their decisions and actions with strict neutrality. Under this situation also, Demeny (1971) observed that the argument which views that society would be better off if only families have a smaller family size is as meaningless as a statement that the country would be better off if only more people worked on Sundays. The point is that parents weigh the costs and benefits of having an additional child (not to work on a Sunday) and that their decision to have another birth (to have full leisure on a Sunday) is ipso facto revealed as preferred and, hence, more beneficial. And, under the assumptions mentioned above, the exercise of the individuals' freedom to do what they think is best for themselves can add up to a socially optimal situation.

What then are the arguments for government intervention in the procreative behavior of couples in a basically democratic society? This paper will examine the economic arguments for government intervention which have been ably summarized by Demeny (1971). In conjunction with this review, we shall then discuss what we think are the generally acceptable and economically defensible public population policies.

3.1 The Provision of Information and Birth Control Services: The Case of No Externalities

A generally acceptable form of government intervention in the procreative decisions of couples is the provision of information.

This also has the strongest justification. The proposition that individual decisions and actions can lead to a social optimum assumes that individual families are reasonably well-informed. In the real world, information available for individual families might be erroneous or inadequate. Demeny (1971, p. 211) enumerated the following reasons for this:

1. Families may falsely assume that society expects them to follow certain norms of behavior. Thus the psychic cost attached to defying these imagined norms is removed if families are informed that no particular demands on their fertility behavior are imposed from outside.

2. Families may be unaware of pertinent information concerning types, costs, availabilities, and technical and aesthetic properties, etc., of means for preventing conception or terminating pregnancy, or may have incorrect information on these matters. In either case the resulting decision will necessarily be suboptimal.

3. Choices with respect to parenthood are taken under conditions of uncertainty that can be lessened if parents are provided with pertinent information. Individual foresight in regard to the families' future economic prospects, opportunities, and interests and their appreciation of the dependence of these prospects on their fertility may be more limited than is warranted by the true uncertainty on these matters.

4. Intrinsic imperfections of the "demand" for children also decrease the chances of obtaining results that will be considered optimal, ex post: "purchases" of children are "lumpy" and only moderately repetitive, the learning process is slow and largely retrospective. Many of the consequences of having a child are felt only in the long run and purchases are irreversible.

Social norms of behavior can often be reasonably regarded as rules of thumb or guides that are more or less optimal solutions

to recurrent household decision problems whose consequences extend beyond the boundaries of the family. For example, under a situation where infant mortality rate is very high and survival very uncertain, it is usually argued that social norms will tend to encourage high fertility to ensure the survival of society.

It has also been observed that social norms tend to acquire an "independent" existence in the sense that even when they are no longer appropriate because conditions have already changed, they still continue to exist. They adjust slowly to new realities and, hence, traditional social norms can mislead households especially when the socioeconomic and demographic situation has undergone rapid and radical changes. Fertility studies also strongly suggest that while there is a positive correlation between mortality and fertility, the amount of time lag involved is substantial. In a situation where high fertility is socially desired, social norms will likely tend to discourage the deliberate use of birth control methods. For example, parents who consciously plan and limit their family size below their full reproductive capacity might be branded as "selfish and materialistic".

Because of the substantial time lag involved for social norms to adjust to new realities, socially responsible parents who follow such norms are likely to make suboptimal decisions regarding femily size and the use of birth control methods. Consequently, it

is reasonable for government to inform its citizens that there is no longer a social need for high fertility as mortality has already declined to low levels. Better still, it can inform its citizens that a transition from high to low fertility is likely to facilitate the attainment of its stated objectives and that it would be socially desirable for individual parents to exercise their freedom to deliberately plan and control their fertility, taking into account the new realities and the social objectives of government.

Under certain ideal circumstances, information regarding birth control methods, economic prospects, and the dependence of the families' opportunities on their fertility can be optimally provided through free enterprise. The actual circumstances, however, warrant the public provision of such information. Firstly, some important elements of an optimal informational package are quasi-collective goods, the production of which is also likely to be characterized by scale economies. Examples are informational messages through mass media. Secondly, the market in this field is likely to be very imperfectly competitive. For these reasons, free enterprise cannot be depended on to provide or, adequately provide, the aforementioned type of information. A third reason is that the existing income distribution is generally regarded as unacceptable; hence, dependence on free enterprise for the provision of information

is unlikely to be socially optimal. Elimination of ignorance due to poverty, which is partly the result of a maldistribution of incomes, is generally considered in the Philippines as a desirable social objective.

The provision of birth control services for free or at less than the marginal cost can also be justified on the basis of the existence of market imperfections and maldistribution of incomes. Demeny (1971, p. 212) presented the following arguments:

1. As the provision of birth control services has many common elements with ordinary medical and public health services and as the latter for various reasons is often socialized, a unified treatment for the supply of all such services may be considered natural and/or preferable.

2. The inefficiency resulting from nonprice (or nominal-price) distribution may be considered negligible. Three points are pertinent here. First, all families are engaged in reproduction; hence, it can be expected that the benefits will be broadly spread, affecting at some time or another virtually every family. As a consequence, redistributional effects will generally be moderate. Second, the intrinsic nature of the services is such that demand per family is physically constrained; hence, unlike free transportation or even free aspirin, the allocative inefficiency created by a low price, or by no price, will be small. Third, the cost per person may be low and free supply administratively more advantageous.

3. Any distributional effects that <u>are</u> involved in a subsidized system may be considered positive because such a system would extend to the poor services that were previously available only to the better-off. The same arguments could justify the application of discriminatory pricing, i.e., collecting user charges set by the ability to pay, determined by some appropriate yardstick.

He also noted that if the distribution of birth control services is socialized, the financing of research and development to improve the efficiency, safety and acceptability of contraceptive techniques must necessarily be also collectively provided.

The discussion above justifies the following policy conclusions: (1) government should let families determine their fertility; (2) it would be beneficial for government to provide free or at less than marginal cost the best available information and the means to make that freedom meaningful; (3) positive restrictions on birth control, if they exist, should be removed; (4) information should be strictly factual and the means of birth control should be provided cafeteria-style.

These conclusions are consistent with a situation where there are no externalities, i.e., the consequences of household fertility decisions are confined within the boundaries of the family.

3.2 Public Intervention, Externalities and Abortion Policy

The collective provision of birth control information and services in the absence of externalities rests on the idea that such public intervention will enhance social welfare regardless of whether fertility is reduced or not. Most likely, however, fertility will be reduced as the pecuniary and non-pecuniary costs of birth control facing couples are reduced. Such a result, however, is simply a by-product.

whether the extent of such reduction is satisfactory or not from the social standpoint is an issue that requires further discussion.

The presence of externalities in the fertility decisions of couples is another reason for public intervention. The cost of an additional birth is generally not confined within the boundaries of the household. For example, we had noted that a significant amount of public resources must be spent for children's education. Damages to the environment such as forest denudation, flooding and soil erosion partly caused (indirectly or directly) by rapid population growth have also been observed in the Philippines. Public health expenditure tends to rise with population growth; if it does not, society will pay the cost in terms of a decline in the amount and quality of public health services per person.

The existence of externalities means that pure laissez-faire can not be depended on to yield a socially optimal pattern of resource allocation. The fertility rate might become too high since parents do not pay all the cost of having additional children--social marginal cost will tend to be greater than private marginal cost and, hence, the social marginal benefit from additional children.

The presence of externalities reinforces the need for public intervention and the package of policies discussed earlier. In addition, it provides a reason why government even in a basically democratic state should have an interest in the overall outcome of individual fertility decisions. In particular, these externalities can be used to justify additional

measures beyond those discussed above. Such measures include the use of moral suasion, incentives, and disincentives (taxes) designed to reduce fertility to a level where the marginal social cost will be equal to the marginal social benefit of additional births. In designing and adopting these additional policies, however, government must take note of the transaction costs involved, their redistributive impacts, fairness as well as the constitutional rights of individuals to freely decide for themselves their level of fertility.

It was noted earlier that parents might still be under the influence of a pro-natalist social norm, which sought to secure the survival of the society in the past when mortality was very high. Given the inappropriateness of this norm at present as well as the existence of externalities from population growth, which are becoming burdensome, government would be justified in formulating a new social norm regarding family size to guide parental decisions. This could be enforced through moral suasion and, if necessary to balance private and social costs and benefits, through a system of incentives and disincentives.

In discussing population policy, quite a number oppose the use of incentives and disincentives which are felt to violate the freedom of parents to make fertility decisions. It might be noted that while it is the right of a couple to make fertility-related decisions voluntarily, it is also their obligation to bear the consequences. This means among others that ideally they should shoulder all

the costs of their decision to have another child and that other members of society should not be made to bear them. Consequently, it is not inconsistent with the right of parents (which carries with it corresponding obligations) for government to impose additional taxes on couples with more children to finance the additional social cost resulting from the birth of additional children. Making parents pay the full cost of delivery in public hospitals is also not inconsistent with such a right. Free delivery implies that other members of society are being directly or indirectly penalized.

For political and administrative reasons, the imposition of fertility-related taxes is often not resorted to. In lieu of this, a suggestion has been for government to provide incentives. Subsidized birth control services, by lowering the cost of birth control, are a form of incentives that encourage couples to reduce their fertility. The economic idea behind the incentives policy is that the public cost of providing the incentives might be less than the social benefits that can be gained from the resulting fertility reduction and hence, society as a whole would be better off. It is also clear that when externalities exist, government need not follow a cafeteria approach to the provision of birth control services. Under a tight budget constraint, it is reasonable for it to allocate its resources in favor of those services that are cost effective to maximize its impact on fertility, and hence, public welfare.

The public provision of information and contraceptive supplies, especially the highly effective ones, can further be justified on the basis of the government's anti-abortion policy, which in effect restricts the individuals' freedom to choose the birth control methods that they regard as appropriate.

With the development and modernization of a country, the intensity with which parents would want to limit their family size will likely increase. Given that contraceptive methods are subject to failures, an increasing number of women might resort to abortion. Such trends can happen with economic development as Omran (1971) observed in other countries. The prevalence of abortion is likely to be high when it is difficult to obtain effective methods of contraception that are inexpensive in terms of both pecuniary and psychic costs.

Orman has noted that the rise of demand for abortion can create serious health problems especially when it is declared illegal by government. Making abortion illegal does not eliminate demand for it. And while the supply of abortion services in the "open market" might be eliminated, a "blackmarket" for those services, which is beyond the control of health authorities, is likely to grow as demand rises with development. That demand for a commodity does not disappear by making it illegal is dramatically suggested by the history of the Prohibition in the U.S. This is especially true when private demand is large and intense and there is no strong disapproval by the general

public. In this regard, the 1973 NDS data show that as early as 1973, already 38 per cent of married women in the reproductive age approved of abortion. In Metro Manila, approval was 51 per cent. It is not suggested here that the current anti-abortion policy be reversed. Rather, given the large public support for abortion, the government's anti-abortion policy may create a strong "blackmarket" for unhealthy abortion services as modenization continues. Consequently, positive measures must now be undertaken to minimize demand for abortion. Among these are:

(1) the provision of information on effective contraceptive methods;

(2) the provision of inexpensive and effective contraceptive supplies and services that are easily accessible to couples;

(3) the development of an information/education/communication program to inform the public of the government's anti-abortion policy and the necessity of using highly effective means of contraception.

3.3 Concluding Remarks

This paper has examined some of the justifications for government intervention in the procreative decisions of couples in a basically free enterprise economy, where the state recognizes the right of

parents to freely decide on their level of fertility and the means of birth control. We have also reviewed various kinds of public policies on fertility control. The policies reviewed are broad and the discussion focused on questions of principles. In particular, we have examined and outlined the arguments showing the consistency of those policies with individual freedom, specifically the right of parents to freely decide on their level of fertility and the means of birth control as well as their corresponding obligation to shoulder the consequences of such decisions.

The discussion did not focus on specific and concrete ideas that the Philippine population program can consider for actual implementation. Such ideas are contained in Part IV. The purpose was simply to provide an economic perspective for discussing questions of principles that have recently arisen about the current population program and some possible measures that might be proposed to strengthen (or weaken) it.

The need to review the economic rationale for public intervention in procreative behavior has recently assumed great importance. For, inspite of President Marcos' recent reiteration of government views regarding the role of population growth in development planning and the need for public intervention to hasten the decline of fertility, the current development plan 1983-87 does not reflect such views. The said plan appears to have downgraded the

importance of population growth and fertility in the development process relative to previous plans. For example, public support for fertility reduction is not mentioned as one of the development strategies in the plan. Government financial support for fertility reduction efforts is also not mentioned as an important element in bringing down population growth rate. While the plan contains high, medium and low population growth rates, one senses that the decline in the projected rates is simply viewed as results of "changing life-styles" which are hoped for as a consequence of national development. They are not discussed in relation to direct birth control efforts of government and the corresponding resource requirements.

It is true that, as T.W. Schultz (1979) observed, many economists and demographers have been too pessimistic about the ability of LDCs with rapid population growth like the Philippines to adjust and develop. Certainly, we do not share such pessimism. The Philippines can grow and develop even without a national population policy; and allowing for time lags, fertility can be expected to eventually decline to a much lower level than what is presently observed as a consequence of the rational response of parents to mortality decline and other changes in the socioeconomic environment brought about by national development. The point, however, is that, for reasons discussed in Parts I and II and the preceding sections of this paper, Philippine society is likely to be better off with public intervention than without.

As a final remark, we also wish to mention that while we have emphasized the public provision of information on contraceptive methods and birth control services as well as other direct fertility-related measures, there certainly are other elements in the general socioeconomic environment, which, if improved, can significantly contribute towards a more rational balance between social costs and benefits. Unfortunately, due to time constraint those aspects have not been focused on.

