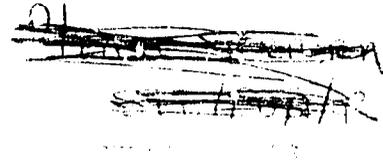


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MEASUREMENT OF FAMILY PLANNING PROGRAMME
INPUTS IN DIFFERENT PROGRAMME STRUCTURES

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in Different Programme Structures

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In evaluating family planning programme performance and impacts, analysts have been keenly aware of the difficulties of measuring the inputs into programs and the deficiencies of the available information and data. It is almost a decade now since Lapham and Mauldin published their list of 15 criteria for measuring the strength of family planning programs, yet, as they noted at the time, the exercise of measurement is still largely subjective and based on poor quality data.¹ As recently as 1979, it was the consensus of the United Nations Second Expert Group Meeting on the measurement of the impact of family planning programmes on fertility that "there has been a failure in the field to develop a conceptual scheme that could serve as a framework for gathering and analysing data relating to programme inputs."²

On-going research will doubtlessly contribute to the theoretical understanding of the determinants of fertility and as part of that exercise, of the role of family planning programmes in hastening fertility decline. However, the growing diversity and complexity of family planning programme structure, organization, and operation, the increasing integration of programmes with development as well as health

1/ Robert J. Lapham and W. Parker Mauldin, National family planning programs: Review and evaluation. Studies in Family Planning, The Population Council, v. 3, no. 3, March 1972.

2/ United Nations Second Expert Group Meeting on Measuring the Impact of Family Planning Programmes on Fertility, Rapporteur's Report No. 11, Utilization of Indicators in Evaluation Methodology. Geneva, 19-26 March, 1979. Mimeo. p. 1.

projects, the decentralization of administrative control with increasing involvement of community level leaders, and the blurring of the public and the private sectors of the economy in the provision of family planning services and supplies can be expected to add to the problems of concept, definition, and measurement of governmental programme input.

Measurement of program input is necessary from several perspectives. First, from the perspective of planners, in a world of scarce resources, allocations to one set of programmes or projects reduce resources available for other meritorious programmes, in the short run at least. Thus, social programs, no matter how beneficial to their recipients, require justification on the ground that their benefits to society outweigh their cost. Otherwise they are seen as charity. Second, to meet programme objectives, especially demographic targets, administrators require insight into and knowledge of the nature and dimensions of programmes capable of achieving their objectives. In this connection, it might be noted that the inconsistency between ambitious demographic goals and the limited clinic-based operations of the early family planning programmes contributed substantially to their appraisal as failures.³ While administrators may find it difficult to press for compatibility between programme allocations and objectives, to do so is in their own interest. Third, from the perspective of programme efficiency, input must be monitored and measured on a day to day basis, in order to arrive at empirical estimates of the likely or best return from a given level of input under different operational modes and structures.

3/ Dorothy Nortman, Status of national family planning programmes of developing countries in relation to demographic targets. Population Studies, London, v. 26, no. 1, 1972. pp. 5-18.

MEASURES OF PROGRAMME INPUT

In a recent paper by Mauldin and Lapham on "Measuring the input of family planning programs," a distinction was drawn between programme "effort" and "input."⁴ The former concept subsumed the latter but included in addition, policy considerations and decisions plus the legalities affecting fertility control practices. Measurement of the policy, structural, and management aspects of effort is probably the most neglected in current family planning research. However, they have too strong an influence on programme performance, both directly and indirectly through the more tangible inputs, for oversights in assessing output as a function of input.

To cite one example, Ness found in applying a regression model to a group of ESCAP countries that his three independent variables (strength of the political-administrative system, assessed by a scalar measure, agricultural density, and an economic modernization index) "explained" 26 percent of the variance in the timing of 21 governments' antinatalist decision; 83 percent of the variance in family planning programme strength (16 countries); and 89 percent of the variance in the percent decline in the crude birth rate between 1960 and 1973 (16 countries). Most of the explanation stemmed from the interaction of the three independent variables; alone, each contributed little toward the dependent variables but of interest here is the finding that the political-administrative system was much more closely associated with the timing of the decision and the strength of the programme than the other two independent variables.⁵

4/ W. Parker Mauldin and Robert J. Lapham, Measuring the input of family planning programs. Prepared for meeting of the U. S. National Academy of Science's Panel on the Determinants of Fertility Change in Less Developed Countries. March 17-18, 1980. p. 2 (mimeo).

