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AN APPROACH TO THE STUDY OF HEALTH
SECTOR FINANCING IN DEVELOPING
COUNTRIES: A MANUAL

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Preface

This manual is one in a series of methodological studies developed for the Office of International Health, U.S. Department of Health, Education, and Welfare, to foster health planning by host country personnel in less developed countries. The report presents an action-tested procedure for appraisal of health sector financing which may be used, with some local adaptations, to examine health sector financial resources.

The guidance presented in the text of the manual combined with the prototype data collection and tabulation arrangement in Appendix A are sufficiently detailed to lead a host country health planner or finance specialist through the assessment processes. For successful completion of such an assessment, it is anticipated that a senior-level economist or public finance specialist would be available to assist the analyst, both in initial design and final interpretation of the assessment.

This manual is primarily the result of extensive field research on sector financing questions in Latin America, by economists Dieter K. Zschock and Robert L. Robertson, who together with John A. Daly constitute the principal authors of the manual. Editing of the principal authors' report into the present manual format was carried out by Steven L. Lemons, with the assistance of William Towle and other Office of International Health personnel.

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I. INTRODUCTION

A. REASONS FOR STUDYING HEALTH SECTOR FINANCING

The goal of the health sector is to improve the health status of the nation's population. The introduction of modern health services in developing countries has resulted in progress toward this goal by reducing mortality and, in some cases, morbidity rates; but it has also increased the need for further expansion of health services. Unfortunately, the need for health services exceeds the limited resources available to the health sector. This gap between the need for health services and the resources available to meet it can be filled by increasing the efficiency of the utilization of existing health resources, by increasing the funding of the health sector (perhaps accompanied by a reallocation of health services resources to areas of greatest need), or by a combination of the two.

Measures to increase efficiency, although of obvious importance, are too varied and too demanding of space to be included in this manual and are better reserved for other publications. "Financing," too, is a subject of great breadth. In order to focus on one area of considerable importance -- measures to increase health sector income (or revenues) -- it is necessary to omit some other aspects of "financing," such as: a) reasons for the employment of certain measures or means of revenues; b) the process of budgetary formulation and control; c) general decision-making, especially for the financing of health care; and d) expenditure analyses such as cost/benefit and cost/effectiveness studies. Although expenditure analysis is excluded, suggestions for the description of expenditures are included.

Before a country considers measures designed to increase revenues it is desirable to understand and assess the current system of financing the health sector. A study of the financing of the health sector should ascertain: 1) what resources are now being utilized to finance the health sector (i.e., level of funding and sources of funds); 2) how costly or inconvenient present revenues are to collect; and 3) how financing can be organized to improve the efficiency of collection and to equitably distribute the financial burden on the general population. Such a study may even indirectly indicate new sources of revenue that might be tapped to finance the health sector. Due to the potential sensitivity and importance of this analysis, it is important

to involve policy makers in the first instance. New sources of financing will not be revealed directly since the study will be primarily concerned with analyzing existing sources of revenue, but a comparison by the analyst of these existing sources with other sources of revenue (i.e., those used in other sectors of the economy or in other countries or those discussed in theoretical writings) may reveal new sources of financing for the health sector.

B. THE GOAL AND ORGANIZATION OF THIS MANUAL

The goal of this manual is to provide a methodology which will enable an analyst with relatively little experience in health sector economic analysis to conduct a study of the financing of the health sector. However, for some of the more complex projects the analyst may require the assistance of a consultant for analysis in addition to using this manual.

The most likely users will be administration and planning technicians of agencies in developing countries and of the USAID program development staff who conduct studies for design and evaluation purposes. Although many of them will have expertise in either health care or economic analysis, that requirement is not necessary for the reader of this manual. Other potential readers are the superiors of those technicians: higher level planners, administrators, and elected officials. Also, private as well as public sector representatives might use this manual to advantage. It might be anticipated that the services of an outside consultant for orientation and assistance in the analysis will be useful.

The methodology incorporated in this manual has been used as an integral analytical piece of a full-scale health sector assessment in one country. As such it was intended to serve both as a training tool for economic analysts working in the sector and as a source of valuable information on the status of sector financing. Another use would be to apply the manual to financial analysis requirements in project paper development.

Despite the references in the manual to the entire health sector of a country, many of its techniques are adaptable to subsectors or even to specific health programs. While a conscious effort has been made to avoid prescribing pat answers or solutions to financing questions, the manual should illuminate for the analyst the choices available and the criteria to use in making the selection, and should illustrate possible conclusions and recommendations.

This manual provides a logical, nontechnical approach to the gathering and evaluation of information on the financing of health sector which guides users in answering these key questions:

1. What is the health sector? (Chapter II -- Determining the Components of the Health Sector).
2. What data should be gathered? How should they be arranged? What are the sources of those data? (Chapter II -- Acquiring Data on Financing of the Health Sector).
3. What do the data mean? (Chapter IV -- Evaluating the Data on Health Sector Financing).
4. What conclusions or recommendations can be made from an evaluation of the data? (Chapter V -- Presenting the Results of Evaluation and Recommendations).

Additional components of this manual are: appendices containing model (or suggested) tables for data collection; a list of possible revenue sources; and a selected bibliography of health sector financing literature. The bibliography is a reminder that no document is wholly new. In this manual there is a heavy reliance on a series of case studies in Latin America, and the publications resulting from them, especially: Health Sector Financing in Latin America: Conceptual Framework and Case Studies by Dieter K. Zschock, Robert L. Robertson, and John A. Daly; Financing the Health Sector of Guatemala by Robert L. Robertson; and Health Care Financing in Developing Countries by D. K. Zschock (a forthcoming monograph from the American Public Health Association). The results presented here, although based on research undertaken in Latin America, present an analytical and conceptual framework which we believe to be sound and useful in any region or country. However, the approach is more applicable to less-developed countries, which do not have the statistical data bases of the developed countries.

Although the bulk of the manual is devoted to an analysis of the sources of financing, a description of health sector expenditures has been included to provide a balanced picture. The financing (income) of health services is often closely related to the pattern of health service expenditures.

Forthcoming studies dealing with health sector financing which may be of interest to the reader include the monograph by D. K. Ischock noted above and a report by the expert committee on health sector financing of the World Health Organization under the direction of E. T. Mach. The latter report is expected to produce technical documentation on health sector financing.

II. DETERMINING THE COMPONENTS OF THE HEALTH SECTOR

A. COMMONLY ACCEPTED COMPONENTS OF THE HEALTH SECTOR

The health sector is roughly defined as those people and institutions which seek primarily to prevent, cure, or care for illness and injury. Commonly accepted elements of the health sector include the activities involved in the provision of medical and paramedical care to ambulatory and hospitalized patients, communicable disease control, and environmental sanitation activities. The general definition of the health sector is intuitively obvious. For the financing to be described and analyzed, however, a more precise definition must be made. Since the frontiers of the health sector are drawn differently from country to country, the analyst should write an explicit statement of the health sector components. This statement should be agreed to by responsible officials before resources are used to describe or analyze the patterns of financing.

A precise and practical delineation of the health sector is difficult because many activities affect health in addition to those listed above. Therefore, deciding what to include in the health sector is necessarily arbitrary. The choice in many instances may be determined by the fact that some of these borderline activities are now being performed by health practitioners or by agencies involved in other, more obvious health activities, and therefore, ease of accounting and the structure of the available data make it more practical to include, rather than exclude them from, the health sector. (For example, see family planning below).

B. AREAS OF AMBIGUITY

One of these ambiguous areas concerning the boundaries of the health sector is family planning. Family planning programs range from demographic studies to birth control programs. They can have a long-term impact on health and are often linked with medical care. One way to handle this classification problem is to include in the health sector those family planning programs which are conducted by health practitioners or by agencies providing health services and to exclude those performed by non-health service agencies. However, the answer to the question of which ambiguous programs to include in the health sector

undoubtedly will vary from country to country.

Other ambiguous areas impacting on health include programs to improve nutrition, sewage disposal, and water supply. These programs are not treated consistently in all studies of the health sector, but the general practice is to favor including in the health sector those activities which are intended to bring underprivileged members of the population up to minimally adequate standards. Thus, special food programs (food fortification, feeding, and iodization), nutrition rehabilitation and the provision of potable water and human excrement disposal facilities in rural areas and urban slums, are frequently included in the health sector.

Certain other activities impacting on health are generally not considered to be part of the health sector. These include general education, programs to provide clothing and shelter, accident prevention measures, and programs designed to improve working conditions.

C. ACCOUNTING PROBLEMS

The financing of health-related education programs and the education of health practitioners present accounting problems -- i.e., should these activities be included in the health sector or in the education sector? This dilemma is conventionally resolved by including the costs of health-related education programs and of the training of health practitioners in the health sector if they are carried out by or paid for by recognized health sector institutions. The formal education of most health service practitioners, however, usually is included in the budgets of the public, private, and mixed education institutions and is thus excluded from the health sector. Specific health-related programs provided by non-health sector institutions, such as the regular school system and vocational training centers generally are not counted as part of the health sector, although they could logically be included there. If such programs are unusually extensive and closely coordinated with other health sector programs, one might consider counting them as health sector activities.

When analyzing the health sector it is important to avoid double counting of sources of support and of expenditures. There are several areas where double counting may cause a problem. One area is the costs of buildings. These costs may either be counted as investment costs or in

terms of depreciation, depending on how the buildings are financed. Customarily, the investment cost is counted as a health sector expenditure. Another area of possible double counting is the education of health practitioners. Some consider it double counting to include both the costs of their formal education (a form of investment) and their subsequent salaries (a return on that investment) as health sector costs. For that reason formal educational costs may be excluded from the health sector. Another example of a potential for double counting is expenditures on pharmaceuticals. Purchases of drugs and medicines by households may appear in household expenditure totals and also as pharmaceutical company revenues; they should not both be counted. A more likely and more serious possible example of double counting arises when revenues are totaled by various levels of an organization. For example, it is likely that one might count Ministry of Health funds at the national level plus regional MOH revenues -- part of which have originated at the national level, or vice versa.

