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

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## INTRODUCTION

In recent years demographic 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 transitions 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.<sup>1</sup>

The Matlab family planning studies were conducted by the Cholera Research Laboratory (CRL);<sup>2</sup> 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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<sup>1</sup>This presentation is a synopsis of key findings from a forthcoming ICDDR,B report.

<sup>2</sup>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 155 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 where they were assigned. In all 80 such workers were trained, all of whom are literate, young married women. Each worker serves a 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 shown 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 maintain 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 <sup>a</sup>     | B <sup>b</sup> | Per-<br>cent<br>diff. <sup>c</sup> | A     | B     | Per-<br>cent<br>diff. | A                   | B     | Per-<br>cent<br>diff. | A     | B     | Per-<br>cent<br>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                   |

<sup>a</sup>A: CDP Treatment area

<sup>b</sup>B: CDP Comparison area

<sup>c</sup>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 |       |                       |       |       |                       |       |       |                       | Post-project Period |       |                       |
|-----------|--------------------|----------------|-----------------------|--------------------|-------|-----------------------|-------|-------|-----------------------|-------|-------|-----------------------|---------------------|-------|-----------------------|
|           | 1974               |                |                       | 1975               |       |                       | 1976  |       |                       | 1977  |       |                       | 1978                |       |                       |
|           | A <sup>a</sup>     | B <sup>b</sup> | Per-<br>cent<br>diff. | A                  | B     | Per-<br>cent<br>diff. | A     | B     | Per-<br>cent<br>diff. | A     | B     | Per-<br>cent<br>diff. | A                   | B     | Per-<br>cent<br>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  | -37.1                 |
| 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                 |

