

**BIBLIOGRAPHIC INPUT SHEET**

1. SUBJECT CLASSIFICATION	A. PRIMARY Population	PC00-0000-0000
	B. SECONDARY Family planning	

2. TITLE AND SUBTITLE  
Experimental family planning programs: improving prevalence of contraceptive use

3. AUTHOR(S)  
Merritt, Gary; Gillespie, Duff; Maguire, Elizabeth; Heiby, James; Labbok, Miriam; Mutchler, David; Shelton, James

4. DOCUMENT DATE 1979	5. NUMBER OF PAGES 34p.	6. ARC NUMBER ARC 301.32.M572
--------------------------	----------------------------	----------------------------------

7. REFERENCE ORGANIZATION NAME AND ADDRESS  
POP

8. SUPPLEMENTARY NOTES (Sponsoring Organization, Publishers, Availability)  
Presented at the Annual Meeting of the Population Association of America, Philadelphia, 1979)

9. ABSTRACT

10. CONTROL NUMBER PN-AAG-625	11. PRICE OF DOCUMENT
12. DESCRIPTORS Family planning Contraceptives Distribution systems Cost analysis	13. PROJECT NUMBER
	14. CONTRACT NUMBER POP
	15. TYPE OF DOCUMENT

301.32-  
MS72

EXPERIMENTAL FAMILY PLANNING PROGRAMS:  
IMPROVING PREVALENCE OF CONTRACEPTIVE USE

Gary Merritt  
Duff Gillespie  
Elizabeth Maguire  
James Heiby  
Miriam Labbok  
David Mutchler  
James Shelton

Research Division  
Office of Population  
Development Support Bureau  
Agency for International Development

Paper Presented at the Annual Meeting of the  
Population Association of America, Philadelphia  
April 26-28, 1979

## ABSTRACT

### Experimental Family Planning Programs: Improving Prevalence of Contraceptive Use

Gary Merritt; Duff Gillespie;  
Elizabeth Maguire; James Heiby;  
Miriam Labbok; David Mutchler; James Shelton

Research Division  
Office of Population  
Development Support Bureau  
Agency for International Development

Arguments about the impact of family planning programs have recently been rekindled with focus again on demand versus supply issues. This paper presents data from a number of experiments that directly estimate existing levels of demand, mostly in populations where demand is presumed to be low and program conditions considered adverse. Several studies contrast prevalence of use of modern methods of contraception before and after intensive availability conditions are met. Data from these and other studies bear on issues for program improvement like: type of village agents; free versus charging for service; combination with simple health services; and mix of contraceptive methods. Results indicate that operations research experiments on delivery systems can identify ways to considerably improve prevalence of use and cost-effectiveness while also playing very useful roles in program policy.

## Introduction

The U. S. Bureau of Census reported last December that growth rates in much of the world had declined significantly from 1966 to 1976 and that these were attributable mainly to declines in fertility in the developing countries (U. S. Bureau of Census, 1978). Mauldin and Berelson's now widely-cited paper from the Population Council on the "Conditions of Fertility Decline in Developing Countries, 1965 - 1975," argues that observed fertility declines can be attributed mainly to an interaction of socio-economic development and family planning programs. Countries with both active programs and improvement in development measures showed about a 30 percent decline in fertility. However, each set of variables provide independent explanation; declines were much greater in countries with active programs but little development (a 20 percent decline) than in countries with development and little family planning effort (5%). Recent work at the University of Chicago generally supports the Population Council report (Bogue).

Early analyses of World Fertility Survey data from developing countries indicates that many women now at risk of pregnancy report not wanting any more children; the unmet demand for family planning services appears to be quite high and largely independent of conventional social and economic variables (Rodrigues, 1978 and Brackett, et. al., 1978).

Population policy persons will continue to argue about what the prior, necessary conditions for fertility decline might or might not be. We adopt the assumptions that whatever the case with respect to necessary pre-conditions, family planning programs obviously play an important

role; that degree of public and private sector program effort (i.e., contraceptive availability) contributes greatly to prevalence of use of contraceptive methods; and that the prevalence of use is a powerful correlate of fertility levels.

Variations in program design are key elements in understanding variations in their performance, and should constitute a powerful--if only partial--explanation for fertility trends in each country.

#### Research Strategy

Since 1975 our group at A.I.D. has helped evolve a cross-cultural pattern of twenty-one (21) action research experiments in fourteen (14) countries. These studies address practical issues concerned with improving program design. We refer to this work as operations research (OR). All the studies fit the rubric, "community-based distribution." All studies aim towards groups with low previous access to services. All stress low-cost system maintenance. All entail active involvement both in practical commodity logistics and in policy change. Most require formal change of policies, medical norms, and training curricula in order to be implemented.

Several experiments entail initial systematic household delivery and provide interesting data for direct estimation of existing community "demand" for family planning methods. These studies generally confirm the view that when even only one effective, non-clinical method, like the oral contraceptive, is made readily available married women of all parity, educational, and economic levels will utilize the method.

Socio-economic differentials remain important, but considerable demand exists among all groups. The demonstration of this leveling effect frequently prompts change in host-country program policies.

Other OR studies are village-level. Like the household studies, they focus on program issues like: the important of the mix of methods made available; potential for combining with health and nutrition objectives; charging for services or commodities versus free provision, and optimal types of personnel.

In projects with household distribution, field procedures are devised which insure that the delivery system approaches full coverage of the treatment population through systematic visits to every household. How the canvassing of households is actually implemented varies from project to project and depends on such things as the terrain and population dispersion, availability of field personnel and the interests of the host-country government. The most effective way to insure complete coverage is through mapping the treatment population and assigning distribution grids to each distributor.

Household distribution typically occurs only once or twice. After the community has been canvassed, the resupply and follow-up functions are handled by a village worker, frequently an excanvasser. The household distribution system becomes a village-based system. Because household distribution is a singular event, cost has not been a major restraint in introducing these systems. Canvassers or distributors are payed for

the actual canvassing and are not employed on a permanent basis. The cost of the actual household canvass is marginal relative to the other costs which are incurred in a village-based program, e.g., selections, training, supervision, commodities, etc.

Under a village-based delivery system, the fieldworkers are more reactive. While household visits are often made, they are not done in a systematic fashion and the usual manner in which a person receives family planning services is to visit the distributor.

#### Changes in Prevalence of Contraceptive Use

Contraceptive prevalence provides a good measure of program penetration and--if properly estimated--it provides a good measure of probable fertility impact. Prevalence estimates in these studies are based on area probability samples or on sample-validated service records.

Table I summarizes changes in prevalence in twelve (12) studies from eight (8) countries. All but the Nicaragua data come from household distribution projects; this program, incidentally, also showed the least increase in prevalence (only 3.9% after one year). Most studies showed dramatic increases in the prevalence of use; the median increase was 13 percent in only 13 months (Modified Matlab). In Haiti the change from 4.5 percent to 18.8 percent occurred in only eight (8) months. Populations with low baseline prevalence tend to show greater absolute increase than those with higher initial levels. Compare, for example, the changes in Mexico, Tunisia (1), Bangladesh (1), and Haiti, with the smaller changes in Egypt (1) and (2) and Korea (1). The Taiwan results reflect

considerable strengthening of public sector activity throughout all rural areas during the period of study implementation, perhaps a serendipitous and quick impact of the OR project on the larger program.

