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The Futures Group has initiated a series of Occasional Papers under its SOCIAL MARKETING FOR CHANGE (SOMARC) project. Research and strategic marketing activities supporting SOMARC's contraceptive social marketing implementation and technical assistance programs around the world are generating a continuing stream of findings and practical assessments of potential interest to the professional CSM community.

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THE IMPACT OF CSM PREVALENCE IN THE DOMINICAN REPUBLIC

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SUMMARY. Data recently available provides an opportunity to begin to assess the impacts of SOMARC's contraceptive social marketing program in the Dominican Republic on contraceptive prevalence. The results of several initial analyses of this data are discussed here. All suggest that the program indeed is contributing to increased prevalence.

INTRODUCTION

SOMARC's contraceptive social marketing (CSM) program in the Dominican Republic has been making the low priced oral contraceptive Microgynon available commercially to consumers since the third quarter of 1985. Sales have grown significantly since this time, with current sales on the order of 16,000 cycles monthly.

Contraceptive prevalence is comparatively high at present in the Dominican Republic (around 50 percent). Nevertheless, like SOMARC CSM activities in other developing nations, one of the major goals of the program is stimulating a significant increase in prevalence, particularly among consumers in lower socio-economic groups (Classes C and D).

The figures on sales and sales growth to date for Microgynon are certainly impressive. However, they do not directly indicate the impact of the Microgynon program on contraceptive prevalence. A number of dynamic characteristics of the marketplace must be separated to clearly reveal this effect.

One major consideration is that part of the sales may represent only a simple substitution of Microgynon for other equally effective contraceptive products. In other words, some current users of another oral contraceptive brand or another contraceptive method may have shifted to Microgynon. In this case, Microgynon

sales may be growing, but there is no overall change in the level of prevalence (though, there would be a benefit if the substitution involved a change from a clearly less effective method of contraception). Alternatively, the Microgynon promotion program may well have encouraged some people to begin using contraceptives, but they chose another brand or method. To the extent present, this so-called "halo effect" means that Microgynon sales figures alone (net of any substitution effects) underestimate the real impact of the program. Finally, changes in the size of the underlying population of contraceptive product consumers can complicate the interpretation of sales patterns. Other factors held constant, growth in product sales, may or may not indicate increasing prevalence, depending on whether this growth exceeds the rate of growth of the population of potential users.

A recent survey conducted in the Dominican Republic and an analysis of sales and price data on the country's commercial market for contraceptives address a number of these issues and provide some evidence of the current impact of the Microgynon program on prevalence. The remainder of this report reviews these results.

Findings from the Consumer Intercept

A consumer intercept of Microgynon purchasers in a sample of Santo Domingo pharmacies conducted over the period of October through November 1986 provides some clear indications of the positive impact of the Microgynon CSM program on prevalence (1).

Purchasers of Microgynon were intercepted in pharmacies and asked to respond to a short screening questionnaire pertaining to their use of the product. A longer

follow-up questionnaire (covering family planning practices, product awareness, product purchasing, and consumer characteristics) then was administered at home to a subset of these respondents. Two hundred and fifty two respondents agreed to participate in the home interview.

Participants were asked a number of questions related to their family planning practices, purchasing behaviors, and influences on product choices. Among these, respondents were asked if they had ever used any family planning method before using Microgynon. This survey found that 34 percent of Microgynon users were first-time users of any family planning method. An additional 10 percent had switched to Microgynon from less effective methods (e.g., rhythm, condoms, vaginal). Of those who switched from other oral contraceptive brands to Microgynon, the largest number switched from Nordette, another low dose oral.

That 34 percent of Microgynon users are first-time users of any family planning method and that 10 percent have shifted from less effective methods is heartening evidence that the CSM approach is significantly influencing family planning behaviors. Additional results of the survey work also indicate that desired socioeconomic goals are being attained--the typical Microgynon purchaser is of socioeconomic class C or D.

Further, there is reason to believe that the number of "new users" of modern contraceptive methods stimulated by the Microgynon CSM program is actually higher than the 34 percent evidenced in the survey. The structure of the questionnaire used did not allow for the separation of "lapsed users" (i.e., individuals who have stopped using a contraceptive some time ago and whose use of Microgynon now represents in effect a new use) from "switchers" (i.e., individuals

who currently are using a modern contraceptive and have simply switched from that method or brand to Microgynon)--in fact, the survey aggregates both of these into one group. While the actual figure is presently unknown, to the extent there are "lapsed users" in the sample, the 34 percent underestimates the full extent of "new user" behaviors stimulated by the Microgynon program.

Analyses of Commercial Sector Sales

Several analyses of sales statistics for the major oral contraceptive products (including Microgynon) competing in the Dominican Republic's commercial market provide further evidence of the positive impacts of the Microgynon CSM program on prevalence.