<sup>a</sup>A: FPHSP Treatment Area

<sup>b</sup>B: FPHSP Control area

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

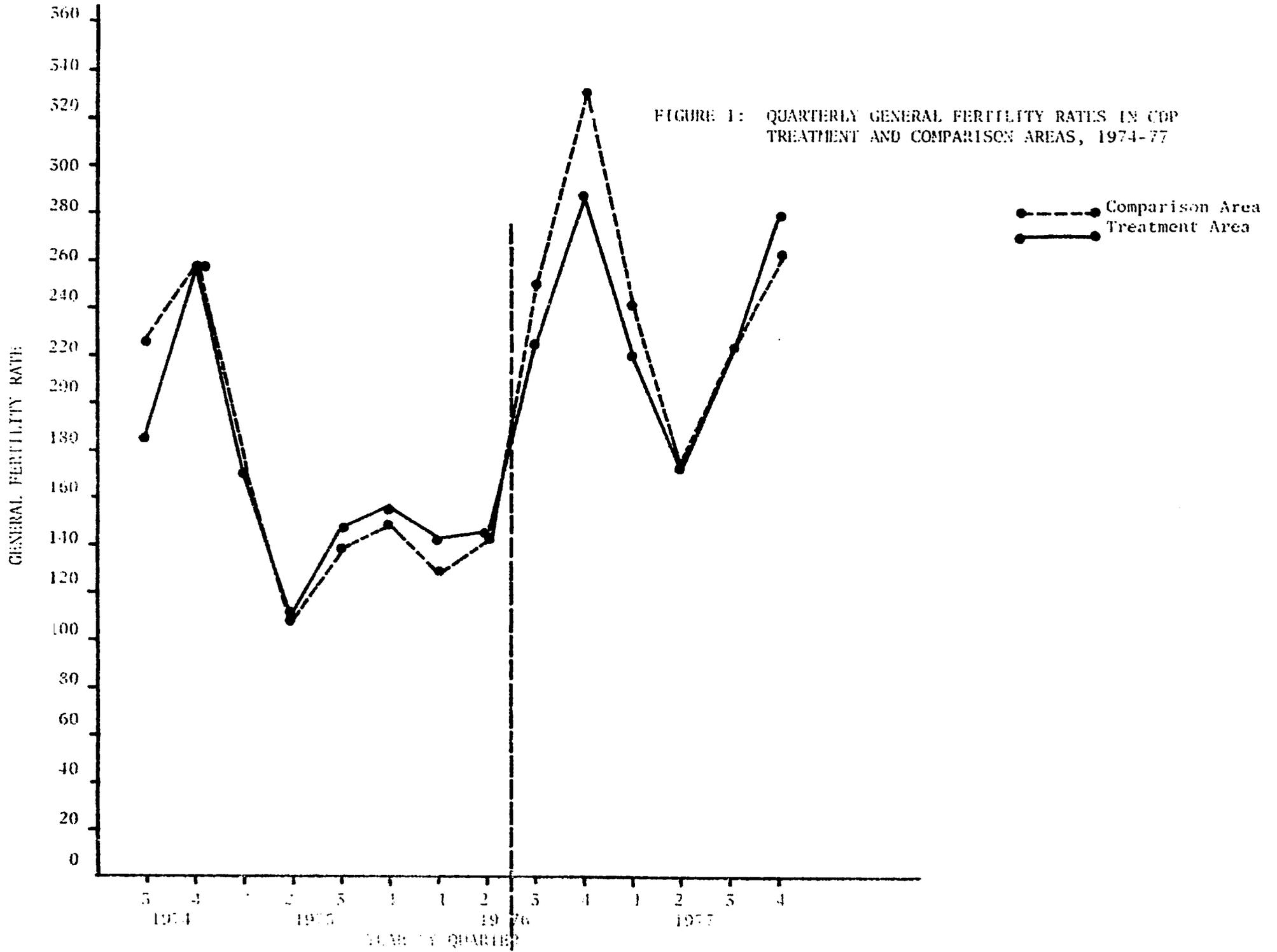


FIGURE 2: QUARTERLY SEASONALLY ADJUSTED G.F.R. IN THE GDP TREATMENT AND COMPARISON AREAS, 1974-78

