.3
Female sterilization	0.0	5.7	19.3	33.9	45.6	49.7	46.5	29.8
Male sterilization	0.5	1.5	4.3	5.6	5.3	3.9	6.4	4.4
Abortion	6.7	2.0	2.3	6.3	4.5	2.1	7.9	4.1
Rhythm	9.7	16.4	17.5	17.5	14.7	13.2	10.2	15.7
Withdrawal	7.4	16.0	15.6	13.4	11.0	6.3	10.5	12.8
Other	0.0	0.0	0.0	0.5	0.4	0.0	0.0	0.2
Bangkok								
Any method	78.5	89.3	88.0	94.1	88.2	76.1	88.9	88.4
Pill	62.8	64.6	69.4	75.9	54.7	43.5	34.9	62.9
Condom	23.2	33.3	29.3	35.1	23.8	7.4	17.6	27.4
Vaginal methods	6.3	1.3	0.7	2.1	2.4	2.7	0.8	1.7
Injectables	10.7	24.8	27.2	24.3	22.6	12.1	3.7	21.9
IUD	1.0	5.8	10.0	10.8	18.2	10.4	15.6	11.1
Female sterilization	0.0	5.1	18.3	34.5	42.5	49.5	52.7	29.2
Male sterilization	1.0	2.5	5.8	8.1	5.2	6.8	4.8	5.7
Abortion	1.0	1.3	2.0	5.2	2.2	4.0	1.6	2.8
Rhythm	8.9	15.3	13.9	21.3	16.0	10.0	9.8	15.5
Withdrawal	7.7	15.5	17.4	17.2	13.7	7.2	8.6	14.7
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Provincial urban								
Any method	58.3	80.6	89.1	86.1	91.4	77.9	81.8	84.7
Pill	35.6	59.5	61.3	65.7	51.2	39.2	52.0	56.1
Condom	13.2	25.2	32.4	27.1	17.2	13.6	4.0	22.7
Vaginal methods	0.0	3.4	1.2	1.4	0.4	8.1	0.0	2.1
Injectables	27.2	29.3	31.2	29.5	22.6	12.6	4.9	24.8
IUD	4.2	11.0	12.9	14.3	9.6	8.7	14.3	11.7
Female sterilization	0.0	6.7	20.7	33.1	49.5	50.7	38.5	30.6
Male sterilization	0.0	0.0	2.2	1.7	5.5	0.5	8.4	2.5
Abortion	11.8	3.3	2.8	8.2	7.6	0.0	16.1	5.8
Rhythm	10.7	18.4	22.6	11.5	12.9	17.1	10.7	16.1
Withdrawal	7.5	17.1	13.2	7.2	7.3	5.5	12.9	10.2
Other	0.0	0.0	0.0	1.3	0.9	0.0	0.0	0.4
Rural								
Any method	60.5	78.6	83.6	85.8	87.9	79.9	65.0	80.9
Pill	47.1	60.1	62.3	58.2	60.0	51.6	39.2	56.8
Condom	8.8	12.3	13.2	10.9	10.9	6.7	4.2	10.4
Vaginal methods	0.0	0.0	0.5	1.0	0.8	1.2	0.4	0.6
Injectables	17.2	26.4	30.2	25.6	23.6	19.3	13.2	24.3
IUD	0.5	9.6	13.4	14.8	18.5	16.9	13.9	13.8
Female sterilization	0.7	10.9	18.5	28.1	31.4	25.7	15.2	21.1
Male sterilization	0.7	0.5	1.9	6.5	7.3	7.5	5.9	4.4
Abortion	0.7	3.3	3.3	3.2	2.7	3.3	2.2	3.0
Rhythm	6.2	7.1	6.2	6.6	7.7	7.7	2.4	6.5
Withdrawal	5.9	5.4	6.8	6.0	6.5	3.7	2.0	5.5
Other	0.7	0.4	0.5	1.1	0.8	0.5	1.7	0.8

TABLE I2: PERCENT OF EVER MARRIED WOMEN WHO EVER USED SPECIFIC CONTRACEPTION BY REGION AND AGE

Method and region	Age							Total 15-49
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
Bangkok								
Any method	78.5	89.3	88.0	94.1	88.2	76.1	88.9	88.4
Pill	62.8	64.6	69.4	75.9	54.7	43.5	34.9	62.9
Condom	23.2	33.3	29.3	35.1	23.8	7.4	17.6	27.4
Vaginal methods	6.3	1.3	0.7	2.1	2.4	2.7	0.8	1.7
Injectables	10.7	24.8	27.2	24.3	22.6	12.1	3.7	21.9
IUD	1.0	5.8	10.0	10.8	18.2	10.4	15.6	11.1
Female sterilization	0.0	5.1	18.3	34.5	42.5	49.5	52.7	29.2
Male sterilization	1.0	2.5	5.8	8.1	5.2	6.8	4.8	5.7
Abortion	1.0	1.3	2.0	5.2	2.2	4.0	1.6	2.8
Rhythm	8.9	15.3	15.9	21.3	16.0	10.0	9.8	15.5
Withdrawal	7.7	15.5	17.4	17.2	13.7	7.2	8.6	14.7
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central								
Any method	70.6	82.6	91.3	91.6	91.8	85.2	73.7	86.7
Pill	58.7	61.8	73.9	65.2	60.8	58.4	41.1	61.9
Condom	5.5	15.2	13.4	13.8	10.8	7.1	4.2	11.1
Vaginal methods	0.0	0.0	0.0	1.0	0.7	0.4	1.0	0.5
Injectables	19.8	38.8	35.9	32.4	29.7	28.6	19.2	31.0
IUD	3.0	6.7	9.8	10.2	13.8	19.7	13.1	11.7
Female sterilization	1.5	11.7	18.7	26.3	37.7	24.6	15.1	22.3
Male sterilization	0.0	0.5	3.6	10.3	8.4	9.0	13.4	7.1
Abortion	4.2	0.0	1.6	2.6	2.1	2.7	3.1	2.1
Rhythm	4.0	6.1	6.4	7.8	8.0	7.1	1.9	6.4
Withdrawal	6.7	4.9	6.6	5.5	5.3	2.4	3.1	5.0
Other	0.0	0.0	0.3	0.3	0.4	0.4	0.7	0.3
North								
Any method	69.7	88.5	89.4	91.6	88.7	85.5	62.6	86.5
Pill	56.6	76.2	73.7	68.3	72.5	66.4	46.0	69.4
Condom	19.7	10.1	15.0	11.5	10.2	2.7	4.8	10.7
Vaginal methods	0.0	0.0	1.2	0.4	1.2	2.9	0.6	0.9
Injectables	31.9	30.5	36.1	31.3	26.9	22.4	13.5	29.4
IUD	0.0	10.3	12.5	12.3	11.4	8.6	13.0	11.1
Female sterilization	1.6	14.7	25.8	37.7	37.2	32.1	17.0	27.0
Male sterilization	0.0	0.0	0.6	2.6	2.8	1.3	1.5	1.5
Abortion	3.0	4.9	5.4	6.1	3.7	1.4	7.5	4.9
Rhythm	5.6	7.3	5.1	5.2	8.5	8.8	5.8	6.5
Withdrawal	0.0	1.0	2.2	4.1	5.2	3.5	6.0	5.1
Other	0.0	0.0	0.0	0.2	0.0	0.4	1.5	0.2
Northeast								
Any method	55.9	74.2	81.2	84.4	90.8	80.1	65.5	79.6
Pill	42.9	51.0	55.3	57.4	58.8	46.6	38.7	52.5
Condom	5.5	15.4	15.4	10.9	10.3	9.2	4.2	11.5
Vaginal methods	0.0	0.6	0.6	1.8	0.8	2.6	0.0	1.1
Injectables	14.9	20.4	27.2	20.7	20.7	15.1	8.7	20.2
IUD	0.0	13.5	18.3	22.7	27.4	21.0	17.9	19.5
Female sterilization	0.0	8.7	17.7	25.2	31.8	27.3	17.8	20.4
Male sterilization	1.5	1.0	2.3	6.7	7.9	9.4	3.8	4.8
Abortion	0.0	4.2	3.1	3.9	4.3	4.9	1.6	5.6
Rhythm	8.1	9.3	8.4	6.7	7.9	8.1	2.3	7.5
Withdrawal	8.2	8.8	7.4	4.2	4.5	3.7	0.6	5.5
Other	0.0	0.0	0.6	0.7	0.8	0.0	1.8	0.6
South								
Any method	47.3	65.9	71.6	69.4	74.2	58.9	51.9	66.9
Pill	25.3	48.4	42.7	34.4	37.2	23.3	28.6	37.2
Condom	10.0	10.4	15.5	14.6	17.7	8.2	2.2	12.9
Vaginal methods	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0
Injectables	5.4	19.0	20.2	19.4	15.2	5.3	4.4	15.7
IUD	0.9	2.9	6.3	5.8	8.4	6.4	2.6	5.5
Female sterilization	0.0	6.1	9.1	24.5	21.6	27.7	17.6	16.1
Male sterilization	0.0	0.0	0.6	3.5	9.6	4.1	2.0	5.0
Abortion	0.0	2.4	2.4	0.2	0.9	0.6	0.7	1.3
Rhythm	6.7	7.4	12.3	9.5	8.3	11.5	2.6	9.3
Withdrawal	7.1	11.4	17.8	15.6	16.1	8.1	3.5	15.5
Other	4.3	2.6	1.2	5.3	2.8	2.3	4.0	5.0

