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STATUS REPORT ON AN EVALUATION OF THE DEMOGRAPHIC IMPACT OF A CONTRACEPTIVE DISTRIBUTION PROJECT IN MATLAB THANA, BANGLADESH

A Report Prepared By:
Wayne Stinson, Ph.D.

During The Period:
January 4 - February 1, 1981

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ABBREVIATIONS

APHA	American Public Health Association
CDP	Contraceptive Distribution Project
CRL	Cholera Research Lab
DSS	Demographic Surveillance System
FPHSP	Family Planning and Health Services Project
GFR	General Fertility Rate
ICDDR/B	International Centre for Diarrhoeal Disease Research/Bangladesh
TFR	Total Fertility Rate
USAID	United States Agency for International Development

Introduction

This is a final report on a consultancy to the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR/B). The purpose of this consultancy, which was conducted between January 4 and February 1, 1981, was "to complete an evaluation of the demographic impact of the contraceptive distribution project in Matlab Thana." The sole consultant was Dr. Wayne Stinson, a member of the staff of the International Health Programs, American Public Health Association (APHA).

In October 1975, the ICDDR/B (then known as the Cholera Research Lab, or CRL) launched an intensive household distribution scheme for oral contraceptives in 125 villages of Matlab Thana. Semi-trained village women (dais) made daily contacts with women throughout the area. Supplies of free pills (and later condoms) were given to all persons who wanted them. Contraceptive prevalence rates in the demonstration area increased rapidly--from approximately 3 percent to nearly 18 percent--after three months. The rates then began to decline gradually, dipping to approximately 12 percent by late 1976. The original Contraceptive Distribution Project, or CDP as it was known, continued to serve the Matlab area until approximately September 1977.

The CDP was not considered to be a great success because continuation rates were low, and few new acceptors were recruited after the first three months. The results, it was suggested, could be attributed to the lack of a choice of methods (only pills and condoms were offered), inadequate staffing, and the lack of ancillary health services. Late in 1977, a modified project, known as the Family Planning and Health Services Project (FPHSP), was initiated to try to overcome these weaknesses. This project has achieved and is maintaining prevalence rates in excess of 30 percent. Major modifications to the project are being discussed, but the project continues to operate.

Scope of Work

The purpose of this consultancy, and of an earlier consultancy completed in 1979, was to assist ICDDR/B staff in evaluating the demographic impact of the CDP and FPHSP. The ICDDR/B has a unique resource at its disposal, the Demographic Surveillance System (DSS). The ICDDR/B has managed this vital registration and census system in Matlab since the mid-1960s. Most family planning projects can only estimate the effects of their activities on birth rates; the ICDDR/B is, at least theoretically, able to measure effects directly. Several earlier attempts to evaluate the program had been compromised by incomplete computer work and faulty analytical design. Therefore, for this effort the consultant was asked to not only provide technical guidance, but also to expedite work without becoming involved in other time-consuming ICDDR/B activities.

The report which follows is a status report on an evaluation of the CDP and FPHSP. The detailed findings will be presented in an internal ICDDR/B report, which is being prepared for publication, and in a series of articles that will be submitted to international journals. The findings are relatively clear at this time, but they cannot be released to the public until they have been reviewed and approved by the Community Services Working Group of the ICDDR/B.

Activities Prior to Current Consultancy

The assignment described in this report was a continuation of earlier work completed between May and September of 1979 under an AID/APHA contract. Earlier, computer programs had been written, debugged, and run to produce tabulations of vital events by various characteristics. A program also had been written to calculate several fertility measures using these data. The assignment ended just as the tabulations of vital events were becoming available. Birth rates could not be calculated in the short time remaining before the consultant's necessary return to the United States.

The evaluation continued slowly for a number of reasons after Dr. Stinson's departure from Bangladesh. One reason was the loss in transit of all computer printouts from Bangladesh. Fortunately, these were not essential to the central analyses. (Tabulations had been copied onto a computer tape, which had not been lost.) A more important reason was Dr. Stinson's transfer from one job and geographic location to another. The resulting dislocation made the Bangladesh work very difficult, both on and off the job. Finally, there was no one to continue the work in Dacca. Some computer work continued to be done at the AID computer facility in Washington, D.C., but this effort was not carried through to fruition.

In March 1980, the Population Council seconded Dr. James Phillips to ICDDR/B for a two-year contract. Dr. Phillips took immediate action to renew the evaluation work, but his heavy involvement in other activities made progress difficult. Several errors were found and corrected in the earlier tabulations, and 1979 data on vital events, which had not before been available, were tabulated. Dr. Phillips brought these tabulations and some early analyses to the United States during a brief visit in October 1980. He met with Dr. Stinson for about three hours one Sunday morning before returning to Dacca. The possibility of a return trip by Dr. Stinson to complete the earlier work was discussed at this meeting. After Dr. Phillips returned to Dacca, the ICDDR/B made a formal request to USAID/Dacca that this be done.