Ideally, a long time series of sales and distribution statistics for all family planning methods from all sources, including both government and private sector sources, should be used for this analysis. Such a complete statistical record, unfortunately, is unavailable. However, in cooperation with Schering-DR, we were able to analyze sales statistics for the oral contraceptives competing commercially (quarterly data from 1982 through the first quarter of 1987). These statistics report commercial sales of all brands (this data is known to undercount actual sales but we have no reason to doubt that all brands are undercounted to the same extent). This is certainly an important segment of the overall oral contraceptive market, since the most undesirable form of substitution (from the standpoint of social marketing objectives) occurs when current users switch to the CSM product from a commercially sold product.

The first step in the analysis is estimating the price elasticity prevailing in the oral contraceptive marketplace. (A price elasticity indicates the percent change in a product's unit sales that would be expected to result from a 1 percent change in its price.) In this case, price elasticity was estimated statistically (through multiple regression), utilizing time series data for unit sales (in cycles) and prices of each of the eight major brands (including Microgynon) competing in the commercial market (2).

The results of this analysis (shown in Table 1) indicate a price elasticity of -1.5. This means that if the price of a particular brand decreases by 1 percent we would expect unit sales to increase by 1.5 percent. This figure reveals that the commercial sector market for oral contraceptives in the Dominican Republic is by and large sensitive to price--confirming, incidentally, that the CSM strategy of marketing a lower priced oral has been a good one (3).

This "brand level" price elasticity (since the data used for the estimation are at the brand level of disaggregation) indicates the generic price responsiveness of the market. However, it does not tell us how an observed increase in sales is achieved. As discussed earlier, this could result from an increase in the total market (new users), from substitution (users of other brands switching to this brand), or a combination of both effects. Can we draw any conclusions about the effect of Microgynon's entry into the marketplace (and its lower relative price) on the number of oral contraceptive users? The answer is yes--in fact, the question can be addressed with the available data through two different approaches.

In the first approach, a slightly different price elasticity measure is needed--one that averages out the effects of brand differences. Again, estimation of an

Table 1
STATPLAN MULTIPLE REGRESSION RESULTS

Dependent variable = ln(units)

| Independent Variable | Regression Coefficient | Standard Error of Coefficient | t-Score | Probability | Beta |
|--------------------------------|------------------------|-------------------------------|---------|-------------|--------|
| Nordette | 0.3623 | 0.1128 | 3.21 | 0.998 | 0.145 |
| Denoval | -0.5434 | 0.1131 | -04.80 | 1.000 | -0.217 |
| Ovral | -1.1755 | 0.1121 | -10.48 | 1.000 | -0.470 |
| Microgynon | -1.2511 | 0.1188 | -10.58 | 1.000 | -0.503 |
| Ovulen | -1.6914 | 0.1159 | -14.59 | 1.000 | -0.676 |
| Ortho-Novum | -1.3223 | 0.1158 | -11.42 | 1.000 | -0.504 |
| Triquilar | -0.8295 | 0.1121 | -7.40 | 1.000 | -0.332 |
| Trinordiol | -1.5804 | 0.1312 | -12.05 | 1.000 | -0.492 |
| ln (real price) | -1.4719 | 0.1110 | -13.27 | 1.000 | -0.501 |
| Intercept | 3.8171 | | | | |
| R-squared = 0.8282 | | Durbin-Watson = 1.8301 | | | |
| Adjusted R-squared = 0.8180 | | No. of data points = 171 | | | |
| Multiple Correlation = 0.9101 | | No. of points used = 161 | | | |
| Std Error of Estimate = 0.3453 | | | | | |

equation with multiple regression is performed (4). The result (shown in Table 2) indicates an "aggregate market" price elasticity of -1.1. As before, this means that a 1 percent decrease in the average price of oral contraceptives leads to a 1.1 percent increase in total sales. (The marginally smaller elasticity estimated here compared to that for the "brand" based estimate is expected since the switching among brands is excluded. Both estimates, however, are statistically similar and confirm the essentially price-sensitive nature of the market.)

Based on this revised measure of market price elasticity, we can calculate the impact of the Microgynon program on total sales. Such a calculation suggests that total sales in the first quarter of 1987 increased by about 23 percent as a result of the presence of Microgynon. (In the first quarter of 1987 the total commercial sales of orals were about 58,700 units. The price of Microgynon was less than half the average price of all orals. The effect of Microgynon in the market was to lower the average price by 21 percent. Using the estimated elasticity of -1.1, the expected increase in total sales resulting from the decline in the average price is about 23 percent or 13,600. This represents 63 percent of Microgynon sales in that quarter).

A second way of addressing the same question yields is to estimate the functional relationship (using multiple regression) existing between total unit sales for the eight oral contraceptives in the commercial sector (dependent variable) and unit sales of Microgynon and the prices of the other brands (independent variables). The results of this are shown in Table 3.