An example, however, is worth mentioning. One of the major hypotheses of the economics of fertility is that the opportunity cost of mother's time is an important determinant of fertility. In particular, it is argued that as female wage rate rises, demand for children falls because the opportunity cost of time devoted to child care is higher. If this is correct, then some government development policies might have hindered the transition of Philippine fertility from high to low levels. The reason for this is that government industrial policies such as import substitution, tariff protection, currency overvaluation, and artificially low interest rates have prevented a faster growth of labor demand. Partly because of this, the wage rate and, therefore, the opportunity cost of time have remained low. Consequently, the economic structure spawned by government development policies is not conducive for the downward adjustment of desired fertility. Policy reforms in this field could, therefore, also contribute to the alignment of social costs and benefits even in a seemingly unrelated area of population control.

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Part IV

FERTILITY DETERMINANTS AND FAMILY PLANNING INTERVENTIONS: A POLICY ANALYSIS

Part IV

FERTILITY DETERMINANTS AND FAMILY PLANNING INTERVENTIONS IN THE PHILIPPINES: A POLICY ANALYSIS

by

ALEJANDRO N. HERRIN*

INTRODUCTION

The purpose of this paper is to review and assess available empirical evidence on (a) the determinants of fertility; and (b) the effectiveness of alternative family planning interventions in the Philippines, e.g., clinical versus natural methods, clinic-based versus outreach, vertical versus integrated approaches, etc. Underlying this effort is the need to (a) indicate the relative effectiveness of family planning service programs versus more general development in influencing interventions as a guide to future policy with the objective of fertility reduction; and (b) to indicate which type of family planning interventions would probably be the most (cost-) effective, to the extent that family planning services are relatively effective in achieving fertility reduction.

As will be indicated in this paper, the data required for such a task are only partially available. Multivariate analysis of the determinants of fertility that includes contraceptive availability has

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hardly been made in the Philippines. Hence, the relative effectiveness of family planning service programs versus more general development efforts can only be inferred by piecing together fragmentary evidence. Secondly, while cost-effectiveness studies of various contraceptive methods have been done for the Philippines, the cost-effectiveness analysis of various service strategies has hardly been attempted. This may be partly explained by the fact that various service approaches have often been implemented as complementary approaches have often been implemented as complementary approaches rather than as strict alternatives. The "joint production" character of the various approaches preclude easy calculation of the cost of each approach. On the basis of available data on the pattern of contraceptive use, differential access of couples to contraceptive supplies and services, knowledge of use-effectiveness of methods, etc., this paper attempts to indicate what considerations need to be made in order to clarify issues regarding the cost-effectiveness of alternative strategies. Finally, although various surveys and censuses are available for various years, published data from such sources on certain variables are often not comparable, hence a longitudinal type of analysis is often difficult to make. Lack of time and resources preclude recomputation and retabulation of key indicators from these sources.

Section II of this paper reviews available evidence of the determinants of fertility while Section III assesses evidence of the effectiveness of family planning interventions in the Philippines. Section IV offers some conclusions.

DETERMINANTS OF FERTILITY CHANGE IN THE PHILIPPINES: A REVIEW OF EVIDENCE

Determinants of Fertility: A Framework

"Perhaps the most striking aspect of the present state of knowledge on fertility is the absence of an accepted theory of fertility change." (IRG, 1980, p. 94). Nevertheless, based on the accumulated studies on fertility, theoretical as well as empirical, it is possible to develop a broad framework as a means of classifying and assessing a variety of possible determinants of fertility change in the context of Philippine experience. This framework is outlined below. (See also Herrin and Pullum, 1981; Herrin, 1981; IRG, 1980).

Fertility change is proximately determined by changes in such intermediate variables as nuptiality and contraception. The effect on fertility of other intermediate variables (e.g., breastfeeding, postpartum amenorrhea, regularity of menstruation, frequency of sexual relations and postpartum abstinence) is difficult to assess at this time, given the limited data available. Preliminary analysis of the 1978 WFS-RPFS data (the only national survey which obtained detailed information on these variables) indicates that postpartum abstinence is of relatively short duration in the Philippines, and has only a minor effect on fertility. Similarly, the temporary separation of spouses does not seem to affect the length of pregnancy intervals. Breastfeeding, on the other hand, tends to have a relatively greater influence on the length of the pregnancy interval and, therefore, on

births than the other factors mentioned above. In his analysis of the 1974 National Acceptor Survey (NAS), Laing (1979a) calculated that the effect of breastfeeding was equivalent to 0.15 births averted (i.e., it was equivalent to the average protection provided by condoms following acceptance of that method). The effect of these other intermediate variables on fertility change is expected to be insignificant in the face of rapid changes in nuptiality and contraception.

Changing marriage patterns are often associated with increased female education, female labor force participation, and urbanization. Changes in contraceptive behavior, on the other hand, depend on both demand- and supply-related conditions, which, in turn, are affected by direct population program efforts and independent socioeconomic and environmental factors. Changes in the demand for contraceptive practice depend on changes in family size preferences and attitudes toward contraception. Direct program efforts through IEC and motivational campaigns can be expected to have an effect on these factors, independent of the effect of socioeconomic change. Changes in the cost of contraceptive methods in turn depend on the knowledge of contraceptive methods and access to those methods. Again, socioeconomic and environmental factors are expected to influence these supply factors as are direct program efforts.

Underlying the changes in family size preferences, i.e., the demand for children, is the changing structure of cost and benefits of children. Children are a direct source of satisfaction, a consumption

good. In addition they are a form of investment, as productive agents or as security for old age. On the other hand, children entail direct costs in terms of expenditures of food, housing, education and health services; and indirect cost, in terms of consumption, investment and income foregone by parents by having children. Changes in the socio-economic environment are expected to alter the structure of costs and benefits of children, at least as perceived by parents, leading to lower desired family size, and hence to greater demand for effective contraceptive methods.

Specific aspects of socioeconomic change that are expected to bear on the structure of costs and benefits of children include (a) decline in infant and child mortality which reduces the total number of births necessary to achieve a given family size; (b) increased opportunities for education and non-agricultural employment, especially for females, which raises opportunity costs of childbearing; (c) increased availability of new consumption alternatives and new lifestyles which competes with resources previously devoted to children; and (d) changes in family structure which increases the costs of children directly borne by the parents.[1/] These changes are often associated with economic growth and structural change, rising levels of education, and urbanization.

[1/] See for example, IRG (1980) for a recent review of the present state of knowledge with respect to fertility determinants.

An Overview of the Incidence of Fertility Decline

Data on long-term fertility trends reveal that the moderate decline occurring since the 1950s has accelerated in the 1970s.[2/] From a level of 50 or more births per thousand population at the turn of the century, the crude birth rate remained fairly constant during the first half of the century. Since the 1950s, fertility began to decline gradually reaching around 46 births per 1,000 in 1960 and to around 40 per 1,000 in 1970. A somewhat faster decline occurred in the 1970s. The National Census and Statistics Office estimated crude birth rates to be 35 per 1,000 in 1975 and 33 per 1,000 in 1980.[3/] This level for 1980 is still about twice that of the average for industrialized countries.

Estimates of total fertility rate based on survey data further reveal the decline in fertility for the most recent period. (See Table 1). Total fertility rates declined from 6.5 births per woman in 1958-62 to 6.3 in 1963-67 to 5.9 in 1968-72 and 5.2 in 1973-77. Estimates for 1980 place the total fertility rate at 4.5. (Engracia, 1982). Total marital fertility, however, declined only since 1963-67 indicating that much of the earlier decline in fertility can be

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[2/] Estimates of fertility by various investigators using different sources and methods have been conveniently compiled by Cabigon (1980). See also Concepcion (1980) for a compilation of fertility estimates for the more recent period.

[3/] NEDA, Five-Year Development Plan 1983-1987. Table 10.1.

Table 1

TOTAL FERTILITY RATES AND TOTAL MARITAL FERTILITY RATES BY GEOGRAPHICAL AREA OF RESIDENCE, PHILIPPINES: FIVE-YEAR PERIODS FROM 1958 to 1977

Geographic Area	Total Fertility Rate						Total Marital Fertility Rate (Ever married women aged 15-49 years)			
	1958-62[a]	1963-67[a]	1968-72[b]	1968-72[b*]	1973-77[a]	1973-77[a*]	1958-62[b]	1963-67[a]	1968-72[a]	1973-77[a]
PHILIPPINES	6.46	6.30	5.89	5.89	5.19	5.19	9.56	9.67	9.63	8.70
Metropolitan Manila	-	-	4.08	4.99	3.37	3.94	9.15	8.94	8.45	7.22
Other Urban	-	-	4.52	5.28	4.19	4.58	9.14	9.61	9.16	8.02
Rural	-	-	6.66	6.22	5.92	5.53	9.74	9.80	9.94	9.16
Luzon	-	-	-	-	-	-	9.43	9.69	9.26	8.53
Visayas	-	-	-	-	-	-	9.49	9.59	9.97	8.78
Mindanao	-	-	-	-	-	-	10.14	10.12	10.44	9.06

SOURCES: [a] Concepcion, (1980 ; text and Table 2); based upon the 1973 National Demographic Survey for the 1963-67 and 1968-72 rates, and the 1978 Republic of the Philippines Fertility Survey for the 1973-77 rates.

[b] Concepcion and Smith (1977; text and Table 7); based upon the 1973 National Demographic Survey.

[*] Standardized for marital-status composition.

attributed to changing marriage patterns. The role of nuptiality in fertility decline will be described later in this paper.

Data constraints limit attempts to map out the incidence of fertility decline in the Philippines. Nevertheless, a broad view of the pattern of fertility transition can be obtained from an analysis of the available cross-section information, specifically the data on areal fertility differentials and fertility differentials by individual and household socioeconomic characteristics.

Total fertility rates by broad geographic areas in 1973-77 shown in Table 1 reveal increasing fertility as one moves from Metro Manila to other urban areas and to rural areas: 3.4, 4.2 and 5.9, respectively. These differentials remained, although somewhat narrowed after the rates were standardized for marital status. The time trend in total marital fertility rates for four five-year periods reveal that the fastest decline occurred in Metro Manila and other urban areas in the most recent period: 21 and 12 percent declines, respectively. In contrast, fertility declines in the rural areas were relatively small (6 percent over the 15-year period), all of it occurring only in the last five-year period.[4/]

Total fertility rates by region shown in Table 2 suggest that the most rapid fertility decline occurred in the more highly

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[4/] For analytical problems posed by the use of total marital fertility rates, see Herrin and Pullum (1981, p. xi and p. 25).

Table 2

SELECTED ECONOMIC, SOCIAL AND DEMOGRAPHIC INDICATORS BY REGION

Region	TFR, 1973-77[a]	Population, 1975[b] (millions)	Percent Urban, 1975[c]	Literacy Rate 1970[d]	IMR, ($_1q_0$) 1970[e]	Poverty Incidence 1971[d]	Poverty Incidence 1975[d]	Average Family Income (₱), 1975[f]
PHILIPPINES	5.20	42.1	33.4	83.4	93.1	36.1	45.3	5,840
Metropolitan Manila	3.11	5.0	100.0	95.7	61.5	14.9	30.9	10,469
Central Luzon	4.47	4.2	33.9	90.4	82.7	15.9	28.9	5,773
Southern Tagalog	4.79	5.2	31.8	88.2	88.9	31.9	45.9	5,441
Central Visayas	4.70	3.4	28.9	77.8	78.4	60.8	59.9	5,172
Western Visayas	5.04	4.1	26.7	82.2	85.6	35.1	48.0	5,484
Southern Mindanao	5.44	2.7	26.7	81.8	111.6	36.1	41.5	6,307
Northern Mindanao	5.76	2.3	23.2	83.7	135.1	55.3	72.8	3,803
Ilocos	4.90	3.3	21.1	83.1	87.9	37.4	38.5	5,525
Eastern Visayas	5.81	2.6	18.7	77.6	97.5	54.3	56.0	4,834
Bicol	6.03	3.2	18.4	86.4	99.1	44.6	55.5	4,280
Central Mindanao	5.22	2.1	15.5	66.7	- *	17.1	31.7	5,025
Western Mindanao	4.99	2.0	14.9	65.5	131.9	35.1	45.9	5,662
Cagayan Valley	5.41	1.9	13.9	78.8	103.2	50.8	45.6	5,102

SOURCES: [a] de Guzman (forthcoming); from the 1978 RPFS.
[b] National Census and Statistics Office, 1975 Integrated Census of the Population and its Economic Activities. 1978.
[c] Pernia and Paderanga (1980); Table 4.
[d] World Bank (1980).
[e] Flieger, et al. (1981).
[f] NCSO, Philippine Yearbook, 1979, (preliminary).

*This region is combined with Western Mindanao.

developing and urbanizing regions.[5/] Although regional fertility differentials have narrowed somewhat in the more recent period (data now shown), significant differentials still exist. At around 1975, five regions had total fertility rates less than 5.0 births per woman, ranging from 3.1 to 4.9. The top three regions with the lowest fertility are the more urbanized regions of Metro Manila, Central Luzon and Southern Tagalog, together accounting for 34 percent of the national population in 1975. The two other relatively low fertility regions are Ilocos and Central Visayas, both heavy out-migration areas. In contrast, the remaining seven regions (all of the 4 Mindanao regions, two of the Visayas and two of Luzon) still exhibit high fertility in 1973-77, ranging from 5.0 births per woman in Western Visayas to 6.0 in Bicol. These regions include those among the least urbanized (Cagayan, Bicol, Eastern Visayas, Western and Central Mindanao), the lowest literacy rates (Cagayan, Eastern Visayas, Western and Central Mindanao), the highest incidence of poverty (Cagayan, Bicol, Eastern Visayas and Northern Mindanao), and the highest infant mortality rates.

