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AN APPROACH TO THE MEASUREMENT OF AVAILABILITY  
OF FAMILY PLANNING SERVICES

BY

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# AN APPROACH TO THE MEASUREMENT OF AVAILABILITY OF FAMILY PLANNING SERVICES\*

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## I. INTRODUCTION

In the 1950's and 1960's rapid population growth was recognized as a major inhibitor to improvements in the quality of life. Increased sensitivity to population problems brought greater interest in fertility reduction through socioeconomic development and through the introduction of family planning programs. These family planning programs were intended to make contraception widely available to those couples desiring to limit their fertility. Political sensitivity to the issue of family planning, the lack of adequate methods of contraception, and a lack of local infrastructures capable of delivering family planning services restricted availability. As a result there was limited use of contraception, relatively small declines in fertility, and population pressures continued to increase in developing countries.

The 1970's brought a new day for these family planning programs. Continued international support for family planning efforts, greater sensitivity to population issues in developing countries, the development of local capability in program management, and the steadily increasing pressures of rapid population growth helped increase demand for contraception. Previously, a large proportion of developing country residents had virtually no access to service or supplies. However, program improvements initiated during the late sixties resulted in rural residents finding government family planning workers offering contraceptives on a door-to-door basis, the establishment of maternal and child health services (including family planning) in their village, and a general social atmosphere more conducive to limiting fertility through the use of contraception.

Changes in the status of contraceptive usage which have occurred in the past several years have often been studied, using the relationship between contraceptive usage and fertility as the major research focus. While this approach is useful and important for understanding the dynamics of fertility change, it is often quite removed from the day-to-day implementation and operation of a national family planning program. Recently, the World Fertility Surveys (WFS) have increased interest in operations-oriented research which have important program management benefits.

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One management issue which had been inadequately evaluated was the question of the availability of contraceptive services and supply. Many national family planning programs have emphasized service delivery systems. The approaches have varied across countries and within countries. However, little evaluation of the impact of varying delivery systems and their effects on family planning usage had been attempted (Mauldin and Berelson, 1978) until the WFS began to measure contraceptive availability on a nationwide basis (Rodriguez, 1978). From these efforts a survey project has grown which is designed to focus intensively on issues directly related to program management, decision-making, and provision of services. This project, funded by the U.S. Agency for International Development through Westinghouse Health Systems is called the Contraceptive Prevalence Studies Project.

### Introduction to CPS Project

Although prevalence surveys share common features with KAP (Knowledge, Attitude, Practice) surveys and the WFS project, their focus is on repetitive, rapid estimates of national prevalence and family planning program information. This generated interest in repetitive, rapid, national prevalence surveys specifically intended to gather family planning program management information. In order to encourage the use of high quality survey data in population planning programs in developing nations, Westinghouse Health Systems was awarded a contract to design and disseminate the appropriate survey methodology, while providing technical and financial assistance to those programs desiring to implement a Contraceptive Prevalence Survey (CPS).

The primary objectives of the CPS project are to:

- determine periodically the contraceptive use rates in each selected country,
- examine differentials in contraceptive usage in order to assess the impact of various types of governmental and non-governmental family planning programs,
- identify factors which facilitate or hinder contraceptive prevalence as a part of regular management information system in each country,
- facilitate the dissemination of survey findings in each country and to other interested individuals and organizations.

While the objectives listed above cover a multitude of areas, the major and consistent objective of the project is the improvement of national family planning programs through the provision of accurate and timely information.

## II. ISSUES IN THE CONCEPTUALIZATION OF AVAILABILITY

Many national family planning programs have put considerable effort into making family planning as readily available as possible. The magnitude of these program efforts are usually measured in terms of funding levels and the number of field workers in place, family planning centers, clinics and other facilities (both built and planned), and outlets for non-clinical methods. All of these indicators measure national program inputs. However the CPS offers the unique opportunity to examine contraceptive availability among the general population for which the services are targeted. Past efforts to measure availability among the intended recipients have generally restricted their attention to contraceptive users or users of specific methods from selected sources (follow-up surveys). As a result, the first contraceptive prevalence surveys have had to do a considerable amount of experimentation in measurement techniques and data utility.

Availability in this paper is defined in terms of effective knowledge of a source of family planning services (i.e., whether couples have sufficient knowledge of a source to obtain contraception if they so desire) and proximity to that source (i.e., travel time, travel mode and convenience). Availability is the only aspect of general accessibility which will be covered in this paper. Accessibility to family services also includes other factors such as costs, quality of services, availability of medical personnel, facility operating procedures, adequacy of supplies, motivation and instruction by family planning workers, and other factors which may influence access to contraception but which are not a function of proximity to service outlets. Most of these accessibility factors are not presently measured by the CPS.

Since the measurement of contraceptive availability has only recently become a major research interest, some of the difficulties in conceptualizing availability are becoming apparent only now. Also, the data collection system, in this case surveys of women at risk of pregnancy, generates its own conceptual problems. While there are several issues involved in the measurement of availability, only the two most relevant for understanding availability in the context of a Prevalence Survey are discussed in the following sections.

### Perceived Availability Versus Actual Availability

One of the most important issues in using a CPS to measure availability is the difference between perceived and actual availability. By definition a survey interviewing women can only record the respondents perceptions of the proximity or the availability of family planning services. However, in most cases perceived availability should not be construed as actual availability. Perceived availability is influenced by the awareness of family planning

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services among eligible couples, as well as their perceived estimate of access to these services. The level of perceived availability can be influenced by actual availability, education and information programs, and the actual utilization of services. Actual availability, on the other hand, is defined as the number and location of services and supply sources; it is often a function of decisions concerning resource allocation within the public and private sectors.

Perceived availability as measured in CPS has analytical value in that it provides an operational measure of availability. While the measure has value in its own right, its utility is augmented significantly by comparative analysis with actual levels of availability. However, a problem arises when perceived availability data are analyzed without some estimate of actual levels of availability, because there is no scale against which to compare the variations in levels of perceived availability. If respondents indicate that contraceptives are not available and if there is no adequate information on actual availability, it is impossible to determine if knowledge levels are low because perceptions are wrong and family planning services are available or because the services do not, in fact, exist. Without some understanding of the service infrastructure, it is difficult to evaluate the impact of such factors as communications systems, informational programs, cultural values and other factors which may influence a couple's estimate of their proximity to family planning services.

The analytical benefits of comparisons between actual and perceived availability measures are not difficult to understand. The question is what types of actual source data are compatible with the perceived source data as collected by CPS. A simple solution to this problem is to use a surrogate measure of actual availability which is already collected by the CPS.

This measure is the availability experience of current users of specific methods. It can be assumed that current users, because of their method experience, motivation, and use of sources, reflect a fairly accurate picture of actual method availability. While user availability data has some response bias, it is the most efficient way of estimating actual levels of availability in the context of an ongoing survey operation. Also, because the data collection process is the same for actual (users) and perceived (non-users) availability, comparative analysis of the two measures is possible.

There are, of course, more direct methods of measuring contraceptive availability. These include special surveys of contraceptive sources within a specific service area, or an inventory based on responses of users and non-users which is then verified in the field. These source listings can then be used to calculate various measures of availability. Such approaches are extremely complicated and also

possess some methodological problems. The advantages and disadvantages of these approaches will be discussed further in the final section of this paper.

#### Availability and Family Planning Methods

Any effort to understand the nature of contraceptive availability must take into account the various methods of family planning. Each method has a specific demand function and different distributional requirements. As a consequence, each method or group of methods must be examined separately to understand the precise nature of contraceptive availability. In the following discussion three of the major confounding influences of specific family planning methods on availability are outlined.