Differentials in contraceptive use have become a matter of increasing interest to us as data become more available. Figure 2 shows how the intensive availability experiment in Matlab, Bangladesh, tended to level out the differences in use associated with differences in educational groups. Table 2 compares the partial and zero-order correlations between selected characteristics and contraceptive use in rural Egypt. The explained variance attributable to these characteristics was about 19 percent before and 13 percent after the house-to-house canvass and distribution, a relative decline of about 30 percent. Most of this appears attributable to the lessened predictive power of parity, an observation confirmed by inspection of bi-variate cross-tabulation (not shown). We plan to soon examine all of these studies to describe apparent determinants of differential use of contraceptives.

#### Influence of Number and Type of Contraceptives

Family planning people have always emphasized the importance of having available within programs as wide a mix of types of fertility regulation information and techniques as possible. Since every method has certain negative features for some couples, the greater the range of methods offered, the greater likelihood couples will find a suitable method. The problem, of course, is making a wide spectrum of methods easily available.

In two projects, something of a natural experiment occurred. In  
(See Table 3)  
Tunisia and Bangladesh, the initial phase of the household distribution

in both countries emphasized the pill for a variety of reasons. At a later time, it was possible to introduce other methods. Table 3 shows the dramatic increase in contraceptive use after a greater variety of methods were introduced. A word of caution needs to be made concerning the Bangladesh data. While it is obvious that the contraceptive mix, especially Depo-Provera, resulted in an increase in contraceptive use, there were other programmatic changes that may have contributed to the increase in contraceptive use. First, the illiterate, local fieldworkers were replaced with more highly trained, literate women. Although there is no quantitative way to prove that these women have improved the level of contraceptive use, the project staff have little doubt that this is the case. Additionally, basic MCH services were introduced to the modified area. The major jump in prevalence occurred before these services were fully introduced, but it may be that these services have a reinforcement effect on users.

In the case of Tunisia, there were no other programmatic changes other than a wider number of methods offered. We venture to guess that there is no single program factor of greater importance than the range of methods offered.

#### Cost Measures:

The two most common ways that family planning programs are measured in terms of cost-effectiveness are the cost per acceptor and cost per couple-years-of-protection (CYP), with some persons carrying the CYP calculations a bit further to determine the cost per birth averted. All

of these output measures have the disadvantage of not giving one any indication of the cost required to attain a demographic impact from a program. In this sense, they can be very misleading, especially when various programs or types of interventions are compared.

In Table 4, two important points can be made concerning the cost per acceptor data for a number of national family planning programs. First, as noted above, the use of cost per acceptor data as an evaluation tool can be very misleading. For instance, the Dominican Republic had a relatively high cost per acceptor of \$35.96 in 1976. Nepal, on the other hand, had a cost per acceptor in 1975 of only \$13.75. What do these two figures tell one? Essentially, nothing. More important than cost per acceptor data is the fact that the WFS shows that Nepal has a contraceptive prevalence of only 2.3 percent. The comparable figure for the Dominican Republic is 31.3 percent. Indeed, based on the data presented in Table 4, one would be hard pressed to separate the good programs from the bad, unless "good" was defined as a low cost per acceptor and this would be an erroneous definition.

The second point, for which there should be little dispute, is that family planning programs may be expensive. While expensive is a relative term, when one considers that the cost figures are for acceptors, not users, and that many of the countries listed are not renowned for their successful family planning programs, then one should get a feel for the monetary requirements for alleviating the population problem.

The cost per CYP has one of the same drawbacks as cost per acceptor because it does not measure the extent of contraceptive use in a country

or program. But, it does have the advantage over cost per acceptor because it gives an indication of what inputs are required to maintain an active user for one year. The cost per CYP reinforces the point made earlier that the amount of resources currently being directed to the population problem are grossly inadequate. For example, Robinson found that the average cost per CYP for 28 countries in 1971 dollars was \$56.40. He noted that this "Is considerably higher than is generally thought..."\*

In Table 4, we see two sets of cost per CYP calculated by different CRL personnel. Besides showing that cost analysis carries a lot of subjective baggage, Table 4 again points out the danger of using only cost per CYP as a measure of cost-effectiveness. The cost figures in the table include only service delivery costs and, therefore, are somewhat lower than the actual cost. However, this still allows one to compare the relative effectiveness of the different interventions. If one were to only look at the cost per CYP, then intervention "A" (Household Distribution of Pills and Condoms) would clearly be the most cost-effective. However, also given in Table 4 are the levels of contraceptive prevalence reached for each type of intervention. While the cost per CYP for Intervention "D" (All Family Planning Methods with Upgraded Field Staff and MCH Services) is substantially higher than "A" (\$2.30 or \$4.25 versus \$6.70 or \$6.91), the contraceptive prevalence experienced under "D" is also much higher, 13 versus 36 percent. Using the rule of thumb that a 2 to 6 percent increase in prevalence\* results

\*W. C. Robinson, "The Cost Per Unit of Family Planning Services," J. Biosoc. Sci., Vol. 11, pp. 93-103, 1979.

in a reduction of one point in the crude birth rate, the cost-effectiveness of intervention "D" is obviously superior to "A". With "A", the reduction would be from 2 to 6 points, while with "D", the reduction would be from 6 to 18 points. One must also wonder what the comparative CYP costs would have been had the order of introduction been changed.

### Charging for Services

Charging practices naturally depend heavily upon what cost of long-term program financial support is made available. Public sector programs frequently can be either charge or free; private sector programs can be based upon volunteers, salaried, or commissioned agents.

Two popular notions exist about charging versus non-charging for contraceptives. It is often said that by charging for contraceptives the individual will value the item more and, thus, be more likely to use the method than if it were free. Contrastingly, others believe that a charge for contraceptives introduces an unnecessary barrier to acceptance and utilization. Related to this issue is the desire to have programs that help pay their own way.

Literally everyone seems to have an opinion concerning free versus charges for contraceptives, but we have little data to suggest general propositions. Looking at Figure 3, one could come to the conclusion that charging for contraceptives represent a significant barrier. Figure 3 shows the number of OC acceptors in the Thai Government program prior to October, 1976, when the Government charged 5 baht (U.S. \$0.25). Figure 4 shows the number of acceptors in the private sector CBFPS program that also sold OCs for 5 baht and another brand for 7 baht. As is

dramatically shown, the change from charge to free resulted in a substantial increase in the number of new pill acceptors in the government program and an equally dramatic drop in the number of new acceptors in the CBFPS program, which continues to sell OCs.

On the other hand, other data suggest that charging for contraceptives has little impact on use. In the 38-village study in Menoufia, Egypt, there was interest in comparing free OCs with OCs for which there was a modest charge of 5 piastres (U.S. \$0.07) per cycle. The main reason for this interest was that the government program charged this amount. As a result, half of the study population was charged 5 piastres per cycle for resupply, although all women were offered a free initial supply of 4 cycles during the household distribution, with those in the charging resupply area being told that they would be charged for resupply at the time of the distribution.