5/ Gayl D. Ness, Politics and population growth. United Nations Fund for Population Activities, Populi. V. 4, no. 3, pp. 18-26. 1977. New York.

A simple taxonomy of family planning inputs is therefore to dichotomize them into quantitative versus qualitative categories. The former encompasses funds, including monetary incentives or re-imbursments (current or delayed), facilities, and personnel; the latter embodies political commitment to the programme; its structure, organization, and administrative capacity; managerial efficiency; types of delivery systems; feedback mechanisms; record-keeping procedures; and research and evaluation units and processes. Allocation of resources, mix of methods and personnel, regional distribution of programme activities, training and supervision, and information, education, and promotion activities can be viewed as operational decisions within the overall design of the programme.

Being quantitative and tangible, it would seem that funds, facilities, and personnel utilized by or available to the programme can be readily measured. Relative to the qualitative items, they are. Nevertheless, for a variety of reasons, they are remarkably difficult to measure, even under highly centralized, single-purpose programmes, let alone under more diffuse, multi-purpose, integrated programmes.

Funds

Sensitivity to the shortcomings of so quantitative an input measure as funds prompted the United Nations Population Division to comment that "As an input variable, funds appear to be associated with so many limitations that its use for reliable analyses is questionable, and is thus not recommended" (italics added).⁶ The recommendation ignores the

⁶/United Nations Population Division, Methodology of determining the relationships between family planning programme inputs and family planning programme outputs. ESA/P/AC.12/1. March 1979. mimeo. p. 10.

economic reality that to attract funds, programmes must be understood to yield favorable cost-benefit ratios and to be cost-efficient. The dependence of such analyses upon the measurement of funds going into programmes is self-evident.

The looser the programme structure, and the more multi-purpose the objectives, the greater is the difficulty of measuring financial cost. Even under a centralized bureaucracy and management, however, reliable data on funds are difficult to compile. Among the reasons are the following:

- De jure allocations are not always de facto;
- Grants and allocations authorized at one point in time become available over a subsequent interval of time;
- Expenditures flow through a "pipeline" at varying rates so that decisions on the cross-section at which to measure them yield different estimates. Moreover, the length of the "pipeline" varies with type of expenditure;
- Infusions into the "pipeline" at points other than the major reservoir are not always accounted for, and when considered, data on local level input ^{cost} is not easily subject to tests of reliability;
- Contributions are often in kind, rather than cash, requiring conversion into monetary units;
- Foreign aid is often significant, which involves imprecise and fluctuating exchange rates;
- Last but not least is the problem of "joint-costs." Many programmes from their inception have operated within the health ministry and been administratively integrated into the country's maternal and child health network. Direct appropriations for the added load of family planning activities are recognizable but the time, space, and overhead contribution to the programme from multi-purpose personnel and facilities have rarely been

appraised, even as gross orders of magnitude. Relative to the direct input, the indirect input may have been inconsequential in the past, but with the growing tendency to deliver a package of human services, isolation of the family planning from joint-costs may become increasingly difficult.

To put cost data together, analysts may have to consult a variety of sources and then worry about possible overlap. In the Philippines, for example, the 40 agency operated program is coordinated by a Population Commission directly responsible to the office of the President. Yet for a cost-effectiveness study, the analyst noted that "Information on the financial aspect of the program was obtained from the reports of the different participating organizations . . .", and mentioned five organizations in addition to the Family Planning Organization of the Philippines.⁷

If funds come from a pooling of resources that presumably would have gone toward fulfillment of the several objectives of an integrated programme, it takes a highly coordinated, cooperative, and sophisticated management to ensure that no one purpose is served at the expense of another and to maximize the benefits derived from the interaction of the components of the programme.