D. ORDERING OF HEALTH SECTOR COMPONENTS

1. Organizational

The health sector can be examined from many different points of view, including by types of organization, by functions or programs, and by level of authority.

As suggested, and commonly used, breakdown of organizations is: public, mixed (or decentralized), and private. The public organizations consist of public health agencies such as the Ministry of Health and its dependencies, some of which may be semiautonomous. The mixed organizations are those which receive part of their revenue from public sources and part from membership or participatory contributions. They are organizations like social security health care systems. The mixed organizations often function under the supervision of authorities other than the Ministry of Health. The final category of organizations includes profit and non-profit private bodies such as private practitioners and hospitals, foundations, charities, the Red Cross, and private health insurance institutions.

2. Functional and by Programs

Another way to look at the health sector is in terms of functions and programs. The two major categories under a functional breakdown are curative health (measures which

treat illnesses and injuries as they arise) and preventive health (measures which are designed by keeping illnesses and injuries from occurring). Under each of these major categories financing data can be arranged by major programs. For example, programs supporting hospitals and most of the activities of their staffs would come under the curative health category, while activities such as immunization programs, and those nutrition programs (except for nutrition rehabilitation measures) which are considered to be part of the health sector would be categorized as preventive. Alternatively, the health sector could be divided into a number of major programs. Such a division would normally include the most important curative and preventive functions.

3. Level of Authority

Another way to analyze the health sector is by levels of authority (i.e., national, regional, state, municipal or local). The national level is usually the most significant level (and, therefore, the best place to start) because it contains agencies and institutions having the largest size and most widespread coverage (e.g., a Ministry of Health and its subagencies) and because it generally has the most complete data base. Examination of regional (state) and municipal (local) level organizations can provide additional insights into health sector financing by answering such questions as: How do they fit in with the national organizations? What is their relative importance for health sector financing compared to the national organizations? What are the financial relationships and flows of funds between the various levels? To what degree are the subnational levels self-financing?

The three alternative methods of ordering the health sector components discussed above (by type of organization, by function and program, and by level of authority) need not be exclusive. In fact all three can be used together. For example, the health sector could be divided first by type of organization (e.g., Ministry of Health) and within each type of organization further divided into functions and programs (e.g., Ministry of Health programs to support hospitals as curative health measures) and even further divided by levels of authority (e.g., national, state, and local programs sponsored by the Ministry of Health to support hospitals). In addition, the three methods of breaking down the health sectors can be used separately to crosscheck the other sectors to ensure accuracy of data, to avoid double counting, and to identify duplication of services.

After determining the limits of the health sector and the best way to organize the financing data, the next step is to acquire the data necessary to perform the financing study.

III. ACQUIRING DATA ON FINANCING THE HEALTH SECTOR

A. GENERAL

Since the needs of the health sector in the developing countries exceed the available resources, analysis of the sources of financing can be of value in determining such things as: what the present resources are (i.e., level of funding and sources of funding); how costly or inconvenient are they to collect; how the taxes, fees, and charges used to finance the health sector can be more equitably borne by its users; how existing sources could be more efficiently collected; and possibly, what additional sources of revenue are available. In order to conduct this type of analysis, however, one must have sufficient data.

The collection of detailed information on the source of health sector financing requires a set of tables for the organization of data. A set of dummy tables which serve that purpose are attached as Appendix A and will be referred to in later sections of this manual.* These tables will need to be adapted to the specific organizational characteristics and circumstances of a particular country's health service. Information on financial resources by source should be gathered for a number of years (preferably at least five) in order to identify trends in the increase of funds and changes in their composition. If possible, data series might also be projected into the future depending on the availability of official statements of intent (such as national and sector plans, previous assessments, international loan applications, etc.) or other reasonable bases for projection. Some projections might be based on objectives (or "needs") while others could be determined by simple extrapolation of trends. Projections, however, are not always easily made and can be considered to be optional features of the data system for most purposes.

* It should be noted that these presentations are not unique. For example there are details on comparative expenditures in Health, World Bank (1975) and Public Expenditure on Health, OECD (1977). Filled-in examples of the use of these tables may be found in Zschock, Daly and Robertson (Bibliography).

Since the largest sources and institutions account for most of the public and mixed sector health services' financing, one would obviously begin the financing study with these and would proceed to a sufficiently large number of smaller entities as time and staff assistance permit. Nevertheless, some attention should be paid initially to these smaller entities to determine if, collectively, a group of them might represent a significant share of total financial support of the health sector.

B. ORGANIZATION OF DATA

The data necessary for a financing study of the health sector can be divided into two major classifications: data relating to income and data relating to expenditures. Within each of these major classifications the data can be organized in a series of subclassifications. These methods of ordering or arranging the data will be explored below.

1. Sources of Income

Health sector income can be analyzed in terms of the organizations that provide health services or collect revenues; by a comparison of proposed, allocated, and actually received revenues by an organization; or by major types of revenues (e.g., general tax revenues, health insurance premiums, etc.).

a. By source of income for individual organizations.

This method of categorizing the data provides one way to organize and look at the information. The method calls for the arrangement of the data by the sources of financial support for the health sector. These organizations are of three types: 1) non-health organizations which only collect and transmit funds to the health sector, e.g., the Treasury or Ministry of Finance which collects money and allocates it to the Ministry of Health; 2) organizations which provide health services but do not raise most of their own funds, e.g., the Ministry of Health and its subordinates which are supplied funds by the Treasury or Ministry of Finance; 3) organizations which provide health services and raise most of their funds, e.g., the social security system. (See Appendix A, Tables I - A and I - B).

b. By type of organization providing health services.

The second and perhaps the easiest way is to determine the sources of income of organizations providing health services. Since the three types of organizations providing health services (public, mixed, and private) generally have different sources and methods of financing, it would be useful to arrange the data groups into these three major categories and discuss substantial individual organizations within each category (See Appendix A, Tables I - A, I - B, and I - C). For example, in the public health sector there would be a discussion of the sources of financing of the Ministry of Health; in the "mixed" sector a discussion of the sources for the social security system; and in the private sector a discussion of the sources of financing of privately owned hospitals.

c. Comparison of income proposed, allocated, and actually received.

The data gathered on the types of organizations described above should include proposed (or requested), allocated, and executed budgets, by source for the current year, and for the recent past -- the last five or ten years.-- (See Appendix A, Table IV). To be able to assess the allocation pattern of general tax revenues to the health sector it is important to distinguish between requested and allocated funds. However, this is at times difficult since available official documents do not always clearly show the difference. Moreover, it is almost impossible to determine what proportion of allocated funds are actually expended. Funds may have been allocated, but when the revenue collected during the year fell short of expectations, the health sector had to accept a shortfall in the disbursement of funds (along with other sectors, but perhaps not on a proportional basis). Whenever possible in the financial analysis, executed rather than budgeted data should be used.

d. By type of revenue.

Income data of the kind identified above can be categorized by type of revenue -- i.e., the taxes, fees, charges, loans, payments, etc., which finance the health sector.

These revenues fall into the following categories:

1) general public revenues; 2) deficit financing; 3) insurance revenues; 4) special tax revenues, and revenues from lotteries and betting, some or all of which are allocated directly to the health sector; 5) charitable and private

contributions; 6) direct payments by recipients, and
7) in-kind contributions of goods and services.

General public revenues consist of income and profit taxes and import and export taxes. (Sales and user taxes are generally dedicated to specific types of expenditures and are therefore discussed below). General tax revenues are collected by the national, state or municipal treasury and a proportion of them are then allocated to the health sector. Since the impact of the various general revenue taxes is different, it is important to identify and analyze each major component of general revenue taxes in the analysis.

In addition to taxes on income, profits, and foreign trade, revenues also may be obtained through deficit financing. Deficit financing consists of foreign borrowing, and domestic borrowing, also called internal deficit financing. Internal deficit financing, in principle, is used primarily for investment in physical plant and equipment, but is frequently used also to cover a portion of operating costs.

Foreign borrowing, the other component of deficit financing, consists of either general loans, part of which the health sector receives; or loans specifically contracted for the sector. International loans are often used to finance the foreign exchange cost of equipment and supplies for public health services. Here again, however, the intent may be broadly interpreted to specify that -- with or without the lender's agreement -- domestic program costs may be financed in part through foreign loan receipts (with the foreign exchange receipts of a loan instead being used in part for non-health related purchases). Deficit financing is usually regarded as a means to increase public health financing in proportion to other public expenditures. Foreign aid loans, however, also come with a requirement to increase the allocation of general revenues on a so-called counterpart basis. To fulfill this requirement the host (recipient) government may reallocate funds within the health sector to cover a particular program obligation, rather than by increasing the level of domestic funding to the sector. Thus, the impact of deficit financing on the allocation patterns of general and other categories of revenues is extremely difficult to evaluate. Foreign loans may be also considered in another category of health sector financing. When combined with grants from foreign countries they form the category of external assistance.

A third source of health sector financing is provided by

both governmentally- and privately-operated health insurance programs and especially by the governmentally-operated social security system. The health insurance programs cover employees of the modern commercial and manufacturing sectors and, in some cases, government workers. The social security system covers workers in either or both the government and private sectors. The social security and health insurance programs differ in their payment mechanisms. The latter are usually financed through voluntary personal contributions, although employers may also contribute to industrial plans. The social security system, on the other hand, receives mandatory employer and employee contributions and in some countries also receives a contribution from the government. Examples of health insurance programs in developing countries are: programs offered by private insurance companies and group health insurance programs of individual federal agencies, and by state and municipal governments.