As shown in Table 5, the modest charge for a resupply of oral contraceptives and a free resupply system have comparable results. In terms of absolute increase in contraceptive use, the two types of delivery systems are almost identical except for the outlying villages under the "charge" resupply system which has a remarkable absolute increase in prevalence of 14.2 percent. In one of these two villages the resupply agent was a very active and highly motivated community development worker whose aggressive work accounts for the great increase.

#### Combining Family Planning and Health Services

Of the twenty one (21) active OR projects reviewed here, thirteen (13) have a health component in their delivery systems. Most of these

project designs did not arise specifically to test the comparative costs or benefits of integration but a few permit analysis in these terms.

The Family Planning Health and Hygiene (FPHH) project in Thailand was conceived to test the relative cost effectiveness of different types of family planning delivery systems in rural Thailand. The hypotheses to be examined were:

- a. Family planning services combined with health services will be more cost effective than delivery systems offering only family planning services.
- b. Family planning services combined with health services will be more likely to be self-sufficient than family planning services alone.
- c. The availability of free introductory supply of contraceptives will be more cost effective than delivery systems not offering introductory supplies.

The project has been implemented in 80 districts, covering a population of approximately 6 million.

Four contrasting operational models for community-based distribution of contraceptives were devised (all are quasi-commercial):

- |         |  |
|---------|--|
| Model A | Only contraceptives provided by CBFPS, for sale at low prices.   |
| Model B | As above, but with two months free introductory supply of pills and condoms to be distributed throughout the village to those eligible and willing to try their use. |
| Model C | As in Model A above, but combined with household drugs and orientation for health services/referrals.  |

Model D      As in Model C above, with initial free distribution  
                 of contraceptives as in Model B.

Figure 5 shows prospective cost-effectiveness results after a minimum of nine months of operation. The findings show that the cost per new acceptor is twice as great in the areas C and D in which both contraceptives and household drugs were distributed. All four sub-systems reach a steady state trend of gradual decrease in unit costs (costs per actual monthly acceptor levels) by the fifth ordinal month of operation. The visual contrasts are obvious, even dramatic. There can be little doubt that the most cost-effective system is Model A, nor that Models <sup>A</sup> and B together are more cost effective than C and D combined.

The administration of rural development programs is partly influenced by the distribution of population. Most Third World villages have about 1,000 inhabitants. While the people are talented and can be taught many tasks, the resources available for training and the costs of supervision make it uneconomical to attempt to solve anything but common problems. Unlike a city, the population is too scattered to carry the capital costs involved in creating infrastructures, whether of electricity or comprehensive health skills.

Family planning services are achievable because a significant proportion of village adults want, and have, a recurrent need for services which happen to be technically easy to supply. The family planning consumer, unlike many sick persons, normally make his/her own diagnosis. In addition, illness takes many forms and has many degrees of severity

and complications requiring greater skill in treatment than the unified pattern of dose schedule and level needed to provide or use the pill, condoms, foams, or even injections.

Clinically, the FPHH project is not a family planning and health program in the sense that deaths are being prevented in the way births are being controlled. It could be argued that the distribution of tooth-paste, sanitary towels or soap would be as relevant to health as most of the drugs included in the FPHH (or government village health volunteers, VHV) kits. This is not to degrade the usefulness of either household medicines or soap--both add to the quality of life; but neither provides benefits as significant as the public health benefits of preventing an illegal abortion or of saving a maternal death.

Once a contraceptive distribution system is in place, perhaps it should be easy to add other technical innovations one by one. The Thais are experimenting with adding parasite control, credit systems and agricultural innovations, as well as the distribution of household drugs can become justifiable, not on a philosophy that health and family planning must necessarily be linked, but as one choice from among many of improving the quality of life in a village. Thai society, like many others, spends a considerable proportion of its disposable income on medicines. Household drugs are appreciated daily domestic items often sold at considerably above cost. For CBFPS (and the government) to distribute selected, efficacious, safe household drugs at non-exploitive prices and by-passing the middleman is helpful to the villager.

### Community Agents

A key element in operations research on community-based systems concerns the types of social organization that get put together. Of the many researchable facets of organization that are worth attention, the matter of strategy for identification and selection of the local community agents is among the most interesting. So far, we have only a few useful generalizations to offer regarding selection of types of agents. Obviously, they should be selected from among local residents and live in the communities they serve. Equally obvious, they should be respected persons, perhaps of somewhat higher social standing than most of their neighbors but there should not be considerable social distance. Literacy helps. Shopkeeper, retail outlets may be preferable in charge systems, but there is little data to suggest that this is important; there is no reason to believe that charge systems should be designed solely around commercial infrastructure.

In the VDMS Morocco project, regular MOH fieldworkers were used for the household distribution. Many of these workers are males and there was serious doubt if they would be able to relate to women in a Muslim society. However, the initial data seems to show that males were just as effective distributors as females.

In the Family Planning and Health and Hygiene project in Thailand, it was thought that the most effective distributors would be retailers, since the program is a quasi-commercial delivery system which charges for contraceptives. Also, it was believed that the addition of health commodities to the system would make the distributors more effective.

Again, preliminary data do not support these contentions. In Figure 6, the cost per acceptor in baht is contrasted with the percent of shopkeepers in each district. Based on the above assumptions, one would predict that those districts with a high percent of shopkeepers and especially those that offered health commodities would be lower on the cost per acceptor scale since they would have more family planning customers than non-shopkeepers and generate more income through the sale of health commodities. As Figure 6 plainly shows, this is not the case. As the study was implemented, natural variations occurred in the selection of agents so that the proportion who are village shopkeepers varied greatly from district to district, as seen on the horizontal axis of Figure 6. The vertical axis shows net costs (in Thai baht) required for field support.

#### Fertility Change

While most of the studies will attempt to measure changes in births over time, the Matlab project in Bangladesh is unique in having a well established vital events registration system. In the Modified Matlab project, we now have preliminary data which suggest that the intervention is having a dramatic effect on the treatment population. Preliminary data from this project show a marked and sustained decrease in births in the distribution area beginning in August, 1978, and no declines in the control area. This decline began approximately nine months after the modified project began and, thus, occurred at the expected time. Fertility has decreased by about 30 percent, which is

roughly the amount expected with the increase of prevalence experienced in  
(See Figure 1)  
the area. / Future reports will describe the impact of other projects on  
fertility as the data become available.

## Conclusion

Despite the reluctance of many demographers and economists to endorse the idea, family planning programs appear very instrumental to lowering fertility. Programs are becoming more effective and probably more efficient due to a continuing tradition of evaluation, trial and error, and deliberate experimentation. Integration of family planning and its contraceptive delivery systems with other programs is proceeding rapidly. Successful links with commercial sectors in a growing number of countries show that contraceptives can be made available cheaply and that they will be used. Public sector activities, especially in basic rural health and nutrition, can sometimes be neatly fitted to family planning programs.

The key strategic issue in program design for community-based systems seems to be simplicity, especially with respect to "integrated" projects. For government programs to work, our experience indicates that the effort to integrate various services should be kept very simple. This turns out to be no more or less true for developing country programs than for the U. S. Government. It is probably arbitrary what activities are integrated or combined as long as the number of activities expected of community agents is few--at least initially during the first years of rural outreach programs.