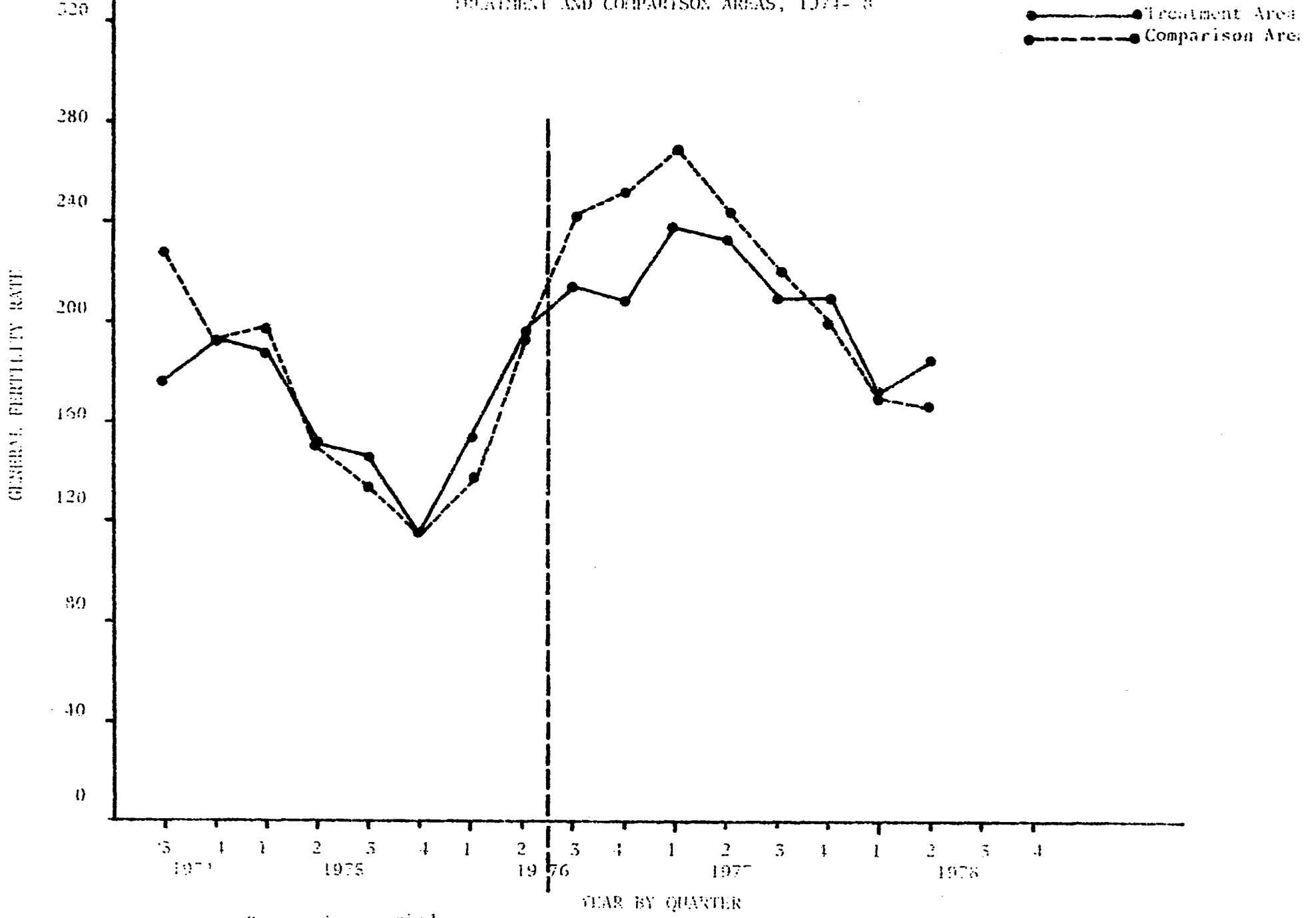


FIGURE 5: PROJECT GOLF MEMBERSHIP RATES IN TRUSTEE HOUSE AND COMPARISON AREAS, 1974-1979

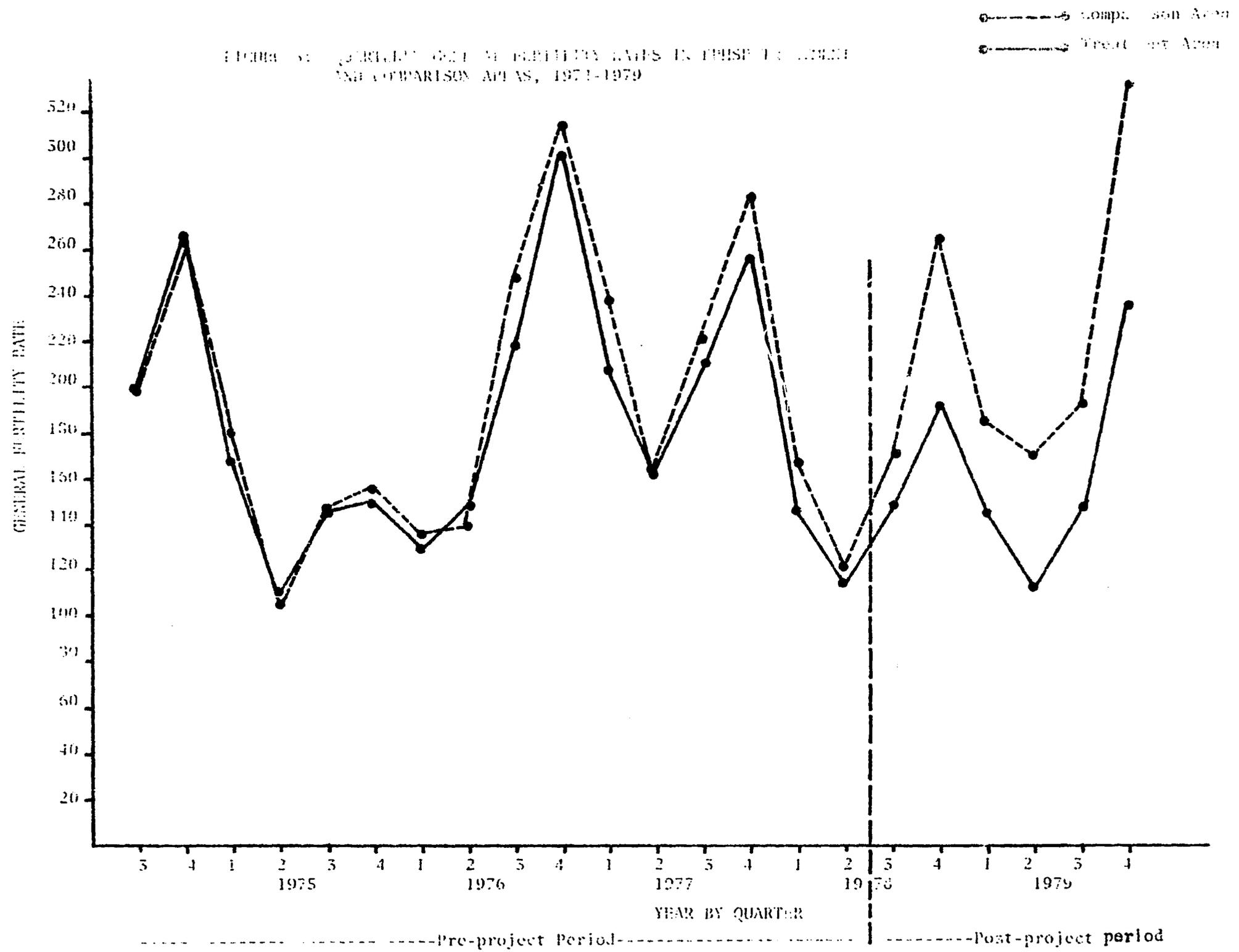


FIGURE 1. QUARTERLY SEX-ADJUSTED G.F.R. IN THE  
 FPUSP AND COMPARISON AREAS, 1974-79