A fourth source of health sector financing is special tax revenues and revenues from lotteries and betting. Special taxes include specific sales taxes -- called excise taxes -- (typically levied on beer, liquor, and tobacco products) and user fees (other than fees for service) as well as the income from lotteries, games of chance, and betting on horse racing and other sports events. These revenues often represent significant sources of revenue for the health sector (especially in Latin America). They are typically collected and administered at state and local levels, whereas general revenues (see above) typically consist of taxes collected and disbursed at the national level. Frequently, net receipts from these special sales taxes and gambling revenues are either wholly or in part designated for health. Comprehensive national information about these sources is difficult to obtain, however, because of their widely dispersed collections variations in their types and levels of revenue among different states and municipalities, and also because state and local governments either fail to maintain accurate records or refuse access to the information. Nevertheless, these taxes and net revenues from gambling, together with the transfer of general revenues from the Ministry of Health, account for most of the public health services' budget for state and municipal governments in some countries.

Charitable and private contributions, another source of financing, are not generally a major category of support for the overall health sector, although certain health sector institutions rely on them for most of their support (e.g., the Red Cross, individual hospitals, disaster relief

organizations). Such aid can enter the health sector from abroad -- no small matter to a poor country -- as well as from within. Charitable contributions frequently include potentially high-yielding sources of support for certain institutions which could be easily overlooked in an accounting of health sector revenues. For example, it is not uncommon in Latin America for the buildings of many small health posts to be constructed with charitable contributions in the expectation that public health authorities would assume responsibility for their operating costs. Another example is that of a private foundation providing all of the support for one or several community centers providing health services in low-income residential areas of a city. An additional type of private assistance is the company-run medical program. Many of these contributions are made in-kind or by providing services, making it difficult to attribute cash values to them. The effort should be made, however, to avoid undercounting.

One of the most important areas of health sector financing is direct payments by recipients. This category of financing is also the most inclusive since virtually all households at some time make direct payments for the health services they receive, including care from traditional practitioners and systems. The direct payments include those for insurance coverage, medical care, drugs and medicine, and personal hygiene. For a fuller treatment of these payments see below where direct payments are discussed as expenditures ("Household expenditures on health services").

In-kind contributions of goods and services can consist of self-help efforts at the household or community level, equipment and supplies donated through international organizations or directly by manufacturers, and the unpaid or discounted services of students and trainees provided as part of their training process. Self-help efforts can supply significant portions of the total investment costs of construction and maintenance of health and environmental facilities, particularly in rural communities and in low-income urban areas. Contributions of equipment and supplies can provide significant proportions of total investment and operating costs. Volunteer labor may also represent a substantial proportion of the operating support of these facilities -- e.g., labor provided by members of religious orders working at lower than usual compensation in health facilities. Most of these contributions, however, cannot be readily quantified, with the possible exception of large donations of supplies or equipment and buildings. They constitute a useful source of revenue, but a difficult one

to quantify and analyze.

There is no rigid international pattern linking particular types of revenue (or methods of financing) to specific subsectors or health programs. Nevertheless, there are some tendencies which have been pointed out by various observers. These might be placed in a matrix in order to describe sources of financing and to facilitate their analysis. Table I, which follows, is offered as an illustration for possible guidance to those studying health sector financing. The table is helpful in indicating past patterns of financing and in suggesting gaps to be closed. 1/

TABLE I: MAJOR SOURCES OF REVENUE AND SUBSECTORS, AND PROGRAMS FINANCED BY THEM

| <u>Source of Revenue</u> | <u>Subsector or Program Financed by Source</u> |
|---|---|
| General Revenues and Internal Deficit Financing | Public agencies (e.g., Ministry of Health) Special programs (e.g. immunization campaigns). Environmental sanitation projects. Decentralized organizations (selected). |
| External Assistance (Grants and Loans) | Special programs (e.g., food supplements, specific diseases). Public capital expenditures. Environmental sanitation projects (partial). |
| Insurance Revenues | Social security. Programs for public and private employees. |
| Special Taxes and Revenues from Lotteries and Betting | Public agencies (at all levels). |
| Charitable and Private Contributions | Medical and environmental sanitation programs of: private agencies, companies, foundations. |
| Direct Payments by Recipients | Public and decentralized organizations. Private services and materials. |
| In-kind Contributions of Goods and Services | Any organization or program (especially public and charitable institutions and environmental sanitation projects). |

1/ One of several sources that have presented such a matrix is Pan American Health Organization, Financing of the Health Sector (Washington, D. C.: PAHO, Scientific Publication number 208, 1970) pp. 10-11

2. Expenditures

In addition to examining the sources of income of the health sector, it is also useful to examine the expenditures of the health sector, since the financing (income) of services is closely related to their pattern of use (expenditures). There probably are innumerable two-way relationships between sources and expenditures in that the type of expenditures partially determines the sources of support selected, while existing or potential sources might affect the volume and distribution of expenditures. The above matrix (Table I) suggests some of these relationships.

a. Allocation of income by major categories of expenditures.

Health sector expenditures can be analyzed using three main approaches. The first is to analyze total health sector expenditures by: a) all public organizations and entities; b) all mixed organizations; and c) selected private organizations. Within each of these categories, expenditures can be further subdivided into: a) expenditures by program (e.g., hospitalization, doctor contacts, cholera treatment) and b) expenditures by type (e.g., personnel expenditures). (See Appendix A, Tables III-A-1, III-A-2, III-B-1, III-B-2, III-C-1 and III-C-2). The second approach is to examine expenditures by selected organizations. These can be subdivided into programs and types of expenditures. (See Appendix A, parts of Tables I-A and I-3). A third approach to studying health sector expenditures is to compare them to the gross domestic product of the country and to the total budget of the government. (See Appendix A, Table V). The best example of this third approach probably is a comparison over time of the Ministry of Health's expenditures with the gross domestic product.

b. Household expenditures on health services.

A major component of health sector expenditures consists of direct household expenditures on health services, which are also a category of revenue sources for the sector. There are two alternative ways to break down household expenditures for analysis if there has been a household survey that has included the relevant questions. The first way is by number and proportion of households that made any personal health expenditures on various types of service

broken down by level of household income. This can be done for the nation as a whole, and then separately for urban residents, and for rural households. (See Appendix A, Tables VI-A, VI-B, VI-C). Another way is to categorize the data in terms of personal health expenditures and the proportion of household income spent for them on various types of service by level of household income. These data, too, can be arranged for the whole nation and for urban and rural households (See Appendix A, Tables VII-A, VII-B, and VII-C). The expenditures that can be presented in both instances can include such things as: medical care, drugs and medicines, environmental sanitation and personal hygiene, and insurance coverage. The suggested system is flexible as to components and adaptable at points to graphical presentation.

3. Additional data needed for financial analysis.

Additional information is described below which might be used for financial analysis (when it can be collected -- it is not always easy to obtain). None of this information would normally be gathered specifically for a health sector assessment. However, if developed by special studies, it can be incorporated very usefully into the financing analysis of the health sector. Alternatively, the analysis might reveal data gaps -- for example, those relating to consumer expenditures -- which will indicate the need for future special studies.

a. Estimates of income and price elasticities of demand for health services.

The ratio which results from dividing the percentage change of health services costs into the percentage change of quantity of health services demanded is defined as the "price elasticity of demand" for health services. This is a measure of the responsiveness of the level of prices charged for health services. A price elasticity of demand of one (or greater) indicates that a given percentage increase in price will result in an equal (or greater) percentage decrease in the quantity of health services demanded (i.e., that demand for health services is responsive to price changes) or elastic. A price elasticity of demand of less than one indicates that a given percentage increase in price will result in a lesser percentage decrease in the quantity of health services demanded (i.e., that demand for health services is relatively unresponsive to price changes, or inelastic). Generally, the demand for

health services in developing countries is price elastic, with a greater elasticity (responsiveness) to prices for preventive health measures and for the lower income groups of the population.

"Income elasticity of demand" is calculated by dividing the percentage change in income into the percentage change of the quantity of health services demanded. An income elasticity of one or greater indicates that a given percentage increase in income will result in an equal or greater increase in the quantity of health services demanded (or that the demand for health services is relatively responsive to changes in income, or is elastic). An income elasticity of less than one indicates that a given percentage increase in income will result in a lesser percentage increase in the quantity of health services demanded (or that the demand for health services is relatively unresponsive to changes in income, or is inelastic). Generally, for low income groups the demand for health services in developing countries is elastic in relation to income. This situation indicates that consumer demand for health services rises faster than income. Thus, there is an opportunity to get people to pay more for health services (e.g., higher fees) or there is an indication that more tax revenues should be allocated to health care.

Some statistics which are readily available or can be generated in the health sector financing study can be used to calculate price and income elasticities of demand. The percentage change in the quantity of health services demanded is the numerator for both price and income elasticity of demand. Household expenditure data, providing expenditures for health service, by income group, can be used to estimate income elasticity of demand. In theory, time series data on national health expenditures and price indices for health services could be used to estimate price elasticity, but in practice the technology and income distribution changes occurring in developing countries eliminate this possibility. The extrapolation of price elasticity from income elasticity or the use of natural experiments in which prices are changed for major services appear more useful. 2/

2/ A useful source for additional information on the elasticities of demand for health services in less-developed countries is Peter S. Heller, "A Model of the Demand for Medical and Health Services in West Malaysia," Center for Research and Development, The University of Michigan, Discussion Paper No. 62, October 1976.

- b. Coverage (access) of health services by residence and income level.

For this information, the following questions should be answered. How many residences have access to medical and health services? How many lower income households have access to health services? How many doctors are there in rural areas per 1,000 of population? 3/

- c. Estimates of the proportion of individual income spent for taxes and health expenditures.

- 1) Taxes allocated to health or indirect health expenditures;
- 2) Direct health expenditures.

C. SOURCES OF DATA

There are several sources for the data described above. For data dealing with the government ministries such as the Ministry of Health, the national government generally publishes consolidated budgets. These budgets may either include the required historical tables, or, when taken as an historical series of documents, contain the data required to form the historical tables. Projections may be made for such ministries through the projection of historical trends, and/or through the use of published development plans. Differences between the two projections can be especially suggestive.

Data on semiautonomous public institutions and mixed institutions such as the social security system, public lotteries, or the national cancer institutes may be published in regular public reports, which include financial data. Such reports usually are obtainable through the institutions themselves. The Ministry of health libraries or repositories may also provide an adequate source of information for many of these activities.