When simple contraceptive services are made available, especially in communities with low baseline prevalence of use, the studies reviewed here prove that the method prevalence of use will increase, sometimes dramatically. Socio-economic differentials in program utilization, though still significant, are swiftly reduced under conditions of improved availability. Our research will increasingly focus on the analysis of fertility differentials and while

it is no doubt true that contraceptive use and fertility decline are higher and more easily attained in some populations than others, our experience to date with 21 studies from 14 countries indicates no reason to delay implementation of programs while awaiting significant changes in what one policy person calls the "institutionally consolidated behavioral bases for fertility" (Demeny, 1979).

Today and the next few years will be critical for the consolidation of population and family planning programs, especially in developing countries. Future program design and management can now benefit from considerable past experience, including recent action research.

## REFERENCES

- Bogue, Donald J., "Policy Implications of the Changing Relationship Between Population and Economic Growth," paper presented to Chicago Council on Foreign Relations, March 19, 1979.
- Brackett, J. S., R. T. Ravenholt, and John C. Chau, "The Role of Family Planning in Recent Rapid Fertility Declines in Developing Countries," Studies in Family Planning, Vol. 9, No. 12, Dec. 1978, pp. 314-323.
- Demeny, Paul, "On the End of the Population Explosion," Working Paper No. 39, Center for Policy Studies, Population Council, March, 1979.
- Foriet, T. R., M. C. Gorosh, D. G. Gillespie, C. G. Merritt, "Community-Based and Commercial Contraceptive Distribution: An Inventory and Appraisal," Population Reports, Series J, No. 19, 1978.
- Freedman, Ronald, "Theories of Fertility Decline: A Reappraisal," Social Forces (forthcoming).
- Gadalla, S., N. Nousseir, and D. G. Gillespie, "Household Distribution of Contraceptives in Rural Egypt," Studies in Family Planning (forthcoming).
- Gillespie, D. G., and C. G. Merritt, "Operations Research on Household and Village Contraceptive Distribution Systems," in T. S. Gardner, et al., eds. Village and Household Availability of Contraceptives: African/West Asia. Seattle, Washington, Battelle Memorial Institute, 1977, pp. 113-134.
- Mauldin, W. Parker and Bernard Berelson, "Conditions of Fertility Decline in Developing Countries, 1965-75," Studies in Family Planning, Vol. 9, No. 5., 1978.
- Nortman, Dorothy, Population and Family Planning Programs, Ninth Edition, New York, The Population Council, 1978.
- Ravenholt, Reimert, "The Power of Availability," in J. S. Gardner, et. al., eds., Village and Household Availability of Contraceptives: Africa/West Asia. Seattle, Washington, Battelle Memorial Institute, 1977, pp. 107-112.
- Rodrigues, German, "Family Planning Availability and Contraceptive Practice," Family Planning Perspectives, Vol. 11, No. 1, 1979, pp. 51-70.

Ross, John A., "Program Effect Upon Fertility: Enhancement and Measurement", in Chandrasekaran and Hermalin, ed., Fertility Effects of Family Planning Programs: Methods of Measurement. IUSSP, Oct. 1975.

U. S. Bureau of the Census, Population Division, "World Population: 1977 - Recent Demographic Estimates for the Countries and Regions of the World," (U. S. Government Printing Office, 1978).

DATA AND PROJECT SUMMARIES  
TO ACCOMPANY PRESENTATION:

"EXPERIMENTAL FAMILY PLANNING PROGRAMS:  
IMPROVING PREVALENCE OF CONTRACEPTIVE USE"

PART I

List of Tables and Figures:

1. Figure 1: Contraceptive Use and Birth Rates
2. Table 1: Summary Changes in Contraceptive Prevalence Among Selected Operations Research Projects
3. Figure 2: Education and Oral Contraceptive Use After Household Distribution: Bangladesh
4. Table 2: Socio-Economic Variables as Predictors of Contraceptive Use Before and After Household Distribution: Egypt
5. Table 3: Method Specific Contraceptive Prevalence Before and After Improved Method Mix: Bangladesh and Tunisia
6. Table 4: Two Estimates of Service Intervention Costs Per Couple Years of Protection for Four Interventions: Bangladesh
7. Figures 3 & 4: NFPP and CBFP New Pill Acceptors: October, 1975 - October, 1977: Thailand
8. Table 5: Contraceptive Use by Type of Resupply System: Egypt
9. Figure 5: Cost-Effectiveness: Costs per Monthly Active User by Distribution Model: 80 Districts, Thailand
10. Figure 6: Cost-Effectiveness by Agent Type and Service Type: Thailand

PART II

Operations Research Projects: Summaries

Research Division  
Office of Population  
Bureau of Development Support  
Agency for International Development  
April, 1979  
PAA Meetings  
Philadelphia, PA