Work During Current Consultancy

Dr. Stinson arrived in Dacca on January 4, 1981. He made contact with USAID and immediately began work with Dr. Phillips. Between January 4 and January 15, Drs. Stinson and Phillips concentrated on

refining the computer analyses and completing a minor additional tabulation (the number of births between January and June 1978 in approximately 80 villages). Particular attention was given to the calculation of a seasonally-adjusted factor (to reduce the effects of huge quarterly fluctuations in birth rates) and to the refinement of population denominators. The consultant and Dr. Phillips began to write a report during this time, but they could not proceed with the sections on results because precise numbers were still in a state of flux.

USAID/Dacca originally requested consultant services for two weeks, but the need for an extension soon became apparent. Extra time was needed for three reasons in particular:

1. The computer was available only one and one-half hours each day, and it was located five miles from the ICDDR/B. All computer work had to be performed by the consultant himself.

2. Dr. Phillips was only a part-time collaborator because he had to attend to his other ICDDR/B responsibilities.

3. The original time estimate was too low, given the complexity of the subject.

An initial one-week extension was requested on January 9; a second extension was requested on January 20. The second extension was partly motivated by USAID's desire to have the findings presented at a workshop on family planning operations research, which had been scheduled for January 31. In the end, Dr. Stinson left Dacca on February 1, two weeks later than originally planned.

Drs. Stinson and Phillips began writing in earnest during the weekend of January 17. Several research assistants were employed to draw graphs and to calculate significance tests. Dr. Stinson concentrated on the original CDP and Dr. Phillips on the modified FPHSP, with both demographers sharing the responsibility for the introduction and the section on methodology. Dr. Phillips experimented with a regression analysis which could be used to compare the two projects. Although the work was closely coordinated, the first draft of the report contained many gaps and inconsistencies which could only be examined and corrected in the final week.

On January 31, Drs. Stinson and Phillips presented their findings at the Second Bi-annual Seminar on Family Planning Research. This seminar was held in Azimpur, Dacca. (A copy of the presentation is attached as Appendix B.)

The internal report will contain an analysis of both projects, but it will almost certainly be too bulky for professional journals. A series of perhaps four or five articles for outside publications is planned. Articles that relate chiefly to the CDP will be drafted by Dr. Stinson; those that concern the FPHSP will be prepared by Dr. Phillips. In both cases, intensive collaboration will be sought with Mr. Maklishur Rahman and Dr. Shushum Bhatia, who managed the CDP and the FPHSP, respectively. Drs. Alauddin Chowdhury and Lado Ruzicka, who have done related studies in Matlab, will also be consulted. Because both Drs. Stinson and Phillips have full-time jobs, it may take six months to a year to prepare and receive the ICDDR/B's approval of these external articles.

The first step in the next phase will begin in late March or early April 1981, when Dr. Phillips comes to Washington for the annual meeting of the Population Association of America. Dr. Phillips will remain in Washington for an additional week. At this time, Dr. Stinson may be available for work on evenings and weekends. AID/Washington should continue to encourage this work until it is completed, principally by facilitating contact between Drs. Stinson and Phillips. Continued access to the AID computer would also be helpful.

APPENDICES

Appendix A

LIST OF CONTACTS

Appendix A

LIST OF CONTACTS

Dr. Carol Carpenter-Yaman, USAID

Mr. John Dumm, USAID

Dr. James Phillips, ICDDR/B

Dr. Stan D'Souza, ICDDR/B

Dr. Shushum Bhatia, Johns Hopkins University

Dr. Pierre Claquin, ICDDR/B

Ms. Sue Horton, Harvard University

Mr. Maklishur Rahman, ICDDR/B

Dr. Lado Ruzicka, Australian National University

Dr. W.B. Greenough, ICDDR/B

Mr. Oscar Gish, University of Michigan

Dr. Alauddin Chowdhury, ICDDR/B

Appendix B

THE DEMOGRAPHIC IMPACT OF THE TWO CONTRACEPTIVE SERVICE PROJECTS IN MATLAB THANA: A SYNOPSIS OF KEY FINDINGS

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THE DEMOGRAPHIC IMPACT OF THE TWO CONTRACEPTIVE SERVICE PROJECTS IN MATLAB THANA: A SYNOPSIS OF KEY FINDINGS

James F. Phillips[a], Wayne Stinson[b], Shushum Bhatia[c], Makhlisur Rahman[d], J. Chakraborty[e], and A.M. Sardar[f]

Paper Presented at the
Second Bi-Annual Seminar on Family Planning Research,
NIPORT, Azimpur, Dacca
January 31, 1981