Availability and Demand--By analyzing each method separately, the researcher can control some of the bias introduced by the demand function. Certain methods, like sterilization and the IUD, offer greater protection for a longer duration with less effort and so are in demand among couples who wish to terminate their childbearing. By definition these methods would be popular among older, higher parity couples. Methods like the pill and the condom which require frequent resupply would be more popular among younger couples interested in spacing or delaying pregnancies. The variations in demand for family planning methods are a function of various socioeconomic and demographic factors which can also influence availability or perceptions of availability (i.e., urban/rural residence or educational level).

Availability and Distribution Systems--Examining the availability of each individual family planning method also allows the researcher to control for variations caused by the distribution systems relevant to each method. For example, a program which stresses clinical methods must consider the availability of those methods as a function of the coverage of the medical infrastructure. Programs which stress non-clinical methods can improve availability levels through the utilization of relatively untrained field workers and indigenous commercial distribution networks. These programs may increase method availability but may also reduce the quality of service and, concomitantly, lower demand for or interest in the methods provided. To evaluate the success or failure of a program's efforts to modify levels of availability, one must examine the method mix offered by the program and its distributional characteristics.

Availability and Perception--Each method of family planning has not only a unique pattern of actual availability, but also a specific set of perceptions held by the population of that method's availability. Attitudes towards cost, travel time, and quality of service differ between methods which require frequent service and those requiring infrequent service. As a consequence, what is

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perceived to be an acceptable level of availability for one method may not be tolerable for users of another. In other words, one hour of travel time to obtain a sterilization may be "convenient for most users," while few women would expend such an effort to periodically replenish a supply method.

### III. MEASUREMENT OF AVAILABILITY (CPS APPROACH)

The previous section has dealt with two of the conceptual problems of collecting contraceptive availability data through a prevalence survey of women in the fertile ages. This section reviews the specific methodological approach used by the CPS.

The collection of contraceptive availability data is difficult under the best of circumstances. The researcher often must extrapolate actual values from perceived values. Quantitative values must be attached to variables which are only perceived in qualitative terms. Information is collected on issues about which the respondent may never have consciously thought. Also, the researcher may be examining general relationships which are not operative in all country situations.

Because of these problems, the study of contraceptive availability, as with most social science research endeavors, is still in the developmental stages. Considerable testing of the techniques used in the CPS, refinements of analytical approaches, new data collection procedures, and the utilization of additional data bases are required to more clearly understand the exact role of the availability of contraception in producing fertility declines in developing countries.

#### Knowledge of a Source

The single most important and least complicated measure of a couple's access to contraceptive services or supplies is their knowledge of a specific source. Since source knowledge is an obvious precondition to the acquisition and utilization of contraception, this measure is basic to the understanding of availability. In the CPS the respondent is asked if she knows each of 11 contraceptive methods. Whenever the respondent does not indicate any knowledge of a method, she is prompted on her knowledge of that method. Each respondent with knowledge of a specific modern method is then asked if she or her spouse knew where to get that method. This information is collected for the following methods: Pill, Condom, IUD, Female Sterilization, Male Sterilization and Abortion.

When a respondent indicates that she knows a specific method and knows a source for that method, she is also asked what specific source she would use if she wished to adopt that method of

contraception. This question is used to ascertain the source that the respondent believes she would use. It is not necessarily the nearest source, the most "convenient" source, the most economical source, or the source best able to provide the method.

The question used in CPS differs from that used by the WFS in their initial availability module. The WFS asked women who knew where to get a specific method to name the nearest outlet where they could obtain that method. The field teams then verified the existence of this outlet and measured the approximate distance between the respondent and the outlet. In his analysis of the Panama and Indian data, Rodriguez found that ". . . a simple comparison between perceived and true nearest outlet is of limited interest unless distance is taken into account. Even then, the results may be of questionable value unless a notion of convenience is considered as well" (Rodriguez, 1978:14).

The CPS subsequently modified this question to overcome two major problems with the collection of nearest source data. The first factor which led to changing the approach was that, when actual sources were catalogued, the nearest source was found to be "in fact the nearest one in only 42% of the cases in India and 53% in Panama" (Rodriguez, 1978:14). The second major reason for discarding the nearest source approach in favor of the source the respondent would use is that the latter question more effectively considers personal preference or convenience. Rodriguez also believes this to be an important variable in the selection of a method source:

For the pill many women often buy them in any convenient pharmacy, not necessarily the one nearest home; others can get them free at a more distant outlet. For the condom, it is the husband who usually buys them. For female sterilization many discrepancies arise because of the long interval between the operation and the interview: many respondents have moved or the pattern availability had changed in the interval; other discrepancies resulted from preferences for an outlet because their own doctor is there, or because that is where they delivered their children (Rodriguez, 1978:14).

As with every measure of availability, there are certain methodological problems associated with asking the source of the contraceptive services or supplies that the respondent would use. First, this question fails to explain why one source is preferred over another without extensive probing, which is inconsistent with the design goals of CPS. Another problem is the inability of the respondent to identify sources for methods that she would not consider using (i.e., asking sterilization recipients their preferred source for the pill).

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### Method of Transport to Source

Another difficulty in assessing the availability of contraception is finding an appropriate quantitative measure of proximity to services or supplies. The most logical measure is the distance from the respondent's residence to the specified source. However, distance variables are difficult to construct. In many countries, few respondents can accurately and consistently estimate the distance between their residence and the source. The WFS found that only 32 percent of the respondents in Turkey, India and Panama were able to quantitatively estimate the distance to source, even after probing. Levels of distance knowledge also vary according to urban/rural residence. Even when distance estimates are offered, they are frequently inaccurate when tested against the actual distance between residence and stated contraceptive source. In other cases, responses are given in terms of the time required to make the trip rather than as an estimate of the actual distance to be covered. The tremendous variation in distances reported, the inconsistency of responses, and the problems in data entry and processing raise serious questions about the utility of perceived distance responses in analyzing variations in the availability of contraception (Rodriguez, 1978:54).

The WFS experimented with means of transport to the stated source and travel time required to reach that source (see next section). Because of the WFS's relatively greater success with these measures, the CPS has used them as surrogate measures of proximity (rather than actual distance). The CPS asked respondents who knew the method and a specific source how they would travel to that source. The means of transport variable usually classifies respondents into two groups: those who would walk and those who would require transportation to reach a contraceptive supply source. These two classifications allow further refinement of travel time as a measure of proximity to contraceptive supplies and services.

The means of transport as measured by both the CPS and WFS, however, does have some methodological problems. In order to simplify survey operations, precoded responses were used whenever possible. In some cases the classifications included walking, personal transport (usually bicycles), and public transport. No effort, however, has been made to test the differences in respondent attitudes towards different means of transport requiring the same amount of time (walking and "riding" transport). Also, the impact of various transport costs on respondent attitudes is not measured.

Another problem with using means of transport as a variable is that the degree to which multiple means of transport are utilized to reach the source is unknown. A woman could walk one hour to the bus station, take a two-hour bus ride into the city, and take a taxi to the hospital where she would receive a sterilization. CPS field teams, when encountering a multiple means of transport response, were

instructed to ask the means of transport used for the largest part of the total trip. The confounding influence of multiple means of transport on travel time and on the perceived convenience of a source are unknown at this time.

#### Travel Time to Source

Estimates of travel time between residence and the source of contraceptive supplies or services can provide a relative measure of the actual distance between the two points. When controlled by the means of transport, time provides another summary measure of the relative availability of each contraceptive method. Travel time allows the analyst to estimate a "range" (the distance women are willing to travel to obtain a particular method) for several different family planning methods.

The CPS and WFS used the same questions to collect information on travel time to contraceptive sources: "how long would it take you to get to (stated source)?" Unlike the distance measures, a high degree of awareness of travel time was found by both the WFS and CPS.