TABLE J1: WEIGHTED PERCENT EVER-USING A CONTRACEPTIVE METHOD AMONG CURRENTLY MARRIED WOMEN AGED 15-49 BY AGE AND RURAL-URBAN RESIDENCE

Age	National	Rural	Urban		
			Total	Bangkok	Provincial
15 - 19	62.4	61.7	67.4	78.5	55.9
20 - 24	80.1	79.0	86.1	88.9	81.3
25 - 29	85.3	84.6	88.5	88.1	89.1
30 - 34	87.4	86.5	91.2	94.8	85.1
35 - 39	89.6	89.6	89.7	88.1	92.2
40 - 44	82.4	82.9	79.5	77.2	82.3
45 - 49	71.4	68.4	89.1	88.8	89.6
Total	83.3	82.4	87.5	88.7	85.8

TABLE J2: WEIGHTED PERCENT EVER-USING A CONTRACEPTIVE METHOD AMONG CURRENTLY MARRIED WOMEN AGED 15-49 BY AGE AND REGION OF RESIDENCE

Age	Central		North	Northeast	South
	With Bangkok	Without Bangkok			
15 - 19	72.6	70.6	69.3	57.9	48.3
20 - 24	85.0	82.8	89.4	74.1	66.8
25 - 29	90.4	91.8	90.1	82.3	72.9
30 - 34	93.2	92.3	92.4	85.1	69.1
35 - 39	92.0	93.8	89.9	92.8	75.1
40 - 44	84.3	86.7	91.2	83.1	61.1
45 - 49	80.3	77.7	70.0	67.5	52.8
Total	88.3	88.1	88.5	81.0	67.8

TABLE J3: WEIGHTED PERCENT EVER-USING A CONTRACEPTIVE METHOD AMONG CURRENTLY MARRIED WOMEN AGED 15-49 BY AGE, NUMBER OF YEARS OF SCHOOLING AND RURAL-URBAN RESIDENCE

Age	National			Rural			Urban		
	Less than 4 yrs.	4 yrs.	5 or more yrs.	Less than 4 yrs.	4 yrs.	5 or more yrs.	Less than 4 yrs.	4 yrs.	5 or more yrs.
15 - 19	19.6	65.3	64.8	18.9	65.2	64.0	100.0	65.5	68.4
20 - 24	76.5	79.9	81.6	74.9	79.2	80.0	95.6	87.9	84.4
25 - 29	75.3	85.2	90.9	72.9	85.1	90.5	88.9	86.0	91.4
30 - 34	80.0	88.6	85.6	76.9	88.3	79.9	99.3	90.1	91.4
35 - 39	81.2	90.4	93.6	82.2	90.6	91.4	76.1	88.9	96.4
40 - 44	78.0	83.3	86.2	78.6	83.5	96.8	72.7	81.9	78.4
45 - 49	71.4	70.9	78.3	68.8	68.4	62.1	84.7	90.4	93.5
Total	75.9	84.2	84.7	74.6	83.8	81.8	84.6	87.1	88.7

TABLE K1: WEIGHTED PERCENT CURRENTLY USING A CONTRACEPTIVE METHOD AMONG CURRENTLY MARRIED WOMEN AGED 15-49 BY AGE AND RURAL-URBAN RESIDENCE

Age	National	Rural	Urban		
			Total	Bangkok	Provincial
15 - 19	39.5	39.5	39.5	45.4	33.3
20 - 24	54.4	53.2	61.6	60.4	63.6
25 - 29	63.4	62.7	66.3	71.9	58.3
30 - 34	71.9	71.0	75.9	80.4	68.5
35 - 39	73.8	73.8	74.0	74.9	72.6
40 - 44	64.2	63.1	70.3	69.2	71.8
45 - 49	47.0	44.3	62.8	68.2	55.5
Total	63.2	62.1	68.6	71.6	64.0

TABLE K2: WEIGHTED PERCENT CURRENTLY USING A CONTRACEPTIVE METHOD AMONG CURRENTLY MARRIED WOMEN AGED 15-49 BY AGE AND REGION OF RESIDENCE

Age	Central		North	Northeast	South
	With Bangkok	Without Bangkok			
15 - 19	48.2	49.1	44.9	35.0	29.2
20 - 24	58.6	57.6	64.1	46.5	46.7
25 - 29	69.3	67.8	70.1	58.7	49.8
30 - 34	76.7	74.7	79.5	68.4	55.0
35 - 39	77.0	77.9	77.5	74.5	58.3
40 - 44	67.0	66.2	72.3	63.4	46.4
45 - 49	57.0	53.7	42.6	42.0	34.3
Total	68.7	67.2	69.6	59.3	49.5

TABLE K3: WEIGHTED PERCENT CURRENTLY USING A CONTRACEPTIVE METHOD AMONG CURRENTLY MARRIED WOMEN AGED 15-49 BY AGE, NUMBER OF YEARS OF SCHOOLING AND RURAL-URBAN RESIDENCE

Age	National			Rural			Urban		
	Less than 4 yrs.	4 yrs.	5 or more yrs.	Less than 4 yrs.	4 yrs.	5 or more yrs.	Less than 4 yrs.	4 yrs.	5 or more yrs.
15 - 19	19.6	40.4	41.0	18.9	39.6	42.7	100.0	48.4	33.2
20 - 24	49.1	54.5	55.7	47.2	53.7	53.6	73.2	63.6	59.8
25 - 29	49.3	63.6	70.0	46.1	63.5	71.0	66.8	64.2	68.8
30 - 34	62.3	73.6	68.6	57.3	73.7	60.8	94.6	73.3	76.7
35 - 39	65.6	74.6	77.2	63.4	74.8	79.8	76.1	73.5	74.2
40 - 44	58.6	64.9	74.6	57.5	63.8	84.1	66.9	72.6	67.5
45 - 49	42.6	47.8	60.9	40.6	45.8	40.4	52.4	63.2	79.9
Total	54.0	64.6	64.1	51.5	64.0	61.2	70.0	68.7	68.1