INTERNATIONAL CENTRE FOR DIARRHOEAL DISEASE RESEARCH, BANGLADESH
GPO Box No. 128, Dacca-2

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[e]Field Supervisor for Research, Matlab

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INTRODUCTION

In recent years demograghic research has shown that fertility has declined in a variety of Asian settings. Yet the causal role of contraceptive service programs in inducing and sustaining demographic transistions in developing countries continues to be the subject of discussion and debate, principally because establishing causality requires rigorous experimental designs, and conditions for such research can rarely be met. This presentation documents the demographic effects of two such studies conducted in Matlab thana.[1]

The Matlab family planning studies were conducted by the Cholera Research Laboratory (CRL);[2] the first from October 1975 to October 1977, and the second from October 1977 to the present. Both studies were fielded in Matlab because of the remarkable demographic resources of the CRL. Both were intended to test policy relevant hypotheses regarding the efficacy of contraceptive service programmes in rural Bangladesh.

The first study, known as the Contraceptive Distribution Project (CDP) was designed to test the hypothesis that a latent demand for contraception exists that can be fulfilled with house-to-house distribution of non-clinical methods. The second project grew out of operational problems

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[1]This presentation is a synopsis of key findings from a forthcoming ICDDR,B report.

[2]In 1979 the CRL became the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B).

encountered with the first project. Use prevalence was found to be low owing to low continuation rates and diminishing acceptance rates. Researchers regarded the choice of methods as being overly restrictive, particularly since pill side effects were common, and the dais chosen for the project were not trained to deal with such problems. Thus an hypothesis emerged from the CDP which holds that better trained, equipped and supervised village workers using more methods, more intensive follow-up, and referral would serve the latent demand for contraception more effectively than the CDP. The second project, known as the Family Planning Health Services Project (FPHSP), was designed to test this hypothesis. We shall discuss each project, in turn.

THE CONTRACEPTIVE DISTRIBUTION PROJECT

Late in 1975, the Cholera Research Laboratory (now ICDDR,B) trained 153 mostly illiterate, village women to conduct door-to-door contraceptive delivery in half of Matlab thana. Nearly 70 percent of those contacted accepted a 6-month pill supply, although only a few of these women actually began use. Three months later, 17.8 percent of eligible women were using contraception, a proportion that gradually fell to about 12 percent at the end of the first year. The project continued for another year at about this level of contraceptive usage.

Evaluation of demographic effects of this project is complicated by the severe reduction of fertility following the 1974 famine and substantial compensation increase in fertility during 1976. This seasonality is shown

in Figure 1 by the quarterly fluctuation in the general fertility rate.

For the purpose of assessing impact the seasonally adjusted pattern in Figure 2 is somewhat clearer. It shows that both the treatment and comparison areas of the Matlab area experienced a pronounced fertility increase just as the CDP should have had its first effect. The treatment area fertility, (marked with the solid line) nevertheless remains well below that of the comparison group, a difference that we believe was due to contraceptive distribution. The effect persists for only a few quarters but it was enough to produce an estimated 12 percent fertility reduction during the 12 months following July 1976. More detailed calculations in Table 1 show a much greater impact over age 30, probably because women in this age group had already achieved a high parity and wanted to stop. The project appears to have reduced fertility among women over age 30 even during the second year. We conclude therefore that simple household distribution using illiterate workers can reduce fertility, but that the effect may be small if only a few methods are offered or if workers are not trained to do follow-up.

THE FAMILY PLANNING HEALTH SERVICES PROJECT

In October of 1977 the ICDDR,B recruited and trained a new cadre of female village workers and assigned them to project areas of the FPHSP. The new workers, unlike their counterparts from the CDP, were chosen from influential families of the villages were they were assigned. In all 80 such workers were trained, all of whom are literate, young married women. Each worker serves population of 1,000 villagers, with groups of 20 workers assigned to a health subcentre that is staffed by a full time paramedic to provide routine maternal and child-health services, IUD services, and referral support. The project has one lady physician who does regular rounds in the field and provides professional support to a sterilization clinic in Matlab. Village workers are trained and equipped not only to provide contraceptive care such as village based Depo Provera injections, but also maternal and child care such as injections for neonatal tetanus. Work routines require workers to visit all eligible women fortnightly and to attend subcentre meetings fortnightly to report on progress. A senior supervisor is assigned to the entire project area, and one assistant supervisor is assigned to each subcentre to conduct meetings and provide day to day supervision.

Results have showed that prevalence rose rapidly to 34 percent of the eligible women in the first year. Of these women half are "Depo-Provera" adopters, while approximately 9 percent have received tubectomies. The remaining couples are using the copper T, pills, or condoms. This project has continued to maintained the 34 percent prevalence rate from 1978 to the present.