Within regions, the incidence of fertility change can be gleaned from cross-section evidence on children ever born to ever married

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[5/] The heterogeneity of the areas classified under each region often pose analytical problems. For example, Southern Luzon includes the more developed and urbanized areas around Metro Manila and the less developed highly rural province of Palawan. Hence, regional breakdowns for administrative purposes often are not satisfactory for analytical purposes. (Flieger, et al., 1976).

women age 45-49 by individual and household characteristics, shown in Tables 3 and 4. The figures are standardized for age at first marriage. Lower fertility tends to be associated with woman of higher educational attainment, living in urban areas and whose husbands are engaged in non-agricultural skilled or semi-skilled occupations. These women who have spearheaded the fertility transition are obviously in the minority.

What are the underlying forces behind this fertility transition and fertility differentials? The succeeding sections attempt to answer this question on the basis of the framework presented earlier.

Changing Nuptiality and Its Correlates

Nuptiality Patterns. Marital status distribution by age obtained from census data from 1903 to 1975 and from the 1978 RPFS shown in Table 5 reveals a significant trend in delayed marriage for females. The percentage single increased steadily especially among younger women ages 15-19 and 20-24 years over the seven decades. The singulate mean at marriage (SMAM) has risen from 20.9 years in 1903 to 23.2 years in 1975. The recent data from the 1978 RPFS showed a mean of 24.4 years. With the exception of Sri Lanka and Singapore, the 1970 level is the highest reached in South and Southeast Asia at the corresponding period, while the 1975 level is slightly lower than Taiwan (23.3), South Korea (23.7) and Japan (24.3), at the corresponding period. (See Smith, 1980).

Table 3

MEAN NUMBER OF CHILDREN EVER BORN TO EVER-MARRIED WOMEN AGED 45-49 YEARS BY SELECTED BACKGROUND VARIABLES

Background Variable	Mean Children Ever Born	Standardized Mean CEB[a]	Background Variable	Mean Children Ever Born	Standardized Mean CEB[a]
LEVEL OF EDUCATION			HUSBAND'S OCCUPATION		
None	7.9	7.3	Professional	5.7	6.8
Primary	7.6	7.3	Clerical	5.5	5.9
Intermediate	7.2	7.0	Sales	5.9	6.4
High School	6.2	6.5	Agriculture, Self-Employed	7.3	7.0
Some College	(5.4)	(5.7)	Agriculture, Not Self-Employed	7.3	7.2
With College Degree	4.9	5.1	Services	6.4	6.5
REGION OF RESIDENCE			Manual, Skilled	7.5	7.4
Metro Manila	6.0	6.3	Manual, Unskilled	(7.7)	(7.5)
Luzon	7.2	7.1	PATTERN OF WORK		
Visayas	6.8	6.9	Before and Now	6.4	6.8
Mindanao	7.5	7.3	Now not Before	7.3	7.1
PLACE OF RESIDENCE			Before & After	6.0	6.5
Urban	6.2	6.5	Only After	7.3	7.1
Rural	7.4	7.2	Only Before	(7.2)	(8.0)
			Never Worked	7.1	7.0
			ALL	7.0	7.0

SOURCE: NCSO, et al., World Fertility Survey - Republic of the Philippines Fertility Survey 1978, First Report. 1979. p. 86, Table 5.3.

a/ Standardized on age at first marriage.

Table 4

MEAN NUMBER OF CHILDREN BORN TO EVER-MARRIED WOMEN WHO HAVE BEEN MARRIED FOR 10-19 YEARS AT THE TIME OF THE SURVEY BY SELECTED BACKGROUND VARIABLES

Background Variable	Mean	Background Variable	Mean
LEVEL OF EDUCATION		HUSBAND'S EDUCATION	
None	5.1	Professional	4.0
Primary	5.4	Clerical	4.0
Intermediate	5.4	Sales	4.7
High School	4.7	Agriculture, Self-Employed	5.4
Some College	4.0	Agriculture, Not Self-Employed	5.4
With College Degree	3.9	Services	4.4
		Manual, Skilled	5.1
REGION OF RESIDENCE		Manual, Unskilled	5.1
Metro Manila	4.2		
Luzon	5.1		
Visayas	5.2	PATTERN OF WORK	
Mindanao	5.4	Before and Now	4.7
		Now not Before	5.0
PLACE OF RESIDENCE		Before & After	5.2
Urban	4.5	Only After	5.1
Rural	5.3	Only Before	5.1
		Never Worked	5.3
		ALL	5.1

SOURCE: NCSO, et al., World Fertility Survey, Republic of the Philippines Fertility Survey 1978, First Report. 1979. p. 93, Table 5.7.

Table 5

THE TREND IN MARRIAGE TIMING AND NON-MARRIAGE, FEMALES AND MALES: PHILIPPINES 1903-1978

Indicator	1903	1939[a]	1948[a]	1960	1970	1975	1978
				Female			
Percentage single at 15-19	73.6	80.3	85.1	87.3	89.2	87.0	93.2
20-24	33.3	36.2	40.7	44.3	50.3	51.2	59.6
25-29)			48.8	19.5	21.5	24.3	29.4
)	15.6	15.7					
30-34			12.6	11.6	11.7	12.1	13.9
35-39			9.5	8.1	8.0	8.2	8.7
)	9.4	7.4					
40-44			8.7	7.6	7.3	6.8	4.9
Percentage never marrying[b]	7.8	5.4	6.9	7.0	6.7	6.1	5.6
Singulate mean age at marriage	20.9	21.9	22.1	22.3	22.8	23.2	24.4
				Male			
Percentage single at 15-19	92.3	96.2	97.0	97.0	97.6	96.9	n.a.
20-24	56.9	62.5	64.8	65.5	69.3	69.1	n.a.
Percentage never marrying[b]	5.8	3.2	3.5	3.1	3.5	5.2	n.a.
Singulate mean age at marriage	24.9	25.1	25.0	25.0	25.4	25.5	n.a.

SOURCE: For data up to 1970, see Table 113, Smith, P. C., (1978). Data for 1975 was computed by Concepcion, M. B. (1980). Data for 1978 come from NCSO, et al. (1979).

[a] Women and men with marital status not reported have been removed from the total.

[b] Percentage single at 45-49 (census years 1948, 1960, 1970 and 1975 and RPFS 1978) or 45-54 (census years 1903 and 1939).

The timing of changes in nuptiality patterns can be described as follows. Of the total change in SMAM from 1903 to 1975, 61 percent occurred by 1960, another 22 percent occurred during the 1960s, and 17 percent occurred during the 1970-75 period. The accelerating trend in age at marriage is evident from the implied average annual increase during the various periods, i.e., 0.02 year during 1903-60; 0.05 year during 1960-70 and 0.08 year during 1970-75. The data for 1978, based on the 1978 RPFS, suggest that the trend in marriage patterns is continuing.

An interesting aspect of Philippine marriage pattern is the high proportion of women (around 6 percent) who remained single at age 50 or so, which has remained more or less constant over the seven decades. Similar proportions in South, Southeast and East Asia are much lower. (See Smith, 1980).

Incidence of Delayed Marriage. Cross-section data for 1973 and 1978 on socioeconomic differentials of age at marriage suggest that increasing age at marriage is associated with urban residence, higher education of the woman, non-agricultural employment of women and female work participation before marriage. The relevant data are presented in Tables 6 and 7. These data also provide clues for the determination of the sources of nuptiality change in the Philippines.

Sources of Nuptiality Change. A recent analysis of the sources of nuptiality change conducted by Smith (1978) concludes that: (a) the traditional dimensions of Filipino social structure --

Table 6

SELECTED INDICATORS OF MARRIAGE TIMING FOR CERTAIN GEOGRAPHIC AND SOCIAL GROUPS: PHILIPPINES, 1973

Characteristic of Group	Number in Sample[a]	Percentage Distribution in Population[b]	Percentage Married[c] Under 18	Under 20	Over 26	Median Age at Union	Mean Age at Union
All women	5,778	100.0	27.6	46.4	12.0	19.4	20.8
Residence							
Metropolitan	702	8.9	18.4	36.3	16.8	20.8	22.0
Other urban	1,468	22.1	21.8	41.1	14.5	19.9	21.5
Rural	3,608	69.0	31.1	49.6	10.5	19.1	20.4
Distance to town							
0-5 km	3,579	60.6	24.9	44.5	12.9	19.7	21.0
6-10 km	879	17.1	32.9	48.4	10.2	19.2	20.3
11-20 km	586	10.8	32.8	51.7	9.7	18.8	20.2
21+ km	259	3.8	35.3	56.9	8.1	18.5	19.7
Educational level							
No schooling	745	13.6	31.9	46.1	12.1	19.7	20.7
Elementary 1-7 years	3,454	62.9	31.7	53.2	9.2	18.7	20.1
High school 1-3 years	508	7.9	23.3	42.6	9.6	19.6	21.5
High school 4+ years	439	6.6	12.7	30.5	14.1	21.3	22.8
College 1-3 years	180	2.6	5.9	18.6	17.1	21.5	
College 4+ years	431	6.0	4.3	10.1	40.1	24.9	25.4
Work experience since marriage							
Some	2,613	43.8	26.2	43.6	14.4	19.8	21.1
None	3,159	56.1	28.6	48.7	10.1	19.2	20.5

[a] Frequencies do not always add to 5,778 because women for whom information was missing have been excluded.

[b] Percentages are based on all women including those for whom information was missing; the percentages may not sum to 100 because of rounding.

[c] Base is number of ever-married women who had married by age 40.

Table 7

SELECTED INDICATORS OF MARRIAGE PATTERN OF EVER-MARRIED WOMEN AGED 30-49, BY SELECTED CHARACTERISTICS, 1978

Characteristic of Group	Number in Sample	Percent Distribution in Sample	Percentage Married[a] Under 18	Under 20	Over 26	Mean Age at Union
All Women	5,994	100.0	27.9	49.2	12.6	20.4
Residence						
Urban	1,950	32.5	19.9	37.2	18.1	21.5
Rural	4,045	67.5	31.9	55.1	10.0	19.8
Education						
No Schooling	424	7.1	50.5	68.9	6.4	18.2
Primary	1,664	27.8	38.0	60.0	7.6	19.3
Intermediate	2,121	35.4	29.0	54.1	9.5	20.0
High School	1,059	17.7	18.0	39.2	13.5	21.1
College	727	12.1	3.7	13.5	35.7	24.3
Occupation Before First Marriage						
Non-manual	666	11.1	7.1	15.6	37.8	24.4
Manual	649	10.8	13.6	32.9	18.8	22.0
Farm	441	7.4	39.4	61.3	7.7	19.9
Did not Work	4,238	70.7	32.4	55.8	8.3	19.6
Work Class Before Marriage						
Non-Family Worker	1,032	17.2	11.4	24.6	28.4	23.1
Self-Employed	421	7.0	17.4	35.8	19.3	21.9
Family Worker	304	5.1	38.5	59.9	9.9	19.6
Did not Work	4,238	70.7	32.3	55.8	8.3	19.6

[a] Base is number of ever-married women who had married by age 40.

SOURCE: Adopted from de Guzman (1981); based on the 1978 Republic of the Philippines Fertility Survey (Preliminary).

ethnolinguistic and religious -- do not seem to have induced nuptiality differentials of any moment; (b) some of the most sizable nuptiality differentials in the past are areal differentials growing out of regional histories, especially with respect to age, sex and marital status selective migration; many of these differentials have diminished sharply and likely to disappear in the future; and (c) in the more recent period, overall nuptiality patterns are related to the expanding role of females in the three important interrelated social processes of urbanization, the rise of mass educatibn, and growth of the non-agricultural force. (Smith, 1978).

With respect to urbanization, the flow of recent rural to urban migration has been dominated by single females seeking urban jobs and educational opportunities. This lowers the sex ratio and reduces the probability of early marriage in the receiving (urban) areas. Educational advances influence female marriage either through the time constraint (increased education often requires women to remain unmarried), through change in individual-level attitude and knowledge of alternative lifestyles. Finally, the increased opportunity for female participation in the labor market tends to expand the range of adult roles alternative to early marriage and lifetime childbearing. (Smith, 1978).

Role of Nuptiality in Fertility Change. How much of the observed fertility decline can be attributed to changes in the marriage pattern? Data from Smith (1975) revealed that overall fertility (measured by

the Coale's index I_f) declined by 17 percent between 1903 to 1960, of this 63 percent can be attributed to nuptiality change. In contrast between the period 1960 to 1970, overall fertility declined by 13 percent of which only 15 percent of the decline can be attributed to nuptiality change. Furthermore, large regional variations on the role of nuptiality in fertility change is evident. Between 1960 and 1970, nuptiality accounted for all the change in overall fertility in three regions (Ilocos, Northeastern and Southeastern Mindanao) and between 40 and 73 percent in another five regions (Cagayan, Central Luzon, Southern Luzon, Bicol and Western Visayas). In Eastern Visayas, nuptiality accounted for 13 percent while in Metro Manila nuptiality accounted for only less than five percent of the change in overall fertility from 1960 to 1970. Metro Manila had a much lower overall fertility by 1960 compared with the rest of the regions. Unfortunately, it was not possible to update this analysis for the most recent period. The data necessary for such an analysis have not been calculated for regions.