TABLE L1: DISTRIBUTION OF CURRENTLY MARRIED USERS AGED 15-49 BY AGE AND METHOD CURRENTLY USED

Age	Pill	Condom	IUD	Ligation	Vasectomy	Injections	Other
15 - 19	62.6	4.7	0.5	1.6	1.8	17.8	11.0
20 -24	45.6	4.2	7.8	18.5	1.3	19.2	3.4
25 - 29	36.4	3.4	8.2	30.1	4.2	14.2	3.5
30 - 34	24.7	2.7	8.2	42.2	8.8	9.3	4.1
35 - 39	21.9	2.4	6.3	48.3	10.2	7.9	3.0
40 - 44	20.8	0.3	8.7	48.0	10.2	7.4	4.6
45 - 49	20.3	1.7	12.1	43.5	12.9	6.6	2.9

TABLE M1: DATA FOR FIGURE 7.1 ON BREASTFEEDING

Months since last birth	Whole kingdom	Rural	Urban
0	.9315	.9501	.8450
1	.9060	.9344	.7749
2	.8628	.9112	.6410
3	.8344	.8932	.5660
4	.8106	.8758	.5144
5	.7982	.8666	.4875
6	.7893	.8599	.4691
7	.7676	.8418	.4312
8	.7564	.8340	.4043
9	.7382	.8168	.3810
10	.7076	.7843	.3589
11	.6913	.7684	.3405
12	.6772	.7545	.3257
13	.6307	.7052	.2918
14	.6129	.6845	.2875
15	.5679	.6363	.2564
16	.5381	.6044	.2560
17	.5173	.5815	.2250
18	.4855	.5449	.2149
19	.3992	.4547	.1469
20	.3795	.4311	.1447
21	.3588	.4067	.1416
22	.3442	.3910	.1315
23	.3367	.3819	.1515
24	.3340	.3788	.1308
30	.2023	.2252	.0977
36	.1342	.1554	.0443

TABLE N1: DATA FOR FIGURE 7.2 ON POSTPARTUM AMENORRHEA

Months since last birth	Whole kingdom	Rural	Urban
0	1.0000	1.0000	1.0000
1	.9957	.9963	.9927
2	.8372	.8701	.6881
3	.7198	.7748	.4716
4	.6000	.6611	.3251
5	.5403	.6004	.2704
6	.4820	.5388	.2271
7	.4184	.4675	.1979
8	.3763	.4205	.1779
9	.3331	.3733	.1523
10	.2973	.3341	.1314
11	.2811	.3164	.1224
12	.2665	.2998	.1160
15	.1279	.1449	.0510
18	.0850	.0948	.0415
21	.0472	.0519	.0271
24	.0434	.0473	.0271

TABLE O1: DATA USED IN AGE STANDARDIZATION PROCEDURES BASED ON 1970 CENSUS

Age	Number of women in 1,000's	
	Ever married*	Currently married**
15 - 19	358	332
20 - 24	845	790
25 - 29	965	907
30 - 34	990	925
35 - 39	907	832
40 - 44	737	649
45 - 49	579	479

* Women with unknown marital status were distributed proportionately between ever married women and single women.

** Women of unknown marital status were distributed proportionately among all marital statuses including single; ever married women of unknown marital status were distributed proportionately among marital statuses of ever married women.

TABLE P1: ESTIMATES OF PROPORTIONS EVER MARRIED FOR USE IN THE CALCULATION OF AGE SPECIFIC FERTILITY RATES FOR WHOLE KINGDOM FROM CPS2 AND CPS3

	Census results		Projected estimates*		
	4/1970	4/1980	9/1980	3/1983	9/1983
15 - 19	.190	.167	.166	.160	.159
20 - 24	.621	.565	.562	.548	.545
25 - 29	.844	.791	.788	.775	.772
30 - 34	.919	.882	.880	.871	.869
35 - 39	.948	.927	.926	.921	.920
40 - 44	.961	.947	.946	.943	.942
45 - 49	.970	.959	.958	.959	.955

* Projected estimates are based on linear extrapolation of the trend evident between the 1970 and 1980 censuses and serve as the basis for converting age specific fertility rates for ever married women to age specific fertility rates for all women. The latter rates serve as the basis for calculating total fertility rates. The 9/1980 estimates are used for the 12 month period preceding CPS2, the 3/1983 estimates for the 24 month period preceding CPS3 and the 9/1983 estimates for the 12 month period preceding CPS3.

TABLE P2: ESTIMATES OF PROPORTIONS EVER MARRIED FOR USE IN THE CALCULATION OF REGIONAL AGE SPECIFIC FERTILITY RATES FROM CPS3

Region and age	Census results		Projected estimates*	
	4/1970	4/1980	3/1983	9/1983
Bangkok				
15 - 19	.099	.093	.091	.091
20 - 24	.379	.337	.324	.322
25 - 29	.674	.594	.570	.566
30 - 34	.827	.749	.726	.722
35 - 39	.895	.846	.831	.829
40 - 44	.925	.893	.883	.882
45 - 49	.943	.919	.912	.911
Central				
15 - 19	.158	.148	.145	.145
20 - 24	.552	.517	.507	.505
25 - 29	.805	.748	.737	.728
30 - 34	.895	.849	.835	.833
35 - 39	.930	.903	.895	.894
40 - 44	.949	.928	.922	.921
45 - 49	.960	.942	.937	.936
North				
15 - 19	.218	.195	.188	.187
20 - 24	.686	.629	.612	.609
25 - 29	.889	.840	.825	.823
30 - 34	.946	.911	.901	.899
35 - 39	.963	.945	.940	.939
40 - 44	.970	.962	.960	.959
45 - 49	.975	.970	.969	.968

TABLE P2: CONTINUED

Region and age	Census results		Projected estimates*	
	4/1970	4/1980	3/1983	9/1983
Northeast				
15 - 19	.198	.179	.173	.172
20 - 24	.690	.651	.639	.637
25 - 29	.884	.868	.863	.862
30 - 34	.939	.928	.925	.924
35 - 39	.957	.951	.949	.949
40 - 44	.967	.962	.961	.960
45 - 49	.974	.969	.969	.967
South				
15 - 19	.258	.198	.180	.177
20 - 24	.661	.604	.587	.584
25 - 29	.870	.827	.814	.812
30 - 34	.940	.911	.902	.901
35 - 39	.964	.951	.947	.946
40 - 44	.977	.967	.964	.964
45 - 49	.985	.975	.972	.972

* Projected estimates are based on linear extrapolation of the trend evident between the 1970 and 1980 censuses and serve as the basis for converting age specific fertility rates for ever married women to age specific fertility rates for all women. The latter rates serve as the basis for calculating total fertility rates. The 3/1983 estimates are used for the 24 month period preceding CPS3 and the 9/1983 estimates are use for the 12 month period preceding CPS3.

APPENDIX B
THAILAND CPS 3 QUESTIONNAIRE

INDIVIDUAL QUESTIONNAIRE

SECTION I BACKGROUND CHARACTERISTICS

101. It is very important in this study to know your exact age. How old were you on your last birthday?

		YEARS
--	--	-------

102. In what month and year were you born?

MONTH _____ YEAR 19

AFTER EXAMINING THE RESPONSES IN Q.101 AND 102 CAREFULLY AND PROBING AS NEEDED, ENTER THE RESPONDENT'S AGE BELOW. ESTIMATE THE RESPONDENT'S AGE IF IT CANNOT BE DETERMINED BY PROBING.

AGE

 YEARS

103. What is your religion?

1. Buddhist
2. Islam
3. Christian
4. Other.....
(specify)

104. What is your marital status? Are you currently married, widowed, divorced, separated or single?

1. Married Husband present
2. Married Husband not present (away for one month or more)
3. Separated
4. Divorced
5. Widowed

105. How old were you when you first married? (entered a conjugal union)

		YEARS
--	--	-------

In what month and year when you first married?

MONTH _____ YEAR 19

IF RESPONDENT IS SINGLE OR OVER 49 YEARS TERMINATE INTERVIEW. THANK RESPONDENT FOR HER TIME AND FOLLOW INSTRUCTIONS FOR SELECTING THE NEXT RESPONDENT.