Figure 3 presents general fertility rates over time for village groups of the FPHSP. While village groups differ from those that appear in Figure 1, it can be compared with Figure 1 to observe the similarities and differences between the impact of the two programs. The FPHSP has had a pronounced impact on fertility. Figure 3 shows, however, that the effect has been to shift the level of fertility downward by about the same proportion for all seasons. Therefore the seasonality of the program persists despite high prevalence of fertility control.

Figure 4 presents the data from Figure 3 with seasonality effects removed. It can be compared with Figure 2 to observe the principal difference between the effects of the two programs. Effects of the FPHSP were more pronounced than the CDP effects and were sustained longer over time. Note that the treatment curve falls below the comparison area curve before the project and during the CDP. We have found that this is due to residual effects of the CDP on FPHSP treatment villages.

Table 2 presents detailed tabulations of fertility data for the FPHSP treatments. The data show that fertility levels prior to the study were highly comparable, and show, once again the pronounced effects of the FPHSP. By 1979 treatment area fertility was 25 percent lower than comparison area rates, a difference that accrues mainly from the marked reductions in fertility among women aged 30 and over. Note, for example, that the between treatment differential was 50 percent for women aged 35 and over -- an unprecedented difference between the two areas that strongly supports the hypothesis that intensive, user oriented, services improved the efficacy of contraceptive services in Matlab.

POLICY AND RESEARCH IMPLICATIONS

Several policy implications emerge from this research:

1. Fertility can be significantly reduced in Bangladesh by making contraceptives readily available to households. Achieving this requires an intensive household distribution system that provides free supplies on demand. The effects of such a program will be modest, however, and Government targets cannot be met with a household distribution program alone. Though modest, effects will be significant in the context of the high fertility prevailing in rural Bangladesh. Clearly, distribution of contraceptives is better than no distribution at all.

2. A user oriented with a wide choice of methods, skilled counselling, rigorous follow-up, and ancillary health services may be twice as effective as one based on one or two methods distributed by unskilled workers. It is possible that Bangladesh could achieve its targets if such a program were successfully implemented.

3. Seasonality of fertility is pronounced even in areas served by our project. This feature of fertility needs investigation and recognition in policy planning. Intensive campaigns, for example, will be much more effective if launched in the months from December to March than in April to December. Intensive education and promotional campaigns should coincide with seasons when conception rates are high. More research should be addressed to developing our understanding of natural fertility dynamics and its policy implications.

4. Motivation remains as a problem. We have no evidence that reproductive motives have been affected by our projects. We have observed that use prevalence in Matlab has remained constant at 34 percent for three years. This prevalence of use agrees well with the pre-project prevalence of women who said they were either using a method or would use one in the future if contraceptives were provided. We conclude therefore that we have met the demand for contraception that exists in Matlab and that by doing so our project has had substantial fertility effects. But we recognize that increasing this impact further will require changes in reproductive motives. Whether reproductive motives can be influenced by health interventions or other policies is a critical question to be investigated in Matlab in the next three years.

5. More research is needed on the determinants of program success. Several villages in Matlab have use prevalence rates exceeding 50 percent; others have rates of less than 10 percent. The question of why we succeed in some villages but fail in others is an important research issue.

6. The success of the Matlab experiment represents a challenge to researchers and administrators to discover ways in which results can be translated into action. There needs to be a systematic review of features of this project which have immediate applications. Furthermore, there is a need for research on the operational problems of utilisation and implementation of findings.

Table 1: Age Specific Fertility Rates, Total Fertility Rates (TFR) and General Fertility Rates(GFR) For the Comparison and Treatment Areas of CDP, Pre-project and Post-project Periods

Age Group	Pre-project Period						Post-project Period					
	Project year: 1974			1975			1976			1977		
	A[a]	B[b]	Per-cent diff.[c]	A	B	Per-cent diff.	A	B	Per-cent diff.	A	B	Per-cent diff.
15-19	154.8	167.4	-7.5	134.5	119.5	12.6*	187.4	177.5	5.6	166.1	149.1	11.4*
20-24	253.8	266.5	-4.8	189.9	176.8	7.4	303.5	331.5	-8.4*	254.8	235.0	8.4
25-29	267.4	269.7	-0.9	225.3	205.6	9.6	321.4	346.6	-7.3*	276.9	270.4	2.4
30-34	210.9	218.3	-3.4	178.1	158.9	12.1*	285.5	359.2	-20.5*	250.5	242.0	3.5
35-39	118.6	129.6	-8.5	93.0	96.4	-3.5	139.1	189.8	-26.7*	147.4	163.7	-10.0
40-44	34.3	53.6	-36.0*	32.1	41.3	-22.3	46.7	68.5	-31.8*	55.2	70.5	-21.7*
TFR	5.20	5.53	-6.0	4.26	3.99	6.8	6.42	7.37	-12.9	5.75	5.65	1.8
GFR	179.0	193.5	-7.0*	147.3	139.0	6.0	221.4	251.1	-11.8	197.3	192.4	2.5

[a] A: CDP Treatment area

[b] B: CDP Comparison area

[c] The difference between the two areas, divided by the rate for the comparison area. In this table and in table 2 a negative sign indicates that the treatment area had a lower rate than the comparison.