A more standard decomposition applied by Concepcion (1980) to the crude birth rate change between 1960 and 1975 revealed that between 1960-70, the crude birth rate declined by 15 percent, of which 29 percent was attributed to the change in the marriage pattern and 54 percent to the change in marital fertility. In contrast, during the period 1970-75, the crude birth rate declined by 11 percent, all of which was due to the reduction in marital fertility rates. For the total 15-year period, 1960-75, the crude birth rate declined by

24 percent. Of this change only 16 percent was accounted for by nuptiality change, while marital fertility change accounted for 78 percent. Thus, in spite the relatively rapid change in nuptiality since the 1960s the effect of this on fertility is relatively small compared to marital fertility changes. (See Table 8).

Prospects. Given the relatively high age at marriage already achieved in the Philippines in 1975, it would appear that the limits of nuptiality change as a determinant of overall fertility in the future are already close to being reached. While regional and social group differentials still exist, the overall impact of the future narrowing of nuptiality differentials on overall fertility would probably become insignificant as the means to marital fertility control becomes more widely available.

Trends in Contraceptive Prevalence and Its Correlates

Trends. Several studies have accumulated in recent years on the trends of and differentials in contraceptive prevalence. In addition to the national and regional demographic surveys conducted in the 1970s, data on contraceptive prevalence are available from the National Acceptor Surveys (1974 and 1976) and from the Community Outreach Surveys (1978 and 1980). On the basis of these data, broad trends in contraceptive prevalence can be noted: from a rate of 16 percent in 1968, it rose to 24 percent in 1973, then to 37 percent in 1978. In 1980, it is estimated at 42 percent. (See Table 9). What

Table 8

DECOMPOSITION OF CHANGES IN CBR BY SOURCE OF VARIATION, PHILIPPINES: 1960-1975

Period	CBR T=1	CBR T=2	CBR Change		Absolute Change due to			% of Decline due to		
			Amount	%	Age Structure	Marriage Pattern	Marital Fertility	Age Structure	Marriage Pattern	Marital Fertility
1960-1970	46.00	39.25	- 6.75	-14.7	-1.2	-1.9	-3.6	17.9	28.5	53.6
1970-1975	39.25	34.85	- 4.40	-11.2	0.4	0.1	-4.9	- 8.8	- 1.9	110.7
1960-1975	46.00	34.85	-11.15	-24.2	-0.7	-1.8	-8.7	6.5	15.8	77.7

SOURCE: Concepcion, (1980, Table 4, p. 10).

Table 9

NATIONAL ESTIMATES OF CONTRACEPTIVE PREVALENCE
1968-1980

Methods*	Year			
	1968	1973	1978	1980
Program Methods	2.2	10.4[b]	12.7	14.1[e]
Other Program Methods	5.5[a]	8.0[c]	12.8[d]	14.0[f]
Non-Program Methods	7.8[a]	6.0[c]	11.6[d]	14.0[f]
All Methods	15.5	24.4	37.1	42.1

[a]Based on the 1968 National Demographic Survey (NDS) which is taken as correct.

[b]Based on the 1973 NDS which is taken as correct.

[c]Based on the 1972 Bureau of Census (BCS) KAP Survey which is taken as approximate with a potential downward bias.

[d]Based on the 1978 Republic of the Philippines Fertility Survey (RPFS) which is taken as essentially correct.

[e]Based on the 1980 Community Outreach Survey (COS) which is taken as approximately correct with a possible minor upward bias.

[f]Based on adjusted 1980 COS assuming that the true national rate is somewhere between the rate reported by the 1978 RPFS and the 1980 COS.

*Program Methods refer to pills, IUDs and sterilizations; Other Program Methods refer to rhythm and condom, while Non-Program Methods refer to withdrawal, abstinence and others.

SOURCE: Herrin, A. N. and T. W. Pullum (1981).

is noteworthy in the data is the increased use of the "less effective" methods relative to the "highly effective" clinical methods (pills, IUDs and sterilizations). In the 1978 and 1980 estimates, only one-third of current users were using the more effective methods. By way of comparison, in Thailand, which had approximately the same level of contraceptive prevalence in 1975 as the Philippines had in 1978, 85 percent of current users were using the more effective methods. (Knodel and Nibhon, 1978). Cultural as well as program factors may account for such difference in the mix of contraceptive use.

Incidence of Contraceptive Use. Data from the 1978 RPFS show that the percentage of ever-married women who have ever used any contraceptive method increases with level of the woman's education, urban residence, non-agricultural occupation of the husband, and parity. The percentages of "exposed" women currently using contraception likewise follow a similar pattern. Data on contraceptive use differentials parallel that on fertility differentials, as might be expected. (See Tables 10 and 11).

Determinants of Contraceptive Prevalence. The proximate determinants of contraceptive use include such demand-related factors as family size preferences and attitudes toward contraception, on the one hand, and of supply-related factors such as knowledge of contraception and access to contraceptive services and supplies, on the other. These demand and supply factors are in turn determined by socioeconomic, cultural and environmental factors, and by the direct effects of population program efforts. A recent analysis of trends in

Table 10

PERCENTAGE DISTRIBUTION OF EVER-MARRIED WOMEN WHO HAVE EVER USED ANY CONTRACEPTIVE METHOD BY BACKGROUND VARIABLE

Background Variable	All Ages	Aged 25 - 34 with 4+ Children	Aged 35 - 44 with 4+ Children	Background Variable	All Ages	Aged 25 - 34 with 4+ Children	Aged 35 - 44 with 4+ Children
LEVEL OF EDUCATION				RELIGION			
None	17.0	(27.8)	25.1	Roman Catholic	58.5	70.8	63.6
Primary	42.0	57.4	48.8	Protestant	64.0	74.0	65.6
Intermediate	59.2	71.7	68.8	Iglesia ni Kristo	71.1	(89.0)	(81.6)
High School	71.5	87.4	81.8	Aglipayan	57.7	(63.6)	77.5
Some College	76.3	(93.3)	80.9	Islam	12.0	(15.1)	(16.6)
With College Degree	79.1	74.5	93.9	Others	50.2	(78.7)	51.4
REGION OF RESIDENCE				HUSBAND'S OCCUPATION			
Metro Manila	74.4	91.3	81.9	Professional	73.7	65.5	87.7
Luzon	57.1	70.3	62.1	Clerical	76.4	(94.0)	83.2
Visayas	49.2	61.2	58.0	Sales	68.3	89.8	77.9
Mindanao	57.5	71.5	64.3	Agriculture, Self-Employed	45.9	60.1	52.9
PLACE OF RESIDENCE				Agriculture, Not Self-Employed	45.8	61.9	53.8
Urban	70.9	86.1	76.6	Services	66.1	79.4	70.5
Rural	51.1	64.7	58.3	Manual, Skilled	68.5	82.4	73.2
				Manual, Unskilled	66.5	80.6	71.6
				ALL	57.5	70.0	63.4

SOURCE: NCSO, et al., 1979, World Fertility Survey - Republic of the Philippines Fertility Survey 1978, First Report. Table 7.4, p. 128.

Table 11

PERCENTAGE DISTRIBUTION OF "EXPOSED" WOMEN WHO ARE CURRENTLY USING CONTRACEPTIVES OR HAVE BEEN STERILIZED, BY BACKGROUND VARIABLE

Background Variable	All	Aged 25 - 34 with 4+ Children	Aged 35 - 44 with 4+ Children	Background Variable	All	Aged 25 - 34 with 4+ Children	Aged 35 - 44 with 4+ Children
LEVEL OF EDUCATION				RELIGION			
None	16.0	(11.5)	23.6	Roman Catholic	48.6	51.7	53.2
Primary	34.2	40.0	39.3	Protestant	54.9	(56.6)	56.8
Intermediate	46.6	52.3	55.7	Iglesia ni Kristo	56.8	(68.3)	(62.7)
High School	58.4	64.5	67.0	Aglipayan	44.1	(44.5)	55.7
Some College	65.4	(75.6)	(72.8)	Islam	10.3	(13.5)	(17.6)
With College Degree	68.1	62.2	82.8	Others	41.3	(51.2)	(47.2)
REGION OF RESIDENCE				HUSBAND'S OCCUPATION			
Metro Manila	61.7	71.8	69.8	Professional	62.5	49.6	71.5
Luzon	46.4	50.1	51.1	Clerical	68.0	(71.1)	80.3
Visayas	40.3	41.8	46.5	Sales	57.0	62.6	67.7
Mindanao	49.2	55.8	54.8	Agriculture, Self-Employed	37.4	42.1	43.7
PLACE OF RESIDENCE				Agriculture, Not Self-Employed	36.4	41.9	42.4
Urban	59.7	67.1	66.6	Services	57.5	58.3	64.7
Rural	41.6	45.8	47.0	Manual, Skilled	55.9	65.0	58.3
				Manual, Unskilled	51.3	59.8	61.4
				ALL	47.7	51.2	52.9

SOURCE: NCSO, et al., 1979, World Fertility Survey - Republic of the Philippines Fertility Survey, First Report, Table 7.7, p. 132.

the proximate determinants of contraceptive use based on available data, including the COS, have been made by Herrin and Pullum (1981). Relevant findings are summarized below.

Family Size Preferences. The percentage of currently-married, fecund women under each category of family size who state that they want no more children was taken as a better measure of family size preferences than either "desired family size" or "ideal family size", because it is not affected by rationalization, and it requires less abstraction by respondents. In the 1978 RPFS, the figure for all family sizes combined was 54 percent. The percentages increase by family size, and for women with three children already, 51 percent say they want no more children.

Using data from the 1978 and 1980 COS, the analysis shows that at least in areas where concentrated population program efforts are being implemented, there is evidence of a decline in family size preferences as measured by the percentage of currently married, non-pregnant and fecund women aged 15-49 of given parity who stated they wanted no more children; and that this decline in family size preferences is clearly associated with the increased use of contraception in general, and of modern contraception in particular, i.e., pills, IUDs and sterilization. (See Table 12).

The changing demand for children, as inferred from data showing the increased use of contraception among women of each parity who said they wanted no more children, is understandable in terms of the

Table 12

PERCENTAGE OF FECUND, NON-PREGNANT, CURRENTLY-MARRIED WOMEN, AGED 15-49, IN THE 1978 COS AND THE 1980 COS WHO WANTED NO MORE CHILDREN AND ARE USING CONTRACEPTION
(By Specific Methods, According to Family Size and Date of Establishment of BSP)

Period and Sample Coverage		Number of Living Children									
		0	1	2	3	4	5	6	7+	All	3+
1978 COS											
	MEM[a]	*	3.9	9.4	12.7	11.2	6.7	15.7	7.1	9.7	10.1
	LEM[a]	*	50.6	52.9	57.4	55.9	59.9	51.8	63.2	57.3	58.5
	ALL	*	54.5	62.3	70.1	67.1	67.6	67.5	70.3	67.0	68.6
1980 COS, BSP Established by June 1978											
	MEM	*	16.0	32.0	25.6	31.3	14.8	24.2	12.3	22.7	21.7
	LEM	*	42.0	40.7	37.3	40.2	49.8	42.0	57.3	44.8	45.4
	ALL	*	58.1	72.7	62.9	71.5	64.6	66.2	69.6	67.5	67.1
1980 COS, BSP Established After June 1978											
	MEM	*	2.9	18.7	30.3	24.2	22.3	27.2	16.5	22.6	23.7
	LEM	*	42.1	41.1	39.3	56.9	45.4	40.3	49.9	45.0	45.5
	ALL	*	45.0	59.8	69.6	81.1	67.7	67.5	66.4	67.6	69.2
1980 COS, All BSPs											
	MEM	*	12.1	26.6	27.2	28.8	18.6	25.5	14.2	22.7	22.5
	LEM	*	42.4	40.9	37.9	46.6	47.7	41.1	52.6	44.8	45.5
	ALL	*	54.5	67.5	65.1	75.4	66.3	66.6	66.8	67.5	68.0

*Denominators include 0-5 woman only.

[a]MEM = More Effective Methods.
LEM = Less Effective Methods.

SOURCE: Herrin and Pullum, (1981).

changing structure of costs and benefits of children, at least as perceived by parents. Data on these are fragmentary, however. (See Pernia, 1979). One study that could provide some clues for fertility behavior is the value of children studies, notably those conducted by Bulatao (1975; 1978; 1979a; and 1979b) for the Philippines. His study reveals that among the various value domains within which children are considered, the instrumental-assistance value, including financial help expected from children, old age security, help with household chores, and caring for other children, are found to be highly salient as well as among the most central values. On the other hand, financial cost, though less salient than worries of child rearing, appeared more central and ranked first in importance among the disvalues.

Differential value patterns appear to be associated with fertility control as the data in Table 13 reveal. Parents were categorized as either "high parity nonlimiters" or as "low parity limiters". Low parity limiters in contrast to the high parity nonlimiters tend to (a) place less value on "help in housework" and "financial, practical help" as advantages of children, (b) consider cost of education as among the disadvantages of children, (c) consider three children to be of some financial burden, and (d) think less of an only child as undesirable because of mortality risk.

Data limitation does not allow us to map out the incidence of low parity limiter parents by residence and socioeconomic

Table 13

SELECTED INDICATORS OF VALUE OF CHILDREN AMONG HIGH PARITY NON-LIMITER AND LOW PARITY LIMITER PARENTS, PHILIPPINES 1975-1976

Indicator	HPN	LPL
Wives (Husbands)*	n=182(41)	n= 92(15)
Percentage mentioning advantages:		
Help in housework	48(41)	21(7)
Help in old age	40(46)	45(50)
Financial, practical help	63(66)	40(43)
Rating of reasons for having children:		
To work and help	.14(.12)	.06(.12)
To depend on when old	.17(.12)	.13(.18)
Percentage mentioning financial cost among disadvantages:		
Cost of education	13(10)	16(17)
Other financial costs	37(35)	26(25)
Percentage considering three children to be some financial burden	40(15)	89(93)
Percentage who considered an only child undesirable because of mortality risks	23(10)	15(14)
Percentage mentioning advantages:		
Companionship, love	11(12)	20(7)
Happiness	42(34)	62(50)
Play, fun, distraction	11(10)	24(21)
Marital bond	5(5)	13(50)

SOURCE: Bulatao(1979), various tables.