Some countries maintain standard national accounts which should not be overlooked as sources of financial data. Since much of the data requirements to establish national accounts for the health sector are the same as envisioned

3/ Pinstrup-Anderson, per et. al., "The Impact of Increasing Food Supply on Human Nutrition, Implications for Commodity Priorities in Agricultural Research and Policy" American Journal of Agricultural Economics, May 1976, pp131-142

in this approach, the material may be immediately applicable. Mutual cooperation with those responsible for national accounts may be in order.

If the published sources are not available for either the public or mixed organizations, or if their validity is in doubt, the required information may often be obtained directly from the institutions and/or from international or foreign sources (in the case of external aid). The U.N. system of Social and Demographic Statistics may be noted. Special preparation of such data by an institution may be a fairly costly and time-consuming process. Moreover, such data may not be accurate either in published or in ad hoc studies. Thus, several different estimates may be found for the same budget for the same year, depending on the sources of information, accounting definitions used, and other aspects of the collection procedure. The degree of accounting control and standardization of accounting practices found in developed countries is not likely to exist in many of the developing countries, and rough estimating procedures must often be relied upon.

The most difficult organizations to study will probably be those public and private institutions which provide health services as a secondary activity and treat the services as worker benefits. Ministries of defense and education, mining concerns, and large agricultural organizations are examples of such entities which may provide health services to thousands of individuals, while protecting financial information for security, tax, or public relations purposes. Similarly, charities, religious groups, and other private organizations may not provide financial data to outsiders or may not maintain adequate financial data for assessment purposes.

Fees for goods and services may be estimated from consumer expenditures or from sales data kept by the health agency or other providers. Since each source of information has obvious potential errors, it is most desirable to compare estimates made from both consumer expenditures and provider incomes -- to the extent possible within the resource limitations of the sector assessment. As noted above, data on traditional services are not likely to be readily available from any source.

Sources for consumer expenditure data may include:

- 1) Health expenditure surveys, especially those

sponsored by the Ministry of Health or other public health agencies, or by universities -- unfortunately, these are scarcer than is desired.

2) Household expenditure surveys. Likely sponsors of these surveys are national statistical offices, the Ministry of Labor, or the central bank. Surveys to measure cost of living indices may be a useful source for these data.

3) Special tax surveys.

4) Census data.

Provider income estimates are generally more difficult to obtain than consumer expenditure data. Some potential source of data are:

1) Pharmaceutical market surveys conducted by either industrial or market research firms. Since pharmaceutical import and production volumes are regularly available as trade statistics, a rough approximation of retail volume can be made by applying an estimated commercial markup in price.

2) Provider income surveys conducted by schools, by the Ministry of Education, the Ministry of Labor, or the Ministry of Foreign Relations (as part of data on brain drain or value of service of emigrants, etc.), or by associations of health professionals.

3) Income tax projections of various groups of the population, which may be derived from actual tax reporting of income.

4) Income for health service practitioners, which can be estimated from data on the income of persons of differing educational levels. These data are often kept by the labor and education ministries to measure the investment value of education.

Available records from any of the above sources of information may show financing data based on monetary transfers. However, in many situations health services are provided largely through the donation of goods and services or through payments in kind. To avoid overlooking or underestimating such data, it would be desirable to conduct interviews with health service institutions at both the location of the service provided and the central office, and to structure the interviews to ascertain such non-monetary transfers. Such information may prove to be the most difficult type to estimate, and the practicality of exerting the extra

efforts necessary to obtain it at all will depend on the study. Also difficult - perhaps impossible - to obtain would be income data on traditional healers, especially if they are paid in kind.

To acquire the relevant data needed for an analysis of the financing of the health sector, it is necessary to know the financing mechanisms of the health sector. For public health institutions (including the semiautonomous, or mixed, agencies) many of these mechanisms will be described in public literature -- particularly in enabling laws and decrees. However, interviews should be used to assure that the nominal mechanisms are in fact being implemented.

For fees for goods and services, donated services, payment in kind, and other financing mechanisms, field interviews of practitioners and officials of the various health institutions may be the best, or only, source. Special sources of data may exist for some specific institutions:

- 1) Credit unions or cooperative associations may provide generic information on health service financing by their constituent agencies (e.g., pharmacy cooperatives).

- 2) Industrial associations may provide information on model or typical worker health service financing plans for their members.

- 3) Insurance monitoring agencies or insurance corporation associations may provide generic information on private health insurance plans.

- 4) Professional or labor associations may provide information on financing of health plans for members.

- 5) Creditors may provide information on the extent and mechanisms of non-institutionalized debt financing for health services (e.g., the Government of the Dominican Republic used AID financing to provide bank loans for private hospital construction, and thus information on debt financing of hospital capital investment in the private sector was centrally available).

Information on the incidence of taxes on the public may be available from the Ministry of Finance, the tax bureau, or from international financial institutions such as the World Bank. Alternatively, other social service sectors -- education, welfare, etc. -- may have generated such data for comparable sector financing studies, and knowledgeable informants in

these sectors should be consulted.

In essence, the description of the pattern of financing of health services will require some imaginative use of existing documentary sources and interviewing by the analyst. A great number of sources and recipients of health service financing will usually exist in a nation -- some of which will not be obvious to outsiders or even to many public health officials in the country. Estimates of the magnitude of financial flows, and the description of the overall ("macro") effects of the financial pattern, will not be much affected by omission of the more obscure financial mechanisms. On the other hand, the innovative planner may well find that novel mechanisms already in use may be valuable natural pilot studies for financial reform. Similarly, a review of historical methods of financing health services may give both a view of the flexibility of the financing system and clues for a return to once successful but now disused sources of finance.

IV. EVALUATING THE DATA ON HEALTH SECTOR FINANCING

An appraisal of the various methods used by a country at the national and local levels to finance its health service requires a basis for judgment, or a set of criteria. While some criteria may be less controversial than others, all are to some extent arbitrary and few -- if any -- can be scientifically verified. For example, almost everyone would agree that a method or source of finance should be fair or equitable, but the appropriate measure and degree of equity are value judgments on which reasonable persons may differ. Below is an illustrative list of criteria with reasons presented for them where necessary. It is not likely that all criteria will be usable in any single study, as value judgments and practicality will vary.

The criteria that appear most important fall into four categories: 1) equity effects of a financing source -- i.e., is the burden of financing borne fairly? 2) efficiency aspects of a financing method -- i.e., how much is collected and at what cost? 3) effects of a method upon the pattern and efficiency of health service delivery -- i.e., how does the source of financing affect the operation of the health sector? 4) macroeconomic (or aggregative) effects of financing -- i.e., how does financing affect the overall economy?

A. IS THE BURDEN BORNE FAIRLY?

The methods of financing health care vary greatly in their impact upon those providing the funds. There are at least two well-recognized concepts of equity (fairness) which can be applied to an appraisal of the impacts of a method of financing. These concepts are horizontal and vertical equity.

Horizontal equity is achieved when all persons at the same level of income (regardless of the source of income or manner -- within limits -- of using it) contribute similar amounts. Thus, a source of revenue, such as a special tax on wealth, which bears more heavily on persons with certain sources of income than on those with other sources could be considered inequitable, other factors being equal. Also, a method whose burden is felt much more by some persons than by others of identical status would be inequitable; an example would be an excise tax on a product purchased more by some groups than by others.

A subcategory of horizontal equity is equity of risk sharing. This type of horizontal equity is concerned with the financing of the costs of treatment for a catastrophic illness or other health problem giving rise to major expense. In some financing systems the individual affected pays all or most of the cost of such a major health problem. In other systems, persons at risk for such statistically unlikely events use insurance to share the risk. Since people are willing to pay a premium to buy the insurance, reducing the probability of very large expenses appears to have value to the consumer.

This manual does not cover another aspect of equity which some analysts might include in their work: the equity implications of the benefits of receiving (or not receiving) health care-- also important to a broad evaluation of the sector. The omission of it here is based on an aim of concentrating on sector finance, especially on sources of support for the sector. Those wishing to conduct broader appraisals that include benefits -- and the equity of their distribution -- will find other guides to such work. 4/

The comparison of the burden borne by specific population groups for financing health services vs the benefits obtained is important in terms of both equity and efficiency evaluation. Equity of distribution assumes not that the cost-benefit ratio will be uniform over all groups, but that the variation among groups will be judged "fair" according to the countries' social and cultural values.

Financing should also be successful at "capturing" the benefits of health services rendered. For example, comparing individual fee-for-service to community tax financing for immunization services, we conclude the first often do not capture the benefits adequately. Thus if 50% of the population pays out-of-pocket for immunization, the remaining 50% may benefit more by enjoying the reduced community level of disease without the discomfort of immunization reaction. A community tax in which all pay equally for the reduced community prevalence of disease does not share this defect. Perhaps more important if the financing does not adequately capture the benefits of the activity, is a tendency to sub-optimize -- that is for the community to spend less than is economically justified for the health service. The term "public or welfare goods" is applied to those activities that should be publicly financed in order to avoid inefficiently large or small expenditures that would occur through fee-for-service mechanisms.

4/ See for example: A Berry and M. Urrutia, Income Distribution in Colombia (New Haven: Yale, 1976), pp. 158-174; C. E. McClure, Jr., "Taxation and the Urban Poor in Developing Countries" (Washington: World Bank, Staff Working Paper No. 222, December 1975), pp. 26-29).

B. HOW MUCH IS COLLECTED AND AT WHAT COST?

There are at least six different but complementary sets of criteria for assessing a financing method in terms of its return or inherent efficiency: 1) gross yield of the method; 2) method net yield; 3) impact on personal behavior and health; 4) satisfaction of the method's payees; 5) political acceptability of the method; and 6) avoidance of dependency on temporary sources.

The gross yield of a method encompasses several simple but very important characteristics, such as the overall capacity of the method to yield gross revenue, the stability of its yield over time (with changing conditions), its elasticity or responsiveness to economic growth or decline, and the predictability of the method in its timing and amount of yield.