*Statistically significant for a two-tailed Z test at $P < 0.05$ level of confidence. TFR differences were not tested.

Table 2: Age Specific Fertility Rates, Total Fertility Rates (TFR) and General Fertility Rates (GFR) for the Comparison and Treatment Areas of the FPHSP, Pre-experiment and Experiment Periods

Age Group	Project year: 1974			Pre-project Period 1975			1976			1977			Post-project Period 1978		
	A[a]	B[b]	Per-cent diff.	A	B	Per-cent diff.	A	B	Per-cent diff.	A	B	Per-cent diff.	A	B	Per-cent diff.
15-19	153.8	154.1	-0.2	116.8	123.5	-5.4	170.1	183.4	-7.3	139.8	162.2	-13.8*	124.4	148.8	-16.4*
20-24	257.9	262.8	-1.9	194.9	186.9	+4.3	299.1	338.8	-11.7*	235.5	247.6	- 4.9	219.3	269.0	-18.5*
25-29	276.1	267.3	+3.2	194.4	208.9	-6.9	290.6	330.1	-12.0*	242.3	261.5	- 7.3	187.8	238.8	-21.4*
30-34	219.7	226.3	-2.9	192.5	186.3	+3.3	308.9	325.1	- 5.0	228.8	270.6	-15.4*	186.4	252.8	-26.3*
35-39	127.3	118.3	+7.6	89.8	99.5	-9.7	165.2	154.6	+ 6.9	149.9	153.1	- 2.1	96.9	183.4	-47.2*
40-44	48.7	52.3	-6.9	47.4	46.6	+1.7	62.2	69.5	-10.5	67.4	68.7	- 1.9	30.9	65.5	-52.8*
TFR	5.42	5.41	+0.2	4.18	4.26	-1.9	6.48	7.01	- 7.6	5.32	5.82	- 8.6	4.23	5.80	-27.1
GFR	187.6	185.1	+1.4	143.9	145.6	-1.2	221.4	239.3	- 7.6*	180.7	198.1	- 8.8*	148.7	197.0	-24.5

[a]A: FPHSP Treatment Area

[b]B: FPHSP Control area

*Statistically significant for a two-tailed Z test at $p<.05$. TFR differences were not tested.