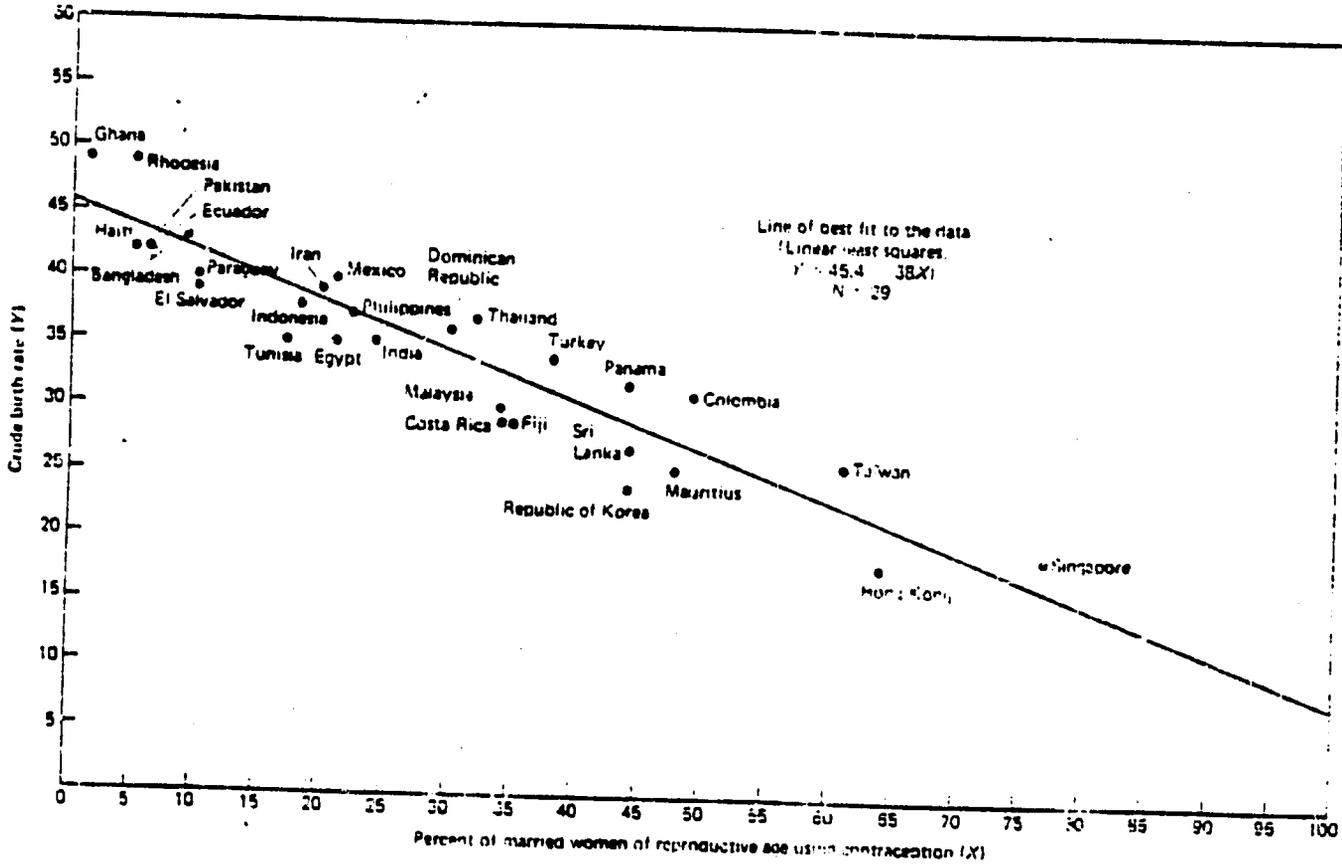
TABLE 1

**SUMMARY OF CHANGES IN CONTRACEPTIVE PREVALENCE  
AMONG SELECTED OPERATION RESEARCH PROJECTS**

Project Title	Country	Study Population Size	Before Intervention Prevalence	After Intervention Prevalence	Absolute Change (%)	Relative Change (%)	Before/After Time Period
Hat Lab	Bangladesh	125,000	1.1	15.0	14.9	1,261	1 year
		125,000 (control)	2.9	3.6	0.7	24	1 year
Modified Hat Lab	Bangladesh	160,000	13.0	16.0	3.0	100	11 months
Shawwan	Egypt	14,000	10.4	31.0	20.6	68.5	1 year
El Village	Egypt	200,000	19.1	27.7	8.6	45.0	8 months
Fond Parlane	India	12,000	4.5	18.8	14.3	317	8 months
Enryong	Korea	21,000	26.2	36.8	10.6	40.0	8 months
Cheju	Korea	400,000	20.7	34.6	13.9	67.1	2 years
		85,000 (control)	27.8	32.2	4.4	15.8	2 years
San Pablo Autopun	Mexico	8,000	6.6	34	27.4	415	24 months
MM/ Family Planning	Nicaragua	220,000	4.4	8.3	3.9	88.6	1 year
Fertility & Effectiveness	Taiwan	1,000,000	47	62.7	15.7	33.4	2 years
		500,000 (control)	47	66.2	19.2	40.8	2 years
PFAD	Tanzania	10,000	6.6	24.2	17.6	266	24 months
Jedumba	Tanzania	144,000	9	22	13	144	8 months

Figure 1

Contraceptive Use and Birth Rates



From: D. Nortman and E. Hofstatter, Population and Family Planning Programs, page 90

Figure 2

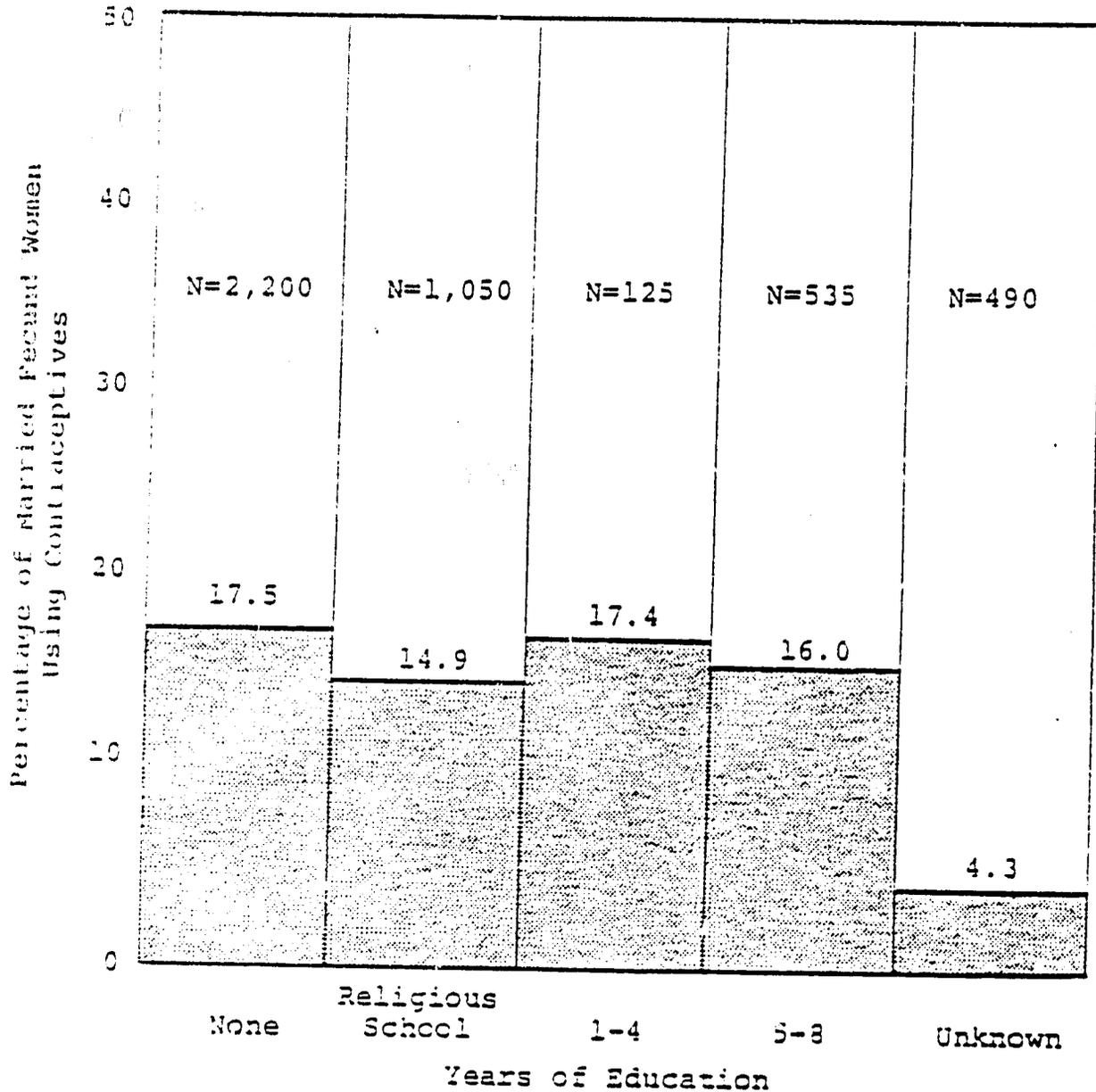


Fig. 2 Education and oral contraceptive use among married fecund women, aged 15-44, in Matlab, Bangladesh, six months after household distribution. (Adapted from the report: Khan, A.; and Huber, D. 1976; Ravenholt, 1977)

TABLE 2

Socio-Economic Variables as Predictors of Contraceptive  
Use Before and After Household Distribution  
38-Village Study, Egypt  
(N = 20,988)

Variable	-Before-			-After-		
	<u>F</u>	<u>ETA</u>	<u>BETA</u>	<u>F</u>	<u>ETA</u>	<u>BETA</u>
Parity	112.5*	.39	.30	145.9*	.31	.24
Husband's Education	79.5*	.14	.14	119.6*	.11	.13
Child Survival**	19.9*	.31	.09	17.2*	.21	.06
Years Married	17.4*	.30	.10	43.1*	.26	.11
Wife's Employment***	19.9*	.06	.06	12.4*	.04	.04

\*P = <.0001

R<sup>2</sup> = .187

R = .433

\*P = <.0001

R<sup>2</sup> = .126

R = .355

\*\* This ratio is the number of living children by the  
number of live births

\*\*\* The categories are: Not working; Working, unsalaried;  
Working, salaried.