Difficult as it is to assemble total monetary input, classification of expenditures by function or type is even more troubling. In the latest edition of the Population Council's Fact Book, for example, 24 countries provided data on total annual funds (not always up-to-date, and generally giving allocations or proposals rather than expenditures), but 6 of the 24 countries failed to answer the questionnaire on distribution of funds by

^{7/} Trinidad S. Osteria, Cost Effectiveness and Cost Benefit from the Philippine Family Planning Program. Regional Workshop/Seminar sponsored by the Government of Japan on the Financial Management of Population/Family Planning Programmes. Manila, Philippines, 15-17 March 1976. IGCC Secretariat Report, Kuala Lumpur, Malaysia.

function and 10 gave no data on the distribution by type.⁸ Of 16 country replies recently received for the next edition, only 5 countries furnished a breakdown of funds by both function and type (El Salvador, Hong Kong, Malaysia, Mauritius, and Singapore); 4 provided the breakdown by type but not function (Colombia, India, Korea, and the Philippines); 1, Pakistan, gave data on function only; and 6 of the 16 countries failed to answer the questions on how funds are utilized (Costa Rica, Egypt, Indonesia, Mexico, Peru, and Taiwan). It is understandable why the United Nations recommended that fund data not be utilized in family planning programme analyses but given the cogent need for cost input, for operational as well as research and evaluation purposes, programmes require improved monitoring, accounting, record-keeping, and administrative procedures regarding funds going into programs.

Personnel

Two problems arise in measuring personnel input into family planning programmes. The first is to classify the various types and functions into a meaningful but limited number of categories. The second is to derive measures in terms of person-hours per week or month rather than a raw count.

Various classification schemes have been proposed, by type of personnel, functional responsibility, qualification for the job, but any one vector system seems too simplistic for useful comparative analysis. For example, a classification based on qualification--e.g., counting personnel as medical, paramedical, and other⁹--yields little if any insight into the functional

^{8/} The classification scheme is not the likely source of difficulty in responding to the questionnaire because the categories are broad and clear enough to accommodate different kinds of accounting systems. By function, the categories are salaries and wages; contraceptive supplies; maintenance and operation; capital construction and improvement; and other (residual). Types are contraceptive services; information and education; research and evaluation; personnel training; administration; and other (residual). Dorothy Nortman and Ellen Hofstatter, Population and Family Planning Programs: A Compendium of Data. Tenth Edition. The Population Council. 1980. Tables 11 and 12.

^{9/} See, for example, U. N. Population Division, [SA/P/AC.12/1, op. cit.

disposition of the personnel. On the other hand, functional categories do not disclose the level of background and training, and in addition, numerous people perform a variety of functions.

A two-way classification scheme is suggested in Table 1 as a parsimonious yet useful paradigm for identifying family planning personnel. The two

Table 1. Proposed classification of family planning personnel

Qualification Function	Non-medical			
	Medical	Para-Medical	Professional	Para-Professional Residual
Administration				
Provision of fertility control services and supplies				
Information, education, and communication				
Training				
Research and evaluation				
Other				

mind you in here - remember FFP's

dimensional classification does not eliminate but can help to ease boundary problems, and can lead to a more useful index of personnel input than any one-dimensional classification. Other difficulties of quantifying personnel for analytical purposes stem from the administrative logistics of keeping track of positions prescribed, filled and vacant throughout the network of delivery points fully or partially subsidized by the government programme. This is further complicated by the fact that in non-integrated as well as integrated programmes, many personnel work on a part-time basis.

One approach, attempted in the Council's Fact Book, is to convert all personnel in various categories into full-time equivalents. An alternative is total person-hours of input. The former seems more useful for comparative purposes, since full-time weekly hours vary among countries. The data furnished to the Council on full-time equivalents have improved over time but even in the last, 1980 edition, 11 out of 29 countries that provided a count of personnel, failed to give the full-time equivalent, and among the 18 that did, full time was obviously an educated proportion--1/2, 1/3, or 1/4-- of total, not a synthesis of actual hours worked.