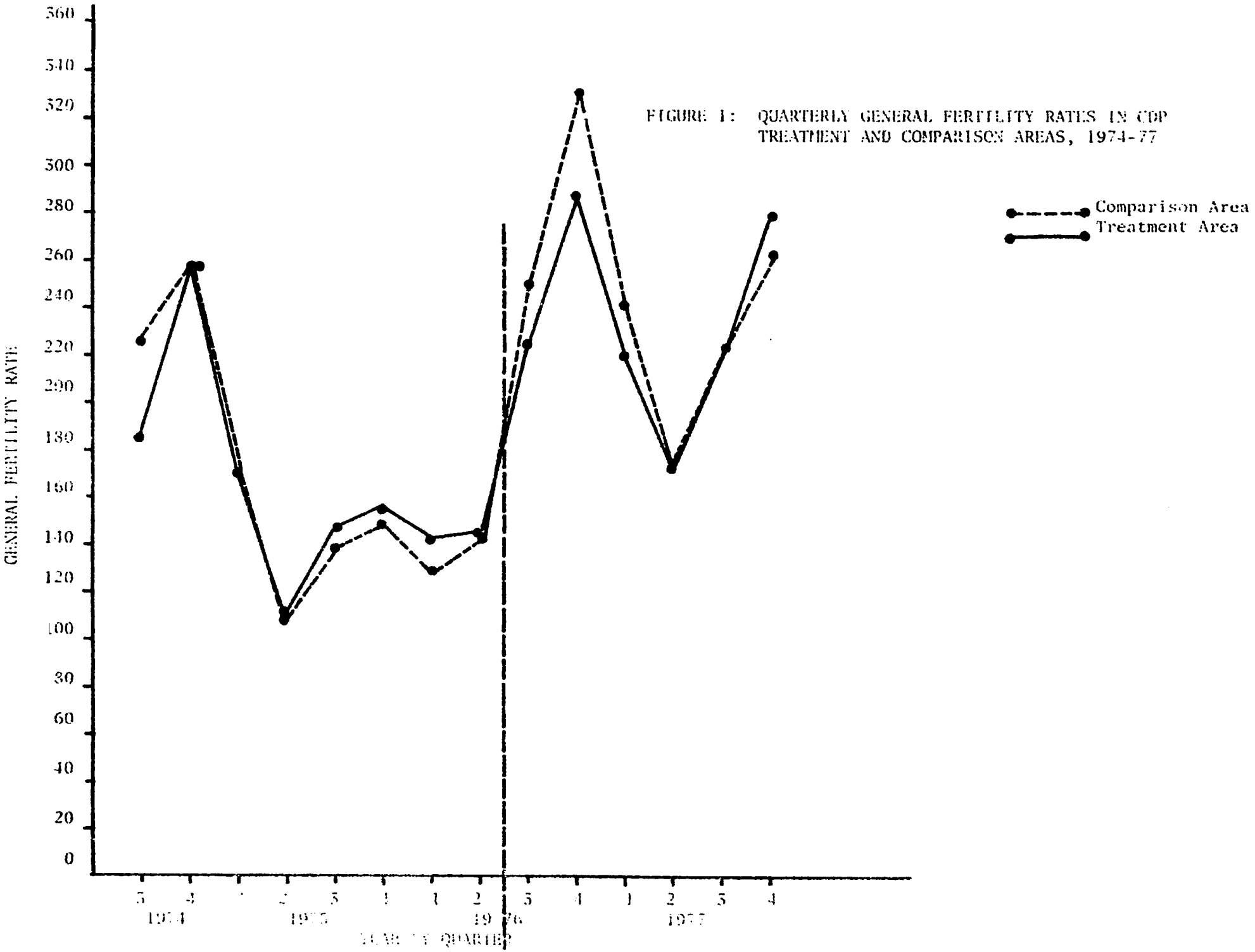
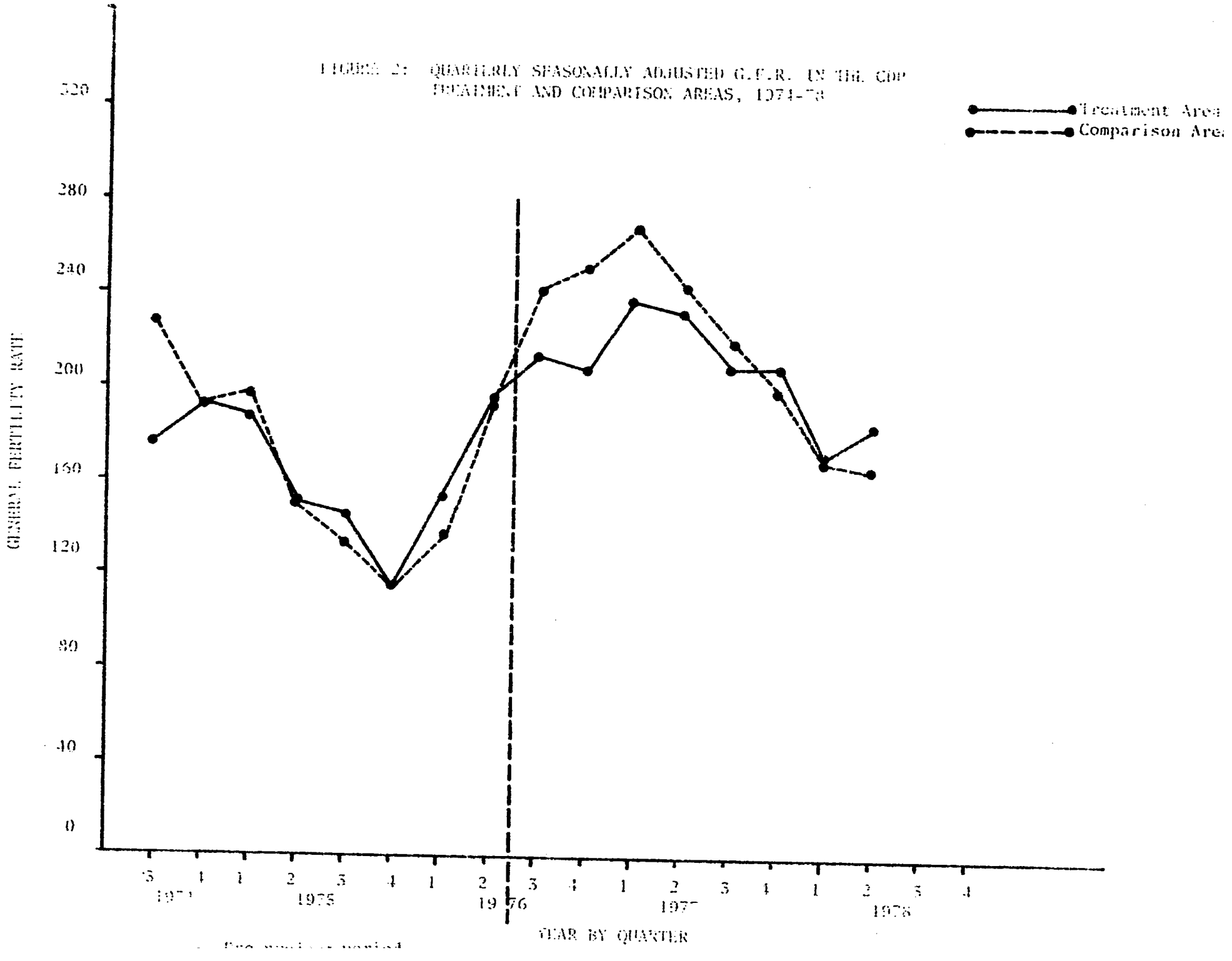