From: S. Gadalla, Nosseir, Gillespie

TABLE 3

METHOD SPECIFIC CONTRACEPTIVE PREVALENCE  
BEFORE AND AFTER IMPROVED METHOD MIX: TUNISIA AND BANGLADESH

	<u>Before Distribution</u>	<u>After Distribution Concentrating on OCs</u>	<u>After Improved Contraceptive Mix</u>
		<u>TUNISIA*</u>	
	<u>4/76</u>	<u>5/77</u>	<u>8/78</u>
OCs	1.0	4.8	4.2
IUDs	1.6	3.0	6.3
Sterilization	3.5	6.3	11.2
Other	0.4	0.6	0.3
Total	<u>6.6</u>	<u>14.7</u>	<u>21.9</u>
		<u>BANGLADESH**</u>	
	<u>10/75</u>	<u>5/77</u>	<u>12/78</u>
OCs	0.7	8.7	6.3
IUDs	-0-	-0-	1.0
Sterilization	-0-	-0-	5.4
Neosampoons	-0-	-0-	1.2
Injectables	-0-	-0-	18.3
Condoms	0.1	2.4	3.2
Other	0.3	1.9	0.7
Total	<u>1.1</u>	<u>13.0</u>	<u>36.3</u>

\* Personal communication from M. Bchir, L. Toumi, and E. Maguire; Feb., 1979.

\*\* Personal communication from L. Chen, H. Mosley, and S. Bathia; Feb., 1979.

February 1979  
DS/POP/R:D.G.Gillespie

TABLE 4

Two CRL Estimates of Cost (Service Intervention Only)  
 Per Couple Years of Protection for Four Different  
 Interventions with Contraceptive Prevalence  
 Attained for Each Intervention: MATLAB

	<u>Estimate I</u> <u>U.S.S</u>	<u>Estimate II</u> <u>U.S.S</u>	<u>Change in</u> <u>Prevalence</u>
A. Household Distribution of Pills and Condoms	2.30	4.25	1 to 13
B. "A" with Addition of Depo-Provera	3.40	8.10	13 to 21
C. All Methods with Upgraded Field Staff	6.39	6.68	21 to 27
D. "C" with Addition of MCH Services	6.70	6.91	27 to 36

DS/POP/R

January, 1979

(Adapted from: Hogan, H. and H. Gelfand, "An Evaluation of the Family  
 Planning Operations Research Project, Matlab, Bangladesh,"  
 American Public Health Association, 1/79)

MPPP NEW PILL ACCEPTANCE: OCTOBER 1975 - OCTOBER 1977

(Please note that Figures C and D have different vertical scales)

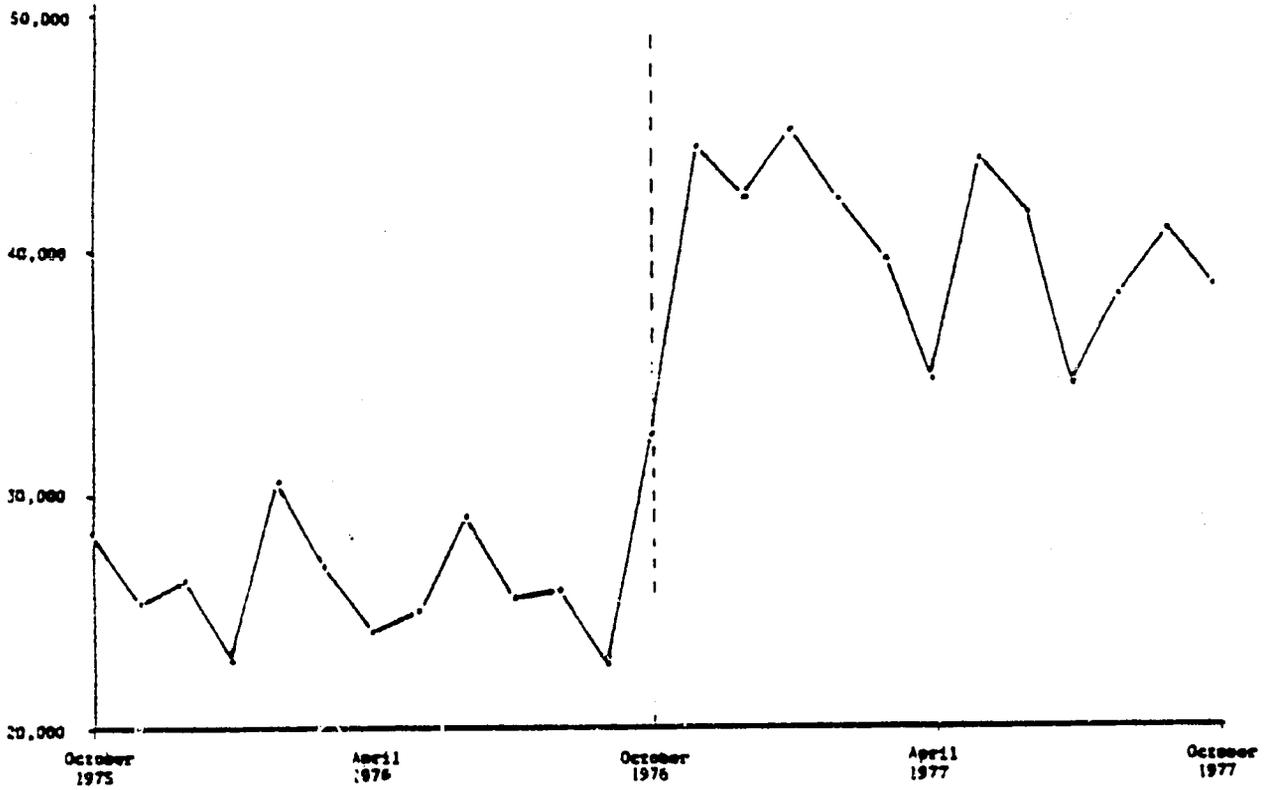
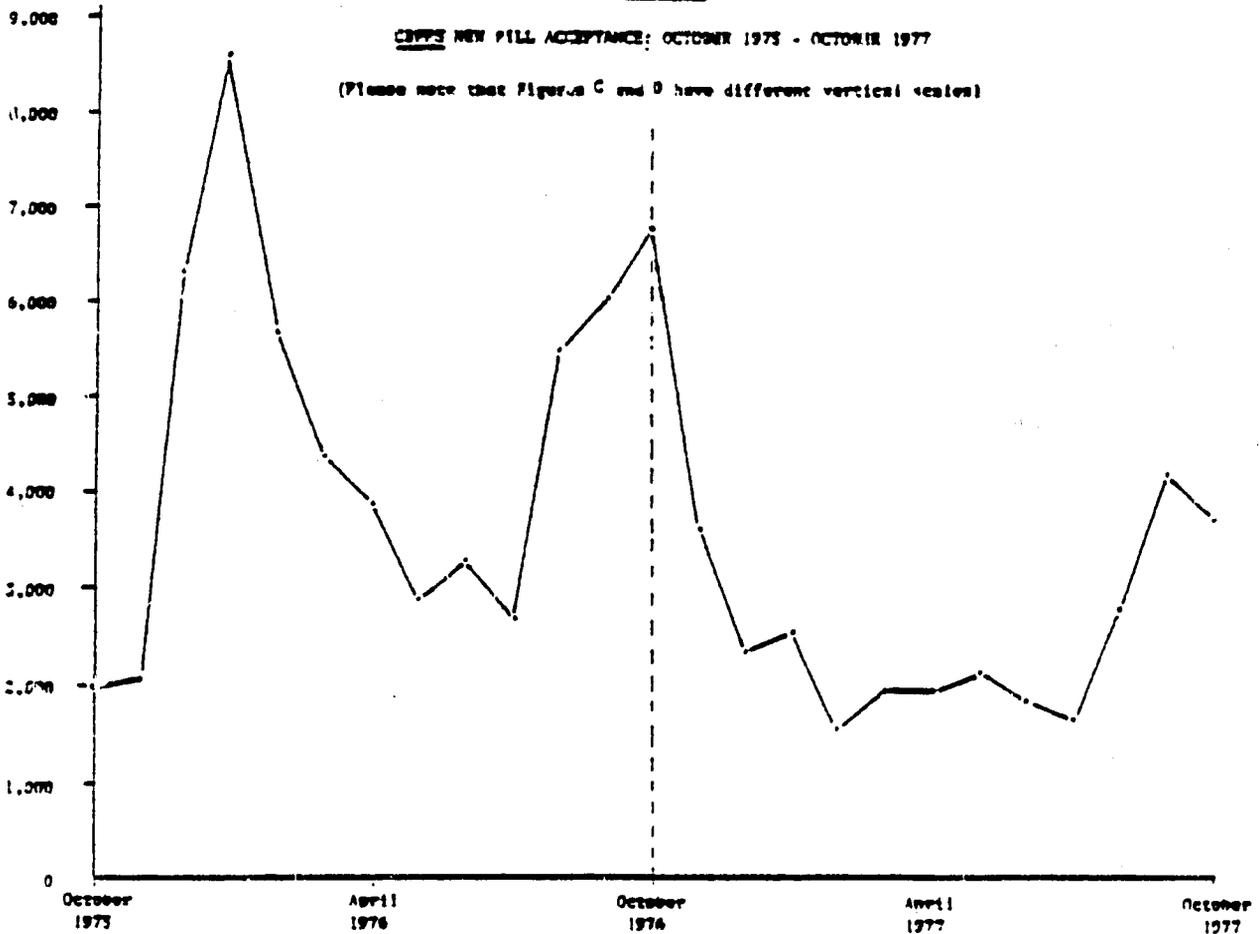