Measuring persons-hours of input is a problem not only because of part-time workers but more importantly because of multi-purpose workers, characteristic of integrated programmes. Personnel can be requested to keep track of the time spent on their different activities, but to do so not only encroaches upon other duties but separation of family planning from maternal and child health services, for example, is not always identifiable.

Family planning variables used as input items to investigate the factors associated with fertility decline have frequently been a cross-sectional summation of programme workers per capita.¹⁰ A more innovative index was recently employed in the form of regional per capita physician-equivalents in Colombia over a specified time duration which purportedly incorporated personnel by type, family planning hours of work, and type of facility--hospitals, clinics, public health centers, and public health posts. While a conceptual improvement, probably because of data limitations, the index was constructed with faulty weights, e.g., giving equal weight to doctors, nurses, and motivators, and assuming part-time as equal to half time.¹¹

^{10/} Albert I. Hermalin, Regression Analysis of Areal Data in C. Chandrasekaran and A. Hermalin, editors, Measuring the Effect of Family Planning Programs on Fertility, Ordina Editions, Belgium, 1971.

^{11/} Paul A. Richardson, M. E. Conroy, F. D. Bean and A. Hernandez G., "Female status, sociodemographic context and fertility in Colombia. A regional cross-section analysis. Draft final report under U. S. AID Grant No. AID/pna-G-1180. Mimeo. August 1980. p. 191.

Facilities

Government family planning programmes utilize a great variety of facilities, ranging from large, modern hospitals and more specialized clinics and/or health centers to offices of private physicians who are paid on a fee-for-service basis, pharmacies, general retail stores, and community delivery posts. Factories and other places of employment, the army, mobile teams, special projects, and on-going or sporadic arrangements with private sector distributors are also channels of government input into the provision of family planning services and supplies. It is not so much the variety that complicates the measurement of facilities as an input item as assessing their locations in relation to the distribution of the population, hours of operation and availability, scope of services, and quality of the facility and its personnel in dealing with clients.

Although facilities are an important input parameter, they are not easily converted into quantitative measures of input. While administrators can provide data on the number of hospitals, clinics, centers, and even community delivery posts operating in their programmes, unless tempered by an assessment of the quality of these facilities, the hours of operation, and the proportion of the population with access to them, the count is inadequate as an analytical tool. Integration of the programme into the health network means theoretically that all government medical facilities are authorized to provide family planning services. The count of facilities, by type, frequently reflects this authorization, without regard to nature, quality, or degree of its implementation. In reports furnished to the Council for its Fact Book, few countries are able to provide data on full-time ^{equivalent} of facilities in hours of operation.

Qualitative inputs

Qualitative inputs relate largely to the organizational and managerial aspects of the programme. By now, most programmes have developed an institutional capability for research in demography and communication, but despite a great interest in and many seminars on management issues, management research has yet to produce findings that have more specific applicability than prescriptions embodied in basic management principles. According to Satia of the Indian Institute of Management, for example, "Training in management tends to be theoretical and not related to problems of field operations. Research is chiefly concerned with identifying problems and gaining insights into them rather than concrete solutions,"¹²

On the question of whether family planning programmes entail management issues different from those confronting other social programmes, there are two schools of thought. One argues that competent administrators, trained in basic management principles, can suffice. The other claims that because of complex organizational structures, geographic dispersement, multi-purpose objectives, and the sensitive nature of the services rendered, special contextual administrative research and training are required for efficient management and operation.

^{12/} J. K. Satia, A review of management research in population programs of India, Pakistan, Bangladesh, Sri Lanka, and Nepal. Management Research in Population Programs: An International Survey, Sagar C. Jain, Editor, Carolina Population Center, University of North Carolina, 1980. p. 43.