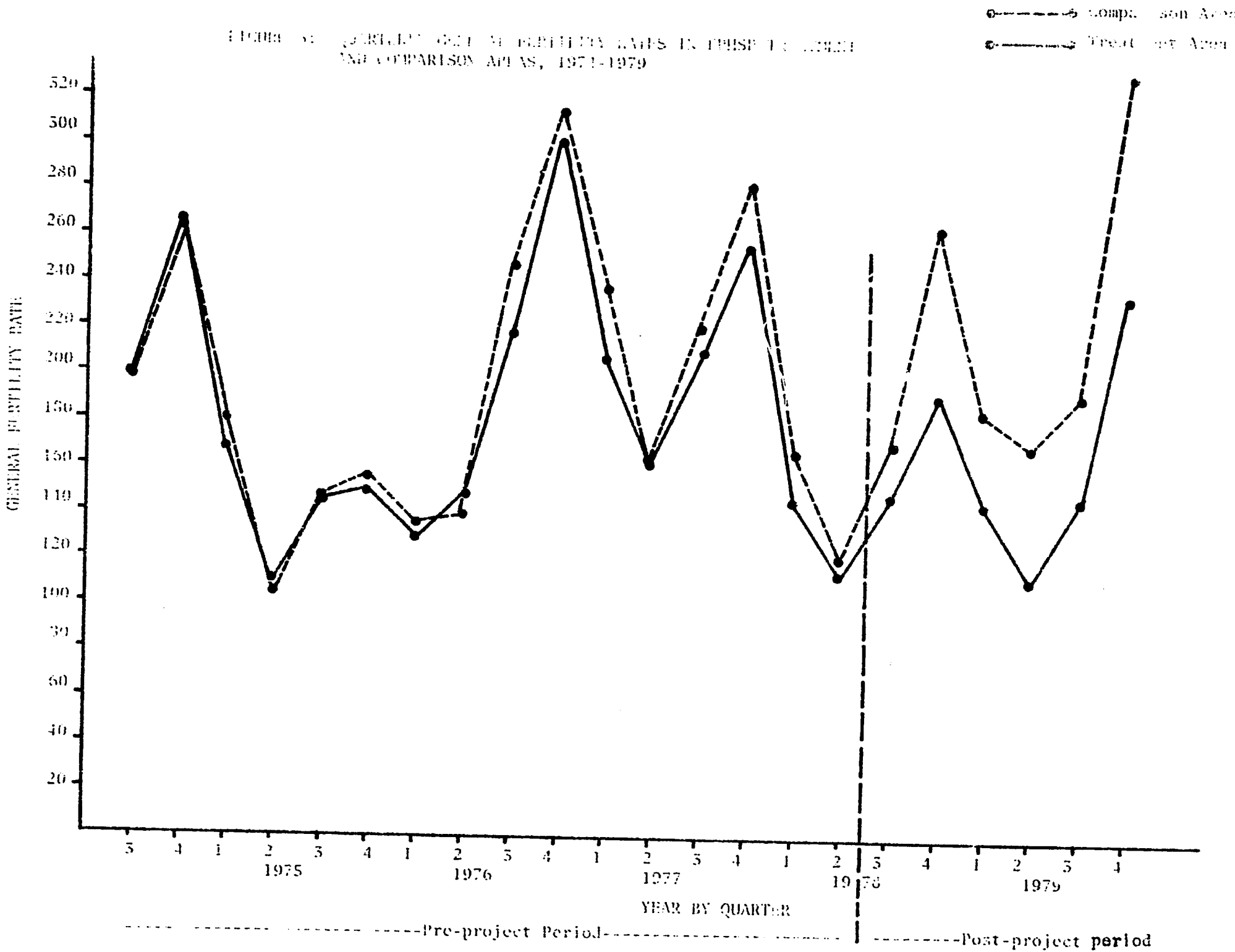