The net yield of a method excludes the costs of implementing and administering it, such as the expenses of collecting a tax. Net yield, therefore, is gross yield minus costs of collection. It indicates, in a way, the efficiency of raising funds.

Another cost (or, depending on its impact, perhaps a benefit) of a financing method is its effect on personal behavior and ultimately on health status. An example of this (in the potential benefit sense) is the impact of an excise tax on the activity it is intended to discourage. Thus, the financing of health services through taxes on sales of alcohol and tobacco is thought by some to have the twofold impact of providing health services and reducing the ill health resulting from alcoholism and smoking. Clearly, studies of the effects of alcoholism or the like upon health status go beyond the analysis of financing methods. ^{5/}

A different type of cost method is the satisfaction (or dissatisfaction) of its payees. A common example of a method which is thought to provide high satisfaction, aside from any health benefits deriving from the programs supported by it, is a lottery. There is no doubt of the pertinency of the satisfaction standard to an assessment of a method of financing. Conceptually it is distinguishable from other criteria such as equity and yield. Nevertheless, in practice it is very difficult to estimate without costly special purpose surveys -- except indirectly through rough proxies like political tests, votes for representatives, and opinion polls.

^{5/} An estimate of the price elasticity (if available) of the behavior to be excised is an important indicator of how high the tax must be to affect consumption of the product.

The practicality (or impracticality) of estimating payee satisfaction points to a broader criterion with which to analyze a financing method. Political considerations concerning a method, such as the acceptability of a method or resistance to it, either from the general population or specific groups of people, obviously are crucial to its usefulness (even to its existence) and could be considered a cost of using a particular method. This political criterion is distinct and generally goes beyond payers in its scope, embracing all important participants in the political process. As in the case of user satisfaction, political acceptability poses some difficulty as an operational criterion. It is doubtful that analysts should expect to apply this principle in a health sector assessment emphasizing economic considerations when appraising specific methods of finance. However, it would be wise for the analyst to consult with experts sensitive to political currents for advice on the political acceptability of a financing measure.

A sixth, and final, criterion within the category of efficiency aspects of a financing method (with emphasis on the costs of raising revenues) is dependence. A financing method creates a dependency if it encourages or develops a reliance by the recipients of services on sources of funds from other persons. It is generally considered to be pejorative, as when one nation becomes dependent on foreign-based multinational corporations in their health-related industries due to a reliance on foreign private investment capital. Dependence may represent the reverse of a desirable goal as in the case of the dependence of the poor on the more affluent for the financing of their health services through the progressive income tax. The evaluation of cases of dependency is important so that planners will avoid naively creating a dependency that cannot be sustained, such as dependence on temporary sources of financing. Situations of dependency are created most frequently by public and decentralized organizations which find temporary domestic tax sources or external assistance for their programs.

C. HOW DOES A PARTICULAR SOURCE AFFECT THE OPERATION OF THE HEALTH SECTOR?

In addition to the equity and efficiency aspects described above, a particular means of financing may also impact on the pattern of use of health services, on the manner of providing them, and on the type of services provided. Logic and experience suggest that the method of financing health services affects the volume and type of services used. For example, progressive income taxes may allow a greater use of publicly financed health services by low-income persons than would otherwise occur, while self-payment (private expenditure

will have the opposite effect on the utilization of medical care by the poor. Also, when health care has been financed by insurance payments, it has been observed that the insured use health services at much higher rates than uninsured people do. A particular means of financing may affect the timing of health services use. Direct payments may result in a postponement of the preventive health services by certain groups, since such services are considered less urgent despite their greater long-term importance.

The method of financing can also affect the provision of health services. An illustration of this is the displacement effect -- that is, the replacement of one source of financing by another rather than an augmentation of the original source by the newer source. For example, charitable contributions may lead to diminished public support in a certain area, resulting in little or no net impact on health services, while an equivalent public expenditure would have resulted in an increase in health services.

A full view of the effects of funding on the operation of the health sector should include an examination of the differential effects of various provider compensation techniques on the types and volume of services used. The best known illustration probably is the impact of capitation or salaried arrangements for the payment of physicians for preventive and other ambulatory health services. With physician payment in the form of salary or on a capitation basis (a fixed fee to the physician per patient treated) the use of preventive and other ambulatory health services increases while the use of hospitalization decreases -- at least in prepaid group practices. Another example is prospectively-determined rates for hospital reimbursement. Data availability for application of these bases for appraisal will be a limitation to studies in developing countries.

D. HOW DOES FINANCING AFFECT THE OVERALL ECONOMY?

Although a full assessment of the effects of health sector financing on the overall economy is generally beyond the scope of a health sector finance analysis, consideration of some of those effects could be valuable and might be feasible, especially in a large research endeavor. One effect of considerable significance is the impact of any given level of health services financing on the general level of prices, that is, upon inflation. The relationship between health expenditures and revenue income, as well as the source of

that revenue, can affect prices. A potentially inflationary method would be the financing of health care through government borrowing, especially from foreign funds. Loans may help to raise nominal allocations but real increases may lag behind as salaries are raised and equipment and supply costs increase, especially if the loans come from outside the country. When loans are used to bring about health service expansion in a relatively short time span, the pressure of increased demand on scarce resources (particularly health services personnel) may drive up the costs.

A specific source of financing may affect incentives and effort expended for national production and economic growth. Some writers believe, for example, that income taxes restrict effort -- especially that of persons in high positions who might be heavily taxed -- thus diminishing output and the growth rate. Adequate testing of the empirical validity of this hypothesis, however, would be beyond the scope of a health sector analysis.

A final overall economic impact of health sector financing might be called "affordability," or the capacity of a nation to pay for health services. There is no single concept of affordability. Rather it is a flexible idea related to social values as well as to economic indicators. It can be connected to attempts to measure the total effort at health sector finance made by a nation, perhaps in comparison with the efforts of others, which would go beyond the simple application of other criteria to specific financial resources. Further, this attention might be disaggregated to consider specific revenue sources, regional or local governmental efforts, as well as individual family expenditures.

V. PRESENTING THE RESULTS OF EVALUATION AND RECOMMENDATIONS

After completing the evaluation of the existing pattern of health financing using the techniques described in this manual, the analyst will then be prepared to make tentative judgments on the appropriateness of the current pattern. It can be completely accepted or rejected in whole or in part. If at least part of the financing pattern is determined to be inappropriate or otherwise undesirable, the analyst may want to examine alternative sources of financing, which -- within the limitations of available resources for his study -- will be evaluated in accordance with the principles described in this manual.

The final step in the health sector financing assessment is to present recommendations based on the findings of the evaluation. These recommendations, of course, will depend on the circumstances of each assessment, but in general they would be either recommendations of no changes in the present system, further studies (perhaps with pilot studies) of the existing system or of proposed alternatives, or specific changes that are considered advisable. If any changes are proposed, the procedures for accomplishing them might also be summarized in a report to the appropriate audience, which should include the persons who will make the crucial decisions on implementation of recommendations.

The recommendations regarding the health sector, or one of its subsectors, fall into three broad classes: 1) deficiencies or shortcomings in the data which need to be corrected in order to permit useful analysis 2) changes recommended in expenditures; and 3) changes recommended in financing measures (income sources). An example of a need for more or better data so that analysis can be conducted is contained in a recent report on the health sector of Guatemala. ^{6/} An assessment of the impact of the employer's share of the social security tax was not possible because the available information was insufficient to determine whether the employer actually bore the burden or whether he passed it "forward" to the consumer through higher prices for his product or "backward" to his employees by paying lower wages.

The second category includes recommendations relating to expenditure patterns. Some examples of the findings and recommendations in this category follow. One is the finding that administrative costs are a rising percentage of total

^{6/} Robert L. Robertson, "Financing the Health Sector of Guatemala"

health services expenditures. It might then be recommended that the efficiency of the administrative subsector of the health sector be examined for possible improvements in administration. Another possible finding is that expenditures for curative measures are predominant. This could lead to a recommendation that funding be increased so that a greater share of resources can be devoted to preventive measures, thereby moving the health sector away from a position of reacting to health problems and toward a position of preventing them. A third finding which analysis may reveal is that the budget allocations for operating expenditures are more fully executed (spent) than are budget allocations for investments. The problem in not fully executing investment expenditures is often due not to inadequate financing, but to the inability to disburse the large amounts of money available. Therefore, management practices rather than financing may be the problem with which to deal. A fourth possible finding, that expenditures on hospitals and hospital-related health care are high relative to non-hospital health measures, may indicate an over-reliance on hospital-related health care.

The third major category of recommendations, and the most important, is that related to financing or sources of income. An example of a finding in this category is the heavy reliance in many countries on indirect taxes to finance the health sector. The indirect taxes fall more heavily in proportion to income on the poor and are thus more regressive. If increased equity was the goal, a logical recommendation would be that income taxes (a more progressive tax) be increased to augment health sector finances and to make the tax burden more equitable. Another example might be a finding that the financing of the health sector is too reliant on one source of financing, in which case the recommendation might be to seek additional sources of financing.

In principle the presentation of evaluative results and recommendations will be similar for subsectors or specific programs and for entire health sector assessments. Of course, the problem range of analyses and recommendations will be wider for a full assessment.