Travel time to source is a much more functional device for measuring the proximity of family planning services and supplies than distance because of the consistency of response, simplicity of entry, and relatively higher levels of accuracy. This measure, however, is not without methodological problems. The responses to the travel time questions tend to be heavily heaped. Responses generally fall at five minute intervals up to one-half hour, with greater travel times having larger intervals between preferred responses. Precoding of responses to the travel time question makes data collection easier, but it further exacerbates the problem of response heaping and may, unless the intervals are carefully tested, make it difficult for the analyst to calculate any realistic summary measures. Another problem with travel time is the accuracy of responses. While accuracy for this question is considerably greater than responses for questions on distance between points, there is still some variation in reporting the time required to travel from one point to another. The travel time to a source of contraceptive services or supplies appears to be the most reliable measure of proximity. When combined with means of transport, the quality of this measure is improved somewhat (Rodriguez, 1978:54).

#### Convenience of Stated Source

A continuing and significant problem in the analysis of contraceptive availability is the difference between availability as measured by time, means of transport, etc. and the respondent's perception of these factors as limiters of availability. These problems

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arise because externally derived measures may not reflect the actual situation of a couple seeking to limit family size through the use of contraception. A researcher working with aggregated data may decide that three hours of travel time required to acquire pills means that that method is not operationally available. However, at a more individual and pragmatic level the woman who travels three hours to sell produce in the market and incidentally receives her monthly pill cycle, or the woman who must travel five hours for any incidentals, may disagree with the researcher's definition of non-availability. The problem of artificial definitions of availability is further confounded since perceptions of availability may vary tremendously among different sociodemographic subgroups of the population.

In an effort to allow the respondent to establish her own range of method availability, some Prevalence Surveys have asked if she felt that the stated source was convenient or inconvenient. This question was intended to measure what the respondent perceived as the threshold travel time, at which a specific method source became "inconvenient." While this question is clearly subjective, a careful analysis of the results may aid in the identification of culturally acceptable levels of travel effort.

Considerable further analysis is required to more effectively establish whether questions on convenience of a stated source have any relevance. In most countries this question has resulted in very high rates of perceived convenience for all contraceptive sources.

### IV. ILLUSTRATIVE ANALYSIS

In the preceding sections the conceptual, definitional, and measurement aspects of contraceptive availability have been discussed. In this section an illustrative analysis of some analytic approaches to availability is presented, using CPS data from Costa Rica and Thailand. Three approaches to the data sets are used. First, we examine the availability variables controlling for current use and non-use of contraception. This allows us to compare "actual" availability with the perceived availability of non-users. The second approach divides the non-user population into several sub-populations. These individual subgroups are compared to determine if any differences between them exist. The third approach uses the more traditional sociodemographic variables to examine variations in contraceptive availability. These three analytical approaches represent the major research issues in the analysis of availability, these being: the difference between perceived and actual availability, the association between contraceptive use and availability, and finally the relationship between sociodemographic variables and levels of availability.

Definitions of and differences between actual and perceived availability were presented earlier. A surrogate measure of actual availability, the availability of current users, is compared to the perceived availability for those not using any method in Tables 1-8.

Tables 1 and 2 provide information on levels of knowledge of a source for all women surveyed and for all non-users. In both Thailand and Costa Rica, method knowledge is close to universal. Knowledge of a source of at least one modern method (pills) is also quite high. For other methods, knowledge of a source is somewhat lower. If the women knew the method, they generally knew a source for that method. This is especially true for female associated methods (with the exception of abortion). In neither Thailand nor Costa Rica were there large differences in the levels of source knowledge between non-users and the general population (of which they are part).

Table 3 and 4 examine differences in the travel mode utilized to acquire a specific method. As can be seen, in both Thailand and Costa Rica there is very little difference in the means of transport used by contraceptive users and that which would be used by non-users. If a source within walking distance is considered more accessible to a respondent, then most non-users are as close--if not closer--to a source of supply than users.

Tables 5 and 6 present the mean and median travel time to a source. Again we find for both countries relatively small differences in travel time between contraceptive method users and non-users. The differences in travel mode for clinical and non-clinical methods nevertheless show some interesting variations when travel time is considered. In Thailand there is a significant increase in mean travel time for clinical methods. However, in Costa Rica the difference between clinical and non-clinical methods is not as large. Also, in both countries there does not seem to be a consistent pattern of differences between times reported for users and non-users. Neither group reports consistently higher or lower travel times for all methods.

The perceptions of method source convenience, for users and non-users, is found in Tables 7 and 8. In Thailand levels of perceived convenience are uniformly high for all methods. Given the travel mode and travel time required for clinical methods, the fact that there was no difference in the perceived level of convenience suggests that the fewer number of trips required for clinical methods may compensate for the increased effort necessary to travel the greater distances to clinical sources. In Costa Rica levels of perceived convenience are somewhat lower than those found in Thailand. This suggests that there may be some room for improvements in the method distribution system of Costa Rica. In both Thailand and Costa Rica there is little difference between the perceived convenience of method sources for users and non-users.

**TABLE 1 - THAILAND: PERCENT OF ALL CURRENTLY MARRIED WOMEN - METHOD KNOWLEDGE AND KNOWLEDGE OF A SOURCE BY SPECIFIC METHOD**

Method	ALL MARRIED WOMEN (N=2774)		MARRIED NON-USERS OF ANY METHOD (N=1350)	
	Know a Method All Married Women%	Knowledge of a Source All Married (All Married Women who Women%) Knew Method %	Knowledge of a Source All Married (All Married Non-Users Who Non-Users%) Knew Method%	
Pill	99	94 (92)	93	(90)
Condom	83	61 (50)	56	(44)
IUD	93	80 (75)	76	(69)
F. Steri.	96	89 (85)	84	(79)
Vasectomy	87	69 (57)	66	(55)
Abortion	63	38 (24)	-	-

Source: Thailand CPS, 1978  
- Not Available

TABLE 2 - COSTA RICA: PERCENT OF ALL CURRENTLY MARRIED WOMEN - METHOD KNOWLEDGE AND KNOWLEDGE OF A SOURCE BY SPECIFIC METHOD

	ALL MARRIED WOMEN (N=1930)		MARRIED NON-USERS OF ANY METHOD (N=694)	
	Know a Method All Married Women%	Knowledge of a Source For Those Who Know Method%	Knowledge of a Source For Those Who Know Method%	(For All Married Women%) (All Married Non-Users%)
Pill	98	88	83	(79)
Condom	88	78	71	(56)
IUD	85	67	62	(48)
F. Steri.	71	76	68	(42)
Vasectomy	46	56	49	(18)
Abortion	65	6	10	( 6)

Source: Costa Rica CPS, 1978

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**TABLE 3 - THAILAND: PERCENT OF ALL CURRENTLY MARRIED WOMEN (USERS AND NON-USERS) KNOWING A SOURCE - TRAVEL MODE BY SPECIFIC METHOD**

Method	All Married Women			Married Users of Each Method			Married Non-Users Of Any Method	
	%Walk	%Ride		%Walk	%Ride		%Walk	%Ride
Pill (2568)	47	53	Pill (575)	51	49	Pill (1218)	46	54
Condom (1364)	45	55	Condom (57)	44	56	Condom (587)	44	55
IUD (2069)	7	93	IUD (114)	5	95	IUD (927)	7	93
F. Steri. (2384)	3	97	F. Steri. (376)	4	96	F. Steri. (1067)	2	98
Vasectomy (1585)	9	91	Vasectomy (101)	7	93	Vasectomy (736)	7	93
Abortion (628)	14	86	Abortion	-	-	Abortion (309)	14	86