106. Have you ever attended school?

1. Yes
2. No---(SKIP TO Q.108)

107. What is the highest grade you passed at school or college?

CIRCLE LEVEL AND GRADE

Level	GRADE
1. Elementary	0 1 2 3 4 5 6 7
2. Secondary	1 2 3 4 5 6
3. College	1 2 3 4 5 6 7 8 9
4. Other	
(specify)	

108. What is your occupation?

1. Farming
 2. Animal husbandry and/or fishing
 3. Professional
 4. Government worker
 5. Business (employed)
 - 6 Trade
 7. Business (self-employed)
 8. Skilled and semi-skilled labour
 9. Unskilled labour
 10. Housewife
 11. Student
 12. Other.....
- (Specify)

109. Normally, when a member of your household gets sick, where do you seek care?

1. Tambol Health Center
 2. Bangkok Metropolitan Health Center
 3. District Health Center
 4. District Hospital
 - 5 Provincial Hospital (Government)
 6. Other Government Hospital
 7. Private Hospital
 8. Private doctor or clinic
 9. Tambol paramedic
 10. Traditional practitioner
 11. Drugstore
 12. Village health volunteer, village health communicator
 13. Medication from other sources (not drugstore)
 14. Self-medicated/no treatment
 15. Army volunteer
 16. Office welfare
 17. MCH Center
 18. Other.....
- (specify)

SECTION II FERTILITY

201. Are you pregnant now?

1. Yes
2. No
3. Don't know/not sure

202. Have you ever been pregnant before?

1. Yes
2. No --- (SKIP TO Q. 225)

203. If yes, what was the outcome of the last pregnancy?

1. Miscarriage
2. Abortion
3. Still birth (probe were there any sign of life?)
4. Live birth (enter 1 in Q.204 then proceed to Q.205)

204. Have you ever had a live birth?

1. Yes
2. No --- (SKIP TO Q.225)

205. How many of your children are living with you now?

NUMBER

206. How many of your children are not living with you now?

NUMBER

207. How many of your children died? (count the live birth child even it lived a short time and died)

NUMBER

208. How many of your living children are boys and how many are girls?

GIRLS

BOYS

SUM THE NUMBER OF BOYS AND GIRLS AND MAKE SURE THAT IT AGREES WITH THE TOTAL NUMBER OF LIVING CHILDREN IN Q.205 AND Q.206.

209. When did you have your last live birth? Please give me the date.

DATE.....

MONTH.....

YEAR 19.....

210. What was the type of birth?

- 1. Single
- 2. Twin
- 3. Triplet

211. Is the child (of the last live birth) still alive?

- 1. Yes (in case of single or twin) - - - (SKIP TO Q.213)
- 2. No (in case of single or twin)
- 3. One alive (in case of twin or triplet)
- 4. Two alive (in case of triplet)

212. If not, what was the age at death?

Hours, if less than 24 hours

Days, if less than 30 days

Months, if more than 30 days

(In case of twin or triplet and more than one child died, the age at death here is that of the one who died the latest)

213. Were you pregnant before the pregnancy of the last live birth?

- 1. Yes
- 2. No.....(SKIP TO Q.219)

214. If yes, what was the outcome of the pregnancy?

- 1. Miscarriage
 - 2. Abortion
 - 3. Still birth
 - 4. Live birth
- } _____ (SKIP TO Q.219)
(Probe were there any sign of life?)

215. If the outcome was a live birth, what was the date of birth?

DATE.....

MONTH.....

YEAR 19.....

216. What was the type of birth?

- 1. Single
- 2. Twin
- 3. Triplet

217. Is the child still alive?

- 1. Yes (in case of single or twin) - - - (SKIP TO Q.219)
- 2. No (in case of single or twin)
- 3. One alive (in case of twin or triplet)
- 4. Two alive (in case of triplet)

218. If no, what was the age at death?

Hours, if less than 24 hours

Days, if less than 30 days

Months, if more than 30 days

219. Did you become pregnant since the last live birth?

1. Yes--(SKIP TO Q.225)

(Be sure to check for consistency with Q.201)

2. Yes, pregnancy terminated

3. No--(SKIP TO Q 225)

220. If pregnancy terminated, ask what was the outcome?

1. Miscarriage

2. Abortion

3. Still birth

4. Live birth

(SKIP TO Q.225)

(probe were there any sign of life?)

221. If the outcome was a live birth what was the date of birth?

DATE.

MONTH.

YEAR 19.

222. What was the type of birth?

1. Single

2. Twin

3. Triplet

223. Is the child still alive?

1. Yes (in case of single or twin) --(SKIP TO Q. 225)

2. No (in case of single or twin)

3. One alive (in case of twin or triplet)

4. Two alive (in case of triplet)

224. If not, what was the age at death?

Hours, if less than 24 hours

Days, if less than 30 days

Months, if more than 30 days

225. Do you want to have any (more) children in the future (in addition to the one you are expecting)?

1. Yes

2. No

3. Don't know/not sure

(SKIP TO Q.228)

226. (If yes) How many (more) children do you want to have in the future?

NUMBER

227. If it were entirely up to you, when would you prefer to have your next (first) child?

1. As soon as possible
2. Within six months
3. Within one year
4. Within two years
5. More than two years
6. Whenever it happens/when God wants
7. Depend on economic situation
8. Other (specify)
9. Don't know/not sure

228. Before you become pregnant the last time, did you want to have more children?

1. Yes
2. No
3. Never pregnant
4. Indifference
5. Don't know/not sure

IF RESPONDENT HAS NEVER BEEN PREGNANT BEFORE ENTER 3 IN Q.228.

229. If you could have had exactly the number of children you wanted, how many would you have had?

NUMBER

230. As far as you know, is it physically possible for you and your spouse to have a child in the future if you decide to have one?

1. Yes
2. No
3. Not applicable (because of marital status)
4. Don't know/not sure

SECTION III BREASTFEEDING

IF THE LAST LIVE BIRTH OCCURED BEFORE 15 APRIL 1980 OR THE RESPONDENT DID NOT HAVE ANY LIVE BIRTH, SKIP THIS SET OF QUESTIONS.

301. Did you breastfeed your youngest child?

1. Yes
2. No--(SKIP TO Q.304)

302. Are you still breastfeeding?

1. Yes--(SKIP TO Q.304)
2. No

303. Exactly how old was the child when you stopped breastfeeding?

DAYS

WEEKS

MONTHS

YEARS

304. Did you ever feed you child powdered or canned milk?

1. Yes, fed with powdered milk, or whole milk or soybean milk
2. Yes, fed with condensed milk or ovaltine
3. Combination of 1 & 2
4. Neither one--(SKIP TO Q.306)

305. Exactly how old was your child when you first fed it powdered or canned milk?

DAYS

WEEKS

MONTHS

YEARS

306. Have you ever fed your child other food than milk?

1. Yes
2. No
3. Don't know (SKIP TO Q.309)

307. Exactly how old was your child when you first fed it non-milk food?

DAYS

WEEKS

MONTHS

YEARS

308. What kind of non-milk food did you first feed the child? (Check 2 choices that are mentioned)

- 1. Bananas (alone)
- 2. Other fruit (alone)
- 3. Rice with broth
- 4. Rice and egg
- 5. Rice and banana
- 6. Baby food
- 7. Rice with other
- 8. Noodle
- 9. Other.....
(specify)

309. Has menstruation returned since your last birth?

- 1. Yes
- 2. No-- (SKIP TO SECTION IV)
- 3. Currently pregnant

310. Exactly how many months after your last birth did you experience the return of menses?

MONTHS

SECTION IV FAMILY PLANNING

401. Now let us talk about family planning. There are various ways a couple can delay the next pregnancy or avoid having children if they do not want them. Do you know or have you heard of any such methods?

1. Yes
2. No—(SKIP TO Q.403)

RECORD RESPONSES TO Q.402-404 IN TABLE I BELOW.

402. What family planning methods do you know? (PROBE: Any Other?)

CIRCLE CODE 1 (YES) IN COLUMN A FOR EACH METHOD THE RESPONDENT MENTIONS.