APPENDIX A

MODEL TABLES

Country _____

Table I - A -

Income Received, by Source of Income (including Transfers),
and Expenditures Made, by Program (or by Type of Expense)

By Individual Organization Which Only Collects & Transmits Funds:

Organization _____

| | \$ | ¢ | \$ | ¢ | \$ | ¢ |
|-------------------|----|---|----|---|----|---|
| Source of Income: | | | | | | |
| Expenditures: | | | | | | |

34

Country _____

Table I - B -

Income Received, by Source of Income (including Transfers),
and Expenditures Made, by Program (or by Type of Expense)
By Individual Organization Which Provides Health Services
and Might Raise Part of Its Own Funds:

Organization _____

| | \$ | ¢ | \$ | ¢ | \$ | ¢ |
|-------------------|----|---|----|---|----|---|
| Source of Income: | | | | | | |
| Expenditure: | | | | | | |

35

Country _____

Table II - A -

Summary of Income Received, by Source of Income,
by All Public Health Service Organizations

| <u>Source of Income</u> | \$ | % | \$ | % | \$ | % |
|-----------------------------|----|---|----|---|----|---|
| TOTAL | | | | | | |
| Source: | | | | | | |

Table II - B -

Summary of Income Received, by Source of Income,
by All Mixed Health Service Organizations

| <u>Source of Income</u> | \$ | % | \$ | % | \$ | % |
|-----------------------------|----|---|----|---|----|---|
| TOTAL | | | | | | |
| Source: | | | | | | |

Table II - C -

Summary of Income Received by, Source of Income,
By Selected Private Health Service Organizations

| <u>Source of</u> <u>Income</u> | \$ | ₹ | \$ | ₹ | \$ | ₹ |
|-----------------------------------|----|---|----|---|----|---|
| TOTAL | | | | | | |
| Source: | | | | | | |

Country _____

Table III - A - 1

Summary of Expenditures Made, by Program,
by All Public Health Service Organizations

| <u>Program</u> | \$ | % | \$ | % | \$ | % |
|----------------|----|---|----|---|----|---|
| TOTAL | | | | | | |
| Source: | | | | | | |

Country _____

Table III - A - 2

Summary of Expenditures Made, by Type of Expense,
by All Public Health Service Organizations

| Type of Expense | S | 3 | S | 3 | S | 3 |
|-----------------|---|---|---|---|---|---|
| TOTAL | | | | | | |
| Source: | | | | | | |

Country _____

Table III - B - 1

Summary of Expenditures Made, by Program,
by All Mixed Health Service Organizations

| <u>Program</u> | \$ | ₹ | \$ | ₹ | \$ | ₹ |
|----------------|----|---|----|---|----|---|
| TOTAL | | | | | | |

Source:

41

Country _____

Table III - C - 1

Summary of Expenditures Made, by Program,
by Selected Private Health Service Organizations

| <u>Program</u> | \$ | ₹ | \$ | ₹ | \$ | ₹ |
|----------------|----|---|----|---|----|---|
| TOTAL | | | | | | |
| Source: | | | | | | |

Table III - C - 2

Summary of Expenditures Made, by Type of Expense,
by Selected Private Health Service Organizations

| Type of Expense | \$ | % | \$ | % | \$ | % |
|-----------------|----|---|----|---|----|---|
| TOTAL | | | | | | |

Source:

44

Country _____

Table IV

Comparison of Income and Expenditures Budgeted and Actually Executed,
in Selected Years

for _____ Organization

| | 19 | | | 19 | | |
|------------------------------|----------------|----------------|----------------------------|----------------|----------------|----------------------------|
| | Budgeted \$ | Received \$ | Received/ Budgeted % | Budgeted \$ | Received \$ | Received/ Budgeted % |
| <u>Source of Income:</u> | | | | | | |
| <u>Expenditure:</u> | | | | | | |

Source:

45

Table V

Comparison with Gross Domestic Product (or Gross National Product)
and with Governmental Budget Totals
of Health Expenditures Made by the Ministry of Health
and the Total of All Public and
Mixed Health Service Organizations

| <u>Expenditures & Other Totals</u> | | | | | | |
|--|----|----|----|----|----|----|
| | \$ | ₹ | \$ | ₹ | \$ | ₹ |
| Gross Domestic Product | | -- | | -- | | -- |
| Ministry of Health | | | | | | |
| Total Public & Mixed | | | | | | |
| Consolidated Nat'l Budget | | -- | | -- | | -- |
| Ministry of Health | | | | | | |
| Total Public & Mixed | | | | | | |
| Central Gov't. Budget | | -- | | -- | | -- |
| Ministry of Health | | | | | | |
| Total Public & Mixed | | | | | | |
| Source: | | | | | | |

Country _____

Table VI - A

Number and Proportion of Households That Made
Any Direct Health Expenditures on Various
Types of Service in _____, Period
by Level of Household Income: Total Nation

| Household Income per Period | Number of Households | Households With any Health Expen. | | Households with Expend. on Drugs | | Households with Expend. on Prof. Serv. | |
|-----------------------------------|----------------------------|---|---|--|---|--|---|
| | | Number | % | Number | % | Number | % |
| ALL | | | | | | | |

Source:

47

Country _____

Table VI - B

Number and Proportion of Households That Made
Any Direct Health Expenditures on Various
Types of Service in _____, Period
by Level of Household Income: Urban Residents

| Household Income per Period | Number of Households | Households with any Health Expen | | Households with Expend. on Drugs | | Households with Expend. on Prof. Serv. | |
|-----------------------------------|----------------------------|--|---|--|---|--|---|
| | | <u>Number</u> | % | <u>Number</u> | % | <u>Number</u> | % |
| ALL | | | | | | | |

Source:

Country _____

Table VI - C

Number and Proportion of Households That Made
Any Direct Health Expenditures on Various
Types of Service in _____, Period
by Level of Household Income: Rural Residents

| Household Income per Period | Number of Households | Households with any Health Expen | | Households with Expend. on Drugs | | Households with Expend. on Prof. Serv. | |
|-----------------------------------|----------------------------|--|---|--|---|--|---|
| | | Number | % | Number | % | Number | % |
| ALL | | | | | | | |

Source:

Country _____

Table VII - A

Direct Health Expenditures and Proportion
of Household Income Used for Expenditures

on Various Types of Service in _____ Period ,

by Level of Household Income: Total Nation

| Household Income per Period | Total Income | Expenditures in Total | | Expenditures on Drugs | | Expenditures on Prof. Serv. | |
|-----------------------------------|-----------------|--------------------------|-----------------------|--------------------------|-----------------------|--------------------------------|-----------------------|
| | | | % of <u>Income</u> | | % of <u>Income</u> | | % of <u>Income</u> |
| ALL | | | | | | | |

Source:

60

Country _____

Table VII - B

Direct Health Expenditures and Proportion
of Household Income Used for Expenditures
on Various Types of Service in _____ Period,
by Level of Household Income: Urban Residents

| Household Income per Period | Total Income | Expenditures in Total | | Expenditures on Drugs | | Expenditures on Prof. Serv. | |
|-----------------------------------|-----------------|--------------------------|-----------------------|--------------------------|-----------------------|--------------------------------|-----------------------|
| | | \$ | % of <u>Income</u> | \$ | % of <u>Income</u> | \$ | % of <u>Income</u> |
| ALL | | | | | | | |

Source:

Country _____

Table VII - C

Direct Health Expenditures and Proportion
of Household Income Used for Expenditures
on Various Types of Service in _____ Period,
by Level of Household Income: Rural Residents

| Household Income per Period | Total Income | Expenditures in Total | | Expenditures on Drugs | | Expenditures on Prof. Serv. | |
|-----------------------------------|-----------------|--------------------------|------------------------|--------------------------|------------------------|--------------------------------|------------------------|
| | | | <u>% of Income</u> | | <u>% of Income</u> | | <u>% of Income</u> |
| ALL | | | | | | | |

Source:

APPENDIX B

SOURCES OF HEALTH SERVICE FINANCING

A. MAJOR SOURCES

1. General Public Revenues

a. Taxes collected by the central government, or other levels of government, to finance its activities and programs:

- (1) income taxes - taxes assessed on the current year's earnings of an individual (i.e., wages, salaries, dividends, interest).
- (2) profit taxes - taxes levied on the profits of businesses.

b. Taxes levied on foreign commerce:

- (1) import taxes - taxes imposed on goods imported into the country
- (2) export taxes - taxes imposed on products exported from the country.

2. Internal Deficit Financing - borrowing money within the country, usually through the issuance of bonds, to cover a difference between expenditures and revenues.

3. External Assistance - loans and grants, either in money or in goods and services, made to the recipient government or its populace by foreign governments, institutions, international agencies, or persons.

4. Insurance Revenues - payments made by employees and employers (usually through payroll taxes) and personal contributions for health insurance programs. The health insurance programs may be either public or private.

5. Special Taxes, and Revenues from Lotteries and Betting:

a. Taxes levied on specific products or activities and/or used to finance specific governmental programs:

- (1) sales taxes - taxes levied on consumer purchases

generally dedicated to a specific use (e.g., financing local governments) but also used on occasion for general revenues.

- (2) property taxes - taxes on real estate (homes, buildings, land) and personal property (furniture, clothing, jewelry). Usually dedicated to a specific use (e.g., financing education) but also used for general revenue.
- (3) excise taxes - taxes levied on the manufacture, sale, or consumption of a commodity within the country (e.g., beer tax, alcohol tax, tobacco tax).
- (4) user taxes - taxes imposed on the consumption or use of an activity (e.g., amusement tax for theaters)

b. Revenues from Lotteries and Betting:

- (1) net proceeds of lotteries -- proceeds from an event or activity in which prizes are given to winners drawn by lot from all purchasers of chances. Proceeds from lotteries may be wholly or partially designated for the health sector.
- (2) gambling taxes and taxes on sporting events -- taxes on the proceeds of legal gambling activities usually associated with sporting events (e.g., gambling on horse races).

6. Charitable and Private Contributions - health services or monetary support donated by charitable organizations (e.g., Red Cross), foundations, or persons and care provided by company medical programs.

7. Direct Payments by Recipients - payments by recipients (individuals and households) for medical services, health care, medicines, etc., to providers of these services (made from personal funds of, or transfers to the recipients).

8. In-kind Contributions - contributions of goods and services rather than money to the health sector (e.g., providing volunteer or lower than cost labor or equipment and supplies).