Source: Thailand CPS, 1978

- Not Available

TABLE 4 - COSTA RICA: PERCENT OF ALL CURRENTLY MARRIED WOMEN (USERS AND NON-USERS) KNOWING A SOURCE - TRAVEL MODE BY SPECIFIC METHOD

Method	All Married Women		Method	Married Users of Each Method		Method	Married Non-Users Of Any Method	
	%Walk	%Ride		%Walk	%Ride		%Walk	%Ride
Pill (1660)	36	64	Pill (447)	37	63	Pill (547)	36	64
Condom (1305)	38	62	Condom (171)	39	61	Condom (391)	37	63
IUD (1092)	30	70	IUD (90)	22	78	IUD (330)	31	69
F. Steri. (1041)	16	84	F. Steri. (275)	7	93	F. Steri. (292)	17	83
Vasectomy (494)	17	83	Vasectomy (15)	*	*	Vasectomy (128)	20	80
Abortion (100)	12	88	Abortion	-	-	Abortion	*	*

Source: Costa Rica CPS, 1978

\* Less than 30 cases

- Not Available

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**TABLE 5 - THAILAND: ALL CURRENTLY MARRIED WOMEN (USERS AND NON-USERS) WHO KNOW A SOURCE - PERCEIVED MEAN AND MEDIAN TRAVEL TIMES TO METHOD SOURCE (MINUTES) BY SPECIFIC METHOD.**

<u>Method</u>	<u>All Married Women</u>			<u>Married Users of Each Method</u>			<u>Married Non-Users of Any Method</u>	
	Mean	Median		Mean	Median		Mean	Median
Pill (2494)	22.9	14.7	Pill (568)	21.0	13.6	Pill (1176)	24.3	16.7
Condom (1321)	22.4	14.0	Condom (56)	26.3	19.9	Condom (554)	23.4	14.5
IUD (1969)	42.9	45.7	IUD (107)	50.4	60.9	IUD (873)	44.6	48.3
F. Steri. (2264)	46.9	51.7	F. Steri. (359)	45.5	49.5	F. Steri. (1012)	48.6	54.3
Vasectomy (1611)	41.3	42.6	Vasectomy (99)	45.0	49.7	Vasectomy (706)	42.1	45.4
Abortion (534)	41.3	42.2	Abortion	-	-	Abortion (260)	41.9	42.9

Source: Thailand CPS, 1978

- Not Available

**TABLE 6 - COSTA RICA: ALL CURRENTLY MARRIED WOMEN (USERS AND NON USERS) WHO KNOW A SOURCE - PERCEIVED MEAN AND MEDIAN TRAVEL TIME TO METHOD SOURCE (MINUTES) BY SPECIFIC METHOD**

<u>Method</u>	<u>All Married Women</u>		<u>Married Users of Each Method</u>		<u>Married Non-Users of Any Method</u>			
	Mean	Median	Mean	Median	Mean	Median		
Pill (1664)	25.9	19.8	Pill (446)	25.0	19.5	Pill (544)	25.5	20.2
Condom (1320)	24.3	17.6	Condom (159)	19.8	14.6	Condom (389)	23.4	18.6
IUD (1094)	27.9	21.7	IUD (90)	29.0	22.2	IUD (325)	25.7	21.0
F. Steri. (1004)	31.8	25.6	F. Steri. (261)	38.8	35.2	F. Steri. (289)	32.0	25.8
Vasectomy (495)	32.8	25.2	Vasectomy (13)	*	*	Vasectomy (128)	28.2	22.9
Abortion (98)	24.7	21.9	Abortion	-	-	Abortion	-	-

\* Less than 30 cases  
 - Not Available  
 Source: Costa Rica CPS, 1978

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**TABLE 7 - THAILAND: ALL MARRIED WOMEN (USERS AND NON-USERS) WHO KNOW A SOURCE - PERCEIVED CONVENIENCE OF TRAVEL TO SOURCE BY SPECIFIC METHOD**

<u>Method</u>	<u>All Married Women Convenient</u>			<u>Married Users of Each Method Convenient</u>			<u>Married Non-Users of Any Method Convenient</u>				
	<u>Yes</u>	<u>No</u>	<u>Don't Know</u>	<u>Yes</u>	<u>No</u>	<u>Don't Know</u>	<u>Yes</u>	<u>No</u>	<u>Don't Know</u>		
Pill (2562)	90	9	1	Pill (568)	93	7	0	Pill (1216)	87	12	1
Condom (1366)	90	8	2	Condom (56)	89	2	9	Condom (577)	90	9	1
IUD (2064)	85	12	3	IUD (107)	84	16	0	IUD (926)	83	13	4
F. Steri. (2367)	87	10	3	F. Steri. (359)	91	9	0	F. Steri. (1067)	86	10	4
Vasectomy (1684)	86	10	4	Vasectomy (99)	73	15	12	Vasectomy (733)	85	11	4
Abortion (646)	74	10	16	Abortion	-	-	-	Abortion (312)	73	11	16

Source: Thailand CPS, 1978

- Not Available

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TABLE 8 - COSTA RICA: ALL MARRIED WOMEN, (USERS AND NON-USERS) WHO KNEW A SOURCE - PERCEIVED CONVENIENCE OF TRAVEL TO SOURCE BY SPECIFIC METHOD

Method	All Married Women Convenient			Married Users of Each Method Convenient			Married Non-Users of Any Method Convenient				
	Yes	No	Don't Know	Yes	No	Don't Know	Yes	No	Don't Know		
Pill (1663)	79	20	1	Pill (447)	78	20	2	Pill (544)	79	21	0
Condom (1302)	81	18	1	Condom (160)	90	10	0	Condom (389)	80	19	1
IUD (1090)	77	22	1	IUD (90)	71	29	0	IUD (325)	78	21	1
F. Steri. (1038)	75	24	1	F. Steri. (272)	71	26	3	F. Steri. (290)	74	26	0
Vasectomy (494)	79	20	1	Vasectomy (15)	*	*	*	Vasectomy (127)	81	18	1
Abortion (171)	84	10	6	Abortion	-	-	-	Abortion (36)	69	28	3

Source: Costa Rica CPS - 1978

\*Less than 30 cases

- Not Available

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The data in the preceding tables suggest that there is little difference in the way that users and non-users perceive the availability of contraceptive methods. Tables 9 through 12 re-examine the availability data for non-users to determine if differentials in perceived availability are associated with subgroups of that population. First, non-users are divided into two groups, those at risk and those not at risk of an unwanted pregnancy (pregnant or seeking pregnancy). The at-risk group was further subdivided into those who desire more children but not at the time of interview (potential spacers), and those who desire no additional children (potential limiters). It is assumed that between these two groups there should be variations in levels of motivation and, consequently, differentials in their efforts to identify sources of contraception.

The percentage of non-users who knew a source of at least one modern method is high (90 percent). The pill is the most available method, while male associated methods and abortion are the least known. Table 9 shows that limiters tend to have lower levels of source knowledge than do spacers. One would expect those women who are more highly motivated (those who want no more children) to have more knowledge about potential contraceptive sources than women who are only interested in delaying their next pregnancy.

The inconsistency in these data is probably an artifact of the age distributions of the two at-risk groups, with spacers being younger, more educated, and thus more knowledgeable about contraception. In Costa Rica women not at risk tend to be slightly more knowledgeable of contraceptive sources than do women at risk of an unwanted pregnancy. However, there is little difference overall between the source knowledge levels of spacers and limiters.

Tables 10, 11, and 12 examine the three other availability variables: travel mode, travel time, and perceived convenience. They control for risk of an unwanted pregnancy for non-users. There continues to be little difference in these three variables between the at-risk and not-at-risk groups and for the at-risk spacers and limiters in Thailand, but in Costa Rica the women not at risk generally perceived shorter travel times and greater convenience than those at risk of pregnancy.