* Values in parentheses refer to responses of husbands.

characteristics. Nevertheless, one can reasonably infer that socio-economic trends leading to greater opportunities for education, alternative satisfactions and roles, and declining mortality will affect the demand for children, and hence for effective contraception, leading to actual changed fertility. The basis for such inference is the accumulating results of multivariate analyses which find that critical levels of education, income, female labor force participation, and child survival significantly influence completed fertility (e.g., Encarnacion, 1973; 1975; Canlas and Encarnacion, 1977; Harmen, 1970; Paqueo and Angeles, 1979; Paqueo and Fernandez, 1979).

Attitudes Toward Use of Contraceptive. Although the measures used are not strictly comparable, data on approval of contraception suggest a favorable trend. The percentage of married women of reproductive age 15-44, (MWRA) who said they approve of doing "something to avoid getting pregnant too often or to plan the number of children they have" was 58 percent in 1968 and 63 percent in 1973. (Laing, 1979a, p. 5). In the 1978 CDS, the question was reworded to refer specifically to "the use of modern family planning methods like pills, IUDs, or condoms", while in the 1980 CDS, the reference to condoms was changed to sterilization. (Laing, 1979a; Laing, 1981b, p. 81). The corresponding percentages for the respective periods are 67 and 72. In spite of the favorable trend, 26 percent of MWRA still disapproved of modern family planning methods in 1980, of which half said they disapproved strongly.

Approval of modern family planning methods is clearly associated, among other things, with increasing educational attainment, urban residence, and exposure to communications about family planning, either through interpersonal sources, through mass media or through field workers. (See Table 14).

Knowledge of Contraceptive Methods. Awareness of specific contraceptive methods has risen markedly since the population program began. By 1980, practically all (99 percent) of MWRA have heard of at least one method of contraception. Additionally, awareness levels for modern contraception (i.e., pills, IUDs and ligation) are above 90 percent. (Laing, 1981b, Table 9, p. 12). Data from the 1978 RPFS reveal almost uniformly high levels of awareness by age of woman and by family size. (NCSO, et al., 1979, p. 124).

Availability of Contraceptive Supplies. It is obvious that the availability of contraceptive supplies have significantly improved with the program than without it. Nevertheless as will be described later, there are problems of increasing access to contraceptive supplies and services due to cost and logistical considerations.

Relative Impact of Socioeconomic Factors and Family Planning Efforts on Contraceptive Prevalence. How well does each of the above determinants affect contraceptive prevalence? Laing (1981a) has recently conducted a multivariate analysis of the correlates of contraceptive prevalence in the outreach areas in 1980. This is a very important study for the Philippines because it attempts to

Table 14

PERCENTAGES OF MW15-44 APPROVING OF MODERN CONTRACEPTIVE METHODS BY SELECTED INDEPENDENT VARIABLES, 1980 COS

Independent Variable	% Approving
Education	
None	58.1
Grades 1-4	64.9
Grades 5-7	69.4
High School (1-4)	75.4
College (1+)	83.4
Place of Residence	
Urban	76.3
Rural	69.2
Religion	
Roman Catholic	70.1
Iglesia Ni Cristo	83.5
Protestant	70.8
Muslim	63.3
Perceived Stand of Religion	
Favorable	77.5
Opposed	48.8
Neither	51.3
Don't know	58.8
Organized Opposition in BSP Area? (Reported by FTOW)	
Yes	63.9
No	70.8
Heard About FP from Friends, Relatives or Neighbors?	
Yes	75.3
No	58.6
Heard About FP...	
...on the Radio?	
Yes	74.3
No	63.2
...on TV?	
Yes	83.4
No	68.6
...in a Movie?	
Yes	80.2
No	68.7
...in a Lecture?	
Yes	76.0
No	68.7
Read About FP...	
...in a Newspaper?	
Yes	79.8
No	66.6
...in a Leaflet	
Yes	80.4
No	67.6
Discussed FP with...	
...Medical Person?	
Yes	80.5
No	66.1
...FTOW?	
Yes	79.7
No	68.7
...BSPO	
Yes	79.5
No	68.0

SOURCE: Laing (1981b), p. 82.

disentangle the effects of "demand" or socioeconomic variables and the "supply" of family planning methods, precisely the kind of information that is needed to clarify the relative importance of general development and specific interventions on contraceptive prevalence, and by extension on fertility rates. His results suggest that while socio-economic variables accounted for a large proportion of the variation in clinical contraceptive prevalence in the Barangay Supply Point (BSP) areas, program variables also accounted for a significant portion of the total variation. The percentage of variance explained by the selected variables was 43 percent, of which 63 percent was explained by socioeconomic factors, and 37 percent by program factors. With respect to overall prevalence, the percentage of variance explained by the selected independent variables was 39 percent, of which 70 percent was explained by socioeconomic factors, and 30 percent by program (both clinic and outreach) factors. Laing's results are reproduced in Tables 15 and 16. These results can readily be interpreted in the following light. The socioeconomic variables are expected to be related to such demand factors as family size preference and attitudes toward contraception. BSPs with high proportions of household heads having high levels of education, non-farm or urban occupations and high incomes are expected to be areas which have high proportions of households having smaller family size preferences and more favorable attitudes toward contraception. Mass media exposure would also tend to be higher among these areas, and hence, awareness and knowledge of contraception will tend on the

Table 15

PERCENTAGES OF VARIANCE IN CLINICAL PREVALENCE EXPLAINED BY SELECTED VARIABLES AND CORRESPONDING MULTIPLE REGRESSION COEFFICIENTS (N = 344)

Independent Variable	Adjusted R^2 (%)[a] Cumulative	Change	Unstandardized Regression Coefficient	t
5 Community SES Variables	26.9	26.9		
1 Household SES Index		21.6	.080	2.03*
2 Percent of household heads with high education		3.0	.068	2.27*
3 Percent farm households		1.2	.028	1.25*
4 Distance from BSP to farthest MCRA		.6	- .024	1.19
5 Type of barangay (urban vs. rural)		.5	2.89	1.92*
4 Non-Outreach Family Planning Program Inputs	30.7	3.8		
1 Weekly visits to BSP area by BHS midwife		1.9	1.89	1.96*
2 Number of FP clinics, hospitals, and BHSs serving FTOW territory		.9	.33	2.38**
3 Travel time for ligation		.5	- .36	1.66*
4 Number of other agencies promoting FP in BSP area		.4	.58	1.61
12 Outreach Variables	42.6	11.9		
1 BSPO's current use of a clinical method		3.2	1.76	1.36
2 FTOW's time allocation index		2.1	1.26	3.10**
3 BSPO's referrals to clinic (reported by BSPO)		1.7	2.79	2.70**
4 Recent completion of baseline survey		1.1	3.22	3.07**
5 Formal training of BSPO		.9	1.36	1.46
6 BSPO's experience with clinical methods		.4	1.56	2.37**
7 BSPO's experience with nonclinical methods		.9	- .77	2.30*[b]
8 BSPO's referrals to clinic (reported by FTOW)		.4	1.84	1.84*
9 Date BSP first established		.3	- .073	1.69*
10 FTOW's stock of printed IEC materials		.2	.34	1.55
11 Completeness of BSP records		.3	.021	1.77*
12 FTOW's current use of a clinical method		.3	1.71	1.65*

Significance levels: * = $p < .05$; ** = $p < .01$ (one tail test except as noted) [a]Adjusted for [illegible] [b]Two-tail test

SOURCE: [illegible]

Table 16

PERCENTAGES OF VARIANCE IN OVERALL PREVALENCE EXPLAINED BY SELECTED VARIABLES AND CORRESPONDING MULTIPLE REGRESSION COEFFICIENT (N = 344)

Independent Variable	Adjusted R^2 (%)[a] Cumulative	Change	Unstandardized Regression Coefficient	t
4 Community SES Variables	26.9	26.9		
1 Household SES index		21.2	.111	2.21*
2 Percent farm households		4.1	- .073	2.72**
3 Distance from BSP to farthest MCRA		1.1	- .056	2.17*
4 Percent of household heads with high education		.5	.084	2.18*
2 Non-Outreach Program Variables	29.0	2.1		
1 Number of clinics, hospitals, and BHSs serving PTOW territory		1.3	.44	2.49**
2 Distance to nearest BHS		.9	1.47	1.20
11 Outreach Variables	38.5	9.5		
1 Variety of BSPO training topics		2.1	.26	1.40
2 BSPO's current use of a clinical method		1.4	2.98	2.24*
3 PTOW's stock of printed IEC materials		1.3	.69	2.41**
4 PTOW time allocation index		1.0	1.30	2.50**
5 Incentive for BSPO		.8	2.46	1.61
6 Completeness of BSP records		.8	.035	2.28*
7 BSPO's referrals to clinic (reported by PTOW)		.5	2.80	2.15*
8 Recent completion of baseline survey		.3	3.15	2.31*
9 Date BSP first established		.8	- .127	2.33**
10 Membership in BSPO association		.3	2.61	1.53
11 BSPO's awareness of relative effectiveness of IUD and condoms		.2	1.74	1.51

Significance levels: * = p .05; ** = .01 (one-tail test)

[a]Adjusted for degrees of freedom.

SOURCE: Laing (1981a).

average to be greater. Program variables, on the other hand, can be interpreted as supply-related factors which increase the flow of information and the accessibility of couples to contraceptive supplies and services, and hence reduce the effective cost of contraception, thereby leading to increased contraceptive prevalence.

Summary and Discussion

The above review of the determinants of fertility indicates that the major proximate determinants of fertility change in the Philippines are changes in nuptiality patterns and changes in marital fertility, the latter mainly through contraception. Although induced abortion is known to be resorted to by both single and married women as a means of fertility control, the extent of its use is not accurately known.

Changes in marriage patterns associated with increased female education, female labor force participation and urbanization are expected to continue with socioeconomic development. However, the accelerating trend in the age at marriage observed in the last twenty years is likely to taper off, considering that a high age at marriage has already been achieved, and that marriage is likely to continue to be universal in the Philippines. The proportion never marrying by age 50 years, although high by some Asian standards, have remained fairly constant throughout the past seven decades. Thus, a further increase in the overall average age at marriage is expected to be mainly

through the narrowing of nuptiality differentials that still exist among women by rural-urban residence, and by education and other characteristics. Policies to raise the age at marriage would probably have little effect on the narrowing of these differentials, independent of the effect of socioeconomic development. The effect of general development on fertility change, through further changes in the marriage patterns alone, cannot be expected to be substantial enough to produce the absolute fertility change needed to reach replacement fertility by the year 2000 or thereabouts implied by current projections upon which the present development plan (1983-1987) is based. Data for the period 1960 to 1975, for example, show that the absolute decline in the crude birth rate attributable to nuptiality change was only 1.8 births per thousand compared to 8.7 births per thousand attributable to marital fertility change. On an annual basis, the average decline in crude birth rate during the 15-year period due to nuptiality change was only 0.12 births per thousand. It will take a drastic change in nuptiality patterns to produce a much larger impact on fertility than what has been observed during the past one and a half decades. Such drastic change, as noted earlier, is neither likely nor desirable.[6/] Hence, large and sustained declines in fertility consistent with the nation's development goals

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[6/] A draconian policy to raise the age at marriage as a fertility reduction measure may create new social problems among which, ironically, may be an increase in premarital fertility, in the absence of effective contraception. A benign policy, on the other hand, will likely have little effect on the age at marriage independent of socioeconomic development.

must increasingly rely on changes in marital fertility, mainly through contraception, given society's religious and cultural views regarding abortion.

Underlying the change in contraceptive practice are changes in the structure of costs and benefits of children, on the one hand, and changes in the effective cost of contraception on the other. General economic development can be expected to induce changes in both, independent of selective development intervention, i.e., direct family planning program efforts. To what extant general development alone, unsupported by direct family planning intervention can effect the desired magnitude and timing of fertility change is difficult to accurately determine at this point. However, the evidence presented earlier indicates that, at the current stage of development, while general socioeconomic factors significantly explain a relatively large proportion of the explained variation in contraceptive prevalence, and by extension, fertility, the independent effect of direct family planning program variables is also large and significant in absolute terms. Hence, given that, in principle, a case can be made for public intervention in fertility control, as has been made in a related paper in this volume (Paqueo, 1982), the question now boils down to a strategic one, namely, whether the desired societal fertility goals can better be achieved by general development alone, or by general development supported by selective intervention in the form of direct family planning program efforts. Past Philippine experience, as the

evidence above suggests, points to the superiority of the latter strategy in terms of overall fertility impact.

With this background, it is instructive to consider the task ahead for the general and selective development interventions with respect to marital fertility reduction. First, the evidence reviewed earlier suggests that the incidence of rapid marital fertility decline in the 1970s is concentrated largely among the highly educated, high income, and more urbanized population. Underlying this decline are the related changes in the economic roles of children, and in the perceived financial burden of a large family size. In addition, contraceptive information and supplies have been more accessible, from both program and non-program outlets, in the urban areas and their fringes than in the remote rural areas. Further fertility declines may be expected around the fringes of these areas through some diffusion process. However for a large segment of the rural poor and less educated population, high fertility may be expected to persist unless programs specifically targetted to these groups, both those that affect the demand for children, mainly general economic development, and those that affect the cost and accessibility of the means of contraception, mainly direct family planning program efforts, are intensified. (Lieberman and Herrin, 1981).