3. OTHER SOURCES

1. Investment of Private Capital - the financing of a capital asset, such as a hospital or a piece of equipment, through private, usually profit-seeking, sources of financing.
2. Valorization Taxes - a form of property taxes levied on the occasion of some public investment which increases the value of adjacent or surrounding property. Such taxes are often used for aqueducts or sewers but in theory could be used for hospitals, water treatment plants, etc.
3. Endowment Income - capital, usually donated, invested by an institution from which the institution receives a fixed income by law or by contract.
4. Fines - monetary penalties assessed against someone violating a law or regulation. Fines are an important source of financing for environmental sanitation services.
5. Rents - payments for the use of property or equipment.
6. Subsidies - a grant given by the government to encourage an activity thought to be of value (e.g., food stamps to subsidize low income peoples' purchases of food).
7. Tax Expenditures - a reduction in tax revenues resulting from a tax deduction for an activity or expenditure thought to be of value. For example, charitable contributions by an individual often result in a reduction of his taxes, and consequently reduce total tax revenues received. Thus, the charitable contribution is partially financed by the government to the extent it loses tax revenues.
8. Cooperative Financing - the formation of a cooperative (an organization owned by and operated for the benefit of those using its services) to finance medical services, pharmaceutical purchases, etc.
9. Miscellaneous User Charges - fees and charges used to collect income from the users of a service. For example, water and sewer services are financed by special mechanisms such as metering, connection charges, fixed monthly charges, user specific rates, etc.
10. Transfers - the passing of resources from one part of government to another. Transfers of funds can be between different parts of one level of government (e.g., from the Treasury to the Ministry of Health, both on the national level). Although transfers of funds are not the ultimate

source of revenues, they can appear as sources to the health sector or its subdivisions.

11. Migration of Highly Trained Professionals - or "brain drain" may be the equivalent of a capital transfer in that a country gains (or loses) the value of the investment in the person's training. (Similarly, cost-free use of a patent license represents an equivalent income in the form of deferred research and development costs).

12. Expropriation - the seizure of property of an individual or organization by the government.

APPENDIX C

Bibliography

Selected Bibliography on Health Sector Financing in Developing Countries*

- Abel-Smith, B. An International Study of Health Expenditure and Its Relevance for Health Planning. Geneva: World Health Organization, Public Health Papers No. 32, 1967.
- Anderson, Odin W. "Medical Care: Its Social and Organizational Aspects." New England Journal of Medicine, Vol. 269, No. 16, Oct. 17, 1963, pp. 839-843.
- Atkinson, A. B., and Stiglitz, J. E., "The Design of Tax Structure: Direct Versus Indirect Taxation." Journal of Public Economics, Vol. 6, No. 1-2, July-August 1976, pp. 53-75.
- Auster, Richard; Leveson, Irving; and Sarachek, Deborah. "The Production of Health, An Exploratory Study." The Journal of Human Resources, Vol. IV, No. 4, Fall 1969, pp. 411-436.
- Eaas, Hessel J.; Chelliah, Raja J.; and Kelly, Margaret R. "Tax Ratios and Tax Effort in Developing Countries, 1969-71." International Monetary Fund Staff Papers, Vol. 22, 1973, pp. 187-203.
- Baker, Timothy D., and Perlman, Mark. Health Manpower in a Developing Economy: Taiwan, A Case Study in Planning. Baltimore: Johns Hopkins University Press, 1967.
- Baldwin, Robert E. and Weisbrod, Burton A. "Disease and Labor Productivity." Economic Development and Cultural Change, Vol. 22, No. 3, April 1974, pp. 414-43.
- Bastos, M. V. "Brazil's Multiple Social Insurance Programs and Their Influence on Medical Care." International Journal of Health Services, Vol. 1, No. 4, Nov., 1971, pp. 373-389.
- Benson, Peter, and Simanis, Joseph G. "Foreign Health Programs: Changes in Population Covered." Social Security Bulletin, Vol. 39, No. 1, January 1976, pp. 42-45.

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Best Available Document

- Berry, A. and Urrutia, M. Income Distribution in Colombia.
New Haven: Yale University Press, 1976.
- Bowen, Howard R. and Jeffers, James R. "The Economics of Health Services," New York: General Learning Press, Offprint, 1971.
- Brodsky, Lynda, and Weiss, Jeffrey H. "An Essay on the National Financing of Health Care." The Journal of Human Resources, Vol. 7, No. 2, Spring 1972, pp. 139-151.
- Brook, Robert H. and Williams, Kathleen N., "Quality of Health Care for the Disadvantaged." Journal of Community Health, Vol. 1, No. 2, Winter 1975, pp. 132-156.
- Chasse, John Dennis. "The Economic Appraisal of Health Projects in the Third World," Office of International Health, U.S. DHEW, Mimeo, n.d.
- Chen, Milton; Bush, James M.; and Zaremba, Joseph. "Effectiveness Measures," Dixon, R. Speas Jr.; and John P. Young. In Operations Research in Health Care, pp. 276-301. Edited by Larry J. Shuman; Johns Hopkins University Press, 1975.
- Cochrane, A. J. Effectiveness and Efficiency: Random Reflections on Health Services. London: Nuffield Provincial Hospitals Trust, 1972.
- Colombia, Republica de Ministerio de Salud Publica, Gasto Institucional en Salud, 2 Vols., 1973, 1974.
- Cooper, Barbara S., and Rice, Dorothy P. "The Economic Cost of Illness Revisited," Social Security Bulletin, Vol. 39, No. 2 February 1976, pp. 21-36.
- Cooper, Michael H. "Economics of Need: The Experience of the British Health Service," In The Economics of Health and Medical Care, pp. 89-107. Edited by Mark Perlman. New York: Halsted Press, 1974.
- Cuyler, A. J. "The Nature of the Commodity 'Health Care' and its Efficient Allocation," Oxford Economic Papers, Vol. 23, No. 2, July 1971, pp. 189-211.
- Davis, Karen. National Health Insurance: Benefits, Costs, and Consequences. Washington, D.C.: The Brookings Institution, 1975.
- Densen, Paul M., et al. Prepaid Medical Care and Hospital Utilization. Chicago: American Hospital Association, Hospital Monograph Series, No. 3, 1953.

- Dowling, William L. "Prospective Reimbursement of Hospitals." Inquiry, Vol. XI, No. 3, September 1974. pp. 163-180.
- Djukanovic, V. and Mach, E. P. eds. Alternative Approaches to Meeting Basic Health Needs in Developing Countries. Geneva: World Health Organization, 1975.
- Evans, Robert G. "Supplier-Induced Demand: Some Empirical Evidence and Implications," In The Economics of Health and Medical Care, pp 162-173. Edited by Mark Perlman. New York: Halsted Press, 1974.
- Family Health Care, Inc. "Steps Toward a National Health Strategy for Korea." Washington, D.C., June 1974.
- Family Health Care, Inc. "Health Manpower and Health Services in The Syrian Arab Republic." Washington, D.C., May 1976.
- Family Health Care, Inc. "A Strategy for health as a Component of the Sakel Development Program." Washington, D.C., May 1977.
- Feldstein, Martin S. "Health Sector Planning in Developing Countries," Economica, Vol. 37, No. 146, May 1970, pp. 159-163.
- Gish, Oscar. "Health Planning in Developing Countries." Journal of Development Studies, Vol. 6, No. 4, July 1970, pp. 67-76.
- Glaser, W. A. Paying the Doctor; Systems of Remuneration and Their Effects. Baltimore: Johns Hopkins University Press, 1970.
- Griffith, P. S. and Bermudez, M. "Tax Revenues and Tax Burdens in Colombia: A Comparison with Other Latin American Nations." In Fiscal Reform for Colombia, pp. 267-298. Edited by R. A. Musgrave and M. Gillis. Cambridge: Harvard Law School, 1971.
- Groves, Harold M. Financing Government. 4th Ed. New York: Holt, 1954.
- Hall, Thomas L. Health Manpower in Peru: A Case Study in Planning. Baltimore: Johns Hopkins University Press, 1969.
- Hall, Thomas L., et. al. Recursos Humanos de Salud en Chile. Santiago: Ministerio de Salud Publica and Consejo Nacional Consultivo de Salud, 1970.
- Hall, Thomas L. "Chile Health Manpower Study: Methods and Problems." International Journal of Health Services, Vol. 1, No. 2, May 1971, pp. 166-184.

Hall, Thomas L. and Diaz P. S., "Social Security and Health Care Patterns in Chile." International Journal of Health Services, Vol. 1, No. 4, Nov. 1971, pp. 301-311.

Hastings, J. E. F., et. al. "An Interim Report on the Sault Ste. Marie Study: A Comparison of Personal Health Services Utilization." Canadian Journal of Public Health, Vol. 61, No. 4, July-August 1970, pp. 289-296.

Heller, Peter S. "The Strategy of Health Sector Planning in the People's Republic of China." Ann Arbor: (University of Michigan;) Center for Research on Economic Development, Discussion Paper No. 24, July 1972.

Heller, P. S. "An Analysis of the Structure, Equity and Effectiveness of Public Sector Health Systems in Developing Countries: The Case of Tunisia, 1960-1972" Ann Arbor: University of Michigan, Center for Research on Economic Development, Discussion Paper No. 43, February 1975.

Heller, Peter S. "Issues in the Costing of Public Sector Outputs: The Public Medical Services of Malaysia." Washington, D.C.: World Bank, Bank Staff Working Paper No. 207, June 1975.

Heller, Peter S. "A Model of the Demand for Medical and Health Services in West Malaysia." (Ann Arbor: University of Michigan;) Center for Research on Economic Development, Discussion Paper No. 62, October 1976.

Heller, Peter S. "Issues in the Allocation of Resources in the Health Sector of Developing Countries,." (Ann Arbor: University of Michigan,) Discussion Paper No. 67, February 1977.

Hu, Teh-Wei, ed. International Health Costs and Expenditures Washington, D.C.: John E. Fogarty International Center for Advanced Study in the Health Sciences, DHEW Publication No. NIH-76-1067, 1976.

Hu, Teh-Wei. "The Financing and the Economic Efficiency of Rural Health Services in the People's Republic of China." International Journal of Health Services, Vol. 6, No. 2, Spring 1976, pp. 239-249.

Huang, Lien-fu, and Rosett, Richard N. "The Effect of Health Insurance on the Demand for Medical Care." Journal of Political Economy, Vol. 81, No. 2, March-April 1973, pp. 281-303.