In the preceding tabulations availability was examined by dividing the population into subgroups based on familiarity with family planning and relative need for contraceptive services or supplies. In the following tabulations, levels of contraceptive source knowledge are controlled for some of the major sociodemographic variables (education, urban/rural residence, and age).

In Table 13 levels of method-specific source knowledge are controlled for education. Education is divided into two groups:

**TABLE 9 - THAILAND AND COSTA RICA: PERCENT OF ALL NON-USERS NOT AT RISK AND AT RISK (SPACERS AND LIMITERS) OF AN UNWANTED PREGNANCY - WITH KNOWLEDGE OF A SOURCE OF CONTRACEPTION BY SPECIFIC METHOD**

	Thailand Knowledge of a Source(Z)				Costa Rica Knowledge of a Source (Z)			
	All Non-Users (N=1350)	Non-Users Not At Risk (N=641)	Non-Users Spacers At Risk (N=123)	Non-Users Limiters At Risk (N=578)	All Non-Users (N=694)	Non-Users Not At Risk (N=394)	Non-Users Spacers At Risk (N=82)	Non-Users Limiters At Risk (N=140)
Pill	90	92	91	89	79	85	79	76
Condom	44	47	54	38	56	62	61	54
IUD	69	48	64	68	48	54	44	46
F. Steril.	79	83	80	75	42	51	37	34
Vasectomy	55	55	62	53	18	24	16	11
Abortion	23	24	32	21	6	6	9	6

Source: Thailand CPS, 1978; Costa Rica CPS, 1978

Not at risk: Non-Users who were pregnant or were seeking pregnancy  
 Spacers: Non-Users who want more children (but not immediately)  
 Limiters: Non-users who do not want more children

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**TABLE 10 - THAILAND AND COSTA RICA: PERCENT DISTRIBUTION OF TRAVEL MODES: ALL NON-USERS NOT AT RISK AND AT RISK (SPACERS AND LIMITERS) OF UNWANTED PREGNANCY BY SPECIFIC METHOD**

	Thailand Travel Mode								Costa Rica Travel Mode							
	All Non-Users (N=1218)		Non-Users Not at Risk (N=641)		Non-Users Limiters at Risk (N=578)		Non-Users Spacers at Risk (N=123)		All Non-Users (N=694)		All Non-Users Not at Risk (N=394)		Non-Users Spacers at Risk (N=82)		Non-Users Limiters at Risk (N=140)	
	Walk	Ride	Walk	Ride	Walk	Ride	Walk	Ride	Walk	Ride	Walk	Ride	Walk	Ride	Walk	Ride
Pill	42	48	42	49	42	47	39	52	28	51	29	55	26	54	29	46
Condom	19	23	21	26	17	19	21	31	21	35	22	40	22	38	22	31
IUD	5	64	4	66	6	62	1	63	15	32	15	38	13	29	20	25
F. Steril.	2	77	2	81	2	73	0	80	7	35	8	43	6	30	7	26
Vasectomy	4	50	4	51	5	48	2	60	4	15	5	19	*	*	*	*
Abortion	3	20	4	19	3	17	1	31	1	4	*	*	*	*	*	*

Note: Percents do not add to 100%, because don't know, no response, or those with no method source knowledge are included in the base.

Source: Thailand CPS, 1978; Costa Rica CPS, 1978

Not at risk: Non-Users who were pregnant or were seeking pregnancy  
 Spacers: Non-Users who want more children (but not immediately)  
 Limiters: Non-Users who do not want more children

\* Less Than 30 Cases

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**TABLE 11 - THAILAND AND COSTA RICA: PERCEIVED MEAN AND MEDIAN TRAVEL TIME (MINUTES) TO METHOD SOURCE: ALL NON-USERS, NOT AT RISK AND AT RISK (SPACERS AND LIMITERS) OF AN UNWANTED PREGNANCY BY SPECIFIC METHOD**

	Thailand Travel Time (Minutes)								Costa Rica Travel Time (Minutes)							
	All Non-Users (N=1350)		Non-Users Not At Risk (N=641)		Non-Users Spacers At Risk (N=123)		Non-Users Limiters At Risk (N=578)		All Non-Users (N=694)		Non-Users Not At Risk (N=394)		Non-Users Spacers At Risk (N=82)		Non-Users Limiters At Risk (N=140)	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Pill	24.3	16.7	24.3	17.2	22.7	16.6	24.8	16.0	25.5	20.2	23.3	18.6	28.6	20.8	27.7	22.3
Condom	23.4	14.5	21.7	13.7	24.6	17.2	25.6	16.8	23.4	18.5	21.7	17.3	25.8	17.7	25.8	20.5
IUD	44.6	48.3	44.6	48.1	46.0	46.6	44.5	49.0	25.7	21.0	24.3	19.9	25.8	19.45	29.2	23.3
F. Steril.	48.6	54.3	48.5	54.1	49.0	55.0	48.6	54.6	32.0	25.8	30.6	24.5	35.8	34.7	35.9	27.8
Vasectomy	42.1	45.4	42.4	46.1	39.0	36.5	42.6	46.8	28.2	22.9	26.9	22.2	29.3	22.0	31.5	24.3
Abortion	41.9	42.9	39.4	39.2	44.0	43.0	44.2	48.9	31.6	24.8	28.6	22.0	41.3	37.0	32.9	26.7

Source: Thailand CPS, 1978; Costa Rica CPS, 1978

Not at risk: Non-Users who were pregnant or were seeking pregnancy  
 Spacers: Non-Users who want more children (but not immediately)  
 Limiters: Non-users who do not want more children

**TABLE 12 - THAILAND AND COSTA RICA; PERCENT DISTRIBUTION OF PERCEIVED CONVENIENCE OF TRAVEL TO SOURCE: ALL NON-USERS, NOT AT RISK, AND AT RISK (SPACERS AND LIMITERS) OF AN UNWANTED PREGNANCY BY SPECIFIC METHOD**

	Thailand Perceived Convenience									Costa Rica Perceived Convenience														
	All Non-Users (N=1350)			Non-Users Not at Risk (N=709)			Non-Using Spacers at Risk (N=123)			Non-Using Limiters at Risk (N=402)			All Non-Users (N=694)			Non-Users Not at Risk (N=394)			Non-Using Spacers at Risk (N=182)			Non-Using Limiters at Risk (N=140)		
	YYes	ZNo	XDon't Know <sup>a</sup>	YYes	ZNo	XDon't Know <sup>a</sup>	YYes	ZNo	XDon't Know <sup>a</sup>	YYes	ZNo	XDon't Know <sup>a</sup>	YYes	ZNo	XDon't Know <sup>a</sup>	YYes	ZNo	XDon't Know <sup>a</sup>	YYes	ZNo	XDon't Know <sup>a</sup>	YYes	ZNo	XDon't Know <sup>a</sup>
Pill	78	11	11	81	10	9	81	10	9	75	12	13	62	16	22	69	15	16	61	18	21	54	21	26
Condom	38	4	58	43	3	54	47	5	48	32	4	64	45	10	45	51	10	39	45	15	40	36	15	49
IUD	57	9	34	59	9	32	51	11	38	57	8	35	37	10	53	42	11	47	34	9	57	33	11	56
F.Steril.	68	8	24	72	8	20	67	9	24	63	9	28	31	11	58	39	11	49	24	12	64	23	11	66
Vasectomy	46	6	48	48	4	48	52	7	41	46	7	49	15	3	82	20	4	76	12	4	84	10	1	89
Abortion	17	3	80	18	2	80	23	3	74	15	3	82	4	1	95	4	1	95	5	4	91	4	1	95