FIGURE 4

CBPS NEW PILL ACCEPTANCE: OCTOBER 1975 - OCTOBER 1977

(Please note that Figures C and D have different vertical scales)



Contraceptive Use by Type of Resupply System Among Married, Fecund  
Women 15-44 Years of Age Interviewed Before and  
8 Months After the Household Distribution

Type of Resupply	Number of Women (1)	Percent of Universe (2)	USERS				Percent Change***	
			Before		After		Absolute (7)	Relative (8)
			N (%)** (3)	(%)* (4)	N (%)** (5)	(%)* (6)		
<b>FREE</b>								
a. With Clinic	7,431	(35.4)	1,442 (19.4)	(72.6) (4)	2,103 (28.3)	(73.5) (6)	(8.9) (7)	(45.8) (8)
b. Adjacent to Village with Clinic	2,567	(12.1)	500 (19.5)	(25.2) (4)	687 (26.8)	(24.0) (6)	(7.3) (7)	(37.4) (8)
c. Outlying from Village with Resupply Depot	636	( 3.0)	43 ( 6.8)	( 2.2) (4)	70 (11.0)	( 2.5) (6)	(4.2) (7)	(62.8) (8)
TOTAL.	10,634	(100.0)	1,985 (18.7)	(100.0) (4)	2,860 (26.9)	(100.0) (6)	(8.2) (7)	(44.1) (8)
<b>CHARGE</b>								
d. With Clinic	8,342	(39.7)	1,682 (20.2)	(83.2) (4)	2,402 (28.8)	(81.4) (6)	( 8.6) (7)	(42.9) (8)
e. Adjacent to Village with Clinic	1,091	( 5.2)	270 (24.7)	(13.4) (4)	349 (32.0)	(11.8) (6)	( 7.3) (7)	(29.3) (8)
f. Outlying from Village with Resupply Depot	921	( 4.4)	69 ( 7.5)	( 3.4) (4)	200 (21.7)	( 6.8) (6)	(14.2) (7)	(189.9) (8)
TOTAL.	10,354	(100.0)	2,021 (19.5)	(100.0) (4)	2,953 (28.5)	(100.0) (6)	( 9.0) (7)	(46.1) (8)