403. FOR EACH METHOD NOT CIRCLED IN COLUMN A ASK: Just to be sure have you ever heard of ?
(Method)

CIRCLE RESPONSE IN COLUMN B

IF RESPONDENT DOES NOT KNOW ANY METHOD (NO "YES" CODES CIRCLED IN COLUMN A OR B) CIRCLE 90 IN COLUMN D

404. FOR EACH METHOD CIRCLED "YES" IN COLUMN A OR COLUMN B ASK:
Have you (*has your spouse) ever used ?
(Method)

CIRCLE RESPONSE IN COLUMN C

TABLE I

	A KNOWLEDGE (UNPROMPTED) Q. 402	B KNOWLEDGE (PROMPTED) Q. 403	C EVER USE Q. 404	D CURRENT USE Q. 406 OR Q. 407
Pill	1 Yes	3 Yes 2 No	3 Yes 2 No	01 Pill
*Condom	1 Yes	3 Yes 2 No	3 Yes 2 No	02 Condom
Vaginal Methods	1 Yes	3 Yes 2 No	3 Yes 2 No	03 Vaginal Methods
Injections	1 Yes	3 Yes 2 No	3 Yes 2 No	04 Injections
I.U.D.	1 Yes	3 Yes 2 No	3 Yes 2 No	05 I.U.D.
Female Sterilization	1 Yes	3 Yes 2 No	3 Yes 2 No	06 Female Sterilization
*Male Sterili- zation	1 Yes	3 Yes 2 No	3 Yes 2 No	07 Male Steri- lization
Induced Abortion	1 Yes	3 Yes 2 No	3 Yes 2 No	08 Abortion
Rhythm	1 Yes	3 Yes 2 No	3 Yes 2 No	09 Rhythm
Withdrawal	1 Yes	3 Yes 2 No	3 Yes 2 No	10 Withdrawal
Other..... (Specify)	1 Yes		3 Yes 2 No	11-Other.... (specify)
				90 Not Using

* Refer to method used by husband

Vaginal methods refer to foam, jelly, diaphragm, suppository and sponge.

405. Are you or your spouse currently using some family planning method or doing something to avoid a pregnancy?

1. Yes--(SKIP TO Q.407)
2. No

406. Have you or your spouse used any method in the last month?

1. Yes
2. No (CIRCLE CODE 90, NOT USING, IN COLUMN

D

 AND SKIP TO Q. 412A)

407. What is (was) that method?

METHOD.....

408. IF THE RESPONDENT IS USING EITHER FEMALE OR MALE STERILIZATION, ASK:
How old were you when you had the sterilization?

YEARS

409. Have you had any problems or difficulties with your present method?

1. Yes
2. No--(SKIP TO Q.411)

410. If yes, what problems did you have? (Allow two responses)

1. Medical problems
2. Visual problems
3. Headaches/dizzy
4. Anxiety/nervousness/loss of sleep
5. Health problems (in general) e.g. fatigue, loss of weight
6. Emotional problems
7. Mental problems
8. Fear of abnormalities and fear of illness, e.g. cancer
9. Husband doesn't like it
10. Abnormalities in sex drive
11. Inconvenient to get
12. Inconvenient to use
13. Price too expensive
14. Method failure or ineffective
15. Other

(specify)

411. Counting from the start, how long have you been using your present method (without interruption this time)?

WEEKS

MONTHS

YEARS

412A. Family planning status of respondent

Currently using

1. Single method (SKIP TO Q.413)

2. Switching method (GO TO Q.412B)

Currently not using

3. Never use (SKIP TO Q. 416)

4. Stop using now (GO TO Q.412B)

CODE FOR THE LAST METHOD USED OF 2 AND 4 IN Q.412A

1. Pill	2. Condom	3. Vaginal method
4. Injections	5. I.U.D.	6. Induced abortion
7. Rhythm	8. Withdrawal	9. Other..... (specify)

412B Why have you stopped using it? (The method mentions in Q.412A)

- 1. Pregnant/postpartum/post abortion
- 2. Doctor's recommendation
- 3. Thought of being subfecund or infecund
- 4. Hysterectomy
- 5. Illness
- 6. Side effect
- 7. Husband dislike, husband doesn't allow
- 8. Friends and/or relatives recommend against
- 9. Sexually inactive
- 10. Couple residentially separated
- 11. Divorced or widowed
- 12. Desire pregnancy
- 13. Inconvenient to use
- 14. Dislike old method
- 15. Supplies run out
- 16. Forget to use
- 17. Can't afford
- 18. Other (specify).....
- 19. Fear of illness
- 20. I.U.D. loose
- 99 No reason

413. How many (living) children did you have at the time you started to practice family planning?

NUMBER

(For those who do not have any children record 00)

414. How old were you when you first started to practice family planning?

YEARS

415 Did you consider using it mainly for spacing or for regulating number of births?

1. Spacing
2. Regulating size

IF THE FIRST METHOD USED IS EITHER FEMALE OR MALE STERILIZATION ENTER 2 IN Q.415

Q. 416-417 FOR NEVER USERS

416. What is the main reason that you are not using any family planning method?

1. Pregnant/postpartum/post abortion
2. Doctor's recommendation
3. Infecund
4. Subfecund
5. Hysterectomy
6. Menopause
7. Fear of health effects/side effect
8. Husband forbid, husband doesn't allow
9. Friends and/or relatives recommend against
10. Sexually inactive
11. Couple residentially separated
12. Divorced or widowed --(SKIP TO Q.418)
13. Desire pregnancy
14. Inconvenient to get (does not like the service provider)
15. Cannot afford for the cost involved
16. Religious taboo (belief)
17. Other.
(specify)

417. Any of the following reasons? (Mentioning all reasons below not answered in Q.416)

	Yes	No	NA
Fear of health effects/side effect	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
Husband does not allow	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
Friends and/or relatives recommend against	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
Desire pregnancy	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
Inconvenient to get (does not like the service provider)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
Cannot afford for the cost involved	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
Religious taboo (belief)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3

418. Do you believe that deliberately spacing your births to allow more time between them is against your religion, consistent with it, or unrelated?
1. Against
 2. Consistent
 3. Unrelated
 4. Other.....
(specify)

419. Do you believe that deliberately limiting the number of children you have is against your religion, consistent with it, or unrelated?
1. Against
 2. Consistent
 3. Unrelated
 4. Other.....
(specify)

420. (FOR EVERY METHOD KNOWN ASK) Do you believe your religion is against, consistent with, or unrelated to the following methods of controlling birth?

Method known	1 Against	2 Consistent	3 Unrelated	4 Other (Specify)
Pill	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-----
Condom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-----
Injection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-----
I U.D.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-----
Female sterilization	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-----
Male sterilization	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-----
Withdrawal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-----
*Norplant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-----

NOTE *This method has only been recently introduced, respondent will be asked even she does not know it.

SECTION V AVAILABILITY

501.

CHECK THE USE STATUS OF RESPONDENT

1. Current user of any method between 1-8 (see below)
(continue to Q.502)
2. Not currently using method 1-8 but previously used method 1-8 (continue to Q. 502 but ask about previous use of method 1-8)
3. Never used methods 1-8 (Skip to Q. 510)

The interviewer should circle the method that the respondent is either currently using or had previously used.

1. Pill
 2. Condom
 3. Vaginal methods
 4. Injections
 5. I.U.D.
 6. Female Sterilization
 7. Male Sterilization
 8. Abortion
 9. Rhythm.
 10. Withdrawal.
 11. Other.
 12. Not using.
- } (SKIP TO Q. 510)

502. Now I would like to ask you some questions about the source of your method. From where do (did) you (your spouse) get (Method)?