<sup>a</sup>Don't know method or source, or no response

Source: Thailand CPS, 1978; Costa Rica CPS, 1978

Not at risk: Non-Users who were pregnant or were seeking pregnancy  
 Spacers: Non-Users who want more children (but not immediately)  
 Limiters: Non-users who do not want more children

TABLE 13 - THAILAND AND COSTA RICA: PERCENT OF ALL NON-USERS - KNOWLEDGE OF A SOURCE AND RISK OF AN UNWANTED PREGNANCY BY METHOD AND EDUCATIONAL LEVEL

	Thailand				Costa Rica			
	N=	Know Source	Don't Know Source	Don't Know Source & At Risk	N=	Know Source	Don't Know Source	Don't Know Source & At Risk
<b>Pill</b>								
4 yr.-	(1240)	90%	10%	6%	(300)	69%	31%	12%
5 yr.+	(110)	93%	7%	2%	(394)	86%	14%	4%
<b>Condom</b>								
4 yr.-	(1240)	42%	58%	33%	(300)	41%	59%	24%
5 yr.+	(110)	67%	33%	7%	(394)	68%	32%	7%
<b>IUD</b>								
4 yr.-	(1240)	68%	32%	18%	(300)	35%	65%	26%
5 yr.+	(110)	77%	23%	7%	(394)	57%	43%	11%
<b>P. Steril.</b>								
4 yr.-	(1240)	78%	22%	13%	(300)	30%	70%	31%
5 yr.+	(110)	93%	7%	1%	(394)	51%	49%	13%
<b>Vasectomy</b>								
4 yr.-	(1240)	53%	47%	25%	(300)	7%	93%	41%
5 yr.+	(110)	73%	27%	6%	(394)	27%	73%	18%
<b>Abortion</b>								
4 yr.-	(1240)	22%	78%	42%	(300)	3%	97%	42%
5 yr.+	(110)	40%	60%	15%	(394)	8%	92%	20%

Source: Thailand CPS, 1978; Costa Rica CPS, 1978

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less than four years and five years or more. These two categories are used because earlier reviews of the data indicated that the completion of four years of primary school represented an effective transitional point in the association between education and general contraceptive awareness. The data in Table 13 follow the pattern one would expect. There is a positive correlation between education and knowledge of a source. Those with less education, therefore, are more likely to lack knowledge of a source for contraceptives which could reduce their risk of an unwanted pregnancy. Thailand has higher levels of source knowledge than does Costa Rica in both educational groups. The differences between the two countries are especially large for sterilization and abortion.

To see if most of those women at risk of an unwanted pregnancy had less education, the at-risk and not-at-risk groups were separated by education level (see Table 14). In Thailand there was little difference in the levels of source knowledge of those at risk and not at risk of an unwanted pregnancy. The pattern for Costa Rica was slightly different. Within each educational category, non-users at risk had much less knowledge of sources of female sterilization than those not at risk. The less educated at-risk women were also less aware of locations where vasectomies were performed.

In both countries levels of source knowledge increase with educational attainment. With the exceptions noted above however, non-users at risk of an unwanted pregnancy are as knowledgeable of method sources as their equally educated peers who are not at risk. Apparently, educational level is not related to levels of source knowledge among those at risk of an unwanted pregnancy.

In Table 15 the source knowledge of non-users is controlled by urban/rural residence. In both countries source knowledge is higher in urban areas. The only exception to this is source knowledge for the pill in Thailand (88 percent of the urban non-users knew a source as compared to 91 percent for rural non-users). In Thailand the differences between urban and rural levels of source knowledge are not as great as might be expected. Rural Costa Rican women, however, are much less aware of sources for all methods, although a large percentage of both of urban and rural women in both countries know a source for at least one modern contraceptive method (Thailand: pill-urban 88 percent, rural 91 percent; Costa Rica: pill-urban 66 percent, rural 73 percent).

The same country patterns appear when the at-risk and not-at-risk groups of non-users are compared (Table 16). In Thailand their differences by method are usually very small. It was noted above that rural Costa Rican women had much lower--from 8 to 23 percentage points lower--levels of source knowledge than those from urban areas. A similar relationship exists between the members of the at-risk and not-at-risk subgroups within each residential zone. Non-users at

TABLE 14 - PERCENT OF ALL NON-USERS WHO KNOW EACH METHOD - KNOWLEDGE OF A SOURCE BY SPECIFIC METHOD BY EDUCATION AND RISK OF UNWANTED PREGNANCY

Method	Thailand Knowledge of a Source (%)						Costa Rica Knowledge of a Source (%)					
	Education 4 Years and Less			Education 5 Years and More			Education 4 Years and Less			Education 5 Years and More		
	N=	Non-Users Not At Risk	Non-Users At Risk	N=	Non-Users Not At Risk	Non-Users At Risk	N=	Non-Users Not At Risk	Non-Users At Risk	N=	Non-Users Not At Risk	Non-Users At Risk
Pill	(1195)	92	92	(109)	95	91	(277)	74	76	(382)	91	83
Condom	( 929)	54	55	(102)	68	80	(214)	56	59	(338)	79	80
IUD	(1091)	75	77	(101)	82	77	(201)	52	53	(330)	79	63
F. Steril.	(1141)	84	82	(106)	95	97	(154)	64	53	(275)	76	66
Vasectomy	( 997)	64	66	(100)	78	86	( 66)	42	23	(194)	55	53
Abortion	( 701)	36	40	( 99)	46	50	(141)	5	8	(263)	10	20

Source: Thailand CPS, 1978; Costa Rica CPS, 1978  
 Not At Risk: Non-Users who were pregnant or were seeking pregnancy

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TABLE 15.-THAILAND AND COSTA RICA: PERCENT OF ALL NON-USERS - KNOWLEDGE OF A SOURCE AND AT RISK OF AN UNWANTED PREGNANCY BY METHOD AND URBAN/RURAL RESIDENCE

	Thailand				Costa Rica			
	N=	Know Source	Don't Know Source	Don't Know Source & At Risk	N=	Know Source	Don't Know Source	Don't Know Source & At Risk
Pill	URBAN (179)	88%	12%	4%	(311)	86%	14%	5%
	RURAL (1171)	91%	9%	6%	(383)	73%	27%	9%
Condom	URBAN (179)	52%	48%	18%	(311)	66%	34%	10%
	RURAL (1171)	43%	57%	33%	(383)	48%	52%	17%
IUD	URBAN (179)	72%	28%	11%	(311)	57%	43%	14%
	RURAL (1171)	68%	32%	18%	(383)	40%	60%	20%
F. Steri.	URBAN (179)	87%	13%	4%	(311)	53%	47%	18%
	RURAL (1171)	78%	22%	14%	(383)	33%	67%	23%
Vasectomy	URBAN (179)	59%	41%	15%	(311)	30%	70%	23%
	RURAL (1171)	54%	46%	25%	(383)	9%	91%	31%
Abortion	URBAN (179)	26%	74%	26%	(311)	11%	89%	26%
	RURAL (1171)	23%	77%	42%	(383)	2%	98%	32%

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Source: Thailand CPS, 1978; Costa Rica CPS, 1978

TABLE 16 - PERCENT OF ALL NON-USERS WHO KNOW EACH METHOD - KNOWLEDGE OF A SOURCE  
BY SPECIFIC METHOD BY RESIDENCE AND RISK OF UNWANTED PREGNANCY

Method	Thailand Knowledge of a Source (%)						Costa Rica Knowledge of a Source (%)					
	N =	URBAN		N =	RURAL		N =	URBAN		N =	RURAL	
		Non-Users Not At Risk	Non-Users At Risk		Non-Users Not At Risk	Non-Users At Risk		Non-Users Not At Risk	Non-Users At Risk		Non-Users Not At Risk	Non-Users At Risk
Pill	(172)	90	89	(1132)	93	92	(303)	91	83	(356)	80	76
Condom	(152)	61	57	( 879)	55	56	(270)	78	73	(282)	67	64
IUD	(156)	79	75	( 928)	75	77	(264)	71	60	(267)	58	55
F. Steri.	(167)	91	92	(1080)	85	82	(219)	81	63	(210)	64	56
Vasectomy	(150)	71	70	( 947)	65	67	(164)	61	49	( 96)	38	30
Abortion	(128)	36	33	( 664)	38	42	(224)	12	20	(180)	4	6

Source: Thailand CPS, 1978; Costa Rica CPS, 1978

Not At. Risk: Non-Users who were pregnant or were seeking pregnancy

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risk have much lower levels of source knowledge for all methods except abortion. These differences are especially pronounced for sources of the permanent methods--sterilization and vasectomy.