Kaplinsky, Raphael, and Rifkin, Susan B. "Health Strategy and Development Planning: Lessons from the People's Republic of China." The Journal of Developmental Studies, Vol. 9, No. 2, January 1973, pp. 213-232.

- Keintz, Rita M. National Health Insurance and Income Distribution. Lexington, Mass: Lexington Books, D. C. Heath and Co., 1976.
- Klarman, H. E. "Economic Research in Group Medicine." In New Horizons in Health Care: Proceedings, 1st International Congress on Group Medicine. Winnipeg: Wallingford Press, 1970.
- Kwon, Jene K. "On the Relative Efficiency of Health Care Systems." Kyklos, Vol. 27, Fasc. 4, 1974, pp. 821-839.
- Lazarcik, Gregor. "Defense, Education and Health Expenditures and Their Relations to GNP in Eastern Europe, 1960-1970." The American Economist, Vol. 17, No. 1, Spring 1973, pp. 29-34.
- McLure, C. E., Jr. The Incidence of Colombian Taxes, 1970. Houston: Rice University, Program of Development Studies, Summer, 1973.
- McLure, C. E., Jr. Taxation and the Urban Poor in Developing Countries. Washington: World Bank, Staff Working Paper No. 222, December 1975.
- McKenzie-Pollock, James S. "Putting a Price Tag on Health: A Ten-Dollar Health Plan." International Development Review Vol. 16, No. 1, 1974, pp. 27-28.
- Malenbaum, Wilfred. "Health and Productivity in Poor Areas." In Empirical Studies in Health Economics, pp. 31-54. Edited by H. E. Klarman. Baltimore: Johns Hopkins University Press, 1970.
- Malenbaum, Wilfred. "Progress in Health: What Index of What Progress?" In the Annals, Vol. 593, No. , January 1971, pp. 109-121.
- Malenbaum, W. "Health and Economic Expansion in Poor Lands." International Journal of Health Services, Vol. 3, No. 2, Spring 1973, pp. 161-176.
- Maynard, Alan. Health Care in the European Community. London: Cromm Helm Ltd., 1975.
- Musgrave, R. A. The Theory of Public Finance; A study in Public Economics. New York: McGray-Hill, 1959.
- Mushkin, Selma J. "Health as an Investment." Journal of Political Economy, Vol. 70, No. 5, Part 2, October 1962, pp. 129-137.
- Myrdal, Gunnar. Asian Drama: An Inquiry into the Poverty of Nations. New York: Pantheon, 1968, Vol. III, Chapter 50, "Health", pp. 1555-1619.

- Newhouse, Joseph P., and Phelps, Charles E. "Price and Income Elasticities for Medical Care Services." In The Economics of Health and Medical Care, pp 159-161. Edited by Mark Perlman. New York: Halsted Press, 1974.
- Newhouse, Joseph P. "Inflation and Health Insurance." Edited by Michael Tubkoff. In Health: A Victim or Cause of Inflation, pp 210-224. New York: Neale Watson Academic Publication Inc., 1976.
- Newhouse, Joseph P. "Income and Medical Care Expenditure Across Countries." Santa Monica, California: Rand Corp Paper Series, No. P-5608-1, August 1976.
- Orellana, R. A. and De Leon, A. E. Ingresos y Gastos de Familias Urbanas de Guatemala. Guatemala: Universidad de San Carlos, Instituto de Investigaciones Economicas y Sociales, 1972.
- Orellana, R. A. "Problemas Nacionales: Aumento del Costo de Vida y la Merma del Poder Adquisitivo del Quetzal." Guatemala: Universidad de San Carlos, Instituto de Investigaciones Economicas y Sociales, April, 1977.
- Paglin, Morton. "Public Health and Development: A New Analytical Framework." Economica Vol. 41, No. 164, November 1974, pp. 432-441.
- Pan American Health Organization, Financing of the Health Sector, Scientific Publication #208, Washington, D.C. 1970.
- Pan American Health Organization Health Planning: Problems of Concept and Method, Scientific Publication No. 111. Washington, D. C., April 1965.
- Perlman, Mark. "Economic History and Health Care in Industrialized Nations." In The Economics of Health and Medical Care, pp 21-33. Edited by Mark Perlman. New York: Halsted Press, 1974.
- Pinstrup-Anderson, P. et al. "The Impact of Increasing Food Supply on Human Nutrition." American Journal of Agricultural Economics, Vol. 58, No. 2, May 1976, pp. 131-142.
- Robertson, Robert L. "Economic Effects of Personal Health Services: Work Loss in a Public School Teacher Population." American Journal of Public Health, Vol. 61, No. 1, January 1971.
- Reutlinger, Shlomo and Selowsky, Marcelo. Malnutrition and Poverty: Magnitude and Policy Options. Baltimore: Johns Hopkins University Press, 1976.

- Rice, Dorothy P. "Estimating the Cost of Illness." American Journal of Public Health, Vol. 57, No. 3, March 1967, pp. 424-440.
- Rice, Dorothy P. and Cooper, Barbara S. "The Economic Value of Human Life." American Journal of Public Health, Vol. 57, No. 11, November 1967, pp. 1954-1966.
- Roemer, M. I. "The Organization of Medical Care Under Social Security; A Study Based on the Experience of Eight Countries." Geneva: International Labor Office, 1969.
- Roemer, M. I. "Social Security for Medical Care: Is it Justified in Developing Countries?" International Journal of Health Services, Vol. 1, No. 4, Nov. 1971, pp. 354-361.
- Roemer, M. I. and Shonick, W. "HMO Performance: The Recent Evidence." Milbank Memorial Fund Quarterly, Vol. 51, No. 1, Summer 1973, pp. 271-317.
- Roemer, M. I. and Maeda, N. "Does Social Security Support for Medical Care Weaken Public Health Programs?" International Journal of Health Services, Vol. 6, 1976, pp. 69-73
- Regall, Malcolm. "The Politics of Health in Tanzania." Development and Change, Vol. 4, No. 1, 1972-73, pp. 39-50.
- Sgontz, Larry G. "The Economics of Financing Medical Care: A Review of the Literature." Inquiry, Vol. 9, No. 4, December 1972, pp. 3-19.
- Somers, Anné R. "Some Basic Determinants of Medical Care and Health Policy." The Milbank Memorial Fund Quarterly Vol. XLVI No. 1, January 1968, Part 2, pp. 13-31.
- Sorkin, Alan L. Health Economics in Developing Countries. Lexington, Mass: Lexington Books, D. C. Health and Co., 1976, pp. 107-123.
- Sorkin, Alan L. Health Economics, An Introduction. Lexington Mass: Lexington Books, D. C. Health, 1975.
- Stewart, Charles T. Jr. "Allocation of Resources to Health." The Journal of Human Resources, Vol. 6, No. 1, Winter 1971, pp. 103-122.
- Syncrisis: The Dynamics of Health, An Analytic Series on the Interactions of Health and Socioeconomic Development, Office of International Health, U.S. DHEW, Vol. I, Panama (1972); Vol. II, Honduras (1972); Vol. III, Perspectives and Methodology (1972); Vol. IV, The Philippines (1972); Vol. V, El Salvador (1972); Vol. VI, Haiti (revised, 1972); Vol. VII, Liberia (1973); Vol. VIII, Ethiopia (1974); Vol. IX,

Dominican Republic (1974); Vol. X, Ghana (1974); Vol. XI, Nicaragua (1974); Vol. XII, Thailand (1974); Vol. XIII, Botswana, Lesotho and Swaziland (1975); Vol. XIV, Iaire (1975); Vol. XV, Tunisia (1975); Vol. XVI, Egypt (1976); Vol. XVII, Bangladesh (1976); Vol. XVIII, Pakistan (1976); Vol. XIX, Senegal (1976).

Taylor, Carl E., Dirican, Rahmi and Deuschle, Kurt W. Health Manpower Planning in Turkey; An International Research Case Study. Baltimore: Johns Hopkins University Press, 1968.

USAID/Colombia. Colombian Health Sector Analysis. Bogota: USAID Mission, May 1974.

USAID/Bolivia. Bolivia Health Sector Assessment. LaPaz: USAID Mission, January 1975.

USAID/Dominican Republic. Health Sector Assessment for the Dominican Republic. Santo Domingo: USAID Mission, February 1975.

USAID/Nicaragua. Health Sector Assessment for Nicaragua. Managua: USAID Mission, February 6, 1976.

Valdes, Nelson P. "Health and Revolution in Cuba." Science and Society, Vol. 37, No. 3, Fall 1971, pp. 311-335, and "Health and Revolution in Cuba": An Addendum, Science and Society Vol. 37, No. 4, Winter 1971, p. 481.

Vukmanovic, C. "Decentralized Socialism: Medical Care in Yugoslavia." International Journal of Health Services, Vol. 2, No. 1, February 1972, pp. 33-44.

Weisbrod, Burton A. "Research in Health Economics: A Survey." International Journal of Health Services, Vol. 5, No. 4, Nov. 1975, pp. 643-661.

Wilner, D. M., et. al. The Housing Environment and Family Life. Baltimore: Johns Hopkins University Press, 1962.

World Bank. Saunders, Robert J, Warford, Jeremy J, Coordinating authors. Village Water Supply. Baltimore: John Hopkins Univ. Press, A World Bank, 1976.

World Bank. Health Sector Policy Paper. Baltimore: Johns Hopkins Univ. Press, 1973.

World Health Organization, National Health Planning in Developing Countries: Report of a WHO Expert Committee. Technical Report Series No. 350, Geneva: World Health Organization, 1967

World Health Organization, Health Economics of Report on a WHO Interregional Seminar, Public Health Papers, No. 64, Geneva: World Health Organization, 1975.

Eschock, Dieter K.; Daly, John A.; and Robertson, Robert L. "Health Sector Financing in Latin America: Conceptual Framework and Case Studies." Office of International Health, U.S. DHEW, December 1976, mimeo.

Eschock, D. K. "Health Planning in Latin America: Review and Evaluation." Latin American Research Review, Vol. 5, No. 3, Fall 1970. pp. 55-56.