FIGURE 1: QUARTERLY GENERAL FERTILITY RATES IN CDP TREATMENT AND COMPARISON AREAS, 1974-77
Comparison Area
Treatment Area
GENERAL FERTILITY RATE
360
340
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
1974
1975
1976
1977

FIGURE 2: QUARTERLY SEASONALLY ADJUSTED G.F.R. IN THE CDP TREATMENT AND COMPARISON AREAS, 1974-78




Comparison Area
Treatment Area
GENERAL FERTILITY RATE
520
500
280
260
240
220
200
180
160
140
120
100
80
60
40
20
3
4
1
2
3
4
1
2
3
4
1
2
3
4
1
2
3
4
1
2
3
4
1975
1976
1977
1978
1979
YEAR BY QUARTER
Pre-project Period
Post-project period

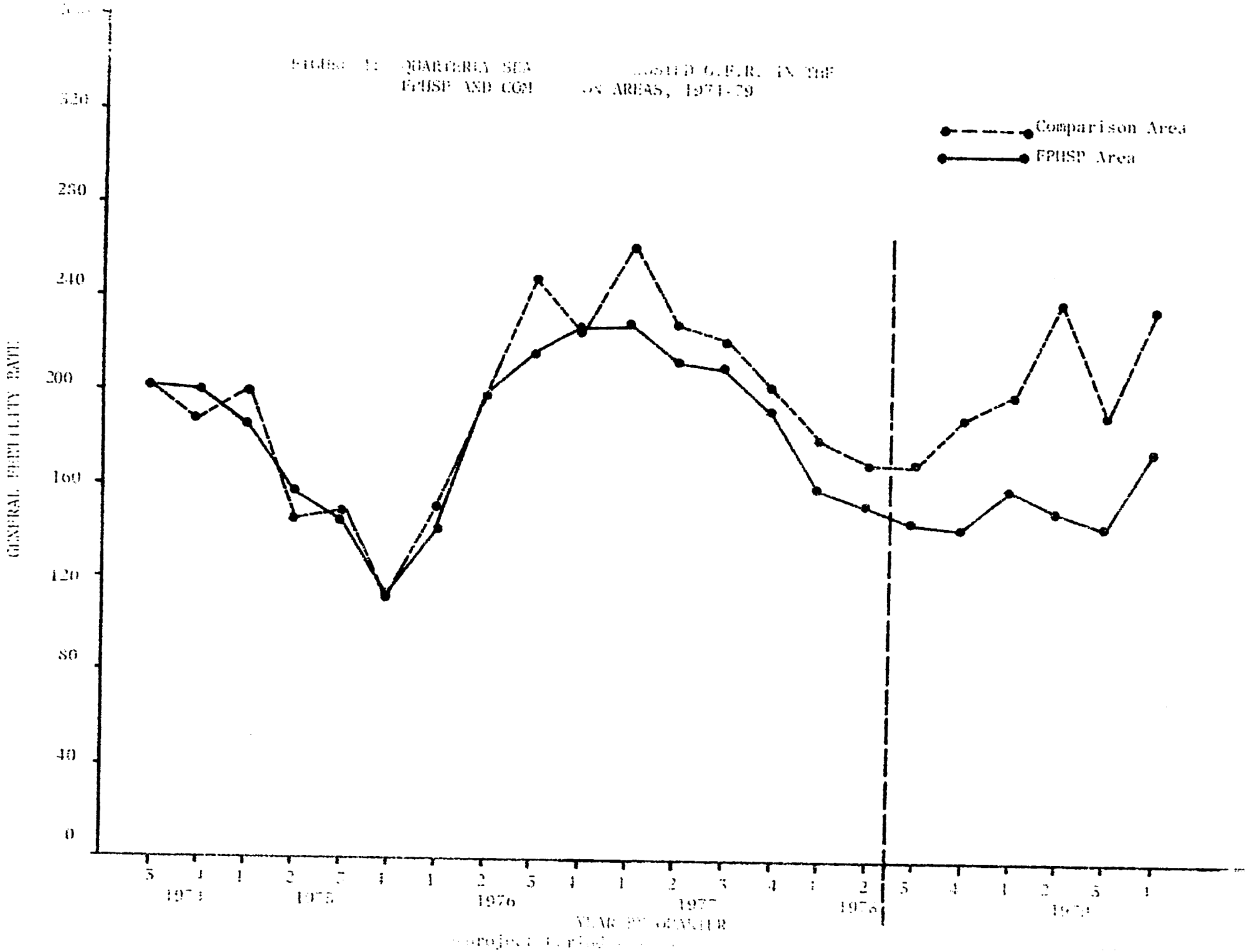



FIGURE 1: QUARTERLY SEA[illegible] ADJUSTED G.F.R. IN THE FPHSP AND COMPARISON AREAS, 1974-79