Secondly, the rapid growth of population in the 1950s and 1960s is now being reflected in increased numbers of women of reproductive ages who are exposed to the risk of childbearing. The slackened tempo

of urbanization in the postwar era means that a large proportion of these women are to be found in the less accessible rural areas than in the urban areas. Program efforts to provide information and contraceptive supplies and services will, therefore, be expected to be much greater in the 1980s than in the previous decade due to a disproportionate increase in the number of married women in the less accessible areas.

Thirdly, there are concerns regarding the evolving pattern of contraceptive use. Although contraceptive prevalence has reached high levels, two-thirds of this are due to the use of "less effective" methods (i.e., condom, rhythm, withdrawal and abstinence). An issue arises as to whether the program needs to exert greater efforts to encourage the use of the "more effective" clinical methods (i.e., pills, IUDs and sterilizations) or to accept the prevailing use pattern as reflective of user demand and simply accommodate to such demand. Encouraging the "more effective" methods may entail greater costs and require greater organizational capacity on the part of the program, on the one hand, and perhaps greater psychic and monetary cost on the part of the users, on the other. If the current method mix is to be accepted, then efforts must be made to make the "less effective" methods in this mix more use-effective to improve the overall cost-effectiveness of the program. In either case, to meet the increasing demand for safe and effective methods of contraception in the years ahead, the implied trend in program efforts is towards more intensive efforts and greater demands on scarce resources.

In the next section of this paper, we explore the above considerations more fully in an attempt to clarify issues related to the question of what type of family planning interventions would probably be most cost-effective in the context of Philippine experience.

EFFECTIVENESS OF FAMILY PLANNING INTERVENTIONS

Introduction

Overview of Philippine Population Program. Prior to the government's formal effort to introduce family planning in the Philippines, the private sector has already been quietly active in the field as early as 1920. Figuring prominently were the various protestant ministries and later, the various family planning associations, notably the Family Planning Association of the Philippines (FPAP) and the Planned Parenthood Movement of the Philippines (PPMP). These two organizations later merged in 1979 to form the Family Planning Organization of the Philippines (FPOP). (SCRPPP, 1978).

The establishment of the Commission on Population in 1970 marked the formal direct entry of the government into population field. At the start, the Population Program was integrated with the health service delivery structure, specifically the maternal and child health care delivery system. In order to strengthen the Program, attempts were made to take the Program out of the health structure in order to extend the reach of clinic services and to utilize non-medical personnel to motivate people to practice family planning. (SCRPPP, 1978, p. 6). In 1975, the Total Integrated Development Approach (TIDA) was adopted and piloted in seven provinces. This program sought to integrate family planning with the other development activities in the rural areas. As the Special Committee noted, the lack of uniformity in field

implementation, partly attributed to the vagueness of the TIDA concept, led to the adoption of the National Population Family Planning Outreach Project (NPFPOP) in 1976. The principal objective of the project is to provide family planning motivation activities and services to all couples regardless of proximity to stationary clinics. This project has become the core activity of the family planning program at present. (SCRPPP, 1978, p. 51).

Since the inception of the Program, various legislations were enacted to support the family planning program activity. (See SCRPPP, 1978, Appendix 3). In 1978, a comprehensive review of the Philippine Population Program was conducted by a Special Committee created by the President of the Philippines.

Purpose. This section attempts to highlight some of the evidence related to program performance, with emphasis on factors related to the contraceptive method mix, and to the relative use-effectiveness and cost-effectiveness of specific contraceptive methods. Data on these aspects, based on several national surveys (e.g., NAS and NDS), have accumulated over the years, and was reviewed in 1978 by the Special Committee to Review the Philippine Population Program. Since then, additional basic information has been obtained from the Area Fertility Surveys (AFS), the RPFS and the COS.

This section also discusses issues related to the relative (cost) effectiveness of various strategies, e.g., emphasis on clinical vs. natural methods, clinic-based vs. outreach, and integrated vs.

vertical approaches. The discussion will essentially be qualitative, in view of the limitations of the scope and quality of data available at the present time.

Contraceptive Prevalence By Method Mix

Overview of Changing Method Mix. An interesting aspect of the use pattern of contraceptive methods in the Philippines, as contrasted, for example, with those of Thailand and Indonesia, is the large proportion of current users using non-clinical methods. In 1980, for example, two-thirds of current users were using non-clinical methods. Examination of Table 9 presented earlier, reveals that prior to the program in 1968, the relative proportion of users of clinical methods was 14 percent, Other Program Methods (rhythm and condoms), 36 percent, and Non-program Methods, 50 percent. In the early years of the program in 1973, the proportion of users of clinical methods rose to 43 percent, while the proportion of users of Other Program and Non-program Methods declined to 33 and 25 percent, respectively. This shift in the use pattern may be attributed to the emphasis of the program on the use of clinical methods. Since then, however, there has been a shift from clinical methods to non-clinical methods, so that by 1980, the relative proportion of users of clinical methods dropped to 33 percent, the proportion of users of Other Program Methods more or less remained the same at 33 percent, while the proportion of users of Non-program Methods rose to 33 percent.

In terms of specific methods within each broad category, the data show that between 1973 (NDS) and 1980 (COS), the prevalence rate for pill users declined from 6.9 to 5.0, and for IUD users from 2.6 to 1.8.[7] On the other hand, the prevalence rate for sterilization, mainly female sterilization, rose from 0.9 to 6.5. With respect to Other Program Methods, the prevalence rate for rhythm rose from 3.9 to 7.9, while for condom, it rose from 0.8 to 1.8. In 1980, a new category, "combination", was recorded, with a prevalence rate of 5.3 percent. "Combination" refers to the combined use of rhythm and condoms, rhythm and withdrawal, and withdrawal and condoms. Finally, the prevalence rate for Non-program Methods, consisting mainly of withdrawal, rose from 6.0 to 14.0 during the period under consideration, after allowance for potential overreporting.[8]

Determinants of the Evolving Method Mix. The contraceptive use pattern or method mix is expected to be influenced by the delivery approach adopted and by socioeconomic factors, through their differential impact on (a) the knowledge or awareness of each methods, together with the perceived effectiveness and risks involved of each

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[7] For the relevant data, see Herrin and Pullum (1981). Data for specific methods in 1973 (NDS) and 1980 (COS) may not be strictly comparable, since the 1980 (COS) coverage excludes Metro Manila. However, allowance for differential coverage between the two national surveys (1973 NDS and 1978 KPFS) and the 1980 COS was made in the aggregate data shown in Table 9.

[8] See Herrin and Pullum (1981) for a compilation of estimates of contraceptive prevalence rates from various sources, and for discussion on problems of comparability; the latter drawing mainly from the work of Laing.

method; and (b) the cost and availability of each method. The evolving contraceptive method mix can be traced partly to certain shortcomings of service delivery associated with the cafeteria approach, the early clinic orientation of the program, and the actual implementation of the Outreach project. First, the delivery of family planning services of the present program is primarily dependent on a cafeteria approach, which seeks to provide information on, and access to, all family planning methods. The approach is based on a policy of non-coercion and respect for religious and moral convictions of the potential user. However in actual implementation, the Special Review Committee uncovered suggestions that in fact, "some methods are promoted more than others depending on the resources available and the attitude and type of training of the field worker." (SCRPPP, 1978, p. 41).

The limited coverage of the clinic-based strategy of the early years is reflected in the survey finding that contraceptive prevalence rates among couples beyond a three-kilometer radius significantly dropped. (SCRPPP, 1978, p. 42). The limited clinic coverage then, as it is now, can influence the method mix. As the program extends its outreach to the more remote rural areas, it can be expected that the use of clinical methods will decline as a percentage of total methods simply because the clinical methods are less available for logistical and cost considerations to these more remote areas compared to, say, calendar rhythm and the non-program methods.

Certain aspects of the early implementation of the Outreach project may also have influenced method mix. While the primary objective of the Outreach project was to increase the number of acceptors and users of progras methods by making supplies more readily available, data from the 1978 COS revealed that in practice, a large proportion, (84 percent), of the Full Time Outreach Workers, (FTOWs), continued to refer all potential pill acceptors to clinics rather than take the responsibility for providing the initial supply, either because they were instructed to do so or they did not feel qualified to prescribe pills themselves. (Laing, 1980, pp. 11-12). Worse, such referrals were in fact not made as a matter of course, nor were follow-ups made to old clients who had failed to return to the clinic. Results from the 1980 COS, however, indicate some improvements. About half of the FTOWs said they were willing to provide initial pill supplies, compared to only 16 percent in 1978. (Laing, 1981b, p. x). Another important finding of the 1980 COS was that the potential of the BSP for providing wider access to contraceptives was limited by the fact that fewer than half of the wives living in the BSP areas know that there was a BSP that could provide pills or condoms. (Laing, 1981b, p. 9).

A related factor which may influence the relative increase in less effective methods vis-a-vis the clinical methods is the differential risks perceived or experienced by potential or actual users. Data from the 1976 NAS reveal that among clinic acceptors who terminated the first method used within one year after acceptance,

relatively larger proportions of pill and IUD users claimed they terminated use of the method because of side effects. The percentages are 67 and 41, respectively. In contrast, only 6 percent of rhythm users and 24 percent of condom users claimed they terminated use of the respective methods because of side effects. (Laing, 1979a, p. 15). Data on perceived risks of specific methods, also from the 1976 NAS, revealed that respondents tend to perceive greater risks (i.e., dangerous to health, can cause illness, can cause birth defects, etc.) involved in the use of pills and IUDs, and also to some extent sterilization, both male and female, than the non-clinical methods. (Laing and Alcantara, 1980, pp. 76-78). Data from the 1980 COS also suggest that a major reason for the non-use of clinical methods was the fear of side effects. Among women who were currently using less effective methods, the percentages rejecting the pill, IUD and sterilization because of fear of side effects were 87, 74 and 61, respectively. (Laing, 1981b, pp. 97-98).

Besides the perceived risks, another factor that may influence the differential use of specific methods is the perceived relative effectiveness of each methods. Data from the 1980 COS reveal that the relative willingness to try either of two specified methods, i.e., pills vs. IUDs, rhythm vs. condoms, and IUDs vs. condoms, was partly a function of the perceived relative effectiveness of the two methods. (Laing, 1981b, pp. 83-84). What is disturbing is that the knowledge of the relative effectiveness of specific methods among FTOWs, SSPOs

and the average married woman leaves much to be desired. See Tables 17, 18 and 19.

Finally, the relative cost of each contraceptive methods is expected to affect the pattern of use. Clinical methods require not only out-of-pocket costs but also time costs in view of the distance to clinics of potential users in the more remote villages. There are also the psychic costs involved, especially in the use of sterilization more specifically male sterilization, related to cultural conditioning (e.g., macho syndrome). The less effective natural methods, on the other hand, do not require out-of-pocket costs nor time costs, and often involve minimal psychic costs or inconvenience, and hence may be preferable, all things being equal.

Use-Effectiveness of Contraceptive Methods

An Overview. Much of the information on the use-effectiveness of contraceptive methods are due to the work of Laing, based mainly on data from the National Acceptors Surveys and the Community Outreach Surveys. The term use-effectiveness is used there in a generic sense to include various measures including continuation rates, pregnancy rates and births averted.

Data from the 1976 NAS revealed differential continuation (first method and all method) rates and overall pregnancy rates by specific contraceptive methods (pills, IUD, rhythm and condoms), with IUD showing the highest continuation rate and lowest overall pregnancy

Table 17

PERCENTAGE DISTRIBUTIONS OF FTOWS, BSPOS, AND MW15-44 BY PERCEIVED RELATIVE EFFECTIVENESS ON SELECTED PAIRS OF METHODS, 1980 COS

Comparison/Response	FTOWs	BSPOs	MW15-44
Pills vs. IUD			
Pills much more effective	68.5	60.1	38.1
Pills little more effective	8.7	12.2	15.8
No difference*	2.0*	4.8*	7.8*
IUD a little more effective**	4.7**	3.9**	7.1**
IUD much more effective*	15.7*	14.9*	13.7*
Don't know	.3	4.0	17.4
Rhythm vs. Condoms			
Rhythm much more	12.4	17.2	26.6
Rhythm a little more*	8.7*	9.8*	10.9*
No difference**	6.4**	5.5**	6.1**
Condoms a little more*	17.7*	15.7*	14.6*
Condoms much more	54.8	50.2	23.0
Don't know	0	1.7	18.8
IUD vs. Condoms			
IUD much more**	71.7**	30.6**	25.3**
IUD a little more*	7.0*	6.4*	10.9*
No difference	.5	3.9	8.3
Condoms a little more	6.1	14.1	13.5
Condoms much more	14.3	42.7	22.8
Don't know	.3	2.3	19.2

** Best response.

* Acceptable response but not best.

SOURCE: Laing (1981b), p. 19.

Table 18

PERCENTAGE DISTRIBUTIONS OF FTOWS, BSPOS, AND MW15-44 BY PERCEIVED BEST TIME TO START USING CONTRACEPTION AFTER GIVING BIRTH, 1980 COS

Best Time	FTOWs	BSPOs	MW15-44
Wait for menstruation	23.5	41.4	56.4
After a few months*	21.0*	13.6*	9.4*
Right away	55.5	43.0	33.7
Don't know, depends	0	0	.5
Total	100.0	100/0	100.0

*Best response

SOURCE: Laing (1981b), p. 20.

Table 19

PERCENTAGE DISTRIBUTIONS OF RSPOs AND WIVES (AGED 15-44) BY PERCEIVED BEST TIME FOR RHYTHM USERS TO ABSTAIN, 1980 COS

Best Time to Abstain	RSPOs	Wives
During menstrual period	.9	4.5
Right after period	33.7	41.7
Midway between period*	38.5*	23.3*
Immediately before next period	26.9	29.7
Don't know	0	.8
Total	100.0	100.0

*Best response.