Among the input items affected by management are the following:

- The government's political commitment to the programme, policy considerations, and program objectives. Although these factors may be thought of as the environment in which family planning programmes operate and therefore largely beyond the direct control of programme administrators, to some extent they are manipulable. Research in this area tends to focus on process rather than measurement but it is a prima facie proposition that strong leadership will increase productivity which in turn influences government commitment to the programme. No matter how strong or prominent the leadership, however, the upper limit of government commitment is determined by the programme's objectives. Health and human rights are now almost universally seen as family planning benefits but the programme's strength derives from the intensity of the government's commitment to development and its perception of the population growth rate as an obstacle to development.¹³ Integrated programmes are designed to reach the rural poor and to offer a package of synergistically related components but the strength of the political-administrative system that supports the programme depends upon the government's commitment to fertility decline. Although measurement of these factors as an input item is largely impressionistic, researchers have recognized the importance of incorporating them into analyses of programme impact on fertility.¹⁴

^{13/} R. Kenneth Godwin, A Cross-Sectional Analysis of Population Policy Determinants Using Situational Data, in Comparative Policy Analysis (R. Kenneth Godwin, editor), Lexington Books, D. C. Heath and Co., Lexington, Mass. 1975. pp. 75-124.

^{14/} K. S. Srikantan, The Family Planning Program in the Socioeconomic Context. The Population Council, New York, 1977.

- The allocation of resources. Information and education campaigns, capital construction, and administrative and fixed overhead compete with funds allocated for the direct provision of services and supplies. Decisions on this matter seem to be ad hoc, with little understanding of the best mix, to maximize births averted next year, or over the next five years, or to serve some other purpose. The data in the Council's Fact Book on this subject show wide variations among countries, ranging, for example, for expenditures on contraceptive services as a percent of total from 18 percent in Ghana (1977) to 78 percent in India (1977), with a median among 18 countries of 52 percent; for information and education, from 3 percent in India and the Philippines (1978) to 29 percent in Ghana, with a median of 12 percent; and for administration, from 1 percent in India to 56 percent in Malaysia (1978), with a median of 17 percent. In India, the distribution is distorted by the omission of local government funds. Classification effects also account for some of the differentials but the diversity reflects in large measure the ad hoc basis of resource allocation, and the ^{services are not necessarily} differences.

- The mix of methods. The "cafeteria" approach is usually recommended to maximize the probability of contraceptive acceptance and use. In practice, the methods promoted are those considered feasible in the society and compatible with the mode of delivery. The data base is scanty for such important questions as the cost per averted birth per method per unit of time and the optimum mix of methods to achieve objectives.

- Training and supervision. Although the training needs and levels of competence of various categories of personnel have received much attention over the years, with considerable improvement in prescribed

qualifications for various positions, and within different modes of service delivery, staff composition is a neglected area of research. The importance of clear lines of authority has been recognized but ways to measure this factor as an input item have yet to be devised.

- Other input imponderables. The quality of the publicity and promotional campaigns, staff morale, client satisfaction, the relation between the managerial and evaluation staffs, the logistics of data collection and record-keeping procedures, the promptness in paying personnel, the adequacy of the stock and flow of contraceptive supplies, and other such aspects of managing a major enterprise, are difficult to measure input items, yet a programme can stand or fall on the basis of their performance. Deficiencies in these matters are frequently recognized, but the defect is often seen as endogenous in the system, culture, or stage of economic development, and therefore as not amenable to pronounced correction. The intense scrutiny to which family planning programmes have been subjected has been mostly by demographers and other social scientists concerned with their impact on fertility. Relatively little attention has been directed in social science research and evaluation to the more imponderable input items in programme management and operation.

PROGRAM STRUCTURES

The dominant theme thus far has been that input items into family planning programmes are difficult to measure regardless of program structure. A sub-theme is that cost measurement is more difficult in integrated

programmes. Integrated programmes were decreed to be the effective way to deliver family planning services and supplies following the World Population Conference in Bucharest in 1974.

The record on performance of integrated versus single-purpose programmes has not as yet been established. Indeed, given the many varieties of integration and the diversity of settings in which programmes operate, there may be no universal answer to the question of which type is to be preferred. In talking of integrated programmes, it is important to distinguish between administrative and service integration. The former implies that an umbrella organization has administrative control over a mixture of specialized services; the latter means that specialized services are linked together at the point of delivery. The existence of one neither precludes nor implies the other.