In Costa Rica, at least some non-users at risk of an unwanted pregnancy may not utilize contraceptive services because of lack of source knowledge. This problem appears to be almost as severe among at-risk women from the urban areas, although rural women are still consistently less aware of all method sources.

In Table 17 levels of source knowledge are examined by age of respondent. In both countries and for all methods except abortion, there is a consistent pattern of source knowledge by age. Source knowledge starts high for the younger groups and then rises even higher for those respondents in their 20's and 30's before it begins to decline in the late 30's and 40's. In Costa Rica the initial increase in knowledge levels is somewhat greater than that shown for Thailand, with source knowledge at 20-24 as much as 19 percent higher than at 15-19.

Abortion is the only method which does not follow this pattern. In Thailand the highest levels of abortion source knowledge emerge for younger women, with levels declining with age thereafter. In Costa Rica insufficient knowledge of abortion precludes meaningful analysis.

In Thailand within each age category, those at risk and not at risk have similar levels of source knowledge for all methods except abortion. A different pattern emerges from the Costa Rican data. When the at-risk groups within each age category are compared, sources for several methods are less well known to--and hence less available to--those at risk of an unwanted pregnancy. Among younger women, fewer women knew sources for the pill, sterilization, and vasectomy, while older at-risk women have lower knowledge levels for the condom, IUD, sterilization, and vasectomy. The extremely low levels of source knowledge for permanent methods among older respondents (sterilization and vasectomy--only about one-half of those at risk have source knowledge) may prohibit their adoption by the couples who are supposedly most in need of them.

An interesting exception is the relatively high levels of knowledge for abortion services found among the at-risk groups in both countries. Whether these women are less knowledgeable of other contraceptive sources because they utilize abortion services with greater frequency is a subject for further study.

In this portion of the paper, levels of source knowledge have been compared for various subgroups of the non-user population while controlling for some of the effects of educational level, residential location, and age. In Thailand it has been consistently shown that

**TABLE 17 - THAILAND AND COSTA RICA: PERCENT OF ALL NON-USERS - KNOWLEDGE OF A SOURCE AND RISK OF AN UNWANTED PREGNANCY BY METHOD AND AGE**

	Ages	N=	Thailand			Costa Rica			
			Know Source	Don't Know Source	Don't Know Source & At Risk	N=	Know Source	Don't Know Source	Don't Know Source & At Risk
Pill	15-19	(90)	91%	9%	2%	(73)	67%	33%	8%
	20-24	(252)	93%	7%	1%	(163)	85%	15%	4%
	25-29	(251)	91%	9%	4%	(120)	93%	7%	1%
	30-34	(192)	94%	6%	3%	(84)	86%	14%	4%
	35-39	(164)	95%	5%	2%	(85)	79%	21%	11%
	40-44	(208)	86%	14%	11%	(77)	73%	27%	13%
	45-49	(193)	83%	17%	15%	(92)	59%	41%	16%
Condom	15-19	(90)	41%	59%	7%	(73)	42%	58%	10%
	20-24	(252)	52%	48%	9%	(163)	63%	37%	9%
	25-29	(251)	51%	49%	15%	(120)	73%	27%	7%
	30-34	(192)	52%	48%	24%	(84)	64%	36%	10%
	35-39	(164)	43%	57%	34%	(85)	55%	45%	18%
	40-44	(208)	35%	65%	53%	(77)	51%	49%	25%
	45-49	(193)	27%	73%	70%	(92)	34%	66%	28%
IUD	15-19	(90)	52%	48%	7%	(73)	22%	78%	18%
	20-24	(252)	69%	31%	7%	(163)	56%	44%	12%
	25-29	(251)	73%	27%	11%	(120)	64%	36%	9%
	30-34	(192)	78%	22%	12%	(84)	49%	51%	17%
	35-39	(164)	71%	29%	17%	(85)	53%	47%	19%
	40-44	(208)	65%	35%	30%	(77)	44%	56%	29%
	45-49	(193)	63%	37%	35%	(92)	28%	72%	28%

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TABLE 17 - (Continued)

		<u>Thailand</u>				<u>Costa Rica</u>			
	<u>Age</u>	<u>N=</u>	<u>Know Source</u>	<u>Don't Know Source</u>	<u>Don't Know Source &amp; At Risk</u>	<u>N=</u>	<u>Know Source</u>	<u>Don't Know Source</u>	<u>Don't Know Source &amp; At Risk</u>
<b>Fem.</b>	15-19	(90)	70%	30%	6%	(73)	26%	74%	15%
<b>Steri.</b>	20-24	(252)	80%	20%	3%	(163)	46%	54%	17%
	25-29	(251)	86%	14%	7%	(120)	52%	48%	14%
	30-34	(192)	84%	16%	10%	(84)	52%	48%	18%
	35-39	(164)	85%	15%	10%	(85)	41%	59%	22%
	40-44	(208)	70%	30%	25%	(77)	38%	62%	36%
	45-49	193)	73%	27%	25%	(92)	30%	70%	29%
<b>Vasec.</b>	15-19	(90)	37%	63%	10%	(73)	10%	90%	18%
	20-24	(252)	56%	44%	9%	(163)	22%	78%	21%
	25-29	(251)	57%	43%	16%	(120)	28%	72%	22%
	30-34	(192)	61%	39%	19%	(84)	24%	76%	26%
	35-39	(164)	63%	37%	20%	(85)	16%	84%	34%
	40-44	(208)	52%	48%	41%	(77)	16%	84%	45%
	45-49	(193)	48%	52%	50%	(92)	7%	93%	37%
<b>Abort.</b>	15-19	(90)	28%	72%	12%	(73)	3%	97%	21%
	20-24	(252)	26%	72%	14%	(163)	5%	95%	22%
	25-29	(251)	27%	73%	23%	(120)	11%	89%	24%
	30-34	(192)	25%	75%	36%	(84)	8%	92%	30%
	35-39	(164)	18%	82%	51%	(85)	1%	99%	35%
	40-44	(208)	19%	81%	65%	(77)	5%	95%	48%
	45-49	(193)	20%	80%	77%	(92)	7%	93%	37%

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TABLE 18 - PERCENT OF U.S. NON-USERS WHO KNOW EACH METHOD - KNOWLEDGE OF A SOURCE BY SPECIFIC METHOD BY AGE AND RISK OF UNWANTED PREGNANCY

Method	Thailand Knowledge of a Source (3)						Costa Rica Knowledge of a Source (3)					
	N=	29 Years and Less		N=	30 Years and More		N=	29 Years and Less		N=	30 Years and More	
		Non-Users Not At Risk	Non-Users At Risk		Non-Users Not At Risk	Non-Users At Risk		Non-Users Not At Risk	Non-Users At Risk		Non-Users Not At Risk	Non-Users At Risk
Pill	(602)	94	95	(702)	90	91	(342)	90	81	(317)	80	77
Condom	(482)	58	66	(549)	52	53	(293)	75	76	(259)	68	63
IUD	(527)	74	78	(668)	79	76	(280)	67	64	(251)	62	53
P. Steril.	(953)	85	87	(694)	87	82	(242)	72	66	(207)	74	54
Vasectomy	(483)	65	66	(614)	69	67	(147)	54	46	(113)	51	38
Abortion	(378)	40	49	(414)	32	38	(218)	8	17	(186)	9	11

Source: Thailand CPS, 1978; Costa Rica CPS, 1978

Not At Risk: Non-Users who were pregnant or were seeking pregnancy

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the levels of source knowledge among non-users at risk are equal to those among non-users not at risk. The results are slightly different for Costa Rica. Non-users at risk who were less educated had lower levels of source knowledge. Since differentials in method may partially be functions of sociodemographic respondent characteristics, further research is planned in this area.