The coefficient (= 0.64) on the Microgynon sales variable provides a measure of the rate of increase of total unit sales resulting from increases in Microgynon unit

Table 2

STATPLAN MULTIPLE REGRESSION RESULTS

Dependent variable = ln(total units)

| Independent Variable | Regression Coefficient | Standard Error of Coefficient | t-Score | Probability | Beta |
|------------------------|------------------------|-------------------------------|--------------------|-------------|--------|
| ln(real average price) | -1.1084 | 0.1536 | -7.22 | 1.000 | -0.868 |
| Intercept | 4.9875 | | | | |
| R-squared | = | 0.7539 | Durbin-Watson | = | 1.0829 |
| Adjusted R-squared | = | 0.7394 | No. of data points | = | 19 |
| Multiple Correlation | = | 0.8683 | No. of points used | = | 19 |
| Std Error of Estimate | = | 0.1317 | | | |

Table 3

STATPLAN MULTIPLE REGRESSION RESULTS

Dependent variable = Total units

| Independent Variable | Regression Coefficient | Standard Error of Coefficient | t-Score | Probability | Beta |
|-----------------------|------------------------|-------------------------------|--------------------|-------------|--------|
| Microgynon Units | 0.6408 | 0.2364 | 2.71 | 0.984 | 0.293 |
| Real Other Price | -116.0542 | 24.0353 | -4.83 | 1.000 | -4.872 |
| Real Other Price 2 | 16.4675 | 4.1151 | 4.00 | 0.999 | 4.020 |
| Intercept | 240.3818 | | | | |
| R-squared | = | 0.8635 | Durbin-Watson | = | 1.9361 |
| Adjusted R-squared | = | 0.8363 | No. of data points | = | 19 |
| Multiple Correlation | = | 0.9293 | No. of points used | = | 19 |
| Std Error of Estimate | = | 5.4245 | | | |

sales. The estimate for this coefficient is quite similar to the result reported above from the other approach. For every unit increase in Microgynon sales there is an associated 0.64 unit increase in total commercial oral contraceptive sales-- alternatively, total use increases at a rate of around 64 percent of Microgynon sales.

The results generated by either approach, of course, do not provide a complete picture of the impact of the Microgynon CSM program on contraceptive prevalence. The estimate, nevertheless, that the program is stimulating the expansion of the market at a rate of around 60 percent of Microgynon sales is not contradicted by the results of the consumer intercept discussed earlier. Those data show that 34-plus percent of Microgynon users were new users of oral contraceptives (the "plus" representing the share of "lapsed" users which could not be separated from the product "switchers"). Therefore, the net impact is at least this high, and probably higher when "lapsed users" are correctly accounted. Further, the use of other oral contraceptive brands stimulated by the Microgynon promotion (i.e., the "halo effect") is not included in this figure.

Finally, we can examine the substitution issue in one additional way. The consumer intercept reported that when switching did occur from other brands to Microgynon, the largest number switched from Nordette. This is not surprising since Nordette has the largest market share. A simple correlation analysis between sales of Nordette and Microgynon did not reveal any significant relationship. Thus, although there is undoubtedly some switching going on among brands, Microgynon does not appear to be growing primarily at the expense of other brands.

Conclusions

The Microgynon CSM program in the Dominican Republic has contributed to increasing prevalence. Recent survey data indicate that a substantial share of Microgynon users (at least 34 percent) are first-time users of any contraceptive product. These data also indicate that the program is, as desired, influencing contraceptive choices in lower socioeconomic groups.

In any country where prevalence is relatively high (as it is in the Dominican Republic) there is bound to be some substitution of a lower priced product (whether CSM supported or otherwise) for other brands and methods being used by current users. Our analysis suggests, nevertheless, that CSM Microgynon sales have been a major stimulus underwriting the growth of new users in the market.

Notes and References

1. This survey and its results are discussed in Edward C. Green, A Consumer Intercept of Oral Contraceptive Users in the Dominican Republic (available through SOMARC).
2. We used time series cross section analysis to determine the response of the market to changes in the prices of individual products. In this analysis the quarterly unit sales and real prices of the top eight orals were analyzed for the period from first quarter 1982 to first quarter 1987. The dependent variable was units sold. The independent variables were price and dummy variables for each of the brands. The dummy variables are used to explain differences in sales among brands that are due to factors other than price (promotions, name recognition, size of sales force, etc.). As conventionally done, the regression is calculated with log forms of the price and quantity variables so that the coefficient on price is directly interpretable as a price elasticity (constant over the range of the data). Price figures were deflated using the prevailing Dominican Republic consumer price index.
3. Given the price sensitivity of the market, we might wonder whether an even lower priced product or a lower price for Microgynon would result in even more new users. It could be that a lower price would attract more users. However, a lower price might also cause a substantial increase in

switching or it could affect the image of the product. Unfortunately, the data do not provide much guidance. The regression equations are not valid outside the range of prices actually experienced, and the current Microgynon price is the lowest ever during the period for which we have data. Since sales are still increasing as the price declines to the current level, it is likely that a small additional decrease in price would result in more users. However, we cannot say anything about the effect of a major price reduction.

4. The underlying data and formulation for this regression is the same as that discussed in note 2. The total unit sales variable is directly the same. This time, however, the price variable is an average of the prices of all the brands in the market at the time. Since average price is now the independent variable directly, the dummy variables for brand are not included.