1. Tambol Health Center
2. District Health Center
3. District Hospital
4. Provincial Hospital (Government)
5. Private Hospital
6. Private Clinic
7. Drugstore (general)
8. Tambol Paramedic
9. Bangkok Metropolitan Health Center.
10. MCH Center
11. PDA Office or Clinic
12. Meechai Volunteer/Meechai drugstore
13. Local practitioner/Quack
14. Mobile unit (government)
15. Mobile unit (private)
16. Army Medical Corps
17. Army health volunteer

- 18. Village health volunteer/Village health communicator
- 19. Granny midwife
- 20. Other government hospital
- 21. Other (specify).....
- 22. Office welfare
- 99. Don't know, can't remember

503. How much time does it take to get from your home to this place?.

HOURS MINUTES

504. How did you get to the source?

- 1. Walk.
- 2. Private vehicle
- 3. Public vehicle
- 4. Walk and public vehicle
- 5. Can't remember
- 6. Receive home service

505. Did you find the service at the source convenient?

- 1. Very convenient
- 2. Convenient
- 3. O.K.
- 4. Inconvenient
- 5. Very inconvenient
- 6. Don't know

506. How much does the service cost?

BAHT

507. Is it expensive or not?

- 1. Too expensive
- 2. Not expensive---(SKIP TO Q.509)

508. If too expensive, what is you recommended price?

BAHT

509. Suppose if we were going to improve the quality of services at the source you went to, what improvement we should first consider?

- 1. Increase choices of methods
- 2. Increase or alter the office hours or frequency of services
- 3. Personnel should be more friendly or courteous
- 4. Increase number of staff
- 5. Personnel should be working more efficiently
- 6. Service should be more speedy so that family,planning acceptors do not have to waste too much time in waiting
- 7. Office should be staffed with personnel of higher qualification or more experiences
- 8. Providing home visit service

9. Improve public relation program
 10. Increase supplies to ensure that acceptors can always obtain the methods they are using
 11. Providing free service or lowering the cost
 12. Improve the appearance or cleanliness of the office
 13. Treating all acceptors more equally, no discrimination
 14. Relocating the outlet to a new site where it is closer to the community or to the majority of potential acceptors
 15. Other (specify).
 98. Good enough
 99. Don't know/not sure
510. Suppose if you have to use a method (or another method for those who are using non-medical methods, e.g. rhythm, withdrawal) what method would you want to use?
01. Pill
 02. Condom
 03. Vaginal methods
 04. Injections
 05. I.U.D.
 06. Female sterilization
 07. Male sterilization
 08. Induced abortion
 09. Norplant
 10. Other (specify).
 98. Not going to use any method
 99. Don't know/not sure
511. Suppose if you were to consider going to practice family planning what source would you go to?
01. Tambol Health Center
 02. District Health Center
 03. District Hospital
 04. Provincial Hospital (Government)
 05. Private Hospital
 06. Private Clinic
 07. Drugstore
 08. Tambol Paramedic
 09. Bangkok Metropolitan Health Center
 10. MCH Center
 11. PDA Office or Clinic
 12. Meechai Volunteer/Meechai Drugstore
 13. Local Practitioner/Quack
 14. Mobile Unit (Government)
 15. Mobile Unit (Private)
 16. Army Medical Corps
 17. Army Health Volunteer
 18. Village Health Volunteer/Village Health Communicator
 19. Granny Midwife
 20. Other (specify).
 21. Other Government Hospital
 22. Don't know/not sure

THAILAND CPS III VILLAGE LEVEL DATA

In order to assess some of the environmental characteristics associated with contraceptive usage, and to better ascertain contraceptive availability, several questions on community characteristics are to be asked. These questions will be administered by the supervisors and will be asked of a knowledgeable respondent, usually the village head-man, or collected from administrative records. The questions are as follows:

1. How far away is the village from the district center?
(measured distance by road)

Kms

Mts

2. What is the condition of the route from the village to the district center?
1. Have to go all the way through canal
 2. Have to go in part through canal and the rest through laterite road
 3. Have to go in part through canal and the rest through asphalt road
 4. Laterite road all the way to the district center
 5. Laterite road from the village to the main road (where it becomes asphalt)
 6. Asphalt road all the way to the district center
3. Is the village electrified?
1. Yes
 2. No

4. If yes, how long has the village become electrified?

YEARS

5. What is the population size of the village?

PERSONS

6. What is the number of households in the village?

HOUSEHOLDS

7. Is this village a new or an old village?

1. New
2. Old--(SKIP TO Q.9)

8. If it is new, was it separated from an old village or was it newly formed out of growing population?

1. Separated
2. Newly formed

9. In any event, how long has this village been legally formed and recognized as a village? .

YEARS

10. What kind of schools are there in this village? (enter highest level available)

1. No school--(SKIP TO Q.12)
2. Primary
3. Secondary
4. Other.
(Specify)

11. How long ago was the school recorded in question number 10 established?

YEARS

12. Sources of contraceptive outlets which are located in this village, number of years operated and distance of the one nearest to the village (if not in the village).

Name of sources	Answer		Number of Years operated	Distance to the village of the one nearest (unit in 100 meters)
	1 (Yes)	2 (No)		
1. District Hospital	1	2	<input type="text"/>	<input type="text"/>
2. District Health Center	1	2	<input type="text"/>	<input type="text"/>
3. Tambol Health Center	1	2	<input type="text"/>	<input type="text"/>
4. Midwifery Center	1	2	<input type="text"/>	<input type="text"/>
5. Private Clinic	1	2	<input type="text"/>	<input type="text"/>
6. Drugstore	1	2	<input type="text"/>	<input type="text"/>
7. Health Volunteer, Health Communicator	1	2	<input type="text"/>	<input type="text"/>
8. Meechai Volunteer/ Meechai Drugstore	1	2	<input type="text"/>	<input type="text"/>
9. Local Practitioner	1	2	<input type="text"/>	<input type="text"/>
10. Tambol Paramedic	1	2	<input type="text"/>	<input type="text"/>
11. Army Health Volunteer	1	2	<input type="text"/>	<input type="text"/>

Q.13, 14, 15, 16 FOR SOUTHERN REGION ONLY

13. Origin and religion of the chief person responsible for each family planning outlet located in the village, and origin and religion of the majority of the auxiliary staff.

	Source	Origin of chief person	Religion of chief person	Origin of the majority of auxiliary staff	Religion of the majority of the auxiliary staff
1.	District Hospital	1 2 3 4 5 6	1 2 3	1 2 3 4 5 6 7	1 2 3 4
2.	District Health Center	1 2 3 4 5 6	1 2 3	1 2 3 4 5 6 7	1 2 3 4
3.	Tambol Health Center	1 2 3 4 5 6	1 2 3	1 2 3 4 5 6 7	1 2 3 4
4.	Midwifery Center	1 2 3 4 5 6	1 2 3	1 2 3 4 5 6 7	1 2 3 4
5.	Private Clinic	1 2 3 4 5 6	1 2 3	1 2 3 4 5 6 7	1 2 3 4
6.	Drugstore	1 2 3 4 5 6	1 2 3	1 2 3 4 5 6 7	1 2 3 4
7.	Health Volunteer, Health Communicator	1 2 3 4 5 6	1 2 3	1 2 3 4 5 6 7	1 2 3 4
8.	Meechai Volunteer/ Meechai Drugstore	1 2 3 4 5 6	1 2 3	1 2 3 4 5 6 7	1 2 3 4
9.	Local Practitioner	1 2 3 4 5 6	1 2 3	1 2 3 4 5 6 7	1 2 3 4
10.	Tambol Paramedic	1 2 3 4 5 6	1 2 3	1 2 3 4 5 6 7	1 2 3 4
11.	Army Health Volunteer	1 2 3 4 5 6	1 2 3	1 2 3 4 5 6 7	1 2 3 4

The codes for origin are:

1. The same village 2. The same tambol (different village) 3. The same district (different tambol) 4. The same province (different district) 5. The same region (different province) 6. Different region 7. Not applicable because the outlet is run by one person

The codes for religion are:

1. Buddhist 2. Moslem 3. Other 4. Not applicable because the source run by one person

14. What percent of the population of this village is Moslem?

MOSLEM

15. What is the language that most people use at home?

- 1. Yawee
- 2. Southern dialect
- 3. Yawee and southern dialect
- 4. Other,
(specify)

16. Are there any of the followings in this village?

Buddhist temple

- 1. Yes, temple
- 2. No

Mosque

- 1. Yes, mosque
- 2. No

Moslem school

- 1. Yes, Moslem school
- 2. No

17. For each source available in the village ask the chief personnel for suggestions in making the program more receptive to the villagers?