SOURCE: Laing (1981b), p. 23.

rate. Condoms, on the other hand, showed the lowest continuation rate and highest overall pregnancy rate, followed closely by rhythm. (See Table 20). The Pearl pregnancy rate, which indicates the number of conceptions that occur for every hundred woman-years of use of the method, varied from 3 for IUD users and 8 for pill users to 20 or more for rhythm and condom users. (Laing, 1979a, p. 12).

Estimates of births averted by method based on the 1976 NAS data reveal that IUD user averted 1.2 births, followed by pill users, 0.7 births, and rhythm and condom users, 0.5 births each. A separate analysis revealed that the average sterilization acceptor in 1975 averted 2.3 births. (Laing, 1979a, p. 19).

The NAS data included only acceptors of program methods at program clinics. The COS data, on the other hand, included acceptors and users of all methods, program and non-program, at or outside program clinics. Indicators of use-effectiveness of contraceptive methods have also been computed by Laing (1981b) from this data set. Estimates of Pearl pregnancy rates reveal high rates for condom users (60), followed by withdrawal (44) and rhythm (33). Pills and combinations exhibit rates of 19 and 22, respectively, while both sterilization and IUD exhibited the lowest rates (4 for IUD and practically none for either male or female sterilizations). (See Table 21).

Table 20

CUMULATIVE 12- AND 36-MONTH CONTINUATION RATES AND OVERALL PREGNANCY RATES OF CLINIC ACCEPTORS BY METHOD, 1976 NAS

Method Accepted	First-Method Continuation Rate		All-Method Continuation Rate		Overall Pregnancy Rate	
	12 mos.	36 mos.	12 mos.	36 mos.	12 mos.	36 mos.
Pills	48	17	61	30	28	60
IUD	68	39	81	54	13	39
Rhythm	42	19	57	30	36	61
Condoms	23	6	51	26	40	66
All methods[a]	46	19	62	33	28	58

[a] Including sterilization and others.

SOURCE: Laing (1979a), p. 12.

Table 21

ESTIMATES OF PEARL PREGNANCY RATES, 1978 AND 1980 COS

Method	Pearl Rate		Number of Woman-Years of Observation	
	1978	1980	1978	1980
Ligation	0.7	0.0	150	416
Vasectomy	4.0	(.7)	50	27
IUD	8.0	3.6	162	165
Abstinence	16.5	(16.7)	133	39
Pills	20.6	19.2	417	423
Combinations	23.9	21.9[a]	297	346
Rhythm + withdrawal	u	17.0[a]	u	246
Rhythm + condoms	u	(31.6)[a]	u	71
Condoms + withdrawal	u	(39.7)[a]	u	29
Rhythm	36.9	33.4	743	710
Withdrawal	39.6	43.7	844	767
Condoms	48.2	60.4	174	114
No method but sexually active, fecund, and menstruating	105.0	110.5	1,397	1,806

NOTE: Parenthesis denotes rates based on less than 100 woman-years of use and therefore relatively unreliable.

u - unreliable.

[a] The numerators for 1980 rates for combinations were obtained by comparing statuses for adjacent months, as in 1978, rather than relying on the respondent's reported use of contraception at the time of conception, since the use of combinations at that time tended to be somewhat underreported.

SOURCE: Laing (1981b), p. 93.

The effectiveness of specific methods measured in terms of the proportion by which its use reduces the probability of conception showed that in 1980 (after standardizing for age of woman) ligation, vasectomy and IUD have rates from 96 to 100 percent, abstinence, pills and combinations have rates from 77 to 84 percent, while rhythm, withdrawal and condoms have rates from 34 to 62 percent. (See Table 22).

In summary, the data from the various surveys strongly suggest that, given the quality of use of each methods, sterilization and to some extent IUD, tend to be the most use-effective among the various methods, either because it is permanent (as in the case of sterilization) or it requires little effort to use once in place, as in the case of IUD. The relatively low effectiveness of the other methods can clearly be attributed to the poor quality of their use.

Determinants of Use-Effectiveness. Data on the quality of use of specific contraceptive methods are hard to come by. Available information based on self-reports of the extent of "incorrect" use of specific methods are most likely to be unreliable (i.e., understated), since respondents would probably avoid appearing "stupid" to interviewers. Nevertheless, one may advance several underlying factors that influence the "quality" of contraceptive use, other than those that do not require additional effort on the part of the user once the method is in place, namely, sterilization and IUD. These underlying factors, which are inferred from the foregoing discussion,

Table 22

ESTIMATES OF PRC DERIVED FROM 1978 AND 1980 DATA

Method	1978	1980
Ligation	.99	1.00
Vasectomy	.98	.99
IUD	.93	.96
Abstinence	.81	.84
Pills	.81	.83
Combinations	.76	.77
Rhythm	.61	.62
Withdrawal	.60	.51
Condoms	.57	.34

SOURCE: Laing (1981b), p. 94.

include (a) motivation to prevent a birth; (b) knowledge of the use of the method, and, related to this is, the difficulty of learning how to use the method correctly; and (c) availability and cost of the method. These factors in turn are associated with socioeconomic and demographic characteristics of the user including parity, education, income and urban residence, on the one hand, and with program factors (e.g., quality of advice given by field workers to potential users, adequacy of IEC materials, accessibility to supplies, etc.), on the other.

Cost-Effectiveness of Specific Contraceptive Methods

Very few cost-effectiveness studies have so far been done in the Philippines with respect to the population program, partly due to the lack of reliable and readily available information on cost. The most recent study thus far is that of Pernia and Dansao (1976). The cost data available are only up to 1977, hence, the cost-effectiveness estimates do not reflect developments in the more recent period, i.e., the operation of the Outreach project. Briefly, the study revealed that at the national level, the total cost in constant prices per family planning program output (whether output is measured in terms of per acceptor, per couple-years of protection, years of effective protection or future births averted) have remained roughly constant on the average (see Table 23). This trend in total cost per program output evolved out of a declining direct cost per output roughly

Table 23

COST-EFFECTIVENESS INDICATORS AT NATIONAL LEVEL,
FY 1971-1976 AND CY 1977
(constant 1972 prices)

Indicator	FY 1971	1972	1973	1974	1975	1976	CY 1977
I. Total Cost							
Acceptor	₱147.75	₱127.44	₱108.82	₱119.19	₱132.84	₱108.56	₱145.75
CYP	48.94	44.77	39.60	44.87	49.57	38.27	45.69
YEP	69.13	63.54	56.64	64.75	69.86	51.23	57.71
FBA	173.25	156.85	139.47	158.90	170.51	125.66	142.63
II. Direct Cost							
Acceptor	90.57	87.96	54.01	47.40	67.24	49.34	47.34
CYP	30.00	30.91	19.66	17.84	25.09	17.34	14.78
YEP	42.38	43.86	28.11	25.75	35.36	23.29	18.75
FBA	106.20	108.29	69.22	63.20	86.31	57.11	46.33
III. Indirect Cost							
Acceptor	57.18	39.45	54.81	71.79	65.60	59.22	98.41
CYP	18.94	13.86	19.95	27.02	24.48	20.82	30.71
YEP	26.75	19.67	28.53	39.00	34.50	27.95	38.97
FBA	67.05	48.56	70.25	95.71	84.20	68.55	96.30
IV. Clinic Cost							
Acceptor	58.88	62.49	43.67	41.81	54.46	40.25	42.90
CYP	19.50	15.89	15.89	15.74	20.32	14.15	13.39
YEP	27.55	31.15	22.73	22.72	28.64	19.00	16.99
FBA	69.04	76.91	55.97	55.74	69.90	46.59	41.98

SOURCE: Pernia and Danao, (1978), p. 36.

matched by an increasing indirect cost per output.[9/] The latter was attributed to "(a) the increasing difficulty of pushing further the FPP campaign after the demand for its services ... has been filled, implying that indirect expenditures, e.g., for IEC, had to be significantly increased; and (b) ... the attempt at transforming the FPP from a "clinical" or contraceptive-oriented to a concept-oriented program through the TIDA and Outreach projects." (Farnia and Daneo, 1978, pp. 55-56).

Estimates of the relative cost per acceptor for the different contraceptive methods are shown in Table 24. When the beginning-and-continuing-contraceptor cost estimates are combined to arrive at a measure of method-specific cost per future birth averted, taking into consideration the relative use-effectiveness of each method, the results show that sterilization is the least costly per future birth averated (₱54), followed by IUD (₱275), pill (₱280), condom (₱383), and rhythm (₱389). Thus, from purely program cost considerations alone, the above estimates suggest that the clinical methods, mainly due to their relatively greater use-effectiveness, are more cost-effective than condoms or rhythm. What these data imply for policy will be discussed below.

9/ Direct cost includes cost of contraceptive supplies and field expenses which vary with level of program output, while indirect cost refers to those that do not vary with the level of program output, i.e., administration, research and evaluation, IEC, etc.

Table 24

AVERAGE ANNUAL COST PER BEGINNING AND CONTINUING CONTRACEPTOR, BY METHOD, CY 1977

Method	Number (thousands)[a]	Method-Specific Clinic Cost[b]	Joint Clinic Cost[c]	Non-Clinic Cost[d]	Total
		A. Beginning Contraceptor			
Rhythm	(21.5)	₱ 8.10	₱15.15	₱62.81	₱ 86.06
Pill	(194.4)	20.83	10.23	62.81	93.87
IUD	(43.1)	10.76	14.52	62.81	88.09
Condom	(122.0)	17.73	9.14	62.81	89.68
Sterilization	(68.6)	87.10[e]	-	62.81	149.91
Others[f]	(7.6)	-	-	-	-
		B. Continuing Contraceptor			
Rhythm	(67.6)	5.50	8.50	62.81	76.81
Pill	(386.9)	17.47	4.96	62.81	85.24
IUD	(215.0)	3.23	3.87	62.81	69.91
Condom	(179.2)	16.16	6.65	62.81	85.62
Sterilization	(-)	0.00	0.00	0.00	0.00
Others[f]	(19.1)	-	-	-	-

N.B. The weighted average annual cost per contraceptor (current user of any method) is ₱87.55.

[a] Refers to number of contraceptors.

[b] Includes medical doctor and non-doctor (nurse or midwife) time inputs as well as contraception-directly related materials, such as pills, IUD, condom, and clinic supplies needed for sterilization.

[c] Includes other clinic supplies and materials, communication, travel, and repairs and maintenance. These overhead clinic costs were allocated to acceptors on the basis of the amount of time they spent in the clinic for consultation, revisits, etc.

[d] Subsumes training of field personnel as well as indirect costs--uniformly distributed among different method-acceptors.

[e] Average payment per sterilization based on ₱92.00 per tubal ligation and ₱50.00 per vasectomy. Payment is given to a sterilization center which is separate from family planning clinics.

[f] Cost data for others could not be obtained from the survey.

SOURCE: Pernia and Danao (1978), p. 38.

Discussion

The foregoing subsections have highlighted some of the available data on contraceptive prevalence by method, as well as data on the relative use-effectiveness and cost-effectiveness of specific methods. Given that continued public intervention in fertility reduction is desirable, as argued in a separate paper by Paqueo (1982), and given that a selective development intervention in the form of direct family planning intervention can have an independent significant impact on fertility reduction, mainly through its impact on contraceptive prevalence, as suggested in the previous section, the final issue that arises is what type of family planning intervention would be most cost-effective within the context of the Philippine situation. Within this general issue are several interrelated questions: (a) what is the relative cost-effectiveness of clinical versus natural methods of contraception; and (b) what is the relative cost-effectiveness of clinic-based versus outreach, and of vertical versus integrated approaches to service delivery.

The above issues can perhaps be better examined within the perspective of the following considerations. First, given full information on the relative effectiveness, risks, costs, and availability of specific contraceptive methods, it is consistent with freedom of choice and family welfare objectives to allow potential users to decide which methods to use. In fact, however, as the data highlighted in the previous sections suggest, full information on the

part of potential users is far from adequate. Furthermore, in view of the quasi-collective goods nature of such information, the market mechanism cannot be expected to adequately provide such information. For example, profit-seeking enterpreneurs cannot be expected to provide such information, say through mass media, since the "exclusion principle" cannot hold. Given market imperfection in the provision of full information, there is a clear case for family planning intervention to specifically provide such information. The government budget is expected to allocate resources to finance the cost of providing such information.

Secondly, given that full information has been provided, and given a fair distribution of income, it is expected that potential users should pay for the full cost of the contraceptive method of their choice. In fact, however, the distribution of income is far from equitable. Hence, selective intervention is justified to provide subsidies to those who could not afford the full cost of the contraceptive method of their choice. The distributional effect of such intervention may be considered positive and desirable, because it extends to the poor services that were previously available only to the better off. (Demeny, 1971). The same principle with subsidized education and health care also apply to family planning services.

Both aspects of family planning interventions, i.e., providing full information and providing subsidized services, require resources for their implementation, and given limited resources, it is imperative

that the available resources be allocated in the most efficient manner. Hence, the question of what type of family planning intervention would probably be the most (cost-) effective readily suggests itself. As indicated earlier in this report, cost-effectiveness studies of alternative delivery strategies, i.e., clinic-based versus integrated, have not been done, partly because reliable cost data are hard to come by and partly perhaps because the various strategies implemented may not have been considered as strict alternatives, but as complements or extensions of one another. The type of cost-effectiveness studies available are those which refer to specific methods of contraception. These studies are essentially ex post, and, a bit outdated. They have relied mainly on clinic-based information, primary as well as secondary, and therefore, could not reflect the cost structure evolving out of the more recent Outreach efforts. In addition, the pattern of contraceptive prevalence reflected in the estimates are those under less than full-information, which may not be the "true" pattern under full-information. Estimates of the latter pattern are the proper inputs required to answer questions regarding resource allocation on the provision of family planning services. Hence, the results of currently available cost-effectiveness studies must be qualified if they are to serve as a guide to future resource allocation. What is clearly needed are ex ante cost-effectiveness studies (simulation models) that attempt to determine the cost-effectiveness of alternative family planning strategies, including selective promotion of specific contraceptive

methods. Such simulation studies must take into account the fact that different levels of information and service costs of the program affect both the contraceptive prevalence and use-effectiveness structures that serve as inputs in an ex post evaluation. The simultaneous relationships of the various factors involved clearly requires the use of simulation models.