### V. FUTURE RESEARCH ALTERNATIVES

The basic measures of relative availability currently employed in the CPS are intended to test the simple availability model diagrammed in Figure 1. Other factors being equal, increasing distance (travel time and mode) to a source will reduce the probability of family planning adoption and continued use.

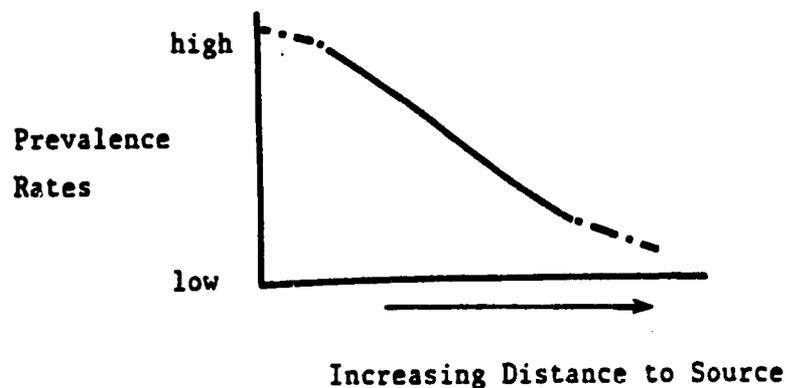


FIGURE 1. The Expected Relationship between Prevalence and Distance

As national family planning programs have become established sources of contraceptive methods, program evaluators have gradually shifted toward the analysis of service quality and program coverage to determine whether a sufficient number of contraceptive methods are easily accessible to women at risk of pregnancy. While some research in this area has been done (Janowitz et al., 1980; Brackett, 1980; Rodriguez, 1978), few definite patterns of availability have been established.

The last portion of this paper will suggest improvements in variable design and model construction which may help identify some important relationships between method availability and method use. Many of these modifications will be included in forthcoming surveys.

### Availability of Preferred Method

Probably no woman has an interest in adopting all the methods she knows.<sup>1</sup> Instead many women prefer one or more methods to the others. It is therefore important to identify the method(s) which each survey respondent would actually consider using and to analyze the relationship between levels of perceived availability and prevalence of use.

Preferred method was asked of all CPS respondents in Colombia. In that survey large numbers of current users of modern methods (13 percent) reported that they preferred a method other than the one they were actually using (Novak and Wardlaw, 1980). Future analysis of this and upcoming data sets will compare the availability of preferred methods among users and non-users to determine if prevalence levels are higher among individuals who can easily obtain their preferred method.

### Attitudinal Biases and Contraceptive Availability

One problem with the availability data collected by CPS is its subjective nature--all estimates of travel effort are collected from the respondents. Recent research indicates that these personal measures of travel difficulty may be influenced by independent attitudinal biases which are colored by each individual's past travel experience and present attitude toward family planning.

Respondent familiarity with the source of family planning methods may influence estimates of overall travel effort. Rodriguez (1978) notes that a slightly larger number of respondents familiar with the source will offer estimates on the distance between their residence and the source. He did not, however, compare the relative accuracy of these estimates with the reports from those who were not familiar with the source. In an analysis of shopping behavior, Meyer (1977) observed that his subjects consistently underestimated the distance to familiar shopping locations while overestimating the distance to those used infrequently. In Meyer's study the accuracy of these estimates was not related to either the subject's age or level of education. In this context, women familiar with their mentioned source--either because of past family planning experience or because the source provides various other health care services--may have underestimated the actual travel effort to the family planning source.

In the recent geographic literature, another important influence on the perception of distance appears to be the attractiveness of the destination to the observer (Canter, 1977). Studies on perception of distance have concluded that individuals consistently tend to underestimate the distance to 'attractive' urban locations

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and overestimate distances to other points (Lee, 1970). There is some evidence that such a relationship exists between a family planning adopter's positive attitude toward family planning ('attractiveness of the service') and her perception of the travel time required to reach the source. Novak (1980) found that among a group of recent family planning adopters, those with a more positive attitude toward family planning underestimated the travel time to the clinic when compared with the travel estimates of those who discontinued.

The attitudinal biases which influence perceived availability have been inadequately measured and analyzed. Future research efforts should be directed toward better indices of respondent familiarity with source, reason for source preference, motivation to use contraception, and utilization (and attractiveness) of multiple purpose sources.

### Estimates of Real Distance

The conventional approach to availability analysis, as taken in this paper, has been to assume that the travel estimates given by all subgroups of the survey population are biased to approximately the same degree. By assuming that the collective bias of various subgroups are roughly equivalent, availability levels as perceived by current users of each family planning method and non-users who know a source for that method can be compared. If non-users estimate longer, less convenient travel time to a source than current users, then a meaningful relationship between availability levels and contraceptive prevalence rates *may* exist. However, the direction and degree of bias for various subgroups should be investigated before any definite relationships between perceived and actual availability can be established.

While the current CPS measures are valuable indices of *perceived* availability of family planning services among survey respondents, they may not be valid surrogates of actual distance and travel times. Future surveys should gather information on the actual distance between residence and supply source as an important supplement to the present availability measures. For public clinics and hospitals which are usually few in number and easily identifiable on area maps, the collection of this additional data should require little extra effort. In countries with dense commercial networks of contraceptive supplies, the costs of obtaining real distance measurements may exceed their actual research value.

In several upcoming surveys, CPS will include real distance measurements, at least to public facilities (which are still the most important source of supply in many developing countries). Such information will allow the comparison of actual distances to a

source among various subgroups of the survey population--especially current users and non-users. It will also provide a standard with which to compare the *perceived* travel estimates.

#### Selected Utility of Availability Data

The discussion regarding future research approaches to contraceptive availability has focused on improving measurement and analytic techniques. However, the limited analysis presented here and the more comprehensive look at availability data prepared by Brackett (1980) suggest that availability studies may not be relevant in all countries. In countries like Thailand and Costa Rica, where prevalence and levels of availability are already quite high, any change in the nature of availability will probably not result in a major change in prevalence of use. (However, it may result in changes in both method mix and the pattern of contraceptive supply.) Therefore, surveys of contraceptive availability would be more useful in countries with lower levels of prevalence (perhaps below 45 percent of the at-risk female population) and in countries with high, but unevenly distributed prevalence.

#### FOOTNOTES

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<sup>1</sup>Sixty-three percent of the first-time adopters in a Dominican Republic family planning program named at least one method they would *not* adopt. The methods most often mentioned were IUD (62%), condom (23%), pill (17%), vaginal foam (16%), and vaginal tablets (12%). The preceding sum to more than 100% due to multiple responses (Novak, 1980).

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