1. District Hospital

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2. District Health Center

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3. Tambol Health Center

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4. Midwifery Center

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5. Private Clinic

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6. Drugstore

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7. Health Volunteer, Health Communicator

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8. Meechai Volunteer/Meechai Drugstore

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9. Local Practitioner

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10. Tambol Paramedic

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11. Army Health Volunteer

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APPENDIX C
SCHEDULE OF SURVEY OPERATIONS

SCHEDULE OF PROJECT ACTIVITIES, 1984-85

Month and week Activity	Feb.1984	Mar.1984	Apr.1984	May 1984	June1984	July1984	Aug.1984	Sept.1984	Oct.1984	Nov.1984	Dec.1984	Jan.1985	Feb.1985	Mar.1985	Apr.1985
	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Planning	****														
Recruitment and training		****	*												
Pretesting and testing analysis		**	**												
Field work Preparation		**	***												
Data-collection (Listing & interviewing)			**	****	****	***									
Data punching and verify					****	****	*								
Data processing							***	****	****	****	****				
Analysis and report writing										*	****	****	****	****	****

APPENDIX D
SAMPLE DESIGN AND ESTIMATION OF
PARAMETERS

SAMPLE DESIGN

The third round of Thailand National Contraceptive Prevalence Survey (CPS3) is similar in nature to that of the previous two rounds in terms of the sample design. In the third round of survey, however, more emphasis is on the predominant muslim population. A special sample of 317 respondents is drawn from two predominant muslim provinces in the south, namely Satun and Yala. The sampling procedure adopted for CPS3 may be called multi-stage sampling with probability proportional to size. The sample is drawn in five stages as follows:

In the first stage of sampling, a sample of 27 provinces is drawn by stratified sampling using probability proportional to size, the size being the number of eligible women 15-49 years of age. The 73 provinces in the Kingdom are first stratified into 5 geographical regions, namely the north, the northeast, the central plain, the south, and the Bangkok Metropolis. Five provinces are drawn with pps and with replacement from each region except in the central region where 9 provinces are selected and 7 provinces from the south. Bangkok is automatically included in the sample as it is a stratum by itself.

In the second stage of sampling, two districts are drawn with probability proportional to size and with replacement from each province selected in the first stage. For Bangkok all 24 districts are included in the second stage.

In the third stage, two subdistricts (Tambol) are chosen with probability proportional to size from each district drawn in the second stage of sampling. In Bangkok, a total of 51 subdistricts (Kwang) are

drawn from 24 districts. In other provinces, a number of municipal areas is also drawn.

In the fourth stage, two villages (Muban) are selected with probability proportional to size from each subdistrict already drawn in the third stage. In Bangkok and municipal areas census blocks are drawn randomly from each third stage unit drawn in the third stage.

In the final stage of sampling, a random sample of women 15 to 49 years of age is drawn from each village or block that has been selected in the fourth stage. The number of respondents drawn from the villages in rural area is proportional to the size (number of eligible women in the village). From the urban sample (blocks) a random sample of eligible women is drawn.

To obtain the regional estimates of the parameters of interest we use the following notation. The national estimates are obtained from the regional ones by addition.

Let N_h be the number of provinces existed in region h , $h = 1, 2, 3, 4, 5$, from which we select n_h provinces using probability proportional to size.

Let M_{hi} be the number of districts in province i , region h , $i = 1, 2, \dots, N_h$ and we let m_{hi} be the number of districts chosen from the province selected on the i^{th} drawn from region h , $i = 1, 2, \dots, n_h$.

Similarly, let Q_{hij} , T_{hijk} , and U_{hijks} be the number of subdistricts, villages and eligible women respectively in the appropriate sampling units. Let q_{hij} , t_{hijk} , and u_{hijks} be the corresponding

The sampling plan for CPS3 is given in summary form in the table below.

SAMPLING PLAN FOR CPS3

Stage of sampling	Unit	No. in universe	No. in sample	Selection method	Selection probability
1	province	N_h	n_h	ppswr	$\pi_{hi} = z_{hi}/Z_h$
2	district	M_{hi}	m_{hi}	ppswr	$\pi_{hij} = w_{hij}/W_{hi}$
3	subdistrict or municipality	Q_{hij}	q_{hij}	ppswr	$\pi_{hijk} = v_{hijk}/V_{hij}$
4	village or blocks	T_{hijk}	t_{hijk}	ppswr	$\pi_{hijks} = x_{hijks}/X_{hijk}$
5	respondent	U_{hijks}	u_{hijks}	srs	$\frac{1}{U_{hijks}}$

ESTIMATION OF UNIVERSE TOTAL

Let y be the variable of interest. The population value of this variable from appropriate sampling units will be denoted by capital letter. For example, Y_{hijksw} is the value of y from the w^{th} ultimate unit (eligible woman) in the s^{th} village, k^{th} subdistrict, j^{th} district, i^{th} province in region h . The sample value will be denoted by lower case letter. Hence,

y_{hijksw} is the sample value of the variable y measured from the w^{th} respondent sampled from village s , subdistrict k , district j , and province i drawn from region h , $w = 1, 2, \dots, u_{hijks}$; $s = 1, 2, \dots, t_{hijk}$; $k = 1, 2, \dots, q_{hij}$; $j = 1, 2, \dots, m_{hi}$; $i = 1, 2, \dots, n_h$; $h = 1, 2, \dots, L$.

The estimate of the total of the variable y for region h (Y_h) is given by

$$y_h^* = \sum_{i=1}^{n_h} y_{hi}^* / n_h \quad n_h \quad \dots \dots \dots (1)$$

where

$$y_{hi}^* = \sum_{j=1}^{m_{hi}} y_{hij}^* / m_{hi} \quad m_{hi} \quad \dots \dots \dots (2)$$

$$y_{hij}^* = \sum_{k=1}^{q_{hij}} y_{hijk}^* / q_{hij} \quad q_{hij} \quad \dots \dots \dots (3)$$

$$y_{hijk}^* = \sum_{s=1}^{t_{hijk}} y_{hijks}^* / t_{hijk} \quad t_{hijk} \quad \dots \dots \dots (4)$$

$$y_{hijks}^* = \sum_{w=1}^{u_{hijks}} y_{hijksw}^* / u_{hijks} \quad u_{hijks} \quad \dots \dots \dots (5)$$

So

$$y_h^* = \frac{1}{n_h} \sum_{i=1}^{n_h} \frac{1}{m_{hi}} \sum_{j=1}^{m_{hi}} \frac{1}{q_{hij}} \sum_{k=1}^{q_{hij}} \frac{1}{t_{hijk}} \sum_{s=1}^{t_{hijk}} \frac{u_{hijks}}{u_{hijks}} \sum_{w=1}^{u_{hijks}} y_{hijksw} \quad \dots \dots \dots (6)$$

is the regional estimate of the total of y (i. e., Y_h) for region h ,
 $h = 1, 2, \dots, L$.

In the above notation,

$$Z_h = \sum_{i=1}^{N_h} z_{hi}, \quad W_{hi} = \sum_{j=1}^{M_{hi}} w_{hij},$$

$$V_{hij} = \sum_{k=1}^{Q_{hij}} v_{hijk}, \quad X_{hijk} = \sum_{s=1}^{T_{hijk}} x_{hijks}$$

are the measures of sizes of appropriate sampling units.