These simulation studies should attempt to answer at the least the following questions. First, what level of resources is needed to provide full information under present IEC and outreach structures? (Full information can be defined operationally in several ways, e.g., target levels of correct perceptions regarding relative effectiveness, risks, and availability of specific contraceptive methods.) Given specified full information targets, what organizational changes and informational strategies can be effected to minimize the cost of full information? With efforts to provide full information, in the absence of additional interventions, i.e., provision of supplies and services, one may expect changes in the level and pattern of contraceptive use. The evolving structure of contraceptive prevalence under full information can be taken as the preference structure for contraception. On the other hand, the evolving use-effectiveness structure under full information can be taken to reflect technological and supply constraints on the part of the user.

Secondly, given that full information has been provided, and maintaining the evolving structures of contraceptive prevalence and use-effectiveness as determined above, what levels of each service should be provided to achieve desired levels of fertility? It is expected, however, that the same level of service provided for each specific method will affect its prevalence rate and its use-effectiveness differentially. Likewise, for a specified uniform levels of prevalence rate and use-effectiveness, the level of service required to achieve such will vary for each method. Hence, additional questions can be asked. What level of service will be needed to raise the use-effectiveness of specific methods, keeping the prevalence level and structure the same? What level of service will be needed to raise the level of prevalence rates for each method, keeping relative use-effectiveness and prevalence structure the same?

The second sets of questions implicitly assume that resources for service delivery are forthcoming. In view of limited resources, it may be necessary for the program to promote only those methods that are the most cost-effective. Hence, the third and final question which the simulation studies should answer is what are the most cost-effective methods of contraception. The above preliminary exercises should provide the necessary basis for determining the relative cost-effectiveness of each method. A priori, it is difficult to indicate the relative cost-effectiveness of specific methods, even for sets of methods, such as clinical versus natural. To illustrate, consider the following. Given that the cost of

providing full information is the same for each set of methods, it is possible that a relatively higher initial service cost per user will be incurred by promoting only natural methods, especially the more sophisticated rhythm methods, i.e., basal and ovulation methods, to achieve the same level of use-effectiveness as the clinical methods. The relatively higher service cost will take the form of a more intensive individualized instruction, including follow-ups, as to how to use such methods at specified level of effectiveness. On the other hand, the service cost in promoting clinical methods may ultimately be higher because of the recurrent need to provide supplies and services, including follow-up cost for possible unfavorable health effects. At a more disaggregated level, one might expect that the initial service cost per user of the natural methods, given specified level of use-effectiveness, will tend to be relatively higher for the less educated than for the more highly educated; the latter are expected to pick up the technical aspects of the method more quickly than the former. In another vein, one may expect that the service cost per user of the clinical methods would be greater the farther the user is from the effective coverage of clinics and supply centers. Thus, not only would relative cost-effectiveness vary by specific methods under full information, but also for a given method, by important subgroups of the clientele. Because the data are not as yet available to settle these questions empirically, the immediate research implication, obviously, is to attempt to produce the relevant cost-effectiveness studies essential for future policy

redirection along the considerations mentioned earlier. In the meantime, a pragmatic approach to service delivery is to continue providing full information on a factual basis and to provide the full range of family planning services (except abortion) on the basis of demand (as determined after full information). In addition to its being consistent with the "policy of non-coercion and respect for religious and moral convictions of the clientele," it is also the most practical in view of the fact that for physiological and socio-economic reasons, not all prospective clientele can safely and effectively use only one or a limited set of contraceptive methods. The potential misallocation of resources arising from continuing the cafeteria approach may be less serious, than the possible alternative approach of emphasizing one set of methods over others without regard to use-effectiveness.

Given that the above approach is pragmatically preferable in the absence of relevant cost-effectiveness information, what can we say about the relative cost-effectiveness of clinic-based versus outreach and vertical versus integrated approaches to family planning interventions. Although no cost-effectiveness studies have been performed on these questions, it may be possible to indicate which one of each pair may be more cost-effective. The study of the determinants of areal contraceptive prevalence based on the 1980 COS by Laing (1981a) described earlier suggest that the outreach efforts are relatively effective in raising contraceptive prevalence than the clinic-based efforts alone. This is not surprising in view of the limited

coverage of clinic-based efforts. The cost of the current outreach efforts has been quite substantial. However, to achieve the same results of the outreach approach through the extension of the clinic-based approach (i.e., reliance on clinics, hospitals, doctors, midwives, etc.) to the same areas now covered by the outreach project would likely to be much more costly. The current attempt to develop community-based primary health care system is highly indicative of the tremendous cost such as clinic-based approach would likely entail. Hence, it would seem that an outreach approach in the context of existing clinic-based coverage would be much more cost-effective than an expanded and purely clinic-based approach. Needless to say, the cost-effectiveness of the current outreach efforts can be significantly enhanced through further organizational improvements and field worker incentives. However, the empirical determination of the most cost-effective outreach structure must await pilot testing and evaluation of alternative structures.

Finally, on the question of vertical versus integrated approaches, several considerations may be made. In principle, the integration of health, nutrition and family planning interventions would be preferable in view of the close interrelationship between fertility and maternal and child health, nutrition, and mortality. Several arguments have been advanced in favor of integrating family planning and health services. Among these are: (See Watson, et al., 1979 for a compilation of these arguments).

(1) Because of the potentially dangerous but unavoidable complications or side effects of modern contraceptives, it is necessary for qualified health personnel to provide the techniques as well as to provide their follow-up;

(2) Combining health and family planning services results in a more efficient use of resources and personnel (avoids duplication), and, from the perspective of the potential adopter, makes access to family planning services more "convenient";

(3) Providing family planning services in a health context is more effective because health services contribute to reducing infant and child mortality, a prerequisite to fertility decline. Health services also reach potential adopters, especially women of reproductive age, more easily, and provide a setting for family planning that is more acceptable and attractive to clients as well as to political and medical leaders.

On the other hand, arguments to the contrary involves practical questions on whether the complexities of planning and managing integrated family planning and health programs can be overcome, and whether integrated programs can mobilize sufficient personnel, funding, expertise, and commitment fast enough to generate successes equal to or exceeding those of "undiluted" single-purpose programs. (Watson, et al., 1979). In addition, it is pointed out that a number of international health program successes have resulted from single-purpose campaigns, e.g., programs to eradicate, control or contain smallpox,

cholera, malaria, etc. Similarly, it is pointed out that a number of single-purpose family planning efforts have been successful elsewhere, e.g., South Korea, Taiwan and Indonesia. (Watson, et al., 1979).

Whether in fact vertical or integrated programs, from an administrative standpoint, would be more cost-effective would depend upon the extent to which the above arguments hold true in the Philippine context. On the basis of casual impression regarding the heavy bureaucratic structure of the already overburdened health delivery system, it would appear that a vertical program would be more able to mobilize sufficient personnel, technology, supplies, funding, expertise, and commitment to do the job, and hence be more effective. This is especially so if the family planning intervention involves not only the promotion of clinical methods, for which an integrated clinic-based health delivery system has a comparative advantage, but also involves the provision of supplies and services via the cafeteria approach, and involves an extensive rural outreach. The cost advantage of an integrated system within the health sector in terms of availability of qualified health personnel, and the avoidance of personnel duplication would probably be more than counterbalanced by its relative inefficiency in mobilizing personnel and resources for extensive rural outreach and for promotion of non-clinical methods. In other words, a comparably low cost of an integrated system may be matched by a comparably low level of effectiveness, making its relative cost-effectiveness less superior to a vertical program. An essentially vertical program, coordinated but not

administratively integrated with the existing health and nutrition programs, would appear to be more cost-effective given current Philippine situation, even after the cost of such coordination is taken into account. Again, hard cost-effectiveness data are hard to come by, hence studies along this line is urgently recommended. In the meantime, a pragmatic approach would be to continue the current vertical approach and strengthen its desirable features in order to make it more cost-effective.10/

10/ The argument that "providing family planning services in a health context is more effective because health services contribute to reducing infant and child mortality, a prerequisite of fertility decline" needs to be reconsidered. The accumulated research on the relationship between fertility and infant/child mortality has not as yet produced a consensus as to the direction of the relationship: mortality can affect fertility, fertility can affect mortality, or the relationship is spurious since both depend on a common set of determinants. There is evidence, however, that high parity and closely spaced births are related to infant/child malnutrition, morbidity and death. (Wray, 1971). The implication of this is that a case for family planning intervention can be made with the objective of reducing infant/child malnutrition, morbidity and death, independent of its effect on fertility reduction. In such a case, the argument above for integrating the family planning program into the health delivery system is not strengthened.

SUMMARY AND CONCLUSION

The purpose of this paper is to review and assess available empirical evidence on the determinants of fertility and the effectiveness of alternative family planning interventions. Underlying the effort is the need by policy makers to determine the relative effectiveness of family planning programs versus more general development in influencing fertility, and to the extent that family planning programs are effective, to determine which type of family planning interventions would be most cost-effective.

The review of the determinants of fertility indicates that the major proximate determinants of fertility change in the Philippines are changes in nuptiality patterns and changes in marital fertility, the latter mainly through contraception. Although induced abortion is known to be resorted to by both single and married women as a means of fertility control, the extent of its use is not accurately known.

Changes in marriage patterns associated with increased female education, female labor force participation and urbanization are expected to continue with socioeconomic development. Policies to raise the age at marriage would probably have little impact on the mean age at marriage, which is already high in the Philippines, independent of the effect of socioeconomic development. In any case, the effect of general development on fertility change through further changes in the marriage patterns alone cannot be expected to be

substantial enough to produce the absolute fertility change needed to reach replacement fertility by the year 2000 or thereabouts, the level implied by current projections upon which the present development plan is based. Hence, large and sustained declines in fertility consistent with the nation's development goals must increasingly rely on changes in marital fertility, mainly through effective contraception, given society's religious and cultural views regarding abortion.

Underlying the change in contraceptive practice are changes in the structure of cost and benefits of children, on the one hand, and changes in the cost of contraception, on the other. General economic development can be expected to induce changes in both, independent of selective development interventions, i.e., direct family planning program efforts. However, recent evidence suggests that family planning program efforts can have a large and significant absolute impact on contraceptive prevalence, and therefore, on fertility. Thus, given that public intervention in fertility control is desirable, the question boils down to a strategic one, namely whether societal fertility goals can be better achieved by general development alone, or by general development supported by selective intervention in the form of direct family planning program efforts. Available evidence points to the superiority of the latter strategy.

Given that continued public intervention in fertility reduction is desirable, and given that a selective development intervention in

the form of direct family planning efforts can have a significant impact on fertility reduction independent of general socioeconomic development, the question arises as to what type of family planning intervention would be most cost-effective in the Philippine context. Unfortunately, cost-effectiveness studies of alternative family planning interventions are hard to come by, and the few that are available are not as yet adequate to properly guide the allocation of scarce resources. More cost-effectiveness studies using simulation models are strongly recommended. General considerations related to the type of cost-effectiveness studies desired to guide future allocation of resources were made in this paper.

In view of the lack of information regarding the relative cost-effectiveness of alternative strategies, what can we say regarding (a) selective promotion of specific contraceptive methods; (b) clinic-based versus outreach approach; and (c) vertical versus integrated approach to service delivery.

With respect to the first, a "pragmatic" approach to service delivery is to continue providing full information on a factual basis and to provide subject to resource constraints as wide a range of family planning services on the basis of the evolving user demand for such services. In addition to its being consistent with the "policy of non-coercion and respect for religious and moral convictions of the clientele," the potential misallocation of resources from continuing this approach may be less serious, than the possible

alternative approach of selective promotion of specific methods without regard to use-effectiveness.

With respect to the second, evidence pointing to the relative effectiveness of the outreach efforts over purely-clinic based approach, and the suggestion that the extension of a purely-clinic based approach to areas now covered by the Outreach would be extremely costly, indicate that on balance, the outreach approach in the context of existing clinic-based coverage would be more cost-effective than an expansion of the clinic-based approach.

Finally with respect to the third, a case can be made in principle for the desirability of integrated as against vertical service delivery programs. However, in practice, the case for integration is seriously put into question in the Philippine context. For example, on the basis of casual impression regarding the heavy bureaucratic structure of the already overburdened health delivery system, it does not appear that an integrated approach in the administrative sense within the health system would be in a superior position to mobilize sufficient personnel, technology, supplies, funding, expertise, and commitment to the job. This is especially so if the family planning intervention desired involves not only the provision of clinical methods but also involves the provision of supplies and services via the cafeteria approach, and involves a substantial rural outreach. The initial cost advantage of an integrated system may be more than counterbalanced by a comparably low

level of effectiveness, making its relative cost-effectiveness less superior to a vertical program. Thus an essentially vertical program, coordinated with existing health programs, would appear to be more cost-effective given current Philippine situation and past experience. Thus, in the absence of hard cost-effectiveness data, a "pragmatic" approach would be to continue the current vertical approach and strengthen its desirable features in order to make it more cost-effective.

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