The relative merits and demerits of integrated versus non-integrated programmes have been considered mostly in the field of public administration and in connection with the delivery of human services. Although a review of the argument is beyond the scope of this paper, it may be noted that specialization, i.e., non-integrated programmes, is seen as having advantages for both skill and motivational development, while integration promotes more effective service through interactive linkages between specialized activities. The question raised and answered by a technical

working group meeting in 1978 on integration of family planning with rural development was

"...how can we create an integrated structure that promotes both and avoids the dangers associated with administrative integration? We suggest here that what is needed is not integrated programmes, in the sense of bringing all activities under the direction of one administrative center, but a series of specialized organizational elements, with lines of interaction built to provide those linkages that are specifically required to produce more effective service." ¹⁵

Some of the empirical programmes reviewed by the technical group indicated that "there is considerable support for the proposition that interactive linkages between specialized agencies or activities at the level of service delivery provides more and better services to the clients."¹⁶ On the other hand, some reviews "showed that the greater cost-effectiveness expected of the integrated structures did not materialize. Integration actually increased programme costs."¹⁷

Integration of family planning with food, nutrition, health and development projects, both at the administrative level and service delivery points, especially at the community level, is increasingly in evidence.¹⁸

^{15/} United Nations Fund for Population Activities, On Integration of Family Planning With Rural Development, Policy Development Studies Number 1. New York, 1979.

^{16/} Ibid, p. 24.

^{17/} Ibid, p. 22.

^{18/} See, for example, JOICFP, Workshop/Seminar For More Effective Promotion and Management of Integrated Projects (Family Planning, Parasite Control and Nutrition), IGCC Secretariat, Kuala Lumpur, Malaysia, 1980.

The relevance of separating the family planning component for input-output analysis depends largely upon the government's family planning objectives. If fertility control is a major goal, as is often the case, the government is more likely to address structural features that can help maximize contraceptive prevalence. It might be argued that "taking the user perspective into account" and "delivering a package of synergistically related services" are basic management operational principles, applicable to business enterprises as well as social programs. The parameters of implementation, however, are highly specific, not easily identifiable, and difficult to measure.

OUTPUT MEASURES

Acceptors, continuation rates, and contraceptive prevalence are operational measures of family planning programme output. These, in turn, serve as intermediate programme variables to measure the final outputs that influence policy makers' decisions, namely births averted and cost-benefit and cost-effectiveness considerations. The beneficial relation between family planning practice and health and human rights is now considered to be so self-evident as to require little, if any, analytical demonstration.

Of concern to policy makers is the annual number of births averted by the public family planning programme beyond the expectation through the private sector in the absence of the programme. No matter how excellent the data on the intermediate programme variables--the count and characteristics of acceptors and continuation rates of contraceptive use--the question of births averted per year by programme clients that would not have been averted had there been no programme remains speculative and therefore controversial. The

rich literature on this subject and methodologies to deal with it need not be documented here.

Cost-benefit analysis compares the cost-input of a project with the present value in monetary terms of the benefits it is expected to generate over time. If the benefits exceed the costs, the project is efficient. ? Among competing projects, the higher the benefit-cost ratio, the more desirable is the project. Although conceptually simple, cost-benefit analysis is difficult to employ because as we have seen, many important input and output variables cannot readily be expressed in terms of ^{current} market prices. *especially since the benefits of family planning are mostly in the future*

Cost-efficient analysis is a less ambitious but more practical pursuit. This looks upon outputs as desirable goods, but makes no attempt to place a monetary value on them. The point of the exercise is to seek the most effective, or least costly way, of achieving objectives. In the case of family planning programmes, averted births are defined as "good" and the problem is to manage the programme so as to avert the greatest number of births per monetary unit of cost.¹⁹

19/ Robert H. Haveman, Benefit-Cost Analysis and Family Planning Programs, Population Development Review, v. 2, No. 1, March 1976. pp. 37-64. Also Warren C. Robinson, Cost Benefit and Cost effectiveness in Family Planning Programs. Regional Workshop/Seminar sponsored by the Government of Japan on the Financial Management of Population/Family Planning Programmes. Manila, Philippines, 15-17 March 1976. IGCC Secretariat Report, Kuala Lumpur, Malaysia.