The estimation of the total value of the variable of interest may be undertaken in two parts, one from the rural sample and another from the urban sample. The results then should be combined to yield the final estimate. If we let y_{1h}^* be the estimate of the total in rural area and y_{2h}^* the other in urban area, then the estimate of the grand total for region h is

$$y_h^* = y_{1h}^* + y_{2h}^* \dots \dots \dots (7)$$

An unbiased variance estimator of y_h^* is given by

$$s_{y_h^*}^2 = \frac{n_h}{\sum_{i=1}^{n_h} \frac{(y_{hi}^* - y_h^*)^2}{n_h}} / (n_h - 1) \dots \dots \dots (8)$$

For the whole Kingdom, an unbiased estimator of the total Y is

$$\hat{Y} = \sum_{h=1}^L y_h^* \dots \dots \dots (9)$$

with an unbiased variance estimate

$$s_{\hat{y}}^2 = \sum_{h=1}^L \frac{s_{y_h^*}^2}{y_h^*} \dots\dots\dots(10)$$

The relative standard error of y_h^* may be computed from

$$c.v. (y_h^*) = \frac{s_{y_h^*}}{y_h^*} \dots\dots\dots(11)$$

and that of \hat{Y} from

$$c.v. (\hat{Y}) = \frac{s_{\hat{Y}}}{\hat{Y}} \dots\dots\dots(12)$$

ESTIMATION OF THE UNIVERSE MEAN

In this round of survey, it is assumed that the number of eligible women in various areas are known. In other words, the values of $Z_h, W_{hi}, V_{hij}, X_{hijk}$ as well as x_{hijks} are assumed known. These variables are in fact the U_{hijks} and u_{hijks} as mentioned in the sampling plan. So the total number of eligible women in region h, U_h , is assumed known.

$$U_h = \sum_{i=1}^{N_h} \sum_{j=1}^{M_{hi}} \sum_{k=1}^{Q_{hij}} \sum_{s=1}^{T_{hijk}} U_{hijks} \dots\dots\dots(13)$$

If we are interested in the mean value of the variable y per eligible woman, then we may apply the usual estimate from the estimate of the total.

An unbiased estimate of the mean per eligible woman in region h is

$$\bar{y}_h = \frac{y_h^*}{U_h} \dots\dots\dots(14)$$

with variance estimate

$$s_{\bar{y}_h}^2 = \frac{s_{y_h^*}^2}{U_h^2} \dots\dots\dots(15)$$

The combined estimate of the mean per eligible woman for the whole Kingdom is given by

$$\hat{\bar{Y}} = \frac{\hat{Y}}{U} \dots\dots\dots(16)$$

where $U = \sum_{h=1}^L U_h \dots\dots\dots(17)$

or $\hat{\bar{Y}} = \sum_{h=1}^L \frac{U_h}{U} \bar{y}_h \dots\dots\dots(18)$

or $\hat{\bar{Y}} = \sum_{h=1}^L y_h^*/U \dots\dots\dots(19)$

An estimate of the variance of $\hat{\bar{Y}}$ is

$$s_{\hat{\bar{Y}}}^2 = s_{\hat{Y}}^2/U^2 \dots\dots\dots(20)$$

or $s_{\hat{\bar{Y}}}^2 = \sum_{h=1}^L \frac{s_{y_h^*}^2}{U^2} \dots\dots\dots(21)$

The relative standard error of $\hat{\bar{Y}}$ is

$$c.v. (\hat{\bar{Y}}) = \frac{s_{\hat{\bar{Y}}}}{\hat{\bar{Y}}} \dots\dots\dots(22)$$

which is actually the same as c.v. (\hat{Y}) as given in (12)

ESTIMATION OF PROPORTION

In some situation, we may be interested in estimating the proportion of eligible women belonging to a certain class, for example, the proportion of eligible women under contraceptive use, or the percentage of women in a region or in the whole Kingdom under pill, sterilization, IUD.

Let $Y_{hijklsw}$ equal to 1 if the w^{th} eligible woman in the s^{th} village, k^{th} subdistrict, j^{th} district, province i in region h possesses a certain attribute, or 0 otherwise. Let $y_{hijklsw}$ be the corresponding sample value. Then the proportion of eligible women in region h possessing the characteristic of interest is

$$P_h = Y_h / U_h \dots\dots\dots(23)$$

where

$$Y_h = \sum_{i=1}^{N_h} \sum_{j=1}^{M_{hi}} \sum_{k=1}^{Q_{hij}} \sum_{s=1}^{T_{hijk}} \sum_{w=1}^{U_{hijks}} y_{hijklsw} \dots\dots\dots(24)$$

and U_h is as given in (13).

The proportion of women in the Kingdom with the attribute is

$$P = Y / U \dots\dots\dots(25)$$

The regional estimate of P_h is given by

$$P_h = y_h^* / U_h \dots\dots\dots(26)$$

Alternatively, a consistent but biased estimate of P_h is given

by

$$p_h^* = y_h^*/u_h^* \dots\dots\dots(27)$$

where u_h^* is an unbiased estimate of U_h

$$u_h^* = \frac{n_h}{\sum_{i=1}^{n_h} u_{hi}^*/n_h} \mathbb{1}_{hi} \dots\dots\dots(28)$$

$$u_{hi}^* = \frac{m_{hi}}{\sum_{j=1}^{m_{hi}} u_{hij}^*/m_{hi}} \mathbb{1}_{hij} \dots\dots\dots(29)$$

$$u_{hij}^* = \frac{q_{hij}}{\sum_{k=1}^{q_{hij}} u_{hijk}^*/q_{hij}} \mathbb{1}_{hijk} \dots\dots\dots(30)$$

$$u_{hijk}^* = \frac{t_{hijk}}{\sum_{s=1}^{t_{hijk}} u_{hijks}^*/t_{hijk}} \mathbb{1}_{hijks} \dots\dots\dots(31)$$

The estimate of the universe proportion P is

$$p = \hat{Y}/U \dots\dots\dots(32)$$

or alternatively the ratio estimate of P is

$$p^* = \hat{Y}/u^* \dots\dots\dots(33)$$

where $u^* = \sum_{h=1}^L u_h^* \dots\dots\dots(34)$

An unbiased estimate of the variance of p_h is

$$s_{p_h}^2 = \frac{s_{y_h^*}^2}{U_h^2} \dots\dots\dots(35)$$

A biased estimate of the variance of p_h^* is

$$s_{p_h^*}^2 = \frac{s_{y_h}^2 + p_h^* s_{u_h^*}^2 - 2 p_h^* s_{hyu}}{u_h^{*2}} \dots\dots\dots(36)$$

where $s_{u_h^*}^2 = \frac{\sum_{i=1}^{n_h} (u_{hi}^* - u_h^*)^2 / n_h}{n_h - 1} \dots\dots\dots(37)$

and $s_{hyu} = \frac{\sum_{i=1}^{n_h} (y_{hi}^* - y_h^*) (u_{hi}^* - u_h^*) / n_h}{n_h - 1} \dots\dots\dots(38)$

Also, the variance estimate of p is

$$s_p^2 = \frac{s_{\hat{y}}^2}{U^2} \dots\dots\dots(39)$$

and that of p^* is

$$s_{p^*}^2 = \frac{s_{\hat{y}}^2 + p^{*2} s_{u^*}^2 - 2 p^* s_{\hat{y}u^*}}{u^{*2}} \dots\dots\dots(40)$$

with $s_{u^*}^2 = \sum_{h=1}^L s_{u_h^*}^2 \dots\dots\dots(41)$

$$s_{\hat{y}u^*} = \sum_{h=1}^L \sum_{i=1}^{n_h} (y_{hi}^* - y_h^*) (u_{hi}^* - u_h^*) / n_h (n_h - 1) \dots\dots\dots(42)$$

The coefficients of variation of these estimates then may be computed.

CONTRACEPTIVE USE

AND

FERTILITY IN THAILAND:

RESULTS FROM THE 1984 CONTRACEPTIVE PREVALENCE SURVEY