\* Percent of all users

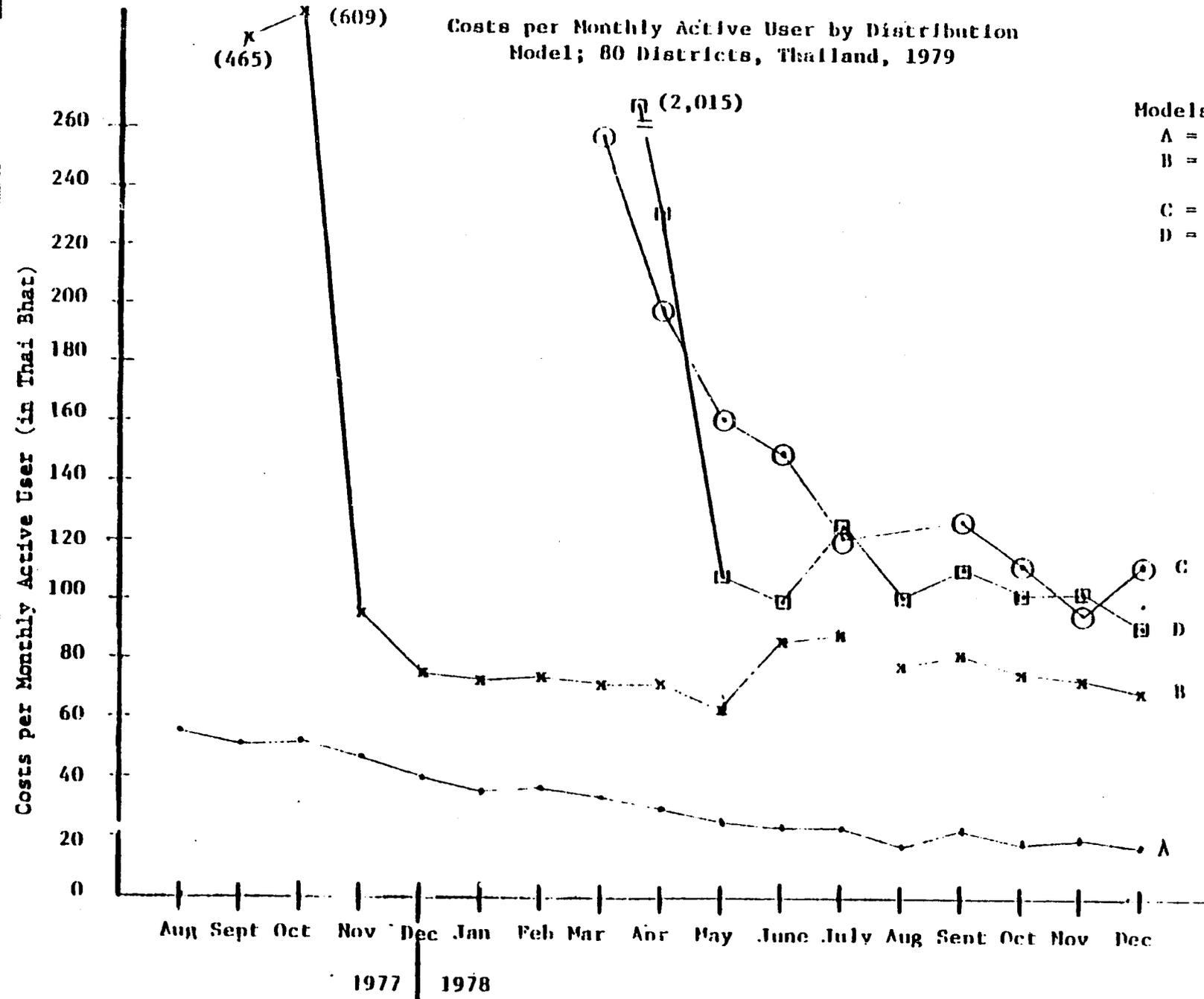
\*\* Users as percent of all women in this resupply category

\*\*\* Change as percent of all women in resupply category

Figure 5

COST-EFFECTIVENESS

Costs per Monthly Active User by Distribution Model; 80 Districts, Thailand, 1979



Models:

- A = Contraceptives Only
- B = Contraceptives Only (2 free cycles)
- C = Contraceptives and Medic
- D = Contraceptives and Medic (2 free cycles)

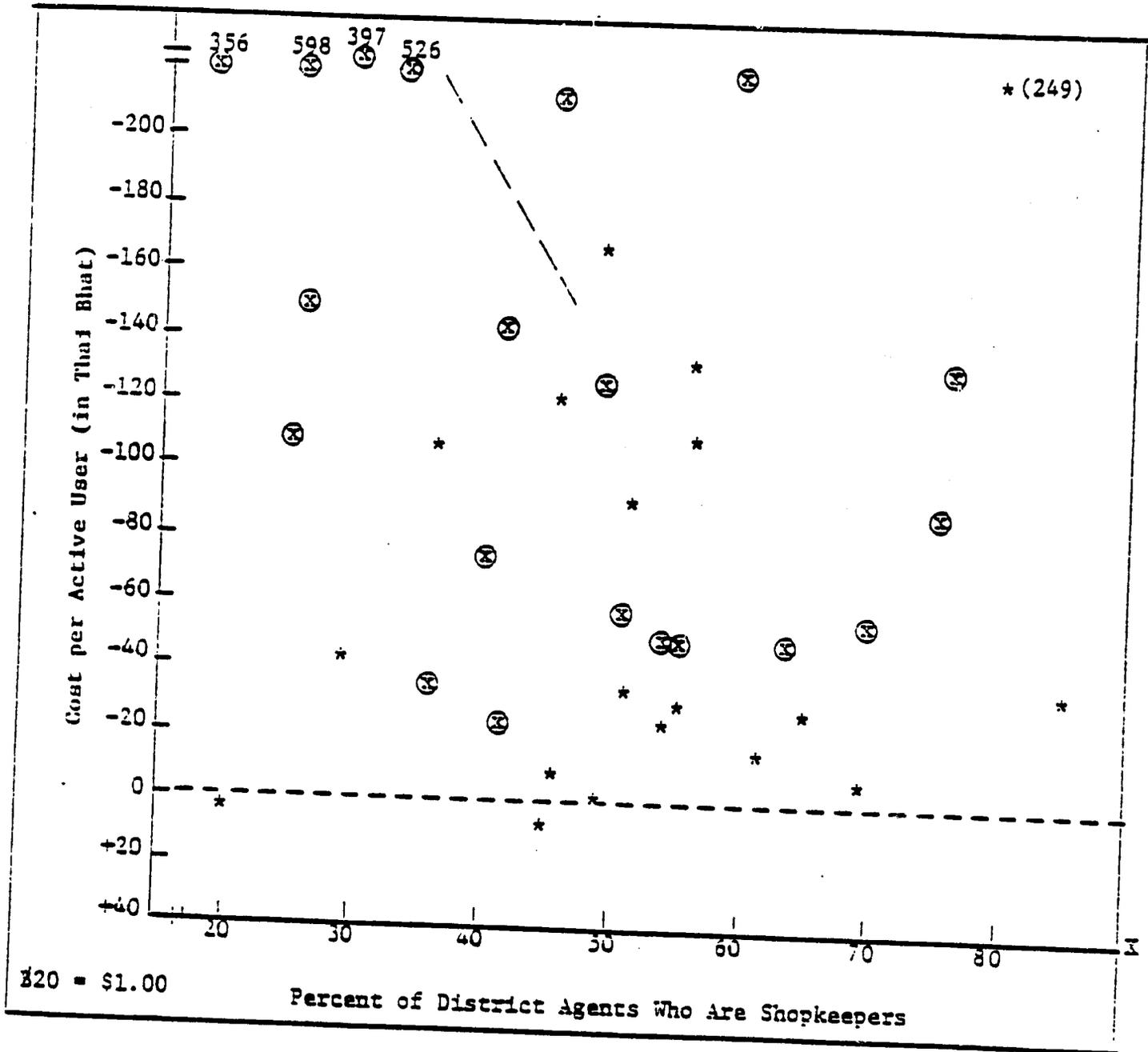
CD = 97.0

AB = 45.7

Figure 6

COST EFFECTIVENESS BY AGENT TYPE AND SERVICE TYPE, 40 DISTRICTS

Contraceptive Retail Sales Program: Thailand, 1979 -



\* = Model A: Contraceptives only, sold through shopkeepers and other rural agents.

⊗ = Model C: Same as "A" but combined with retail sales of household drugs, referral for health services, and minimal health training of agents.

Merritt, 2/79  
After data from  
Mechai, CBPPS/Thailand